Central Valley Water
Reclamation
Facility

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General Manager
Phillip Heck, Ph.D., P.E.

March 1, 2023

John Mackey, Director
Utah Division of Water Quality
P O Box 144870
Salt Lake City, UT 84114 – 4870

Subject: **Requests for Permit Implementation Schedule Adjustments for TBPEL and Ammonia Limits, UPDES Permit No. UT0024392**

Dear Mr. Mackey:

In response to your letter dated November 15, 2022, Central Valley Water Reclamation Facility (CVWRF), its Construction Manager (Brown and Caldwell), and Contractors on the BNR Project (Gerber and Alder Construction) have been assembling the backup materials requested to demonstrate due diligence with meeting the TBPEL Rule. Despite our efforts to date, we do not expect to meet the effluent phosphorus annual average limit of 1 mg/L by January 1, 2025. Our current expected substantial completion date for the process construction is March 31, 2026, and startup of the process will commence shortly thereafter.

A letter from Brown and Caldwell providing and summarizing the backup material is attached. Since the volume of supporting material from the contractors is large (around 2,000 pages) a link will be provided by email to download the information from Central Valley WRF's SharePoint site. As requested, the information includes contract change orders with time extensions, costs, and supporting information on supply chain issues from suppliers and vendors. Also, as requested, the Brown and Caldwell letter includes information on the startup of both the side-stream phosphorus and nitrogen removal processes which will occur this coming spring and summer, respectively.

CVWRF believes it has been very diligent in its efforts to comply with the requirements of the TBPEL Rule. CVWRF began a comprehensive process evaluation employing national and international experts in nutrient removal in January of 2015, shortly after the Rule went into effect. From that study we selected the optimal process for our circumstances, designed, constructed, and operated a pilot plant, completed predesign studies and a project phasing plan as well as a capital facilities plan (2016 and 2017). The project funding, pre-design, design, and construction schedule for the recommended facilities was further refined in 2018 through 2021 as design progressed and construction was started. Construction on early project elements started in 2018 with additional secondary clarifiers and process interconnecting piping necessary to support later construction elements. Design of all project elements was completed in 2022 and

construction was underway on all the project components. The main BNR process construction began in the summer of 2020.

The Side-Stream Phosphorus Removal Process construction is expected to be complete in July of 2023. Startup is expected in May of 2023, and the system will be removing phosphorus and ammonia from the side-stream dewatering filtrate thus preventing it from recycling to the liquid treatment process and being discharged in the effluent. This will not result in plant effluent that meets the TBPEL but will result in an improvement over the current discharge levels.

The Side-Stream Nitrogen Removal Process construction is expected to be completed in March of 2025. However, early startup of one of the reactors is projected in the summer of 2023 and the system is expected to remove 15 to 20 percent of the total plant influent ammonia load which is currently being recycled to the influent from the biosolids dewatering process. This will result in a similar reduction in ammonia and other TIN compounds in the plant's effluent much earlier than originally projected.

We ask the DWQ for leniency in compliance with the TBPEL date by 18 months to cover the known delays to date and to provide some schedule leeway since the full effects of the delays on the schedule are not yet known. Substantial completion with the time extensions in current change orders extends the substantial completion date to March 31, 2026 and final completion to June 29, 2026. We are confident that the side-stream phosphorus and nitrogen removal processes will be completed and in service in the summer of 2023. This should improve the performance of the current process and decrease the effluent levels of phosphorus, ammonia and total inorganic nitrogen, however, without the full BNR process in operation, the treatment plant is not expected to be able to achieve compliance with the TBPEL concentration of 1.0 mg/L, annual average in 2025.

We believe that the information we have provided satisfactorily demonstrates our due diligence towards design and construction of treatment works that will meet or exceed the TBPEL Rule. Given the delays encountered in construction of these improvements beyond our control, we are requesting that DWQ consider an 18-month extension to the TBPEL compliance deadline. We welcome any questions or comments you may have with regard to the foregoing. Please let us know should you require additional information.

Sincerely,

Phillip Heck, Ph.D., P.E.
General Manager

Brandon Heidelberger, P.E.
Assistant General Manager

cc: Central Valley Water Reclamation Facility Board of Trustees
Mr. Graham Gilbert, Esq., CVWRF Attorney
Mr. Dan Griffin, Utah DWQ
Mr. Skyler Davies, Utah DWQ

Enclosure: BC Letter and supporting contractor information

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

March 01, 2023

Mr. Phillip Heck, Ph.D., P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: Re: Requests for Permit Implementation Schedule Adjustments for TBPEL and Ammonia Limits, UPDES Permit No. UT0024392

Dear Dr. Heck,

This letter provides documentation of due diligence efforts by the General Contractor and a description of alternative "sidestream" treatment alternatives being brought online to support CVWRF's request for a schedule adjustment in meeting the TBPEL limit. As requested in the November 15, 2022, letter from the DWQ, a summary of the Contractor's efforts to meet their contractual schedule obligations in response to pandemic related supply chain, force majeure, and other related delays is provided below.

Demonstration of Due Diligence:

- Area 16 Electrical Building Construction and Early Trickling Filter Demolition.
    - The Contractor, in seeking ways to compress schedule, requested early turnover of Trickling Filter #1 (TF #1) to expedite demolition activities and the construction of the Area 16 Electrical Building. This was driven, primarily, due to extended lead times for electrical gear and components. The Contractor, CM/Engineer, and CVWRF collaborated to explore options that would allow for the early turnover of TF #1. Those options included running a WAS Pilot to see how the plant would react and exploring Chemically Enhanced Primary Treatment. Ultimately, through that collaboration, we are able to turn over TF #1 to the Contractor approximately six months sooner (March 2023) than required by the contract (September 2023).
- Alternate Materials Substitution.
    - Stainless steel pricing and availability was, and still is, drastically impacted both by the pandemic/current economy and Russia's invasion of Ukraine. The Contractor, CM/Engineer, and CVWRF collaborated on using alternative piping materials in place of stainless steel in multiple locations to save costs and mitigate schedule delays. The Contractor provided a proposal on September 20, 2022, for the substitution of stainless steel piping materials with HDPE piping materials. That proposal included the 42" RAS lines in the RAS Selector, the 36" IMLR piping in the Aeration Basin, the 8" piping in the Aeration basin, 12" recirculation pipe in the Anerobic Basin, removal of dresser couplings, and the substitution of 8-gauge stainless steel in place of the schedule 10 stainless steel air piping that was specified. The substitutions listed above provided significant relief on both lead times and costs to the Contractor while providing a similar quality construction project for CVWRF.
- Alternate Supplier Evaluation.

  - The Contractor contacted virtually every available supplier for electrical gear and components, concrete, PVC/CPVC, aluminum components, and miscellaneous metals suppliers to try and mitigate schedule delays due to availability. Unfortunately, due to the gravity of supply chain issues, all suppliers came back with similar or longer than originally quoted lead times. The PVC/CPVC supply chain was drastically affected by the 2021 Texas Power Crisis in which Texas suffered a major power crisis which came about during three severe winter storms that swept across the United States on February 10-11, 13-17, and 15-20. During those storms, the factories producing resin for PVC/CPVC and other plastics and elastomers froze which required significant and time consuming rebuilding efforts. Note, the fine and coarse bubble diffusers for the BNR project are still being impacted by the PVC/CPVC shortage.
  - Efforts to mitigate long lead electrical gear times continue. The Contractor and CVWRF are exploring additional suppliers for transformers, substations, and medium voltage switch-gear due to current lead times approaching 84 weeks to over 120 weeks (two years) out. Some of these efforts also include evaluating alternative designs of electrical systems and temporary power solutions to help maintain the schedule.
- Design Modifications - Combining Electrical Raceways.
  - The Contractor proposed combining electrical conduits to reduce the total number of conduits installed. This proposal was made to mitigate supply chain and schedule impacts related to PVC and PVC coated rigid conduit. The Contractor, CM/Engineer, and CVWRF collaborated on several areas where reducing the number of installed conduit could be accomplished while maintaining the specified amount of spares for future growth.
- Early Procurement of Materials - Concrete Pozzolan Shortage.
  - Fly ash is not as readily available now that less power plants in the US are coal fired. The Contractor was able to secure the required pozzolans for this project at Contract award, well-ahead of the required project pour schedule. Unfortunately, as was detailed in the September 8, 2022 letter, we still experienced significant delays in receiving concrete during the 2022 cement powder plant shutdown and resulting shortage. Securing the necessary pozzolans ahead of schedule greatly reduced extended lead times for concrete on this project. Coordination by the Contractor to prioritize critical path concrete pours and early procurement of fly ash allowed our projects to continue even during extreme supply shortages of cement.

Change Order Summary Table:

A summary of the approved change orders including schedule and cost impacts are included below. Items in the change orders that related to pandemic/force majeure schedule delays, cost impact and days added are noted in the table.

Change Order #	Description	Force Majeure/Pandemic/Economy Related (Y/N)	Cost (C) or Time (T) Impact	Impact
001	Gate Stops and STD Relocation	Y	T	6 Days
002	Irrigation Pump Duct Bank Remove & Reroute	Y	T	9 Days
003	Sidewalk, Storm Pond 1, NG & 1W Changes	Y	T	4 Days
004	Compost Sales Power & Communication	Y	T	7 Days
005	KSB Peps Pumps Deduct	N	N/A	N/A
006	Air Vac, Roadway Lighting, Angle Frame Credit, Aeration Basin Aluminum Handrail, RAS Anchor Block Delete, 8” PSC Drain at Manhole, 12” SSLC Loop, Compost Gate Size Increase, Admin Sewer Lateral Elevation Change, Slide Gate Modifications	Y	T	9 Days
007	Disconnect STD from Vitro, Formliner, Damproofing Credit, ANB Electrical Junction Boxes, PVC Coated Conduit, Shoring Credit	Y	T	20 Days
008	Transformers & MBS, HVAC Specificaiton, Network Cabinet Fiber & Data, Anaerobic Basin Suspended Slab, Area 17 AIT Cable Additions	Y	T	18 Days
009	Network/Schedule/West Gate Updates, Flume Rebar Revisions, Baffle Wall Opening & Gate Removal, Anaerobic Basin Slope, Additional Rebar AB Walkways, Additional Rebar ANB Walkways, Add Curb on AB Ramps, ANB Increased Effluent Slab Depth, ANB Concrete Wall Extension, Slope TD in AB Pipe Chase, Spray Fireproofing Removal, ANB Weir Wall Extension, Revised AB Slide Gate Width	Y	T	25 Days
010	RAS Selector FMT Elevation Change, Storm Drain Lift Stations, Revised TD Pump 2 & Foam Waste Pump Changes, RAS Selector MCC Conduit & Wire, RAS Selector Flowable Fill, STD & 1W Conflict, Gate Frame Extension	Y	T	17 Days
011	Utility Revisions (West side of TFEC), Substation Relay Replacement, Welding Receptacles, Tnemec Paint on Ceilings, Low Voltage Switchgear PLC Modifications, Invent Mixer Sales Tax	Y	T	25 Days
012	Lighting Control Panel Revisions, RAS Selector Sump Modifications, Grating at Gate Openings, Aeration Basin 2 Walls-To-Connector Box, Fermentate Valves	Y	T	22 Days
013	RAS/WAS Fiber, Deep Sump Valve Vault, RAS/WAS Brick Ledger Emseal, Substation Transformer Ties	Y	T	14 Days
014	East RAS Flow Meter Manufacturer Change, Gate Handle Extensions, RAS Pipe Supports	Y	T	11 Days
015	Aeration Basin 3WLP Valves, GCL Pond Liner for STD Ponds 1 & 3	Y	T	11 Days
016	BNR Time Extension	Y	T	365 Days

Change Order #	Description	Force Majeure/Pandemic/Economy Related (Y/N)	Cost (C) or Time (T) Impact	Impact
017	East RAS Pump Electrical Changes, Concrete Pads for Storm Drain Lift Stations, Aluminum Roll-Up Doors, Blower Expansion Joints, Area 19 Pipe Supports	Y	T	19 Days
018	Fire Extinguishers & Hangers, Delete 42" RAS Pipe Encasement, 36" Pipe Support Modfications	Y	T	7 Days
Total Impact				**589 Days**

Description and Scheduling for Alternative "Sidestream" Treatment Activities:

- Side Stream Phosphorus Removal (SSP) Early Startup.
    - This process will be online and removing Phosphorus from recycled filtrate well-ahead of the main BNR process and approved variance. While unable to remove Phosphorus to low levels (<1 mg/L) in the plant effluent without the full BNR process online, having the side-stream system operating will help to remove a portion of the phosphorus in the filtrate stream from recycling back to the head of the plant and thus passing through to the effluent. SSP is currently scheduled to begin commissioning in mid-May of 2023. Commissioning activities are anticipated to take around two months. SSP is scheduled to be operational around mid-July of 2023.
- Side Stream Nitrogen Removal (SSN) Startup.
    - The Contractor is working diligently to have half of the SSN removal process online and working in 2023 to support early removal of TF #1 so that work on the BNR electrical building can move up on the schedule. The Contractor, CM/Engineer, and CVWRF collaborated on ways to operate at least one reactor, including all ancillary and support equipment, beginning 6/1/2023. Due to extended electrical gear and component lead times, the low voltage switchgear required to operate SSN will not ship until the first quarter of 2025, and thus the full system will not be available until summer of 2025. We were able to successfully identify repurposed existing equipment to meet the early 6/1/2023 startup date. Removing nitrogen will significantly offload the ammonia load on the existing secondary treatment process and reduce both ammonia and TIN in the plant effluent.

The original completion times for the BNR/PEPS/RAS Selector project were 1,491 days from notice to proceed (7/20/2020) for substantial completion, and 1,581 days from 7/20/2020 for final completion. With the eighteen approved changes orders listed above, the current contract times, from notice to proceed, are 2,080 days for substantial completion, and 2,170 days for final completion. Current Contract dates are as follows:

- Substantial Completion is scheduled for 3/31/2026

- Final Completion is scheduled for 6/29/2026.

The change orders referenced in the summary above, and backup documentation from the Contractor are enclosed as listed below.

Feel free to reach out if you have any questions or if you need additional information.

Sincerely,

Mark Hansen
Senior Manager, Construction Services

Enclosures:

- Change Order 001
- Change Order 002
- Change Order 003
- Change Order 004
- Change Order 005
- Change Order 006
- Change Order 007
- Change Order 008
- Change Order 009
- Change Order 010
- Change Order 011
- Change Order 012
- Change Order 013
- Change Order 014
- Change Order 015
- Change Order 016
- Change Order 017
- Change Order 018
- Form 090_Proposal for the Substitution of Stainless Steel Piping Materials (Gerber Signed)
- (ACF_West)_Impact_on_Polypropylene_Geotextile_Supply_and_Pricing_3-18-2021
- (ACF_West)_Skaps__Force_Majeure_03122021

- (Core_&_Main)_Letter_to_Customers_March_2021F
- (Core_&_Main)_Letter_to_Customers_May_2021
- (EDI_-_WCubed)_Material_Cost_Escalation_Letter
- (INVENT)_Hyperboloid_Mixer_Shipping_Delay
- (Jack_B_Parsons)_2023_Cost_Increase_Letter
- (Skyline)_MDN0010325-CVWRF-CC30B-LVA-Lead-Time-Changes
- 2021_JBP_Cement_Allocation_Letter
- 2022_JBP_Cement_Allocation_Letter_05-11-2022
- Golden_Harvest_Covid-19_Delay_Letter
- JBP_Cement_Shortage_Letter
- Tuttle_Railings_Supply_Chain_Extended_Lead_Times_June_2021

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/07/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 001, Gate Stops an STD Relocate

Dear Brandon,

Change Order 1 includes costs for the addition of gate stops to bulkhead gate GT150015 and GT150016 so that the gates can be stored in the open position, per Change Control Form 004. In addition, the change order includes costs to adjust the alignment of the storm drain to the west into the roadway, per Change Control Form 010.

The change order includes 15% overhead and profit for work done by Geber, and 5% overhead and profit for subcontracted work, which is in accordance with the standard conditions of the contract. The total price for the change order will be $41,993.96 and 6 days will be added to the contract.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:
1. 00 94 10 (EJCDC form C-941, Change Order)
2. Contractor Quotation
3. CCF #004
4. CCF #010

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 01

Date of Issuance: 1/7/2021		Effective Date: 1/7/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description: Costs for addition of gate stops to bulkhead gate GT150015 and GT150016 so that the gates can be stored in the open position, per Change Control Form 004. Additionally, cost to adjust the alignment of the storm drain to the west into the roadway, per Change Control Form 010.

Attachments: Contractor Quotation (Gerber), Change Control Form 004 & 010

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. - to No. -: $ 0.00	[Increase] [Decrease] from previously approved Change Orders No. - to No. -: Substantial Completion: 0 Ready for Final Payment: 0 days
Contract Price prior to this Change Order: $ 123,267,681.00	Contract Times prior to this Change Order: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] of this Change Order: $ 41,993.96	[Increase] [Decrease] of this Change Order: Substantial Completion: 6 days Ready for Final Payment: 6 days days or dates
Contract Price incorporating this Change Order: $ 123,309,674.96	Contract Times with all approved Change Orders: Substantial Completion: 1,497 days Ready for Final Payment: 1,587 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 1/7/2021	Date 1/14/2021	Date 1/11/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 002
Date: 10/7/2020
Description: Per Change Control Form #004, cost to add gate stops to bulkhead gate GT150015 and GT150016 so that these gates can be stored in the open position. Gerber Construction will adsorb the cost to adjust gate heights to accommodate the 48" PE line being lowered.

Golden Harvest (see attached):	$2,149.00
Gerber Construction Coordination Labor (see attached back-up):	$353.84
Bonds:	$26.18
Mark-up (15%):	$379.35
Total:	**$2,908.37**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $2,908.37 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

CHANGE CONTROL FORM 004
West Connector – North Box

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 08/17/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☒ **Contractor**

This Document is a:
☐ **Request for Proposal** ☐ **Work Change Directive** ☒ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Modify the West Connector as shown in the attached sketch. Capture changes via redlines to all affected drawings. Submit redlines in a timely manner to be captured in Record Drawings. Include latches so the bulkhead gate can be stored in the open position.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

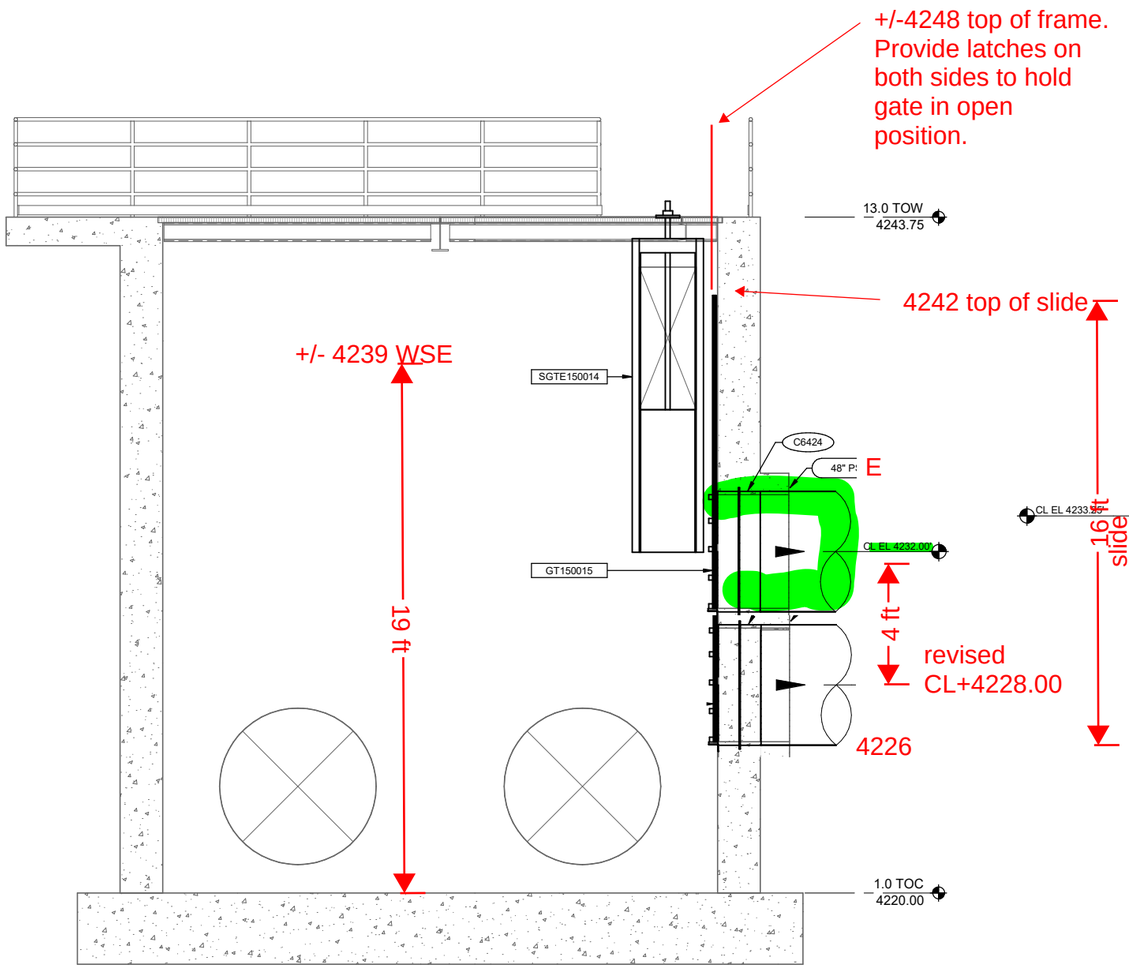
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR: Mark Hansen	Date: 08/17/2020
Accepted by Contractor:	Date:

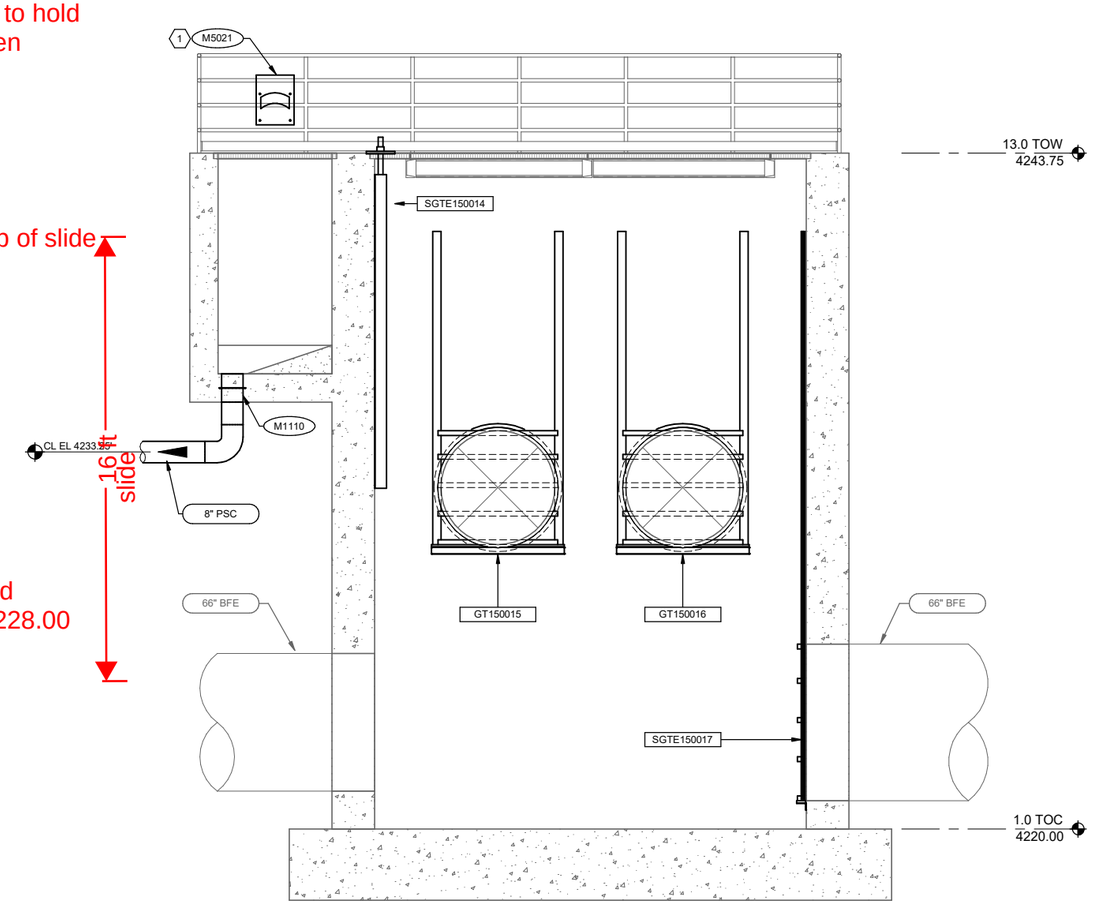
© 1997 Brown and Caldwell

KEYNOTES:

1 PROVIDE 3WLP AND SA TO UTILITY STATION. SEE CIVIL FOR CONTINUATION.



6 SECTION
P-15-7003 SCALE: 3/8" = 1'-0"



7 SECTION
P-15-7003 SCALE: 3/8" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: R. FULK
CHECKED: D. CLAYTON
CHECKED:
APPROVED: T. LINDLEY

FILENAME
151600-P-15V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

PROCESS

WEST CONNECTOR
NORTH BOX
SECTIONS

DRAWING NUMBER
P-15-7004

Path: BIM 360:///151600 - CVWRF Nutrients/151600-P-15V18.rvt

Plot Date: 6/2/2020 10:20:00 AM

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-02 Added Gate Stops - CC#004	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-02	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Gerber Labor	**1.00**	**UNIT**	**$353.84**	**$353.84**	**$411.17**	**$411.17**	**15.00%**
01 Superintendent	2.25	HR	$157.26	$353.84			
02 - Gate Stops (Golden Harvest)	**1.00**	**LS**	**$2,149.00**	**$2,149.00**	**$2,497.20**	**$2,497.20**	**15.00%**
Slide Gate Package	2.00	LS	$1,074.50	$2,149.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$353.84	14.14%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,149.00	85.86%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$2,502.84	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$2,502.84	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$26.18	0.90%
Total Overall Cost:	$2,529.02	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$379.35	13.04%
Total Margin:	$379.35	13.04%
Total Bid Price:	$2,908.37	

Golden Harvest, Inc.

Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 CO-1

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: Joshua McGaughey @ 1-800-338-6238

PLEASE RESPOND TO:

GOBLE SAMPSON AND ASSOCIATES, INC
3500 SOUTH MAIN STREET, SUITE 200
SALT LAKE CITY, UT 84115

ATTN:

David Ritter
dritter@goblesampson.com

PHONE: 801-268-8790
FAX: 801-268-8792

DATE: May 12th 2020 **CO-1 September 4, 2020**
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

SCOPE

SPECIFICATION: 40 05 59. 23 FABRICATED STEEL BULKHEAD GATES AND FRAMES						
52	WEST CONNECTOR NORTH BOX	GT150015 GT150016	48" x 192"	Adding Dog off mechanism to 2 gates		**$2,000.00**
				CHANGE ORDER TOTAL	**1**	**$2,000.00**

NOTES:

1. Stainless steel anchor bolts are included for concrete mounted frames.	3. **SALES TAX NOT INCLUDED IN PRICE.**
2. Epoxy adhesive by contractor.	4. Mill finish on stainless steel/aluminum surfaces.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 004
Date: 12/11/2020
Description: Per Change Control Form #010, cost to adjust the alignment of the storm drain to the west into the roadway.

Saw Cutting Subcontractor (see attached back-up):	$1,207.50
Mark-up (5%):	$60.38
Gerber Construction Labor & Materials (see attached back-up):	$32,533.26
Bonds:	$351.77
Mark-up (15%):	$4,932.68
Total:	**$39,085.59**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $39,085.59 will be added to the contract price, and an additional 5 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-004 15" Storm Drain Into Road - CC#010	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-004	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Allen Gerber	**Phone:**	
Project Address:	South Salt Lake, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 1 - 1 - Costing To Move 15" STD From Behind C&G To Roadway	**1.00**	**LS**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**0.00%**
D 2 - 2 - Asphalt Cutting Sub	**1,722.00**	**LF**	**$0.70**	**$1,207.50**	**$0.74**	**$1,274.28**	**4.44%**
S Asphalt Saw Cutting Sub 701 LF X 2 = 1402 LF 2 Boxes At 80 LF Each = 160 Lf Together = 1562 LF 1652 LF X 4" Deep = 6248 In/ft	1,750.00	LF	$0.69	$1,207.50			
D 3 - 3 - Asphalt Remove And Disposal	**3,800.00**	**SF**	**$1.12**	**$4,264.17**	**$1.30**	**$4,940.00**	**14.65%**
D Demolition, Asphalt Paving	3,800.00	SF	$1.12	$4,264.17			
Demo, Asphalt Paving 3604 Plus Waste = 3800sf (5,000.00 SF/DY, 0.76 DY)	3,800.00	SF	$0.43	$1,646.52			
Excavator, Crawler, 220	6.08	HR	$66.50	$404.32			
03 Leadman	6.84	HR	$95.38	$652.38			
07 Operator	6.84	HR	$86.23	$589.82			
Trucking, End Dumps 95 Ton Plus Waste = 100 Ton (1.00 DY, 1.84 Trucks, 12.50 TON/HR)	100.00	TON	$16.18	$1,617.65			
Dump Fees/Ton	100.00	TON	$10.00	$1,000.00			
D 5 - 5 - Remove And Dispose Of Road Base	**3,800.00**	**SF**	**$2.38**	**$9,027.10**	**$2.76**	**$10,488.00**	**14.98%**
Excavation Crew, Small (1,900.00 SF/DY, 2.00 DY)	3,800.00	SF	$1.78	$6,763.04			
01 Superintendent	18.00	HR	$157.26	$2,830.73			
04 Skilled Labor	18.00	HR	$83.01	$1,494.14			
Excavator, Crawler, 135	16.00	HR	$47.90	$766.40			
08 Heavy Operator	18.00	HR	$92.88	$1,671.77			
Trucking (1.00 DY, 2.46 Trucks, 17.50 CY/HR)	140.00	CY	$16.17	$2,264.06			
D 6 - 6 - Recycled Concrete Roadbase Incl Haul And Dispose Of Old RB	**3,800.00**	**SF**	**$2.79**	**$10,590.68**	**$3.24**	**$12,312.00**	**15.05%**
D Road Base Installation 3800sf X 1x140/2000 = 266 Ton	266.00	TON	$39.81	$10,590.68			
Road Base, UDOT	266.00	TON	$11.26	$2,995.49			
Road Base Placement Crew (266.00 TON/DY, 1.00 DY)	266.00	TON	$18.29	$4,863.94			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 6 - 6 - Recycled Concrete Roadbase Incl Haul And Dispose Of Old RB continued)							
Compactor, Double Drum, 56"	8.00	HR	$37.50	$300.00			
Truck, Pickup, 1 Ton	0.05	MO	$1,976.63	$91.94			
Truck, Water	8.00	HR	$63.50	$508.00			
01 Superintendent	9.00	HR	$157.26	$1,415.37			
05 General Labor	9.00	HR	$70.63	$635.66			
07 Operator	9.00	HR	$86.23	$776.09			
Skid Steer Loader 2,450 Lbs (90XT)	8.00	HR	$32.38	$259.00			
Sweeper, 72" Skidsteer Mounted	8.00	HR	$7.35	$58.80			
17 Project Manager [0.5]	9.00	HR	$182.02	$819.10			
Trucking Haul Off Old Roadbase (1.00 DY, 2.97 Trucks, 33.25 TON/HR)	266.00	TON	$10.27	$2,731.25			
D 7 - 7 - Filter Fabric Under Roadbase	**3,800.00**	**SF**	**$0.30**	**$1,151.29**	**$0.35**	**$1,330.00**	**14.33%**
Geotextile Filter Fabric, Mirafi 160N 15'x300' (500 SY)	1.00	ROLL	$348.56	$348.56			
Labor Crew, 2 Man (7,600.00 SF/DY, 0.50 DY)	3,800.00	SF	$0.21	$802.73			
03 Leadman	4.50	HR	$95.38	$429.20			
04 Skilled Labor	4.50	HR	$83.01	$373.53			
Skid Steer Loader 2,450 Lbs (90XT)	0.00	HR	$32.38	$0.00			
D 8 - 8 - Adjust Box Final Grade Height	**2.00**	**EACH**	**$2,500.00**	**$5,000.00**	**$2,913.78**	**$5,827.56**	**15.35%**
Modify Box Elevations	2.00	EACH	$2,500.00	$5,000.00			
D 9 - 9 - Adjust Box Inlet/outlet Holes	**5.00**	**EACH**	**$500.00**	**$2,500.00**	**$582.75**	**$2,913.75**	**15.35%**
Modify Box Flow Lines	5.00	LS	$500.00	$2,500.00			

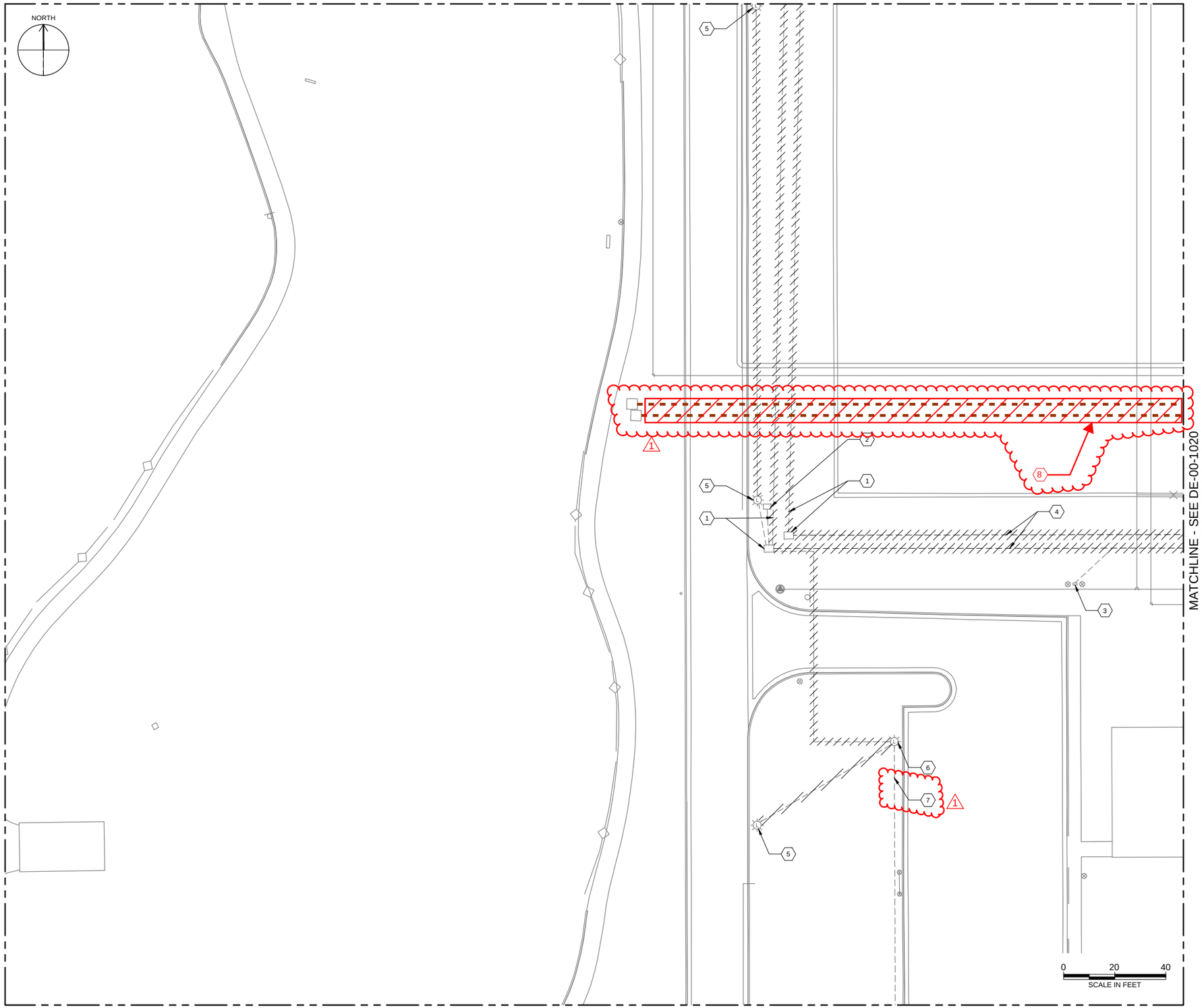
Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$11,687.78	34.64%
Equipment Owned:	$2,388.46	7.08%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,344.06	9.91%
Subcontracted:	$1,207.50	3.58%
Trucking Owned:	$6,612.96	19.60%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$8,500.00	25.19%
Plug:	$0.00	0.00%
Direct Cost:	$33,740.75	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$33,740.75	86.33%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$351.77	0.90%
Total Overall Cost:	$34,092.52	87.23%
Total Overhead:	$0.00	0.00%
Total Profit:	$4,993.07	12.77%
Total Margin:	$4,993.07	12.77%
Total Bid Price:	$39,085.59	

MATCHLINE - SEE DE-00-1014



GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ELECTRICAL DEMOLITION WITH THE I&C DRAWINGS, MECHANICAL DRAWINGS, P&IDs, AND THE PROJECT REPRESENTATIVE FOR ALL DEMOLITION.
2. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
3. EQUIPMENT AND ASSOCIATED APPURTENANCES ARE TO BE REMOVED ACCORDING TO THE WORK SEQUENCE PLAN DESCRIBED IN SPECIFICATION SECTION 01 12 16.

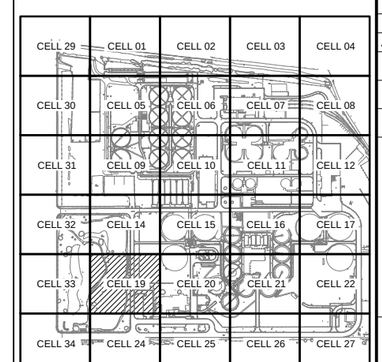
KEYNOTES:

1. EXISTING HANDHOLE AND ASSOCIATED DUCT BANK WILL BE REMOVED TO FACILITATE NEW CONSTRUCTION AND RE-INSTALLED AFTER.
2. DISCONNECT SITE LIGHTING POWER FEED CIRCUITS FROM THE TERMINAL BOX AND REMOVE BACK TO THE LIGHTING CONTRACTOR IN THE ADMINISTRATION BUILDING (CKTS 1, 3, 5, 9, 10 OF PBD05519 PER EXISTING DOCUMENTS). THE CONTRACTOR SHALL DOCUMENT THE SIZE AND QUANTITY OF CONDUCTORS TO VERIFY EXISTING DOCUMENTS AND FACILITATE NEW CONDUCTOR INSTALLATION AND RECONNECTION. THE LIGHTING CIRCUITS FROM THE TERMINAL BOX FEEDING THE LUMINAIRES BEING REMOVED WILL BE REMOVED WITH THE DEPICTED LUMINAIRES. THE TERMINAL BOX SHALL BE REMOVED AND STORED FOR RE-INSTALLATION.
3. EXISTING IRRIGATION CONTROLLER TO BE REMOVED. REMOVE POWER AND CONTROL CONDUCTORS BACK TO THEIR SOURCE IN THE ADMINISTRATION BUILDING.
4. SIGNAL AND POWER DUCT BANKS TO BE REMOVED TO FACILITATE NEW BASIN CONSTRUCTION AND REINSTALLED AFTER. ALL SIGNAL AND POWER CONDUCTORS IDENTIFIED HEREIN SHOULD HAVE BEEN REMOVED. IF THERE ARE ANY OTHER CONDUCTORS REMAINING IN THE DUCT BANK THE CONTRACTOR SHALL IDENTIFY THEM AND BRING THEM TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO DUCT BANK DEMOLITION.
5. EXISTING ROADWAY LUMINAIRE TO BE REMOVED AND STORED FOR RE-INSTALLATION. REMOVE CONDUCTORS AND RACEWAY TO THE NEXT LUMINAIRE IN THE CIRCUIT.
6. EXISTING ROADWAY LUMINAIRE TO BE REMOVED AND STORED FOR RE-INSTALLATION AND GOLF COURSE GATE
7. EXISTING RACEWAY CONTAINING POWER FEED CIRCUITS TO THE SOUTH LUMINAIRES (CKTS 1, 3, 5, 9 AND 10 OF PBD05519 PER EXISTING DOCUMENTS). PULL BACK THE CONDUCTORS FROM THE LUMINAIRE BEING REMOVED BACK TO THE NEXT LUMINAIRE SOUTH IN THE CIRCUIT, COIL, STOW AND PROTECT IN PLACE. THE RACEWAY SHALL BE RETAINED AS MUCH AS POSSIBLE AND PROTECTED IN PLACE FOR REUSE.
8. EXISTING GOLF COURSE PUMP STATION POWER AND SIGNAL DUCT BANKS AND ASSOCIATED HANDHOLES TO BE REMOVED. THE ASSOCIATED POWER FEEDER CONDUCTORS SHALL BE REMOVED BACK TO SUBSTATION SUB 50.

AND CKTS 40 AND 42 OF PBD05509

1

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
DE-00-1019.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

DEMOLITION ELECTRICAL

ELECTRICAL SITE PLAN DEMOLITION

DRAWING NUMBER
DE-00-1019

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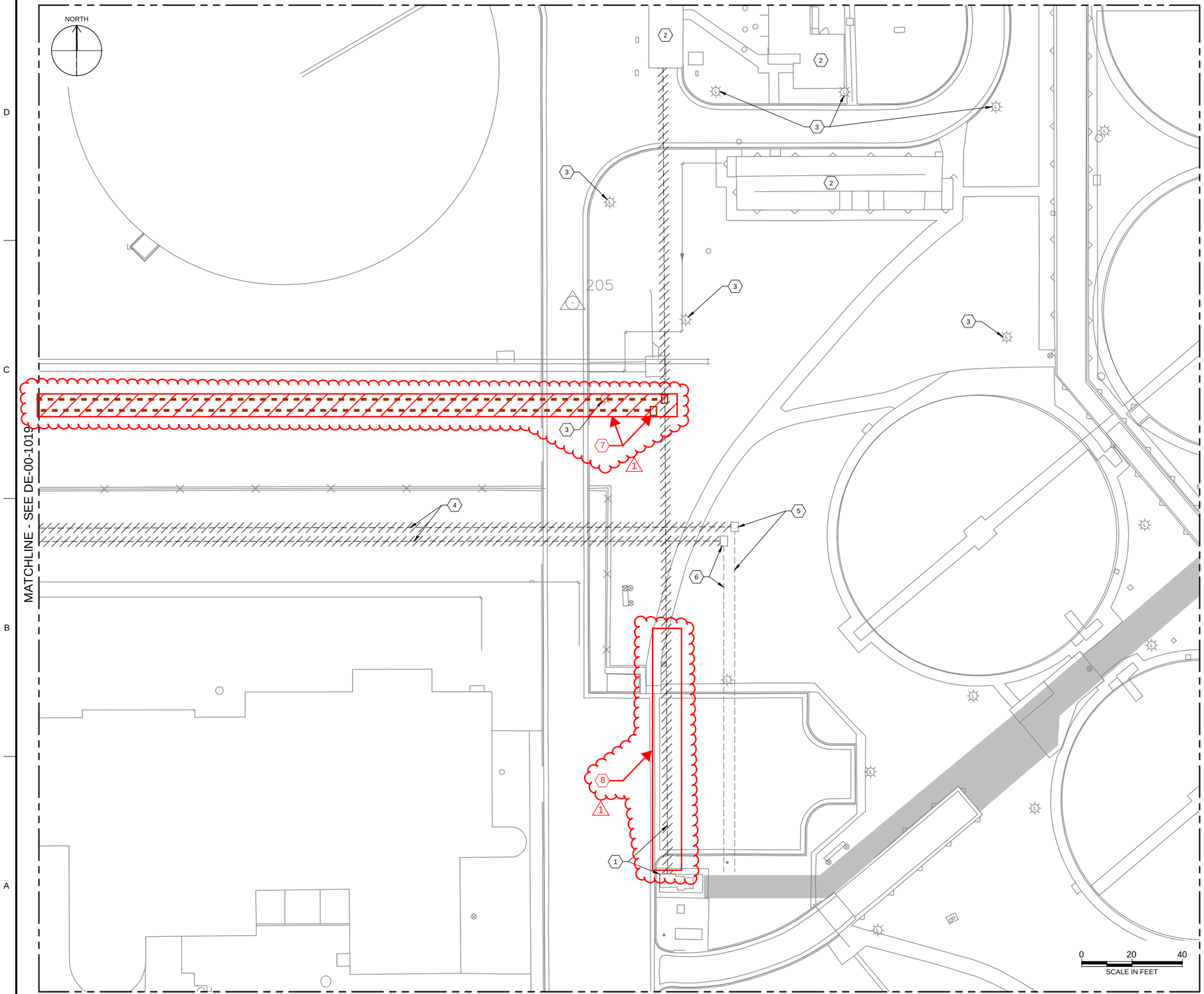
MATCHLINE - SEE DE-00-1015



MATCHLINE - SEE DE-00-1019

GENERAL NOTES:

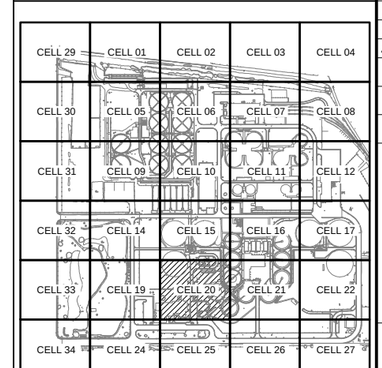
1. CONTRACTOR SHALL COORDINATE ELECTRICAL DEMOLITION WITH THE I&C DRAWINGS, MECHANICAL DRAWINGS, P&IDs, AND THE PROJECT REPRESENTATIVE FOR ALL DEMOLITION.
2. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
3. EQUIPMENT AND ASSOCIATED APPURTENANCES ARE TO BE REMOVED ACCORDING TO THE WORK SEQUENCE PLAN DESCRIBED IN SPECIFICATION SECTION 01 12 16.

KEYNOTES:

1. EXISTING SAND FILTER CHEMICAL BUILDING FEEDER AND DUCT BANK TO BE REMOVED. REFERENCE DE-05-4001 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
2. EXISTING SAND FILTER, CHEMICAL BUILDING AND CONTACT TANKS TO BE REMOVED. REFERENCE CIVIL DC SERIES DEMOLITION DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS. ALL ASSOCIATED UNDERGROUND DUCTBANKS SHALL BE REMOVED.
3. EXISTING SITE LIGHT TO BE REMOVED. POWER FEEDER CONDUCTORS AND RACEWAY SHALL BE REMOVED BACK TO THEIR SOURCE.
4. SIGNAL AND POWER DUCT BANKS TO BE REMOVED TO FACILITATE NEW BASIN CONSTRUCTION AND RE-INSTALLED AFTER. ALL SIGNAL AND POWER CONDUCTORS IDENTIFIED HEREIN SHOULD HAVE BEEN REMOVED. IF THERE ARE ANY OTHER CONDUCTORS REMAINING IN THE DUCT BANK THE CONTRACTOR SHALL IDENTIFY THEM AND BRING THEM TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO DUCT BANK DEMOLITION. CONTRACTOR SHALL DOCUMENT THE QUANTITY AND SIZE OF RACEWAYS BEING REMOVED SO THAT THE SAME SIZE AND QUANTITY CAN BE RE-INSTALLED.
5. EXISTING SIGNAL HANDHOLE AND ASSOCIATED DUCT BANK TO BE RETAINED AND PROTECTED IN PLACE.
6. EXISTING POWER HANDHOLE AND ASSOCIATED DUCT BANK TO BE RETAINED AND PROTECTED IN PLACE.
7. EXISTING GOLF COURSE PUMP STATION POWER AND SIGNAL DUCT BANKS AND ASSOCIATED HANDHOLES TO BE REMOVED. THE ASSOCIATED POWER FEEDER CONDUCTORS SHALL BE REMOVED BACK TO SUBSTATION SUB 50.
8. EXISTING PORTION OF DUCT BANK TO REMAIN AND EXTENDED TO EXISTING HANDHOLES AS DEFINED ON DRAWING E-20-1020.

1

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
DE-00-1020.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

DEMOLITION ELECTRICAL

ELECTRICAL SITE PLAN DEMOLITION

DRAWING NUMBER
DE-00-1020

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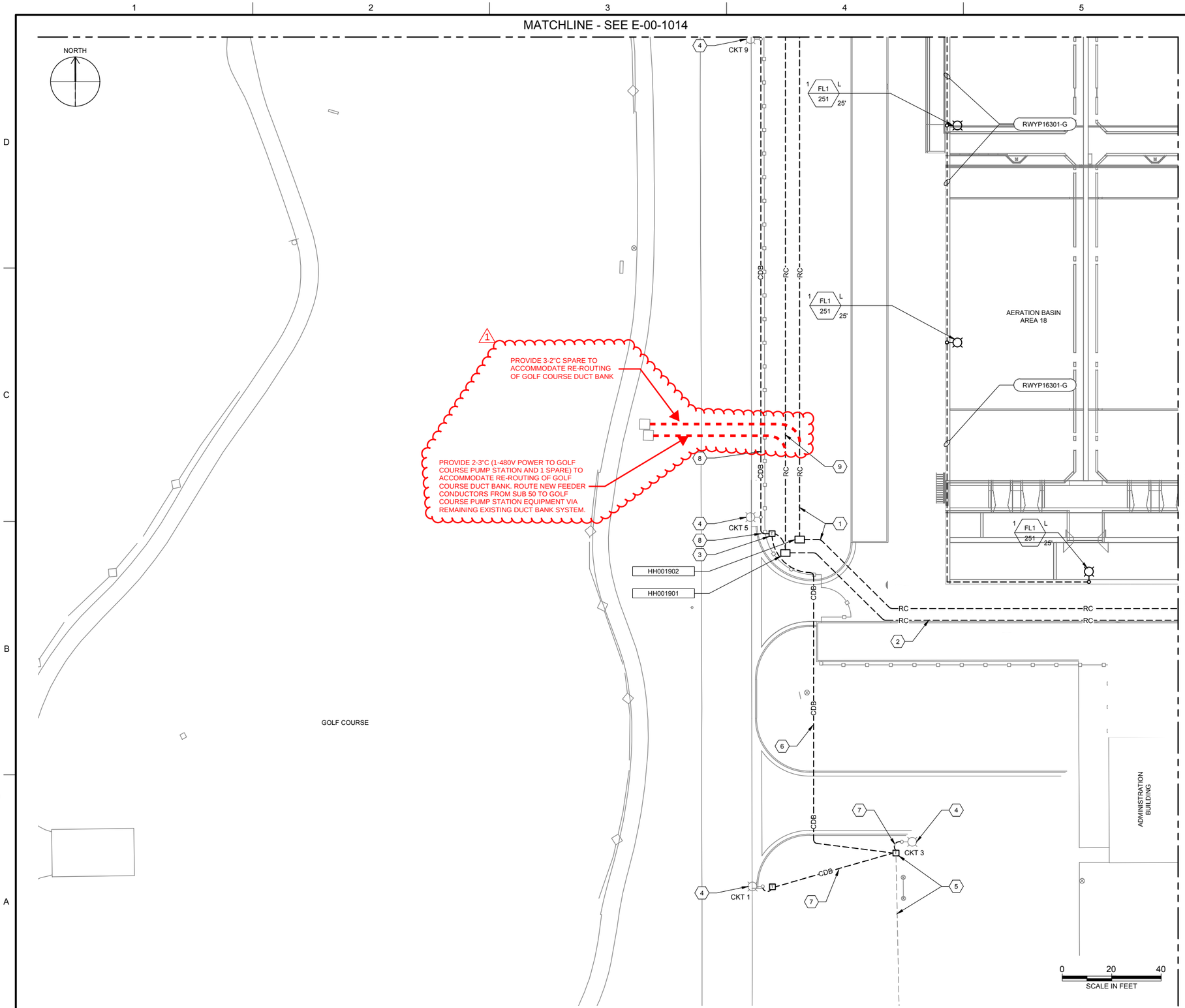


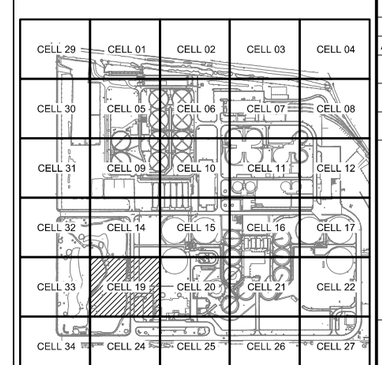
GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. LIGHTING CIRCUITS SHOWN ON THIS DRAWING ARE FED FROM ADMINISTRATION BUILDING FROM PANEL PBD05519, UNLESS OTHERWISE INDICATED.

KEYNOTES:

1. PROVIDE A NEW SIGNAL DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 2 - 2"C, (1 - VENDOR CARD READER CABLE AND 1 SPARE). PROVIDE 3-2"C AS SPARE TO ACCOMMODATE RE-ROUTED GOLF COURSE DUCT BANK.
2. PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL, 1 - 480V POWER TO GATE OPERATORS, 1 - LTG CIRCUITS AND 1 SPARE). PROVIDE 2-3"C (1-480V POWER TO GOLF COURSE PUMP STATION AND 1 SPARE) TO ACCOMMODATE RE-ROUTING OF GOLF COURSE DUCT BANK.
3. INSTALL THE LIGHTING POWER CIRCUIT TERMINAL BOX RETAINED DURING DEMOLITION ADJACENT TO LUMINAIRE SIMILAR TO PREVIOUS INSTALLATION. PROVIDE A 2" CONDUIT FROM HH001901 TO THE TERMINAL BOX. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM THE LIGHTING CONTRACTOR IN THE ADMINISTRATION BUILDING TO THE TERMINAL BOX AND TERMINATE. EXISTING DOCUMENTS INDICATED 8#8, 2#10, #10G. PROVIDE NEW POWER CONDUCTORS OF THE THE SAME SIZE AND QUANTITY FOR THE (2) VITRO DITCH GATES FROM PDB05509 IN THE ADMIN BLDG AND TERMINATE AND (2) VITRO DITCH GATES
4. PROVIDE A NEW LUMINAIRE POLE BASE PER DETAIL E-00-1014 AND RE-INSTALL ROADWAY LUMINAIRE RETAINED DURING DEMOLITION. THE CIRCUIT LISTED ADJACENT TO THE LUMINAIRE IS THE CIRCUIT DEFINED IN THE EXISTING DOCUMENTS.
5. PROVIDE AN 8"x6"x4" NEMA 4X STAINLESS STEEL TERMINAL BOX AND INSTALL NEAR THE BASE OF THE LUMINAIRE. EXTEND THE EXISTING LIGHTING CIRCUIT RACEWAY RETAINED DURING DEMOLITION TO THE TERMINAL BOX. PULL THE LIGHTING POWER FEED CIRCUITS STOWED AT THE NEXT LUMINAIRE SOUTH TO THE NEW TERMINAL BOX AND TERMINATE THE 5 CIRCUITS.
6. PROVIDE A 2" CONDUIT BETWEEN THE TWO TERMINAL BOXES AS DEPICTED. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY BETWEEN THE TWO TERMINAL BOXES AND TERMINATE ON THE ASSOCIATED CIRCUIT TERMINALS TO MAINTAIN THE EXISTING POWER SCHEME.
7. PROVIDE A 1" CONDUIT FROM THE TERMINAL BOX TO THE ROADWAY LUMINAIRE. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM THE ASSOCIATED CIRCUIT TERMINALS IN THE TERMINAL BOX TO THE LUMINAIRE AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
8. PROVIDE A 2" CONDUIT FROM THE TERMINAL BOX TO THE LUMINAIRE AND BETWEEN EACH OF THE LUMINAIRES IN THE CIRCUITS AS DEPICTED. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FOR THE 3 ASSOCIATED CIRCUITS (CKTs 1, 5, 9) AND EXTEND TO LUMINAIRES AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
9. PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL, 1 - 480V POWER TO GATE OPERATORS, 1 - LTG CIRCUITS AND 1 SPARE) LIGHTING HAS NOT BEEN ROUTED THROUGH THIS DUCT BANK SO WILL HAVE 2 SPARES.

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1019.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1019

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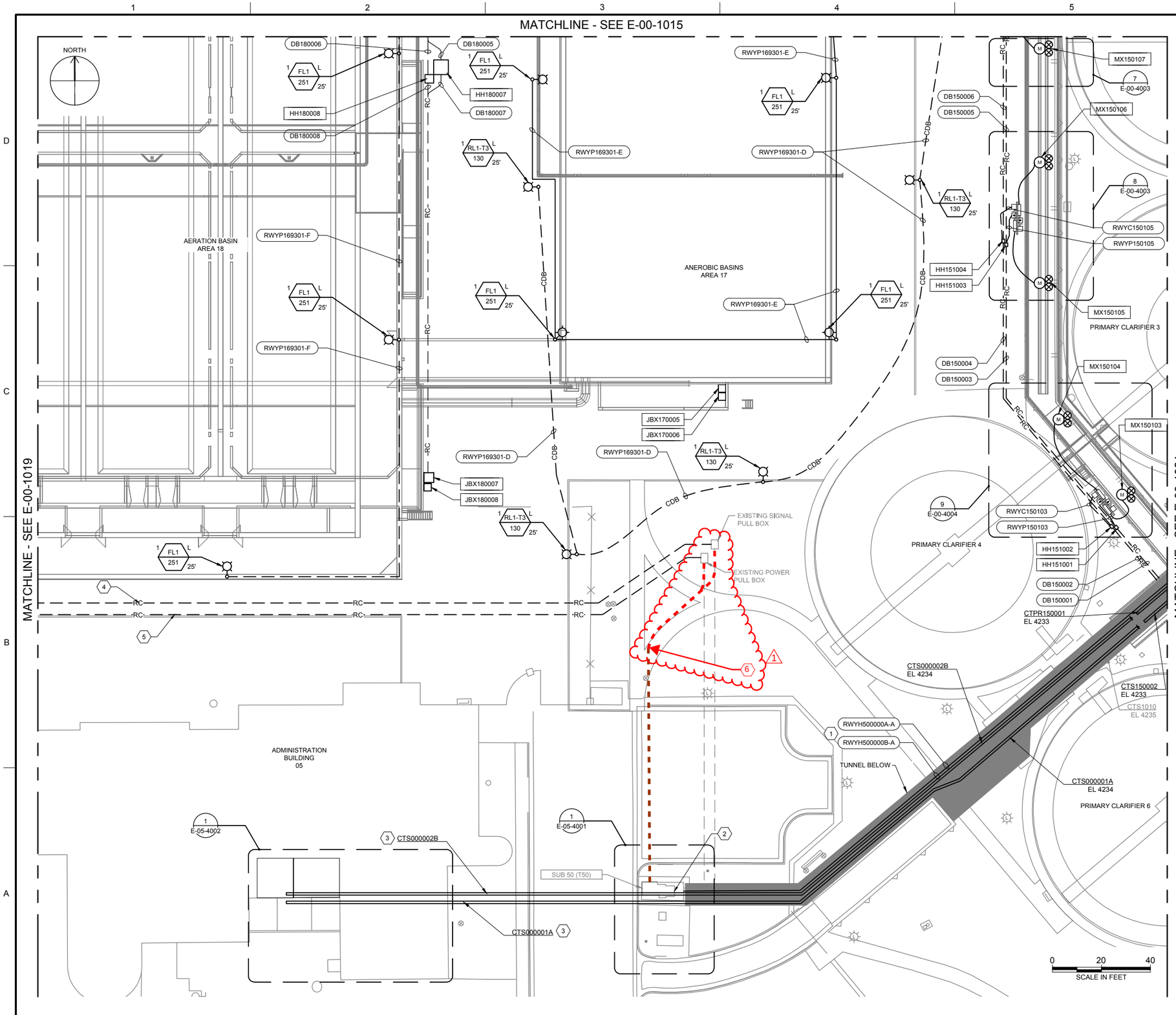


GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. POWER OUTAGES REQUIRED TO REPLACE NEW FEEDER CONDUCTORS TO SUBSTATION SUB50 SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.
3. EXISTING CABLE TRAYS DEPICTED WITHIN THE TUNNELS DO NOT REFLECT ALL THE EXISTING CABLE TRAYS. ONLY THE CABLE TRAYS BEING UTILIZED OR FOR LOCATIONAL REFERENCE HAVE BEEN SHOWN FOR CLARITY. CONFIRM EACH CABLE TRAY AND ITS ROUTING PRIOR TO ANY CABLE INSTALLATION.
4. REFERENCE DRAWING E-15-1001 FOR AREA CLASSIFICATION OF PRIMARY EFFLUENT CHANNEL.
5. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS, CC30A AND CC30B. REFERENCE SITE AREA 00 CABLE, RACEWAY, DUCTBANK AND MANHOLE SCHEDULES FOR CONTRACT DELINEATIONS AS WELL AS THE LISTED CONTRACT DOCUMENT NOTES FOR ADDITIONAL SCOPE DELINEATION.

KEYNOTES:

1 PROVIDE NEW B FEEDER RACEWAY FOR SUB 50 ROUTED ADJACENT TO EXISTING.

2 EXISTING SUBSTATION SUB 50 REFD FROM NEW SWITCHGEAR SWGR340133A AND SWGR340133B RESPECTFULLY. REFERENCE AREA 05 ELECTRICAL DRAWINGS FOR NEW SWITCH INSTALLATION REQUIREMENTS. EXISTING FEEDER CABLES FROM THE SUBSTATION TO EXISTING SWITCHGEAR SWGR MV133 SHALL BE REMOVED. CONTRACTOR TO INSTALL NEW CABLES BETWEEN THE SUBSTATIONS AND NEW SWITCHGEAR AS SPECIFIED AND TERMINATE TO ACCOMMODATE THE NEW POWER SCHEME.

3 FIELD ROUTE CABLE TRAY THROUGH THE ADMINISTRATION BUILDING BASEMENT TO A FEASIBLE LOCATION BELOW NCE050004. EXACT ROUTING SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.

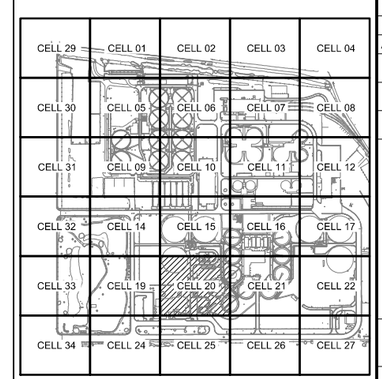
4 PROVIDE A NEW SIGNAL DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 2 - 2"C, (1 - VENDOR CARD READER CABLE AND 1 SPARE). PROVIDE 3-2"C AS SPARE TO ACCOMMODATE RE-ROUTED GOLF COURSE DUCT BANK.

5 PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL. 1 - 480V POWER TO GATE OPERATORS, 1 - 480V LIGHTING CIRCUITS AND 1 SPARE).
PROVIDE 2-3"C (1-480V POWER TO GOLF COURSE PUMP STATION AND 1 SPARE) TO ACCOMMODATE RE-ROUTING OF GOLF COURSE DUCT BANK.

6. INTERCEPT EXISTING DUCT BANK WITH THE SAME SIZE AND QUANTITY OF RACEWAYTS AND EXTEND RACEWAYS TO THE ASSOCIATED EXISTING POWER AND SIGNAL HANDHOLE. PROVIDE NEW GOLF COURSE PUMP STATION FEEDER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM SUB 50 TO THE PUMP STATION EQUIPMENT AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.

1

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1020.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1020

Path: V:\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1020.DWG PLOT DATE: 11/11/2019 2:41 PM CAD USER: BRYAN BRITTAIN
CVWRF_NW.sld CVWRF_SW.sld

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/07/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 002, Irrigation Pump Duct Bank

Dear Brandon,

Change Order 2 includes costs to remove and re-route duct banks to accommodate new construction, per Change Control Form 005. In addition, 9 calendar days will be added to the contract

The change order includes 15% overhead and profit for work done by Geber, and 5% overhead and profit for subcontracted work, which is in accordance with the standard conditions of the contract. The total price for the change order will be $150,926.58 and 9 days added to the contract.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:
1. 00 94 10 (EJCDC form C-941, Change Order)
2. Contractor Quotation
3. CCF #005

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 02

Date of Issuance: 1/7/2021		Effective Date: 1/7/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description: Costs to remove and re-route duct banks to accommodate new construction.

Attachments: Contractor Quotation (Gerber), Change Control Form 005

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. - to No. 1 : $ 41,993.96	[Increase] [Decrease] from previously approved Change Orders No. - to No. 1 : Substantial Completion: 6 Ready for Final Payment: 6 days
Contract Price prior to this Change Order: $ 123,309,674.96	Contract Times prior to this Change Order: Substantial Completion: 1,497 Ready for Final Payment: 1,587 days or dates
[Increase] [Decrease] of this Change Order: $ 150,926.58	[Increase] [Decrease] of this Change Order: Substantial Completion: 9 days Ready for Final Payment: 9 days days or dates
Contract Price incorporating this Change Order: $ 123,460,601.54	Contract Times with all approved Change Orders: Substantial Completion: 1,506 days Ready for Final Payment: 1,596 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 1/7/2021	Date 1/14/2021	Date 1/11/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 005
Date: 12/11/2020
Description: Per Change Control Form #005, cost to remove and re-route duct banks to accommodate new construction.

Skyline Electric (see attached back-up):	$104,277.36
Mark-up (5%):	$5,213.86
Gerber Construction Labor & Materials (see attached back-up):	$34,809.91
Bonds:	$1,220.84
Mark-up (15%):	$5,404.61
Total:	**$150,926.58**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $150,926.58 will be added to the contract price, and an additional 9 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	11/11/2020		
Project:	HEADWORKS CC10C	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**CCF 005 Irragation Pump Ductbank**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide material and labor as directed within CCF 005 documents.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$45,960.65		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..		$0.00	
Base Labor Hours (from pricing sheets)……..			597.94

LABOR FACTOR:

material handling		2.00%					11.9588
cleanup		3.00%					17.9382
safety		1.25%					7.47425
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $3,424.07	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 49,384.72	loc 2 $ 0.00		635.31
			RATE: $	59.00
extension:			$	37,483.36

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	37,483.36

JOB EXPENSE:

permit				$0.00	FIELD Cont.					
OFFICE					Layout / Coordination	2		hrs@	$75.00	$150.00
project management	0	hrs@	$80.00	$0.00	Testing	0		hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0		hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight					$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables					$0.00
FIELD					Tools & Equipment		2% of Labor Dollars			$749.67
change management	0	hrs@	$75.00	$0.00	Jobsite Trailer / Storage Rental	0		mo@	$125.00	$0.00
change estimating	3	hrs@	$75.00	$225.00	Pick-up Truck	0		dy@	$80.00	$0.00
as-builds	1	hrs@	$75.00	$75.00	Equipment Rental	0		wk@	$600.00	$0.00
EXPENSE TOTAL									loc 4 $	1,199.67

MATERIAL		from loc 1	$	49,384.72
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,199.67
LABOR		from loc 3	$	37,483.36
WARRANTEE	1.50%		$	1,321.02
BOND	1.44%		$	1,287.20
subtotal			$	90,675.96
OVERHEAD + PROFIT	15.00%		$	13,601.39
TOTAL CHANGE			$	104,277.36

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF 005: Golf Coarse Pump Station

Takeoff

Vendor: Target **Labor Level:** **11 Nov 2020 15:42:36**

Item: BASE BID
└**Phase:** EXISTING DUCTBANK WORK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**EXISTING DUCTBANK WORK**				
1	1.00		M		SAW CUT EXISTING DUCTBANKS	350.0000	350.00	0.0000	0.00
2	1.00		M		SAW CUT EXISTING MANHOLES	350.0000	350.00	0.0000	0.00
3	5.00		M		CORE DRILL EXISTING MANHOLES	175.0000	875.00	0.0000	0.00
5	2.00		M		CHIP OUT AROUND EXISTING CONDUITS IN DUC	0.0000	0.00	10.0000	20.00
	0.00				**EAST END**				
TITLE	50.00		M		2-DUCT / NO TRENCHING 3" PVC	0.0000	0.00	0.0000	0.00
10064	100.00	FT	M	3	PVC SCH 40	3.2000	320.00	0.0495	4.95
390100	20.00	EA	M	3 x 2	BASE DUCT BANK CONDUIT SPACER	1.1756	23.51	0.1600	3.20
390411	53.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0294	1.56	0.0036	0.19
40048	12.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	3.73	0.0096	0.12
30242	2.00	EA	M	3	PVC COUPLING	1.8280	3.66	0.5000	1.00
30303	2.00	EA	M	3	PVC END BELLS	3.7721	7.54	0.3000	0.60
TITLE	50.00		M		3-DUCT / NO TRENCHING 2" PVC	0.0000	0.00	0.0000	0.00
10062	150.00	FT	M	2	PVC SCH 40	1.9500	292.50	0.0340	5.10
390099	30.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5346	46.04	0.1500	4.50
390411	53.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0294	1.56	0.0036	0.19
30240	3.00	EA	M	2	PVC COUPLING	0.6446	1.93	0.3000	0.90
30301	3.00	EA	M	2	PVC END BELLS	3.1328	9.40	0.2300	0.69
40048	13.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	4.04	0.0090	0.12
70152	60.00	FT	M	4/0	BARE CU (STR)	6.9255	415.53	0.0290	1.74
100766	1.00	EA	M	4/0	IN-LINE SPLICE CADWELD	25.0000	25.00	1.5000	1.50
390521	400.00	FT	M	#4	STEEL REBAR	0.4550	182.00	0.0240	9.60
6	2.00		M		EPOXY	35.0000	70.00	0.5000	1.00
390574	4.00	YD	M	3000#	CONCRETE	145.0000	580.00	0.3000	1.20
	0.00				**WEST END**				

Item: BASE BID
└**Phase:** EXISTING DUCTBANK WORK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
TITLE	50.00		M		2-DUCT / NO TRENCHING 3" PVC	0.0000	0.00	0.0000	0.00
10064	100.00	FT	M	3	PVC SCH 40	3.2000	320.00	0.0495	4.95
390100	20.00	EA	M	3 x 2	BASE DUCT BANK CONDUIT SPACER	1.1756	23.51	0.1600	3.20
40048	12.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	3.73	0.0096	0.12
30242	2.00	EA	M	3	PVC COUPLING	1.8280	3.66	0.5000	1.00
30303	2.00	EA	M	3	PVC END BELLS	3.7721	7.54	0.3000	0.60
30291	4.00	EA	M	3	PVC FEMALE ADAPTER	2.5275	10.11	0.5000	2.00
20259	2.00	EA	M	3	GRC/PVC COATED 90-DEG ELBOW	135.6816	271.36	2.2000	4.40
70152	60.00	FT	M	4/0	BARE CU (STR)	6.9255	415.53	0.0290	1.74
100766	1.00	EA	M	4/0	IN-LINE SPLICE CADWELD	25.0000	25.00	1.5000	1.50
390521	400.00	FT	M	#4	STEEL REBAR	0.4550	182.00	0.0240	9.60
6	2.00		M		EPOXY	35.0000	70.00	0.5000	1.00
390574	4.00	YD	M	3000#	CONCRETE	145.0000	580.00	0.3000	1.20
TITLE	50.00		M		3-DUCT / NO TRENCHING 2" PVC	0.0000	0.00	0.0000	0.00
10062	150.00	FT	M	2	PVC SCH 40	1.9500	292.50	0.0340	5.10
390099	30.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5346	46.04	0.1500	4.50
390411	53.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0294	1.56	0.0036	0.19
30240	3.00	EA	M	2	PVC COUPLING	0.6446	1.93	0.3000	0.90
30301	3.00	EA	M	2	PVC END BELLS	3.1328	9.40	0.2300	0.69
20257	3.00	EA	M	2	GRC/PVC COATED 90-DEG ELBOW	45.0567	135.17	1.2000	3.60
30289	6.00	EA	M	2	PVC FEMALE ADAPTER	0.9035	5.42	0.3000	1.80
40048	13.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	4.04	0.0090	0.12
70152	60.00	FT	M	4/0	BARE CU (STR)	6.9255	415.53	0.0290	1.74
100766	1.00	EA	M	4/0	IN-LINE SPLICE CADWELD	25.0000	25.00	1.5000	1.50
390521	400.00	FT	M	#4	STEEL REBAR	0.4550	182.00	0.0240	9.60
6	2.00		M		EPOXY	35.0000	70.00	0.5000	1.00
390574	4.00	YD	M	3000#	CONCRETE	145.0000	580.00	0.3000	1.20
						Phase Totals:	**7,244.04**		**119.84**

Item: BASE BID
└**Phase:** ADDED CONDUIT TO DUCTBANK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10064	900.00	FT	M	3	PVC SCH 40	3.2000	2,880.00	0.1100	99.00
30303	4.00	EA	M	3	PVC END BELLS	3.7721	15.09	0.3000	1.20

Item: BASE BID
└**Phase:** ADDED CONDUIT TO DUCTBANK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10062	1,350.00	FT	M	2	PVC SCH 40	1.9500	2,632.50	0.0800	108.00
30301	6.00	EA	M	2	PVC END BELLS	3.1328	18.80	0.2300	1.38
390521	1,350.00	FT	M	#4	STEEL REBAR	0.4550	614.25	0.0240	32.40
390558	21.00	YD	M	3000#	CONCRETE ENCASEMENT	145.0000	3,045.00	0.3000	6.30
						Phase Totals:	**9,205.64**		**248.28**

Item: BASE BID
└**Phase:** POWER TO VITRO DITCH GATES

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70064	4,218.00	FT	M	6.	XHHW CU (STR)	0.6999	2,952.35	0.0130	54.83
70062	1,410.00	FT	M	10	XHHW CU (STR)	0.2574	362.93	0.0085	11.99
						Phase Totals:	**3,315.28**		**66.82**

Item: BASE BID
└**Phase:** POWER TO GOLF COARSE PUMPS

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70078	3,000.00	FT	M	500	XHHW CU (STR)	8.3217	24,965.10	0.0480	144.00
70067	1,000.00	FT	M	2.	XHHW CU (STR)	1.2306	1,230.60	0.0190	19.00
						Phase Totals:	**26,195.70**		**163.00**
						Job Totals:	**45,960.65**		**597.94**

CODALE
A Sonepar Company

** Quotation **

Send P/O To:
CODALE ELECTRIC SUPPLY INC.
7095 S 700 W
MIDVALE, UT 84047-1021
Phone # : 801-262-6900

Bid #: S7245952
Page #: 1

Bid To:
SKYLINE ELECTRIC
PO BOX 26666
SALT LAKE CITY, UT 84126-0666

Phone # : 801-972-3656

Ship To:
SKYLINE ELE/ CVWRF BLOWER BLD CC30A
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119

JOB:

Bid-Date	Expr-Date	Writer	Salesman	Ship Via
11/11/20	12/11/20	Tyler Brown	Joseph Wice	103 SLC SW

Qty	Description	Net Prc	Ext Prc
1000	500 MCM XHHW STR CU BROWN CUT REEL N/S Item: Mfg Return Policy Applies Pn: 3377341	8321.770m	8321.77
1000	500 MCM XHHW STR CU ORANGE CUT REEL N/S Item: Mfg Return Policy Applies Pn: 3377342	8321.770m	8321.77
1000	500 MCM XHHW STR CU YELLOW CUT REEL N/S Item: Mfg Return Policy Applies Pn: 3377343	8321.770m	8321.77
1000	2 XHHW STR CU GREEN CUT REEL N/S Item: Mfg Return Policy Applies Pn: 3472721	1230.650M	1230.65

Bid Total	26195.96
Sales tax	1899.21
Bid Amount	28095.17

.. Reprint .. Reprint .. Reprint .. Reprint .

All Sales subject to Codale's Terms and Conditions (T&C's) available at www.codale.com/terms. Price listed on this quotation are subject to change without notice beyond expiration date. Sales Tax is not included in any Bid. Payment terms are subject to approved credit. Prices are exclusive of applicable taxes unless noted.

CHANGE CONTROL FORM 005 Rev 1
Golf Course Pump Station Duct Bank

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 9/9/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☒ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

As a result of RFI 020 and 029, the power and signal duct banks out to the golf course pump station and (2) vitro gates discovered during field verification of existing circuits being removed/replaced were inadvertently not depicted on the contract documents. These duct banks and conductors will need to be re-routed to accommodate the new construction. Please provide pricing to remove and re-route the duct banks as depicted on the attached drawings.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

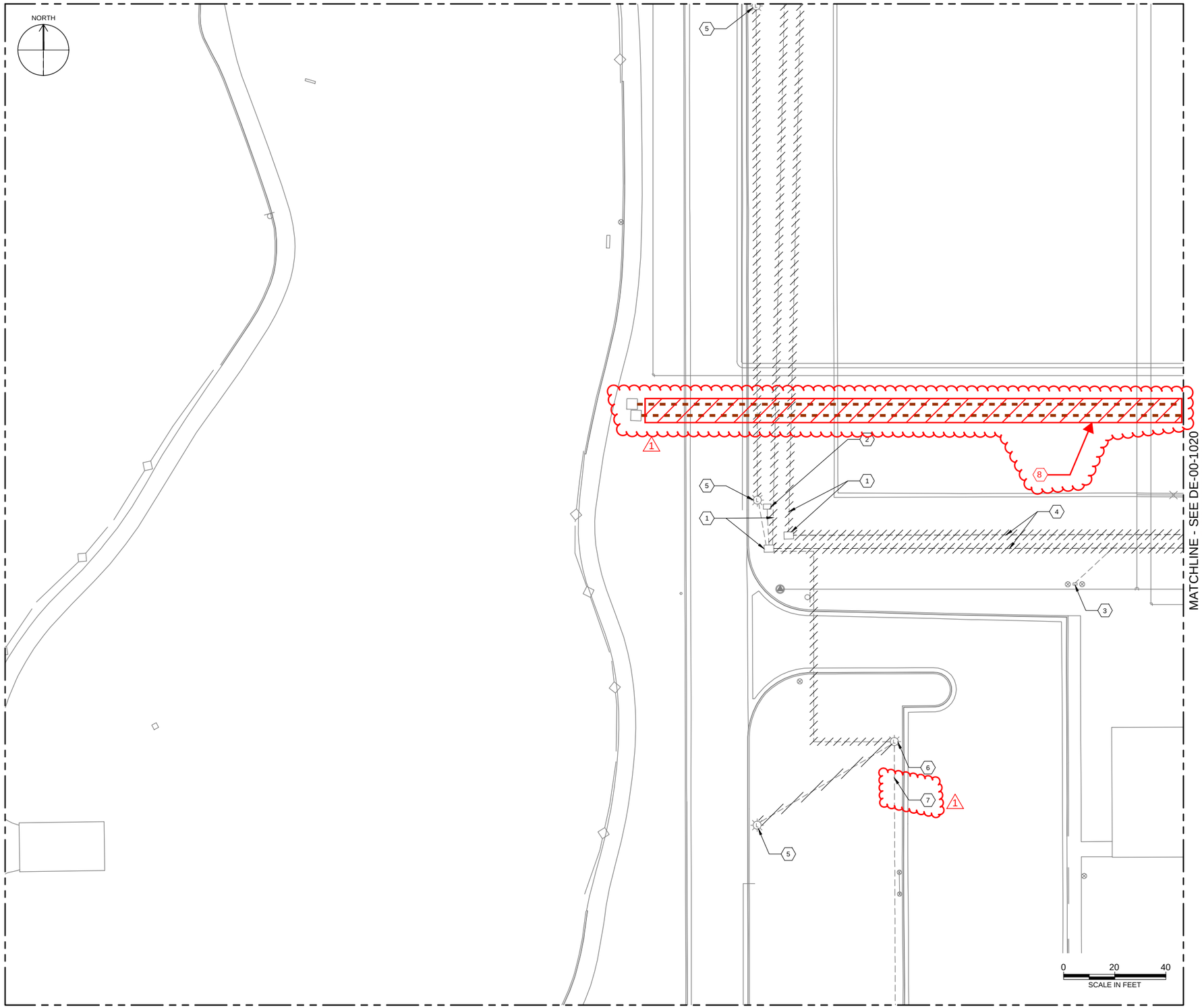
Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

© 1997 Brown and Cald

MATCHLINE - SEE DE-00-1014



GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ELECTRICAL DEMOLITION WITH THE I&C DRAWINGS, MECHANICAL DRAWINGS, P&IDs, AND THE PROJECT REPRESENTATIVE FOR ALL DEMOLITION.
2. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
3. EQUIPMENT AND ASSOCIATED APPURTENANCES ARE TO BE REMOVED ACCORDING TO THE WORK SEQUENCE PLAN DESCRIBED IN SPECIFICATION SECTION 01 12 16.

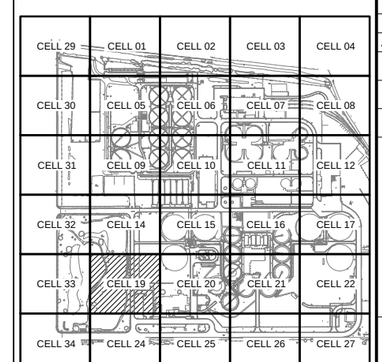
KEYNOTES:

1. EXISTING HANDHOLE AND ASSOCIATED DUCT BANK WILL BE REMOVED TO FACILITATE NEW CONSTRUCTION AND RE-INSTALLED AFTER.
2. DISCONNECT SITE LIGHTING POWER FEED CIRCUITS FROM THE TERMINAL BOX AND REMOVE BACK TO THE LIGHTING CONTRACTOR IN THE ADMINISTRATION BUILDING (CKTS 1, 3, 5, 9, 10 OF PBD05519 PER EXISTING DOCUMENTS). THE CONTRACTOR SHALL DOCUMENT THE SIZE AND QUANTITY OF CONDUCTORS TO VERIFY EXISTING DOCUMENTS AND FACILITATE NEW CONDUCTOR INSTALLATION AND RECONNECTION. THE LIGHTING CIRCUITS FROM THE TERMINAL BOX FEEDING THE LUMINAIRES BEING REMOVED WILL BE REMOVED WITH THE DEPICTED LUMINAIRES. THE TERMINAL BOX SHALL BE REMOVED AND STORED FOR RE-INSTALLATION.
3. EXISTING IRRIGATION CONTROLLER TO BE REMOVED. REMOVE POWER AND CONTROL CONDUCTORS BACK TO THEIR SOURCE IN THE ADMINISTRATION BUILDING.
4. SIGNAL AND POWER DUCT BANKS TO BE REMOVED TO FACILITATE NEW BASIN CONSTRUCTION AND REINSTALLED AFTER. ALL SIGNAL AND POWER CONDUCTORS IDENTIFIED HEREIN SHOULD HAVE BEEN REMOVED. IF THERE ARE ANY OTHER CONDUCTORS REMAINING IN THE DUCT BANK THE CONTRACTOR SHALL IDENTIFY THEM AND BRING THEM TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO DUCT BANK DEMOLITION.
5. EXISTING ROADWAY LUMINAIRE TO BE REMOVED AND STORED FOR RE-INSTALLATION. REMOVE CONDUCTORS AND RACEWAY TO THE NEXT LUMINAIRE IN THE CIRCUIT.
6. EXISTING ROADWAY LUMINAIRE TO BE REMOVED AND STORED FOR RE-INSTALLATION AND GOLF COURSE GATE
7. EXISTING RACEWAY CONTAINING POWER FEED CIRCUITS TO THE SOUTH LUMINAIRES (CKTS 1, 3, 5, 9 AND 10 OF PBD05519 PER EXISTING DOCUMENTS). PULL BACK THE CONDUCTORS FROM THE LUMINAIRE BEING REMOVED BACK TO THE NEXT LUMINAIRE SOUTH IN THE CIRCUIT, COIL, STOW AND PROTECT IN PLACE. THE RACEWAY SHALL BE RETAINED AS MUCH AS POSSIBLE AND PROTECTED IN PLACE FOR REUSE.
8. EXISTING GOLF COURSE PUMP STATION POWER AND SIGNAL DUCT BANKS AND ASSOCIATED HANDHOLES TO BE REMOVED. THE ASSOCIATED POWER FEEDER CONDUCTORS SHALL BE REMOVED BACK TO SUBSTATION SUB 50.

AND CKTS 40 AND 42 OF PBD05509

1

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
DE-00-1019.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

DEMOLITION ELECTRICAL

ELECTRICAL SITE PLAN DEMOLITION

DRAWING NUMBER
DE-00-1019

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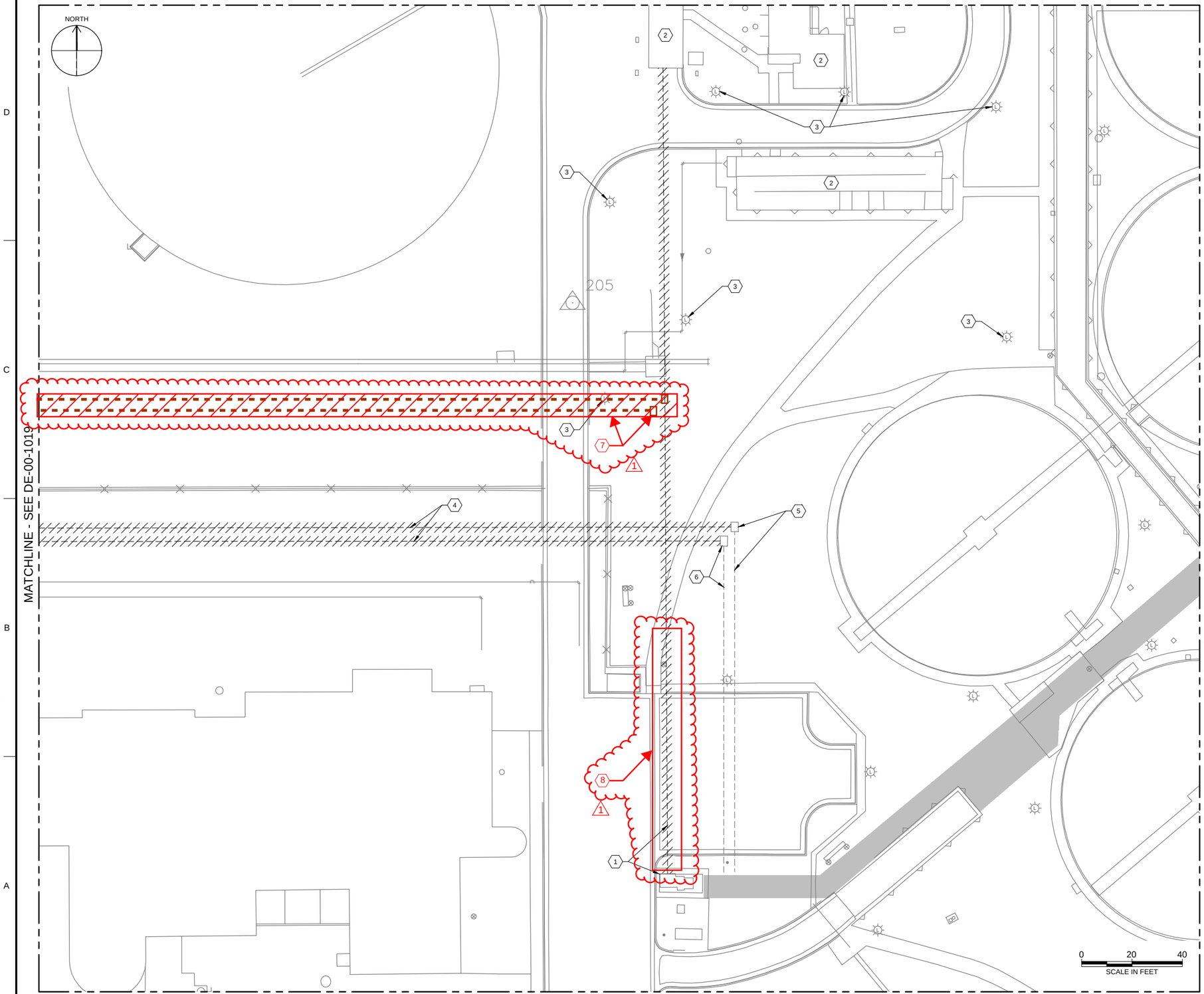
MATCHLINE - SEE DE-00-1015



MATCHLINE - SEE DE-00-1019

GENERAL NOTES:

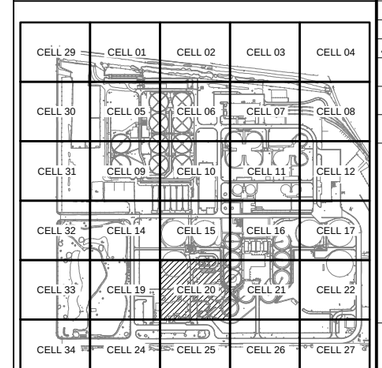
1. CONTRACTOR SHALL COORDINATE ELECTRICAL DEMOLITION WITH THE I&C DRAWINGS, MECHANICAL DRAWINGS, P&IDs, AND THE PROJECT REPRESENTATIVE FOR ALL DEMOLITION.
2. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
3. EQUIPMENT AND ASSOCIATED APPURTENANCES ARE TO BE REMOVED ACCORDING TO THE WORK SEQUENCE PLAN DESCRIBED IN SPECIFICATION SECTION 01 12 16.

KEYNOTES:

1. EXISTING SAND FILTER CHEMICAL BUILDING FEEDER AND DUCT BANK TO BE REMOVED. REFERENCE DE-05-4001 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
2. EXISTING SAND FILTER, CHEMICAL BUILDING AND CONTACT TANKS TO BE REMOVED. REFERENCE CIVIL DC SERIES DEMOLITION DRAWINGS FOR ADDITIONAL DEMOLITION REQUIREMENTS. ALL ASSOCIATED UNDERGROUND DUCTBANKS SHALL BE REMOVED.
3. EXISTING SITE LIGHT TO BE REMOVED. POWER FEEDER CONDUCTORS AND RACEWAY SHALL BE REMOVED BACK TO THEIR SOURCE.
4. SIGNAL AND POWER DUCT BANKS TO BE REMOVED TO FACILITATE NEW BASIN CONSTRUCTION AND RE-INSTALLED AFTER. ALL SIGNAL AND POWER CONDUCTORS IDENTIFIED HEREIN SHOULD HAVE BEEN REMOVED. IF THERE ARE ANY OTHER CONDUCTORS REMAINING IN THE DUCT BANK THE CONTRACTOR SHALL IDENTIFY THEM AND BRING THEM TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO DUCT BANK DEMOLITION. CONTRACTOR SHALL DOCUMENT THE QUANTITY AND SIZE OF RACEWAYS BEING REMOVED SO THAT THE SAME SIZE AND QUANTITY CAN BE RE-INSTALLED.
5. EXISTING SIGNAL HANDHOLE AND ASSOCIATED DUCT BANK TO BE RETAINED AND PROTECTED IN PLACE.
6. EXISTING POWER HANDHOLE AND ASSOCIATED DUCT BANK TO BE RETAINED AND PROTECTED IN PLACE.
7. EXISTING GOLF COURSE PUMP STATION POWER AND SIGNAL DUCT BANKS AND ASSOCIATED HANDHOLES TO BE REMOVED. THE ASSOCIATED POWER FEEDER CONDUCTORS SHALL BE REMOVED BACK TO SUBSTATION SUB 50.
8. EXISTING PORTION OF DUCT BANK TO REMAIN AND EXTENDED TO EXISTING HANDHOLES AS DEFINED ON DRAWING E-20-1020.

1

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

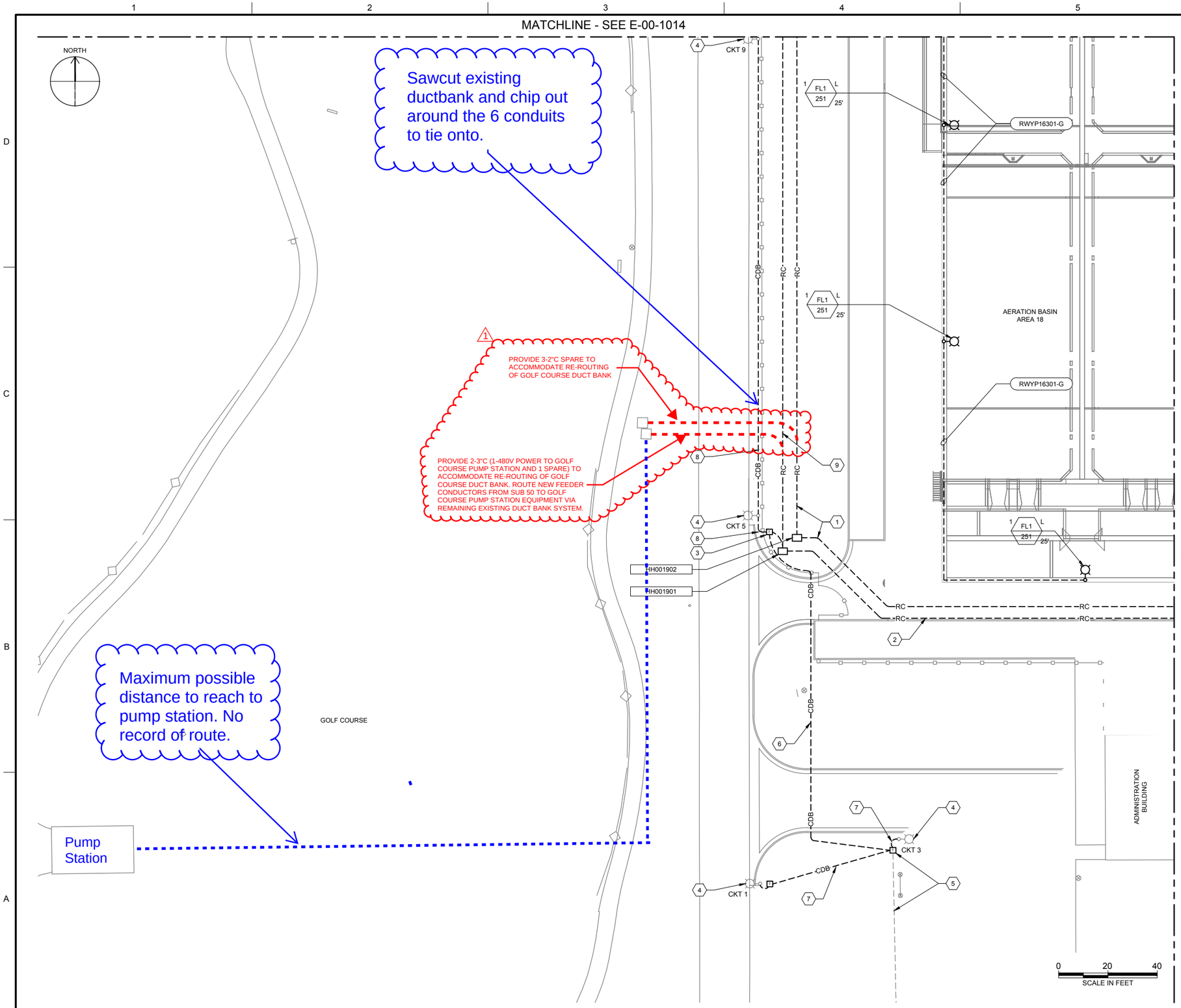
FILENAME
DE-00-1020.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

DEMOLITION ELECTRICAL

ELECTRICAL SITE PLAN DEMOLITION

DRAWING NUMBER
DE-00-1020

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\01_DX-DEMO FILENAME: DE-00-1020.DWG PLOT DATE: 10/23/2019 11:12 AM CAD USER: TONY DIMICELI
CVWRF_NW.xd
CVWRF_SW.xd



GENERAL NOTES:

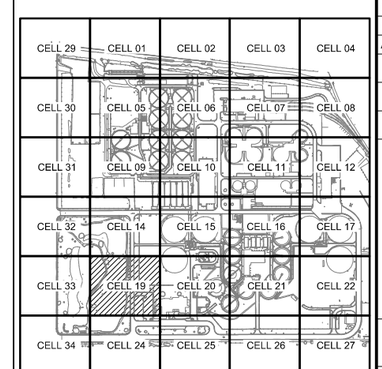
1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. LIGHTING CIRCUITS SHOWN ON THIS DRAWING ARE FED FROM ADMINISTRATION BUILDING FROM PANEL PBD05519, UNLESS OTHERWISE INDICATED.

KEYNOTES:

1. PROVIDE A NEW SIGNAL DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 2 - 2"C, (1 - VENDOR CARD READER CABLE AND 1 SPARE). PROVIDE 3-2"C AS SPARE TO ACCOMMODATE RE-ROUTED GOLF COURSE DUCT BANK.
2. PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL, 1 - 480V POWER TO GATE OPERATORS, 1 - LTG CIRCUITS AND 1 SPARE). PROVIDE 2-3"C (1-480V POWER TO GOLF COURSE PUMP STATION AND 1 SPARE) TO ACCOMMODATE RE-ROUTING OF GOLF COURSE DUCT BANK.
3. INSTALL THE LIGHTING POWER CIRCUIT TERMINAL BOX RETAINED DURING DEMOLITION ADJACENT TO LUMINAIRE SIMILAR TO PREVIOUS INSTALLATION. PROVIDE A 2" CONDUIT FROM HH001901 TO THE TERMINAL BOX. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM THE LIGHTING CONTRACTOR IN THE ADMINISTRATION BUILDING TO THE TERMINAL BOX AND TERMINATE. EXISTING DOCUMENTS INDICATED 8#8, 2#10, #10G. PROVIDE NEW POWER CONDUCTORS OF THE THE SAME SIZE AND QUANTITY FOR THE (2) VITRO DITCH GATES FROM PDB05509 IN THE ADMIN BLDG AND TERMINATE
4. PROVIDE A NEW LUMINAIRE POLE BASE PER DETAIL E0014 AND RE-INSTALL ROADWAY LUMINAIRE RETAINED DURING DEMOLITION. THE CIRCUIT LISTED ADJACENT TO THE LUMINAIRE IS THE CIRCUIT DEFINED IN THE EXISTING DOCUMENTS.
5. PROVIDE AN 8"x6"x4" NEMA 4X STAINLESS STEEL TERMINAL BOX AND INSTALL NEAR THE BASE OF THE LUMINAIRE. EXTEND THE EXISTING LIGHTING CIRCUIT RACEWAY RETAINED DURING DEMOLITION TO THE TERMINAL BOX. PULL THE LIGHTING POWER FEED CIRCUITS STOWED AT THE NEXT LUMINAIRE SOUTH TO THE NEW TERMINAL BOX AND TERMINATE THE 5 CIRCUITS.
6. PROVIDE A 2" CONDUIT BETWEEN THE TWO TERMINAL BOXES AS DEPICTED. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY BETWEEN THE TWO TERMINAL BOXES AND TERMINATE ON THE ASSOCIATED CIRCUIT TERMINALS TO MAINTAIN THE EXISTING POWER SCHEME.
7. PROVIDE A 1" CONDUIT FROM THE TERMINAL BOX TO THE ROADWAY LUMINAIRE. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM THE ASSOCIATED CIRCUIT TERMINALS IN THE TERMINAL BOX TO THE LUMINAIRE AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
8. PROVIDE A 2" CONDUIT FROM THE TERMINAL BOX TO THE LUMINAIRE AND BETWEEN EACH OF THE LUMINAIRES IN THE CIRCUITS AS DEPICTED. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FOR THE 3 ASSOCIATED CIRCUITS (CKTs 1, 5, 9) AND EXTEND TO LUMINAIRES AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
9. PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL, 1 - 480V POWER TO GATE OPERATORS, 1 - LTG CIRCUITS AND 1 SPARE) LIGHTING HAS NOT BEEN ROUTED THROUGH THIS DUCT BANK SO WILL HAVE 2 SPARES.

BLUE markups are additional info by Jeremy Jones

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1019.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1019

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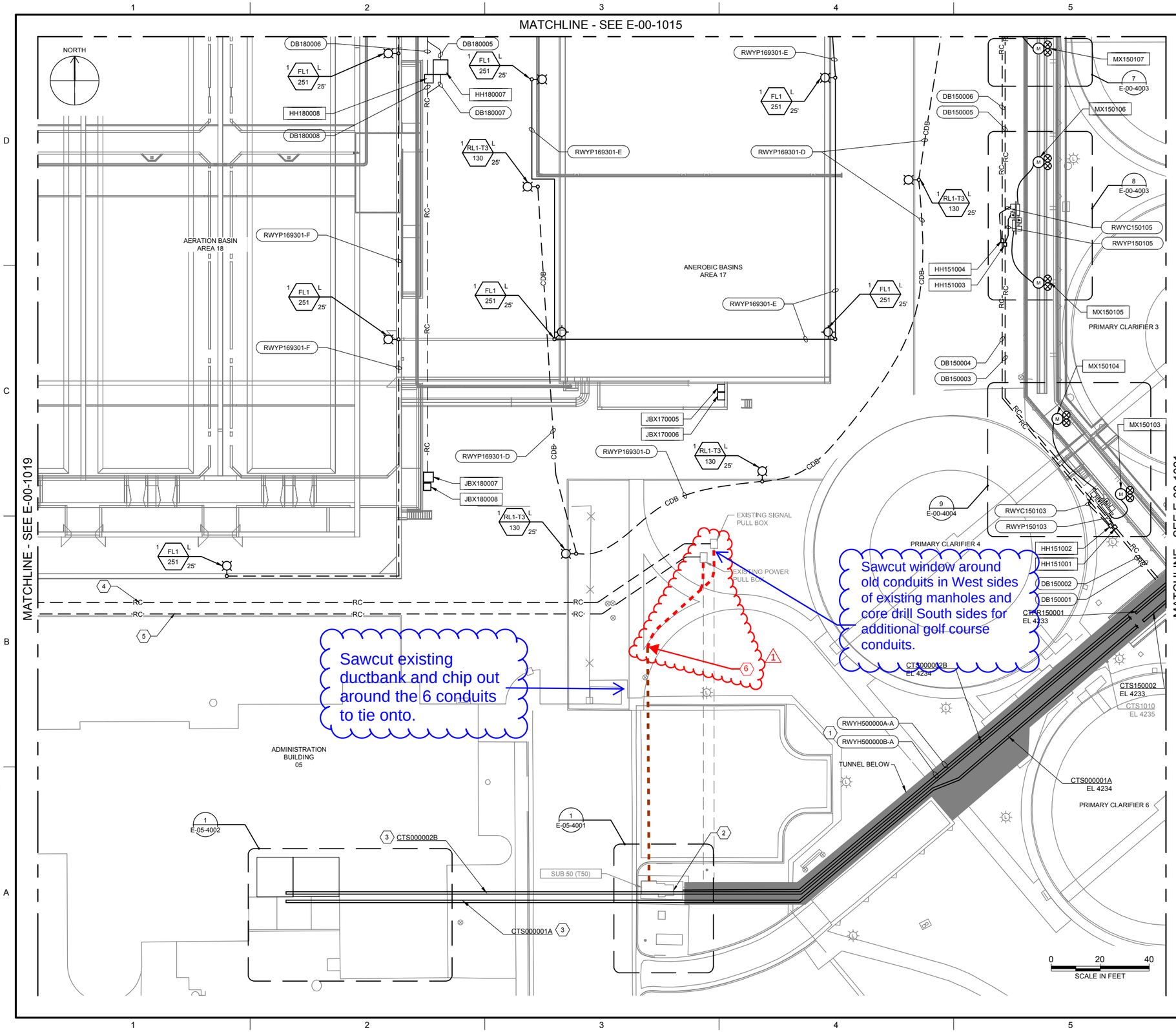


GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. POWER OUTAGES REQUIRED TO REPLACE NEW FEEDER CONDUCTORS TO SUBSTATION SUB50 SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.
3. EXISTING CABLE TRAYS DEPICTED WITHIN THE TUNNELS DO NOT REFLECT ALL THE EXISTING CABLE TRAYS. ONLY THE CABLE TRAYS BEING UTILIZED OR FOR LOCATIONAL REFERENCE HAVE BEEN SHOWN FOR CLARITY. CONFIRM EACH CABLE TRAY AND ITS ROUTING PRIOR TO ANY CABLE INSTALLATION.
4. REFERENCE DRAWING E-15-1001 FOR AREA CLASSIFICATION OF PRIMARY EFFLUENT CHANNEL.
5. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS, CC30A AND CC30B. REFERENCE SITE AREA 00 CABLE, RACEWAY, DUCTBANK AND MANHOLE SCHEDULES FOR CONTRACT DELINEATIONS AS WELL AS THE LISTED CONTRACT DOCUMENT NOTES FOR ADDITIONAL SCOPE DELINEATION.

KEYNOTES:

1 PROVIDE NEW B FEEDER RACEWAY FOR SUB 50 ROUTED ADJACENT TO EXISTING.

2 EXISTING SUBSTATION SUB 50 REFD FROM NEW SWITCHGEAR SWGR340133A AND SWGR340133B RESPECTFULLY. REFERENCE AREA 05 ELECTRICAL DRAWINGS FOR NEW SWITCH INSTALLATION REQUIREMENTS. EXISTING FEEDER CABLES FROM THE SUBSTATION TO EXISTING SWITCHGEAR SWGR MV133 SHALL BE REMOVED. CONTRACTOR TO INSTALL NEW CABLES BETWEEN THE SUBSTATIONS AND NEW SWITCHGEAR AS SPECIFIED AND TERMINATE TO ACCOMMODATE THE NEW POWER SCHEME.

3 FIELD ROUTE CABLE TRAY THROUGH THE ADMINISTRATION BUILDING BASEMENT TO A FEASIBLE LOCATION BELOW NCE050004. EXACT ROUTING SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.

4 PROVIDE A NEW SIGNAL DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 2 - 2"C, (1 - VENDOR CARD READER CABLE AND 1 SPARE). PROVIDE 3-2"C AS SPARE TO ACCOMMODATE RE-ROUTED GOLF CURSE DUCT BANK.

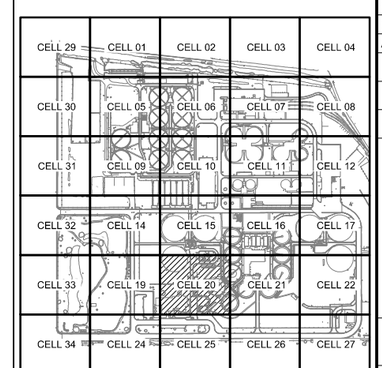
5 PROVIDE A NEW POWER DUCT BANK WITH THE SAME SIZE AND QUANTITY OF THAT REMOVED. EXISTING DOCUMENTS INDICATED 4 - 2"C, (1 - 480V POWER TO GATE POWER PANEL. 1 - 480V POWER TO GATE OPERATORS, 1 - 480V LIGHTING CIRCUITS AND 1 SPARE). PROVIDE 2-3"C (1-480V POWER TO GOLF COURSE PUMP STATION AND 1 SPARE) TO ACCOMMODATE RE-ROUTING OF GOLF COURSE DUCT BANK.

6. INTERCEPT EXISTING DUCT BANK WITH THE SAME SIZE AND QUANTITY OF RACEWAYTS AND EXTEND RACEWAYS TO THE ASSOCIATED EXISTING POWER AND SIGNAL HANDHOLE. PROVIDE NEW GOLF COURSE PUMP STATION FEEDER CONDUCTORS OF THE SAME SIZE AND QUANTITY FROM SUB 50 TO THE PUMP STATION EQUIPMENT AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.

1

BLUE markups are additional info by Jeremy Jones

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/9/20	CHANGE ORDER 003

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
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CHECKED:
APPROVED: J. COX

FILENAME
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ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1020

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CVWRF_NW.sd
CVWRF_SW.sd

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-005 Irrigation Pump Duct Bank - CC#005	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-005	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
01 - Gerber Labor & Material	**1.00**	**UNIT**	**$34,809.91**	**$34,809.91**	**$40,382.77**	**$40,382.77**	**15.00%**
Demolition, Concrete, Duct Bank	208.00	TON	$101.24	$21,057.46			
Demo, Concrete, Heavy (75.00 TON/DY, 2.77 DY)	208.00	TON	$77.71	$16,163.34			
Excavator, Crawler, 300	22.19	HR	$98.88	$2,193.71			
Concrete Jaws, 26", (Labounty UP-20)	22.19	HR	$66.70	$1,479.85			
Demolition, Impact Hammer 830 Bpm (Allied 785 CS)	22.19	HR	$94.20	$2,089.98			
Hand Held Chop Saws	22.19	HR	$7.54	$167.23			
02 Foreman	24.96	HR	$107.76	$2,689.59			
Excavator, Crawler, 220	22.19	HR	$66.50	$1,475.41			
07 Operator [2]	24.96	HR	$86.23	$4,304.68			
05 General Labor	24.96	HR	$70.63	$1,762.88			
Trucking (0.76 DY, 4.00 Trucks, 34.00 TON/HR)	208.00	TON	$13.53	$2,814.12			
Dump Fees/Ton	208.00	TON	$10.00	$2,080.00			
Excavation & Backfill, Duct Bank	1.00	UNIT	$9,749.68	$9,749.68			
Excavation Crew, Medium (30.00 CY/DY, 1.77 DY)	53.00	CY	$87.18	$4,620.46			
04 Skilled Labor	15.90	HR	$83.01	$1,319.82			
Loader, 5 Yard (Volvo 150)	14.13	HR	$70.03	$989.69			
Excavator, Crawler, 220	14.13	HR	$66.50	$939.87			
07 Operator	15.90	HR	$86.23	$1,371.08			
Backfill Crew, Medium (20.00 CY/DY, 1.50 DY)	30.00	CY	$149.80	$4,493.93			
Excavator, Crawler, 220	12.00	HR	$66.50	$798.00			
Loader, 5 Yard (Volvo 150)	12.00	HR	$70.03	$840.30			
Compactor, Trench, 32"	12.00	HR	$39.48	$473.70			
Compactor, Jumping Jack	12.00	HR	$8.10	$97.20			
07 Operator	13.50	HR	$86.23	$1,164.13			
04 Skilled Labor	13.50	HR	$83.01	$1,120.60			
Trucking (0.40 DY, 1.00 Trucks, 8.50 TON/HR)	27.00	TON	$13.53	$365.29			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - Gerber Labor & Material continued)							
Dump Fees/Ton	27.00	TON	$10.00	$270.00			
Onsite Supervision	1.00	LS	$4,002.76	$4,002.76			
01 Superintendent	9.00	HR	$157.26	$1,415.37			
02 Foreman	13.50	HR	$107.76	$1,454.71			
19 Project Engineer	6.75	HR	$120.14	$810.91			
Truck, Pickup, 1 Ton	0.16	MO	$1,976.63	$321.78			
02 - Subcontractor Work	**1.00**	**LS**	**$104,277.36**	**$104,277.36**	**$110,543.81**	**$110,543.81**	**5.09%**
16-Electrical	1.00	LS	$104,277.36	$104,277.36			
Electrical Sub (Skyline) (Skyline Electric Company)	1.00	LS	$104,277.36	$104,277.36			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$17,413.78	12.52%
Equipment Owned:	$11,866.72	8.53%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$104,277.36	74.97%
Trucking Owned:	$3,179.41	2.29%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$2,350.00	1.69%
Plug:	$0.00	0.00%
Direct Cost:	$139,087.27	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$139,087.27	92.16%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$1,220.84	0.81%
Total Overall Cost:	$140,308.11	92.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$10,618.47	7.04%
Total Margin:	$10,618.47	7.04%
Total Bid Price:	$150,926.58	

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/07/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 003, Sidewalk, Storm Pond 1, NG and 1W Line Changes

Dear Brandon,

Change Order 3 includes costs for labor and material to excavate and backfill duct bank change from tunnel entrance to the North Pond #1 which will add an additional 1 calendar days to the contract. Per RFI #045, costs also include labor and material to install 4" thick sidewalk at mulch area which will add an additional 1 calendar days to the contract. Lastly, this change order includes costs for labor and material to add a natural gas valve on the 2" NG line and loop the 8" 1W line over the 48" PE lines. This will add an additional 2 calendar days to the contract, making a total of 4 calendar days added to the contract.

$ 16,281.82

The change order includes 15% overhead and profit for work done by Geber, and 5% overhead and profit for subcontracted work, which is in accordance with the standard conditions of the contract. The total price for the change order will be ~~$150,926.58~~ and 4 days will be added to the contract.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:
1. 00 94 10 (EJCDC form C-941, Change Order)
2. Contractor Quotation
3. RFI #045

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 03

Date of Issuance: 1/7/2021		Effective Date: 1/7/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description: Costs for providing labor and material to excavate and backfill duct bank change from tunnel entrance to the North Pond #1 and to add natural gas valve on 2''NG line and loop 8'' 1W line over to 48'' PE lines. Per RFI #045, costs also include labor and material to install 4'' thick sidewalk at mulch area.

Attachments: Contractor Quotation (Gerber), RFI #045

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 2: $ 192,920.54	[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 2: Substantial Completion: 15 Ready for Final Payment: 15 days
Contract Price prior to this Change Order: $ 123,460,601.54	Contract Times prior to this Change Order: Substantial Completion: 1,506 Ready for Final Payment: 1,596 days or dates
[Increase] [Decrease] of this Change Order: $16,281.82	[Increase] [Decrease] of this Change Order: Substantial Completion: 4 days Ready for Final Payment: 4 days days or dates
Contract Price incorporating this Change Order: $ 123,476,883.36	Contract Times with all approved Change Orders: Substantial Completion: 1,510 days Ready for Final Payment: 1,600 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 1/7/2021	Date 1/14/2021	Date 1/11/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 006
Date: 12/11/2020
Description: Cost for Labor and Material to excavate and back fill duct bank change from tunnel entrance to the North Pond #1.

Gerber Construction Labor & Materials (see attached back-up):	$2,697.19
Bonds:	$28.21
Mark-up (15%):	$408.81
Total:	**$3,134.21**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $3,134.21 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-006 Elec. Duct Bank By Pond #1	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-006	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Allen Gerber	**Phone:**	
Project Address:		**Contact:**	Mark Hansen
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
1 - 1 - Electrical Duct Bank Bank By Pond #1	**1.00**	**LS**	**$2,697.19**	**$2,697.19**	**$3,134.21**	**$3,134.21**	**15.00%**
Excavation Crew, Small (3.50 CY/PH, 1.25 DY)	35.00	CY	$77.06	$2,697.19			
AG - 9/1/2020 2:46 PM: Trench is 185' long x 36" deep x 24" wide. Excavate and backfill after electrical is complete. 35 CY							
AG - 9/1/2020 2:47 PM:							
04 Skilled Labor	11.25	HR	$83.01	$933.84			
08 Heavy Operator	11.25	HR	$92.88	$1,044.86			
Excavator, Compact, 045	10.00	HR	$32.38	$323.75			
Compactor, Trench, 32"	10.00	HR	$39.48	$394.75			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,978.69	73.36%
Equipment Owned:	$718.50	26.64%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$2,697.19	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$2,697.19	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$28.21	0.90%
Total Overall Cost:	$2,725.40	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$408.81	13.04%
Total Margin:	$408.81	13.04%
Total Bid Price:	$3,134.21	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 007
Date: 12/11/2020
Description: Cost for Labor and Material to install 4" thick sidewalk at mulch area per RFI#045.

Gerber Construction Labor & Materials (see attached back-up):	$4,729.70
Bonds:	$49.46
Mark-up (15%):	$716.84
Total:	**$5,496.00**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $5,496.00 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-007 Mulch Sidewalk - RFI#045	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-007	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor & Materials	**480.00**	**SF**	**$9.85**	**$4,729.70**	**$11.45**	**$5,496.00**	**15.00%**
Concrete Crew, 03 Men (480.00 SF/DY, 1.00 DY)	480.00	SF	$4.90	$2,352.53			
03 Leadman	9.00	HR	$95.38	$858.39			
04 Skilled Labor [2]	9.00	HR	$83.01	$1,494.14			
Concrete, 6.0 Bag Mix	6.15	CY	$174.07	$1,071.05			
WWF, Black	480.00	SF	$1.61	$773.64			
Form Oil,	0.50	GAL	$10.75	$5.37			
Forming Materials	172.00	SF	$1.07	$184.81			
Expansion Joint	24.00	LF	$1.61	$38.68			
Rebar Brick	32.00	EACH	$0.54	$17.19			
Curing Compound,	1.50	GAL	$10.75	$16.12			
19 Project Engineer (Onsite Coordination)	2.25	HR	$120.14	$270.30			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,622.83	55.45%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,106.86	44.55%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,729.70	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,729.70	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$49.46	0.90%
Total Overall Cost:	$4,779.16	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$716.84	13.04%
Total Margin:	$716.84	13.04%
Total Bid Price:	$5,496.00	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 008
Date: 12/11/2020
Description: Cost for Labor and Material to add Natural Gas Valve on 2"NG line, and loop 8" 1W line over 48" PE lines.

Tempest (see attached back-up):	$500.00
Mark-up (5%):	$25.00
Gerber Construction Labor & Materials (see attached back-up):	$6,128.19
Bonds:	$68.86
Mark-up (15%):	$929.56
Total:	**$7,651.61**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $7,651.61 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

TEMPEST

ENTERPRISES

4681 SOUTH 300 WEST, MURRY, UTAH 84107

November 10, 2020
Invoice: 1126 - B

Gerber Construction
815 East 675 South
Lehi, Utah 84043

RE: Central Valley Treatment - invoice for natural gas yard line reroute

2” valve installation	$500.00
Total Amount Due	**$500.00**

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-008 NG & 1W Line Added Changes	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-008	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
01 - Gerber Material & Labor	**1.00**	**UNIT**	**$6,128.19**	**$6,128.19**	**$7,120.64**	**$7,120.64**	**15.00%**
Pipe Crew, Small, 3 Man (50.00 LF/DY, 1.00 DY)	50.00	LF	$58.99	$2,949.33			
Compactor, Jumping Jack	8.00	HR	$8.10	$64.80			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
02 Foreman	9.00	HR	$107.76	$969.80			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
05 General Labor	9.00	HR	$70.63	$635.66			
Piping Materials	1.00	LS	$2,355.18	$2,355.18			
01 Superintendent (Onsite Coordination)	1.80	HR	$157.26	$283.07			
19 Project Engineer (Onsite Coordination)	4.50	HR	$120.14	$540.61			
02 - Subcontractor Material & Labor	**1.00**	**LS**	**$500.00**	**$500.00**	**$530.97**	**$530.97**	**5.10%**
Tempest	1.00	LS	$500.00	$500.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,176.21	47.92%
Equipment Owned:	$596.80	9.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,310.18	34.85%
Subcontracted:	$500.00	7.54%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$45.00	0.68%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$6,628.19	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$6,628.19	86.62%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$68.86	0.90%
Total Overall Cost:	$6,697.05	87.52%
Total Overhead:	$0.00	0.00%
Total Profit:	$954.56	12.48%
Total Margin:	$954.56	12.48%
Total Bid Price:	$7,651.61	

CORE & MAIN

INVOICE

RECEIVED
NOV 30 2020
By_____

1830 Craig Park Court
St. Louis, MO 63146

Invoice #	N312207
Invoice Date	11/10/20
Account #	123528
Sales Rep	DANIEL ANDERSON
Phone #	801-280-8485
Branch #033	West Jordan, UT
Total Amount Due	$1,866.73

Remit To:
CORE & MAIN LP
PO BOX 28330
ST LOUIS, MO 63146

GERBER CONSTRUCTION
815 E 675 S
LEHI UT 84043-3950

000/0000
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Shipped To:
2008-CVWRF BNR BASIN PROJECT
800 CENTRAL VALLEY RD
CALL BRAD 801-380-9013
SALT LAKE CITY, UT

CUSTOMER JOB- 2008 CVWRF BASIN

Thank you for the opportunity to serve you! We appreciate your prompt payment.

Date Ordered	Date Shipped	Customer PO #	Job Name	Job #	Bill of Lading	Shipped Via	Invoice#
11/06/20	11/09/20	SHAY	CVWRF BASIN	2008		CORE & MAIN LP	N312207

Product Code	Description	Quantity Ordered	Quantity Shipped	Quantity B/O	Price	UM	Extended Price
020818W	8 PVC C900 DR18 PIPE (G) 20' PC235	20	20		8.17000	FT	163.40
21T084M	8 MJ 45 C153 USA	4	4		182.58000	EA	730.32
21I08CT	8 MJ CAP C153 IMP	2	2		110.16000	EA	220.32
21AMF7082008PSC	8 MEGALUG W/ACC F/C900 2008PSC W/STD MJ GASKET	10	10		62.65000	EA	626.50

Type I S P Acctng Period 11/20
Vendor #_____ Job #_____
Inv # N312207 Inv Date 11/10/20
Inv Desc 2008 - PIPING
Inv Total $_____ Pro Rate Tax $_____
Disc Amt $_____ Disc Date_____

Job/Phase/GL # 2008 $ 1866.73
Job/Phase/GL #_____ $_____
Job/Phase/GL #_____ $_____
Job/Phase/GL #_____ $_____

Freight	Delivery	Handling	Restock	Misc

Terms: NET 30

Subtotal:	1,740.54
Other:	.00
Tax:	126.19
Invoice Total:	$1,866.73

This transaction is governed by and subject to Core & Main's standard terms and conditions, which are incorporated by reference and accepted.
To review these terms and conditions, please visit: http://tandc.coreandmain.com/

00000

SOLD BY
WEST JORDAN UT
Branch 033
4052 West 8380 South
West Jordan UT 84088 0000
PHONE # 801 280 8485

CORE & MAIN
Local Knowledge
Local Experience
Local Service, Nationwide®

PROMISED: 11/06/20
FILLED BY: David
CHECKED BY: HP
REVIEWED BY:
ENTERED BY: DAN ANDERSON - 033

11/06/2020 09:04 AM PAGE 1
123528

PICK TICKET N312207

RECEIVED NOV 16 2020 By

SOLD TO
GERBER CONSTRUCTION
STOCK WEST JORDAN
815 E 675 S
LEHI UT 84043-3950
Cus Ph# 801 407 2000

SHIP TO
GERBER CONSTRUCTION
2008-CVWRF BNR BASIN PROJECT
800 CENTRAL VALLEY RD
CALL BRAD 801-380-9013
SALT LAKE CITY UT
84119

SPECIAL INSTRUCTIONS/COMMENTS:
WARNING:HEAVY ITEM-LIFT ASSISTANCE REQ'D

BRANCH NO.	DATE ORDERED	DATE SHIPPED	PURCHASE ORDER NO.	JOB NAME	JOB NUMBER	DELIVERY METHOD: OUR TRUCK	CUSTOMER PICK UP	DIRECT	SHIPPED	BILL OF LADING NO.	SHIPPED VIA	SALESMAN
033	11/06/20	N/A	SHAY	CVWRF BASIN	2008	X					CORE & MAIN LP	277

BIN LOCATION	PRODUCT CODE	DESCRIPTION	QTY ORDERED	QTY SHIPPED	BACK ORDERED	UNIT PRICE	PER	AMOUNT
YN 02 03	020818W	8 PVC C900 DR18 PIPE (G) 20' PC235 *REF 1.00 PC * WEIGHT: 9.2000 lb	20	20		8.17	FT	163.40
YS1 01 06	21T084M	8 MJ 45 C153 USA WEIGHT: 51.0000 lb	4	4		182.58	EA	730.32
YC1 02 02	21I08CT	8 MJ CAP C153 IMP WEIGHT: 26.0000 lb	2	2		110.16	EA	220.32
H 3 A	21AMF7082008PSC	8 MEGALUG W/ACC F/C900 2008PSC W/STD MJ GASKET WEIGHT: 24.6000 lb	10	10		62.65	EA	626.50
		TOTAL WEIGHT: 686.00						

END OF ORDER

MERCHANDISE SUBTOTAL	TAX	TAX AMOUNT	FREIGHT	DELIVERY	HANDLING	RESTOCKING	MISCELLANEOUS	TOTAL SALE
1,740.54	7.250	126.19	.00	.00	.00	.00	.00	1,866.73

This transaction is governed by and subject to Core & Main's standard terms and conditions, which are incorporated by reference and accepted. To review these terms and conditions, please visit http://tandc.coreandmain.com/.

RECEIVED BY SIGNATURE:

PRINT NAME HERE:

CORE & MAIN

1830 Craig Park Court
St. Louis, MO 63146

INVOICE

RECEIVED
NOV 20 2020
By_____

Invoice #	N331408
Invoice Date	11/19/20
Account #	123528
Sales Rep	DANIEL ANDERSON
Phone #	801-280-8485
Branch #033	West Jordan, UT
Total Amount Due	$256.21

Remit To:
CORE & MAIN LP
PO BOX 28330
ST LOUIS, MO 63146

GERBER CONSTRUCTION
815 E 675 S
LEHI UT 84043-3950

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00000

Shipped To:
2008-CVWRF BNR BASIN PROJECT
800 CENTRAL VALLEY RD
CALL SHAY 801-380-0083
SALT LAKE CITY, UT

CUSTOMER JOB- 2008 CVWRF BASIN

Thank you for the opportunity to serve you! We appreciate your prompt payment.

Date Ordered	Date Shipped	Customer PO #	Job Name	Job #	Bill of Lading	Shipped Via	Invoice#
11/10/20	11/18/20	SHAY	CVWRF BASIN	2008		CORE & MAIN LP	N331408

Product Code	Description	Quantity Ordered	Quantity Shipped	B/O	Price	UM	Extended Price
/20016333268	UFR1390-C-8-U-100 FORD BELL JOINT AIS COMPLIANT	3	3		79.63000	EA	238.89

Type I S P Acctng Period 11/20
Vendor # _____ Job # _____
Inv # N331408 Inv Date 11/19/20
Inv Desc 2008- BELL JOINT
Inv Total $ _____ Pro Rate Tax $ _____
Disc Amt $ _____ Disc Date _____

Job/Phase/GL # 2008 $ 256.21
Job/Phase/GL # _____ $ _____
Job/Phase/GL # _____ $ _____
Job/Phase/GL # _____ $ _____

Freight	Delivery	Handling	Restock	Misc

Subtotal:	238.89
Other:	.00
Tax:	17.32
Invoice Total:	$256.21

Terms: NET 30
Ordered By: SHAY

This transaction is governed by and subject to Core & Main's standard terms and conditions, which are incorporated by reference and accepted.
To review these terms and conditions, please visit: http://tandc.coreandmain.com/

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6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/07/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 004, Compost Sales Infrastructure

Dear Brandon,

Change Order 4 includes costs for labor and material to make electrical changes as specified in Change Control #006.

The change order includes 15% overhead and profit for work done by Geber, and 5% overhead and profit for subcontracted work, which is in accordance with the standard conditions of the contract. The total price for the change order will be $94,051.73 and 7 days will be added to the contract.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:
1. 00 94 10 (EJCDC form C-941, Change Order)
2. Contractor Quotation
3. CCF #006

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 04

Date of Issuance: 1/7/2021		Effective Date: 1/7/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description: Costs for labor and material to make electrical changes as specified in Change Control #006.

Attachments: Contractor Quotation (Gerber), Change Control Form #006

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 3 : $ 209,202.36	[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 3 : Substantial Completion: 19 Ready for Final Payment: 19 days
Contract Price prior to this Change Order: $ 123,476,883.36	Contract Times prior to this Change Order: Substantial Completion: 1,510 Ready for Final Payment: 1,600 days or dates
[Increase] [Decrease] of this Change Order: $94,051.73	[Increase] [Decrease] of this Change Order: Substantial Completion: 7 days Ready for Final Payment: 7 days days or dates
Contract Price incorporating this Change Order: $ 123,570,935.09	Contract Times with all approved Change Orders: Substantial Completion: 1,517 days Ready for Final Payment: 1,607 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 1/7/2021	Date 1/14/2021	Date 1/11/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 009
Date: 12/11/2020
Description: Per Change Control #006, cost for material and labor to make electrical changes as specified in change control. Pumps in sump area of electrical manhole will be (Little Giants) as submitted in this change order. The discharge piping for these pumps will be discharged in the curb face directly south of each manhole.

Skyline Electric (see attached back-up):	$45,276.89
Mark-up (5%):	$2,263.84
Gerber Construction Labor & Materials (see attached back-up):	$39,597.88
Bonds:	$846.47
Mark-up (15%):	$6,066.65
Total:	**$94,051.73**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $94,051.73 will be added to the contract price, and an additional 7 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	11/19/2020		
Project:	BNR BASINS CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**CCF 006 COMPOST SALE SHACK**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide Temporary power and fiber to relocated camera pole. Add additional conduits and wire and increase size on manholes as directed within CCF 006 document.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$15,966.23		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..		$0.00	
Base Labor Hours (from pricing sheets)……..			323.86

LABOR FACTOR:

material handling		2.00%					6.4772
cleanup		3.00%					9.7158
safety		1.25%					4.04825
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $1,189.48	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 17,155.71	loc 2 $ 0.00		344.10
			RATE: $	59.00
extension:			$	20,301.97

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	20,301.97

JOB EXPENSE:

permit				$0.00	FIELD Cont.					
OFFICE					Layout / Coordination	2		hrs@	$75.00	$150.00
project management	0	hrs@	$80.00	$0.00	Testing	0		hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0		hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight					$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables					$0.00
FIELD					Tools & Equipment		2% of Labor Dollars			$406.04
change management	0	hrs@	$75.00	$0.00	Jobsite Trailer / Storage Rental	0		mo@	$125.00	$0.00
change estimating	2	hrs@	$75.00	$150.00	Pick-up Truck	0		dy@	$80.00	$0.00
as-builds	1	hrs@	$75.00	$75.00	Equipment Rental	0		wk@	$600.00	$0.00
EXPENSE TOTAL									loc 4 $	781.04

MATERIAL		from loc 1	$	17,155.71
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	781.04
LABOR		from loc 3	$	20,301.97
WARRANTEE	1.50%		$	573.58
BOND	1.44%		$	558.90
subtotal			$	39,371.21
OVERHEAD + PROFIT	15.00%		$	5,905.68
TOTAL CHANGE			$	45,276.89

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF 006: COMPOST SALES SHACK PWR & COMMUNICATION

Takeoff

Vendor: Target **Labor Level:** **19 Nov 2020 7:26:41**

Item: BASE BID
└**Phase:** TEMPORARY FIBER AND POWER

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
4	325.00		M		12-STRAND SM FIBER	0.4400	143.00	0.0100	3.25
5	1.00		M		RELOCATION OF CAMERA POLE AND NETWORK	56.0000	56.00	30.0000	30.00
						Phase Totals:	**199.00**		**33.25**

Item: BASE BID
└**Phase:** ADDITIONAL CONDUITS IN DUCTBANK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
TITLE	250.00		M		6-DUCT / NO TRENCHING 2" PVC	0.0000	0.00	0.0000	0.00
10062	2,250.00	FT	M	2	PVC SCH 40	1.9555	4,399.88	0.0350	78.75
390077	150.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5346	230.19	0.1500	22.50
390068	150.00	EA	M	2 x 3	INTERMEDIATE DUCT BANK SPACER	1.4671	220.06	0.1500	22.50
390389	263.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0294	7.73	0.0045	1.18
40048	133.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	41.33	0.0090	1.20
TITLE	150.00		M	1	SCH 40 DIRECT-BURIED 1-DUCT	0.0000	0.00	0.0000	0.00
10059	250.00	FT	M	1	PVC SCH 40	0.9228	230.70	0.0325	8.13
40048	6.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	1.86	0.0135	0.08
20002	1.00	EA	M	1	PVC SCH 40 90-DEG ELBOW	0.9525	0.95	0.3100	0.31
30237	2.00	EA	M	1	PVC COUPLING	0.2664	0.53	0.1100	0.22
390499	1,600.00	FT	M	#4	STEEL REBAR	0.4425	708.00	0.0300	48.00
390552	19.00	YD	M	3000#	CONCRETE	145.0000	2,755.00	0.3750	7.13
	0.00				**HH 220001 SUMP PUMP**				
70061	459.00	FT	M	12	XHHW CU (STR)	0.2116	97.10	0.0175	8.03
	0.00				**HH 180005 SUMP PUMP POWER**				
70061	654.00	FT	M	12	XHHW CU (STR)	0.2116	138.36	0.0175	11.45
	0.00				**HH 001403 SUMP PUMP**				
70061	484.00	FT	M	12	XHHW CU (STR)	0.2116	102.39	0.0175	8.47

Item: BASE BID
Phase: ADDITIONAL CONDUITS IN DUCTBANK

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10100	10.00	FT	M	3/4	PVC COATED GRC 40MIL	5.0299	50.30	0.1000	1.00
6	1.00		M		PVC COATED FD BOX 3/4" HUB	43.7700	43.77	1.0000	1.00
150549	1.00	EA	M		1G FS/FD DUPLEX RECEPTACLE COVER	5.4547	5.45	0.1200	0.12
140108	1.00	EA	M	20A3W 125V	TWIST-LOCK RECEPT	19.3593	19.36	0.3750	0.38
490311	2.00	EA	M	3/4	PVC CTD 1-HOLE STRAP	13.0992	26.20	0.3750	0.75
	0.00				**HH 001405**				
70061	884.00	FT	M	12	XHHW CU (STR)	0.2116	187.01	0.0175	15.47
10100	10.00	FT	M	3/4	PVC COATED GRC 40MIL	5.0299	50.30	0.1000	1.00
6	1.00		M		PVC COATED FD BOX 3/4" HUB	43.7700	43.77	1.0000	1.00
150549	1.00	EA	M		1G FS/FD DUPLEX RECEPTACLE COVER	5.4547	5.45	0.1200	0.12
140108	1.00	EA	M	20A3W 125V	TWIST-LOCK RECEPT	19.3593	19.36	0.3750	0.38
490311	2.00	EA	M	3/4	PVC CTD 1-HOLE STRAP	13.0992	26.20	0.3750	0.75
	0.00				**POWER TO COMPOST SHACK**				
70062	984.00	FT	M	10	XHHW CU (STR)	0.3171	312.02	0.0200	19.68
						Phase Totals:	**9,723.29**		**259.58**

Item: BASE BID
Phase: TRAFFIC LOOP

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10059	20.00	FT	M	1	PVC SCH 40	0.9228	18.46	0.0650	1.30
						Phase Totals:	**18.46**		**1.30**

Item: BASE BID
Phase: LIGHTING

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
2	1.00		M		LIGHT POLE & FIXTURE QUOTE	3,968.0000	3,968.00	0.0000	0.00
TITLE	130.00		M	1	SCH 40 DIRECT-BURIED 1-DUCT	0.0000	0.00	0.0000	0.00
10059	130.00	FT	M	1	PVC SCH 40	0.9228	119.96	0.0325	4.23
40048	6.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	1.86	0.0135	0.08
20254	1.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	21.3829	21.38	0.8600	0.86
30286	2.00	EA	M	1	PVC FEMALE ADAPTER	0.4739	0.95	0.1100	0.22
390558	4.00	YD	M	3000#	CONCRETE ENCASEMENT	145.0000	580.00	0.3750	1.50
390033	1.00	EA	M	24" Dia	FIBER TUBE CONCRETE FORM 12ft	76.2800	76.28	1.1200	1.12

Item: BASE BID
└**Phase:** LIGHTING

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
390522	210.00	FT	M	#5	STEEL REBAR	0.6000	126.00	0.0450	9.45
20131	6.00	EA	M	1	GRC 90-DEG ELBOW	8.8965	53.38	0.6200	3.72
10059	30.00	FT	M	1	PVC SCH 40	0.9228	27.68	0.0650	1.95
30002	6.00	EA	M	1	GRC COUPLING	3.2391	19.43	0.2500	1.50
30286	6.00	EA	M	1	PVC FEMALE ADAPTER	0.4739	2.84	0.2200	1.32
390559	4.00	YD	M	4000#	CONCRETE ENCASEMENT	150.0000	600.00	0.3750	1.50
3	3.00		M	1" X 3'	J-BOLT KIT	115.0000	345.00	0.5000	1.50
70147	35.00	FT	M	2.	BARE CU (STR)	2.3631	82.71	0.0225	0.79
						Phase Totals:	**6,025.49**		**29.73**
						Job Totals:	**15,966.23**		**323.86**

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: 11/18/2020

Direct: 801-233-5460

Revision

JOB NAME: **CC30B BNR BASINS**
ATTN: BRAD

Item	Qty.	Description	Notes
RL1	2	FIXTURE HEAD	
RL1	2	25' 6" ROUND TAPERED ALUM. POLE	

TOTAL $3,968.00 ADDER

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

CHANGE CONTROL FORM 006
Compost Sales Shack – Power and Communication

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date:10/7/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☒ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Per RFI 28, RFI 30 and RFI 36, the attached drawings and schedules in Change Order 002 Figures have been modified to reflect changes to handholes and manholes for the BNR basins project. As discussed in a Teams meeting with Sam McBride, Brad Wilding and Bryan Brittain, some handholes have been changed in size and traffic cover ratings.

Change Order 002 Figures Manhole and Handhole schedule is updated to reflect enlarged and traffic rated handholes for HH190001 and HH190002. HH151001 through HH151010 can use a larger Old Castle Christy box specified at the Contractor's discretion.

Master Cable Schedules will be issued at a later date to reflect the changes shown per this change control form.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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MATCHLINE - SEE E-00-1005

NORTH

EXISTING SECONDARY CLARIFIER 10

EXISTING SECONDARY CLARIFIER 9

EXISTING SECONDARY CLARIFIER 7

EXISTING SECONDARY CLARIFIER 8

HH21003B

HH24022

MH24022

MATCHLINE - SEE E-00-1031

MATCHLINE - SEE E-00-1010

HH000901

DB000901

DB000902

RC

HH000902

DB001406

DB001405

RELOCATE HANDHOLES AND DUCT BANKS PER RFI #30

REFERENCE CHANGE CONTROL FORM 003 FOR RECONFIGURED COMPOST AREA

2 FL1 L 251 25'

AIT192701

DB190003

HH190001

HH190002

DB190001

DB190002

RWYP229301-H

RAS PUMP STATION AREA 22

EXISTING SOLIDS CONTACT TANKS

0 20 40

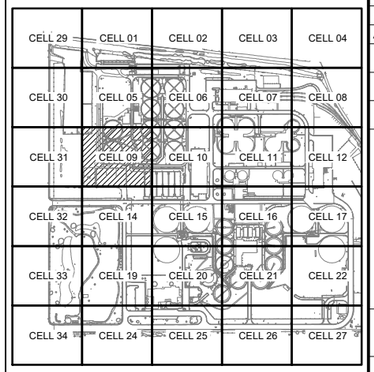
SCALE IN FEET

MATCHLINE - SEE E-00-1014

GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1009.DWG

BC PROJECT NUMBER
151600

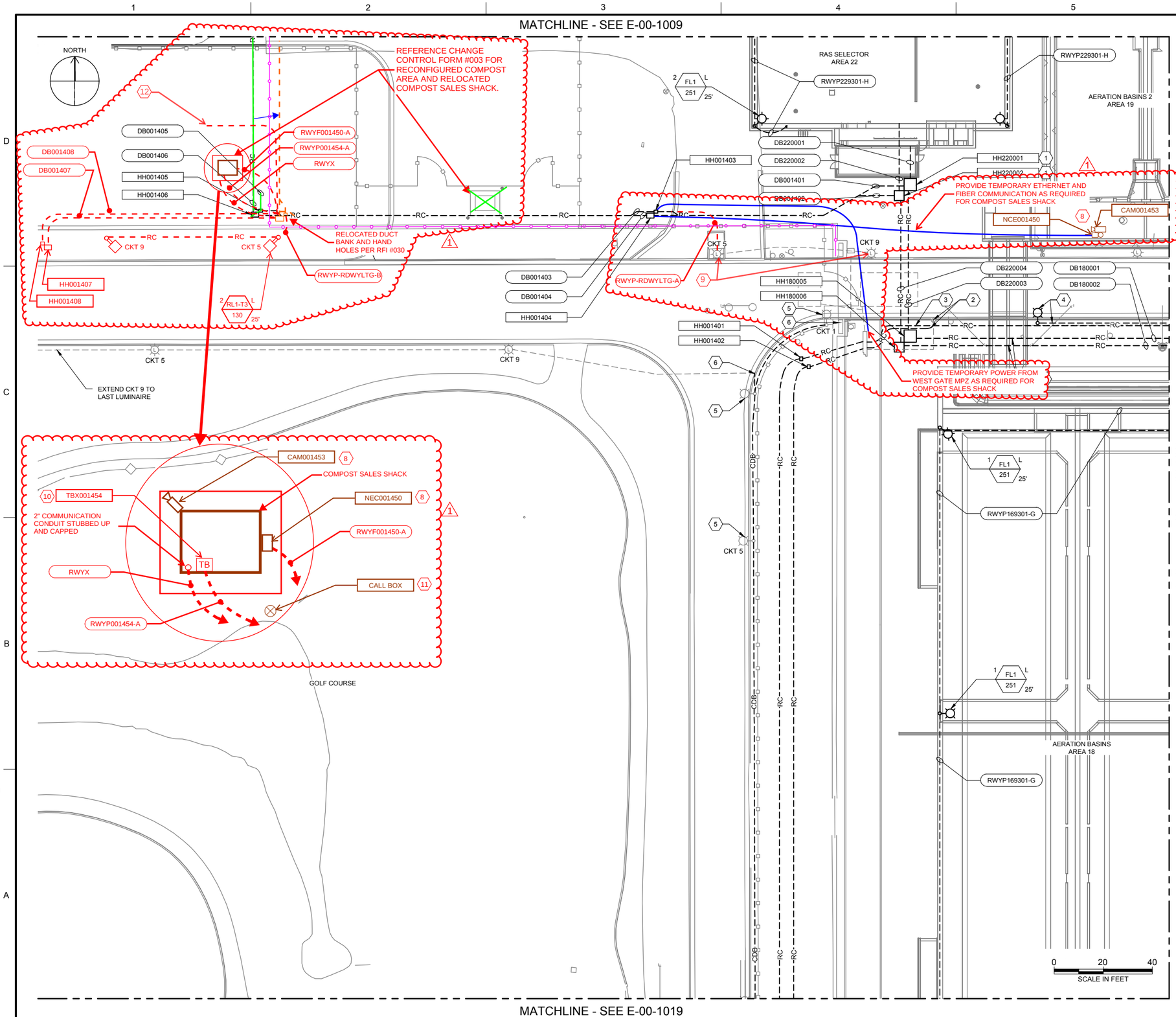
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1009

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1009.DWG PLOT DATE: 6/12/2020 11:10 AM CAD USER: BRYAN BRITTAIN



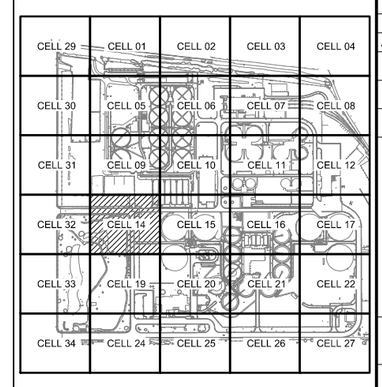
GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. LIGHTING CIRCUITS SHOWN ON THIS DRAWING ARE FED FROM ADMINISTRATION BUILDING PANEL PBD05519, UNLESS OTHERWISE INDICATED.

KEYNOTES:

1. HANDHOLE SHALL BE PROVIDED WITH AN H-20 TRAFFIC RATED COVER. SEE DETAIL E2702.
2. EXISTING GATE EXIT CONTROL STATION TO BE RE-INSTALLED. PROVIDE A NEW BASE AT GRADE PER DETAIL E4011. PROVIDE 1 INCH CONCRETE ENCASED RACEWAY FROM THE CONTROL STATION TO THE GATE CONTROL. PULL EXISTING CONTROL CONDUCTORS FROM THE GATE CONTROL SYSTEM TO THE CONTROL STATION AND RE-TERMINATE TO MAINTAIN THE EXISTING CONTROL SCHEME.
3. NEW SIGNAL DUCT BANK FROM HH001501 DEPICTED ON E-00-1015 TO GATE CONTROLS EQUIPMENT STAND. REFERENCE NOTE 5 ON E-00-1015.
4. PROVIDE A NEW LUMINAIRE POLE BASE PER DETAIL E9011 AND RE-INSTALL ROADWAY LUMINAIRE RETAINED DURING DEMOLITION. REFERENCE NOTE 3 ON E-00-1015 FOR RACEWAY AND FEEDER CIRCUIT REQUIREMENTS.
5. PROVIDE A NEW LUMINAIRE POLE BASE PER DETAIL E9011 AND RE-INSTALL ROADWAY LUMINAIRE RETAINED DURING DEMOLITION. THE CIRCUIT LISTED ADJACENT TO THE LUMINAIRE IS THE CIRCUIT DEFINED IN THE EXISTING DOCUMENTS. ONE ADDITIONAL LUMINAIRE WAS INSTALLED THEN ORIGINALLY DESIGNED IN THE EXISTING DOCUMENTS. PROVIDE A 2" CONDUIT BETWEEN EACH OF THE LUMINAIRES IN THE CIRCUITS AS DEPICTED. PROVIDE NEW LIGHTING POWER CONDUCTORS OF THE SAME SIZE AND QUANTITY FOR THE 3 ASSOCIATED CIRCUITS (CKTs 1, 5, 9) AND EXTEND TO LUMINAIRES AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
6. EXTEND THE EXISTING LIGHTING CIRCUIT RACEWAY RETAINED DURING DEMOLITION TO THE RE-INSTALLED LUMINAIRE AND EXTEND THE LIGHTING POWER CONDUCTORS FOR CIRCUITS 5 AND 9 TO THE REMAINING LUMINAIRES AND TERMINATE TO MAINTAIN THE EXISTING POWER SCHEME.
7. DUCT BANKS ARE CONNECTED TO BOTTOM OF CONNECTOR CHANNEL FOR CROSSING BENEATH. COORDINATE WORK WITH CONCRETE INSTALLER. REFER TO DRAWINGS S-19-4001, AND S-19-4101 FOR DETAILS ON ATTACHMENT TO BOTTOM OF CHANNEL.
8. EXISTING NETWORK CABINET AND CAMERA TO BE RE-LOCATED TO THE COMPOST SALES SHACK.
9. EXTEND EXISTING ROADWAY LIGHTING CIRCUITS 5 AND 9 VIA RACEWAY RWYP-RDWYLTG TO THE NEW LUMINAIRES AT THE COMPOST SALES SHACK ENTRY.
10. PROVIDE POWER DISTRIBUTION BLOCK IN THE TERMINAL BOX TO ACCOMMODATE ALL LOADS REQUIRED FOR THE COMPOST SALES SHAKE.
11. OWNER PROVIDED CONTRACTOR INSTALLED CALL BOX. PROVIDE A CONTROL STATION MOUNTING STAND PER DETAIL E4011 TO MOUNT THE CALL BOX IN A FEASIBLE LOCATION ALONG THE CURB AND GUTTER ALLOWING EASY ACCESS. EXACT LOCATION SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.
12. PROVIDE A 1" CONDUIT UNDER PAVEMENT FOR FUTURE VEHICLE DETECTION LOOP.

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/25/20	CHANGE ORDER 002

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1014.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1014

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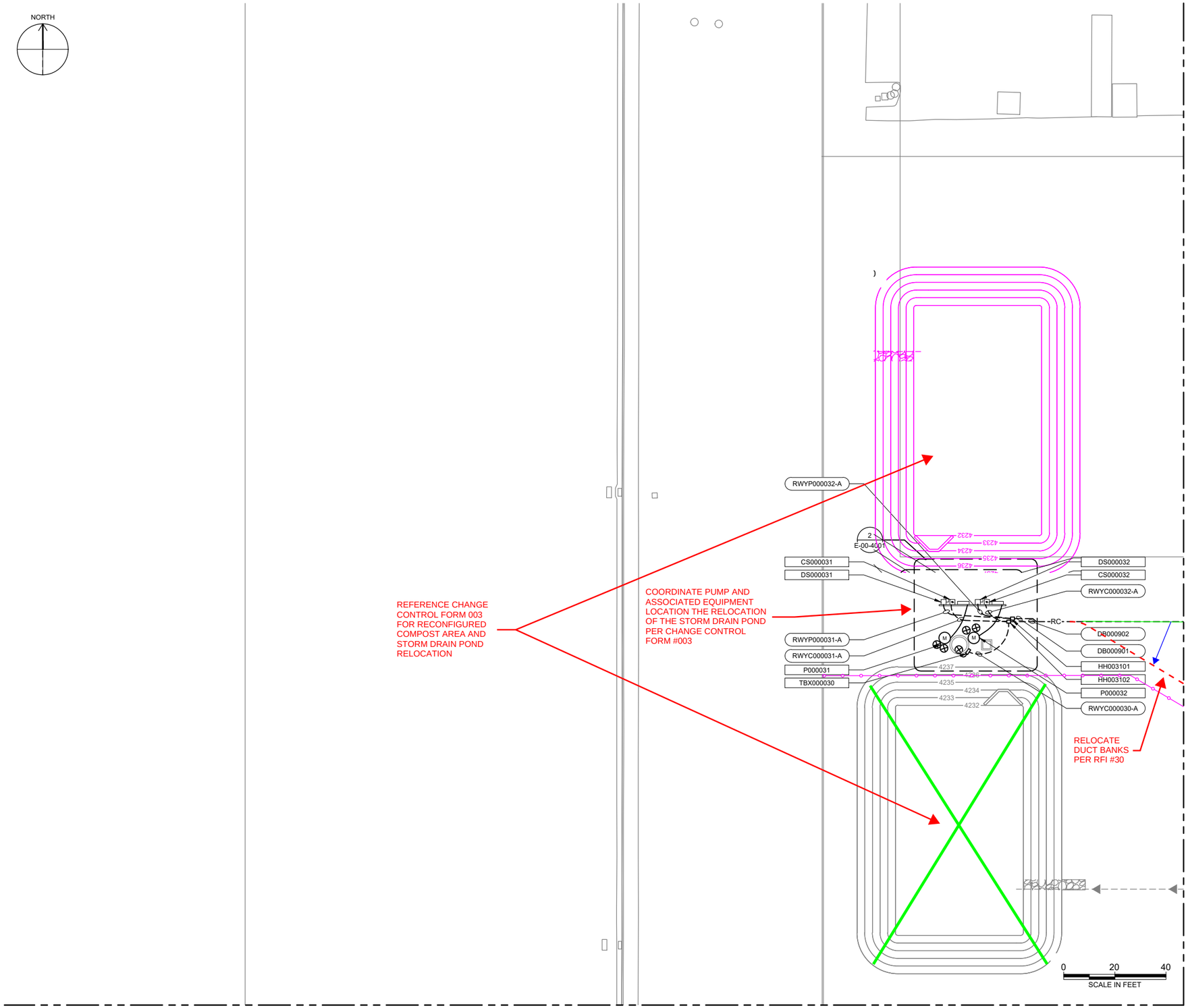
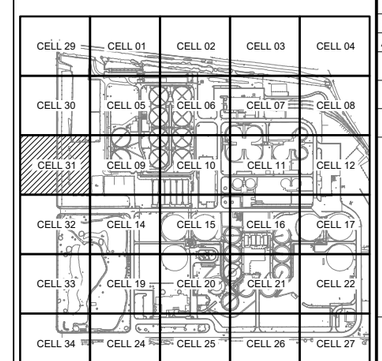


GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1031.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1031

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1031.DWG PLOT DATE: 6/12/2020 11:43 AM CAD USER: BRYAN BRITTAIN

PNL229301

VOLTAGE: 208Y/120V
3-PHASE
4-WIRE
REMARKS: UPS POWER PANEL FED FROM UPS229301

RATING: 100A
MAIN DISCONNECT: 100A CIRCUIT BREAKER
AIC: 18 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: TOP

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1							2	15/1	SPARE
		3							4	15/1	SPARE
		5						0.10	6	20/1	AIT223160
SPARE	15/1	7				0.10			8	20/1	AIT223105
SPARE	15/1	9							10	20/1	SPARE
AIT192701	20/1	11			0.10			0.40	12	15/1	HVAC TEMP CONTORLS
NCE220011	20/1	13	0.20						14	15/1	SPARE
MCC229101B (PMM229101B)	20/1	15		0.30					16	20/1	SPARE
FACP 220010 (NOTE 2)	20/1	17			1.44				18	20/1	SPARE
REC-DED SCADA	20/1	19	1.50						20	20/1	SPARE
REC-DED SCADA	20/1	21		1.50					22	20/1	SPARE
SPARE	20/1	23							24	20/1	SPARE
SPARE	20/1	25							26	20/1	SPARE
SPARE	20/1	27							28	20/1	SPARE
SPARE	20/1	29							30	20/1	SPARE
SPARE	20/1	31							32	20/1	SPARE
SPARE	20/1	33					0.60		34	20/1	CAB220001
PAC227850	20/1	35			0.40			0.60	36	20/1	NET229101BB
NET229101AB	20/1	37	0.60			0.60			38	20/1	CAB228901
HTT223150 (NOTE 3)	20/1	39		0.10					40	20/1	SPARE
MCC229101A (PMM229101A)	20/1	41			0.30				42	20/1	SPARE

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	2.30	1.90	2.24
LOAD SUBTOTAL, RIGHT (kVA):	0.70	0.60	1.10
LOAD TOTAL (kVA):	3.00	2.50	3.34
TOTAL AMPS PER PHASE (A):	24.98	20.82	27.81

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	0.00	kVA	100	%	0.00	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	0.00	kVA	125	%	0.00	kVA
LM = LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M = OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S = DEDICATED RECEPTACLES	3.00	kVA	100	%	3.75	kVA
Z = MISC. OR APPLIANCES	5.84	kVA	100	%	7.30	kVA
TOTALS:	8.84	kVA			11.05	kVA

NOTES:
1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.
2. FIRE ALARM CIRCUIT, LOCKABLE IN THE ON POSITION.
3. PROVIDE GFEP TYPE BREAKER WITH 30mA TRIP SETTINGS ON HEAT TRACE CIRCUITS.

PNL229302

VOLTAGE: 208Y/120V
3-PHASE
4-WIRE
REMARKS: FED FROM PNL229302

RATING: 100A
MAIN DISCONNECT: 100A CIRCUIT BREAKER
AIC: 18 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: TOP

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				0.30			2	15/1	UH228033
		3					0.30		4	15/1	UH228034
		5							6	20/1	SPARE
UH228031	15/1	7	0.30						8	20/1	SPARE
UH228021	15/1	9		0.30			0.10		10	20/1	EF228002
COMPOST SALES SHACK	30/1 ~~20/1~~	11			2.8				12	15/1	SPARE
SPARE	20/1	13				0.87			14	15/2	HXT228012
HH220001 SUMP PUMP	20/1	15		1.18			0.87		16		
HH120005 SUMP PUMP	20/1	17			1.18			1.20	18	20/1	LTG DRY PIT
HH001403 SUMP PUMP	20/1	19	1.18			0.27			20	20/1	LTG DRY PIT
HH001405 SUMP PUMP	20/1	21		1.18			0.76		22	20/1	LTG DRY PIT
REC-ELEC RM	20/1	23			0.60			0.02	24	20/1	LTG DRY PIT
REC-DRY PIT	20/1	25	0.80			0.27			26	20/1	LTG ELEC RM
REC-EXTERIOR	20/1	27		0.72			0.01		28	20/1	LTG ELEC RM
LTG STAIRWELL	20/1	29			0.16			0.88	30	20/1	LTG SITE N
LTG STAIRWELL	20/1	31	0.69			0.59			32	20/1	LTG SITE S
REC-DRY PIT WEST WALL	20/1	33		0.36					34	20/1	SPARE
SPARE	20/1	35							36	20/1	SPARE
Future Space	1	37							38	20/1	SPARE
Future Space	1	39					0.10		40	20/1	LTG OUTSIDE
Future Space	1	41						0.03	42	20/1	LTG OUTSIDE

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	~~4.70~~ 2.97	~~4.38~~ 2.56	~~6.76~~ 4.74
LOAD SUBTOTAL, RIGHT (kVA):	2.29	2.13	2.13
LOAD TOTAL (kVA):	~~9.08~~ 5.26	~~6.51~~ 4.69	~~8.89~~ 6.87
TOTAL AMPS PER PHASE (A):	~~33.32~~ 43.83	~~26.49~~ 39.08	~~24.09~~ 57.25

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	1.20	kVA	100	%	1.50	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	4.97	kVA	125	%	7.77	kVA
LM = LARGEST SINGLE MOTOR	1.50	kVA	125	%	2.34	kVA
M = OTHER MOTOR LOADS	0.10	kVA	100	%	0.13	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.36	kVA	125	%	0.56	kVA
S = DEDICATED RECEPTACLES	2.12	kVA	100	%	2.65	kVA
Z = MISC. OR APPLIANCES	0.00	kVA	100	%	0.00	kVA
TOTALS:	10.25	kVA			14.95	kVA

NOTES:
1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

PNL229201

VOLTAGE: 480V
3-PHASE
3-WIRE
REMARKS: FED FROM ATS229201

RATING: 225A
MAIN DISCONNECT: 225A CIRCUIT BREAKER
AIC: 35 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
FEED TO XFMR229302	70/3	1	3.99			3.75			2	70/3	FEED TO XFMR229301
		3		3.42			3.12		4		
		5			2.89			4.17	6		
SPARE	20/3	7							8	30/3	SPARE
		9							10		
		11							12		
Future Space	3	13							14	3	Future Space
		15							16		
		17							18		
SPD (NOTE 1)	30/3	19							20	3	Future Space
		21							22		
		23							24		

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	3.99	3.42	2.89
LOAD SUBTOTAL, RIGHT (kVA):	3.75	3.12	4.17
LOAD TOTAL (kVA):	7.74	6.55	7.07
TOTAL AMPS PER PHASE (A):	25.98	22.84	24.24

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	1.20	kVA	100	%	1.50	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	4.97	kVA	125	%	7.77	kVA
LM = LARGEST SINGLE MOTOR	1.50	kVA	125	%	2.34	kVA
M = OTHER MOTOR LOADS	0.10	kVA	100	%	0.13	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.36	kVA	125	%	0.56	kVA
S = DEDICATED RECEPTACLES	2.12	kVA	100	%	2.65	kVA
Z = MISC. OR APPLIANCES	0.00	kVA	100	%	0.00	kVA
TOTALS:	10.25	kVA			14.95	kVA

NOTES:
1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/25/20	CHANGE ORDER 002

LINE IS 2 INCHES AT FULL SIZE

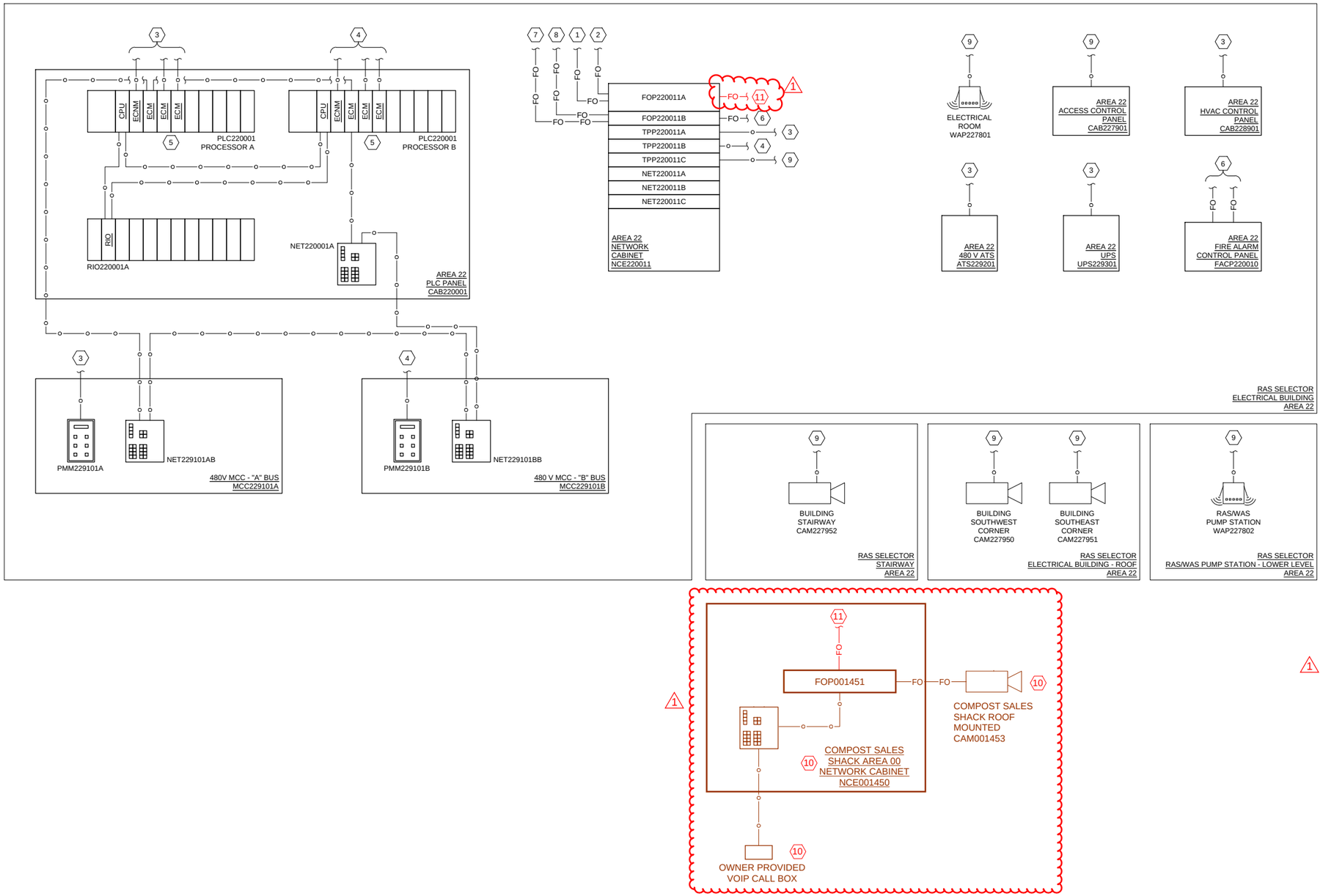
DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-22-6001.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
RAS/WAS BASIN ELECTRICAL 120V PANEL SCHEDULES

DRAWING NUMBER
E-22-6001

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-22-6001.DWG PLOT DATE: 6/11/2020 2:22 PM CAD USER: STEVEN CANAS



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. PATCHING BETWEEN AREA NETWORK CABINET TWISTED PAIR PATCH PANELS (TPP) AND NETWORK SWITCHES PROVIDED BY OWNER. PATCHING BETWEEN AREA NETWORK CABINET NETWORK SWITCH FIBER-OPTIC UPLINK PORTS AND FIBER-OPTIC PATCH PANELS (FOP) PROVIDED BY OWNER.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP220011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.

5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP220011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011B IN AREA NETWORK CABINET.
5. OWNER TO PATCH BETWEEN ETH 1 PORT ON ETHERNET CONTROL NETWORK MODULE (ECNM) AND ETH 1 PORT ON ADJACENT ETHERNET COMMUNICATIONS MODULE (ECM).
6. TWO 2-FIBER, MULTI-MODE PATCH CORDS FROM FIRE ALARM CONTROL PANEL TO FIBER-OPTIC PATCH PANEL FOP220011B.
7. 12-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
8. 12-FIBER, MULTI-MODE CABLE TO NCE160011 IN PEPS ELECTRICAL BUILDING (AREA 16) ELECTRICAL ROOM. SEE DRAWING I-16-6101 FOR CONTINUATION.
9. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011C IN AREA NETWORK CABINET.
10. EXISTING NETWORK CABINET, CAMERA AND OWNER PROVIDED CALL BOX TO BE LOCATED AND RECONNECTED AT THE COMPOST SALES SHACK AS SHOWN ON E-00-1014.
11. 12-FIBER, SINGLE MODE CABLE TO COMPOST SALES SHACK (AREA 00).

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/25/20	CHANGE ORDER 002

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: L. LUBKE
CHECKED:
APPROVED: J. COX

FILENAME
I-22-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 22 NETWORK DIAGRAM

DRAWING NUMBER
I-22-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-22-6101.DWG PLOT DATE: 11/8/2019 1:15 PM CAD USER: KEN WESTERBERG

Cable Schedule

September 2020

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLX001401-B	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-B						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001401-C	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-C						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001401-D	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-D							CC30B
CBLX001401-E	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-E							CC30B
CBLX001402-B	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-B						SPARE COM's TO COMPOST SALES SHACK	CC30B
CBLX001402-C	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-C						SPARE VEHICAL LOOP DETECTION AT COMPOST SALES SHACK	CC30B
CBLX001402-D	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-D						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLX001402-E	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-E						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLX001402-F	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-F							CC30B
CBLX001403-B	PULLROPE	PULLROPE	HH001405	HH001403	RWYX001403-B						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001403-C	PULLROPE	PULLROPE	HH001405	HH001403	RWYX001403-C						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001403-D	PULLROPE	PULLROPE	HH001405	HH001403	RWYX001403-D							CC30B
CBLX001404-B	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-B						SPARE COM's TO COMPOST SALES SHACK	CC30B
CBLX001404-C	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-C						SPARE VEHICAL LOOP DETECTION AT COMPOST SALES SHACK	CC30B
CBLX001404-D	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-D						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLX001404-E	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-E						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLX001404-F	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-F							CC30B
CBLX001407-A	PULLROPE	PULLROPE	HH001407	HH001405	RWYX001407-A						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001407-B	PULLROPE	PULLROPE	HH001407	HH001405	RWYX001407-B						SPARE POWER TO FUTURE WEST GATE	CC30B
CBLX001408-A	PULLROPE	PULLROPE	HH001408	HH001406	RWYX001408-A						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLX001408-B	PULLROPE	PULLROPE	HH001408	HH001406	RWYX001408-B						SPARE SIGNAL TO FUTURE WEST GATE	CC30B
CBLF001450-A	FOTSM	12 FiberSM	NEC001450	NCE220011	RWYF001450-A	HH001406	RWYF001404-A	HH001404	RWYF220002-C			CC30B
					HH220002	RWYF220011A-A						CC30B
CBLX001450-A	PULLROPE	PULLROPE	COMPOST SHACK	HH001406	RWYX001450-A						SPARE COM's TO COMPOST SALES SHACK	CC30B
CBLP001454-A	XHHW2	1#10, 1#10N 1#10G	TBX001454	PNL229302	RWYP001454-A	HH001405	RWYP001403-B	HH001403	RWYP220001-F			CC30B
					HH220001	RWYP~~220301-I~~ 229302-A						CC30B
CBLPRDWYLTG	XHHW2	MATCH EXISTING	W GATE LTG	COMPOST LTG	RWYP-RDWYLTG-A	HH001403	RWYP001403-C	HH001405	RWYP-RDWYLTG-B			
CBLP~~229301-I~~ 229302-A	XHHW2	1#12, 1#12N, 1#12G	PNL~~229301~~ 229302	HH220001	RWYP~~229301-I~~ 229302-A					E-00-1014	HH220001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 22 CABLE SCHEDULE	CC30B
CBLP~~229301-J~~ 229302-B	XHHW2	1#12, 1#12N, 1#12G	PNL~~229301~~ 229302	HH180005	RWYP~~229301-I~~ 229302-A	HH220001	RWYP180005-G			E-00-1014	HH180005 SUMP PUMP. CABLE ALSO APPEARS IN AREA 22 CABLE SCHEDULE	CC30B
CBLP229302-C	XHHW2	1#12, 1#12N, 1#12G	PNL229302	HH001403	RWYP229302-A	HH220001	RWYP001401-A				HH001403 SUMP PUMP	CC30B
CBLP229302-D	XHHW2	1#12, 1#12N, 1#12G	PNL229302	HH001405	RWYP229302-A	HH220001	RWYP001401-A	HH001403	RWYP001403-D		HH001405 SUMP PUMP	CC30B
CBLX229302-A	PULLROPE	PULLROPE	HH220001	PNL229302	RWYX229302-A							CC30B
CBLX229302-B	PULLROPE	PULLROPE	HH220001	PNL229302	RWYX229302-B							CC30B

Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP001401-A	1	RACEWAY	DB001401	CBLP229302-A	HH001403	HH220001		CC30B
				CBLP229302-B				
RWYX001401-B	2	RACEWAY	DB001401	CBLX001401-B	HH001403	HH220001	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001401-C	2	RACEWAY	DB001401	CBLX001401-C	HH001403	HH220001	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001401-D	2	RACEWAY	DB001401	CBLX001401-D	HH001403	HH220001		CC30B
RWYX001401-E	2	RACEWAY	DB001401	CBLX001401-E	HH001403	HH220001		CC30B
RWYX001402-B	2	RACEWAY	DB001402	CBLX001402-B	HH001404	HH220002	SPARE COM's TO COMPOST SALES SHACK	CC30B
RWYX001402-C	2	RACEWAY	DB001402	CBLX001402-C	HH001404	HH220002	SPARE VEHICAL LOOP DETECTION AT COMPOST SALES SHACK	CC30B
RWYX001402-D	2	RACEWAY	DB001402	CBLX001402-D	HH001404	HH220002	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYX001402-E	2	RACEWAY	DB001402	CBLX001402-E	HH001404	HH220002	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYX001402-F	2	RACEWAY	DB001402	CBLX001402-F	HH001404	HH220002		CC30B
RWYP001403-B	1	RACEWAY	DB001403	CBLP001454-A	HH001405	HH001403		CC30B
RWYP001403-C	1	RACEWAY	DB001403	CBLPRDWYLTG	HH001405	HH001403		CC30B
RWYP001403-D	1	RACEWAY	DB001403	CBLP229302-D	HH001405	HH001403		CC30B
RWYX001403-B	2	RACEWAY	DB001403	CBLX001403-B	HH001405	HH001403	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001403-C	2	RACEWAY	DB001403	CBLX001403-C	HH001405	HH001403	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001403-D	2	RACEWAY	DB001403	CBLX001403-D	HH001405	HH001403		CC30B
RWYF001404-A	2	RACEWAY	DB001404	CBLF001450-A	HH001406	HH001404		CC30B
RWYX001404-B	2	RACEWAY	DB001404	CBLX001404-B	HH001406	HH001404	SPARE COM's TO COMPOST SALES SHACK	CC30B
RWYX001404-C	2	RACEWAY	DB001404	CBLX001404-C	HH001406	HH001404	SPARE VEHICAL LOOP DETECTION AT COMPOST SALES SHACK	CC30B
RWYX001404-D	2	RACEWAY	DB001404	CBLX001404-D	HH001406	HH001404	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYX001404-E	2	RACEWAY	DB001404	CBLX001404-E	HH001406	HH001404	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYX001404-F	2	RACEWAY	DB001404	CBLX001404-F	HH001406	HH001404		CC30B
RWYF001450-A	2	RACEWAY		CBLF001450-A	NEC001450	HH001406		CC30B
RWYX001450-A	2	RACEWAY		CBLX001450-A	COMPOST SHACK	HH001406		
RWYP001454-A	1	RACEWAY		CBLP001454-A	TBX001454	HH001405		CC30B
RWYX001407-A	2	RACEWAY	DB001407	CBLX001407-A	HH001407	HH001405	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001407-B	2	RACEWAY	DB001407	CBLX001407-B	HH001407	HH001405	SPARE POWER TO FUTURE WEST GATE	CC30B
RWYX001408-A	2	RACEWAY	DB001408	CBLX001408-A	HH001408	HH001406	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYX001408-B	2	RACEWAY	DB001408	CBLX001408-B	HH001408	HH001406	SPARE SIGNAL TO FUTURE WEST GATE	CC30B
RWYP220001-F	1	RACEWAY	DB001401	CBLP001454-A	HH001403	HH220001		CC30B
RWYF220002-C	2	RACEWAY	DB001402	CBLF001450-A	HH001404	HH220002		CC30B
RWYF220011A-A	4	Raceway	DB220002	CBLF220011A-A	HH220002	NCE220011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
				CBLF001451-A				
RWYP~~229301-I~~ 229302-A	1	Raceway	DB220001	CBLP~~229301-I~~ 229302-A	PNL~~229301~~ 229302	HH220001		CC30B
				CBLP~~229301-J~~ 229302-B				
				CBLP001454-A				
RWYX229302-A	2	RACEWAY	DB220001	CBLX229302-A	PNL229302	HH220001		CC30B
RWYX229302-B	2	RACEWAY	DB220001	CBLX229302-B	PNL229302	HH220001		CC30B
RWYP-RDWYLTG-A	1	RACEWAY						CC30B
RWYP-RDWYLTG-B	1	RACEWAY						CC30B

1 9/25/20 CHANGE ORDER 002

Duct Bank Schedule

September 2020

DUCT BANK TAG	RACEWAY	COMMENTS	CONTRACT / REV
DB001401	RWYP220001-E		CC30B
	RWYX001401-A		
	RWYP220001-F RWYP001401-A RWYX001401-B RWYX001401-C RWYX001401-D RWYX001401-E		
DB001402	RWYC220002-A		CC30B
	RWYX001402-A		
	RWYF220002-C RWYX001402-B RWYX001402-C RWYX001402-D RWYX001402-E RWYX001402-F		
DB001403	RWYP001403-A		CC30B
	RWYX001403-A		
	RWYP001403-B RWYP001403-C RWYP001403-D RWYX001403-B RWYX001403-C RWYX001403-D		
DB001404	RWYC001404-A		CC30B
	RWYX001404-A		
	RWYF001404-A RWYX001404-B RWYX001404-C RWYX001404-D RWYX001404-E RWYX001404-F		
DB001407	RWYX001407-A		CC30B
	RWYX001407-B		
DB001408	RWYX001408-A		CC30B
	RWYX001408-B		
DB220001	RWYP229101A-A		CC30B
	RWYP229101A-B		
	RWYP229101A-E		
	RWYP229101B-A		
	RWYP229101B-B		
	RWYP229101B-E		
	RWYP~~229301-1~~229302-A		
	RWYX220001-D		
	RWYX220001-E		
	RWYX229101A-C		
	RWYX229101A-D		
	RWYX229101B-C		
	RWYX229101B-D		
	RWYX229301-A		
	RWYX229301-B		
	RWYX229302-A RWYX229302-B		

1

1 9/25/20 CHANGE ORDER 002

Engineer: JDC
January 2020

Manhole and Handhole Schedule

MANHOLE/ HANDHOLE TAG	NOMINAL SIZE LXWXD FEET INCHES	COMMENTS	CONTRACT/REV
HH000901	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ REVISE SIZE AND PROVIDE TRAFFIC RATED COVER PER RFI 28	CC30B
HH000902	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ REVISE SIZE AND PROVIDE TRAFFIC RATED COVER PER RFI 28	CC30B
HH001001	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30A
MH001001	5'x7'x6'D	DRAIN TO HH001001	CC30A
HH001002	4'x4'x6'D	DRAIN TO HH001001	CC30A
HH001401	20"x15"x12"D	OLDCASTLE N09 OR EQUAL	CC30B
HH001402	20"x15"x12"D	OLDCASTLE N09 OR EQUAL	CC30B
HH001403	~~20"x15"x12"D~~ 5'x7'x6'D	~~OLDCASTLE N09 OR EQUAL~~ TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH001404	~~20"x15"x12"D~~ 4'x4'x6'D	~~OLDCASTLE N09 OR EQUAL~~ DRAIN TO HH001403	CC30B
HH001405	~~20"x15"x12"D~~ 5'x7'x6'D	~~OLDCASTLE N09 OR EQUAL~~ TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH001406	~~20"x15"x12"D~~ 4'x4'x6'D	~~OLDCASTLE N09 OR EQUAL~~ DRAIN TO HH001405	CC30B
HH001901	20"x15"x12"D	OLDCASTLE N09 OR EQUAL PROVIDE A LARGER OLDCASTLE CHRISTY BOX TO ACCOMMODATE THE ADDITIONAL GOLF COURSE CONDUITS	CC30B
HH001902	20"x15"x12"D	OLDCASTLE N09 OR EQUAL PROVIDE A LARGER OLDCASTLE CHRISTY BOX TO ACCOMMODATE THE ADDITIONAL GOLF COURSE CONDUITS	CC30B
HH003101	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ REVISE SIZE AND PROVIDE TRAFFIC RATED COVER PER RFI 28	CC30B
HH003102	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ REVISE SIZE AND PROVIDE TRAFFIC RATED COVER PER RFI 28	CC30B
HH020001	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC5F
HH020002	20"x15"x12"D	OLDCASTLE N09 OR EQUAL	CC5F
HH020003	20"x15"x12"D	OLDCASTLE N09 OR EQUAL	CC5F
HH150001	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150002	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150003	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150004	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150005	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B

1 9/25/20 CHANGE ORDER 002

MANHOLE/ HANDHOLE TAG	NOMINAL SIZE LXWXD FEET INCHES	COMMENTS	CONTRACT/REV
HH150006	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150007	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150008	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150009	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH150010	20"x15"x12"D	OLDCASTLE N09 OR EQUAL CONTRACTOR CAN PROVIDE A LARGER OLDCASTLE CHRISTY BOX AT HIS DISCRETION.	CC30B
HH160001	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH160002	4'x4'x6'D	DRAIN TO HH160001	CC30B
HH160003	4'x4'x6'D	DRAIN TO HH160004	CC30B
HH160004	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH160005	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH160006	4'x4'x6'D	DRAIN TO HH160005	CC30B
HH160007	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH160008	4'x4'x6'D	DRAIN TO HH160007	CC30B
HH160009	5'x7'x6'D	DRAIN TO HH160009	CC30B
HH160010	4'x4'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH170001	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH170002	4'x4'x6'D	DRAIN TO HH170001	CC30B
HH180001	4'x4'x6'D	DRAIN TO HH180002	CC30B
HH180002	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH180003	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH180004	4'x4'x6'D	DRAIN TO HH180003	CC30B
HH180005	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH180006	4'x4'x6'D	DRAIN TO HH180005	CC30B
HH180007	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH180008	4'x4'x6'D	DRAIN TO HH180007	CC30B
HH190001	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ LOCATED WITHIN PAVED AREA, REVISE SIZE AND PROVIDE TRAFFIC RATED COVER	CC30B
HH190002	~~20"x15"x12"D~~ 4' x 4' x 4'	~~OLDCASTLE N09 OR EQUAL~~ LOCATED WITHIN PAVED AREA, REVISE SIZE AND PROVIDE TRAFFIC RATED COVER	CC30B
HH220001	5'x7'x6'D	TO BE PROVIDED WITH SUMP AND PUMP PER DETAIL E2702	CC30B
HH220002	4'x4'x6'D	DRAIN TO HH220001	CC30B
MH340001	5'x7'x6'D	DRAIN TO MH341001	CC30A

1 9/25/20 CHANGE ORDER 002

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-009 Mulch Facility Power Change - CC#006	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-009	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Material & Labor	**1.00**	**UNIT**	**$39,597.88**	**$39,597.88**	**$45,991.71**	**$45,991.71**	**15.00%**
Excavation Crew, Medium (New Duct Bank 106') (30.00 CY/DY, 1.07 DY)	32.00	CY	$87.18	$2,789.71			
04 Skilled Labor	9.60	HR	$83.01	$796.87			
Loader, 5 Yard (Volvo 150)	8.53	HR	$70.03	$597.55			
Excavator, Crawler, 220	8.53	HR	$66.50	$567.47			
07 Operator	9.60	HR	$86.23	$827.82			
Backfill Crew, Medium (New Duct Bank 106') (16.00 CY/DY, 1.00 DY)	16.00	CY	$187.25	$2,995.95			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
Loader, 5 Yard (Volvo 150)	8.00	HR	$70.03	$560.20			
Compactor, Trench, 32"	8.00	HR	$39.48	$315.80			
Compactor, Jumping Jack	8.00	HR	$8.10	$64.80			
07 Operator	9.00	HR	$86.23	$776.09			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Excavation Crew, Medium (Larger Duct Bank 254' & 2 Larger Boxes) (30.00 CY/DY, 3.17 DY)	95.00	CY	$87.18	$8,281.95			
04 Skilled Labor	28.50	HR	$83.01	$2,365.72			
Loader, 5 Yard (Volvo 150)	25.33	HR	$70.03	$1,773.97			
Excavator, Crawler, 220	25.33	HR	$66.50	$1,684.67			
07 Operator	28.50	HR	$86.23	$2,457.60			
Backfill Crew, Medium (Larger Duct Bank 254' & 2 Larger Boxes) (20.00 CY/DY, 2.40 DY)	48.00	CY	$149.80	$7,190.29			
Excavator, Crawler, 220	19.20	HR	$66.50	$1,276.80			
Loader, 5 Yard (Volvo 150)	19.20	HR	$70.03	$1,344.48			
Compactor, Trench, 32"	19.20	HR	$39.48	$757.92			
Compactor, Jumping Jack	19.20	HR	$8.10	$155.52			
07 Operator	21.60	HR	$86.23	$1,862.60			
04 Skilled Labor	21.60	HR	$83.01	$1,792.97			
Excavation Crew, Medium (Temp Conduits 225') (33.00 CY/DY, 1.00 DY)	33.00	CY	$79.25	$2,615.35			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - Gerber Material & Labor continued)							
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Loader, 5 Yard (Volvo 150)	8.00	HR	$70.03	$560.20			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
07 Operator	9.00	HR	$86.23	$776.09			
Backfill Crew, Medium (Temp Conduits 225') (33.00 CY/DY, 1.00 DY)	33.00	CY	$90.79	$2,995.95			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
Loader, 5 Yard (Volvo 150)	8.00	HR	$70.03	$560.20			
Compactor, Trench, 32"	8.00	HR	$39.48	$315.80			
Compactor, Jumping Jack	8.00	HR	$8.10	$64.80			
07 Operator	9.00	HR	$86.23	$776.09			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Excavation Crew, Medium (3 Light Pole Bases) (6.00 EACH/DY, 0.50 DY)	3.00	EACH	$865.65	$2,596.96			
01 Superintendent	4.50	HR	$157.26	$707.68			
04 Skilled Labor	4.50	HR	$83.01	$373.53			
Excavator, Crawler, 220	4.00	HR	$66.50	$266.00			
07 Operator	4.50	HR	$86.23	$388.04			
Super Sucker Vacuum Truck	4.00	HR	$94.20	$376.80			
02 Foreman	4.50	HR	$107.76	$484.90			
Backfill Crew, Medium (3 Light Pole Bases) (10.00 UNIT/DY, 0.30 DY)	3.00	UNIT	$212.00	$635.99			
Excavator, Crawler, 220	2.40	HR	$66.50	$159.60			
Compactor, Jumping Jack	2.40	HR	$8.10	$19.44			
07 Operator	2.70	HR	$86.23	$232.83			
04 Skilled Labor	2.70	HR	$83.01	$224.12			
Pipe Fitter 2 Men (1.50 UNIT/DY, 1.33 DY)	2.00	UNIT	$1,655.80	$3,311.59			
Pipefitter	12.00	HR	$127.36	$1,528.30			
04 Skilled Labor	12.00	HR	$83.01	$996.09			
Material Lift, Manual, 650 Lb Load	0.27	WK	$50.00	$13.33			
Concrete Core drill	10.67	HR	$6.05	$64.53			
Excavator, Crawler, 220	10.67	HR	$66.50	$709.33			
Sump Pump, 1/3 HP Little Giant	2.00	EACH	$412.99	$825.98			
Pipe, Sch 80 PVC & Misc Fittings	40.00	LS	$18.62	$744.70			
Trucking (1.00 DY, 0.35 Trucks, 3.00 TON/HR)	24.00	TON	$13.53	$324.71			
Dump Fees/Ton	24.00	TON	$10.00	$240.00			
Onsite Supervision	1.00	LS	$4,048.73	$4,048.73			
01 Superintendent	9.00	HR	$157.26	$1,415.37			
02 Foreman	13.50	HR	$107.76	$1,454.71			
19 Project Engineer	6.75	HR	$120.14	$810.91			
Truck, Pickup, 1 Ton	0.19	MO	$1,976.63	$367.74			
D 02 - Subcontractor Labor And Material	**1.00**	**LS**	**$45,276.89**	**$45,276.89**	**$48,060.02**	**$48,060.02**	**5.10%**
S Electrical Sub (Skyline Electric Company)	1.00	LS	$45,276.89	$45,276.89			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$23,289.54	27.44%
Equipment Owned:	$14,159.62	16.68%
Equipment Rented:	$13.33	0.02%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,300.68	1.53%
Subcontracted:	$45,276.89	53.35%
Trucking Owned:	$324.71	0.38%
Trucking Hired:	$270.00	0.32%
Miscellaneous:	$240.00	0.28%
Plug:	$0.00	0.00%
Direct Cost:	$84,874.77	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$84,874.77	90.24%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$846.47	0.90%
Total Overall Cost:	$85,721.23	91.14%
Total Overhead:	$0.00	0.00%
Total Profit:	$8,330.50	8.86%
Total Margin:	$8,330.50	8.86%
Total Bid Price:	$94,051.73	

HOUSE OF PUMPS

Quote

P.O. Box 389
8510 Sandy Parkway
Sandy, Utah 84070
Ph: (801)-262-3369 Fax: (801)-265-8646

Date	Quote #
12/9/2020	29531

Bill To:

GERBER CONSTRUCTION
815 E 675 S
LEHI
UT
84043

Ship To

Your P.O. No.	Terms	Due Date	Salesmen
SHAY	Cash	12/9/2020	DG

Qty	Item	Description	U/M	Unit Cost	Total
2.0	6EC-CIA-SFS	1/3 HP Sump Pump, 115 Volt, 1-1/2" Discharge THIS DOES NOT INCLUDE FREIGHT 3-5 DAYS OUT TO SHIP	ea	305.25	610.50T

	Subtotal
Unless otherwise stated all quotes are good for 60 days. A service charge of 1.5% per month will be applied to all past due accounts. Purchaser agrees to pay all collection costs, including attourney's fees.	**Sales Tax (7.25%)**
	Total

Customer supplied voltage is _____ Phase, _____ Volts.

Approved date _____

Signature _____

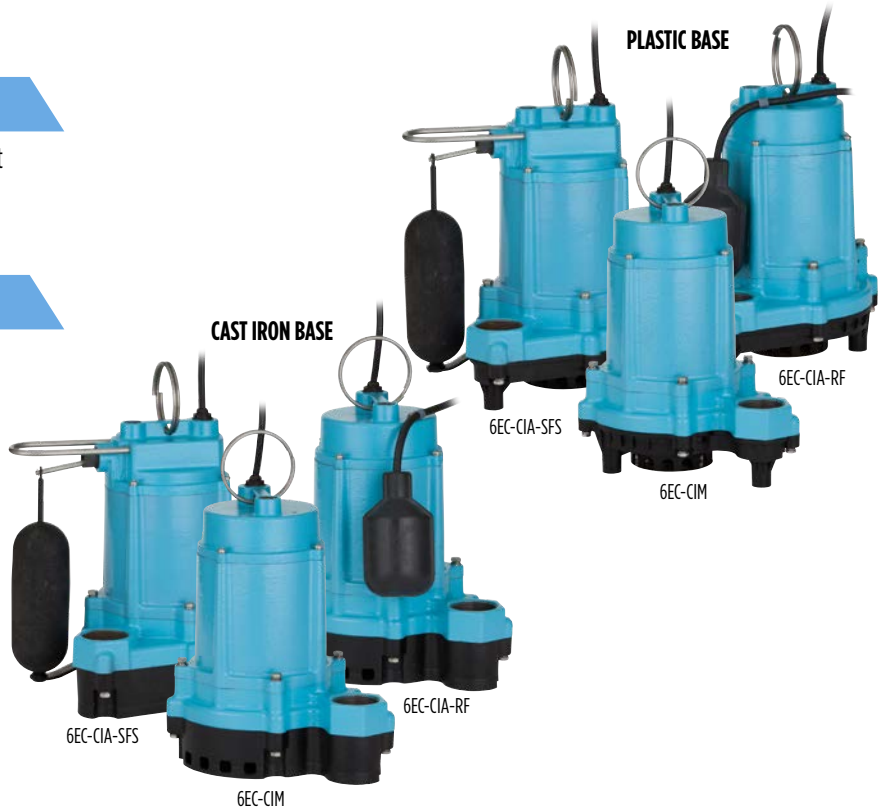
6EC SERIES - 1/3 HP

APPLICATIONS

Basement sumps, dewatering, water transfer, light effluent

FEATURES

- Heavy-duty cast iron construction
- Permanent split capacitor (PSC) motor with thermal overload protection
- Designed for continuous duty
- Energy-saving low amp draw
- 1-1/2" FNPT discharge (38 mm)
- Handles up to 1/2" (12.7 mm) solids
- Multiple switch options for automatic operation
- 140 °F (60 °C) liquid temperature rating
- cCSAus listed



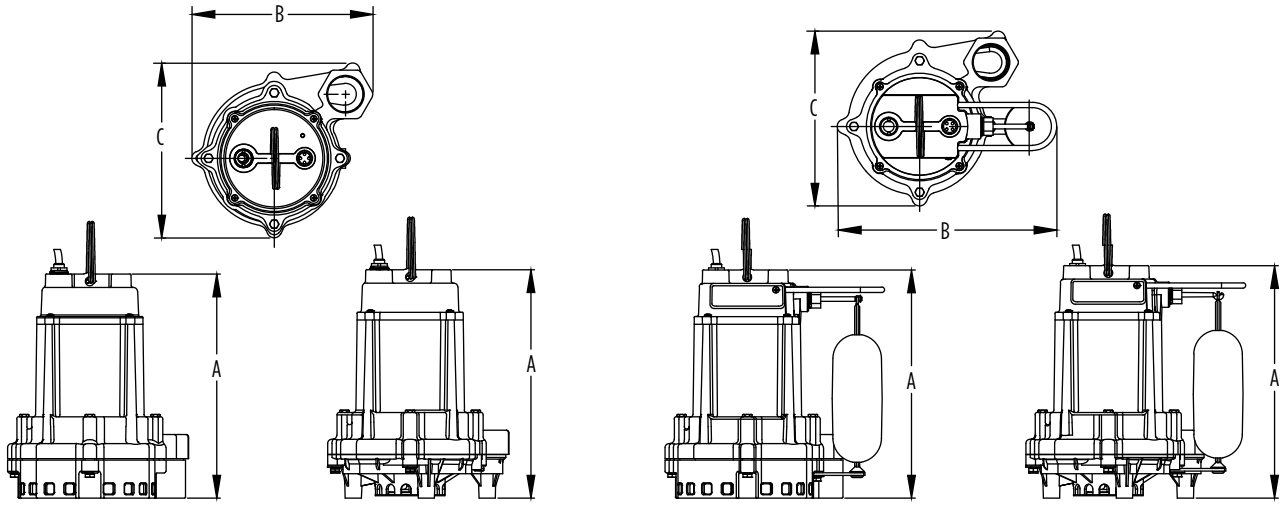
SERIES SPECIFICATIONS

Volts	Hz	Amps	Watts	Performance (GPM @ Height in Feet)				Shut-Off (ft)	PSI
				5′	10′	15′	20′		
115	60	5	600	53	50	42	34	28	12.1
230	60	3	650	53	50	42	34	28	12.1

Item	Model	HP	Volts	Base Material	Switch Type/ Operations	On Level	Off Level	Cord	Weight
506853	6EC-CIA-RF	1/3	115	Cast Iron	Piggyback Mechanical Float	13″ - 15″ (33.2 cm - 38.1 cm)	6″ - 8″ (15.2 cm - 20.3 cm)	10′ (3 m)	33.5 lbs (15.2 Kg)
506803	6EC-CIA-RF	1/3	115	Polypropylene	Piggyback Mechanical Float	13″ - 15″ (33.2 cm - 38.1 cm)	6″ - 8″ (15.2 cm - 20.3 cm)	10′ (3 m)	27.5 lbs (12.5 Kg)
506858	6EC-CIA-RF	1/3	115	Cast Iron	Piggyback Mechanical Float	13″ - 15″ (33.2 cm - 38.1 cm)	6″ - 8″ (15.2 cm - 20.3 cm)	20′ (6.1 m)	35.5 lbs (16.1 Kg)
506855	6EC-CIA-SFS	1/3	115	Cast Iron	Integral Snap-Action Float	8″ - 11″ (20.3 cm - 27.9 cm)	2″ - 5″ (5.1 cm - 12.7 cm)	10′ (3 m)	34 lbs (15.4 Kg)
506807	6EC-CIA-SFS	1/3	115	Polypropylene	Integral Snap-Action Float	8″ - 11″ (20.3 cm - 27.9 cm)	2″ - 5″ (5.1 cm - 12.7 cm)	10′ (3 m)	28 lbs (12.7 Kg)
506860	6EC-CIA-SFS	1/3	115	Cast Iron	Integral Snap-Action Float	8″ - 11″ (20.3 cm - 27.9 cm)	2″ - 5″ (5.1 cm - 12.7 cm)	20′ (6.1 m)	35 lbs (15.9 Kg)
506804	6EC-CIA-SFS	1/3	115	Polypropylene	Integral Snap-Action Float	8″ - 11″ (20.3 cm - 27.9 cm)	2″ - 5″ (5.1 cm - 12.7 cm)	20′ (6.1 m)	29 lbs (13.5 Kg)
506851	6EC-CIM	1/3	115	Cast Iron	Manual	—	—	10′ (3 m)	32.5 lbs (14.7 Kg)
506801	6EC-CIM	1/3	115	Polypropylene	Manual	—	—	10′ (3 m)	26.5 lbs (12 Kg)
506852	6EC-CIM	1/3	115	Cast Iron	Manual	—	—	20′ (6.1 m)	33.5 lbs (15.2 Kg)
506802	6EC-CIM	1/3	115	Polypropylene	Manual	—	—	20′ (6.1 m)	27.5 lbs (12.5 Kg)
506806	6EC-CIM (Black)	1/3	115	Polypropylene	Manual	—	—	20′ (6.1 m)	27.5 lbs (12.5 Kg)
506854	6EC-CIM	1/3	115	Cast Iron	Manual	—	—	25′ (7.6 m)	34 lbs (15.4 Kg)
506800	6EC-CIM	1/3	230	Polypropylene	Manual	—	—	20′ (6.1 m)	27.5 lbs (12.5 Kg)
506856	6EC-CIM	1/3	230	Cast Iron	Manual	-	-	20′ (6.1 m)	33.5 lbs (15.2 Kg)
506862	6EC-CIA-SFS	1/3	230	Cast Iron	Integral Snap-Action Float	8″ - 11″ (20.3 cm - 27.9 cm)	2″ - 5″ (5.1 cm - 12.7 cm)	20′ (6.1 m)	35 lbs (15.88 Kg)

6EC SERIES - 1/3 HP

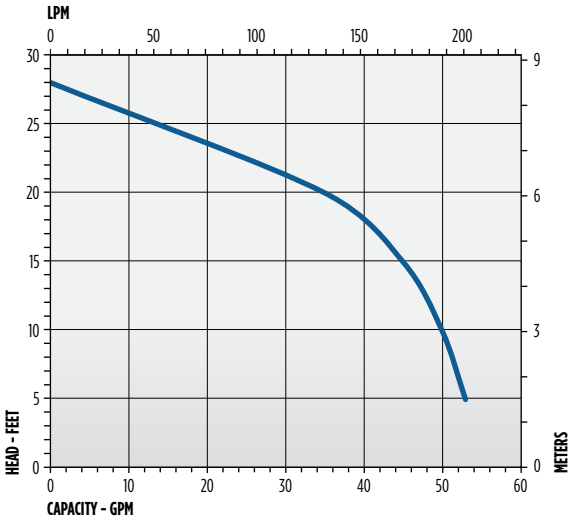
ENGINEERING DATA



6EC-CIM/6EC-CIA-RF (cast iron volute) 6EC-CIM/6EC-CIA-RF (plastic volute) 6EC-CIA-SFS (cast iron volute) 6EC-CIA-SFS (plastic volute)

Model	Base	A	B	C
6EC-CIA-SFS	~~Polypropylene~~	~~11.28" (286.5 mm)~~	~~10.66" (270.8 mm)~~	~~8.48" (215.5 mm)~~
	Cast Iron	11.07" (281.2 mm)	10.66" (270.8 mm)	8.48" (215.5 mm)
6EC-CIA-RF	Polypropylene	11.08" (281.5 mm)	8.79" (223.4 mm)	8.48" (215.5 mm)
	Cast Iron	10.9" (276.2 mm)	8.79" (223.4 mm)	8.48" (215.5 mm)
6EC-CIM	Polypropylene	11.08" (281.5 mm)	8.79" (223.4 mm)	8.48" (215.5 mm)
	Cast Iron	10.9" (276.2 mm)	8.79" (223.4 mm)	8.48" (215.5 mm)

PERFORMANCE DATA



CONSTRUCTION

Cover	Epoxy-coated cast iron
Motor Housing	Epoxy-coated cast iron
Impeller Material	Nylon
Volute	Epoxy-coated cast iron
Mechanical Shaft Seal	Nitrile with carbon and ceramic faces
Fasteners	Stainless steel
Shaft	Cold-rolled steel
Bearings	Upper and lower ball bearings
Power Cord	SJTW, SJTOW (506854)

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

02/02/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 005, KSB PEPS Pumps Deduct

Dear Brandon,

Change Order 5 deducts the contract value for the KSB supplied PEPS pumps from this contract. The Contractor will remain responsible for coordination of delivery and receipt of these pumps. The Contractor's scope relative to installation, start-up and testing does not change. CVWRF will be responsible to assist with receiving and setting these pumps upon their arrival to site. The Contractor will be responsible to coordinate with CVWRF regarding the receipt and setting of these pumps.

The total price for the change order will be ($462,497.00)

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:
1. 00 94 10 (EJCDC form C-941, Change Order)
2. KSB Procurement Contract

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 05

Date of Issuance: 2/2/2021		Effective Date: 2/2/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description: Deduct for KSB's scope of supply as shown in the Nutrient Removal Project, Primary Effluent Pump Station Pumping Equipment Procurement Contract

Attachments: KSB Procurement Contract

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 4 : $ 303,254.09	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 4 : Substantial Completion: 26 Ready for Final Payment: 26 days
Contract Price prior to this Change Order: $ 123,570,935.09	Contract Times prior to this Change Order: Substantial Completion: 1,517 Ready for Final Payment: 1,607 days or dates
[Increase] **[Decrease]** of this Change Order: $462,497.00	[Increase] [Decrease] of this Change Order: Substantial Completion: 0 days Ready for Final Payment: 0 days days or dates
Contract Price incorporating this Change Order: $ 123,108,438.09	Contract Times with all approved Change Orders: Substantial Completion: 1,517 days Ready for Final Payment: 1,607 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 2/2/2021	Date 2/3/2021	Date 2/2/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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CENTRAL VALLEY WATER RECLAMATION FACILITY

Salt Lake City, Utah

Conformed Set
May 10, 2019

PROJECT MANUAL

FOR

BIOLOGICAL NUTRIENT REMOVAL PROJECT

PRIMARY EFFLUENT PUMP STATION

PUMPING EQUIPMENT PROCUREMENT

BC PROJECT NO. 151600

PREPARED FOR

Central Valley Water Reclamation Facility

800 West Central Valley Road

Salt Lake City, Utah 84119

PREPARED BY

Brown and Caldwell

6975 Union Park Center, Suite 490

Salt Lake City, Utah 84047

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TABLE OF CONTENTS

PEPS Pumping Equipment Procurement
Central Valley Water Reclamation Facility
BC Project No. 151600

Reference Number	Title
PART A: CONTRACT REQUIREMENTS	
DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS	
00 11 10	Invitation to Bid
00 20 00	Instructions to Bidders
00 31 00	Procurement Bid Evaluation
00 41 00	Bid Form (SUBMIT SEPARATELY)
00 43 00	Bid Bond (Penal Sum)
00 51 00	Notice of Award
00 52 00	Agreement between Buyer and Seller
00 55 00	Notice to Proceed
00 61 00	Performance Bond
00 61 50	Payment Bond
00 70 00	Standard General Conditions
00 80 00	Supplementary Conditions
Addendum 1	
Addendum 2	
PART B: TECHNICAL SPECIFICATIONS	
DIVISION 01 - GENERAL REQUIREMENTS	
01 78 23	Operation and Maintenance Data
01 99 90	Reference Forms
DIVISION 43 – PROCESS GAS AND LIQUID HANDLING, PURIFICATION, AND STORAGE	
43 05 13	Rigid Equipment Mounts
43 23 03	General Requirements for Centrifugal and Axial-Flow Pumping Equipment
43 25 33.10	Submersible Pump, Axial-Flow and Mixed-Flow Type
PART C: REFERENCE DRAWINGS	
P-16-3001	Primary Effluent Pump Station Sections 1
S-16-1001	Primary Effluent Pump Station Lower Plan
S-16-1002	Primary Effluent Pump Station Upper Plan
S-16-3001	Primary Effluent Pump Station Sections 1
S-16-3002	Primary Effluent Pump Station Sections 2

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CENTRAL VALLEY WATER RECLAMATION FACILITY
PEPS PUMPING EQUIPMENT PROCUREMENT

00 11 10
INVITATION TO BID

Sealed Bids for the **PEPS Pumping Equipment Procurement** will be received, **from invited Bidders only**, by **Central Valley Water Reclamation Facility**, at the office of **Central Valley Water Reclamation Facility**, until **2:00 p.m.** local time on **January 30, 2019** (Addendum No. 1) at which time the bids will be opened and evaluated as described in the Bidding and Contract Documents. The Project consists of **furnishing Goods and Special Services for PEPS Pumping Equipment to be installed by a Contractor selected by the Central Valley Water Reclamation Facility.**

The Selection Schedule is provided in the table below.

Date	Selection Process
January 7, 2019	Issue Invitation to Bid
January 23, 2019 (Addendum No. 1)	End of Inquiries, Questions, and interpretation period (5 pm MST)
January 28, 2019 (Addendum No. 1)	Final Addendum Issued (if required)
January 30, 2019 (Addendum No. 1)	Bid submittal due (2 pm MST)

The Issuing Office for the Bidding Documents is: **Brown and Caldwell, 6975 Union Park Center, Suite 490, Salt Lake City, UT 84047. For questions, contact Ms. Rebecca Yoo (801) 316-9824,** ryoo@brwncald.com**.** Invited Bidders will be sent the Bidding Documents as electronic portable document format (pdf) files via email or other electronic transmission service. No printed copies will be provided. The costs to prepare Bids as described in the Bidding Documents are the sole responsibility of the Bidder.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: **Central Valley Water Reclamation Facility**

By: **Phil Heck, P.E.**

Date: **January 7, 2019**

+ + END OF ADVERTISEMENT FOR BIDS + +

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00 20 00

INSTRUCTIONS TO BIDDERS

Table of Contents

Article 1 - DEFINED TERMS 1

Article 2 - BIDS RECEIVED 1

Article 3 - COPIES OF BIDDING DOCUMENTS 1

Article 4 - QUALIFICATIONS OF BIDDERS 1

Article 5 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND POINT OF DESTINATION 1

Article 6 - PRE-BID CONFERENCE 2

Article 7 - INTERPRETATIONS AND ADDENDA 3

Article 8 - BID SECURITY 3

Article 9 - CONTRACT TIMES 3

Article 10 - LIQUIDATED DAMAGES 3

Article 11 - “OR-EQUAL” ITEMS 3

Article 12 - PREPARATION OF BID 4

Article 13 - BASIS OF BID; COMPARISON OF BIDS 4

Article 14 - SUBMITTAL OF BID 5

Article 15 - MODIFICATION OR WITHDRAWAL OF BID 5

Article 16 - OPENING OF BIDS 6

Article 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE 6

Article 18 - EVALUATION OF BIDS AND AWARD OF CONTRACT 6

Article 19 - CONTRACT SECURITY AND INSURANCE 7

Article 20 - SIGNING OF AGREEMENT 7

Article 21 - SALES AND USE TAXES 7

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Article 22 - RETAINAGE 7

Article 23 - CONTRACT TO BE ASSIGNED 7

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INSTRUCTIONS TO BIDDERS

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below.

A. *Buyer* - Central Valley Water Reclamation Facility, Owner.

B. *Seller* - PEPS Pumping Equipment Manufacturer who prepares and submits a bid and related information as a Bidder in accordance with these Bidding Documents.

C. *Issuing Office* - Brown and Caldwell, Engineer.

D. *Contractor* - The individual or entity with which Owner will contract for performance of the Work related to the Biological Nutrient Removal Project. The Buyer may assign this Contract for furnishing Goods and Special Services to the Contractor.

ARTICLE 2 - BIDS RECEIVED

2.01 Refer to section 00 11 10 Invitation to Bid to for information on receipt of Bids.

ARTICLE 3 - COPIES OF BIDDING DOCUMENTS

3.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office.

3.02 Complete sets of the Bidding Documents shall be used in preparing Bids; neither Buyer nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.03 Buyer and Engineer have made copies of Bidding Documents available on the above terms only for the purpose of obtaining Bids for furnishing Goods and Special Services and do not authorize or confer a license for any other use.

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ARTICLE 4 - QUALIFICATIONS OF BIDDERS

4.01 To demonstrate Bidder's qualifications Bidder shall submit the information requested in these Bidding Documents.

4.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 5 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND POINT OF DESTINATION

5.01 Upon request Buyer will provide Bidder access to the Point of Destination and the site where Goods are to be installed or Special Services are to be provided so that Bidder may conduct such investigations, examinations, tests, and studies as Bidder deems necessary for submission of a Bid.

5.02 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda, and the related data identified in the Bidding Documents;

B. visit the Point of Destination and the site where the Goods are to be installed and Special Services are to be provided to become familiar with the local conditions if required by the Bidding Documents to do so, or if, in Bidder's judgment, any local condition may affect cost, progress, or the furnishing of Goods and Special Services;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, or the furnishing of the Goods and Special Services;

D. carefully study, consider, and correlate the information known to Bidder; information commonly known to sellers of similar goods doing business in the locality of the Point of Destination and the site where the Goods will be installed or where Special Services will be provided; information and observations obtained from Bidder's visits, if any, to the Point of Destination and the site where the Goods are to be installed or Special Services are to be provided; and any reports and drawings identified in the Bidding Documents regarding the Point of Destination and the site where the Goods will be installed or where Special Services will be provided, with respect to the effect of such information, observations, and documents on the cost, progress, and performance of Seller's obligations under the Contract Documents;

E. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution (if any) thereof by Engineer is acceptable to Bidder; and

F. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

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5.03 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 5, that without exception the Bid is premised upon furnishing Goods and Special Services required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions (if any) thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

ARTICLE 6 - PRE-BID CONFERENCE

6.01 A pre-bid conference will be not be held.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids will not be answered. Only answers in the Addenda will be binding. Oral statements, interpretations, and clarifications may not be relied upon and will not be binding or legally effective.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Buyer or Engineer.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Buyer in an amount of 5 percent of Bidder's total Bid Price for Goods and Special Services as shown in Section 00 41 00 of the Bid Form in the form of a certified check, bank money order, or a Bid Bond (on form attached) issued by a surety meeting the requirements of Paragraph 4.01.B of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Buyer may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders that Buyer believes to have a reasonable chance of receiving the award may be retained by Buyer until the earlier of 7 days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned.

ARTICLE 9 - CONTRACT TIMES

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9.01 See applicable provisions in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Any provisions for liquidated damages, such as those for *Seller's* failure to attain a Milestone, or to deliver the Goods *or furnish Special Services within the Contract Times*, are set forth in the Agreement.

ARTICLE 11 - "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of material and equipment specified or described in the Bidding Documents without consideration of possible "or-equal" items. Whenever it is specified or described in the Bidding Documents that an "or-equal" item of material or equipment may be furnished or used by Seller if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submittal of any such application by Seller and consideration by Engineer is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 - PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents. Additional copies of Bidding Documents may be obtained from the Issuing Office.

12.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each item listed therein.

12.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.

12.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

12.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

12.06 A Bid by an individual shall show the Bidder's name and official address.

12.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

12.08 All names must be typed or printed in ink below the signature.

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12.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

12.10 Each Bidder shall list the postal address, e-mail address, and telephone number for communications regarding the Bid.

ARTICLE 13 - BASIS OF BID; COMPARISON OF BIDS

13.01 Lump Sum

A. Bidder shall submit a Bid on a lump sum basis as set forth in the Bid Form.

B. The Buyer will evaluate the Bidder's pricing and proposal information as described in 00 31 00 Procurement Bid Evaluation.

C. The Buyer's intent is to enter into an Agreement with the Bidder who meets the minimum pass/fail requirements described in Section 00 31 00 and scores the most points and is ranked the highest as described in 00 31 00. Individual items in each criteria section described in 00 31 00 will be scored on a scale of 0 to 5 with five being the highest. The total score for each criteria section will be weighted according to the scoring criteria in Section 00 31 00.

ARTICLE 14 - SUBMITTAL OF BID

14.01 With each copy of the Bidding Documents, a Bidder is furnished a Bid Form, and the Bid Bond. The unbound copy of the Bid Form is to be completed and submitted with the Bid security as described in Section 00 31 00. Section 00 31 00 describes additional information to be submitted with the bid.

14.02 A Bid shall be separately submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid, and shall be enclosed in a plainly marked envelope with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED". A mailed Bid shall be addressed to**:**

CENTRAL VALLEY WATER RECLAMATION FACILITY
800 CENTRAL VALLEY ROAD
SOUTH SALT LAKE CITY, UT 84119
ATTN: PHIL HECK

14.03 Each prospective Bidder shall submit five hard copies and one digital copy of the items described in Section 00 31 00 excluding Section 00 41 00 Bid Form. The hard copy of the Bid shall be submitted in a 3-ring binder with specified tabs as described in Section 00 31

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00; the electronic copy shall be in .pdf format submitted with the hard copies on a USB drive with each tab described in Section 00 31 00 as a bookmark.

ARTICLE 15 - MODIFICATION OR WITHDRAWAL OF BID

15.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

15.02 If, within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Buyer and promptly thereafter demonstrates to the reasonable satisfaction of Buyer that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Goods and Special Services are rebid, that Bidder will be disqualified from further bidding on the Goods and Special Services.

ARTICLE 16 - OPENING OF BIDS

16.01 Bids will be received at the time and place indicated in the Invitation to Bid; Bids will be evaluated by Owner and Engineer in accordance with criteria provided in Section 00 31 00..

ARTICLE 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Buyer may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18 - EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Buyer reserves the right to reject any and all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Buyer further reserves the right to reject the Bid of any Bidder that Buyer finds, after reasonable inquiry and evaluation, to be nonresponsive. Buyer may also reject the Bid of any Bidder if Buyer believes that it would not be in the best interest of the Project to make an award to that Bidder. Buyer also reserves the right to waive all informalities not involving price, time, or changes in the Goods and Special Services, and to negotiate contract terms with the Successful Bidder.

18.02 More than one Bid for the same Goods and Special Services from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Goods and Special Services shall be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

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18.03 In evaluating Bids, Buyer will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data as may be requested in the Bid Form or may be requested from Bidders prior to a Notice of Award.

18.04 Buyer may conduct such investigations as Buyer deems necessary to establish the responsibility, qualifications, and financial ability of Bidder.

18.05 If the Contract is to be awarded, Buyer will award the Contract to the Bidder whose Bid is in the best interest of the Project.

18.06 See Section 00 31 00 for additional information on evaluation of Bids and award of Contract.

ARTICLE 19 - CONTRACT SECURITY AND INSURANCE

19.01 Article 4 of the General Conditions and Article 4 of the Supplementary Conditions set forth Buyer's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Buyer, it must be accompanied by such bonds.

ARTICLE 20 - SIGNING OF AGREEMENT

20.01 When Buyer issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents that are to be identified in the Agreement and attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Buyer. Within 10 days thereafter, Buyer shall deliver one fully signed counterpart to Successful Bidder with a complete set of Drawings with appropriate identification.

ARTICLE 21 - SALES AND USE TAXES

21.01 Buyer is not exempt from Utah state sales and use taxes on materials and equipment to be incorporated in the Project. Said taxes shall be included in the Bid at a rate of 7.05% applied to the total price of the Goods and Special Services.

ARTICLE 22 - RETAINAGE

22.01 Provisions concerning Seller's rights to deposit securities in lieu of retainage are set forth in the Agreement.

ARTICLE 23 - CONTRACT TO BE ASSIGNED

23.01 Bidder's attention is directed to the provisions of Paragraph 11.02 of the Agreement which provide for the assignment of the Contract to a construction contractor designated by the Buyer to construct the related aeration basin facilities and install the furnished Goods. Bidder should consider the application of the terms and conditions of the Contract

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Documents after assignment, and is advised of the duty to continue to perform the Contract after it has been assigned to the construction contractor. Timing of the assignment is set forth in the Agreement. Forms documenting the assignment of the Contract and for the agreement of the Seller's surety to such assignment are included as attachments to the Agreement.

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SECTION 00 31 00

PROCUREMENT BID EVALUATION

PART 1 GENERAL

1.01 SUMMARY

A. Bidders shall provide all of the information required by the Bidding Documents. This information, along with other design and equipment information contained in the Bidding Documents or available to the Buyer through information included in the Bid will be used by the Buyer to determine the apparent successful Bidder.

1.02 EVALUATION

A. The Bids will be scored based on their conformance to the requirements of the Bidding Documents. Table 1 provides detail on items the Bidder shall submit as part of the Bid for the Buyer to evaluate the Goods and Special Services. Table 1 also provides evaluation criteria, which includes both Pass/Fail Criteria and Weighted Criteria. The scoring system for the Weighted Criteria will be based on scores of 0 to 5, with a score of 5 being given to the Bid deemed Excellent as it addresses and exceeds all of the requirements in the RFP. A score of 0 may be awarded for proposals that fail to meet the minimum requirements. For the Weighted Criteria, those scores will be multiplied by the evaluation criteria weighting factors to determine the total Bid points. The Bidder acknowledges that the Buyer and Engineer shall be te sole judge of the scoring and that all scores and total Bid points are Final.

B. Bids shall meet all the pass/fail evaluation criteria described in Table 1 in order to be considered responsive. Bids not meeting all Pass/Fail Criteria will not be scored in the Weighting Criteria.

C. Those Bids meeting all Pass/Fail Criteria will be further evaluated using the Weighted Criteria. A selection committee will score the ability of the submitted equipment to meet the weighted criteria based on the required Bid information provided. The Bid that meets all of the Pass/Fail Criteria and has the highest overall bid point total from the Weighted Criteria will be the selected equipment for the project. The Buyer's intent is to award a Contract to the most qualified, highest scoring Bidder. However, the buyer is not obligated to review or evaluate Bids, or to award a Contract to any Bidder. The Buyer reserves the right to reject the bids at any time.

Attachment 00 31 00E, F, G, H are forms that need to be completed by the bidder and submitted in their respective tabs (E, F, G, H).

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

FORMS 00 31 00 E, F, G, H

ATTACHED HERE ARE BLANK FORMS – BIDDER TO COMPLETE AND SUBMIT WITH BID

Table 1 - Submittal Requirements and Procurement Bid Evaluation

Criteria	Weight	Information to Provide	Evaluation	Proposal Tab
Cover Letter	N/A	Provide cover letter stating manufacturer's name, local representatives name, and interest in being selected for this work.	Pass/Fail	A
Bid Security	N/A	Provide bid security as specified in the Instructions to Bidders.	Pass/Fail	B
Bid Form	N/A	Include Bid Form as Attachment Tab C.	Pass/Fail	C
ISO 9001-2001 Certification	N/A	ISO 9001 (Addendum No. 1) certification is a minimum pass/fail requirement. Submit ISO 9001 (Addendum No. 1) certification.	Pass/Fail	D

Criteria	Weight	Information to Provide	Evaluation	Proposal Tab
Experience	10	**Submit completed Form 00 310 00E - Experience Summary (attached) as the first page of Tab E**. Submit additional installation lists including dates, capacities, water being pumped and installation contact information as part of Tab E. Owner or Engineer reserves the right to contact these facilities as part of the evaluation.	Higher scores will be given to manufacturer's with: longer installation history, more installations at capacities similar to this project, more installations of the type of this project (i.e., primary wastewater effluent) and positive references from existing installations.	E (include completed Form 00 31 00E)
Design	10	**Submit completed Form 00 310 00F - Design Summary (attached) as the first page of Tab F**. Submit any additional design information that portrays how the units pump and otherwise perform.	Higher scores will be given to manufacturer's whose units are deemed to perform more favorably at CVWRF. Efficient duty points, range of operating points and reduced anticipation of wear are among factors that will be considered.	F (include completed Form 00 31 00F)
Maintenance	10	**Submit completed Form 00 310 00G - Maintenance Summary (attached) as the first page of Tab G**. Submit any additional information that describes maintenance procedures.	Higher scores will be given to manufacturer's whose units are deemed to require less maintenance or where the maintenance is easier to perform.	G (include completed Form 00 31 00G)
Life Cycle Cost	70	**Submit completed Form 00 310 00H - Life Cycle Cost Summary (attached) as the first page of Tab H**. Submit any additional information that supports life cycle cost assessment.	Owner and Engineer will determine the total life cycle cost based on the information provided in the Bid Form and other submitted information.	H (include completed Form 00 31 00H)

Total Weight 100

FORM 00 31 00E - EXPERIENCE SUMMARY (SUBMIT AS FIRST PAGE OF TAB E)

Bidder to complete the following table in accordance with the proposed pumping equipment; additional supporting information can also be included in this Tab.

Question/Criteria	Bidder Response	Additional RFP Guidance	Importance Factor (1-5)
List the first year the model proposed for CVWRF was put in service at any location		(For example, 2005)	2
List the number of past installations of the model proposed for CVWRF		(For example, 200)	2
List the year the model proposed for CVWRF received ISO 9001 (Addendum No. 1) certification		(For example 2008)	3
List the total number of pump installations that can perform at 8.5 ft of TDH and flow of 25 MGD for wastewater applications in operation as of 2018		This count is discrete pumping units, not projects or sites (a single location with three units would count for three not one)	5
List the location and contact information for at least three facilities (similar to CVWRF proposed pumping conditions and application) that can be contacted as a reference.		This can be an installation that is part of the longer installation list.	5

NOTE: Submit additional installation lists, details, and contact information as part of TAB E to allow Owner and Engineer to verify the experience summary.

FORM 00 31 00F - DESIGN SUMMARY (SUBMIT AS FIRST PAGE OF TAB F)

Bidder to complete the following table in accordance with the proposed pumping equipment; additional supporting information can also be included in this Tab.

Question/Criteria	Units	Bidder Response	Additional RFP Guidance	Importance Factor (1-5)
Proposed Model #	-			0
Weight of single pump and motor without water	lbs			2
Weight of single discharge tube without water	lbs			2
Discharge tube material				3
Pump case material	-			3
Pump bowl material	-			3
Pump/motor shaft material	-			2
Motor housing material	-			2
Propeller material	-			3
Suction bell material	-			3
Wearing ring material	-			2
Fasteners material	-			2
O-rings material	-			2
Mechanical seals material	-			2
Coating system	-			2
Recommended forebay width	inches			4
Recommended minimum submergence (depth from WSE to bell intake elevation)	inches			2
Recommended clearance under bell	inches			4
Is a formed intake chamber recommended?	-		Yes/no	4
Other forebay design recommendations	inches		For example, fillets and vanes. Include dimensions.	4

Bell diameter	inches			4
Discharge tube inner diameter	inches			2
Discharge tube outer diameter	inches			1
Blade pitch angle	degrees			1
Motor horsepower	hp			4
Max. number of starts per hour	-			5
At a TDH of 6.8 ft., can each pump meet a capacity of 24.4 MGD? If not, what is the max. capacity per pump at 6.8 ft. of TDH?	Yes/No			5
At a TDH of 7.1 ft and total flow of 103 MGD, list (a) number of pumps online, (b) flow of each pump and (c) efficiency of each pump	units, MGD, %			5
At a TDH of 7.4 ft and total flow of 57 MGD, list (a) number of pumps online, (b) flow of each pump and (c) efficiency of each pump	units, MGD, %			5
At a TDH of 6.7 ft and total flow of 57 MGD, list (a) number of pumps online, (b) flow of each pump and (c) efficiency of each pump	units, MGD, %			5
At a TDH of 6.7 and total flow of 29 MGD, list (a) number of pumps online, (b) flow of each pump and (c) efficiency of each pump	units, MGD, %			5
Acceptable passing solids diameter	inches			2
How many hours can the pump run for?	hrs		For example, 131,400 hours.	5
Required instrumentation for motor winding monitoring includes the combination of phase specific temperature switches and a dedicated RTD type temperature element.	-		Yes/No and describe if necessary.	3

Required instrumentation for motor and pump moisture detection / leak detection is included.	-		Yes/No and describe if necessary.	3

Include multispeed curves of the proposed pump.

Include CAD files of the proposed pump to the electronic copy of the Bid submittal described in Section 00 20 00. The CAD files shall include details of the pump intake section (i.e., pump bell gemoetry, pump inlet) and hydraulic operations requirements (e.g., minimum depths, proximity distances, etc.) sufficient so that a scaled replica may be fabricated for a hydraulic study.

Attach warranty to this form.

NOTE: Submit additional information as Part of Tab F to show features of the pump units. Submit descriptions, scope of supply, drawings, P&IDs, control descriptions, or narrative to address the items above etc.

FORM 00 31 00G - MAINTENANCE SUMMARY (SUBMIT AS FIRST PAGE OF TAB G)

Bidder to complete the following table in accordance with the proposed pumping equipment; additional supporting information can also be included in this Tab.

Question/Criteria	Units	Bidder Response	Additional RFP Guidance	Importance Factor (1-5)
Hoisting or lifting system requirement (overhead monorail, crane, etc.) to lift pump or other components	-			4
If lifting mechanism is required, what capacity is recommended?	lbs		For example, 3,000 lbs	4
List regular maintenance requirements and frequency of each maintenance requirement.				5
If lubrication is required describe location, frequency, and oil/grease type.	-			3
List here all components recommended for CVWRF to inventory as spare.	-			2
What is estimated frequency of use of these spare parts?	hour or years		for example every 50,000 hours, approx. every 2 years, etc.	2
Where are non-inventoried spare parts located?	-		Location in U.S. or abroad.	4
Where is service provided from? What is the typical response time for a service technician to visit the site?	-		Location in U.S. or abroad.	5

Describe routine maintenance procedures. These would be procedures done on a weekly, monthly, or yearly basis (attaching O&M manual content with clear callouts on the procedures is satisfactory). Include an estimate of the time required to complete the maintenance.

NOTE: Submit additional information in Tab G to show maintenance needs. To include parts lists, maintenance procedures, O&M manuals or other information related to maintenance.

FORM 00 31 00H - LIFE CYCLE COST SUMMARY (SUBMIT AS FIRST PAGE OF TAB H)

Bidder to complete the following table in accordance with the proposed pumping equipment; additional supporting information can also be included in this Tab.

Question/Criteria	Units	Bidder Response	Additional RFP Guidance	Importance Factor (1-5)
Provide total kw draw for pumps meeting a flow demand of 57 MGD at 7.5 ft. of TDH. Any number of pumps may be in operation.	kw			5
Provide the cost of one lot of spare/wear parts recommended for CVWRF inventory in Part G	$		Cost in 2018 dollars for a recent replacement; list name and contact information for facility who purchased the filter discs	2

Life Cycle Cost Calculation will be performed by Owner and/or Engineer as follows: **(THIS IS PROVIDED FOR REFERENCE ONLY/BIDDER DOES NOT NEED TO PERFORM THE CALCULATION).**

Total cost for Goods and Special Services (from bid form) $ -

25 year cost of power using kw from table above $ $0.07/kwh

25 year cost of all maintenance requirements $

25 year cost of replacing typical spare parts $ -

CALCULATION WILL BE BY OWNER AND/OR ENGINEER

TOTAL LIFE CYCLE COST $ -

NOTE: Submit additional information in Tab H to show the basis for the life cycle cost proposed. To include calculations of assumptions on operating conditions such as flow, TDH, durations of motor on/off, assumptions for spare parts usage, etc. Do not include any pumping equipment pricing in this section, all pumping equipment pricing is in the bid form.

00 41 00

BID FORM (SUBMIT SEPARATELY)

Table of Contents

Article 1 - BID RECIPIENT 2

Article 2 - BIDDER'S ACKNOWLEDGMENTS 2

Article 3 - BIDDER'S REPRESENTATIONS 2

Article 4 - BIDDER'S CERTIFICATIONS 3

Article 5 - BASIS OF BID 4

Article 6 - TIME OF COMPLETION 5

Article 7 - ATTACHMENTS TO THIS BID 5

Article 8 - DEFINED TERMS 5

Article 9 - BID SUBMITTAL 6

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ARTICLE 1 - BID RECIPIENT

1.01 This Bid is submitted, in a separate sealed envelope, to:

CENTRAL VALLEY WATER RECLAMATION FACILITY
800 WEST CENTRAL VALLEY ROAD
SOUTH SALT LAKE CITY, UT 84119
ATTN: PHIL HECK

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into a Contract with Buyer in the form included in the Bidding Documents to furnish the Goods and Special Services as specified or indicated in the Bidding Documents, for the prices and within the times indicated in this Bid, and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts all of the terms and conditions of the Bidding Documents, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Buyer.

2.02 Bidder accepts the provisions of the Agreement as to the assignment of the Contract for furnishing Goods and Special Services.

2.03 Bidder accepts that the Buyer retains the right to issue a Notice to Commence Fabrication for the PEPS Pumping Equipment. The Bidder acknowledges that until the Notice to Commence Fabrication is issued; the Buyer is not obligated to any monetary commitment associated with this Contract beyond that associated with the Special Services. A Notice to Commence Fabrication may be issued by the Buyer per Article 5 of the Agreement.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

B.

Addendum No.	Addendum Date
1	Jan 11, 2019
2	Jan 17, 2019
3	Jan 28, 2019

C. Bidder has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided and become familiar with and is satisfied as to the observable

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local conditions that may affect cost, progress, or the furnishing of Goods and Special Services, if required to do so by the Bidding Documents, or if, in Bidder's judgment, any local condition may affect cost, progress, or the furnishing of Goods and Special Services.

D. Bidder is familiar with and is satisfied as to all Laws and Regulations in effect as of the date of the Bid that may affect cost, progress, and the furnishing of Goods and Special Services.

E. Bidder has carefully studied, considered, and correlated the information known to Bidder; information commonly known to sellers of similar goods doing business in the locality of the Point of Destination and the site where the Goods will be installed or where Special Services will be provided; information and observations obtained from Bidder's visits, if any, to the Point of Destination and the site where the Goods will be installed or Special Services will be provided; and any reports and drawings identified in the Bidding Documents regarding the Point of Destination and the site where the Goods will be installed or where Special Services will be provided, with respect to the effect of such information, observations, and documents on the cost, progress, and performance of Seller's obligations under the Bidding Documents.

F. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution (if any) thereof by Engineer is acceptable to Bidder.

G. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing the Goods and Special Services for which this Bid is submitted.

ARTICLE 4 - BIDDER'S CERTIFICATIONS

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Buyer, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Buyer of the benefits of free and open competition;

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3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Buyer, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process.

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ARTICLE 5 - BASIS OF BID

5.01 Bidder will furnish the Goods and Special Services in accordance with the Contract Documents for the following price(s):

Item	No. Units	Unit	Unit Price ($ numerals)	Escalation Factor per Year (numerals)	Years of Escalation (numerals)	Total Price ($ numerals)
Special Services to prepare complete shop drawings and related submittals and coordinate with Owner and Engineer and during design. The Contract Price for the Special Engineering Services shall not exceed 5% of the total Contract Price.	1	EA	$21,410	%5	0	$21,410
Goods: PEPS Pumping * Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility[1].	6	EA	$47,632	%3	4	$320,087
Goods: Discharge Tubes per 43 25 33.10.	6	EA	$121,000	%5	0	$121,000
				Total ($ numerals)		$462,497

[1]Price to include all related costs including any bonds, insurance, shipping, lading at point of fabrication and Point of Destination, and O&M Manuals, as described in the Contract Documents. * Price is only valid for 6 pumps order and to be adjusted if the qty changes. NPSH test is not included in above article 5. Please see attached KSB proposal letter including scope of supply, NPSH test adder and technical comments.

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Please note .

ARTICLE 6 - TIME OF COMPLETION

6.01 Bidder agrees that the furnishing of Goods and Special Services will conform to the schedule set forth in Article 5 of the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

The Bid Requirements as described in Section 00 31 00.

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____

(Individual's signature)

Doing business as: _____

Business address: _____

_____

Phone: _____ Facsimile: _____

E-mail address: _____

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A Partnership

Partnership Name: _____
(SEAL)

By: _____
(Signature of general partner - attach evidence of authority to sign)

Name (typed or printed): _____
Business address: _____
_____
Phone: _____ Facsimile: _____
E-mail address: _____

A Corporation

Corporation Name: KSB Inc.
State of Incorporation: New York
Type (General Business, Professional, Service, other): Sales and Service
By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): Luis Maturana
Title: Vice President, Water & Wastewater
(CORPORATE SEAL)
Attest _____
(Signature of Corporate Secretary)

Business address: 4415 Sarellen Road, Henrico, VA, 23231
_____
Phone: 804 222 1818 Facsimile: 804 226 6961
E-mail address: luis.maturana@ksb.com

A Limited Liability Company (LLC)

LLC Name: _____
State in which organized: _____
By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____
Title: _____
Business address: _____
_____

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Phone: _____ Facsimile: _____
E-mail address: _____

A Joint Venture

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____
Title: _____
Business address: _____
_____
Phone: _____ Facsimile: _____
E-mail address: _____
Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature - attach evidence of authority to sign)

Name (typed or printed): _____
Title: _____
Business address: _____
_____
Phone: _____ Facsimile: _____
E-mail address: _____

Phone and Facsimile Number, and Address for receipt of official communications to Joint Venture: _____
_____

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation, and limited liability company that is a party to the joint venture should be in the manner indicated above.)

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MEETING OF THE BOARD OF DIRECTORS

KSB INC.

LOCATION: KSB Inc. – Richmond, Virginia

DATE: November 8, 2018

PARTIPANTS: Mr. Wolfgang Demmler (via Video Conference)
Chairman of the Board, KSB Inc.

Dr. Falk Schaefer
Director and President, KSB Inc.

Mr. Stafford B. Saunders II (via Video Conference)
Vice President, General Manager and Secretary, KSB Inc.

Mr. L. Paul Boroughs
Vice President, Finance and Treasurer, KSB Inc.

Mr. P. Neil McFarlane
Operational Controller, KSB Inc.

AGENDA

1. Finalize approval of 2017 Financial Statements
2. Ratify the actions of the officers in 2017
3. Elect officers of 2018
4. Resolve the dividend policy for 2018

MINUTES OF MEETING

A quorum was present where Mr. Wolfgang Demmler served as Chairman and Mr. Stafford B. Saunders II served as Secretary. The Chairman initiated discussion of the agenda items.

WHEREAS, the 2016 Financial Statements, as compiled and displayed on US GAAP basis were presented and reviewed, corresponding to the internally prepared 2016 Financial Statements which were reviewed by Pricewaterhouse Coopers, and

WHEREAS, the 2017 Financial Statements, as compiled and displayed on US GAAP basis were presented and reviewed, corresponding to the internally prepared 2017 Financial Statrements which were reviewed by Pricewaterhouse Coopers.

BE IT RESOLVED, that the internally prepared 2017 Financial Statements are unanimously accepted.

RESOLVED FURTHER, that the actions of the officers of the Corporation on behalf of the Corporation in 2017 are approved as acts of the Corporation.

WHEREAS, Mr. Thomas Elberty separated from the company effective April 12, 2018.

BE IT RESOLVED, that the following persons are elected to the office, set forth opposite their name, to serve until the next annual meeting of this Board or until their successor is duly elected:

- Dr. Falk Schaefer – President
- Mr. Stafford B. Saunders II – Vice President, General Manager and Secretary
- Mr. L. Paul Boroughs – Vice President, Finance and Treasurer
- Mr. Steve R. Lindgren – Vice President, Energy and Industry Division
- Mr. Guenter Pesch – Vice President, Aftermarket Division
- Mr. Luis Maturana – Vice President, Water and Wastewater Division

RESOLVED FURTHER, that the dividend policy for 2018 will remain unchanged from 2017, unless and until it is amended by Mr. Demmler or his successor.

	SIGNATURE OF DIRECTORS	DATE
Mr. Wolfgang Demmler, Chairman		12-14-18
Dr. Falk Schaefer		12-17-18

EJCDC

PENAL SUM FORM

00 43 00

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

KSB, Inc.

4415 Sarellen Road Richmond VA 23231

SURETY *(Name, and Address of Principal Place of Business)*:

Westchester Fire Insurance Company

436 Walnut Street, P. O. Box 1000 Philadelphia PA 19106

OWNER *(Name and Address)*:

Central Valley Water Reclamation Facility

800 West Central Valley Road Salt Lake City UT 84119

BID

Bid Due Date: January 30, 2019

Description ***(Project Name— Include Location)***: BC Project No. 151600 Biological Nutrient Removal Project, Primary Effluent Pump Station, Pumping Equipment Procurement

BOND

Bond Number: Bid Bond

Date: January 30, 2019

Penal sum Five Percent of Amount Bid (Words) $5% (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
KSB, Inc. (Seal)	Westchester Fire Insurance Company (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: Paul Boroughs	By: Patricia L Lewis
Signature	Signature (Attach Power of Attorney)
Paul Boroughs	Patricia L. Lewis
Print Name	Print Name
Vice President Finance	Attorney-in-Fact
Title	Title
Attest:	Attest:
Signature	Signature
Title Ann McGuire	Title Clint Diers, SVP

Note: Addresses are to be used for giving any required notice.
Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

CHUBB

Power of Attorney

Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint **Patricia L. Lewis**

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

Surety Bond Number: Bid Bond

Obligee: Central Valley Water Reclamation Facility

In Witness Whereof, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY have each executed and attested these presents and affixed their corporate seals on this day of **September, 2018.**

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney, Vice President

STATE OF NEW JERSEY

County of Hunterdon SS.

On this day of **September, 2018,** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316885
Commission Expires July 16, 2019

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006 ; ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,

(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this January 30, 2019.

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

Central Valley Water Reclamation Facility

Board Members
Debra Armstrong, Chair
Mark Kindred, Vice Chair
Jim Brass
Giles Demke
Mark Katter
Jeff Monson
Gary Swensen

General Manager
Thomas A. Holstrom, P.E.

19-12
Sent 3-5-19

COPY

February 19, 2019

Ramin Ghasemi
KSB, INC
4415 Sarallen Road
Henrico, VA 23231

Subject: Request for bid Proposal (RFP) for PEPS Pumping Equipment

Dear Mr. Ghasemi:

The purpose of this letter is to inform you that the evaluation of the proposals submitted in response to the subject RFP has been completed.

Central Valley Water Reclamation Facility and our consulting engineer evaluated all proposals in strict accordance with the evaluation criteria set forth in the RFP. We are pleased to inform you that KSB's proposal was selected for the award. Please find the attached Notice of Award which includes additional information.

We want to thank you for your proposal and your interest in this engagement, and we look forward to working with you on this project.

Sincerely,

CENTRAL VALLEY WATER RECLAMATION FACILITY

Phillip Heck

Phillip Heck, Ph.D., P.E.
Assistant General Manager/Process Control Engineer

Enclosure

800 West Central Valley Road, Salt Lake City, UT 84119-3379 · (801) 973-9100 · (801) 973-9280

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 51 00
NOTICE OF AWARD

Date of Issuance:

Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:
Engineer:	Brown and Caldwell	Engineer's Project No.:
Project:	PEPS Pumping Equipment Procurement	Contract Name:
Bidder:	KSB, Inc.	
Bidder's Address:	4415 Sarellen Road Henrico, VA 23231	

TO BIDDER:

You are notified that Owner has accepted your Bid dated January 30, 2019 for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

PEPS Pumping Equipment.

The Contract Price of the awarded Contract is: $ 462,497

The price includes:

- Special Services cost = $21,410
- Goods cost consisting of six (6) pumps in accordance with 43 25 33.10 = $320,087
- Goods cost consisting of six (6) discharge tubes in accordance with 43 25 33.10 = $121,000

[x] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner 3 counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): None.

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: Central Valley Water Reclamation Facility

Authorized Signature

By: Phil Heck

Title: Assistant General Manager/Process Engineer

Copy: Engineer

00 52 00

AGREEMENT BETWEEN BUYER AND SELLER

Table of Contents

Article 1 – GOODS AND SPECIAL SERVICES 1

Article 2 – THE PROJECT 1

Article 3 – ENGINEER 1

Article 4 – POINT OF DESTINATION 2

Article 5 – CONTRACT TIMES 2

Article 6 – CONTRACT PRICE 5

Article 7 – PAYMENT PROCEDURES 5

Article 8 – INTEREST 7

Article 9 – SELLER'S REPRESENTATIONS 7

Article 10 – CONTRACT DOCUMENTS 7

Article 11 – MISCELLANEOUS 9

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THIS AGREEMENT is by and between

CENTRAL VALLEY WATER RECLAMATION FACILITY ("Buyer")

and KSB, Inc. ("Seller").

Buyer and Seller hereby agree as follows:

ARTICLE 1 – GOODS AND SPECIAL SERVICES

1.01 Seller shall furnish the Goods and Special Services as specified or indicated in the Contract Documents.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Goods and Special Services may be the whole or only a part, is identified as follows:

A. Provide PEPS Pumping Equipment at the Central Valley Water Reclamation Facility.

B. Includes the provisions of Goods and Special Services for 6 (six) PEPS pumping systems.

2.02 The Seller shall deliver the required Bonds and insurance certificates in accordance with Article 4 of the General Conditions.

2.03 The Buyer shall execute the Agreement and administer the Contract for Special Services associated with preparation of Shop Drawings and other Submittals required for the project. The guaranteed money for the Special Services shall not exceed 5% of the total equipment cost.

2.04 The Buyer is not obligated under this Agreement beyond Special Services until it issues a "Notice to Commence Fabrication" to the Seller. A Notice to Commence Fabrication may be issued at any time per Article 5. The Buyer may assign the remainder of this contract to a Contractor for the installation of the Goods.

2.05 KSB Inc., as part of their submittal requested modifications to language of the contract. These modifications, as part of final contract negotiation are noted in red. Other revisions to this Agreement, to support these modifications and for clarity of schedule, are also noted in red.

ARTICLE 3 – ENGINEER

3.01 The Contract Documents for the Goods and Special Services have been prepared by Brown and Caldwell, ("Engineer"), which is to act as Buyer's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with Seller's furnishing of Goods and Special Services.

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ARTICLE 4 – POINT OF DESTINATION

4.01 The Point of Destination is designated as:

CENTRAL VALLEY WATER RECLAMATION FACILITY
800 WEST CENTRAL VALLEY ROAD
SOUTH SALT LAKE CITY, UT 84119

ARTICLE 5 – CONTRACT TIMES

5.01 *Time of the Essence*

A. All time limits for Milestones, if any, including the submittal of Shop Drawings and Samples, the delivery of Goods, and the furnishing of Special Services as stated in the Contract Documents, are of the essence of the Contract.

B. The Date of Agreement is anticipated to be March of 2019.

C. The physical model study is anticipated to occur between March of 2019 and October of 2019. Manufacturer support for the physical model study is required per Section 43 25 33.10.

D. The anticipated schedule ~~of the Discharge Tubes is as~~ follows:

1. Shop drawing and submittal period for the equipment specified in 43 25 33.10 (discharge tubes and pumping equipment) will commence upon completion of the physical model study anticipated to be complete by October 2019. Seller agrees to review with Owner and Engineer the results of the physical model study and incorporate model study recommendations in the submittals. See 5.02 for Contract Milestones.

2. The Buyer expects to issue a Notice to Commence Fabrication of the Discharge Tubes in the first or second quarter of 2020. Delivery of tubes shall not be more than 90 days after the Notice to Commence Fabrication. See 5.02 for Contract Milestones.

3. The Buyer expects to issue a Notice to Commence Fabrication of the PEPS Pumping Equipment, excluding Discharge Tubes in the third quarter of 2022. Delivery shall not be more than 180 days after the Notice to Commence Fabrication. See 5.02 for Contract Milestones.

4. The Buyer expects to commission the PEPS pump station sometime between June and August of 2023.

~~1. The date of the last Shop Drawing submission and Notice to Commence Fabrication is approximately April of 2020.~~

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~~2. The date of Delivery is approximately July of 2020.~~

~~E. The anticipated schedule for the PEPS Pumping Equipment, Excluding Discharge Tubes, is as follows:~~

~~1. The date of the Second Shop Drawing and the Notice to Commence Fabrication is approximately October of 2022.~~

~~2. The date of Delivery of the PEPS Pumping Equipment, excluding Discharge Tubes, is approximately April 2023.~~

~~F.~~E. ~~The anticipated start-up date for the Primary Effluent Pump Station is approximately July of 2023.~~

5.02 *Milestones*

A. *Days for Submittal of Shop Drawings and Samples.* Seller shall submit all Shop Drawings and Samples required by the Contract Documents to Buyer for Engineer's Review in accordance with the following schedule. It is the intent of the parties that submittals be in accordance with Section 01 33 00.

Special Services (Addendum No. 2)	
Item	~~Discharge Tubes~~All Equipment Specified in ~~per~~ 43 25 33.10
Maximum Contract Time Beyond- ~~Effective Date of Agreement to Seller's First Shop Drawing Submittal~~ Seller's receipt of physical model study final report and First Shop Drawing submittal (Days)	~~330~~30
Maximum Contract Time Beyond ~~Effective Date of Agreement to~~Seller's receipt of physical model study and First Shop Drawing Returned to Seller (Days)	~~345~~50
Maximum Contract Time Seller's receipt of physical model study final report and ~~Beyond Effective Date of Agreement to Seller's~~ Second Shop Drawing Submittal (Days)	~~375~~80
Maximum Contract Time Beyond Seller's receipt of physical model study and~~Effective Date of Agreement to~~ Second Shop Drawing Returned to Seller (Days)	~~390~~100

EJCDC P-520, Agreement Between Buyer and Seller for Procurement Contracts.
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B. *Days to Achieve Delivery of Goods.* The Goods are to be delivered to the Point of Destination and ready for Buyer's receipt in accordance with the following schedule.

Goods (Addendum No. 2)	
Item	Discharge Tubes Only per 43 25 33.10
Maximum Contract Time Beyond Effective Date of Agreement to Notice to Commence Fabrication (Days) (Addendum No. 2)	400
Maximum Contract Time Beyond Effective Date of Agreement to Delivery of Goods (Days) (Addendum No. 2)	490

C. The Seller shall not commence manufacture of any Goods until the Buyer issues a Notice to Commence Fabrication. Goods shall be delivered in accordance with Article 6 of the General Conditions.

D. The Notice to Commence Fabrication of the PEPS pumping equipment, excluding Discharge Tubes is expected in the third quarter of 2022. Seller shall deliver the PEPS pumping equipment no more than 180 days after the Notice to Commence Fabrication. Upon Notice to Commence Fabrication, Seller shall confirm that the shop drawings previously provided and approved are correct and match the pumps proposed for manufacture. If any new features to the pumping equipment become available from the time of shop drawings being completed and the Notice to Commence Fabrication, the Seller shall bring these features to the Buyers attention. Seller may elect, with a commensurate cost modification, to include the new features in the PEPS pumping equipment provided. The First, Second, and Third Goods Payment of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenance and start-up services, will include cost escalation and will not be made before ~~January of 2022~~the Notice to Commence Fabrication and as stated in Article 7.02. The contract days lapsed from the Effective Date of the Agreement to the PEPS Pumping Equipment Notice to Commence Fabrication will be used to calculate the escalation amount in accordance with the bid form.

E. Delivery of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services, will not be accepted before January of 2023.

F. It is Buyers intent to issue a Notice to Fabricate for PEPS Pumping Equipment on or before March 1, 2019.

5.03 *Liquidated Damages*

A. Buyer and Seller recognize that Buyer will suffer financial loss if the Goods are not delivered at the Point of Destination and ready for receipt of delivery by Buyer within the times specified in Paragraph 5.02 above, plus any extensions thereof allowed in accordance

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with Article 7 of the General Conditions. The parties also recognize that the timely performance of services by others involved in the Project is materially dependent upon Seller's specific compliance with the requirements of Paragraph 5.02. Further, they recognize the delays, expense, and difficulties involved in proving the actual loss suffered by Buyer if complete acceptable Goods are not delivered on time. Accordingly, instead of requiring such proof, Buyer and Seller agree that as liquidated damages for delay (but not as a penalty) Seller shall pay Buyer $150 for each day that expires after the time specified in Paragraph 5.02.A for delivery of Special Services items and $300 for each day that expires after the time specified in Paragraph 5.02.B. Notwithstanding, Seller's liability for liquidated damages for delays of either goods or services shall not exceed 7% of the Contract Price.

ARTICLE 6 – CONTRACT PRICE

6.01 Buyer shall pay Seller for furnishing the Goods and Special Services in accordance with the Contract Documents as follows:

A. A Lump Sum of $ 462,497 .

B. The Contract Price for Goods and Special Services shall remain valid if the Buyer issues a Notice to Fabricate per Article 5.

ARTICLE 7 – PAYMENT PROCEDURES

7.01 *Submittal and Processing of Payment*

A. Seller shall submit Applications for Payment in accordance with Article 10 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

7.02 *Progress Payments for Special Engineering Services*

A. Buyer shall make progress payments on account of the Contract Price on the basis of Seller's Applications for Payment as follows:

Special Service		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Special Services Payment	Execution of Agreement including delivery of bonds and insurance	25 percent of Special Services Price shown in Bid Form
Second Payment Special Services	Engineer's completed review of all submittals/shop drawings with a response of No Exceptions Taken or Make Corrections noted	75 percent of Special Services Price shown in Bid Form (bringing total to 100 percent for Special Services Price shown in Bid Form)

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Goods – Discharge Tubes per 43 25 33.10		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Goods Payment	Notice to Commence Fabrication of Discharge Tubes per 43 25 33.10.	10 percent of Price shown in Bid Form
Second Goods Payment	Delivery to Point of Destination of Discharge Tubes per 43 25 33.10.	90 percent of Price shown in Bid Form
Goods – PEPS Pumping Equipment per 43 25 33.10 excluding Discharge Tubes		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Goods Payment	Notice to Commence Fabrication of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility.	10 percent of Price shown in Bid Form
Second Goods Payment	Delivery to Point of Destination of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances as specified for Seller Unit Responsibility (Addendum 3).	75 percent of Price shown in Bid Form
Third (Final) Goods Payment	Completion of installation, commissioning, startup services, field services and O&M Manuals related to PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility (Addendum 3).	15 percent of Price shown in Bid Form

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ARTICLE 8 – INTEREST

8.01 All monies not paid when due as provided in Article 10 of the General Conditions shall bear interest at the statutory rate.

ARTICLE 9 – SELLER'S REPRESENTATIONS

9.01 In order to induce Buyer to enter into this Agreement, Seller makes the following representations:

A. Seller has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents, as applicable to Seller's obligations identified in Article 1 above.

B. If, in Seller's judgment, any local condition may affect cost, progress, or the furnishing of the Goods and Special Services, Seller has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided and become familiar with and is satisfied as to the observable local conditions that may affect cost, progress, and the furnishing of the Goods and Special Services.

C. Seller is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and the furnishing of the Goods and Special Services.

D. Seller has carefully studied, considered, and correlated the information known to Seller; information commonly known to sellers of similar goods doing business in the locality of the Point of Destination and the site where the Goods will be installed or where Special Services will be provided; information and observations obtained from Seller's visits, if any, to the Point of Destination and site where the Goods are to be installed or Services will be provided; and any reports and drawings identified in the Bidding Documents regarding the Point of Destination and the site where the Goods will be installed or where Special Services will be provided, with respect to the effect of such information, observations, and documents on the cost, progress, and performance of Seller's obligations under the Contract Documents.

E. Seller has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Seller has discovered in the Contract Documents, and the written resolution (if any) thereof by Engineer is acceptable to Seller.

F. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for furnishing Goods and Special Services.

ARTICLE 10 – CONTRACT DOCUMENTS

10.01 *Contents*

A. The Contract Documents consist of the following:

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1. This Agreement

2. Performance Bond

3. Payment Bond

4. General Conditions

5. Supplementary Conditions

6. Specifications as listed in table of contents of the Project Manual;

7. Drawings, with each sheet bearing the following general title: CVWRF BNR PEPS Pumping Equipment Project

8. Addenda (Numbers __1__ to __3__, inclusive); Exhibits to this Agreement (enumerated as follows):

   a. Exhibit A-1 to Agreement between Buyer and Seller dated _____, Assignment of Contract; Consent to Assignment; and Acceptance of Assignment.

   b. Exhibit A-2 to Agreement between Buyer and Seller dated _____, Agreement to Assignment by **Seller's Surety.**

   c. Seller's Bid, solely as to the prices set forth therein ~~(pages __1__ to __8__, inclusive);~~(Bid Form section 00 41 00 in its entirety)

   d. ~~Documentation submitted by Seller prior to Notice of Award (pages ___ to ___, inclusive);~~ KSB information submitted with Seller's Bid specifically Tab F, G, and H as part of Procurement Bid Evaluation Section 00 31 00.

9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

   a. Notice of Award

   b. Notice to Commence Fabrication;

   c. Change Order(s);

   d. Work Change Directive(s).

B. The documents listed in Paragraph 10.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 10.

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D. The Contract Documents may only be amended, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 11 – MISCELLANEOUS

11.01 *Terms*

A. Terms used in this Agreement will have the meanings indicated in the General Conditions and the Supplementary Conditions.

11.02 *Assignment of Contract*

A. Buyer has the right to assign this Contract for furnishing Goods and Special Services, but only to a person or entity with sufficient ability to satisfy all of Buyer's obligations under this Contract, and Seller hereby consents to such assignment. Forms documenting the assignment of the Contract, and consent of Seller's surety to the assignment, have been executed by Buyer, Seller, and Seller's surety, and are attached as exhibits to this Agreement.

1. The Contract will be executed in the name of Buyer initially, and will be assigned to a construction contractor designated by Buyer. Such construction contractor's responsibilities will include the installation of the Goods. The assignment will occur on the effective date of the agreement between Buyer and the construction contractor, which is expected to occur on or about November 1, 2019. As of the date of acceptance of assignment by the construction contractor, all references in the Contract Documents to Buyer shall mean the designated construction contractor.

2. The assignment of the Contract shall relieve the assignor from all further obligations and liabilities under this Contract. After assignment, Seller shall become a subcontractor or supplier to the assignee and, except as noted herein, all rights, duties, and obligations of Buyer under the Contract shall become the rights, duties, and obligations of the assignee.

3. After assignment:

a. All performance warranties, guarantees, and indemnifications required by the Contract Documents will continue to run for the benefit of assignor and, inaddition, for the benefit of the assignee. However, if assignor and assignee makethe same warranty or guarantee claim, then Seller shall only be liable once for such claim.

b. Except as provided in this Paragraph 11.02.A.3.b, all rights, duties, and obligations of Engineer to assignee and Seller under this Contract will cease.

1) Engineer will review Seller's Applications for Payment and make recommendations to assignee for payments as provided in Paragraphs 10.02 and 10.06 of the General Conditions.

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2) Upon the written request of either the assignee or Seller, Engineer will issue with reasonable promptness clarifications or interpretations of the Contract Documents pursuant to the terms of Paragraph 9.02.A of the General Conditions.

B. No other assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound. Specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by Laws and Regulations). Unless specifically stated to the contrary in any written consent to such an assignment, such an assignment will not release or discharge the assignor from any duty or responsibility under the Contract Documents.

11.03 *Successors and Assigns*

A. Buyer and Seller each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

11.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Buyer and Seller. The Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

11.05 *Seller's Certifications*

A. Seller certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 11.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Buyer, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Buyer of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Buyer, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

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4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

11.06 *Limitations*

A. Buyer and Seller waive against each other, and against the other's officers, directors, members, partners, employees, agents, consultants, and subcontractors, any and all claims for or entitlement to incidental, indirect, or consequential damages arising out of, resulting from, or related to the Contract. Upon assignment the terms of this Paragraph 11.06.A shall be binding upon the assignee with respect to Seller and assignor. The terms of this mutual waiver do not apply to or limit any claim by either Buyer or Seller against the other based on any of the following: (a) contribution or indemnification, (b) costs, losses, or damages attributable to personal or bodily injury, sickness, disease, or death, or to injury to or destruction of the tangible property of others, (c) intentional or reckless wrongful conduct, or (d) rights conferred by any bond provided by Seller under this Contract.

B. Upon assignment the terms of this Paragraph 11.06.B shall be binding upon both the assignor and assignee with respect to Seller's liability, and upon Seller with respect to both assignor's and assignee's liabilities. The terms of this mutual limitation do not apply to or limit any claim by either Buyer or Seller against the other based on any of the following: (a) contribution or indemnification with respect to third-party claims, losses, and damages; (b) costs, losses, or damages attributable to personal or bodily injury, sickness, disease, or death, or to injury to or destruction of the tangible property of others, (c) intentional or reckless wrongful conduct, or (d) rights conferred by any bond provided by Seller under this Contract.

~~B.~~C. Notwithstanding any other provision of the Contract Documents, Sellers liability arising at any time under any of the Contract Documents or otherwise in in connection with completing the Contract (whether arising under breach of contract, tort, strict liability, or any other theory of law) shall be limited to the Seller's Liability Insurance limits required in SC-4.02. However, such limitation of liability excludes and shall not apply to loss or damage caused by Sellers gross negligence, willful misconduct, fraud, or liability to a Third Party.

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IN WITNESS WHEREOF, Buyer and Seller have signed this Agreement. Counterparts have been delivered to Buyer and Seller. All portions of the Contract Documents have been signed or identified by Buyer and Seller or on their behalf.

This Agreement will be effective on 5/2/2019 (which is the Effective Date of the Agreement).

Buyer: Central Valley WRF

By: [signature]

Attest: [signature]

Address for giving notice:
800 West Central Valley Road
Salt Lake City, UT 84119

Seller: KSB, INC.

By: LUIS F. MATURANA

[Corporate Seal]

Attest: [signature]

Address for giving notice:
4415 SARELLEN RD.
HENRICO, VA 23231

Agent for service of process:
W-CURED / BRAD WINNUP, PRESIDENT
2912 SOUTH WEST TEMPLE
SALT LAKE CITY, UT 84115.

(If Seller is a corporation or a partnership, attach evidence of authority to sign.)

Designated Representative:
Name:
Title:
Address:
Phone:
Facsimile:

Designated Representative:
Name:
Title:
Address:
Phone:
Facsimile:

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EXHIBIT A-1 to Agreement Between Buyer and Seller dated 4/26/2019

ASSIGNMENT OF CONTRACT; CONSENT TO ASSIGNMENT; AND ACCEPTANCE OF ASSIGNMENT

This assignment will be effective on the Effective Date of the Agreement between Buyer and Construction Contractor.

The Contract between Central Valley Water Reclamation Facility ("Buyer") and KSB, Inc. ("Seller") for furnishing Goods and Special Services under the Contract Documents entitled BIOLOGICAL NUTRIENT REMOVAL PROJECT PRIMARY EFFLUENT PUMP STATION PUMPING EQUIPMENT PROCUREMENT is hereby assigned, transferred, and set over to _____ ("Construction Contractor"). Construction Contractor shall be totally responsible for the performance of Seller and for the duties, rights and obligations of Buyer, not otherwise retained by Buyer, under the terms of the Contract between Buyer and Seller.

ASSIGNMENT DIRECTED BY:

_____
Buyer

(If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Buyer-Seller Agreement.)

By: _____
(Signature) (Title)

ASSIGNMENT ACKNOWLEDGED AND ACCEPTED BY:

KSB, INC.
Seller

(If Seller is a corporation, attach evidence of authority to sign.)

By: LUIS F. MATURANA / VICE PRESIDENT, WATER & WASTEWATER
(Signature) (Title)

ASSIGNMENT ACCEPTED BY:

_____
Construction Contractor

(If Construction Contractor is a corporation, attach evidence of authority to sign.

By: _____

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EXHIBIT A-2 to Agreement Between Buyer and Seller dated 4/26/2019 -

AGREEMENT TO ASSIGNMENT BY SELLER'S SURETY

Surety hereby acknowledges and agrees that the Contract for furnishing Goods and Special Services under the Contract Documents entitled BIOLOGICAL NUTRIENT REMOVAL PROJECT PRIMARY EFFLUENT PUMP STATION PUMPING EQUIPMENT PROCUREMENT by and between Central Valley Water Reclamation Facility ("Buyer") and KSB, Inc. ("Seller") may be assigned, transferred, and set over to _____ ("Construction Contractor"), in accordance with Paragraph 11.02 of Agreement between Buyer and Seller.

Surety further agrees that, upon assignment of the Contract, the Construction Contractor shall have all the rights of the Buyer under the Performance Bond.

(Corporate Seal)

Surety

Company: KSB, INC.

By: LUIS F. MATURANA | VICE PRESIDENT, WATER & WASTEWATER.

Signature and Title
(Attach Power of Attorney)

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April 29, 2019

Brown and Caldwell
Attn: Ms. Rebecca Yoo
6975 Union Park Center
Suite 490
Salt Lake City, Utah 84047

RE: PEPS Pumping Equipment/
Central Valley Water Reclamation Facility

Dear Ms. Yoo:

Please allow this correspondence to serve as evidence of Mr. Luis Maturana's authority to issue this bid proposal, on behalf of KSB, Inc., for the project at PEPS Pumping Equipment/Central Valley Water Reclamation Facility.

Mr. Maturana was elected as a coprorate officer, to the position of Vice President, Water and Wastewater Division, at the annual meeting of the Board of Directors for KSB, Inc., on November 8, 2018. He currently serves in this capacity. As an officer of KSB, Inc., Mr. Maturana is authorized to enter into legally binding agreements on the Company's behalf.

Sincerely,

Stafford B. Saunders II
Corporate Secretary

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 55 00

NOTICE TO PROCEED

Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	
Contractor:	KSB, Inc.	Contractor's Project No.:	
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	Biological Nutrient Removal Project	Contract Name:	Primary Effluent Pump Station Pumping Equipment Procurement
		Effective Date of Contract:	May 3, 2019

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on May 3, 2019. *[see Paragraph 2.04 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. the date of Substantial Completion shall be in accordance with Article 5 of the Agreement (Section 00 52 00), and the date of readiness for final payment shall be in accordance with Article 5 of the Agreement (Section 00 52 00).

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

- Attend the Owner's Safety Orientation

Owner: Central Valley Water Reclamation Facility

Authorized Signature

By: Phillip Hall

Title: General Manager

Date Issued: 5/2/2019

Copy: Engineer

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PERFORMANCE BOND
FOR PROCUREMENT CONTRACTS

Any singular reference to Seller, Surety, Buyer, or other party shall be considered plural where applicable.

SELLER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

BUYER (Name and Address):

CONTRACT
Date:
Amount:
Description (Name and Location):

BOND
Date (Not earlier than Contract Date):
Bond Number:
Amount:
Modifications to this Bond Form:

Surety and Seller, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

Seller as Principal
Company: (Corp. Seal)

Signature:
Name and Title:

Surety
Company: (Corp. Seal)

Signature:
Name and Title:
(Attach Power of Attorney)
Address:

Telephone Number:

(Space is provided below for signatures of additional parties, if required.)

Seller as Principal
Company: (Corp. Seal)

Signature:
Name and Title:

Surety
Company: (Corp. Seal)

Signature:
Name and Title:
Address:
Telephone Number:

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1. Seller and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to Buyer for the performance of the Contract, which is incorporated herein by reference. For purposes of this bond, Buyer means Buyer's assigns, if and when Buyer has assigned the Contract.

2. If Seller performs the Contract, Surety and Seller have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Buyer Default, Surety's obligation under this Bond shall arise after:

   3.1. Buyer has notified Seller and Surety pursuant to Paragraph 10 that Buyer is considering declaring a Seller Default and has requested and attempted to arrange a conference with Seller and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. (If Buyer, Seller, and Surety agree, Seller shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Buyer's right, if any, subsequently to declare a Seller Default); and

   3.2. Buyer has declared a Seller Default and formally terminated Seller's right to complete the Contract. Such Seller Default shall not be declared earlier than 20 days after Seller and Surety have received notice as provided in Paragraph 3.1; and

   3.3. Buyer has agreed to pay the Balance of the Contract Price to:

      a. Surety in accordance with the terms of the Contract;

      b. Another seller selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Buyer has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

   4.1. Arrange for Seller, with consent of Buyer, to perform and complete the Contract; or

   4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

   4.3. Obtain bids or negotiated proposals from qualified sellers acceptable to Buyer for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Buyer and a seller selected with Buyer's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to Buyer the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Buyer resulting from Seller Default; or

   4.4. Waive its right to perform and complete, arrange for completion, or obtain a new seller, and with reasonable promptness under the circumstances, either:

      a. determine the amount for which it may be liable to Buyer and, as soon as practicable after the amount is determined, tender payment therefor to Buyer; or

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b. deny liability in whole or in part and notify Buyer citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Buyer to Surety demanding that Surety perform its obligations under this Bond, and Buyer shall be entitled to enforce any remedy available to Buyer. If Surety proceeds as provided in paragraph 4.4, and Buyer refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Buyer shall be entitled to enforce any remedy available to Buyer.

6. After Buyer has terminated Seller's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3, then the responsibilities of Surety to Buyer shall not be greater than those of Seller under the Contract, and the responsibilities of Buyer to Surety shall not be greater than those of Buyer under the Contract. To a limit of the amount of this Bond, but subject to commitment by Buyer of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

   6.1. the responsibilities of Seller for correction or replacement of defective Goods and Special Services and completion of the Contract;

   6.2. Additional legal, design professional, and delay costs resulting from Seller's Default, and resulting from the actions of or failure to act of Surety under Paragraph 4; and

   6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Seller.

7. Surety shall not be liable to Buyer or others for obligations of Seller that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Buyer or its heirs, executors, administrators, successors, or assigns.

8. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location of the Point of Destination, and shall be instituted within two years after Seller Default or within two years after Seller ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Buyer or Seller shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Point of Destination, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

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12. Definitions.

12.1. *Balance of the Contract Price:* The total amount payable by Buyer to Seller under the Contract after all proper adjustments have been made, including allowance to Seller of any amounts received or to be received by Buyer in settlement of insurance or other Claims for damages to which Seller is entitled, reduced by all valid and proper payments made to or on behalf of Seller under the Contract.

12.2. *Contract:* The agreement between Buyer and Seller identified on the signature page, including all Contract Documents and changes thereto.

12.3. *Seller Default:* Failure of Seller, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. *Buyer Default:* Failure of Buyer, which has neither been remedied nor waived, to pay Seller as required by the Contract or to perform and complete or comply with the other terms thereof.

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PAYMENT BOND
FOR PROCUREMENT CONTRACTS

Any singular reference to Seller, Surety, Buyer or other party shall be considered plural where applicable.

SELLER (Name and Address):
KSB, Inc.
4415 Sarellen Road Richmond VA 23231

BUYER (Name and Address):
Central Valley Water Reclamation Facility
800 West Central Valley Road Salt Lake City UT 84119

SURETY (Name and Address of Principal Place of Business):
Westchester Fire Insurance Company
436 Walnut Street, P. O. Box 1000
Philadelphia PA 19106

CONTRACT
Date: April 26, 2019
Amount: $462,497.00 Four Hundred Sixty Two Thousand Four Hundred Ninety Seven Dollars and 00/100
Description (Name and Location): BC Project No. 151600 Biological Nutrient Removal Project, Primary Effluent Pump Station, Pumping Equipment Procurement

BOND
Date (Not earlier than Contract Date): April 30, 2019
Bond Number: K13549965
Amount: $462,497.00 Four Hundred Sixty Two Thousand Four Hundred Ninety Seven Dollars and 00/100
Modifications to this Bond Form:

Surety and Seller, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

Seller as Principal
Company: (Corp. Seal)
KSB, Inc.
Signature:
Name and Title: Sidney B. Saunders II, General Manager

Surety
Company: (Corp. Seal)
Westchester Fire Insurance Company
Signature:
Name and Title: Patricia L. Lewis Attorney-in-Fact
(Attach Power of Attorney)
Address: 436 Walnut Street, P. O. Box Philadelphia PA 19106
Telephone Number: 804)780-0611

(Space is provided below for signatures of additional parties, if required.)

Seller as Principal
Company: (Corp. Seal)
Signature:
Name and Title:

Surety
Company: (Corp. Seal)
Signature:
Name and Title:
Address:
Telephone Number:

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1. Seller and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to Buyer to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference. For purposes of this bond, Buyer means Buyer's assigns, if and when Buyer has assigned the Contract.

2. With respect to Buyer, this obligation shall be null and void if Seller:

   2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

   2.2. Defends, indemnifies and holds harmless Buyer from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided Buyer has promptly notified Seller and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to Seller and Surety, and provided there is no Buyer Default.

3. With respect to Claimants, this obligation shall be null and void if Seller promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

   4.1. Claimants who are employed by or have a direct contract with Seller have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Buyer stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

   4.2. Claimants who do not have a direct contract with Seller:

      a. Have furnished written notice to Seller and sent a copy, or notice thereof, to Buyer, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and

      b. Have either received a rejection in whole or in part from Seller or not received within 30 days of furnishing the above notice any communication from Seller by which Seller had indicated the claim will be paid directly or indirectly; and

      c. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Buyer stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Seller.

5. If a notice required by Paragraph 4 is given by Buyer to Seller or to Surety, that is sufficient compliance.

6. Reserved.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Buyer to Seller under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By Seller furnishing and Buyer

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accepting this Bond, they agree that all funds earned by Seller in the performance of the Contract are dedicated to satisfy obligations of Seller and Surety under this Bond, subject to Buyer's priority to use the funds for the completion of the furnishing the Goods and Special Services.

9. Surety shall not be liable to Buyer, Claimants or others for obligations of Seller that are unrelated to the Contract. Buyer shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Goods relevant to the claim are located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Buyer or Seller shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Buyer or Seller, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Seller shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

    15.1 *Claimant:* An individual or entity having a direct contract with Seller or with a Subcontractor of Seller to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for furnishing the Goods and Special Services by Seller and Seller's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

    15.2. *Contract:* The agreement between Buyer and Seller identified on the signature page, including all Contract Documents and changes thereto.

    15.3. *Buyer Default:* Failure of Buyer, which has neither been remedied nor waived, to pay Seller as required by the Contract or to perform and complete or comply with the other terms thereof.

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CHUBB

Power of Attorney

Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Patricia L. Lewis

each as their true and lawful Attorney-In-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

Surety Bond Number: K13549965

Obligee: Central Valley Water Reclamation Facility

In Witness Whereof, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY have each executed and attested these presents and affixed their corporate seals on this day of September, 2018.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney, Vice President

STATE OF NEW JERSEY

County of Hunterdon ss.

On this day of September, 2018, before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316685
Commission Expires July 18, 2019

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006 ; ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,

(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this April 30, 2019.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

00 70 00
STANDARD GENERAL CONDITIONS

Table of Contents

Page

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY 1
1.01 Defined Terms 1
1.02 Terminology 4

ARTICLE 2 - PRELIMINARY MATTERS 5
2.01 Delivery of Bonds 5
2.02 Evidence of Insurance 5
2.03 Copies of Documents 5
2.04 Commencement of Contract Times; Notice to Proceed 5
2.05 Designated Representatives 5
2.06 Progress Schedule 5
2.07 Preliminary Conference 6
2.08 Safety 6

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT AND AMENDING 6
3.01 Intent 6
3.02 Standards, Specifications, Codes, Laws and Regulations. 6
3.03 Reporting and Resolving Discrepancies 7
3.04 Amending and Clarifying Contract Documents 7

ARTICLE 4 - BONDS AND INSURANCE 8
4.01 Bonds 8
4.02 Insurance 8
4.03 Licensed Sureties and Insurers 9

ARTICLE 5 - SELLER'S RESPONSIBILITIES 9
5.01 Supervision and Superintendence 9
5.02 Labor, Materials and Equipment 9
5.03 Laws and Regulations 10
5.04 Or Equals 10
5.05 Taxes 11
5.06 Shop Drawings and Samples 11
5.07 Continuing Performance 12
5.08 Seller's Warranties and Guarantees 12
5.09 Indemnification 14
5.10 Delegation of Professional Design Services 14

ARTICLE 6 - SHIPPING AND DELIVERY 15
6.01 Shipping 15
6.02 Delivery 15
6.03 Risk of Loss 15
6.04 Progress Schedule 16

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ARTICLE 7 - CHANGES: SCHEDULE AND DELAY 16
7.01 Changes in the Goods and Special Services 16
7.02 Changing Contract Price or Contract Times 16

ARTICLE 8 - BUYER'S RIGHTS 17
8.01 Inspections and Testing 17
8.02 Non-Conforming Goods or Special Services 18
8.03 Correction Period 20

ARTICLE 9 - ROLE OF ENGINEER 20
9.01 Duties and Responsibilities 20
9.02 Clarifications and Interpretations 20
9.03 Authorized Variations 20
9.04 Rejecting Non-Conforming Goods and Special Services 20
9.05 Decisions on Requirements of Contract Documents 21
9.06 Claims and Disputes 21

ARTICLE 10 - PAYMENT 22
10.01 Applications for Progress Payments 22
10.02 Review of Applications for Progress Payments 22
10.03 Amount and Timing of Progress Payments 23
10.04 Suspension of or Reduction in Payment 23
10.05 Final Application for Payment 24
10.06 Final Payment 24
10.07 Waiver of Claims 24

ARTICLE 11 - CANCELLATION, SUSPENSION, AND TERMINATION 24
11.01 Cancellation 24
11.02 Suspension of Performance by Buyer 25
11.03 Suspension of Performance by Seller 25
11.04 Breach and Termination 25

ARTICLE 12 - LICENSES AND FEES 26
12.01 Intellectual Property and License Fees 26
12.02 Seller's Infringement 27
12.03 Buyer's Infringement 27
12.04 Reuse of Documents 28
12.05 Electronic Data 28

ARTICLE 13 - DISPUTE RESOLUTION 28
13.01 Dispute Resolution Method 28

ARTICLE 14 - MISCELLANEOUS 29
14.01 Giving Notice 29
14.02 Controlling Law 29
14.03 Computation of Time 29
14.04 Cumulative Remedies 30
14.05 Survival of Obligations 30
14.06 Entire Agreement 30

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STANDARD GENERAL CONDITIONS FOR PROCUREMENT CONTRACTS

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Whenever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to the singular or plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument signed by both Buyer and Seller covering the Goods and Special Services and which lists the Contract Documents in existence on the Effective Date of the Agreement.

3. *Application for Payment*—The form acceptable to Buyer which is used by Seller in requesting progress and final payments and which is accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*— The offer or proposal of a Seller submitted on the prescribed form setting forth the prices for the Goods and Special Services to be provided.

5. *Bidder*—The individual or entity that submits a Bid directly to Buyer.

6. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and Bid Form with any supplements.

8. *Buyer*—The individual or entity purchasing the Goods and Special Services.

9. *Change Order*—A document which is signed by Seller and Buyer and authorizes an addition, deletion, or revision to the Contract Documents or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement. Change Orders may be the result of mutual agreement by Buyer and Seller, or of resolution of a Claim.

10. *Claim*—A demand or assertion by Buyer or Seller seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

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11. *Contract*—The entire and integrated written agreement between Buyer and Seller concerning the Goods and Special Services. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Shop Drawings and other Seller submittals are not Contract Documents, even if accepted, reviewed, or approved by Engineer or Buyer.

13. *Contract Price*—The moneys payable by Buyer to Seller for furnishing the Goods and Special Services in accordance with the Contract Documents as stated in the Agreement.

14. *Contract Times*—The times stated in the Agreement by which the Goods must be delivered and Special Services must be furnished.

15. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Goods and Special Services to be furnished by Seller. Shop Drawings and other Seller submittals are not Drawings as so defined.

16. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

17. *Engineer*—The individual or entity designated as such in the Agreement.

18. *Field Order*—A written order issued by Engineer which requires minor changes in the Goods or Special Services but which does not involve a change in the Contract Price or Contract Times.

19. *General Requirements*—Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

20. *Goods*—The tangible and movable personal property that is described in the Contract Documents, regardless of whether the property is to be later attached to realty.

21. *Goods and Special Services*—The full scope of materials, equipment, other items, and services to be furnished by Seller, including Goods, as defined herein, and Special Services, if any, as defined herein. This term refers to both the Goods and the Special Services, or to either the Goods or the Special Services, and to any portion of the Goods or the Special Services, as the context requires.

22. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

23. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to the Contract Times.

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24. *Notice of Award*—The written notice by Buyer to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Buyer will sign and deliver the Agreement.

25. *Notice to Proceed*—A written notice given by Buyer to Seller fixing the date on which the Contract Times commence to run and on which Seller shall start to perform under the Contract.

26. *Point of Destination*—The specific address of the location where delivery of the Goods shall be made, as stated in the Agreement.

27. *Project*—The total undertaking of which the Goods and Special Services may be the whole, or only a part.

28. *Project Manual*—The documentary information prepared for bidding and furnishing the Goods and Special Services. A listing of the contents of the Project Manual is contained in its table of contents.

29. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Goods and Special Services and which establish the standards by which such portion of the Goods and Special Services will be judged.

30. *Seller*—The individual or entity furnishing the Goods and Special Services.

31. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Seller and submitted by Seller to illustrate some portion of the Goods and Special Services.

32. *Special Services*—Services associated with the Goods to be furnished by Seller as required by the Contract Documents.

33. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the furnishing of the Goods and Special Services, and certain administrative requirements and procedural matters applicable thereto.

34. *Successful Bidder*—The Bidder submitting a responsive Bid, to whom Buyer makes an award.

35. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

36. *Work Change Directive*—A written statement to Seller issued on or after the Effective Date of the Agreement and signed by Buyer ordering an addition, deletion, or other revision in the Contract Documents with respect to the Goods and Special Services. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the

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parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B and 1.02.C are not defined, but have the indicated meanings when used in the Bidding Requirements or Contract Documents.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Goods and Special Services. It is intended that such exercise of professional judgment, action, or determination will be commercially reasonable and will be solely to evaluate, in general, the Goods and Special Services for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing of Goods or Special Services or any duty or authority to undertake responsibility contrary to any other provision of the Contract Documents.

2. The word “non-conforming” when modifying the words “Goods and Special Services,” “Goods,” or “Special Services,” refers to Goods and Special Services that fail to conform to the Contract Documents.

3. The word “receipt” when referring to the Goods, shall mean the physical taking and possession by the Buyer under the conditions specified in Paragraph 8.01.B.3.

4. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

5. The word "furnish," when used in connection with the Goods and Special Services shall mean to supply and deliver said Goods to the Point of Destination (or some other specified location) and to perform said Special Services fully, all in accordance with the Contract Documents.

C. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

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ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller also shall deliver such bonds as Seller may be required to furnish.

2.02 *Evidence of Insurance*

A. When Seller delivers the executed counterparts of the Agreement to Buyer, Seller shall deliver to Buyer, with copies to each additional insured identified by name in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Seller is required to purchase and maintain in accordance with Article 4.

2.03 *Copies of Documents*

A. Buyer shall furnish Seller up to five printed or hard copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.04 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.05 *Designated Representatives*

A. Buyer and Seller shall each designate its representative at the time the Agreement is signed. Each representative shall have full authority to act on behalf of and make binding decisions in any matter arising out of or relating to the Contract.

2.06 *Progress Schedule*

A. Within 15 days after the Contract Times start to run, Seller shall submit to Buyer and Engineer an acceptable progress schedule of activities, including at a minimum, Shop Drawing and Sample submittals, tests, and deliveries as required by the Contract Documents. No progress payment will be made to Seller until an acceptable schedule is submitted to Buyer and Engineer.

B. The progress schedule will be acceptable to Buyer and Engineer if it provides an orderly progression of the submittals, tests, and deliveries to completion within the specified Milestones and the Contract Times. Such acceptance will not impose on Buyer or Engineer responsibility for the progress schedule, for sequencing, scheduling, or progress of the work nor interfere with or relieve Seller from Seller's full responsibility therefor. Such acceptance shall not be deemed to acknowledge the reasonableness and attainability of the schedule.

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2.07 *Preliminary Conference*

A. Within 20 days after the Contract Times start to run, a conference attended by Seller, Buyer, Engineer and others as appropriate will be held to establish a working understanding among the parties as to the Goods and Special Services and to discuss the schedule referred to in Paragraph 2.06.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.08 *Safety*

A. Buyer and Seller shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss. When Seller's personnel, or the personnel of any subcontractor to Seller, are present at the Point of Destination or any work area or site controlled by Buyer, the Seller shall be responsible for the compliance by such personnel with any applicable requirements of Buyer's safety programs that are made known to Seller.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT AND AMENDING

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce or furnish the indicated Goods and Special Services will be provided, whether or not specifically called for, at no additional cost to Buyer.

C. Clarifications and interpretations of, or notifications of minor variations and deviations in, the Contract Documents, will be issued by Engineer as provided in Article 9.

3.02 *Standards, Specifications, Codes, Laws and Regulations*

A. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws and Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws and Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

B. No provision of any such standard, specification, manual or code, or any instruction of a supplier shall be effective to change the duties or responsibilities of Buyer or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to Buyer or Engineer, or any of their consultants, agents, or employees any duty or authority to supervise or direct the performance of Seller's obligations or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

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3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Seller's Review of Contract Documents Before the Performance of the Contract*: Before performance of the Contract, Seller shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Seller shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Seller discovers or has actual knowledge of and shall obtain a written interpretation or clarification from Engineer before proceeding with the furnishing of any Goods and Special Services affected thereby.

2. *Seller's Review of Contract Documents During the Performance of the Contract:* If, during the performance of the Contract, Seller discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Contract, any standard, specification, manual or code, or of any instruction of any Supplier, Seller shall promptly report it to Engineer in writing. Seller shall not proceed with the furnishing of the Goods and Special Services affected thereby until an amendment to or clarification of the Contract Documents has been issued.

3. Seller shall not be liable to Buyer or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Seller had actual knowledge thereof.

B. *Resolving Discrepancies:* Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

2. the provisions of any Laws or Regulations applicable to the furnishing of the Goods and Special Services (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Clarifying Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions to the Goods and Special Services or to modify contractual terms and conditions by a Change Order.

B. Buyer may issue a Work Change Directive providing for additions, deletions, or revisions to the Goods and Special Services, in which case (1) the Contract Price shall be equitably adjusted to account for any reasonable and necessary credits to Buyer for any such deletion, or for costs (including reasonable overhead and profit) incurred by Seller to accommodate such an addition or revision and (2) the Contract Times shall be equitably adjusted to account for any impact on

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progress and completion of performance. Such adjustments subsequently shall be duly set forth in a Change Order.

C. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Goods and Special Services may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 5.06.D.3); or

3. Engineer's written interpretation or clarification.

ARTICLE 4 – BONDS AND INSURANCE

4.01 *Bonds*

A. Seller shall furnish to Buyer performance and payment bonds, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Seller's obligations under the Contract Documents. These bonds shall remain in effect until 1) one year after the date when final payment becomes due or 2) completion of the correction period specified in Paragraph 8.03, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Seller shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Seller is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 4.01.B, Seller shall promptly notify Buyer and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 4.01.B and 4.02.

4.02 *Insurance*

A. Seller shall provide insurance of the types and coverages and in the amounts stipulated in the Supplementary Conditions.

B. Failure of Buyer to demand certificates of insurance or other evidence of Seller's full compliance with these insurance requirements or failure of Buyer to identify a deficiency in compliance from

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the evidence provided shall not be construed as a waiver of Seller's obligation to maintain such insurance.

C. Upon assignment of this Contract, Seller shall comply with the written request of assignee to provide certificates of insurance to assignee.

D. Buyer does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Seller.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Seller's liability under the indemnities granted to Buyer in the Contract Documents.

4.03 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Buyer or Seller shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

ARTICLE 5 – SELLER'S RESPONSIBILITIES

5.01 *Supervision and Superintendence*

A. Seller shall supervise, inspect, and direct the furnishing of the Goods and Special Services competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform its obligations in accordance with the Contract Documents. Seller shall be solely responsible for the means, methods, techniques, sequences, and procedures necessary to perform its obligations in accordance with the Contract Documents. Seller shall not be responsible for the negligence of Buyer or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure that is shown or indicated in and expressly required by the Contract Documents.

5.02 *Labor, Materials and Equipment*

A. Seller shall provide competent, qualified and trained personnel in all aspects of its performance of the Contract.

B. All Goods, and all equipment and material incorporated into the Goods, shall be as specified, and unless specified otherwise in the Contract Documents, shall be:

1. new, and of good quality;

2. protected, assembled, connected, cleaned, and conditioned in accordance with the original manufacturer's instructions; and

3. shop assembled to the greatest extent practicable.

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5.03 *Laws and Regulations*

A. Seller shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of its obligations in accordance with the Contract Documents. Except where otherwise expressly required by such Laws and Regulations, neither Buyer nor Engineer shall be responsible for monitoring Seller's compliance with any Laws or Regulations.

B. If Seller furnishes Goods and Special Services knowing or having reason to know that such furnishing is contrary to Laws or Regulations, Seller shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such performance. It shall not be Seller's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this provision shall not relieve Seller of Seller's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance shall be the subject of an adjustment in Contract Price or Contract Times. If Buyer and Seller are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 9.06.

5.04 *Or Equals*

A. Whenever the Goods, or an item of material or equipment to be incorporated into the Goods, are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier or manufacturer, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item is permitted, other items of material or equipment or material or equipment of other suppliers or manufacturers may be submitted to Buyer for Engineer's review.

1. If in Engineer's sole discretion, such an item of material or equipment proposed by Seller is functionally equal to that named and sufficiently similar so that no change in related work will be required, it may be considered by Engineer as an "or-equal" item.

2. For the purposes of this paragraph, a proposed item of material or equipment may be considered functionally equal to an item so named only if:

   a. in the exercise of reasonable judgment, Engineer determines that: 1) it is at least equal in quality, durability, appearance, strength, and design characteristics; 2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; 3) it has an acceptable record of performance and availability of responsive service; and

   b. Seller certifies that if approved: 1) there will be no increase in any cost, including capital, installation or operating costs, to Buyer; and 2) the proposed item will conform substantially to the detailed requirements of the item named in the Contract Documents.

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B. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraph 5.04.A. Engineer will be the sole judge of whether to accept or reject such a proposal or submittal. No "or-equal" will be ordered, manufactured or utilized until Engineer's review is complete, which will be evidenced by an approved Shop Drawing. Engineer will advise Buyer and Seller in writing of any negative determination. Notwithstanding Engineer's approval of an "or-equal" item, Seller shall remain obligated to comply with the requirements of the Contract Documents.

C. *Special Guarantee:* Buyer may require Seller to furnish at Seller's expense a special performance guarantee or other surety with respect to any such proposed "or-equal."

D. *Data:* Seller shall provide all data in support of any such proposed "or-equal" at Seller's expense.

5.05 *Taxes*

A. Seller shall be responsible for all taxes and duties arising out of the sale of the Goods and the furnishing of Special Services. All taxes are included in the Contract Price, except as noted in the Supplementary Conditions.

5.06 *Shop Drawings and Samples*

A. Seller shall submit Shop Drawings and Samples to Buyer for Engineer's review and approval in accordance with the schedule required in Paragraph 2.06.A. All submittals will be identified as required and furnished in the number of copies specified in the Contract Documents. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Seller proposes to provide.

B. Where a Shop Drawing or Sample is required by the Contract Documents, any related work performed prior to Engineer's approval of the pertinent submittal will be at the sole expense and responsibility of Seller.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Seller shall have determined and verified:

   a. all field measurements (if required), quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto; and

   b. that all materials are suitable with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the furnishing of Goods and Special Services.

2. Seller shall also have reviewed and coordinated each Shop Drawing or Sample with the Contract Documents.

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3. Each submittal shall bear a stamp or include a written certification from Seller that Seller has reviewed the subject submittal and confirmed that it is in compliance with the requirements of the Contract Documents. Both Buyer and Engineer shall be entitled to rely on such certification from Seller.

4. With each submittal, Seller shall give Buyer and Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both in a written communication separate from the submittal and by specific notation on each Shop Drawing or Sample.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples.

2. Engineer's review and approval will be only to determine if the Goods and Special Services covered by the submittals will, after installation or incorporation in the Project, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole.

3. Engineer's review and approval shall not relieve Seller from responsibility for any variation from the requirements of the Contract Documents unless Seller has complied with the requirements of Paragraph 5.06.C.4 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Seller from responsibility for complying with the requirements of Paragraph 5.06.C.1.

E. *Resubmittal Procedures:*

4. Seller shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Seller shall direct specific attention in writing to any revisions other than the corrections called for by Engineer on previous submittals.

5.07 *Continuing Performance*

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06.A., and the Goods shall be delivered and the Special Services furnished within the Contract Times specified in the Agreement.

B. Seller shall carry on furnishing of the Goods and Special Services and adhere to the progress schedule during all disputes or disagreements with Buyer. No furnishing of Goods and Special Services shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraphs 11.03 or 11.04, or as Buyer and Seller may otherwise agree in writing.

5.08 *Seller's Warranties and Guarantees*

A. Seller warrants and guarantees to Buyer that the title to the Goods conveyed shall be proper, its transfer rightful, and free from any security interest, lien, or other encumbrance. Seller shall

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defend, indemnify, and hold Buyer harmless against any liens, claims, or demands contesting or affecting title of the Goods conveyed.

B. Seller warrants and guarantees to Buyer that all Goods and Special Services will conform with the Contract Documents, and with the standards established by any Samples approved by Engineer. Engineer shall be entitled to rely on Seller's warranty and guarantee. If the Contract Documents do not otherwise specify the characteristics or the quality of the Goods, the Goods shall comply with the requirements of Paragraph 5.02.B.

C. Seller's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, improper modification, improper maintenance, or improper operation by persons other than Seller; or

2. corrosion or chemical attack, unless corrosive or chemically-damaging conditions were disclosed by Buyer in the Contract Documents and the Contract Documents required the Goods to withstand such conditions;

3. use in a manner contrary to Seller's written instructions for installation, operation, and maintenance; or

4. normal wear and tear under normal usage.

D. Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Goods and Special Services that are non-conforming, or a release of Seller's obligation to furnish the Goods and Special Services in accordance with the Contract Documents:

1. observations by Buyer or Engineer;

2. recommendation by Engineer or payment by Buyer of any progress or final payment;

3. use of the Goods by Buyer;

4. any acceptance by Buyer (subject to the provisions of Paragraph 8.02.D.1) or any failure to do so;

5. the issuance of a notice of acceptance by Buyer pursuant to the provisions of Article 8;

6. any inspection, test or approval by others; or

7. any correction of non-conforming Goods and Special Services by Buyer.

E. Buyer shall promptly notify Seller of any breach of Seller's warranties or guarantees.

F. Seller makes no implied warranties under this Contract.

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5.09 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Seller shall indemnify and hold harmless Buyer and Engineer, and the officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of Seller's obligations under the Contract Documents, provided that any such claim, cost, loss, or damages attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Goods themselves), including the loss of use resulting therefrom, but only to the extent cause by any negligent act or omission of Seller, or any individual or entity directly or indirectly employed by Seller or anyone for whose acts Seller may be liable.

B. In any and all claims against Buyer or Engineer or any of their respective assignees, consultants, agents, officers, directors, members, partners, employees, agents, consultants, contractors, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Seller, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to furnish any of the Goods and Special Services, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 5.09.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for seller or any such subcontractor, supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Seller under Paragraph 5.09.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, and consultants arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

5.10 *Delegation of Professional Design Services*

A. Seller will not be required to provide professional design services unless such services are specifically required by the Contract Documents or unless such services are required to carry out Seller's responsibilities for furnishing the Goods and Special Services. Seller shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to the Goods and Special Services are specifically required of Seller by the Contract Documents, Buyer and Engineer will specify all performance and design criteria that such services must satisfy. Seller shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Goods and Special Services designed or certified by such professional,

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if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Buyer and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Buyer and Engineer have specified to Seller all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 5.10, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 5.06.D.2.

E. Seller shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 6 – SHIPPING AND DELIVERY

6.01 *Shipping*

A. Seller shall select the carrier and bear all costs of packaging, transportation, insurance, special handling and any other costs associated with shipment and delivery.

6.02 *Delivery*

A. Seller shall deliver the Goods F.O.B. the Point of Destination in accordance with the Contract Times set forth in the Agreement, or other date agreed to by Buyer and Seller.

B. Seller shall provide written notice to Buyer at least 10 days before shipment of the manner of shipment and the anticipated delivery date. The notice shall also include any instructions concerning special equipment or services required at the Point of Destination to unload and care for the Goods. Seller shall also require the carrier to give Buyer at least 24 hours notice by telephone prior to the anticipated time of delivery.

C. Buyer will be responsible and bear all costs for unloading the Goods from carrier.

D. Buyer will assure that adequate facilities are available to receive delivery of the Goods during the Contract Times for delivery set forth in the Agreement, or another date agreed by Buyer and Seller.

E. No partial deliveries shall be allowed, unless permitted or required by the Contract Documents or agreed to in writing by Buyer.

6.03 *Risk of Loss*

A. Risk of loss and insurable interests transfer from Seller to Buyer upon Buyer's receipt of the Goods.

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B. Notwithstanding the provisions of Paragraph 6.03.A, if Buyer rejects the Goods as non-conforming, the risk of loss on such Goods shall remain with Seller until Seller corrects the non-conformity or Buyer accepts the Goods. If rejected Goods remain at the Point of Destination pending modification and acceptance, then Seller shall be responsible for arranging adequate protection and maintenance of the Goods at Seller's expense.

6.04 *Progress Schedule*

A. Seller shall adhere to the progress schedule established in accordance with Paragraph 2.06 as it may be adjusted from time to time as provided below.

1. Seller shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.06) proposed adjustments in the progress schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 7. Adjustments in Contract Times may only be made by a Change Order.

ARTICLE 7 – CHANGES: SCHEDULE AND DELAY

7.01 *Changes in the Goods and Special Services*

A. Buyer may at any time, without notice to any surety, make an addition, deletion, or other revision to the Contract Documents with respect to the Goods and Services, within the general scope of the Contract, by a Change Order or Work Change Directive. Upon receipt of any such document, Seller shall promptly proceed with performance pursuant to the revised Contract Documents (except as otherwise specifically provided).

B. If Seller concludes that a Work Change Directive issued by Buyer affects the Contract Price or Contract Times, then Seller shall notify Buyer within 15 days after Seller has received the Work Change Directive, and submit written supporting data to Buyer within 45 days after such receipt. If Seller fails to notify Buyer within 15 days, Seller waives any Claim for such adjustment. If Buyer and Seller are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 9.06.

C. Seller shall not suspend performance while Buyer and Seller are in the process of making such changes and any related adjustments to Contract Price or Contract Times.

7.02 *Changing Contract Price or Contract Times*

A. The Contract Price or Contract Times may only be changed by a Change Order.

B. Any Claim for an adjustment in the Contract Price or Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 9.06.

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C. If Seller is prevented from delivering the Goods or performing the Special Services within the Contract Times for any unforeseen reason beyond its control and not attributable to its actions or inactions, then Seller shall be entitled to an adjustment of the Contract Times to the extent attributable to such reason. Such reasons include but are not limited to acts or neglect by Buyer, inspection delays, fires, floods, epidemics, abnormal weather conditions, acts of God, and other like matters. If such an event occurs and delays Seller's performance, Seller shall notify Buyer in writing within 15 days of knowing or having reason to know of the beginning of the event causing the delay, stating the reason therefor.

D. Seller shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Seller. Delays attributable to and within the control of Seller's subcontractors or suppliers shall be deemed to be delays within the control of Seller.

E. If Seller is prevented from delivering the Goods or furnishing the Special Services within the Contract Times due to the actions or inactions of Buyer, Seller shall be entitled to any reasonable and necessary additional costs arising out of such delay to the extent directly attributable to Buyer.

F. Neither Buyer nor Seller shall be entitled to any damages arising from delays which are beyond the control of both Buyer and Seller, including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, and other like matters.

ARTICLE 8 – BUYER'S RIGHTS

8.01 *Inspections and Testing*

A. *General:*

1. The Contract Documents specify required inspections and tests. Buyer shall have the right to perform, or cause to be performed, reasonable inspections and require reasonable tests of the Goods at Seller's facility, and at the Point of Destination. Seller shall allow Buyer a reasonable time to perform such inspections or tests.

2. Seller shall reimburse Buyer for all expenses, except for travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, for inspections and tests specified in the Contract Documents. If as the result of any such specified testing the Goods are determined to be non-conforming, then Seller shall also bear the travel, lodging, and subsistence expenses of Buyer's and Engineer's representatives, and all expenses of re-inspection or retesting.

3. Buyer shall bear all expenses of inspections and tests that are not specified in the Contract Documents (other than any re-inspection or retesting resulting from a determination of non-conformity, as set forth in Paragraph 8.01.A.2 immediately above); provided, however, that if as the result of any such non-specified inspections or testing the Goods are determined to be non-conforming, then Seller shall bear all expenses of such inspections and testing, and of any necessary re-inspection and retesting.

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4. Seller shall provide Buyer timely written notice of the readiness of the Goods for all inspections, tests, or approvals which the Contract Documents specify are to be observed by Buyer prior to shipment.

5. Buyer will give Seller timely notice of all specified tests, inspections, and approvals of the Goods which are to be conducted at the Point of Destination.

6. If, on the basis of any inspections or testing, the Goods appear to be conforming, Buyer will give Seller prompt notice thereof. If on the basis of said inspections or testing, the Goods appear to be non-conforming, Buyer will give Seller prompt notice thereof and will advise Seller of the remedy Buyer elects under the provisions of Paragraph 8.02.

7. Neither payments made by Buyer to Seller prior to any tests or inspections, nor any tests or inspections shall constitute acceptance of non-conforming Goods, or prejudice Buyer's rights under the Contract.

B. Inspection on Delivery:

1. Buyer or Engineer will visually inspect the Goods upon delivery solely for purposes of identifying the Goods and general verification of quantities and observation of apparent condition in order to provide a basis for a progress payment. Such visual inspection will not be construed as final or as receipt of any Goods and Special Services that, as a result of subsequent inspections and tests, are determined to be non-conforming.

2. Within ten days of such visual inspection, Buyer shall provide Seller with written notice of Buyer's determination regarding conformity of the Goods. In the event Buyer does not provide such notice, it will be presumed that the Goods appear to be conforming and that Buyer has acknowledged their receipt upon delivery.

3. If, on the basis of the visual inspection specified in Paragraph 8.01.B.1, the Goods appear to be conforming, Buyer's notice thereof to Seller will acknowledge receipt of the Goods.

C. Final Inspection:

1. After all of the Goods have been incorporated into the Project, tested in accordance with such testing requirements as are specified, and are functioning as indicated, Buyer or Engineer will make a final inspection.

2. If, on the basis of the final inspection, the Goods are conforming, Buyer's notice thereof will constitute Buyer's acceptance of the Goods.

3. If, on the basis of the final inspection, the Goods are non-conforming, Buyer will identify the non-conformity in writing.

8.02 *Non-Conforming Goods and Special Services*

A. If, on the basis of inspections and testing prior to delivery, the Goods and Special Services are found to be non-conforming, or if at any time after Buyer has acknowledged receipt of delivery and before the expiration of the correction period described in Paragraph 8.03, Buyer determines

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that the Goods and Special Services are non-conforming, then Seller shall promptly, without cost to Buyer and in response to written instructions from Buyer, either correct such non-conforming Goods and Special Services, or, if Goods are rejected by Buyer, remove and replace the non-conforming Goods with conforming Goods, including all work required for reinstallation.

B. Buyer's Rejection of Non-Conforming Goods:

1. If Buyer elects to reject the Goods in whole or in part, Buyer's notice to Seller will describe in sufficient detail the non-conforming aspect of the Goods. If Goods have been delivered to Buyer, Seller shall promptly, and within the Contract Times, remove and replace the rejected Goods.

2. Seller shall bear all costs, losses and damages attributable to the removal and replacement of the non-conforming Goods as provided in Paragraph 8.02.E.

3. Upon rejection of the Goods, Buyer retains a security interest in the Goods to the extent of any payments made and expenses incurred in their testing and inspection.

C. Remedying Non-Conforming Goods and Special Services:

1. If Buyer elects to permit the Seller to modify the Goods to correct the non-comformance, then Seller shall promptly provide a schedule for such modifications and shall make the Goods conforming within a reasonable time.

2. If Buyer notifies Seller in writing that any of the Special Services are non-conforming, Seller shall promptly provide conforming services acceptable to Buyer. If Seller fails to do so, Buyer may delete the Special Services and reduce the Contract Price a commensurate amount.

D. Buyer's Acceptance of Non-Conforming Goods:

Instead of requiring correction or removal and replacement of non-conforming Goods discovered either before or after final payment, Buyer may accept the non-conforming Goods. Seller shall bear all reasonable costs, losses, and damages attributable to Buyer's evaluation of and determination to accept such non-conforming Goods as provided in Paragraph 8.02.E.

E. Seller shall pay all claims, costs, losses, and damages, including but not limited to all fees and charges for re-inspection, retesting and for any engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs arising out of or relating to the non-conforming Goods and Special Services. Seller's obligations shall include the costs of the correction or removal and replacement of the non-conforming Goods and the replacement of property of Buyer and others destroyed by the correction or removal and replacement of the non-conforming Goods, and obtaining conforming Special Services from others.

F. *Buyer's Rejection of Conforming Goods:*

If Buyer asserts that Goods and Special Services are non-conforming and such Goods and Special Services are determined to be conforming, or if Buyer rejects as non-conforming Goods and

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Special Services that are later determined to be conforming, then Seller shall be entitled to reimbursement from Buyer of costs incurred by Seller in inspecting, testing, correcting, removing, or replacing the conforming Goods and Special Services, including but not limited to fees and charges of engineers, architects, attorneys and other professionals, and all court or arbitration or other dispute resolution costs associated with the incorrect assertion of non-conformance or rejection of conforming Goods and Special Services.

8.03 *Correction Period*

A. Seller's responsibility for correcting all non-conformities in the Goods and Special Services will extend for a period of one year after the earlier of the date on which Buyer has placed the Goods in continuous service or the date of final payment, or for such longer period of time as may be prescribed by Laws or Regulations or by the terms of any specific provisions of the Contract Documents.

ARTICLE 9 – ROLE OF ENGINEER

9.01 *Duties and Responsibilities*

A. The duties and responsibilities and the limitations of authority of Engineer are set forth in the Contract Documents.

9.02 *Clarifications and Interpretations*

A. Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents as Engineer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Such written clarifications and interpretations will be binding on Buyer and Seller. If either Buyer or Seller believes that a written clarification or interpretation justifies an adjustment in the Contract Price or Contract Times, either may make a Claim therefor.

9.03 *Authorized Variations*

A. Engineer may authorize minor deviations or variations in the Contract Documents by: 1) written approval of specific variations set forth in Shop Drawings when Seller has duly noted such variations as required in Paragraph 5.06.C.4, or 2) a Field Order.

9.04 *Rejecting Non-Conforming Goods and Special Services*

A. Engineer will have the authority to disapprove or reject Goods and Special Services that Engineer believes to be non-conforming. Engineer will also have authority to require special inspection or testing of the Goods or Special Services as provided in Paragraph 8.01 whether or not the Goods are fabricated or installed, or the Special Services are completed.

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9.05 *Decisions on Requirements of Contract Documents*

A. Engineer will be the initial interpreter of the Contract Documents and judge of the acceptability of the Goods and Special Services. Claims, disputes and other matters relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to Seller's performance will be referred initially to Engineer in writing with a request for a formal decision in accordance with this paragraph.

B. When functioning as interpreter and judge under this Paragraph 9.05, Engineer will not show partiality to Buyer or Seller and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by Engineer pursuant to this Paragraph 9.05 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 10.07) will be a condition precedent to any exercise by Buyer or Seller of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.06 *Claims and Disputes*

A. *Notice*: Written notice of each Claim relating to the acceptability of the Goods and Special Services or the interpretation of the requirements of the Contract Documents pertaining to either party's performance shall be delivered by the claimant to Engineer and the other party to the Agreement within 15 days after the occurrence of the event giving rise thereto, and written supporting data shall be submitted to Engineer and the other party within 45 days after such occurrence unless Engineer allows an additional period of time to ascertain more accurate data.

B. *Engineer's Decision*: Engineer will review each such Claim and render a decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

C. If Engineer does not render a formal written decision on a Claim within the time stated in Paragraph 9.06.B., Engineer shall be deemed to have issued a decision denying the Claim in its entirety 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. Engineer's written decision on such Claim or a decision denying the Claim in its entirety that is deemed to have been issued pursuant to Paragraph 9.06.C, will be final and binding upon Buyer and Seller 30 days after it is issued unless within 30 days of issuance Buyer or Seller appeals Engineer's decision by initiating the mediation of such Claim in accordance with the dispute resolution procedures set forth in Article 13.

E. If Article 13 has been amended to delete the mediation requirement, then Buyer or Seller may appeal Engineer's decision within 30 days of issuance by following the alternative dispute resolution process set forth in Article 13, as amended; or if no such alternative dispute resolution process has been set forth, Buyer or Seller may appeal Engineer's decision by 1) delivering to the other party within 30 days of the date of such decision a written notice of intent to submit the

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Claim to a court of competent jurisdiction, and 2) within 60 days after the date of such decision instituting a formal proceeding in a court of competent jurisdiction.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 9.06.

G. The parties agree to endeavor to avoid or resolve Claims through direct, good faith discussions and negotiations whenever practicable. Such discussions and negotiations should at the outset address whether the parties mutually agree to suspend the time periods established in this Paragraph 9.06; if so, a written record of such mutual agreement should be made and jointly executed.

ARTICLE 10 – PAYMENT

10.01 *Applications for Progress Payments*

A. Seller shall submit to Buyer for Engineer's review Applications for Payment filled out and signed by Seller and accompanied by such supporting documentation as is required by the Contract Documents and also as Buyer or Engineer may reasonably require. The timing and amounts of progress payments shall be as stipulated in the Agreement.

1. The first application for Payment will be submitted after review and approval by Engineer of all Shop Drawings and of all Samples required by the Contract Documents.

2. The second Application for Payment will be submitted after receipt of the Goods has been acknowledged in accordance with Paragraph 8.01.B and will be accompanied by a bill of sale, invoice, or other documentation reasonably satisfactory to Buyer warranting that Buyer has rightfully received good title to the Goods from Seller and that, upon payment, the Goods will be free and clear of all liens. Such documentation will include releases and waivers from all parties with viable lien rights. In the case of multiple deliveries of Goods, additional Applications for Payment accompanied by the required documentation will be submitted as Buyer acknowledges receipt of additional items of the Goods.

10.02 *Review of Applications for Progress Payments*

A. Engineer will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Buyer, or return the Application to Seller indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Seller may make the necessary corrections and resubmit the Application.

1. Engineer's recommendation of payment requested in the first Application for Payment will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data, that the Shop Drawings and Samples have been reviewed and approved as required by the Contract Documents and Seller is entitled to payment of the amount recommended.

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2. Engineer's recommendation of payment requested in the Application for Payment submitted upon Buyer's acknowledgment of receipt of the Goods will constitute a representation by Engineer, based on Engineer's review of the Application for Payment and the accompanying data Seller is entitled to payment of the amount recommended. Such recommendation will not constitute a representation that Engineer has made a final inspection of the Goods, that the Goods are free from non-conformities, acceptable or in conformance with the Contract Documents, that Engineer has made any investigation as to Buyer's title to the Goods, that exhaustive or continuous inspections have been made to check the quality or the quantity of the Goods beyond the responsibilities specifically assigned to Engineer in the Contract Documents or that there may not be other matters or issues between the parties that might entitle Seller to additional payments by Buyer or Buyer to withhold payment to Seller.

3. Engineer may refuse to recommend that all or any part of a progress payment be made, or Engineer may nullify all or any part of any payment previously recommended if, in Engineer's opinion, such recommendation would be incorrect or if on the basis of subsequently discovered evidence or subsequent inspections or tests Engineer considers such refusal or nullification necessary to protect Buyer from loss because the Contract Price has been reduced, Goods are found to be non-conforming, or Seller has failed to furnish acceptable Special Services.

10.03 *Amount and Timing of Progress Payments*

A. Subject to Paragraph 10.02.A., the amounts of the progress payments will be as provided in the Agreement. Buyer shall within 30 days after receipt of each Application for Payment with Engineer's recommendation pay Seller the amount recommended; but, in the case of the Application for Payment upon Buyer's acknowledgment of receipt of the Goods, said 30-day period may be extended for so long as is necessary (but in no event more than 60 days) for Buyer to examine the bill of sale and other documentation submitted therewith. Buyer shall notify Seller promptly of any deficiency in the documentation and shall not unreasonably withhold payment.

10.04 *Suspension of or Reduction in Payment*

A. Buyer may suspend or reduce the amount of progress payments, even though recommended for payment by Engineer, under the following circumstances:

1. Buyer has reasonable grounds to conclude that Seller will not furnish the Goods or the Special Services in accordance with the Contract Documents, and

2. Buyer has requested in writing assurances from Seller that the Goods and Special Services will be delivered or furnished in accordance with the Contract Documents, and Seller has failed to provide adequate assurances within ten days of Buyer's written request.

B. If Buyer refuses to make payment of the full amount recommended by Engineer, Buyer will provide Seller and Engineer immediate written notice stating the reason for such action and promptly pay Seller any amount remaining after deduction of the amount withheld. Buyer shall

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promptly pay Seller the amount withheld when Seller corrects the reason for such action to Buyer's satisfaction.

10.05 *Final Application for Payment*

A. After Seller has corrected all non-conformities to the reasonable satisfaction of Buyer and Engineer, furnished all Special Services, and delivered all documents required by the Contract Documents, Engineer will issue to Buyer and Seller a notice of acceptance. Seller may then make application for final payment following the procedure for progress payments. The final Application for Payment will be accompanied by all documentation called for in the Contract Documents, a list of all unsettled Claims, and such other data and information as Buyer or Engineer may reasonably require.

10.06 *Final Payment*

A. If, on the basis of final inspection and the review of the final Application for Payment and accompanying documentation, Engineer is reasonably satisfied that Seller has furnished the Goods and Special Services in accordance with the Contract Documents, and that Seller's has fulfilled all other obligations under the Contract Documents, then Engineer will, within ten days after receipt of the final Application for Payment, recommend in writing final payment subject to the provisions of Paragraph 10.07 and present the Application to Buyer. Otherwise, Engineer will return the Application to Seller, indicating the reasons for refusing to recommend final payment, in which case Seller shall make the necessary corrections and resubmit the Application for payment. If the Application and accompanying documentation are appropriate as to form and substance, Buyer shall, within 30 days after receipt thereof, pay Seller the amount recommended by Engineer, less any sum Buyer is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages to which Buyer is entitled.

10.07 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Buyer against Seller, except Claims arising from unsettled liens from non-conformities in the Goods or Special Services appearing after final payment, from Seller's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Seller's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Seller against Buyer (other than those previously made in accordance with the requirements herein and listed by Seller as unsettled as required in Paragraph 10.05.A, and not resolved in writing).

ARTICLE 11 – CANCELLATION, SUSPENSION, AND TERMINATION

11.01 *Cancellation*

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A. Buyer has the right to cancel the Contract, without cause, at any time prior to delivery of the Goods by written notice. Cancellation pursuant to the terms of this paragraph shall not constitute a breach of contract by Buyer. Upon cancellation:

1. Buyer shall pay Seller for the direct costs incurred in producing any Goods that Seller has specially manufactured for the Project, plus a fair and reasonable amount for overhead and profit.

2. For Goods that are not specially manufactured for the Project, Seller shall be entitled to a restocking charge of 10 percent of the unpaid Contract Price of such Goods.

11.02 *Suspension of Performance by Buyer*

A. Buyer has the right to suspend performance of the Contract for up to a maximum of ninety days, without cause, by written notice. Upon suspension under this paragraph, Seller shall be entitled to an increase in the Contract Times and Contract Price caused by the suspension, provided that performance would not have been suspended or delayed for causes attributable to Seller.

11.03 *Suspension of Performance by Seller*

A. Subject to the provisions of Paragraph 5.07.B, Seller may suspend the furnishing of the Goods and Special Services only under the following circumstance:

1. Seller has reasonable grounds to conclude that Buyer will not perform its future payment obligations under the Contract; and,

2. Seller has requested in writing assurances from Buyer that future payments will be made in accordance with the Contract, and Buyer has failed to provide such assurances within ten days of Seller's written request.

11.04 *Breach and Termination*

A. Buyer's Breach:

1. Buyer shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including but not limited to:

   a. wrongful rejection or revocation of Buyer's acceptance of the Goods,

   b. failure to make payments in accordance with the Contract Documents, or

   c. wrongful repudiation of the Contract.

2. Seller shall have the right to terminate the Contract for cause by declaring a breach should Buyer fail to comply with any material provisions of the Contract. Upon termination, Seller shall be entitled to all remedies provided by Laws and Regulations.

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a. In the event Seller believes Buyer is in breach of its obligations under the Contract, Seller shall provide Buyer with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Buyer shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Seller may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

B. Seller's Breach:

1. Seller shall be deemed in breach of the Contract if it fails to comply with any material provision of the Contract Documents, including, but not limited to:

   a. failure to deliver the Goods or perform the Special Services in accordance with the Contract Documents,

   b. wrongful repudiation of the Contract, or

   c. delivery or furnishing of non-conforming Goods and Special Services.

2. Buyer may terminate Seller's right to perform the Contract for cause by declaring a breach should Seller fail to comply with any material provision of the Contract Documents. Upon termination, Buyer shall be entitled to all remedies provided by Laws and Regulations.

   a. In the event Buyer believes Seller is in breach of its obligations under the Contract, and except as provided in Paragraph 11.04.B.2.b, Buyer shall provide Seller with reasonably prompt written notice setting forth in sufficient detail the reasons for declaring that it believes a breach has occurred. Seller shall have seven days from receipt of the written notice declaring the breach (or such longer period of time as Buyer may grant in writing) within which to cure or to proceed diligently to cure such alleged breach.

   b. If and to the extent that Seller has provided a performance bond under the provisions of Paragraph 4.01, the notice and cure procedures of that bond, if any, shall supersede the notice and cure procedures of Paragraph 11.04.B.2.a.

ARTICLE 12 – LICENSES AND FEES

12.01 *Intellectual Property and License Fees*

A. Unless specifically stated elsewhere in the Contract Documents, Seller is not transferring any intellectual property rights, patent rights, or licenses for the Goods delivered. However, in the event the Seller is manufacturing to Buyer's design, Buyer retains all intellectual property rights in such design.

B. Seller shall pay all license fees and royalties and assume all costs incident to the use or the furnishing of the Goods, unless specified otherwise by the Contract Documents.

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12.02 *Seller's Infringement*

A. Subject to Paragraph 12.01.A, Seller shall indemnify and hold harmless Buyer, Engineer and their officers, directors, members, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright by any of the Goods as delivered hereunder.

B. In the event of suit or threat of suit for intellectual property infringement, Buyer will promptly notify Seller of receiving notice thereof.

C. Seller shall promptly defend the claim or suit, including negotiating a settlement. Seller shall have control over such claim or suit, provided that Seller agrees to bear all expenses and to satisfy any adverse judgment thereof.

    1. If Seller fails to defend such suit or claim after written notice by Buyer, Seller will be bound in any subsequent suit or claim against Seller by Buyer by any factual determination in the prior suit or claim.

    2. If Buyer fails to provide Seller the opportunity to defend such suit or claim after written notice by Seller, Buyer shall be barred from any remedy against Seller for such suit or claim.

D. If a determination is made that Seller has infringed upon intellectual property rights of another, Seller may obtain the necessary licenses for Buyer's benefit, or replace the Goods and provide related design and construction as necessary to avoid the infringement at Seller's own expense.

12.03 *Buyer's Infringement*

A. Buyer shall indemnify and hold harmless Seller, and its officers, directors, partners, employees, agents, consultants, contractors, and subcontractors from and against all claims, costs, losses, damages, and judgments (including but not limited to all reasonable fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement or alleged infringement of any United States or foreign patent or copyright caused by Seller's compliance with Buyer's design of the Goods or Buyer's use of the Goods in combination with other materials or equipment in any process (unless intent of such use was known to Seller and Seller had reason to know such infringement would result).

B. In the event of suit or threat of suit for intellectual property infringement, Seller must after receiving notice thereof promptly notify Buyer.

C. Upon written notice from Seller, Buyer shall be given the opportunity to defend the claim or suit, including negotiating a settlement. Buyer shall have control over such claim or suit, provided that Buyer agrees to bear all expenses and to satisfy any adverse judgment thereof.

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1. If Buyer fails to defend such suit or claim after written notice by Seller, Buyer will be bound in any subsequent suit or claim against Buyer by Seller by any factual determination in the prior suit or claim.

2. If Seller fails to provide Buyer the opportunity to defend such suit or claim after written notice by Buyer, Seller shall be barred from any remedy against Buyer for such suit or claim.

12.04 *Reuse of Documents*

A. Neither Seller nor any other person furnishing any of the Goods and Special Services under a direct or indirect contract with Seller shall: (1) acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions; or (2) reuse any of such Drawings, Specifications, other documents, or copies thereof on any other project without written consent of Buyer and Engineer and specific written verification or adaptation by Engineer. This prohibition will survive termination or completion of the Contract. Nothing herein shall preclude Seller from retaining copies of the Contract Documents for record purposes.

12.05 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, copies of data furnished by Buyer or Engineer to Seller, or by Seller to Buyer or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. The transferring party will correct any errors detected within the 60-day acceptance period.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 13 – DISPUTE RESOLUTION

13.01 *Dispute Resolution Method*

A. Either Buyer or Seller may initiate the mediation of any Claim decided in writing by Engineer under Paragraph 9.06.B or 9.06.C before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American

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Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the Engineer's decision from becoming final and binding.

B. Buyer and Seller shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the mediation process does not result in resolution of the Claim, then Engineer's written decision under Paragraph 9.06.B or a denial pursuant to Paragraph 9.06.C shall become final and binding 30 days after termination of the mediation unless, within that time period, Buyer or Seller:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. if no dispute resolution process has been provided for in the Supplementary Conditions, delivers to the other party written notice of the intent to submit the Claim to a court of competent jurisdiction, and within 60 days of the termination of the mediation institutes such formal proceeding.

ARTICLE 14 – MISCELLANEOUS

14.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if: 1) delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or 2) if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

14.02 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Point of Destination is located.

B. In the case of any conflict between the express terms of this Contract and the Uniform Commercial Code, as adopted in the state whose law governs, it is the intent of the parties that the express terms of this Contract shall apply.

14.03 *Computation of Time*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day shall be omitted from the computation.

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14.04 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

14.05 *Survival of Obligations*

A. All representations, indemnifications, warranties and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Goods and Special Services and termination or completion of the Agreement.

14.06 *Entire Agreement*

A. Buyer and Seller agree that this Agreement is the complete and final agreement between them, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement may not be altered, modified, or amended except in writing signed by an authorized representative of both parties.

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SECTION 00 80 00
SUPPLEMENTARY CONDITIONS

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.03 Copies of Documents

Amend the first sentence of Paragraph 2.03.A. to read as follows:

A. The Owner shall furnish to the Seller one hard copies of the Contract Documents, and one electronic copy of the same in .pdf format.

ARTICLE 4 – BONDS AND INSURANCE

SC-4.02 Seller's Liability Insurance

Add the following paragraphs immediately after Paragraph 4.02.E:

Seller shall purchase and maintain such liability and other insurance as is appropriate for the furnishing of Goods and Special Services and as will provide protection from claims set forth below which may arise out of or result from Seller's furnishing of the Goods or Special Services and Seller's other obligations under the Contract Documents, whether the furnishing of Goods and Special Services or other obligations are to be performed by Seller, any subcontractor or supplier, or by anyone directly or indirectly employed by any of them to furnish the Goods and Special Services, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Seller's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Seller's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Seller, or (ii) by any other person for any other reason;
5. claims for damages, other than to the Goods, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

G. The policies of insurance so required by this Paragraph 4.02 to be purchased and maintained shall:

1. with respect to insurance required by Paragraphs SC-4.02.F.3 through SC-4.02.F.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) Buyer, Engineer, their consultants, and Cottonwood Improvement District, Murray City, South Salt lake City, Granger-Hunter Improvement District, Taylorsville-Bennion Improvement District, Kearns Improvement District, Mount Olympus Improvement District all of whom shall

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be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided below or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Seller's indemnity obligations under Paragraphs 5.09 and 12.02.

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to Buyer and Seller and to each other additional insured identified in these Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Seller pursuant to Paragraph SC-4.02.I will so provide);

6. remain in effect at least until final payment and at all times thereafter when Seller may be correcting, removing, or replacing non-conforming Goods in accordance with Paragraph 8.03;

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and Seller shall furnish Buyer and each other additional insured identified in these Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Buyer and any such additional insured of continuation of such insurance at final payment and one year thereafter); and

8. with respect to any delegation of professional design services to Seller pursuant to Paragraph 5.10 of the General Conditions, include professional liability coverage by endorsement or otherwise.

H. The limits of liability for the insurance required by Paragraph SC-4.02.F shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs SC-4.02.F.1 and F.2:

   a. State: Statutory

   b. Applicable Federal

      (e.g., Longshoreman's): Statutory

   c. Employer's Liability: $1,000,000

2. Seller's General Liability under Paragraphs SC-4.02.F.3 through F.6 which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Seller:

   a. General Aggregate $2,000,000

   b. Products - Completed

      1) Operations Aggregate $2,000,000

   c. Personal and Advertising

      1) Injury $1,000,000

   d. Each Occurrence

      (Bodily Injury and Property Damage) $1,000,000

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e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.

f. Excess or Umbrella Liability

1) General Aggregate $5,000,000

2) Each Occurrence $5,000,000

3. Automobile Liability under Paragraph SC-4.02.F.6:

a. Bodily Injury:

1) Each person $1,000,000

2) Each Accident $1,000,000

b. Property Damage:

1) Each Accident $1,000,000

2) Combined Single Limit of $1,000,000

4. Professional Liability (if professional services have been delegated to Seller pursuant to Paragraph 5.10): $2,000,000

I. Seller shall deliver to Buyer, with copies to each additional insured identified in these Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Buyer or any other additional insured) which Seller is required to purchase and maintain.

J. If Buyer has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained on the basis of non-conformance with the Contract Documents, Buyer shall notify Seller in writing within 10 days after receipt of the certificates or other evidence required by Paragraph SC-4.02.E. Seller shall provide such additional information in respect to insurance as Buyer shall reasonably request.

ARTICLE 5 – SELLERS RESPONSIBILITIES

5.08 Seller's Warranties and Guarantees

Replace 5.08.E with the following:

If any Goods fail to conform to this Warranty, Buyer shall deliver written claim of Warranty to Seller within thirty (30) days of discovery of such non-conformance. All claims shall be made within the warranty period established in the Contract Documents. The warranty period for repaired or replaced goods shall be twelve (12) months.

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ARTICLE 7 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-7.0 Changing Contract Price or Contract Times

Add to the following as Paragraph 7.02.A:

Any Change Order which increases the Contract Price shall be subject to prior written certification by the Owner's General Manager or designated representative that the Contract Price increase is within the project or contract budget and Owner has available funds sufficient to pay the increase. In the alternative, if the Contract Price increase exceeds the budget or if Owner otherwise does not have sufficient funds to pay the Contract Price increase, the scope of the Work shall be adjusted to permit the degree of completion feasible within the total project or contract budget as it existed prior to the Change Order which is under consideration.

ARTICLE 8 – BUYER'S RIGHTS

Add the following final sentence to 8.02.A:

The Seller shall in no way be excused from correcting, removing or replacing Defective Work on the grounds that such correction, replacement or removal would constitute economic waste or subject the Seller to financial or economic hardship.

ARTICLE 10 – PAYMENT

SC-10.01 Applications for Progress Payments

Add the following paragraph as 15.01.B

B. Seller shall submit proof reasonably acceptable to Owner and Engineer in conjunction with progress payments and the final payment that all claims by suppliers of labor, materials and services incorporated in the Goods for which payment is being sought have been satisfied including, but not limited to, lien releases or waivers. Seller shall defend, indemnify and hold Owner free and harmless from and against any and all claims by the suppliers of labor, materials and services performed and/or provided in connection with the Goods.

ARTICLE 11 – CANCELLATION, SUSPENSION, AND TERMINATION

SC-11.01 Cancellation

Add the following paragraph as 11.01.B

B. To the extent the Agreement creates multi-year or future financial obligations on the part of Owner, Owner's obligation to pay under the Agreement is contingent upon an annual budget appropriation by its Board. Should the Board fail to approve an appropriation of funds required to complete obligations of the Agreement, or any portion thereof, the Agreement, or the specific portions thereof, shall terminate. In such event Owner will provide written notice of the termination date to Contractor. In the event of such termination, Contractor will be paid for Work completed and accepted by Owner prior to the date of the termination and for non-refundable expenses incurred by Contractor prior to the date of termination. Contractor shall not be paid for Work performed or expenses incurred after the date of termination; for loss of anticipated overhead, profit or revenue; or for other loss resulting from the termination.

PART SC-15--UTAH STATE REQUIREMENTS

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Add the new PART SC-15 as follows:

A. Project Safety: Seller shall comply in all respects with the Utah Occupational Safety and Health Act, Utah Code Ann. Sections 34A-6-101 et seq., and the rules, regulations and standards promulgated thereunder by the Division of Occupational Safety and Health, as such act, rules, regulations or standards now exist or may be amended during the term of this agreement.

B. Protection of Underground Utility Facilities: Seller shall comply in all respects with Utah Code Ann. Title 54, Chapter 8a and the rules and regulations promulgated thereunder, as it now exists or may be amended during the term of this Agreement, with regard to the protection of underground utility facilities. Specifically, but not in limitation, Seller shall notify the appropriate public utility(s) when making an excavation. Seller shall further refrain from proceeding with excavation until such time as the appropriate public utility(s) have advised Seller of the location of any underground facilities in the area proposed for excavation.

C. Review of Construction by Owner: Owner may, at its option, assign a field representative to review the construction of the project in progress. Said representative will cooperate with the Construction Manager in attempting to note deviations from, or necessary adjustments to, the Contract Documents or deficiencies or defects in the construction. Said representative's presence on the project, however, shall in no way relieve Seller of its primary responsibility for construction of the project in accordance with the contract documents.

D. Code Requirements: The provisions of the latest editions of the International Building Code, National Electric Code, and Utah Plumbing Code, as adopted or followed in Utah, including standards adopted in relation thereto, as supplemented or amended, shall apply to the project except as specific variances may be expressly authorized by the Owner. If the Contract Documents fail to meet the minimum standards of the referenced codes, Seller shall be responsible to bring such information to the attention of the Construction Manager associated with the project. Subsellers shall also inform Seller of any infractions of the above-referenced codes regarding their own particular trades. In the event that workmanship or incidental materials are not specified or indicated, they shall at least conform to the above-referenced codes and shall be incorporated into the work without any additional cost to the Owner. If the Contract Documents call for items or workmanship which exceed code requirements, the Contract Documents shall take precedence over such requirements.

E. Workers Compensation: Seller shall comply in all respects with Utah Code Ann. Section 34A-2-101, et seq., and the rules and regulations promulgated thereunder by the Utah State Industrial Commission, as such law, rules or regulations now exist or may be amended during the term of this agreement.

F. Non-Discrimination-Equal Employment Opportunity: Seller shall comply in all respects with the Utah Antidiscrimination Act, Utah Code Ann. Section 34A-5-101 et seq., and the rules and regulations promulgated thereunder by the Labor Commission and/or the Division of Antidiscrimination and Labor, as such act, rules or regulations now exist or may be amended during the term of this agreement.

G. Affirmative Action: Seller shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race; color; religion; sex; national origin; pregnancy, childbirth, or pregnancy related conditions; age, if the individual is 40 years of age or older; or disability. Such action shall include, but shall not be limited to: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layout or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

END OF SECTION

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ADDENDUM NO. 1

TO PROSPECTIVE BIDDERS UNDER
PEPS Pumping Equipment Procurement
Central Valley Water Reclamation Facility

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED IN TAB A OF THE SUBMITTAL (SEE 00 31 00 FOR TABS)

This addendum will be attached to the Agreement and is a Contract Document

Addendum No. 1 consists of:

1. **Section 00 11 00 Invitation to Bid (replace original).** **NOTE Bids are now due January 30, 2019 at 2:00 p.m.**
2. **Section 00 31 00 Table 1 (replace original).**
3. **Section 00 51 Notice of Award (replace original).**

1. **Section 00 11 00 Invitation to Bid (replace original).**

Bidder shall replace all of the original January 23, 2019 bid issue 00 11 00 Invitation to Bid with the attached version. Changes are noted in red with a callout to (Addendum No. 1).

2. **Section 00 31 00 Pumping Equipment Evaluation Table 1 and Tab E (replace original).**

Bidder shall replace Table 1 and Tab E with the attached version that revises the ISO certification criteria. Changes are noted in red with a callout to (Addendum No. 1).

3. **Section 51 00 Notice of Award (replace original).**

Bidder shall replace all of the original January 22, 2019 bid issue 00 51 00 Notice of Award to Bidders with the attached version. Changes are noted in red with a callout to (Addendum No. 1).

Date: January 11, 2019

END OF SECTION

LICENSED PROFESSIONAL ENGINEER
No. 175451
MICHAEL P. KOBE
1/11/19
STATE OF UTAH

CENTRAL VALLEY WATER RECLAMATION FACILITY
PEPS PUMPING EQUIPMENT PROCUREMENT

00 11 10
INVITATION TO BID

Sealed Bids for the **PEPS Pumping Equipment Procurement** will be received, **from invited Bidders only**, by **Central Valley Water Reclamation Facility**, at the office of **Central Valley Water Reclamation Facility**, until **2:00 p.m.** local time on **January 30, 2019** (Addendum No. 1) at which time the bids will be opened and evaluated as described in the Bidding and Contract Documents. The Project consists of **furnishing Goods and Special Services for PEPS Pumping Equipment to be installed by a Contractor selected by the Central Valley Water Reclamation Facility.**

The Selection Schedule is provided in the table below.

Date	Selection Process
January 7, 2019	Issue Invitation to Bid
January 23, 2019 (Addendum No. 1)	End of Inquiries, Questions, and interpretation period (5 pm MST)
January 28, 2019 (Addendum No. 1)	Final Addendum Issued (if required)
January 30, 2019 (Addendum No. 1)	Bid submittal due (2 pm MST)

The Issuing Office for the Bidding Documents is: **Brown and Caldwell, 6975 Union Park Center, Suite 490, Salt Lake City, UT 84047. For questions, contact Ms. Rebecca Yoo (801) 316-9824,** ryoo@brwncald.com**.** Invited Bidders will be sent the Bidding Documents as electronic portable document format (pdf) files via email or other electronic transmission service. No printed copies will be provided. The costs to prepare Bids as described in the Bidding Documents are the sole responsibility of the Bidder.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: **Central Valley Water Reclamation Facility**

By: **Phil Heck, P.E.**

Date: **January 7, 2019**

+ + END OF ADVERTISEMENT FOR BIDS + +

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Table 1 - Submittal Requirements and Procurement Bid Evaluation

Criteria	Weight	Information to Provide	Evaluation	Proposal Tab
Cover Letter	N/A	Provide cover letter stating manufacturer's name, local representatives name, and interest in being selected for this work.	Pass/Fail	A
Bid Security	N/A	Provide bid security as specified in the Instructions to Bidders.	Pass/Fail	B
Bid Form	N/A	Include Bid Form as Attachment Tab C.	Pass/Fail	C
ISO 9001-2001 Certification	N/A	ISO 9001 (Addendum No. 1) certification is a minimum pass/fail requirement. Submit ISO 9001 (Addendum No. 1) certification.	Pass/Fail	D

Criteria	Weight	Information to Provide	Evaluation	Proposal Tab
Experience	10	**Submit completed Form 00 310 00E - Experience Summary (attached) as the first page of Tab E**. Submit additional installation lists including dates, capacities, water being pumped and installation contact information as part of Tab E. Owner or Engineer reserves the right to contact these facilities as part of the evaluation.	Higher scores will be given to manufacturer's with: longer installation history, more installations at capacities similar to this project, more installations of the type of this project (i.e., primary wastewater effluent) and positive references from existing installations.	E (include completed Form 00 31 00E)
Design	10	**Submit completed Form 00 310 00F - Design Summary (attached) as the first page of Tab F**. Submit any additional design information that portrays how the units pump and otherwise perform.	Higher scores will be given to manufacturer's whose units are deemed to perform more favorably at CVWRF. Efficient duty points, range of operating points and reduced anticipation of wear are among factors that will be considered.	F (include completed Form 00 31 00F)
Maintenance	10	**Submit completed Form 00 310 00G - Maintenance Summary (attached) as the first page of Tab G**. Submit any additional information that describes maintenance procedures.	Higher scores will be given to manufacturer's whose units are deemed to require less maintenance or where the maintenance is easier to perform.	G (include completed Form 00 31 00G)
Life Cycle Cost	70	**Submit completed Form 00 310 00H - Life Cycle Cost Summary (attached) as the first page of Tab H**. Submit any additional information that supports life cycle cost assessment.	Owner and Engineer will determine the total life cycle cost based on the information provided in the Bid Form and other submitted information.	H (include completed Form 00 31 00H)

Total Weight 100

FORM 00 31 00E - EXPERIENCE SUMMARY (SUBMIT AS FIRST PAGE OF TAB E)

Bidder to complete the following table in accordance with the proposed pumping equipment; additional supporting information can also be included in this Tab.

Question/Criteria	Bidder Response	Additional RFP Guidance	Importance Factor (1-5)
List the first year the model proposed for CVWRF was put in service at any location		(For example, 2005)	2
List the number of past installations of the model proposed for CVWRF		(For example, 200)	2
List the year the model proposed for CVWRF received ISO 9001 (Addendum No. 1) certification		(For example 2008)	3
List the total number of pump installations that can perform at 8.5 ft of TDH and flow of 25 MGD for wastewater applications in operation as of 2018		This count is discrete pumping units, not projects or sites (a single location with three units would count for three not one)	5
List the location and contact information for at least three facilities (similar to CVWRF proposed pumping conditions and application) that can be contacted as a reference.		This can be an installation that is part of the longer installation list.	5

NOTE: Submit additional installation lists, details, and contact information as part of TAB E to allow Owner and Engineer to verify the experience summary.

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 51 00
NOTICE OF AWARD

Date of Issuance:

Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:
Engineer:	Brown and Caldwell	Engineer's Project No.:
Project:	PEPS Pumping Equipment Procurement	Contract Name:

Bidder:

Bidder's Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated January 30, 2019 (Addendum No. 1) for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

PEPS Pumping Equipment.

The Contract Price of the awarded Contract is: $_____

The price above includes the following:

[ ] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [____] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: Central Valley Water Reclamation Facility

Authorized Signature

By: Phil Heck

Title: Assistant General Manager/Process Engineer

Copy: Engineer

ADDENDUM NO. 2

TO PROSPECTIVE BIDDERS UNDER
PEPS Pumping Equipment Procurement
Central Valley Water Reclamation Facility

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED IN TAB A OF THE SUBMITTAL (SEE 00 31 00 FOR TABS)

This addendum will be attached to the Agreement and is a Contract Document.

Addendum No. 2 consists of:

1. **Section 00 52 00 Agreement Between Buyer and Seller, Article 5 (replace original).**
2. **Section 43 25 33.10, Paragraph 1.04 (replace original).**
3. **Contractor Question and Response Log.**

1. Section 00 52 00 Agreement Between Buyer and Seller, Article 5 (replace original).

Bidder shall replace all of the original bid issue Section 00 52 00 Agreement Between Buyer and Seller, Article 5, with the attached version. Changes are noted in red with a callout to (Addendum No. 2).

2. Section 43 25 33.10, Paragraph 1.04 (replace original).

Bidder shall replace all of the original bid issue Section 43 25 33.10, Paragraph 1.04, with the attached version. Changes are noted in red with a callout to (Addendum No. 2).

3. Contractor Question and Response Log.

Bidder shall review the Contractor Question and Response Log.

Date: January 17, 2019

LICENSED PROFESSIONAL ENGINEER
No. 175451
MICHAEL P. KOBE
1/17/19
STATE OF UTAH

END OF SECTION

ARTICLE 5 – CONTRACT TIMES

5.01 *Time of the Essence*

A. All time limits for Milestones, if any, including the submittal of Shop Drawings and Samples, the delivery of Goods, and the furnishing of Special Services as stated in the Contract Documents, are of the essence of the Contract.

B. The Date of Agreement is anticipated to be March of 2019.

C. The physical model study is anticipated to occur between March of 2019 and October of 2019. Manufacturer support for the physical model study is required per Section 43 25 33.10.

D. The anticipated schedule of the Discharge Tubes is as follows:

1. The date of the last Shop Drawing submission and Notice to Commence Fabrication is approximately April of 2020.

2. The date of Delivery is approximately July of 2020.

E. The anticipated schedule for the PEPS Pumping Equipment, Excluding Discharge Tubes, is as follows:

1. The date of the Second Shop Drawing and the Notice to Commence Fabrication is approximately October of 2022.

2. The date of Delivery of the PEPS Pumping Equipment, excluding Discharge Tubes, is approximately April 2023.

F. The anticipated start-up date for the Primary Effluent Pump Station is approximately July of 2023.

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5.02 *Milestones*

A. *Days for Submittal of Shop Drawings and Samples.* Seller shall submit all Shop Drawings and Samples required by the Contract Documents to Buyer for Engineer's Review in accordance with the following schedule. It is the intent of the parties that submittals be in accordance with Section 01 33 00.

Special Services (Addendum No. 2)	
Item	Discharge Tubes per 43 25 33.10
Maximum Contract Time Beyond Effective Date of Agreement to Seller's First Shop Drawing Submittal (Days)	330
Maximum Contract Time Beyond Effective Date of Agreement to First Shop Drawing Returned to Seller (Days)	345
Maximum Contract Time Beyond Effective Date of Agreement to Seller's Second Shop Drawing Submittal (Days)	375
Maximum Contract Time Beyond Effective Date of Agreement to Second Shop Drawing Returned to Seller (Days)	390

B. *Days to Achieve Delivery of Goods.* The Goods are to be delivered to the Point of Destination and ready for Buyer's receipt in accordance with the following schedule.

Goods (Addendum No. 2)	
Item	Discharge Tubes per 43 25 33.10
Maximum Contract Time Beyond Effective Date of Agreement to Notice to Commence Fabrication (Days) (Addendum No. 2)	400
Maximum Contract Time Beyond Effective Date of Agreement to Delivery of Goods (Days) (Addendum No. 2)	490

C. The Seller shall not commence manufacture of any Goods until the Buyer issues a Notice to Commence Fabrication. Goods shall be delivered in accordance with Article 6 of the General Conditions.

D. The First, Second, and Third Goods Payment of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenance and start-up services, will include cost escalation and will not be made before January of 2022.

E. Delivery of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services, will not be accepted before January of 2023.

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F. It is Buyers intent to issue a Notice to Fabricate for PEPS Pumping Equipment on or before March 1, 2019.

5.03 *Liquidated Damages*

A. Buyer and Seller recognize that Buyer will suffer financial loss if the Goods are not delivered at the Point of Destination and ready for receipt of delivery by Buyer within the times specified in Paragraph 5.02 above, plus any extensions thereof allowed in accordance with Article 7 of the General Conditions. The parties also recognize that the timely performance of services by others involved in the Project is materially dependent upon Seller's specific compliance with the requirements of Paragraph 5.02. Further, they recognize the delays, expense, and difficulties involved in proving the actual loss suffered by Buyer if complete acceptable Goods are not delivered on time. Accordingly, instead of requiring such proof, Buyer and Seller agree that as liquidated damages for delay (but not as a penalty) Seller shall pay Buyer $150 for each day that expires after the time specified in Paragraph 5.02.A for delivery of Special Services items and $300 for each day that expires after the time specified in Paragraph 5.02.B.

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1.04 SUBMITTALS

A. Submit all information in accordance with the following:

1. A copy of this Specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate Specification compliance or marked to indicate requested deviations from Specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the Specifications are indicated, and therefore requested by the Manufacturer, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Manufacturer with the Specifications. Failure to include a copy of the marked-up Specification sections, along with justification(s) for any requested deviations to the Specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. Unit Responsibility: Submit a Certificate of Unit Responsibility Form 43 05 11-B as specified in Section 01 99 90 attesting that the Manufacturer accepts unit responsibility in accordance with the requirements of this Section. No other submittal material will be reviewed until the certificate has been received and found to be in conformance with these requirements.

C. Submit, within 60 days of Notice of Award, a list of equipment as specified, the names of the manufacturers, performance capacities, and other relevant information for the machinery and other equipment contemplated to be incorporated into the work.

D. Manufacturer's Qualifications:

1. ISO 9001 Certification.
2. Manufacturer's written quality assurance/quality control (QA/QC) program.
3. References: The Manufacturer shall furnish a detailed list of installations having been in operation for at least five (5) years, with contact information supporting qualification under this requirement. To satisfy this requirement, ensure that the listed pump is of the same size volute or bowl, discharge case and nozzle size, and impeller design (including number of vanes) and is operating under similar conditions of pumped fluid, head, capacity, speed, rotation, and NPSHA. The components and materials of the pumping unit may occur at different facilities, and be the product of other manufacturers.
4. Technical support documentation.
5. Service support documentation:
   a. Service rate schedule for 5 years forward.
   b. Location of service shop with crane capacity to lift pump.
   c. Location of service people for service support.

E. Manufacturer's performance variable speed curves for each pump furnished. Curves shall cover pump performance from shutoff to runout and annotations of operating conditions. Submit the following curves:

1. Rate of flow (Q) (gpm) vs. pump total head (H) (ft.)
2. Rate of flow (Q) (gpm) vs. pump input power (Pp), (bhp) (include data point at zero flow)

3. Rate of flow (Q) (gpm) vs. efficiency (np) (%)
4. Rate of flow (Q) (gpm) vs. NPSHR (ft.)

F. Pump data:
1. Critical speed caluclations demonstrating compliance with Section 43 23 03.
2. Minimum recommended submergence above bell inlet at design operating point (ft).
3. Minimum recommended depth below bell inlet at design operating point (ft).
4. Maximum hydraulic down-thrust, (and up-thrust considerations if required) for the operating conditions at design point.
5. Maximum pump weight (lb) dry and including water weight in the pipe discharge tube (lb).
6. Calculations of internal head losses for each rated condition point (ft).
7. Listing of suggested alarm setpoints for all motor and pump sensors provided with equipment.

G. Shop Drawings:
1. Characteristic multispeed Pump Curves from pump shutoff to runout.
2. Materials, including applicable Federal specifications (ASTM, AISI, SAE, etc.) Include a list of materials to be used for each pump part along with the submittal of the drawings. If deviation from specified materials is desired, submit complete specifications for the proposed deviating materials, and reason for request after award of the contract.
3. Seal descriptions.
4. Impeller diameter.
5. Maximum impeller diameter permissible.
6. NPSH requirements: Include NPSH margin calculations performed for each specified operating condition in accordance with Section 43 23 03.
7. Operating Point.
8. Certified Pump Test results for each pump documenting performance including, but not limited to head, capacity, speed, and NPSHR, and limit of stable hydraulic operation based on the onset of suction recirculation, if available. Results should match or bracket the specified performance. Include in the certified material copies of test logs and resulting performance curves.
9. Electrical characteristics of motors and electrical cabling provided with equipment.
10. Outline dimensions.
11. Field vibration test reports in accordance with Section 43 23 03.
12. Control Drawings including all field installation terminations required by equipment, and layout drawings, if field junction box or panels are provided. Include a bill of materials with these drawings.
13. Exploded Diagram or Cutaway Drawing showing all internal parts with part numbers. Include a Parts List referenced to this item.
14. Manufacturer's installation requirements.
15. Bearing L-10 life calculations.
16. Coating System information.

H. Detail Drawings: Submit drawings of sufficient size to be easily read, within 90 days of Notice of Award. Dimensions shall be in English or in metric with English conversion. Furnish the following:

1. Drawings showing general dimensions and confirming the size of pumps, motors, drives, and specified appurtenances; piping connections; construction details of equipment (including bearings and bearing isolators); wiring diagrams; and weight of equipment.
2. Cross-sectional drawings of the pump, showing each component, and major or complicated sections of the pump in detail. On each drawing, indicate an itemized list of components showing type, grade, class of material used, and make and model of the standard component used. Include detail and assembly drawings of entire pumping unit assembly. The description shall include materials of construction for all fluid contact parts, mechanical seals, packing, and shaft.
3. Provide drawings showing details and dimensions of pump mounting tube.
4. Provide drawings of the formed suction inlet, with all significant dimensions.
5. Provide drawings of the pump and driver unit foundation demonstrating conformance to this section and Section 43 05 13. Include in the submittal drawings depicting type, size, number, projection, and arrangement of anchor bolts; dimensional drawings of the sole and baseplates; and dimensional drawings for the concrete supports for both the pump and motor, if applicable. Ensure that drawings also depict other pertinent information, including location of equipment pads and reinforcement; equipment drains; expansion joint locations; elevation of top of grout and grout thickness; elevation of top of baseplate, soleplate, or mounting block; size and location of electrical conduits; and any other equipment-mounting features embedded in equipment pads.
6. Provide drawings covering the installation that the Manufacturer intends to furnish to the Contractor.
7. The capacity-head curve should indicate efficiency, bhp, and $NPSH_R$, maximum impeller diameter that can be installed in the pump, and proposed impeller diameter for the application.
8. Motor data forms, characteristic curves and tabulated data (test or calculated). Forms shall at a minimum indicate nameplate information specified by NEMA MG-1 including speed, power factor, efficiency, current, and kilowatt input, curves shall be plotted or tabulated against percent load as abscissas.
9. Characteristics of pumps furnished may have a tolerance of 2% in head or capacity above the requirements specified herein.
10. Controls drawings indicating wiring requirements for all instrumentation provided with the mechanical equipment (pump and motor). If field mounted termination enclosures are required to support the submitted instrumentation, provide dimensioned layout drawings of enclosure interior and exterior, along with wiring diagrams of all panel mounted devices. Provide wiring connection diagrams to indicate field wiring requirements, with recommend wire types and sizes, to support field installation.

I. Certified balance logs and worksheets.

J. The following are applicable for pumps specified to meet ANSI/HI 9.6.8 Analysis Level 2 or 3:
   1. Pump can installation acceptance certification, per Section 43 23 03, if applicable.
   2. Results of field vibration tests, per Section 43 23 03.

K. The qualifications of the independent testing laboratory and individual personnel proposed by the Contractor (Addendum No. 2) to perform field vibration testing, analysis, and reporting in accordance with the requirements of Section 43 23 03.

L. The qualifications of the personnel proposed by the Contractor to perform field alignment procedures in accordance with the requirements of Section 43 23 03.

M. Submit the following in accordance with Section 01 78 23 “Operation and Maintenance Data”:
   1. Submit Manufacturer’s complete parts list showing all parts, spare parts, and bulletins for pump. Clearly show all details, parts, and adequately describe parts or have proper identification marks. The parts lists shall be printed on high quality 8-1/2 by 11 inch paper, bound separately of the Operation and Maintenance Manual with a flexible, durable cover. Drawings incorporated in the parts lists may be reduced to page size provided they are clear and legible, or they may be folded into the bound lists to page size. Photographs or catalog cuts of components may be included for identification.
   2. Parts List.
   3. Pump Field Test Reports.
   4. Design Data Computations.
   5. Factory Test Report: Submit a description of the factory test setup and test procedure proposed. Submit sufficient data and drawings to demonstrate that testing is in compliance with HI 11.6 and HI 14.6. Include sample calculations and proposed test log format. If the Manufacturer proposes a model test for a part or all of the specified performance tests, include in the submittal information the proposed model details and a complete description of the proposed method for comparing the model impeller profiles with the impeller profiles for the prototype pumps.
   6. Installation and Start-Up Engineer’s Report.
   7. Operating and Maintenance Instructions.
   8. Previously submitted data and drawings, with all comments addressed.
   9. Product Warranty.
N. Submit Warranty in accordance with Section 01 78 23 “Operation and Maintenance Data”.
O. Submit storage recommendations.
P. Installation certification Section 43 05 11-Form A, per Section 43 23 03.

Central Valley Water Reclamation Facility
BNR PEPS Pumping Equipment Procurement

Project Number:

151600

Contractor Question & Response Log

No.	Question	Received	From	Response	Addenda
1	Please confirm Field vibration test in accordance with Section 43 23 03 will be conducted by construction contractor.	January 11, 2019	KSB, INC	The field vibration test will be completed by an independent testing laboratory provided by the installation Contractor per Section 43 23 03. The Contractor is as defined in Section 00 20 00.	1
2	When is the anticipated time for initial startup of the pumps?	January 11, 2019	KSB, INC	Initial startup is anticipated to be approximately in July of 2023.	1
3	What is expected delivery for the pumps?	January 11, 2019	KSB, INC	Expected delivery for the pumps is approximately April of 2023.	1
4	Please confirm if the pumps to be stored prior to installation, storage procedure to be followed according to the pump manufacturer O&M.	January 11, 2019	KSB, INC	Per 43 25 33.10, the Contractor shall store the pump and associated equipment indoors as recommended by the pump Manufacturer. Contractor shall follow the Manufacturer's instructions for extended storage. The anticipated date of Notice to Commence Fabrication for the Pumping Equipment, excluding Discharge Tubes, is October of 2022.	1

ADDENDUM NO. 3

TO PROSPECTIVE BIDDERS UNDER
PEPS Pumping Equipment Procurement
Central Valley Water Reclamation Facility

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED IN TAB A OF THE SUBMITTAL (SEE 00 31 00 FOR TABS)

This addendum will be attached to the Agreement and is a Contract Document.

Addendum No. 3 consists of:

1. **Section 00 52 00 Agreement Between Buyer and Seller, Article 7 (replace original).**
2. **Section 43 25 33.10, Paragraph 2.02 (replace original).**
3. **Contractor Question and Response Log.**

1. Section 00 52 00 Agreement Between Buyer and Seller, Article 7 (replace original).

Bidder shall replace all of the original bid issue Section 00 52 00 Agreement Between Buyer and Seller, Article 7, with the attached version. Changes are noted in red with a callout to (Addendum No. 3). Startup services were removed from the Contract Milestone for the Second Goods Payment and added to the Contract Milestone for the Third (Final) Goods Payment.

2. Section 43 25 33.10, Paragraph 2.02 (replace original).

Bidder shall replace all of the original bid issue Section 43 25 33.10, Paragraph 2.02, with the attached version. Changes are noted in red with a callout to (Addendum No. 3). The requirement to add 2 to 3 percent nickel to cast iron parts was removed.

3. Contractor Question and Response Log.

Bidder shall review the Contractor Question and Response Log.

Date: January 28, 2019

LICENSED PROFESSIONAL ENGINEER
No. 175451
MICHAEL P. KOBE
1/28/19
STATE OF UTAH

END OF SECTION

ARTICLE 7 – PAYMENT PROCEDURES

7.01 *Submittal and Processing of Payment*

A. Seller shall submit Applications for Payment in accordance with Article 10 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

7.02 *Progress Payments for Special Engineering Services*

A. Buyer shall make progress payments on account of the Contract Price on the basis of Seller's Applications for Payment as follows:

Special Service		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Special Services Payment	Execution of Agreement including delivery of bonds and insurance	25 percent of Special Services Price shown in Bid Form
Second Payment Special Services	Engineer's completed review of all submittals/shop drawings with a response of No Exceptions Taken or Make Corrections noted	75 percent of Special Services Price shown in Bid Form (bringing total to 100 percent for Special Services Price shown in Bid Form)

Goods – Discharge Tubes per 43 25 33.10		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Goods Payment	Notice to Commence Fabrication of Discharge Tubes per 43 25 33.10.	10 percent of Price shown in Bid Form
Second Goods Payment	Delivery to Point of Destination of Discharge Tubes per 43 25 33.10.	90 percent of Price shown in Bid Form

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Goods – PEPS Pumping Equipment per 43 25 33.10 excluding Discharge Tubes		
Payment	Contract Milestone	Maximum Allowable Payment Amount
First Goods Payment	Notice to Commence Fabrication of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility.	10 percent of Price shown in Bid Form
Second Goods Payment	Delivery to Point of Destination of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances as specified for Seller Unit Responsibility (Addendum 3).	75 percent of Price shown in Bid Form
Third (Final) Goods Payment	Completion of installation, commissioning, startup services, field services and O&M Manuals related to PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility (Addendum 3).	15 percent of Price shown in Bid Form

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2.02 METALWORK FABRICATION

A. The materials of construction shall comply with the following:

PART	MATERIAL
Suction Bell	Cast iron or stainless steel plate
Pump Bowl	Cast iron, cast steel or stainless steel plate
Propeller	Cast iron or stainless steel
Pump/Motor Shaft	High strength carbon steel or stainless steel
Wearing Ring	Stainless Steel (Manufacturer's standard)
Bolts, Key, etc.	Stainless steel, Type 316
O-rings	Nitrile rubber
Mechanical seals	Silicon or tungsten carbide
Discharge tube and Soleplate	Stainless steel, Type 316
Pump Case	Cast iron or stainless steel
Motor Housing	Cast iron or stainless steel

B. Designated Materials: Designated materials shall conform to the following specifications, grades, and classifications. (Addendum 3).

MATERIALS	SPECIFICATION	GRADE, CLASS
Aluminum-Bronze	ASTM B148	Alloy No. C95500 Castings
Cast Iron	ASTM A48/A48M	Class Nos. 30A, 30B, and 30C
Cast Steel	ASTM A27/A27M	Grade 65-35, annealed
Polyeurethane or epoxy based coating		
Cold-Rolled Steel Bars	ASTM A108	min, Wt. Strm 450 MPa 65,000 psi
Copper Alloy Castings	ASTM B584	Alloy No. C93700
Corrosion-Resistant Alloy Casting	ASTM A297/A297M	Grade CA-15, CAGNN and CF-8M
Dimensions for Steel Water Piping Fittings	AWWA C208	
High Strength Carbon Steel	ASTM A572	
Hot-Rolled Stainless	ASTM A576	Graded G10200, G10450, and G11410
Ring Flanges	AWWA C207	Class B
Rubber Products in Automotive Applications	ASTM D2000	
Seamless and Welded Austenitic Stainless Steel Pipe	ASTM A312/A312M	
Stainless Bars and Shapes	ASTM A276	Grades S30400 and S41000
Steel Forging	ASTM A668/A668M	Class F
Steel Pipe 150 mm 6 inch and Larger	AWWA C200	
Steel Plates, Pressure Vessel	ASTM A516/A516M	Grade 55

Steel Plate	ASTM A242/A242M	
Stainless Steel Plate	ASTM A167	UNS S30400 or
	ASTM A176	UNS S40500
Quality Steel	ASTM A36/A36M	
Surface Texture	ASME B46.1	

C. Bolted Connections

1. Bolts, Nuts, and Washers: Bolts, nuts, and washers shall conform to requirements herein specified and the paragraphs SUBMERSIBLE PUMP, DISCHARGE TUBE AND DISCHARGE CONNECTION, and the subparagraph, NUTS AND BOLTS for types required. Use beveled washers where bearing faces have a slope of more than 1:20 with respect to a plane normal to bolt axis.
2. Materials Not Specifically Described: Materials not specifically described shall conform to the latest ASTM specification or to other listed commercial specifications covering class or kinds of materials to be used.
3. Flame Cutting of Material: Flame cutting of material, other than steel, shall be subject to the approval of the Engineer. Shearing shall be accurately done, and all portions of work neatly finished. Steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a smooth surface free from cracks and notches is secured. Surfaces and edges to be welded shall be prepared in accordance with Section 3 of AWS D1.1/D1.1M. Chipping and/or grinding will not be required except where specified and as necessary to remove slag and sharp edges of technically guided or hand-guided cuts not exposed to view. Visible or exposed hand-guided cuts shall be chipped, ground, or machined to metal free of voids, discontinuities, and foreign materials.
4. Alignment of Wetted Surfaces: Exercise care to ensure that the correct alignment of wetted surfaces being joined by a flanged joint is being obtained. Where plates of the water passage change thickness, provide a transition on the outer surface, leaving the inner surface properly aligned. When welding has been completed and welds have been cleaned, but prior to stress relieving, joining of plates shall be carefully checked in the presence of the Engineer for misalignment of adjoining parts.

Central Valley Water Reclamation Facility
BNR PEPS Pumping Equipment Procurement

Project Number:

151600

Contractor Question & Response Log

No.	Question	Received	From	Response	Addenda
1	Please confirm Field vibration test in accordance with Section 43 23 03 will be conducted by construction contractor.	January 11, 2019	KSB, INC	The field vibration test will be completed by an independent testing laboratory provided by the installation Contractor per Section 43 23 03. The Contractor is as defined in Section 00 20 00.	1
2	When is the anticipated time for initial startup of the pumps?	January 11, 2019	KSB, INC	Initial startup is anticipated to be approximately in July of 2023.	1
3	What is expected delivery for the pumps?	January 11, 2019	KSB, INC	Expected delivery for the pumps is approximately April of 2023.	1
4	Please confirm if the pumps to be stored prior to installation, storage procedure to be followed according to the pump manufacturer O&M.	January 11, 2019	KSB, INC	Per 43 25 33.10, the Contractor shall store the pump and associated equipment indoors as recommended by the pump Manufacturer. Contractor shall follow the Manufacturer's instructions for extended storage. The anticipated date of Notice to Commence Fabrication for the Pumping Equipment, excluding Discharge Tubes, is October of 2022.	1
5	1. 00 52 00 Contract, AGREEMENT BETWEEN BUYER AND SELLER. Milestone #2 for Goods-PEPS Pumping Equipment states the following: “Delivery to Point of Destination of PEPS Pumping Equipment per 43 25 33.10, excluding Discharge Tubes, including all appurtenances and start-up services as specified for Seller Unit Responsibility”. This could mean that MS #2 & 3 would not be due until the pumps are delivered AND started up. Please accept the request for following modification ”Delivery to Point of Destination of PEPS Pumping Equipment including all appurtenances as specified for seller unit responsibility”	January 23, 2019	KSB, INC	Please see Addenum 3 Item 1.	3

Central Valley Water Reclamation Facility
BNR PEPS Pumping Equipment Procurement

Project Number:

151600

Contractor Question & Response Log

No.	Question	Received	From	Response	Addenda
6	Section 00 31 00, Procurement Bid Evaluation. Please advise if the monitoring device for monitoring of motor temperature switch, motor winding temperature (RTD), and moisture detection/leak detection is part of Manufacturer's scope of supply.	January 23, 2019	KSB, INC	In accordance with Section 43 25 33.10 2.03 A. paragraph 4.e. and paragraph 6., temperature and moisture sensors are to be provided with the equipment. External transmitters or relays connecting to the motor controls will be housed separately and provided by the installing Contractor. Please note that cabling, as described within paragraph 5 of the same section, requires for sealed cabling connections to the provided sensors extending out to the separately provided enclosure needs to accommodate all sensor connections.	3
7	Section 43 05 13. Part 2.03, Please clarify whether the equipment anchors are part of Contractor's scope of supply.	January 23, 2019	KSB, INC	Yes, the equipment anchors are part of the installation Contractor's scope of supply.	3
8	Section 43 25 33.10. Part 1.02.A.1.a, Please clarify what's to be included in "accessories", anchor bolts and accessories should be supplied by Contractor.	January 23, 2019	KSB, INC	Accessories include everything necessary for a complete and operable installation. Anchor bolts are within the installation Contractor's scope of supply.	3
9	Section 43 25 33.10. Part 2.02.B, Manufacturer's standard Cast Iron, with or without Nickle added, should be accepted as equal.	January 23, 2019	KSB, INC	Please see Addendum 3 Item 2. The requirement to add 2 to 3 percent nickel to cast iron parts was removed.	3
10	Installation Drawing. Please advise if there is any detailed design (drawings) for the pump power and control cable support at the discharge tube elevation (located approx. at PS deck (4242'-9") or other elevation? Otherwise please advise if necessary cable supporting brackets/components to be designed and supplied by the installation contractor.	January 23, 2019	KSB, INC	Cable supporting inside the discharge tube shall be provided by the Manufacturer (see sheet P-16-3001). Cable supporting outside the discharge tube shall be provided by the installation Contractor.	3

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SCOPE

A. Operation and maintenance (O&M) instructions shall be provided in accordance with this section and as required in the technical sections of this project manual. O&M information shall be provided for each maintainable piece of equipment, equipment assembly or subassembly, and material provided or modified under this contract.

B. O&M instructions must be submitted and accepted before on-site training may start.

1.02 TYPES OF INFORMATION REQUIRED

A. General:

1. O&M information shall contain the names, addresses, and telephone numbers of the manufacturer, the nearest representative of the manufacturer, and the nearest Seller of the manufacturer's equipment and parts. In addition, one or more of the following items of information shall be provided as applicable.

B. Operating Instructions:

1. Specific instructions, procedures, and illustrations shall be provided for the following phases of operations:
   a. Safety Precautions: List personnel hazards for equipment and list safety precautions for all operating conditions.
   b. Operator Prestart: Provide requirements to set up and prepare each system for use.
   c. Start-Up, Shutdown, And Postshutdown Procedures: Provide a control sequence for each of these operations.
   d. Normal Operations: Provide control diagrams with data to explain operation and control of systems and specific equipment.
   e. Emergency Operations: Provide emergency procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Include emergency shutdown instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance on emergency operations of all utility systems including valve locations and portions of systems controlled.
   f. Operator Service Requirements: Provide instructions for services to be performed by the operator such as lubrication, adjustments, and inspection.
   g. Environmental Conditions: Provide a list of environmental conditions (temperature, humidity, and other relevant data) which are best suited for each product or piece of equipment and describe conditions under which equipment should not be allowed to run.

C. Preventive Maintenance:

1. The following information shall be provided for preventive and scheduled maintenance to minimize corrective maintenance and repair:

a. Lubrication Data: Provide lubrication data, other than instructions for lubrication in accordance with paragraph 1.02 Operator Service Requirements.
   1) A table showing recommended lubricants for specific temperature ranges and applications;
   2) Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities; and
   3) A lubrication schedule showing service interval frequency.
b. Preventive Maintenance Plan And Schedule: Provide manufacturer's schedule for routine preventive maintenance, inspections, tests, and adjustments required to ensure proper and economical operation and to minimize corrective maintenance and repair. Provide manufacturer's projection of preventive maintenance man-hours on a daily, weekly, monthly, and annual basis including craft requirements by type of craft.

D. Corrective Maintenance:
1. Manufacturer's recommendations shall be provided on procedures and instructions for correcting problems and making repairs.
   a. Troubleshooting Guides And Diagnostic Techniques: Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.
   b. Wiring Diagrams And Control Diagrams: Wiring diagrams and control diagrams shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job-specific wiring and control work. Numbering for wiring, pneumatic control tubing, and terminals shall match the drawings.
   c. Maintenance And Repair Procedures: Provide instructions and list tools required to restore product or equipment to proper condition or operating standards.
   d. Removal And Replacement Instructions: Provide step-by-step procedures and a list of required tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings, and adjustments required. Instructions shall include a combination of tests and illustrations.
   e. Spare Parts And Supply Lists: Provide lists of spare parts and supplies required for maintenance and repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List parts and supplies that have a lead time of more than 1 month.
   f. Corrective Maintenance Manhours: Provide manufacturer's projection of corrective maintenance man-hours including craft requirements by type of craft. Corrective maintenance that requires participation of the equipment manufacturer shall be identified and tabulated separately.

E. Appendices:
1. The following information shall be provided. Include information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment.

a. Parts Identification: Provide identification and coverage for all parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirements to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and subassemblies.

b. Warranty Information: List and explain the various warranties and include the servicing and technical precautions prescribed by the manufacturers or contract documents to keep warranties in force.

c. Personnel Training Requirements: Provide information available from the manufacturers to use in training designated personnel to operate and maintain the equipment and systems properly.

d. Testing Equipment And Special Tool Information: Provide information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components.

1.03 TRANSMITTAL PROCEDURE

A. Unless otherwise specified, O&M manuals, information, and data shall be transmitted in accordance with Section 01 25 33.10 accompanied by Transmittal Form 01 78 23-A and Equipment Record Forms 01 78 23-B and/or 01 78 23-C, as appropriate. The transmittal form shall be used as a checklist to ensure the manual is complete. Only complete sets of O&M instructions will be reviewed for acceptance.

B. Three copies of the specified O&M information shall be provided. For ease of identification, each manufacturer's brochure and manual shall be appropriately labeled with the equipment name and equipment number as it appears in the project manual. The information shall be organized in binders in numerical order by the equipment numbers assigned in the project manual. The binders shall be provided with a table of contents and tab sheets to permit easy location of desired information.

C. If manufacturers' standard brochures and manuals are used to describe O&M procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated.

1.04 PAYMENT

A. Acceptable O&M information for the project must be delivered to the Construction Manager prior to the project being 65 percent complete. Progress payments for work in excess of 65 percent completion will not be made until the specified acceptable O&M information has been delivered to the Construction Manager.

1.05 FIELD CHANGES

A. Following the acceptable installation and operation of an equipment item, the item's instructions and procedures shall be modified and supplemented by the Seller to reflect any field changes or information requiring field data.

PART 2 NOT USED

PART 3 NOT USED

END OF SECTION

SECTION 01 99 90

REFERENCE FORMS

PART 1 FORMS

1.01 DESCRIPTION

A. The forms listed below and included in this section are referenced from other sections of the project manual:

Form No.	Title
01 78 23-A	Operation and Maintenance Transmittal Form
01 78 23-B	Equipment Record Form
01 78 23-C	Equipment Record Form
43 05 11-A	Manufacturer's Installation Certification Form
43 05 11-B	Manufacturer's Instruction Certification Form
43 05 11-C	Unit Responsibility Certification Form
43 05 13-A	Rigid Equipment Mount Installation Inspection Checklist
43 05 21-A	Motor Data Form

01 78 23-A. OPERATION AND MAINTENANCE TRANSMITTAL FORM

Date:	Submittal No:[1]
To:	Contract No:
	Spec. Section:
	Submittal Description:
Attention:	From:

Checklist	Contractor		Construction Manager	
	Satisfactory	N/A	Accept	Deficient
1. Table of contents				
2. Equipment record forms				
3. Manufacturer information				
4. Vendor information				
5. Safety precautions				
6. Operator prestart				
7. Start-up, shutdown, and postshutdown procedures				
8. Normal operations				
9. Emergency operations				
10. Operator service requirements				
11. Environmental conditions				
12. Lubrication data				
13. Preventive maintenance plan and schedule				
14. Troubleshooting guides and diagnostic techniques				
15. Wiring diagrams and control diagrams				
16. Maintenance and repair procedures				
17. Removal and replacement instructions				
18. Spare parts and supply list				
19. Corrective maintenance man-hours				
20. Parts identification				
21. Warranty information				
22. Personnel training requirements				
23. Testing equipment and special tool information				

Remarks:

Contractor's Signature :

[1] See Section 01 33 00-1.04.A, Transmittal Procedure.

01 78 23-B. EQUIPMENT RECORD FORM

Equip Descrip		Equip Loc	
Equip No.	Shop Dwg No.	Date Inst	Cost
Mfgr		Mfgr Contact	
Mfgr Address			Phone
Vendor		Vendor Contact	
Vendor Address			Phone

Maintenance Requirements	D	W	M	Q	S	A	Hours

Lubricants: Recommended:

Alternative:

Misc. Notes:

Recommended Spare Parts					Electrical Nameplate Data			
Part No	Quan	Part Name	Cost		Equip			
					Make			
					Serial No.		Id No.	
					Model No.		Frame No.	
					Hp	V	Amp	Hz
					Ph	Rpm	Sf	Duty
					Code	Insl. Cl	Des	Type
					Nema Des	C Amb	Temp Rise	Rating
					Misc.			
					Mechanical Nameplate Data			
					Equip			
					Make			
					Serial No.		Id No.	
					Model No.		Frame No.	
					Hp	Rpm	Cap	Size
					Tdh	Imp Sz	Belt No.	Cfm
					Psi	Assy No.	Case No.	
					Misc			

01 78 23-C. Equipment Record Form

Equip Descrip		Equip Loc	
Equip No.	Shop Dwg No.	Date Inst	Cost
Mfgr		Mfgr Contact	
Mfgr Address			Phone
Vendor		Vendor Contact	
Vendor Address			Phone

Maintenance Requirements	D	W	M	Q	S	A	Hours

43 05 11-A. MANUFACTURER'S INSTALLATION CERTIFICATION FORM

Contract No:	Specification section:

Equipment name:

Contractor:

Manufacturer of equipment item:

The undersigned manufacturer of the equipment item described above hereby certifies that he has checked the installation of the equipment and that the equipment, as specified in the project manual, has been provided in accordance with the manufacturer's recommendations, and that the trial operation of the equipment item has been satisfactory.

Comments:

Manufacturer	Contractor
Signature of Authorized Representative	Signature of Authorized Representative
Date	Date

43 05 11-B. MANUFACTURER'S INSTRUCTION CERTIFICATION FORM

Contract No:	Specification Section:
Equipment name:	
Contractor:	
Manufacturer of equipment item:	

The undersigned manufacturer certifies that a service engineer has instructed the wastewater treatment plant operating personnel in the proper maintenance and operation of the equipment designated herein.

Operations Check List (check appropriate spaces)

Start-up procedure reviewed	
Shutdown procedure reviewed	
Normal operation procedure reviewed	
Others:	

Maintenance Check List (check appropriate spaces)

Described normal oil changes (frequency)	
Described special tools required	
Described normal items to be reviewed for wear	
Described preventive maintenance instructions	
Described greasing frequency	
Others:	

Manufacturer

Signature of Contractor Representative Date

Signature of Authorized Representative

Date

Signature of Authorized Representative Date

43 05 11-C. UNIT RESPONSIBILITY CERTIFICATION FORM

BNR PEPS PUMPING EQUIPMENT PROCUREMENT

CERTIFICATE OF UNIT RESPONSIBILITY

FOR SPECIFICATION SECTION 43 25 33.10

SUBMERSIBLE MIXED FLOW PUMP

In accordance with Section 43 25 33 of the contract documents, the undersigned manufacturer of driven equipment ("manufacturer") accepts unit responsibility for all components of equipment furnished to the Project under specification Section 43 25 33.

We have reviewed the requirements for sections 43 26 33 and all sections referencing this (these) section(s), including but not limited to drivers, supports for driving and driven equipment and all other specified appurtenances to be furnished to the Project by manufacturer. And, we have further reviewed, and modified as necessary, the requirements for associated variable speed drives and motor control centers. We hereby certify that all specified components are compatible and comprise a functional unit suitable for the specified performance and design requirements whether or not the equipment was furnished by us. We will make no claim nor establish any condition that problems in operation for the product provided under this specification Section _____ are due to incompatibility of any components covered by this Certificate of Unit Responsibility. Nor will we condition or void any warranty for the performance of the product of this specification Section _____ due to incompatibility of any components covered under this Certificate of Unit Responsibility.

Our signature on this Certificate of Unit Responsibility does not obligate us to take responsibility for, nor to warrant the workmanship, quality, or performance of related equipment provided by others under specification sections _____, _____, and _____. Our obligation to warranty all equipment provided by us shall remain unaffected.

Notary Public	Name of Corporation
Commission expiration date	Address
Seal:	By:
	Duly Authorized Official
	Legal Title of Official
	Date

43 05 13-A. RIGID EQUIPMENT MOUNT INSTALLATION CHECKLIST

[CENTRAL VALLEY WATER RECLAMATION FACILITY, BNR PEPS PUMPING EQUIPMENT PROCUREMENT]

Equipment Tag No.: _____ Date: _____

Grout Product Name and Type: _____

Grouting System Manufacturer: _____

Grouting Application Contractor: _____

General Contractor: _____

Step 1: Verify Equipment Anchor Installation Conformance to Equipment Pad Details		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Millwright		Date
Step 2: Completion of Cleaning and Concrete Substrate Preparation Prior to Grouting		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 3: Equipment Leveling		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Millwright		Date
Step 4: Installation of Protection of Adjacent Surfaces or Structures NOT TO BE GROUTED		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 5: Preparation and Construction of Forms and Epoxy Grout Filling Standpipes		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 6: Completion of Ambient Condition Control in Structure or Building Area and Acceptance of Ambient Conditions as They Apply to Application and Curing Requirements for the Grouting System		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 7: Epoxy Grout Installation		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 8: Completion of Full and Proper Cure of Epoxy Grout		
Name: Contractor Rep.		Date
Name: Construction Manager		Date

Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 9: Completion of Localized Repair of Grout Voids		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date
Step 10: Final Acceptance of Grouting System Installation Including Final Clean-Up of the Work Site Complying with All Specification Requirements and the GSM's Quality Requirements		
Name: Contractor Rep.		Date
Name: Construction Manager		Date
Name: Grouting Contractor Rep.		Date
Name: Grout Manufacturer's Technical Rep.		Date

43 05 21-A. MOTOR DATA FORM

Equipment Name: _____ Equipment No(s): _____

Project Site Location: _____

Nameplate Markings

Mfr:		Mfr Model:		Frame:		Horsepower:	
Volts:		Phase:		RPM:		Service Factor:	
FLA:		LRA:		Frequency:		Amb Temp Rating:	ºC

Time rating:		Design Letter:	
	(NEMA MG1-10.35)		(NEMA MG-1.16)
KVA Code Letter:		Insulation Class:	

The following information is required for explosion-proof motors only:

A. Approved by UL for installation in Class _____, Div _____, Group _____

B. UL frame temperature code ____ (NEC Tables 500-8B)

The following information is required for all motors 1/2 horsepower and larger:

A. Guaranteed minimum efficiency _____

(Section 43 05 21-2.04 Motor Efficiency)

B. Nameplate or nominal efficiency _____

Data Not Necessarily Marked on Nameplate

Type of Enclosure:			Enclosure Material:		
Temp Rise:		ºC (NEMA MG1-12.41,42)			
Space Heater included?	☐ Yes	☐ No	If Yes:	Watts	Volts
Type of motor winding over-temperature protection, if specified:					

Provide information on other motor features specified:

_____

SECTION 43 05 13

RIGID EQUIPMENT MOUNTS

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. This section specifies minimum requirements for rigid equipment mounts. Completed equipment mounts shall consist of equipment pads, equipment anchors, and mounting plates (baseplates, soleplates, or fabricated steel frames) set in grout.
2. Equipment mounts shall conform to the requirements specified in the Equipment Mounting Schedule included in this specification.

B. Definitions:

1. Specific equipment mounting terminology used in this section conforms to the following definitions:
   a. Baseplate: A mounting plate configured with a top plate and a perimeter edge of the mounting plate that is below the top plate. Baseplates have a cavity between the top plate and a horizontal plane at the bottom edge of the perimeter of the mounting plate.
   b. Soleplate: A machined or pre-formed mounting plate with a uniform horizontal surface across the entire underside of the mounting plate, excepting shear lugs/keys, grout pour holes, vent holes, and attachment hardware (nuts, bolts, tapped holes, etc.). Soleplates have a top plate but lack the perimeter bottom edge that extends below the underside of the top plate that is a defining feature of baseplates.
   c. Fabricated Steel Frame: An equipment mounting plate constructed of rolled steel shapes and plates welded into a frame. Fabricated steel frames do not have top plates.
   d. Equipment Pad: Concrete foundation (block or slab) supporting and elevating mounting plates above the supporting structural floor slab or local grade.
   e. Mounting Pads: Milled/machined areas of baseplates, soleplates, and fabricated steel frames where the feet or mounting surfaces of mounted equipment and drivers are bolted to the baseplate, soleplate, or fabricated steel frame.
   f. Leveling Blocks: Steel blocks temporarily placed under baseplates, soleplates, or fabricated steel frames at leveling positions (at equipment anchors) for the purpose of leveling baseplates, soleplates, or fabricated steel frames prior to grouting.
   g. Shims: Thin stainless steel plates of uniform thickness used for fine adjustment of level. Shims are used on top of leveling blocks for mounting plate leveling or used between equipment drivers and baseplates, soleplates, or fabricated steel frames for equipment alignment.
   h. Wedges: Pairs of uniformly tapered metal blocks that are stacked with the tapered surfaces reversed (relative to the other wedge) so that the top and bottom surfaces of the wedges are parallel. Wedges are used between equipment pads and baseplates, soleplates, or fabricated steel frames for the purpose of leveling mounting plates.

i. Mounting Stud: Threaded rod or bolts anchored to baseplates, soleplates, or fabricated steel frames for the purpose of mounting equipment or ancillary devices onto baseplates, soleplates, or fabricated steel frames.

j. Reinforcement Dowels or Reinforcement Hooks: Steel reinforcement rods embedded in concrete, across a cold joint, for the purpose of transferring loads or force across the joint.

k. Leveling Position: A location on the top of a concrete equipment pad where leveling tools and equipment will be temporarily installed or used for the purpose of leveling baseplates, soleplates, and fabricated steel frames prior to grouting.

l. Grout Manufacturer: Refers to the manufacturer of the grout product used for installation of rigid equipment mounts.

m. Grout Manufacturer's Technical Representative(s): Refers to the technical representative(s) of the Grout Manufacturer. The Grout Manufacturer's Technical Representative shall not be an employee of the Contractor.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. Referenced documents are a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. References to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, whether or not the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ACI 318, Appendix D	Building Code and Commentary, Anchorage to Concrete
ANSI/HI 1.4	Centrifugal Pumps – Installation, Operation and Maintenance
ANSI/HI 2.4	Vertical Pumps – Installation, Operation and Maintenance
API RECOMMENDED PRACTICE 686	Recommended Practices for Machinery Installation and Installation Design
ASTM E329	Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction
ASTM F593	Stainless Steel Bolts, Hex Cap Screws, and Studs
ASTM F1554	Anchor Bolts, Steel, 36, 55 and 105 ksi Yield Strength
MIL-PRF-907E	Anti-Seize Thread Compound, High Temperature
SSPC	Society for Protective Coatings Specifications, Vol. 2
IBC	International Building Code (including local amendments)

B. Quality Control By Contractor:

1. To demonstrate conformance with the specified requirements for rigid equipment mounts, the Contractor shall provide the services of an independent testing

laboratory that complies with the requirements of ASTM E329. The testing laboratory shall sample and test materials installed as part of rigid equipment mounts as specified in this Section. Costs of testing laboratory services shall be borne by the Contractor.

2. Where epoxy grout is specified in individual equipment specifications, the Contractor shall furnish the services of a grout manufacturer's technical representative who has been factory trained by the grout manufacturer. The grout manufacturer's technical representative shall perform training and quality control of epoxy grout installation for rigid equipment mounts as specified in this section.

C. Special Inspection for Equipment Anchors:

1. Equipment anchors shall comply with special inspection requirements specified in Section 05 05 23 to be provided in the future to the Contractor.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with the submittal requirements specified in Section 43 25 33.10.

1. A copy of this specification section, including addendum updates, (referenced sections need not be included for this Section) with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations shall be sufficient cause for rejection of the entire submittal with no further consideration. Copies of this specification section shall be numbered and marked (specification number and equipment number) for inclusion (filing) with submittal materials furnished for individual equipment specifications.
2. Name, employer, a copy of the employee's Qualified Millwright card or other equivalent certificate of journeyman qualifications for millwrights who will install rigid equipment mounts, as specified in paragraph 3.03 Leveling.
3. Certificates or other documentation issued by the epoxy grout manufacturer that demonstrates that the grout manufacturer's technical representative has been factory trained on installation of epoxy grout for equipment mounts, as specified in paragraph 1.02 Quality Control by Contractor.
4. Shop drawings for equipment anchors or soleplate. Shop drawings shall depict size and location of equipment anchor, size, location, and projection; elevation of top of grout and grout thickness; elevation of top of soleplate; and any other equipment mounting features embedded in equipment pads. Shop drawings for soleplates shall be numbered and marked (specification number and equipment number) for inclusion (filing) with the associated equipment submittal requirements.

PART 2 PRODUCTS

2.01 GENERAL

A. Equipment mounts shall conform to the requirements specified in the Equipment Mounting Schedule.

B. Equipment and drivers shall be rigidly mounted on a common mounting plate and grouted into place on a concrete equipment pad unless alternate requirements are specified in the Contract Drawings or the Equipment Mounting Schedule in this section. Unless otherwise specified in the individual equipment specification, mounting plates shall be anchored to equipment pads with a layer of grout between the equipment pad and the mounting plate.

2.02 EQUIPMENT PADS: NOT USED.

Equipment Mounting Schedule

Equipment Number	Specification Section	Specification Title	Equipment Pad Detail	Mounting Plate Leveling Tolerance (inch/foot)	Equipment Anchor Type	Equipment Anchor Sleeve Embedment Length	Grout Type	Application Notes
P160101 P160102 P160103 P160104 P160105 P160106	*43 25 33.10*	*Submersible Pump, Axial-Flow and Mixed-Flow Type*	*None*	*0.0005*	*M7002*	*10-inches*	*Epoxy*	*Grout discharge tube base to slab per Section 3 on P-16-3001*

2.03 EQUIPMENT ANCHORS:

A. Equipment Anchor Materials:

1. Equipment anchors shall be all thread rod with heavy hex welded nuts, heavy hex bolts, Post-installed anchors (wedge, sleeve, undercut, expansion, and adhesive anchors), or adjustable canister anchors as specified in the Equipment Mounting Schedule.
2. Post-installed anchors (wedge, sleeve, undercut, expansion, and adhesive anchors) shall conform to the requirements of Section 05 05 23 to be provided in the future to the Contractor.
3. Adjustable canister anchors shall be cast-in-place pre-manufactured adjustable anchor inserts. Adjustable canister anchors shall provide a minimum of 6 inches of vertical bolt height adjustment and lateral adjustment of the anchor bolt while maintaining the anchor bolt in a true vertical orientation. Adjustable canister anchors shall be Jakebolts as manufactured by Unisorb, Heavy Duty Adjustable Anchors as manufactured by Deco, Rowan Adjustable Canister Anchor Bolt, or approved equal.
4. Equipment anchor materials shall conform to the following table for the area exposure condition where the equipment is installed.

Area Exposure	Equipment Anchor Materials
Submerged, Immersed	316 Stainless, ASTM F593, Cond. CW

B. Equipment Anchor Design:

1. The size (diameter) of anchors for clamping/fastening mounting plates to equipment pads shall be as specified.

C. Equipment Anchor Tension:

1. Unless alternate bolt torque/tension requirements are specified by the equipment manufacturer, equipment anchors shall be tightened to provide a final clamping force that produces a tensile stress of 15,000 psi in each equipment anchor. Adjustable canister anchors shall be tightened to the manufacturer's maximum safe working load. Equipment anchors consisting of Post-installed anchors shall be tightened to manufacturer's recommendations.
2. Bolt torque values required to produce the specified bolt tension based on well lubricated plain finish national coarse thread bolts are presented in the following table. Revise bolt torque values per equipment manufacturer's recommendations for alternate thread patterns, thread lubrication, bolt material, or bolt finish.

Bolt Diam. (in)	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2
Final bolt torque for 15,000 psi bolt stress (ft*lbs)	8	15	30	50	80	125	180	250	400

3. NOT USED.

D. Anchor Sleeves:

1. Equipment anchors shall be fitted with sleeves as specified in the Equipment Mounting Schedule. Sleeve length for equipment anchors shall be 15 times the bolt diameter unless otherwise specified in the Equipment Mounting Schedule. Sleeves

may be installed at the Contractor's option if not specified in the Equipment Mounting Schedule.

2. NOT USED.
3. Anchor sleeves shall be flexible polyurethane foam, steel cylinder/tubes, or ribbed plastic sleeves.
4. Fill steel cylinders/tubes and ribbed plastic sleeves with a flexible room temperature vulcanizing (RTV) sealant prior to embedment/installation.

2.04 MOUNTING PLATES

A. General:

1. All soleplates shall have edges of surfaces bearing on grout rounded to a radius of not less than 0.25 inch.
2. Perimeter corners of soleplates shall be rounded to a radius of not less than 2.0 inches to avoid producing stress risers on the grouted foundation.
3. Grout pouring holes (minimum 4 inches in diameter for epoxy grout, shall be provided in all soleplates and all soleplates shall have air release holes.
4. Grout relief or vent holes (minimum 1 inch in diameter) shall be provided in all soleplates.
5. Mounting holes for equipment anchors shall be drilled through baseplates, soleplates, and fabricated steel frames.
6. Mounting holes for equipment anchors shall be drilled. Mounting holes shall not be burned out and they shall not be open slots.
7. Terminations requiring connections to baseplates and soleplates shall be acorn nuts welded to the underside of the baseplate or soleplate or nuts welded to the underside of the baseplate or soleplate and plugged with cork, plastic plugs or grease.
8. Where fasteners terminate only into the baseplate, soleplate, or fabricated steel frame, threaded lengths (tapped or embedded in mounting plates) shall be not less than the bolt diameter.
9. Where baseplates, soleplates, or fabricated steel frames are leveled using jackscrews, jackscrew threads shall be tapped in thickened pads or otherwise in sufficient metal to provide ease in adjusting level.
10. Mounting pads and/or mounting surfaces for baseplates, soleplates, and fabricated steel frames shall be milled flat after all welding and stress relieving and shall be coplanar within 0.0005 inch per foot in all directions. Baseplates shall be pre-grouted prior to milling.
11. Baseplates, soleplates, and fabricated steel frames shall provide common support for the equipment and driver (and flywheel, if one is specified).

B. Fabricated Steel Frames: NOT USED.

C. Baseplates: NOT USED.

D. Plate Steel Soleplates:

1. Plate steel soleplates shall be not less than 1.0 inch thick for equipment with drivers greater than 30 horsepower.

2. Plate steel soleplates shall be furnished with grout keys/lugs or stiffeners on the underside of the soleplate.
3. Excepting grout keys, grout pour holes, vent holes, and attachment hardware (nuts, bolts, tapped holes, etc.) the underside of plate steel soleplates shall be a flat uniform horizontal surface.
4. The underside of plate steel soleplates shall be scribed with the words “THIS SIDE DOWN” using welding rod material prior to milling the mounting pads for equipment or mounting surfaces.
5. Plate steel soleplates without grout pouring holes are acceptable provided that no dimension of the soleplate (width or length) exceeds 18 inches.
6. Surfaces of plate steel soleplates in contact with grout shall be sandblasted to white metal per SSPC-SP-5 prior to shipment to the project site.

E. Polymer Concrete Soleplates: NOT USED.

F. Corrosion Resistant FRP Baseplates: NOT USED.

2.05 GROUT FOR EQUIPMENT PADS

A. Epoxy Grout for Equipment Mounting:
1. Where epoxy grout is specified in the Equipment Mounting Schedule, grout for setting bearing surfaces of baseplates, soleplates, and fabricated steel frames on equipment pads shall be Epoxy Grout for Equipment Mounting as specified in Section 03 60 00 to be provided in the future to the Contractor. Where the term epoxy grout is used in the context of details and specifications for equipment mounting it shall mean Epoxy Grout for Equipment Mounting as specified in Section 03 60 00 to be provided in the future to the Contractor.

B. Cementitious Nonshrink Grout: NOT USED.

2.06 EPOXY PRIMER: NOT USED.

2.07 ANTI-SEIZE/ANTI-GALLING COMPOUND

A. Anti-seize or anti-galling compound shall be a molybdenum disulfide and graphite combination in aluminum complex base grease conforming to MIL-PRF-907E. Acceptable products include Jet Lube 550 by Jet Lube, Inc., E-Z Break by LA-CO, or approved equal.

2.08 PRODUCT DATA

A. The following information shall be provided in accordance with the product data requirements specified in Section 43 25 33.10:
1. Results of grout strength tests, as specified in paragraph 3.03 Grouting.
2. Completed Rigid Equipment Mount Installation Inspection Checklist Forms (43 05 13-A), as specified in paragraph 3.02 Epoxy Grout Quality Control.
3. List of Contractor’s equipment installation staff that has completed epoxy grout manufacturer’s grout installation training specified in paragraph 3.02 Epoxy Grout Training.

PART 3 EXECUTION

3.01 GENERAL

A. General Requirements:

1. Roughen the underside of soleplates and fabricated steel frames and wipe with a residue-free solvent as recommended by the epoxy primer manufacturer before placement of the baseplate, soleplate, and fabricated steel frames on the equipment pad for leveling. Roughen surfaces of mounting plates that will be in contact with grout by power tool cleaning. Cleaning shall be performed by power wire brushing, power sanding, power grinding, power tool chipping or power tool descaling. Cleaning shall impart a minimum profile of 1.0 mil.
2. Prior to placement on the equipment pad for leveling, exposed grout surfaces of pre-grouted baseplates shall be roughened and wiped with a residue-free solvent as recommended by the manufacturer of the epoxy grout used for pre-grouting.
3. Grout for equipment mounting shall be as specified in the Equipment Mounting Schedule.
4. Grouting for installation of equipment on equipment pads shall take place prior to connecting any field piping or electrical and instrumentation systems.
5. Unless the Construction Manager accepts an alternate installation procedure in writing and soleplates shall be leveled and grouted with the equipment removed.
6. Pumps shall be installed in accordance with this section and ANSI/HI 1.4 or ANSI/HI 2.4, as appropriate for the type of pumping equipment installed.

B. Alternate Piping Connections: NOT USED.

3.02 EPOXY GROUT TRAINING AND QUALITY CONTROL

A. Epoxy Grout Training:

1. Prior to commencing rigid equipment mount installation work on equipment pads, the Contractor shall furnish the services of a grout manufacturer's technical representative to conduct a training school for the workers who will be using epoxy grout for rigid equipment mount installations. The school shall be not less than 4 hours in length and shall cover all aspects of using the products, including form construction for each equipment installation, surface preparation, mixing, application, void prevention/elimination, and clean up. This requirement, however, shall not be construed as relieving the Contractor of overall responsibility for this portion of the work. The epoxy grout manufacturer shall furnish a list of school attendees who have been satisfactorily trained to perform epoxy grout installation for equipment mounting.

B. Epoxy Grout Quality Control:

1. For equipment mounted with epoxy grout, the epoxy grout manufacturer's technical representative shall provide quality control services for epoxy grout installation in rigid equipment mounts. The epoxy grout manufacturer's technical representative shall be on site to inspect and verify that the installation personnel have successfully performed surface preparation, epoxy grout application, and Quality Control Inspection in accordance with these specifications for a representative portion of the epoxy grout installation work.

2. Specifically, the epoxy grout manufacturer's technical representative shall perform the following services for at least one rigid equipment mount installation for each equipment type and size installed with epoxy grout:
   a. Inspect ambient conditions during various phases of epoxy grouting installation for conformance with the epoxy grout manufacturer's requirements.
   b. Inspect the surface preparation of concrete substrates onto which epoxy grout materials are to be applied, for conformance to the specified application criteria, including but not limited to substrate profile, degree of cleanliness, and moisture.
   c. Inspect the surface preparation of the metallic substrates onto which the epoxy primer is to be applied.
   d. Inspect the epoxy-primed metallic substrate for coverage and adhesion.
   e. Inspect preparation and application of epoxy grout form work for conformance to the specifications.
   f. Inspect and record that the "pot life" of epoxy grout materials is not exceeded during installation.
   g. Inspect epoxy grout for cure.
   h. Inspect and record that localized repairs made to grout voids conform to the specification requirements.
   i. Conduct a final review of completed epoxy grout installation for conformance to these specifications.
   j. Attest to conformance of the Contractor's work by signing appropriate entries in the "Rigid Equipment Mount Inspection Checklist," Form 43 05 13-A in Section 01 99 90.

3.03 INSTALLATION

A. Concrete Equipment Pad Preparation:
   1. Roughen the top of the equipment pad after the concrete has reached its 28-day compressive strength.
   2. Remove all laitance and defective or weak concrete.
   3. Roughened surface profile shall be 0.25 inch amplitude, minimum.
   4. Expose broken aggregate without dislodging unbroken aggregate from the cement matrix and without fracturing concrete and aggregate below the concrete surface.
   5. Roughen using a light-duty (15 pounds or less), hand-held chipper with a chisel type tool.
   6. Abrasive blast, bush-hammer, jack hammers with sharp chisels, heavy chipping tools, or needle gun preparation of concrete surfaces to be grouted are not acceptable.
   7. Demonstrate removal of defective or weak concrete to the Construction Manager prior to leveling.
   8. The chipped surface of the concrete shall be such that the final elevation of the equipment pad provides the grout manufacturer's recommended thickness between the surface of the equipment pad and the lower baseplate flange, underside of the soleplate, or underside of the fabricated steel frame.
   9. All dust, dirt, chips, oil, water, and any other contaminants shall be removed and the surface protected with plastic sheeting until grout is installed.

10. Concrete equipment pad surfaces that have been finished smooth and level for use as leveling positions shall be protected from damage during chipping activities. Alternatively, leveling positions may be restored on chipped surfaces. Leveling positions shall be restored by installing leveling blocks or leveling plates for jackscrews on a high compressive strength epoxy putty (Philadelphia Resins, Phillybond Blue 6A, or equal). Leveling blocks and leveling plates shall be installed level on the epoxy putty.

B. Leveling:

1. Except where union rules require installation by another trade, all equipment and machinery shall be mounted and leveled by a Qualified Millwright.
2. Use precision surveying equipment for leveling.
3. Machinists' spirit levels will not be permitted for leveling purposes for any baseplate, soleplate, or fabricated steel frame with a plan dimension greater than 4 feet.
4. Baseplates, soleplates, and fabricated steel frames shall be leveled to the tolerance specified in the Equipment Mounting Schedule or as otherwise required by the equipment manufacturer, if more stringent.
5. An anti-seize or anti-galling compound specified in paragraph 2.07 shall be applied to all equipment anchor threads prior to beginning baseplate, soleplate, or fabricated steel frame leveling.
6. All baseplates, soleplates, and fabricated steel frames shall be leveled against steel surfaces (jackscrew plates, leveling blocks, leveling nuts, support plates, or other steel surfaces). Use of other materials for leveling purposes is strictly and specifically prohibited.
7. Leveling equipment and tools shall be stainless steel leveling blocks and shims, steel wedges, or jackscrews bearing on leveling plates.
8. Leveling nuts may be used for leveling baseplates, soleplates, and fabricated steel frames weighing less than 200 pounds (including the weight of the equipment if leveled with the equipment on the mounting plate).
9. Leveling blocks shall be stainless steel, 4 inches square and 1.5 inches thick with an open-ended slot terminating in the center for the equipment anchor.
10. Leveling blocks shall be machined flat on all horizontal surfaces and placed under the baseplate or soleplate at each equipment anchor.
11. Shims shall be pre-cut stainless steel, slotted for removal after grouting. Leveling blocks and shims shall be coated with a light oil just prior to beginning the leveling and grouting work. Shims shall be placed so the tabs on the shims are easily accessible.
12. Clamp soleplates in position (after leveling) by installing the equipment anchor nuts and washers.
13. Bolt tension to fix the position of mounting plates during grouting shall be 30 to 60 percent of the final clamping force applied to clamp the mounting plate to the equipment pad.
14. Prior to grouting, verify that the correct level and position of the baseplate, soleplate, or fabricated steel frame has been maintained after clamping it to the equipment pad.

C. Grouting:

1. Design forms for a minimum of 6 inches hydrostatic head above the final elevation of the grout.
2. Install grout expansion joints at 4 to 6 foot intervals, perpendicular to the centerline of baseplates. Design expansion joints in accordance with the grout manufacturer's written instructions.
3. Coat forms with three coats of paste wax on all areas of the forms that will be in contact with the grout.
4. Wax forms before assembly.
5. Prevent accidental application of wax to surfaces where the grout is to bond.
6. Remove any foreign material, such as oil, sand, water, wax, grease, etc., from concrete surfaces that will contact grout before forms are installed.
7. Forms shall be liquid tight. Seal any open spaces or cracks in forms, or at the joint between forms and the foundation using sealant, putty, or caulking compound.
8. Vertical and horizontal edges of the grout shall have 45-degree chamfers as specified in equipment pad details. The 45-degree perimeter chamfer strip shall be located at the final elevation of the grout.
9. Match chamfers in concrete portions of the equipment pad.
10. Install block outs at all leveling positions to allow removal of leveling equipment and leveling nuts to be backed off after the grout has cured.
11. Coat jackscrews with a light oil or other acceptable bond-breaking compound prior to grouting.
12. Final elevation of grout on fabricated steel frames shall be at the top of the lower flange of the perimeter I-beams or C-channel.
13. Top of grout elevation for baseplates and soleplates shall be at least 0.125 inch but not more than 0.5 inch above the bottom or underside of the perimeter edge of the baseplate or soleplate.
14. Seal equipment anchor sleeves to protect the sleeved length of the anchor from contact with grout.
15. Wrap exposed portions of equipment anchors with duct tape to protect them from grout splatter and to prevent bonding to grout.
16. Adjust ambient temperature to maintain mounting plate, foundation, and grout temperatures to grout manufacturer's recommended temperature.
17. Mix grout for equipment mounting in accordance with the grout manufacturer's written recommendations.
18. Epoxy grout shall be placed in a manner that avoids air entrapment, using a head box to pour grout into the grout holes.
19. Place grout at one end of the baseplate or soleplate and work grout toward the opposite end to force the air out from beneath the baseplate or soleplate.
20. Pour grout through a head box into grout pouring holes.
21. When the head box is moved to the next grout hole, a 6 inch standpipe shall be placed over the grout hole and filled with grout.
22. Use of vibrating tools and/or jarring (rapping or tapping) forms to facilitate grout flow is not permitted during placement of epoxy grout.
23. Never allow the grout in the head box to fall below the top of the baseplate or soleplate once the grout has made contact with the baseplate or soleplate.

24. Grout placement shall be continuous until all portions of the space beneath the baseplate, soleplate, or fabricated steel frame have been filled.
25. Prepare subsequent batches of grout prior to depleting the preceding batch.
26. Maintain grout height in standpipes after the space under the baseplate, soleplate, or fabricated steel frame has been filled.
27. When the grout has started to take an initial set (typically this is determined by a noticeable increase in temperature and no flow of grout at the vent holes) the standpipes shall be removed and excess grout cleaned from all surfaces.
28. Check for leaks throughout grout pours. Leaks shall be repaired immediately to prevent formation of voids.
29. Check baseplate, soleplate, or fabricated steel frame level and elevation before the grout sets.
30. Cure grout in accordance with the grout manufacturer's written instructions.
31. Where specified in the individual equipment specifications, a grout sample shall be taken for each equipment pad.
    a. Samples shall be placed in a cylinder of sufficient size to yield three 2-inch cubes as test samples.
    b. Samples shall be tagged with project name, date, time, the equipment number, and ambient temperature at the time of placement.
    c. Place samples next to the foundation of the equipment being grouted and cure for 48 hours.
    d. Test grout samples in accordance with the grout manufacturer's recommendations.
    e. Grout samples shall be tested by the independent testing laboratory specified in paragraph 1.02 Quality Control by Contractor.
    f. Test results shall be reported directly to the Construction Manager.

D. Completion:
1. Upon acceptance by the Construction Manager and the equipment manufacturer's representative and after the grout has reached sufficient strength, grout forms and block outs at leveling positions shall be removed. Leveling blocks and shims or wedges and support plates shall be removed, and leveling nuts and jack screws shall be backed off to allow the grout to fully support the baseplate, mounting block, or soleplate. Take care not to damage the grout during removal of extended shimming material or leveling equipment and tools.
2. The equipment anchor nuts shall be tightened, using calibrated indicating torque wrenches, to develop the full bolt tension specified in paragraph 2.03 Equipment Anchor Tension.
3. Equipment anchor nuts shall be tightened in increments of not more than 25 percent of the final torque value in an alternating pattern to avoid stress concentration on the grout surface. After tightening equipment anchor nuts to final values, apply additional wax, grease, or mastic to all exposed portions of the equipment anchor beneath the baseplate, soleplate, or mounting block.
4. After applying additional wax or mastic to exposed portions of equipment anchors, block outs (pockets) for access to leveling nuts, leveling blocks and shims, or wedges shall be filled with the grout material installed under baseplates, soleplates, or fabricated steel frames and pointed after the equipment anchor nuts have been

tightened to final values. Jackscrews shall be removed and holes in the baseplate, soleplate, or fabricated steel frames filled with a flexible sealant (silicone rubber) or a short cap screw.

5. Check for baseplate, soleplate, or fabricated steel frame movement (soft foot) by individually loosening and re-tightening each equipment anchor. Vertical movement at each equipment anchor shall be measured and recorded during loosening and retightening and shall not exceed 20 micrometers (0.001 inch). Vertical movement shall be measured using a magnetic-based dial indicator on the baseplate, soleplate, or fabricated steel frame referenced to the epoxy grout surface of the equipment pad or other approved method. Soft foot conditions shall be sufficient cause for removal and reinstallation of grout and baseplates, soleplates, or fabricated steel frames.
6. Check for grout voids by tapping along the upper surfaces of the baseplate, soleplate, or mounting block. Grout voids shall be sufficient cause for removal and reinstallation of grout and baseplates, soleplates, or fabricated steel frames. Grout voids shall be marked. At the discretion of the Construction Manager, grout voids may be repaired as specified in Chapter 5, Section 3.16 of API RP 686.

3.04 FINAL INSPECTION

A. The Construction Manager will conduct a final inspection with the Contractor for conformance to requirements of this section.

END OF SECTION

SECTION 43 23 03

GENERAL REQUIREMENTS FOR CENTRIFUGAL AND AXIAL-FLOW PUMPING EQUIPMENT

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. This section, when referenced in the detailed specification section, provides minimum requirements applicable to centrifugal and axial-flow pumping equipment furnished under this contract. More restrictive requirements, where found in individual pump specifications, supersede requirements of this section.
2. "Detailed pump specification," "detailed specification," "individual pump specification," "referencing section," or words of similar import in this section, mean the specification section where the requirements for specific pump performance are presented. "Pumping unit," whenever and wherever used, means the complete pumping assembly, including driver (motor) and includes accessories such as variable-speed drives required for motor operation, gear reducers, intermediate shafting and bearings, and supports for equipment furnished with the pump.
3. NOT USED

B. Definitions:

1. The following definitions apply for classifying pumps specified in this and referencing sections:
   a. General: Terminology and definitions in this section follow those established in American National Standards Institute (ANSI)/Hydraulic Institute (HI) 9.1 through 9.5, unless otherwise noted.
   b. Solids-bearing liquids: Liquids to be pumped containing, or assumed to contain, solids that require appropriate pump design considerations and/or materials of construction. Solids-bearing liquids are liquids with settleable solids exceeding 50 milligrams per liter (mg/L) and include primary effluent wastewater.
   c. Clear liquids: Liquids to be pumped mostly free of deleterious solids. Potable water, heat reservoir, raw water, secondary effluent pumping, and similar services are clear liquids.
   d. Efficiency: For the purposes of this section and sections referencing this section, efficiency, as related to pumps, is the ratio of the pump output power (water horsepower [hp]) divided by the pump input power (brake horsepower) required to deliver the total head, with meanings as defined in ANSI/HI 1.2.3.8 and ANSI/HI 2.2.3.8. For column-type pumps, efficiency is computed inclusive of inlet, bowl, column, and discharge head losses.
   e. Net positive suction head, 3 percent reduction (NPSH3): For the purposes of this section and sections referencing this section, NPSH3 means the value of net positive suction head (NPSH) resulting in a reduction of 3 percent in the developed pump discharge head when the pump is tested in accordance with procedures established by ANSI/HI. NPSH3 is the successor designation to net positive suction head required (NPSHR). Where NPSHR is used in the contract documents it means NPSH3.
   f. NPSH margin: For the purposes of this section and sections referencing this section, "NPSH margin," wherever used, means net positive suction head

available (NPSHA) divided by the candidate pump's NPSH3 for the specific operating condition in question.

g. POR: preferred operating region as defined in ANSI/HI 9.6.3.

h. AOR: allowable operating region as defined in ANSI/HI 9.6.3.

1.02 TYPE

A. Provisions and requirements contained in this section apply specifically to centrifugal and axial-flow pumps, both vertical and horizontal, commonly falling into the generic types covered by ANSI/HI 1.1 through 1.4, and 2.1 through 2.4.

1.03 REFERENCES

A. This section (Section 43 23 03) contains references to the following documents. They are a part of this section and any referencing section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. The following order of precedence prevails in the event of conflict between the requirements of this section or any referencing section and those of the listed documents (in the order of primacy):

1. The referencing section
2. This section
3. The referenced document

B. Unless otherwise specified, references to documents mean the documents in effect at the time of advertisement for bids or invitation to bid (or on the effective date of the agreement if there were no bids). References to documents mean the replacement documents issued or otherwise identified by the organization if referenced documents have been discontinued, or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued, or replaced.

Reference	Title
ABMA 9	Load Ratings and Fatigue Life for Ball Bearings
ABMA 11	Load Ratings and Fatigue Life for Roller Bearings
AISC	American Institute of Steel Construction—Manual of Practice
ANSI/API 610	Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries (also referenced as ISO 13709-2009)
ANSI/ASME B46.1	Surface Texture, Surface Roughness, Waviness and Lay
ANSI/HI 1.1–1.6	Rotodynamic (Centrifugal) Pumps
ANSI/HI 2.1–2.4	Rotodynamic (Vertical) Pumps
ANSI/HI 9.1–9.5	Pumps – General Guidelines for Types, Applications, Definitions, Sound Measurements and Documentation
ANSI/HI 9.6.1	Rotodynamic Pumps—Guideline for NPSH Margin
ANSI/HI 9.6.2	Centrifugal and Vertical Pumps for Allowable Nozzle Loads
ANSI/HI 9.6.3	Rotodynamic Pumps (Centrifugal and Vertical) Guideline for Allowable Operating Region
ANSI/HI 9.6.4	Rotodynamic Pumps—Vibration Measurements and Allowable Values
ANSI/HI 9.6.6	Rotodynamic Pumps for Pump Piping
ANSI/HI 9.6.8	Rotodynamic Pumps—Guideline for Dynamics of Pumping Machinery

Reference	Title
ANSI/HI 9.8	Pump Intake Design
ANSI/HI 11.6	Submersible Pump Tests
ANSI/HI 14.6	Rotodynamic Pumps for Hydraulic Performance Acceptance Tests
API 686/PIP REIE 686	Recommended Practices for Machinery Installation and Installation Design
ASME B18.8.2	Taper Pins, Dowel Pins, Straight Pins, Grooved Pins, and Spring Pins (Inch Series)
ASME Code	ASME Boiler and Pressure Vessel Code
ASTM A27	Steel Castings, Carbon, for General Application
ASTM A36	Carbon Structural Steel
ASTM A148	Steel Castings, High Strength, for Structural Purposes
ASTM A322	Steel Bars, Alloy, Standard Grades
ASTM A564	Hot-Rolled and Cold-Finished Age-Hardening Stainless Steel Bars and Shapes
ASTM A571	Austenitic Ductile Iron Castings for Pressure-Containing Parts Suitable for Low-Temperature Service
ASTM A995	Standard Specification for Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts, Grades 2A, 3A, or 6A
ASTM B148	Aluminum-Bronze Sand Castings
AWWA C213	Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines
AWWA C550	Protective Epoxy Coatings for Valves and Hydrants
NSF/ANSI 61	Drinking Water System Components – Health Effects
IEC 61298-2	Process Measurement and Control Devices. General Methods and Procedures for Evaluating Performance Tests Under Reference Conditions
ISO 1940-1:2003	Mechanical Vibration—Balance quality requirements for rotors in a constant (rigid) state—Part 1: Specification and verification of balance tolerances
ISO 9001	Quality Management Systems—Requirements, 3rd Edition (2000)
ISO 10816-1	Mechanical Vibration—Evaluation of Machine Vibration by Measurement on Non-rotating Parts—Part 1: General Guidelines, Annex B, Table B.1. Class I, II or II, as applicable. For the purposes of this specification, Annex B of ISO 10816, Part 1 forms a part of this specification and ISO 10816, Part 1.
ISO 10816-3	Mechanical Vibration—Evaluation of Machine Vibration by Measurement on Non-rotating Parts—Part 3: Industrial machines with nominal power above 15 kW and nominal speeds between 120 r/min and 15000 r/min when measured in situ, Annex A, Table A.1 and A.2. For the purposes of this specification, Annex A of ISO 10816, Part 3 forms a part of this specification and ISO 10816, Part 3.
ISO 10816-6	Mechanical Vibration—Evaluation of Machine Vibration by Measurement on Non-rotating Parts—Part 6: Reciprocating machines with power ratings above 100 kW, Annex A, Table A.1, machine vibration classification number 3. For the purposes of this specification, Annex A of ISO 10816, Part 6 forms a part of this specification and ISO 10816, Part 6.
ISO 10816-7	Mechanical Vibration—Evaluation of Machine Vibration by Measurement on Non-rotating Parts—Part 7: Rotordynamic Pumps for Industrial Applications, Including Measurements on Rotating Shafts, Annex A, Tables A-1 and A-2 Category II as applicable. For the purposes of this specification, Annex A of ISO 10816, Part 7 forms a part of this specification and ISO 10816, Part 7.
MIL STD 167-2	Mechanical Vibrations of Shipboard Equipment (Reciprocating Machinery and Propulsion System and Shafting)

1.04 DESIGN REQUIREMENTS, ALL PUMPS:

A. General:

1. Conform equipment furnished under sections referencing this section to the objective of paragraph 6.1.1, ANSI/API 610, and ensure that the equipment and “auxiliaries”

are designed for at least a 20-year service life and 3 years of "uninterrupted operation." Select all components associated with the rotating elements in the drive train, including equipment supports and supports for rotating elements, that are designed to function without damage or disassembly at reverse rotational speeds up to 130 percent of maximum operational speed during flow reversals through the pump. Ensure that the complete pumping unit operates without overload on any component at any point along the pump's entire full-speed operating curve. Furnish pumps required by virtue of the specified operating conditions to operate against a closed valve or throttled for any period of time exceeding 5 seconds with drivers sized to operate continuously at the power requirement for that condition even though the power requirements at the rated condition may be less.

2. NOT USED.

B. Pump Selection:

1. Proven designs:
   a. The furnished pumps shall be proven designs that have been in similar conditions of service with no objectionable performance characteristics for a period of not less than 5 years.
   b. The Manufacturer may propose alternative equipment that cannot meet the requirement for a proven design under this paragraph, subject to additional documentation requirements and under the following conditions:
      1) The proposed design has been in successful operation under similar conditions of volute or bowl, discharge case and nozzle size, impeller design (including number of vanes), pumped fluid, head, capacity, rotation, and NPSHA, but at a higher speed for a period of not less than 3 years.
      2) The proposed design has been in operation in designs where both larger and smaller nozzle size pumps have been in service for a period of not less than 5 years, and impeller design (including number of vanes, plus or minus one vane in pumps with four or more vanes), pumped fluid, head, capacity, speed, and NPSHA are similar to that for the proposed installation and within one synchronous speed higher or lower than that indicated in the detailed specification.
2. General performance criteria:
   a. Ensure that pumps furnished under this section and any referencing section operate without loss of head due to cavitation or vibration over the entire specified range of flow and head conditions and are specifically selected for NPSH margin requirements detailed in paragraph 1.04 NPSH margin limitations. Pump selections that do not provide the specified margin will be rejected.
3. General design criteria:
   a. Select pumps furnished under sections referencing this section that are designed in accordance with applicable portions of ANSI/HI 1.1–1.4, 2.1–2.4, 9.6.2, 9.6.3, 9.6.4, 9.6.6, and 9.6.8 and the requirements of this section. Select pumps that are specifically designed to pump the fluid described in the detailed specification and to operate without clogging or fouling caused by material in the pumped fluid at any operating condition within the range of service specified. Clogging or fouling conditions may be of any cause, demonstrated by a 5 percent or greater capacity drift within 2 hours of sustained operation.
   b. Unless otherwise noted or specified, slope pump head capacity curves in one continuous curve within the specified operating conditions. Do not permit points

of reverse slope inflection capable of causing unstable operation within the specified zone of continuous-duty operation. Pumps with head/capacity curves with a reverse inflection are specifically prohibited if these characteristics will cause unstable operation within the specified range of operating conditions and where startup/shutdown conditions entail operation against a slow opening/closing valve.

c. Ensure that column-type (vertical-turbine, vertical-column solids-handling, and axial-flow propeller and mixed-flow) pumps have bells selected to provide intake velocity of not less than 3.5 feet per second (ft/s) or more than 4.0 ft/s when operating at the maximum specified flow or the flow resulting from the lowest specified operating head at maximum speed, whichever is greatest ("peak flow"). Select pump discharge column sizes to limit the calculated average velocity at peak flow to no more than 12 ft/s.

d. Ensure that pumps specified to operate at constant-speed function without loss of head or capacity due to cavitation or excessive vibration over the entire specified range of flow and head conditions defined by the region bounded by Condition Points A, B, C, D, and any other continuous-duty operating condition specified in Section 43 25 33.10, and select pumps to place Condition Point C in the detailed specification within the POR, or a modified POR if stipulated in the detailed pump specification.

e. Ensure that pumps specified to operate at variable-speed function without loss of head or capacity due to cavitation or excessive vibration over the entire specified range of flow and head conditions defined by the region bounded by Condition Points A, B, C, D, and and any other continuous-duty operating condition specified in the detailed specification referencing this section. Ensure that unless otherwise specified in the section referencing this section, acceptance criteria include the following:

1) Ensure that Operating Condition Points B, C, D and any other continuous-duty operating point specifically required in the detailed specification reside within the region defined by the POR, or in a modified POR if stipulated in the detailed pump specification.

2) Unless otherwise noted in the detailed specification referencing this section, Operating Condition Point A may reside in the area outside the POR; Condition Point C will be located within the POR, or in a modified POR if stipulated in the detailed pump specification; and Condition B will preferably be located within the POR, or within 5 BEPQ percentage points (in terms of flow) outside the POR so long as Condition Point C resides in the POR or the stipulated modified range.

4. POR:

a. Unless otherwise specified, the POR for a given pump is as defined in ANSI/HI 9.6.3.

b. The detailed specifications may stipulate a narrower POR than indicated in ANSI/HI 9.6.3.

c. Do not let suction-specific speed (Nss) exceed 10,000, unless otherwise indicated in the detailed specifications.

d. For high-Nss pumps (greater than 10,000) and other conditions as determined by the engineer, a narrower stable operating region may be defined in the detailed specifications and then identified in ANSI/HI 9.6.3 for the POR. The detailed specifications take precedence over this section.

e. The detailed specification sections identify the duty points that must be within a pump's POR and those that may be within the AOR and take precedence over this section.

C. Critical Speeds and Natural Frequencies:

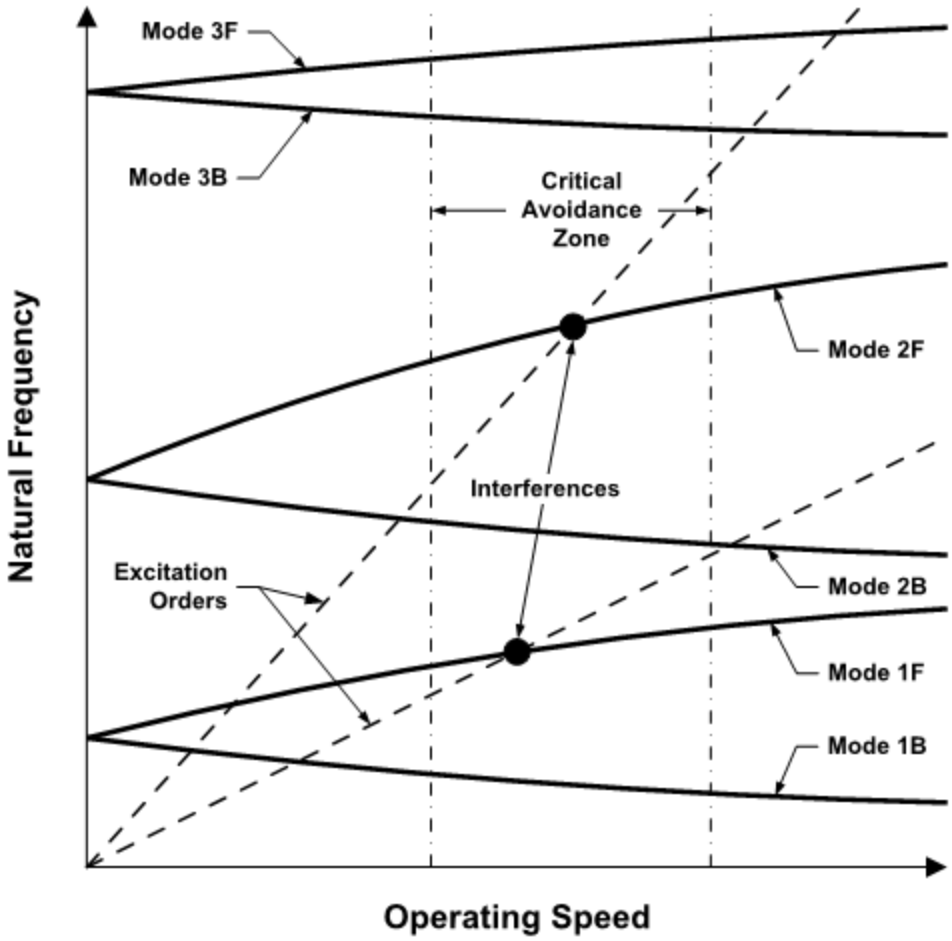
1. General:

a. The criteria of this paragraph applies to pumps, provided that the foundation and support details provided at the time of pump design are accurate. Repair or replace pumps exhibiting adverse behavior after installation from resonance, vibration, or fatigue at no cost to the Owner. The criteria apply to the equipment in "like-new" condition as well as the "as-worn" condition (i.e., when parts, individually and as a composite, reach the Manufacturers' maximum tolerances). Critical speed and natural frequency data submittal requirements depend upon the pump:

1) Unless otherwise specified, for constant-speed pumps and variable-speed pumps with suction size less than 6 inches diameter, no critical speed submittal is required

2. Lateral rotor and structural dynamics:

a. Ensure that the complete pumping unit, composed of the entire rotating group and related frames, supports, enclosures, housings, and casings, is free from critical speeds from 15 percent below to 25 percent above the operating speeds required to achieve the specified performance characteristics (critical avoidance zone). A critical speed is defined as any damped natural frequency with a logarithmic decrement less than +0.3 that has an interference with a primary excitation order in the critical avoidance zone. Analyze backward rotation for rubber-bearing vertical-column pumps. The critical avoidance zone, interferences, and possible critical speeds can be illustrated on a natural frequency map as presented in the figure below. In the figure, three natural frequencies are shown with forward and backward modes. Only two of those modes, 1F and 2F, have interferences with primary excitation orders. Whether these are critical speeds is determined by the value of log decrement at the intersection. Note that higher order modes, such as 2F, have the same log decrement criterion as the first mode.



b. Process sensitivities are such that operation at infinitely variable speed within the specified operational conditions is an absolute requirement. Any remedy imposing a locked-out speed interval or intervals will not be considered an acceptable remedy for identified critical speeds. Acceptable remedies include combinations of adjustments in rotor geometry or materials, and the substitution of energy-absorbing couplings. Other remedies may be considered so long as they are justified in writing and the proposal is sealed and signed by the design professional retained by the Manufacturer to perform the system mass elastic system analyses.

3. Torsional rotordynamics and combined shaft stress:
   a. Ensure that the complete rotating group is free from critical speeds from 10 percent below to 20 percent above the operating speeds required to achieve the specified performance characteristics (critical avoidance zone). A critical speed is defined as any damped natural frequency with a logarithmic decrement less than plus 0.3 that has an interference with a primary excitation order in the critical avoidance zone.
   b. If efforts to remove torsional critical speeds are unsuccessful, perform a combined shaft stress analysis to demonstrate that the response does not adversely affect the entire rotating group fatigue life. Ensure that the combined shaft stress analysis considers any speed in the critical avoidance zone and

during startup, shutdown, or motor control transients if synchronous motors are specified.

c. For constant-torque applications, ensure that the pump-rotating group is free from torsional response that produces combined (steady plus alternating torque induced) stresses exceeding 50 percent of the material's fatigue limit or 30 percent of the material's elastic limit (but no more than 18 percent of the material's ultimate tensile strength) if relevant fatigue data for the selected material are not available.

d. For variable-torque applications (including variable-speed pumps, vertical pumps, and pumps with large overhung loads) ensure that the pump rotating group is free from torsional response that produces combined (torsional steady and alternating) peak shear stresses at points of stress concentration (calculated in accordance with the requirements of paragraph 1.04E.3 Torosional Shaft Stresses) that exceed 50 percent of the material's fatigue limit or 4 percent of the material's ultimate tensile strength (as per United States Military Standard [MIL STD] 167-2) if relevant fatigue data for the selected material are not available.

e. Document the source of fatigue data used in lieu of elastic or ultimate strength ratios in the analysis report submittal.

D. Impeller clearances, vane-passing frequency, and impeller keyways:

1. Ensure that the radial clearance between the tip of the impeller vane and diffuser or volute vanes is not less than 3 percent and 6 percent, respectively, of impeller diameter. Select a pump that is designed so that internal geometry does not cause uneven flow distribution at impeller vane inlets.

2. Ensure that impeller vane combinations are not an even multiple of diffuser vanes in column-type pumps.

3. Cut impeller keyways for multistage column-type pumps at differing positions and provide equal angular spacing on the impeller shaft to avoid multiple simultaneous vane-passing pulses.

E. Component design criteria:

1. General:

a. Unless otherwise specified, ensure that combined stresses in steel frames and supports does not exceed those permitted by the American Institute of Steel Construction (AISC) Manual of Practice. Ensure that combined stresses in cast, forged, rolled, or fabricated pressure-retaining components, frames, and supports does not exceed that allowed for the given material in Section VIII, Division 1 of the American Society of Mechanical Engineers (ASME) Code. Ensure that design pressures for pressure-retaining parts are not less than 50 percent greater than the pump's shutoff head at the Manufacturer's listed maximum operating speed. Ensure that the pump casing strain at any head on the full-speed operating curve (including allowances for increases caused by specified multistage applications) do not result in distortions at the bearing housings greater than the maximum allowable by the bearing Manufacturer to provide the specified bearing life.

b. The term "combined stresses" in this section means the sum of operating stresses, including stresses induced by dynamic and static forces as developed via the analysis procedures stipulated in this section. Static forces (x, y, z, and

moments in planes) include the relevant maximum nozzle loads specified in ANSI/HI 9.6.2 or as stipulated by the pump Manufacturer. Dynamic forces include both steady-state and transient stresses induced by operating conditions within the zone of operation established by the specified operating conditions.

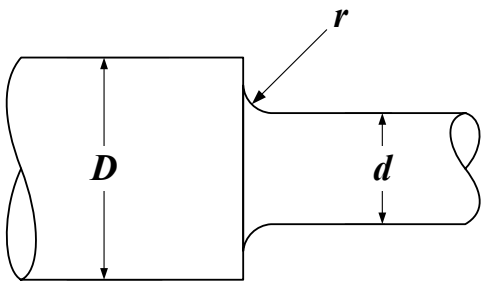
2. Anchorage and equipment mounts:
   a. Conform anchorage and equipment support requirements for pumps to the requirements of Section 43 25 33.10.
   b. Select anchor bolts and connecting bolts for pumps and assemblies supported by other assemblies furnished under this section, or sections referencing this section, that are designed in accordance with Section 01 73 23. Ensure that all operation and maintenance (O&M) manuals for pumps and assemblies contain criteria for anchor and baseplate bolt torque values.
   c. Ensure that equipment mounts for vertical (column- and volute-type) pumps weighing more than 1,000 pounds, with discharge nozzles 6 inches in diameter and greater, employ soleplates conforming to the requirements of Section 43 05 13. Provide soleplate mounting conforming to Section 43 05 13 for separately supported components in the pump drive system. Fabricated steel supports regardless of design, and the nature of the structural shapes used for such proposed supports, will not be accepted.
   d. Select soleplates that are designed to span openings for equipment connections and provide access to maintenance points. Ensure that soleplates are of sufficient section to key, not less than 1 inch, into the supporting grout provided for bonding the soleplate to the structure. Provide soleplates of sufficient size to bolt the pump base to the soleplate without encumbering the anchor bolts required for clamping the soleplate to the structure.
   e. NOT USED.
   f. Use tapered dowel pins when required in the detailed specification to record the final position of machine bases on soleplates or pump baseplates. Where specified, harden and machine-ground dowel pins, conforming to the requirements of ANSI/ASME B18.8.2. Conform holes for tapered dowels to the requirements set forth in Appendix A of ANSI/HI B18.8.2.
3. Torsional shaft stresses:
   a. Calculate shaft stresses using the following equation and the stress concentration factors in the tables below:

$$S = S_{cf} \times \frac{G \times D \times \Delta_{\Theta}}{2 \times L}$$

where:

S	=	stress, pounds per square inch (psi)
S_{cf}	=	stress concentration factor, dimensionless
D	=	minimum shaft diameter at point of concentration, inches
Δ_{Θ}	=	twist in shaft between adjacent masses, radians
L	=	effective length between masses, inches
G	=	shear modulus of shaft material, psi

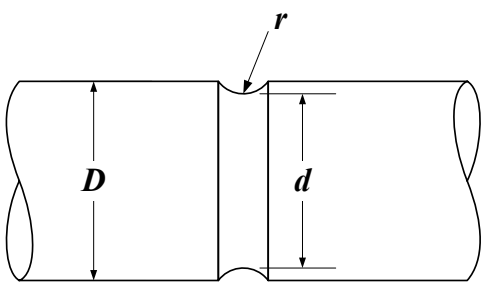
b. Ensure that the S_{cf} to be applied at changes in shaft diameter is as follows:



Shaft diameter ratio D/d = 1.05	
r/d	S_{cf} [a]
0.0025	2.67
0.0100	1.84
0.0200	1.58
0.0300	1.47
0.0400	1.39
0.0500	1.34
0.1000 and greater	1.22

Shaft diameter ratio D/d = 1.50	
r/d	S_{cf} [a]
0.0025	4.05
0.0100	2.54
0.0200	2.07
0.0300	1.85
0.0400	1.72
0.0500	1.62
0.1000 and greater	1.40

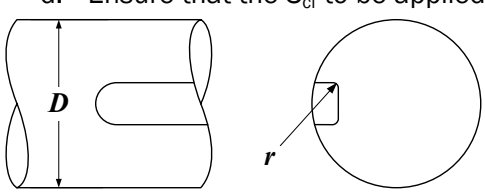
c. Ensure that the S_{cf} to be applied at circumferential shaft grooves is as follows:



Shaft diameter ratio D/d = 1.05	
r/d	S_{cf} [a]
0.0025	3.73
0.0100	2.34
0.0200	1.92
0.0300	1.74
0.0400	1.64
0.0500	1.57
0.1000 and greater	1.39

Shaft diameter ratio D/d = 1.30	
r/d	S_{cf} [a]
0.0025	5.04
0.0100	2.82
0.0200	2.24
0.0300	1.99
0.0400	1.84
0.0500	1.73
0.1000 and greater	1.49

d. Ensure that the S_{cf} to be applied at the roots of keyways is as follows:



r/D	S_{cf} [a]
0.0025	4.35
0.0100	3.20
0.0200	2.64
0.0300	2.43
0.0400	2.32
0.05 00	2.25
0.1000 and greater	2.12

a. Base values of S_{cf} between data points in the tables above upon a straight line interpolation.

4. Shaft deflection:
   a. Select pump shafts installed on volute-type pumps to provide sufficient stiffness to operate without distortion or damaging vibration throughout the range of service specified. Limit shaft deflection at the face (impeller side) of the shaft seal to no more than 2 mils at any operating condition within the zone described by the specified continuous-duty operating conditions. Calculate deflection at the shaft seal as required by provisions set forth in ANSI/HI 1.3.
5. Bearings: NOT USED.
6. Bearing isolators: NOT USED.
7. Pump shaft seals: NOT USED.

F. NPSH margin limitations:
   1. General:
      a. Select pumps furnished under this section and sections referencing this section for NPSH margin limitations using the criteria set forth in this section. Base NPSH3 characteristics for the candidate pump upon documented test data not more than 5 years old. Perform testing on a pump not more than two nominal pump diameters larger or smaller than the proposed pump with an impeller of the same geometry as that proposed for the pump to be used for the subject application, and operating at either the same speed as the pump for the proposed application or a speed that provides plus or minus 10 percent of the impeller inlet velocity if reduced-speed testing is used. For very large pumps that cannot be accommodated in the Manufacturer's test pit, the use of a model pump, sized in accordance with ANSI/HI 14.6, Appendix K, is acceptable. The Manufacturer shall document the basis for pump selection based upon NPSH margin limitations as set forth in this paragraph.
      b. The detailed specification sections provide NPSHA information for anticipated operating conditions for each application. This information is generally referenced to a specific elevation, stated in terms of project datum. The pump Manufacturer is responsible to adjust the NPSHA information in the specification section to the elevation of the pump impeller eye for the specific pump model and size proposed for the application. NPSH3, as used in the following paragraphs, means the NPSH3 at the impeller eye, determined in accordance with ANSI/HI 11.6 or 14.6, as applicable for the proposed pump. The pump Manufacturer shall document the method used to determine NPSH3 for the proposed pump and justifying compliance with the NPSH margin limitations established under this paragraph for each specified operating condition in material submitted under Section 43 25 33.10. Include in the documentation

justification of the NPSH3 tests used to develop NPSH3 characteristics, including the following:

1) Date, test procedure, and test logs of original NPSH3 information used to project requirements for the pump selected for the application
2) Test pump size, impeller diameter, impeller model, eye diameter, and speed
3) Calculations projecting NPSH3 test information to NPSH3 curve information for the pump proposed for the application
4) Calculations demonstrating compliance with the NPSH margin requirements established in this paragraph

c. The Manufacturer shall submit margin calculations justifying the proposed pump selection with the material required under Section 43 25 33.10. The NPSH margin ratios specified in this paragraph are the minimum acceptable margin ratios. If the proposed pump requires greater margin ratios to operate within the specified operating conditions without loss of head due to cavitation, then it is the responsibility of the Contractor to bear costs associated with achieving the required margin ratio by lowering the elevation of the pump setting, lowering the elevation of the structure, or through other means. Subject any such adjustments to review and acceptance by the construction manager if necessary.

d. Individual restrictions are applicable to NPSH margin depending upon the type of pumping equipment and the fluid to be pumped as set forth in ANSI/HI 9.6.1, Table 9.6.1.4.5. Under no circumstances may the absolute value of the NPSH3 margin be less than 3.5 feet.

G. Electric Motors: NOT USED

1.05 ADDITIONAL DESIGN REQUIREMENTS: NOT USED

1.06 QUALITY ASSURANCE – ALL PUMPS:

A. Quality Certification:

1. The Manufacturer shall hold current certification under ISO 9001. Application for certification under ISO 9001 is not deemed as an acceptable substitute for current certification. The Manufacturer shall provide documentation of the ISO 9001 certification and the Manufacturer's written quality assurance/quality control (QA/QC) program.

B. Unit Responsibility:

1. The Manufacturer shall provide unit responsibility to the pump Manufacturer in conformance with the requirements of Section 43 25 33.10.

C. Performance Confirmation:

1. Hydrostatic tests:

a. Subject all pressure-sustaining parts to factory hydrostatic tests. Unless otherwise specified, conform hydrostatic tests to the requirements of ANSI/HI 11.6 for submersible pumps. Unless otherwise indicated in the detailed specifications, hold castings at the test pressure for the duration indicated in ANSI/HI 11.6 and 14.6. For process pumps designed in accordance with ANSI/API 610, hydrostatic testing must comply with the requirements of paragraph 8.3.2 of ANSI/ ANSI/API 610. Ensure that test results are certified

correct by the chief engineer or individual in responsible charge of the manufacturing facility.

2. Performance guarantee:
   a. Unless specified otherwise in Section 43 25 33.10, the Manufacturer shall guarantee pump performance according to criteria specified under this paragraph.
   b. Ensure that equipment performance documentation, including test data, where tests are specified, includes sufficient test points (not less than eight) to document hydraulic performance along the complete head/capacity curve from shutoff to maximum capacity, and covers full-speed operating points specified in the detailed specification section referencing this section. Ensure that tests conducted at specified operating conditions are the inlet throttled to produce the NPSHA indicated for that specific condition in the detailed specification. Perform NPSH3 tests for not less than four full-speed operating conditions, but not less than specified operating conditions and at the best efficiency point (BEPQ).
   c. Conform test procedures to those set forth in ANSI/HI 14.6 acceptance grade 1U, and as specifically detailed in these specifications. However, any increase in flow or head permitted under acceptance grade 1U cannot result in overload (nameplate basis, S. F. = 1.0) of the specified motor power rating at any location on the pump's head/capacity curve. Conduct performance tests at the specified maximum speed. Affinity relationship-predicted test results will not be accepted. For column-type pumps, include in the performance documentation curves showing both bowl efficiency and overall efficiency (including inlet, bowl, column, and discharge head losses) at maximum operating speed for the application.
   d. Ensure that acceptance criteria for head and capacity test results, based upon the rated condition specified in the detailed specification, are as required in ANSI/HI 11.6 and 14.6, acceptance grade 1U, with the above-stated limitation with respect to motor power overload.
   e. Ensure that acceptance criteria for NPSH3 at any specified operating condition are the values proposed by the Manufacturer in the curves submitted under Section 43 25 33.10, and duly accepted by the construction manager, with a tolerance of plus 0, minus unlimited, with the exception that Nss, as calculated for the specific pump, does not exceed the limitation established under paragraph 1.04B. If the NPSH3 data result in an increase in Nss, have the Manufacturer confirm that the stable operating region for the pump corresponds to the POR as defined in ANSI/HI 9.6.3, and that the operating conditions specified to be within the POR are within the stable operating region for the pump. In addition, have the Manufacturer identify the onset of suction recirculation and confirm that the onset of suction recirculation is outside of the specified operating range.
   f. Include in the guarantee a statement to the effect that the pump will operate within the operating regions specified in the detailed specification. Put the guarantee in writing, and have the chief engineer or individual in responsible charge of the test facility sign it. Under no circumstances should deviations from specified operating conditions result in overload of the driver furnished with the equipment, nor should such deviations result in power requirements greater than the driver's nameplate (1.0 service factor) rating.
3. Non-witnessed tests:

a. Unless specified otherwise, performance-test pumps in accordance with ANSI/HI 14.6, Acceptance Grade 1U, with the above restrictions on motor power overload. Include in the factory tests test data for each full-speed performance requirement (Condition Points A and B specified in the detailed specification) and any other points stipulated for this test procedure in the detailed specification. Conduct these tests with the pump inlet throttled to provide the specified NPSHA.

b. Duplicate the test setup in the Manufacturer's test facility as closely as possible to the inlet conditions in the proposed installation, using temporary baffles and other means, within the limitations of the test facility. Include in the certified test data separate readings for inlet and discharge head for each data point.

c. Take not less than eight test points, including not less than three within plus or minus 8 percent (in terms of rated flow) of the rated condition (Condition Point A) and not less than two test points within plus or minus 4 percent of the pump's BEP at the test speed. In addition, one test point is sufficient to define head and power requirements at shutoff head.

d. Perform NPSH3 tests in accordance with ANSI/HI 14.6, paragraph 14.6.5.8.2.1, Type 1 Test except that not less than four tests should be performed at the test motor speed to completely cover the range of operating conditions specified in the detailed specification. Ensure that one of the test points is at BEP flow to confirm the test pump's Nss. Ensure that translation of test results to specified operating conditions is in accordance with ANSI/HI 14.6, paragraph 14.6.6.1.1 so long as the exponent used can be supported by certified test data performed on a pump of the same type, size, speed, and specific speed as that of the proposed pump. Include NPSH3 tests at both the proposed and test speeds in test data justifying the exponent, test points at BEP, and at least three other points on the test pump head/capacity curve at least 15 percentage points removed from the BEP. Use the results of the NPSH3 tests to confirm the NPSH margins for each specified operating condition as specified in paragraph 1.04F. Perform NPSH3 tests for column type (axial, mixed-flow, and vertical-turbine) pumps using the open sump/water level or closed tank/tank pressure methods described in ANSI/HI 14.6, Table 14.6.5.8.2.1. Perform NPSH3 tests for submersible wastewater pumps using the method described in Figure 11.6.8 in ANSI/HI 11.6. Extend all NPSH3 tests from 50 percent to 140 percent of best efficiency flow at full speed, or to not less than 10 percent (in terms of flow) past the flow at Operating Condition B, whichever is greater. For a given pump, if the Manufacturer can provide documentation that the upper flow limit of the AOR on the right side of the pump curve is less than 140 percent of best efficiency flow, the AOR may be used as the limit for the NPSH3 test. Cause for rejection is failure to achieve specified performance or performance proposed in accepted submittal documents (capacity and head, efficiency, or NPSH3), whichever is more restrictive. Acceptance tolerances are as set forth in paragraph 1.06C.2 Performance Confirmation; Performance guarentee.

e. Ensure that all test procedures are in strict conformance with the referenced standards. However, prediction of performance of a trimmed impeller from test data of the larger impeller will not be permitted. If trimming is required, re-test the pump. Do not allow deviations from specified operating conditions, though allowed by the referenced standards, to result in overload of the driver furnished with the equipment, nor allow such deviations to result in power requirements greater than the driver's nameplate (1.0 service factor) rating.

f. The Installation Contractor shall furnish the Owner with not less than 2 weeks' advance written notice of the date and place of the non-witnessed tests.

g. Have all test results, including test logs and generated curves, certified correct by the chief engineer or individual in responsible charge of the Manufacturer's test facility, and submit in accordance with Section 43 25 33.10.

1.07 QUALITY ASSURANCE - ADDITIONAL REQUIREMENTS: NOT USED

1.08 SUBMITTALS - NOT USED

PART 2 PRODUCTS

2.01 MATERIALS

A. General

1. Where this section and sections referencing this section are silent with the respect of materials of construction on any component, have material selection follow the requirements of Table H.1, ANSI/API 610, Materials Class I-1, with the exception that shafts for vertical column-type pumps be 12 percent chromium stainless steel. Materials specified are considered the minimum acceptable for the purposes of durability, strength, and resistance to erosion and corrosion. The Manufacturer may propose alternative materials for the purpose of providing greater strength or meet required stress limitations. However, alternative materials must provide at least the same qualities as those specified for the purpose.

B. General Quality

1. Ensure that details of Manufacturer and assembly of equipment furnished under this section and referencing sections follow the requirements of ANSI/API 610 with respect to the following features (paragraph references, ANSI/API 610):

a. Alignment aids (paragraph 6.1.24)

b. Removal of rotating element (paragraph 6.1.25)

c. Jackscrews for assistance in alignment on baseplates and equipment supports (paragraph 9.3.8.3.2)

d. Castings (paragraph 6.12.2)

2. Provide all components or subassemblies weighing 50 pounds or more with at least one lifting eye or a provision for threading in a lifting eye. Provide components 250 pounds or greater with lifting eyes or provisions for at least two lifting eyes. Provide components 1,000 pounds or greater with at least three lifting eyes or provisions for inserting lifting eyes.

2.02 PUMPS

A. Finish for surfaces in contact with pumped fluid:

1. Conform all pump components in contact with the pumped fluid to the following requirements.

2. Indicate surfaces to be machine-finished on the shop drawings by symbols that conform to ANSI B46.1, Surface Texture, Surface Roughness, Waviness, and Lay. Ensure that machine surfaces are finished to at least the following tolerances:

a. Nominal roughness:

Surface	Grade, Ref: ANSI B46.1 (SI units microns) (Ra: micro inches)
General machine work	3.2 or better (125 Ra)
Flange faces	3.2 or better (125 Ra)
Journal surfaces at sleeve bearings	0.4 or better (16 Ra)
Hydraulic surfaces	
Impeller	4.5 or better (177 Ra)
Impeller bowl and diffuser	6.3 or better (250 Ra)
All other wetted surfaces	6.3 or better (250 Ra)

b. Flaws such as scratches, ridges, holes, peaks, cracks, or checks that will make the part unsuitable will be cause for rejection. Ensure that machine-finished surfaces are thoroughly cleaned and coated with a protective layer of rust preventive. Oil and wrap small pieces, unassembled pipe, or finished bolts with moisture-resistant paper.

2.03 BASEPLATES AND SOLEPLATES

A. Unless otherwise noted in the detailed specification, the pump Manufacturer shall furnish pumps with baseplates or soleplates conforming to the requirements of Section 43 25 33.10. Design baseplates and soleplates to be installed in the housekeeping curb shown, and ensure that they are machined flat and co-planar to within 0.002 inch per foot in all directions on the face mating with the pump and motor or driver support. Ensure that soleplates have the words “THIS SIDE DOWN” permanently affixed to the underside using a welding rod material or stamped prior to milling. Alternative marking methods, using heavy scribing or machining, are acceptable provided that they may be observed following blasting in preparation for coating.

2.04 WEARING RINGS

A. Where specified, fit pumps with both stationary and rotating wearing rings. Except for the difference in hardness between stationary and rotating rings, ensure that wearing rings are stainless steel and conform to the requirements of ANSI/API 610, paragraph 6.7 and material class S-8 (Table H.1, Annex H). Ensure that maximum wearing ring clearances do not exceed 150 percent of the values stated in Table 6, ANSI/API 610. Ensure that minimum wearing ring hardness on the rotating ring is 350 Brinell Hardness Number (BHN), with the stationary ring not less than 100 hardness points greater.

B. L-form wearing rings are acceptable for primary wastewater effluent pumping service.

2.05 BALANCE

A. Ensure that balancing for pumps with suction nozzle sizes 6 inches in diameter and greater and associated components conform to the requirements set forth in ANSI/API 610, paragraph 6.9.4.1 (equivalent to ISO 1940 or ANSI 2.19 Grade 2.5), unless other portions of this project manual impose more restrictive requirements. It is the intent that the components be balanced as an assembly (“rotor”) in accordance with ANSI/API 610 definitions. For extended-shaft pumps, balance impeller(s) and shaft up to the first coupling with the line-shaft.

B. For separately balanced components, perform a residual unbalance inspection after rotor assembly per ANSI/API 610 requirements, as described in Annex J of that document. Provide copies of worksheets and demonstrate that tolerances are in compliance (i.e., rotor has passed) in addition to other reporting requirements of this paragraph.

C. Furnish all balance logs, certified correct and signed by the chief engineer or individual in responsible charge of the manufacturing facility, in accordance with Section 43 25 33.10.

2.06 DRIVE UNIT SUPPORTS FOR SEPARATELY SUPPORTED MACHINES AND INTERMEDIATE SHAFT SUPPORTS: NOT USED.

2.07 FLYWHEEL ASSEMBLIES: NOT USED.

2.08 CANS FOR COLUMN-TYPE PUMPS: NOT USED.

2.09 MACHINING

A. Unless otherwise specified, provide machined surfaces with a 125 Ra (micro-inch) finish without any grooves, surface imperfections, or machining marks. Ensure that mating surfaces are coplanar within a maximum of 0.002 inch. Ensure that bearing housings and seals have collinear centerlines within less than 0.001 inch total difference. Provide shafts with a 63 Ra (1.6-micron) finish at fit areas (coupling, sleeves, impeller) and 125 Ra (3.2-micron) finish at the clear spans.

PART 3 EXECUTION

3.01 GENERAL

A. Ensure that equipment installation procedures conform to the requirements of Section 43 25 33.10.

3.02 SOLEPLATES

A. The installation Contractor shall install soleplates in accordance with Section 43 05 13.

3.03 PUMP CANS

A. When specified, install pump cans as indicated to the following tolerances:

Horizontal position	±0.125 inch in all directions
Vertical axis	within 0.5 degree from vertical
Level	0.02 inch per foot of diameter at the pump baseplate bolt circle
Elevation	±0.125 inch from planned elevation

B. Where the equipment Manufacturer requires more stringent tolerances, those tolerances prevail.

C. Ensure that equipment is not installed in pump cans until the pump Manufacturer's factory-trained and authorized installation specialist has furnished the construction

manager with written and signed certification that the can has been installed satisfactorily and is acceptable for installation of the equipment.

3.04 ALIGNMENT

A. Ensure that journeymen millwrights perform alignment of equipment furnished under this section and any referencing section. Carpenters, laborers, or any other trades are specifically excluded from performing this work. In locations where such trades are not available, the Contractor shall retain the services of a firm specializing in this type of work to perform the setting and alignment work. The Contractor shall submit the qualifications of the proposed firm to the construction manager for acceptance prior to performing the work. Ensure that the construction manager personally witnesses final alignment procedures for each item of equipment as a condition precedent to beginning any work.

3.05 FIELD TESTING

A. Ensure that field testing conforms to the requirements of Section 43 25 33.10.

B. Unless otherwise specified in the detailed specifications, field-test centrifugal pumps for lateral vibration in accordance with paragraph 3.06B.

3.06 FIELD VIBRATION TESTS

A. Qualifications:

1. The Contractor shall retain the services of an independent testing laboratory to conduct the testing work specified under this paragraph. Ensure that the work is directed by a professional mechanical engineer, registered to practice in any one of the 50 states composing the United States. Ensure that the engineer (hereinafter termed “professional vibration analysis specialist”) is a graduate of a college holding Accreditation Board for Engineering and Technology Inc. (ABET) accreditation in mechanical engineering and has been engaged in the practice of providing the type of monitoring services required under this paragraph for rotating machinery for a period of not less than 10 years. Submit the professional vibration analyst’s qualifications and references, certified and notarized, for review and acceptance by the construction manager not less than 6 weeks prior to the date scheduled for the field vibration test work specified herein. Ensure that the construction manager reviews the required documentation and references and indicates acceptance or rejection of the proposed analyst’s qualifications within 14 days of submission. If the analyst proposed by the Contractor is rejected, the Contractor shall propose an alternative choice with appropriate documentation.
2. Ensure that the independent testing laboratory’s testing team (comprising the professional vibration analysis specialist and any technicians required to complete the specified tasks) is fully equipped to provide continuous pressure, velocity, and displacement values for rotating equipment installed under the requirements of this section. Ensure that vibration testing equipment includes sufficient calibrated pressure and flow monitoring devices to determine pump operating conditions as well as vibration levels.

B. Vibration Tests:

1. Ensure that the RMS vibration velocity does not exceed the limits established in ISO 10816-3 for electric motors (Table A.1 or A.2, Zone Boundary B/C, with rigid support), IISO 10816-7 Category II for pumps (Table A.1 or A.2, Zone B), and ISO 10816-1 for other rotating components such as support bearings and flywheels (Annex B, Table B.1, Class I, II, or III, Zone B) at any specified continuous-duty operating condition when the pump is operating within the POR. Ensure that measurement locations correspond to guidelines provided in the specific ISO 10816 section for the machine being evaluated (motor, engine, pump, or other component). When operating at any combination of conditions outside the POR for any pump, regardless of type, ensure that limiting values are 30 percent greater than the above limits, as indicated in the following table.

Pumping System Component Vibration Limits

Component	Standard	Applicable range	Notes	Inside POR (in./sec-RMS)	Outside POR (in./sec-RMS)
Motors	ISO 10816-3 Table A.2	15 kilowatts (kW) to 300 kW >300 kW	Rigid base*	0.110 0.177	
Motors	ISO 10816-3 Table A.2	15 kW to 300 kW >300 kW	Flexible base*	0.177 0.280	
Recip engines	ISO 10816-6 Table A.1, Class 3	>100 kW >134 hp		0.441	
Pumps (2 or more vanes)	ISO 10816-7 Table A.1	≤268 hp >268 hp		0.201 0.240	0.261 0.312
Additional for pumps 600 rpm or less	ISO 10816-7 Table A.2	Filtered amplitudes at 1/2X, 1X and 2X	Values are displacement (not velocity)	3.15 mils p-p	3.94 mils p-p
Single vane pumps	ISO 10816-7 Table A.1	≤268 hp >268 hp	Increase 2 or more vane values by 50%	0.302 0.360	0.392 0.468
Support bearings, flywheels	ISO 10816-1		Class 1: 5 kW Class II: 75 kW Class III: >75kW	0.071 0.110 0.177	

*Rigid or flexible base determined by analysis using ANSI/HI 9.6.8 methodology.

2. Provide vibration test reports as an information submittal in accordance with Section 43 25 33.10, and provide the signature of the responsible professional vibration analysis specialist. Ensure that the vibration spectra is of sufficient resolution for legibility of magnitude and frequency data to be properly reviewed by the construction manager. Cascade diagrams are not sufficient for variable-speed drive application unless supported by the required data in a format suitable for more detailed analyses. Provide separate spectra at the maximum and minimum operating speeds and any potential resonant frequencies.

3.07 FIELD TORSIONAL VIBRATION TESTING – NOT USED.

3.08 TRAINING

A. Ensure that training conforms to the requirements of Section 01 79 00 and includes separate training sessions for each operator shift maintained by the Owner and a separate session for maintenance personnel. Ensure that the training session for maintenance personnel includes a comprehensive presentation, employing cut-away models or comparable graphics, and documentation on the step-by-step disassembly and

subsequent reassembly of a pumping unit. Upon completion of training requirements, ensure that the Contractor submits certified Form 43 05 11-B as specified in Section 01 99 90.

END OF SECTION

SECTION 43 25 33.10

SUBMERSIBLE PUMP, AXIAL-FLOW AND MIXED-FLOW TYPE

PART 1 GENERAL

1.01 SUMMARY

A. The Work to be performed under this Contract at the Owner's water reclamation plant site shall consist of furnishing pumping equipment and appurtanances for a fully functional pumping system for the fulfillment of the Contract in accordance with the Contract Documents. The primary effluent pumps will receive primary effluent from a municipal wastewater treatment facility. The primary effluent pumps will lift flow from a primary effluent channel and convey the flow to a headbox. The Owner will provide installation of the equipment under a separate contract with a general contractor.
B. The Owner will perform a physical model study in accordance with paragraph 2.05.
C. The Contractor will provide installation of the Goods and Services.

1.02 SCOPE

A. The overall scope of work includes 'Goods' and 'Special Services' which are described by the following:
   1. Goods
      a. Manufacturer shall provide 6 (six) new submersible axial/mixed flow pumps including appurtenances necessary to lift primary effluent wastewater. Each pump shall be complete with pump discharge tubes, soleplate, motor and pump mounted instruments, and accessories required for a complete and functional pumping system for Contractor installation. Each pump shall be of the vertical mixed flow submersible type directly coupled to a submersible motor. The pumps shall be mounted within a stainless steel discharge tube and be designed to be removed at the operating level for maintenance and repair.
      b. The discharge tube and soleplate shall be the responsibility of the pump Manufacturer to design and fabricate. The pump and pump motor shall be considered an integral unit and its design shall be the responsibility of the pump Manufacturer.
      c. Start up, certification, and training services.
   2. Special Services
      a. Developing and submitting shop drawings for review by Owner and Engineer; coordinating with Owner and Engineer regarding design details. This work will be accomplished in advance of the Owner contracting with a general contractor.
   3. Reference 43 23 03.

1.03 ENVIRONMENTAL CONDITIONS

A. This section describes the environmental conditions which have been observed at the site of the work and which may reasonably be anticipated throughout the life of the project.
B. Climate Conditions
   1. The site of the work is at an elevation of approximately 4,200 feet above mean sea level.

2. Climate conditions are described as follows:

Description	Range of Conditions
Low Winter Temperature	30 degrees F to -20 degrees F
High Summer Temperature	80 degrees F to 110 degrees F

C. Additional Conditions

1. Additional conditions which may be applicable are as follows:
   a. Pathogens and hydrogen sulfide gas may be present in the wastewater and flow conveying structures. Pathogens may include Hepatitis A and B.
   b. Primary effluent temperature ranges between approximately 10 degrees Celsius and 25 degrees Celsius.
   c. Primary effluent consists of raw sewage that has passed through a ¼-inch bar screen, aerated grit removal process, and primary clarifiers to settle solids. Anticipated suspended solids levels are 30 to 100 mg/L.
   d. Flow Conditions. Seasonal and daily weather conditions impact flowrates in the influent.

Plant Influent Flow Summary by Season (6 year history)			
Season	MGD	MGD	MGD
	AVG daily	Peak 30 Min	min Hourly
Winter	51.1	82.7	30.8
Spring	55.3	117.7	33.5
Summer	51.2	107.2	32.2
Fall	47.7	83.5	31.5

D. National Fire Protection Association (NFPA) 820 per National Electric Code, Area Electrical Classification: Class 1 Division 2.

1.04 SUBMITTALS

A. Submit all information in accordance with the following:

1. A copy of this Specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate Specification compliance or marked to indicate requested deviations from Specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the Specifications are indicated, and therefore requested by the Manufacturer, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Engineer shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Manufacturer with the Specifications. Failure to include a copy of the marked-up Specification sections, along with justification(s) for any requested deviations to the Specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

B. Unit Responsibility: Submit a Certificate of Unit Responsibility Form 43 05 11-B as specified in Section 01 99 90 attesting that the Manufacturer accepts unit responsibility in accordance with the requirements of this Section. No other submittal material will be reviewed until the certificate has been received and found to be in conformance with these requirements.

C. Submit, within 60 days of Notice of Award, a list of equipment as specified, the names of the manufacturers, performance capacities, and other relevant information for the machinery and other equipment contemplated to be incorporated into the work.

D. Manufacturer's Qualifications:

1. ISO 9001 Certification.
2. Manufacturer's written quality assurance/quality control (QA/QC) program.
3. References: The Manufacturer shall furnish a detailed list of installations having been in operation for at least five (5) years, with contact information supporting qualification under this requirement. To satisfy this requirement, ensure that the listed pump is of the same size volute or bowl, discharge case and nozzle size, and impeller design (including number of vanes) and is operating under similar conditions of pumped fluid, head, capacity, speed, rotation, and NPSHA. The components and materials of the pumping unit may occur at different facilities, and be the product of other manufacturers.
4. Technical support documentation.
5. Service support documentation:
   a. Service rate schedule for 5 years forward.
   b. Location of service shop with crane capacity to lift pump.
   c. Location of service people for service support.

E. Manufacturer's performance variable speed curves for each pump furnished. Curves shall cover pump performance from shutoff to runout and annotations of operating conditions. Submit the following curves:

1. Rate of flow (Q) (gpm) vs. pump total head (H) (ft.)
2. Rate of flow (Q) (gpm) vs. pump input power (Pp), (bhp) (include data point at zero flow)
3. Rate of flow (Q) (gpm) vs. efficiency (np) (%)
4. Rate of flow (Q) (gpm) vs. NPSHR (ft.)

F. Pump data:

1. Critical speed caluclations demonstrating compliance with Section 43 23 03.
2. Minimum recommended submergence above bell inlet at design operating point (ft).
3. Minimum recommended depth below bell inlet at design operating point (ft).
4. Maximum hydraulic down-thrust, (and up-thrust considerations if required) for the operating conditions at design point.
5. Maximum pump weight (lb) dry and including water weight in the pipe discharge tube (lb).
6. Calculations of internal head losses for each rated condition point (ft).
7. Listing of suggested alarm setpoints for all motor and pump sensors provided with equipment.

G. Shop Drawings:

1. Characteristic multispeed Pump Curves from pump shutoff to runout.
2. Materials, including applicable Federal specifications (ASTM, AISI, SAE, etc.) Include a list of materials to be used for each pump part along with the submittal of the drawings. If deviation from specified materials is desired, submit complete specifications for the proposed deviating materials, and reason for request after award of the contract.
3. Seal descriptions.

4. Impeller diameter.
5. Maximum impeller diameter permissible.
6. NPSH requirements: Include NPSH margin calculations performed for each specified operating condition in accordance with Section 43 23 03.
7. Operating Point.
8. Certified Pump Test results for each pump documenting performance including, but not limited to head, capacity, speed, and NPSHR, and limit of stable hydraulic operation based on the onset of suction recirculation, if available. Results should match or bracket the specified performance. Include in the certified material copies of test logs and resulting performance curves.
9. Electrical characteristics of motors and electrical cabling provided with equipment.
10. Outline dimensions.
11. Field vibration test reports in accordance with Section 43 23 03.
12. Control Drawings including all field installation terminations required by equipment, and layout drawings, if field junction box or panels are provided. Include a bill of materials with these drawings.
13. Exploded Diagram or Cutaway Drawing showing all internal parts with part numbers. Include a Parts List referenced to this item.
14. Manufacturer's installation requirements.
15. Bearing L-10 life calculations.
16. Coating System information.

H. Detail Drawings: Submit drawings of sufficient size to be easily read, within 90 days of Notice of Award. Dimensions shall be in English or in metric with English conversion. Furnish the following:

1. Drawings showing general dimensions and confirming the size of pumps, motors, drives, and specified appurtenances; piping connections; construction details of equipment (including bearings and bearing isolators); wiring diagrams; and weight of equipment.
2. Cross-sectional drawings of the pump, showing each component, and major or complicated sections of the pump in detail. On each drawing, indicate an itemized list of components showing type, grade, class of material used, and make and model of the standard component used. Include detail and assembly drawings of entire pumping unit assembly. The description shall include materials of construction for all fluid contact parts, mechanical seals, packing, and shaft.
3. Provide drawings showing details and dimensions of pump mounting tube.
4. Provide drawings of the formed suction inlet, with all significant dimensions.
5. Provide drawings of the pump and driver unit foundation demonstrating conformance to this section and Section 43 05 13. Include in the submittal drawings depicting type, size, number, projection, and arrangement of anchor bolts; dimensional drawings of the sole and baseplates; and dimensional drawings for the concrete supports for both the pump and motor, if applicable. Ensure that drawings also depict other pertinent information, including location of equipment pads and reinforcement; equipment drains; expansion joint locations; elevation of top of grout and grout thickness; elevation of top of baseplate, soleplate, or mounting block; size and location of electrical conduits; and any other equipment-mounting features embedded in equipment pads.

6. Provide drawings covering the installation that the Manufacturer intends to furnish to the Contractor.
7. The capacity-head curve should indicate efficiency, bhp, and $NPSH_R$, maximum impeller diameter that can be installed in the pump, and proposed impeller diameter for the application.
8. Motor data forms, characteristic curves and tabulated data (test or calculated). Forms shall at a minimum indicate nameplate information specified by NEMA MG-1 including speed, power factor, efficiency, current, and kilowatt input, curves shall be plotted or tabulated against percent load as abscissas.
9. Characteristics of pumps furnished may have a tolerance of 2% in head or capacity above the requirements specified herein.
10. Controls drawings indicating wiring requirements for all instrumentation provided with the mechanical equipment (pump and motor). If field mounted termination enclosures are required to support the submitted instrumentation, provide dimensioned layout drawings of enclosure interior and exterior, along with wiring diagrams of all panel mounted devices. Provide wiring connection diagrams to indicate field wiring requirements, with recommend wire types and sizes, to support field installation.

I. Certified balance logs and worksheets.

J. The following are applicable for pumps specified to meet ANSI/HI 9.6.8 Analysis Level 2 or 3:
   1. Pump can installation acceptance certification, per Section 43 23 03, if applicable.
   2. Results of field vibration tests, per Section 43 23 03.

K. The qualifications of the independent testing laboratory and individual personnel proposed by the Manufacturer to perform field vibration testing, analysis, and reporting in accordance with the requirements of Section 43 23 03.

L. The qualifications of the personnel proposed by the Contractor to perform field alignment procedures in accordance with the requirements of Section 43 23 03.

M. Submit the following in accordance with Section 01 78 23 “Operation and Maintenance Data”:
   1. Submit Manufacturer’s complete parts list showing all parts, spare parts, and bulletins for pump. Clearly show all details, parts, and adequately describe parts or have proper identification marks. The parts lists shall be printed on high quality 8-1/2 by 11 inch paper, bound separately of the Operation and Maintenance Manual with a flexible, durable cover. Drawings incorporated in the parts lists may be reduced to page size provided they are clear and legible, or they may be folded into the bound lists to page size. Photographs or catalog cuts of components may be included for identification.
   2. Parts List.
   3. Pump Field Test Reports.
   4. Design Data Computations.
   5. Factory Test Report: Submit a description of the factory test setup and test procedure proposed. Submit sufficient data and drawings to demonstrate that testing is in compliance with HI 11.6 and HI 14.6. Include sample calculations and proposed test log format. If the Manufacturer proposes a model test for a part or all of the specified performance tests, include in the submittal information the proposed model details and a complete description of the proposed method for comparing the model impeller profiles with the impeller profiles for the prototype pumps.
   6. Installation and Start-Up Engineer’s Report.

7. Operating and Maintenance Instructions.
8. Previously submitted data and drawings, with all comments addressed.
9. Product Warranty.

N. Submit Warranty in accordance with Section 01 78 23 “Operation and Maintenance Data”.
O. Submit storage recommendations.
P. Installation certification Section 43 05 11-Form A, per Section 43 23 03.

1.05 WARRANTY

A. The Manufacturer shall provide a written guarantee that the materials and the workmanship of the equipment supplied shall be free of defects for five (5) years from the date of initial start-up of the equipment or 66 months after delivery.
B. The primary effluent pump equipment Manufacturer shall provide a written guarantee regarding the performance of the units. The guarantee shall state that each unit will reliably and continuously pump primary effluent wastewater in accordance with the performance requirements set forth in Table 1 of this specification. The warranty shall also cover all defects or failures of materials or workmanship, which occur as the result of normal operation and service.
C. At the request of the Owner, Manufacturer shall promptly, at no cost of the Owner, either repair or replace (including prepayment of all packing and transportation costs) any equipment, materials, services, or work covered by the written warranty.

1.06 DESIGN REQUIREMENTS

A. Pump design requirements are shown below.

ITEM	VALUE
Equipment No.	P160101 P160102 P160103 P160104 P160105 P160106
Type	Submersible, explosion proof
Operating speed (Constant or variable)	Variable
Minimum Pump Efficiency at Rated Conditions	75%
Maximum Operating Speed, rpm	900

B. Pump required performance parameters are shown below.

ITEM	VALUE
Equipment No.	P160101 P160102 P160103 P160104 P160105 P160106

ITEM	VALUE
Equipment No.	P160101 P160102 P160103 P160104 P160105 P160106
Full-speed operation, Condition A [1,5]	
Capacity, gpm	16,220
Total head, feet	9.7
NPSHA, feet	31.6
Full-speed operation, Condition B [2,5]	
Capacity, gpm	16,960
Total head, feet	7.0
NPSHA, feet	33
Reduced-speed operation, Condition C [3,5]	
Capacity, gpm	10,510
Total head, feet	6.8
NPSHA, feet	33.6
Reduced-speed operation, Condition D [4,5]	
Capacity, gpm	9,420
Total head, feet	7.3
NPSHA, feet	32.2

Notes:

1. Condition A shall be taken as the rated operating condition. Performance at the rated condition shall be guaranteed in accordance with Section 43 23 03. Condition A has been selected to obtain the rated pumping capacity for the installation. It is not intended that the pumps be selected for maximum efficiency at Condition A. Pumps furnished under this section shall be selected to achieve Condition A performance, and also shall operate continuously without objectionable vibration or cavitation at the head specified under Condition B. Condition A may be located in the Allowable Operating Region as established by the pump Manufacturer in accordance with ANSI/HI 9.6.3 and published in the Manufacturer's published application data for the specific model proposed for this application.

2. Condition B head is presented to indicate operating conditions when the pump is operating at maximum speed against minimum anticipated system head, assuming a hypothetical head-capacity curve. Condition B shall be used for pump selection. Condition B shall be located within the Preferred Operating Region as established by the pump Manufacturer in accordance with ANSI/HI 9.6.3 and listed in the Manufacturer's published application data for the specific model proposed for this application. Pumps with head-capacity curves steeper than that assumed will produce somewhat less flow at somewhat lower head. The reverse will occur with pumps having a shallower head-capacity curve. Proposed pump selections meeting this discharge head requirement by operating the equipment at less than full speed will be rejected.

3. Condition C is the anticipated continuous duty minimum speed condition at minimum expected TDH. Pumps furnished under this specification shall be capable of sustained (24 hours per day) operation at this condition within the requirements set forth in Section 43 23 03. Condition C shall be located within the Preferred Operating Region as established by the pump Manufacturer in accordance with ANSI/HI 9.6.3 and listed in the Manufacturer's published application data for the specific model proposed for this application.

4. Condition D is the anticipated continuous duty minimum speed condition at maximum expected TDH. Pumps furnished under this specification shall be capable of sustained (24 hours per day) operation at this condition within the requirements set forth in Section 43 23 03. Condition C shall be located within the Preferred Operating Region as established by the pump Manufacturer in accordance with ANSI/HI 9.6.3 and listed in the Manufacturer's published application data for the specific model proposed for this application.

5. Total head in the above tabulation is the algebraic difference between the discharge head and suction head as defined in ANSI/HI 1.1 – 1.6. Net positive suction head available (NPSHA) in the above tabulation is referred to the pump inlet piping at centerline elevation as shown and is calculated in accordance with ANSI/HI 1.3 for average barometric pressure and maximum temperature conditions. NPSHA at the pump impeller eye can be determined by adjusting the given value by proposed pump dimensions and the indicated requirements for pump installation details. An allowance of five feet has been included for the presence of volatile constituents in the pumped fluid. Required NPSHA margin shall be as specified in Section 43 23 03.

C. Pump materials and construction shall be compatible with operation for primary effluent wastewater flow downstream of primary clarification.
D. Pump shall meet all requirements of HI Standards.

1.07 SYSTEM DESCRIPTION

A. General Project Requirements

1. Manufacturer shall design and furnish, for installation by the Contractor, six (6) identical submersible non-clog mixed flow pumping units for the Primary Effluent Pump Station as shown in Reference Drawings. Services shall also include installation instructions, startup, and operations and maintenance training. Water pumped will not exceed 100 degrees F, will be relatively turbid, has been pretreated as described in paragraph 1.03 but may contain residual levels of grit, suspended solids and trash.

B. Pumping Unit Description

1. In general, each pumping unit includes a pump/motor, discharge tube, soleplate, lifting chain, cable, and equipment specific instrumentation. Each pump shall be of the vertical, axial or mixed-flow submersible type for wastewater service attached to the same shaft with a submersible electric motor. The pump/motor shall be electrically operated, through the use of a variable frequency drive (VFD), and installed in a discharge tube. Except as otherwise stated or noted, the terms pump and pump/motor both refer to a pump/motor integral unit. The VFD will be provided by others.

2. General Design Requirements

a. Each pump shall meet head, capacity, speed, efficiency, pump sump design, range of operation, cavitation, and vibration requirements as specified.

b. Design each pump for runaway speed as calculated by the Manufacturer for the system shown and specified. The reverse speed shall be calculated assuming power failure and discharge valves fail to close.

c. Each pump shall, as a minimum, meet the applicable design, materials, and manufacture requirements of HI 1.3, HI 2.3, HI 9.1-9.5 and these specifications.

d. Each pumping unit design and performance shall have been demonstrated by previous successful operation of pumps of the required type and of equal design complexity by the Manufacturer.

e. Each pump shall operate in a discharge tube. The discharge tube shall fit within the dimensions shown so that installation and maintenance can be carried out by an overhead monorail. The weight of each pump/motor integral unit shall not exceed 3,000 pounds. The Manufacturer shall ensure that the equipment does not exceed the space allocation shown and provide the Manufacturer with Contract Drawings where necessary.

f. Each pump shall be designed for the calculated hydraulic pressure to which the pump parts are exposed.

g. The pump losses, as calculated by the Manufacturer, are in addition to the specified head and shall be allowed for when computing the pump system output.

h. Each pump shall have a continuously rising head characteristic with decreasing capacity over the required range of operation specified. The pump shall not have an unstable operating characteristic over the required range of operation.

i. Each pump shall meet all requirements for net positive suction head required (NPSHR) and operate without surging.

j. Associated pumping equipment including, but not limited to, electrical controls and instrumentation shall be suitable for indoor or outdoor operation.

C. Operating Conditions

1. Each pump shall be suitable for continuous operation at full load when the motor is completely submerged.
2. The pump Manufacturer shall establish and state in the operating manual the procedures for starting and stopping the pumps, including any sequential operations.
3. The pump Manufacturer shall provide the Contractor with pump and motor operational and starting characteristics for cooordination with adjustable-frequency drive settings used for control of this equipment. Include the following:
   a. Motor minimum operational speed.
   b. Motor maximum operational speed.
   c. Motor ramp-up and ramp-down speed, voltage, and hertz requirements.
   d. Other operating limits that are imposed by the driven equipment for operation and warranty.

D. Performance Requirements: NOT USED

1.08 QUALITY ASSURANCE

A. Pump Manufacturer Qualifications: The pump Manufacturer shall have overall responsibility to supply the pumping unit (submersible pump/motor, discharge tube, soleplate, cables, instrumentation and accessories) that meet the requirements of this specification. Thus, during start-up, installation, and performance evaluation, the pump Manufacturer shall be the sole responsible party.

B. Installation and Start-up Engineer: Manufacturer shall furnish a competent installation and start-up engineer fluent in the English language who is knowledgeable and experienced with the installation and start-up procedures for submersible pumps and the associated equipment specified. When so requested, the installation and start-up engineer shall be responsible for providing complete and correct direction during installation, initial starting, and subsequent operation of equipment until field tests are completed. The installation and start-up engineer shall initiate instructions for actions necessary for proper receipt, inspection, handling, uncrating, assembly, and testing of equipment. The installation and start-up engineer shall also keep a record of measurements taken during erection and shall furnish one copy to the Engineer on request or on the completion of the installation of assembly or part. The erecting engineer shall instruct the Engineer or others as designated in the operation and maintenance features of the pump units.

C. The Manufacturer shall cause equipment assemblies made up of two or more components to be provided as a working unit by the unit responsibility manufacturer, where specified. The unit responsibility manufacturer shall coordinate selection, coordinate design, and shall provide all mechanical equipment assembly components such that all equipment components furnished under the specification for the equipment assembly, and all equipment components specified elsewhere but referenced in the equipment assembly specification, is compatible and operates reliably and properly to achieve the specified performance requirements. Unless otherwise specified, the unit responsibility manufacturer shall be the Manufacturer of the driven component equipment in the equipment assembly. The unit responsibility manufacturer is designated in the individual equipment specifications found elsewhere in this project manual. Agents, representatives or other entities that are not a direct division of the driven equipment manufacturing corporation shall not be accepted as a substitute for the driven equipment Manufacturer in meeting this requirement. The requirement for unit responsibility shall in no way relieve the Manufacturer of his responsibility to the Owner for performance of all systems as provided in the General Conditions of the Contract Documents.

1.09 FACTORY TESTS

A. NOT USED.

B. Performance Test: Test the pump at the Manufacturer's shop to demonstrate that the proposed pump operates without instability and complies with specified performance. Instability is defined when any point in usable range of the head-capacity curve cannot be repeated within 3 percent. When this occurs, the test shall be rerun. Compliance with specifications will be determined from curves required by the paragraph TEST RESULTS. Test procedures, except as herein specified, shall be in accordance with applicable provisions of HI 11.6. The temperature of the water used for testing shall be approximately the same for all test runs and shall be recorded during test runs.

   1. Performance of the Pump: Performance of the pump shall be determined by a series of test points sufficient in number to develop a constant speed curve over the range of total heads corresponding to the requirements of Paragraph 1.06. The test range shall include additional testing at total heads of 2 ft higher than that specified. The lowest total head for testing shall be, as a minimum, the total head determined from the referenced paragraph. If the test setup permits testing at lower total heads, the range of total heads shall be extended 2 ft lower. Testing shall be inclusive for the speed involved. Tests shall be made using heads and a suction water elevation. Test results with this sump elevation shall meet all specified conditions of capacity, head, and bhp. Head differentials between adjacent test points shall not exceed 3 ft, but in no case shall less than 10 points be plotted in the pumping range. If the plot of data indicates a possibility of instability or a dip in the head-capacity curve, a sufficient number of additional points on each side of the instability shall be made to clearly define the head-capacity characteristics.

   2. Test Results: Test results shall be plotted to show the total head, static heads, bhp, and efficiency as ordinates. The results should be plotted against pump discharge in gpm as the abscissa. Curves shall be plotted showing pump performance to a scale that will permit reading the head directly to 0.5 ft, capacity to 500 gpm, efficiency to 1 percent, and power input to 25 bhp. It shall be established that the performance requirements of these specifications and the warranties under this contract have been fulfilled. The performance test shall be made with the pump and motor assembled as an operating unit to simulate field installation unless otherwise approved in writing by the Engineer. Readings shall include one point each within 2 percent of the rated total head, minimum expected head, and maximum expected head. The test shall be conducted in accordance with accepted practices at full speed; and, unless otherwise specified, the procedure and instruments used shall conform to HI 11.6.

C. Cavitation Test: NOT USED.

D. Instrumentation and Procedures: Each instrument shall be described in detail, giving all data applicable, such as manufacturer's name, type, model number, certified accuracy, date of most recent calibration, coefficient, ratios, specific gravity of manometer fluid to be used, and smallest scale division. When necessary for clarity, a sketch of the instrument or instrument arrangement shall be included. A fully detailed narrative description of each proposed method of instrumentation, procedures to be used, and a sample set of computation shall be included. The lowest equivalent static head that is obtainable with the testing when operating along the head-capacity curve of the proposed pump shall be stated.

   1. Head Measurements: Head measurements shall be made using either a direct reading water column, mercury-air, mercury-water, a Meriam fluid manometer, or a

pressure transducer. Vacuums shall be measured with either a mercury-air manometer, a mercury-water manometer, or a pressure transducer. Fluctuations shall be dampened sufficiently to permit column gauges or a differential pressure transducer to be read to either the closest one one-hundredth (0.01) of 1 ft of water or Meriam fluid or one-tenth (0.1) of 1 inch of mercury. Manometers shall be used as indicated by ISA RP2.1. When pressure transducers are used, their accuracy shall be checked with a manometer.

2. Pump Capacity: Capacity shall be determined by a calibrated venturi flowmeter or a long-radius ASME flow nozzle. Orifice plates shall not be used. Venturi or nozzle taps shall be connected to column gauges equipped with dampening devices that will permit the differential head to be determined to either the closest one-hundredth (0.01) of 1 foot of water or one-tenth (0.1) of 1 inch of mercury. Magnetic flowmeters and flowmeters utilizing ultrasonic flow measurements will be acceptable if the calibration of the flowmeter has been completed within the last 6 months.
3. Rotational Speed of Pump: Rotational speed of the pump shall be measured in accordance with measurement of speed in HI 2.6, except that revolution counters shall not be used. The device used shall permit the speed to be determined to 1 rpm.
4. Power Input: Power input to the pump shall be measured in accordance with power measurements in HI 2.6. A method to permit bhp to be determined to the closest 0.5 bhp shall be used.

E. Witness Test: Factory tests shall be performed in the presence of the Owner or Engineer. When the Manufacturer is satisfied that the pump performs in accordance with the specified requirements, notify the Owner, two weeks in advance, that the witness tests are ready to be run and furnish two copies of curves required in paragraph TEST RESULTS above. Should the test reveal that the pump does not perform in accordance with the specifications, make necessary changes before again notifying the Owner that witness tests are ready to be run. Copies of all data taken during the testing and plotted preliminary curves shall be given to the Owner at the conclusion of the test.

F. Factory Test Report: Submit, within 30 days of receipt of approval of the witnessed factory test, three bound copies of a report covering test setup and performance tests. The factory test report shall include the specified information. Each factory test report shall include, as a minimum, the following:

1. Statement of the purpose of test, name of project, contract number, and design conditions. Instances where guaranteed values differ from specified values should be given.
2. Resume of preliminary studies, if such studies were made.
3. Description of pump and motor, including serial numbers, if available.
4. Description of test procedure used, including dates, test personnel, any retest events, and witness test data.
5. List of all test instruments with model numbers and serial numbers.
6. Sample computations (complete).
7. A discussion of test results.
8. Conclusions.
9. Photographic evidence in the form of either 24 color photographs of test equipment, test setup and representative test segments, or a digital recording, at least 30 minutes in length, covering the same information as photographs. All photographic evidence should be labeled with contract number, location, date/time, and test activity. Videotape shall be voice annotated with the same information.

10. Copies of instrument calibration records.
11. Copies of all recorded test data.
12. Curves required by the this specification.
13. Curves showing the performance of the prototype pump.
14. Drawings of the test set-up showing all pertinent dimensions, elevations and cross section of the pump.

1.10 DELIVERY, STORAGE, AND HANDLING

A. The Manufacturer shall be responsible for delivery of the primary effluent pump equipment to the Owner project site in Salt Lake City, Utah. The Manufacturer shall insure the equipment for loss or damage while the equipment is being transported to the Owner's site.
B. Each individual shipment shall be packaged in a manner designed to protect the equipment against damage caused by handling, loading, or unloading. All damage shall be repaired to the satisfaction of the Owner prior to installation of the equipment. The cost of repairs, disassembly, and/or reassembly shall be borne by the Manufacturer.
C. The Manufacturer and Contractor shall inspect the PEPS Pumping Equipment for damage or other distress when received at the project site. The Contractor shall store the pump and associated equipment indoors as recommended by the pump Manufacturer, protected from construction or weather hazards at the project site. The pump and equipment shall have adequate short-term storage in a covered, dry, and ventilated location prior to installation. Contractor shall follow the Manufacturer's instructions for extended storage. Proper equipment for handling the pump shall be supplied and shall be considered as special tools if not completely standard. Contractor shall follow the Manufacturer’s recommendations for handling of the pump.

1.11 EXTRA MATERIALS

A. Furnish the following spare parts:
   1. Complete list of recommended spare parts, current price list and ordering information.
   2. One complete set of O-rings/gaskets, bearings and seals.
   3. Replacement case wear ring.
   4. Six discharge tube sealing O-rings
   5. One impeller.
B. Furnish one set of all special tools required to completely assemble, disassemble, or maintain the pumps. Special tools refers to oversized or specially dimensioned tools, special attachment or fixtures, or any similar items. Lifting devices required for use in conjunction with pump removal using an overhead monorail shall be furnished.

PART 2 PRODUCTS

2.01 MATERIALS

A. The pumps shall be designed and manufactured by a firm that is regularly engaged in the manufacture of the type of pump described in these specifications. Provide materials and fabrication conforming to the requirements specified herein and additional specified requirements. Classifications and grade of material incorporated in the work shall be in

accordance with designated specifications. Submit deviations from the specified materials during submittal process.

B. Identify the pumping unit by means of a separate nameplate permanently affixed in a conspicuous location. The plate shall bear the manufacturer's name, model designation, serial number, if applicable, and other pertinent information such as horsepower, speed, capacity, type, and direction of rotation. The plate shall be made of corrosion-resistant metal with raised or depressed lettering and a contrasting background.

C. The pumping unit shall be equipped with suitably located instruction plates, including any warnings and cautions, describing any special and important procedures to be followed in starting, operating, and servicing the equipment. Plates shall be made of corrosion-resistant metal with raised or depressed lettering and a contrasting background.

2.02 METALWORK FABRICATION

A. The materials of construction shall comply with the following:

PART	MATERIAL
Suction Bell	Cast iron or stainless steel plate
Pump Bowl	Cast iron, cast steel or stainless steel plate
Propeller	Cast iron or stainless steel
Pump/Motor Shaft	High strength carbon steel or stainless steel
Wearing Ring	Stainless Steel (Manufacturer's standard)
Bolts, Key, etc.	Stainless steel, Type 316
O-rings	Nitrile rubber
Mechanical seals	Silicon or tungsten carbide
Discharge tube and Soleplate	Stainless steel, Type 316
Pump Case	Cast iron or stainless steel
Motor Housing	Cast iron or stainless steel

B. Designated Materials: Designated materials shall conform to the following specifications, grades, and classifications. Ensure that wetted cast-iron parts have 2 to 3 percent nickel added to the cast iron.

MATERIALS	SPECIFICATION	GRADE, CLASS
Aluminum-Bronze	ASTM B148	Alloy No. C95500 Castings
Cast Iron	ASTM A48/A48M	Class Nos. 30A, 30B, and 30C
Cast Steel	ASTM A27/A27M	Grade 65-35, annealed
Polyeurethane or epoxy based coating		
Cold-Rolled Steel Bars	ASTM A108	min, Wt. Strm 450 MPa 65,000 psi
Copper Alloy Castings	ASTM B584	Alloy No. C93700
Corrosion-Resistant Alloy Casting	ASTM A297/A297M	Grade CA-15, CAGNN and CF-8M
Dimensions for Steel Water Piping Fittings	AWWA C208	
High Strength Carbon Steel	ASTM A572	
Hot-Rolled Stainless	ASTM A576	Graded G10200, G10450, and G11410

Ring Flanges	AWWA C207	Class B
Rubber Products in Automotive Applications	ASTM D2000	
Seamless and Welded Austenitic Stainless Steel Pipe	ASTM A312/A312M	
Stainless Bars and Shapes	ASTM A276	Grades S30400 and S41000
Steel Forging	ASTM A668/A668M	Class F
Steel Pipe 150 mm 6 inch and Larger	AWWA C200	
Steel Plates, Pressure Vessel	ASTM A516/A516M	Grade 55
Steel Plate	ASTM A242/A242M	
Stainless Steel Plate	ASTM A167	UNS S30400 or
	ASTM A176	UNS S40500
Quality Steel	ASTM A36/A36M	
Surface Texture	ASME B46.1	

C. Bolted Connections

1. Bolts, Nuts, and Washers: Bolts, nuts, and washers shall conform to requirements herein specified and the paragraphs SUBMERSIBLE PUMP, DISCHARGE TUBE AND DISCHARGE CONNECTION, and the subparagraph, NUTS AND BOLTS for types required. Use beveled washers where bearing faces have a slope of more than 1:20 with respect to a plane normal to bolt axis.
2. Materials Not Specifically Described: Materials not specifically described shall conform to the latest ASTM specification or to other listed commercial specifications covering class or kinds of materials to be used.
3. Flame Cutting of Material: Flame cutting of material, other than steel, shall be subject to the approval of the Engineer. Shearing shall be accurately done, and all portions of work neatly finished. Steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a smooth surface free from cracks and notches is secured. Surfaces and edges to be welded shall be prepared in accordance with Section 3 of AWS D1.1/D1.1M. Chipping and/or grinding will not be required except where specified and as necessary to remove slag and sharp edges of technically guided or hand-guided cuts not exposed to view. Visible or exposed hand-guided cuts shall be chipped, ground, or machined to metal free of voids, discontinuities, and foreign materials.
4. Alignment of Wetted Surfaces: Exercise care to ensure that the correct alignment of wetted surfaces being joined by a flanged joint is being obtained. Where plates of the water passage change thickness, provide a transition on the outer surface, leaving the inner surface properly aligned. When welding has been completed and welds have been cleaned, but prior to stress relieving, joining of plates shall be carefully checked in the presence of the Engineer for misalignment of adjoining parts.

2.03 SUBMERSIBLE PUMP

A. Design and Manufacture

1. At the Manufacturer's option, the submersible pump may be either of cast or fabricated construction. The level of manufacture skill shall be consistent with the

standards referenced in the specifications. All work performed in the manufacture of the pumps shall be in a skillful and workmanlike manner in accordance with the best modern shop practice and manufacture of finished products similar in nature to those specified herein. The Owner reserves the right to observe and witness the manufacture of the pumps and to inspect the pumps for compliance with contract requirements during factory assembly.

a. Approved Manufacturers/Models:
   1) Flygt PL7065
   2) KSB Amacan PA4 700-470
   3) Sulzer VUPX 0601
   4) Engineer-Approved Equal

2. Speed
   a. Pump Speed: Rotative speed of the pump shall not be greater than 900 rpm.
   b. Runaway Speed: The pump shall be designed to sustain full runaway speed without damage at maximum head difference across the pump. Based on the system design as shown by the drawings the Manufacturer shall compute the maximum reverse runaway speed, and the pump and motor shall be designed to sustain that reverse rotation without damage.

3. Pump Construction
   a. General: The major pump components shall be of materials as described in Paragraph 2.02. All the exposed nuts and bolts shall be stainless steel. All mating surfaces, where watertight sealing is required, shall be machined and fitted with nitrile rubber O-rings. The fitting shall be such that the sealing is accomplished by metal-metal contact between machined surfaces which results in controlled compression of the O-rings. Sealing compounds, grease, or secondary devices are not acceptable.
   b. Pump Lifting Handle and Lifting Lugs: The lifting handle shall be designed to bear the entire weight of the pumping unit at a conservative factor of safety. Lifting lugs shall be provided where the weight of the separate part requires a lug. The working load of the lifting system shall be at least 50% greater than the pump unit weight.
   c. Pump and Motor Bearing Arrangement: The pump and motor bearings shall be the standard design of the Manufacturer for the pump supplied under this specification. The type and number shall be of proven design as used in previous operating units supplied by the Manufacturer. The bearings shall be of the grease lubricated and sealed type. The bearings shall have a minimum ABMA L-10 bearing life of 100,000 hour. Each bearing shall be of the correct design to resist the radial and thrust loads applied. Bearing design shall ensure the pump rotating elements are supported so that the possibility of excessive vibration is eliminated. Ball and roller bearings life and load ratings shall conform to ABMA 9 and ABMA 11. Unless otherwise specified, fit pump and motor bearings with bearing isolators, specifically selected for the size and type of bearing. Provide bearing isolators that are the labyrinth, non-fretting type designed to expel contaminants by centrifugal force and prevent the escape of lubricants. Provide vapor-block capability. Ensure that the bearing seals are Inpro/Seal, or an approved equal.
   d. Mechanical Seals: A mechanical rotating shaft seal system shall be provided between the impeller and motor to ensure the motor housing seal. The mechanical seals shall be in tandem, lapped and face type seals running in

lubricant reservoirs for cooling and lubrication. The mechanical seals shall contain both stationary and rotating tungsten or silicon carbide face rings unless otherwise specified. In order to avoid seal failure from sticking, clogging, and misalignment from elements contained in the pumped liquid, only the seal faces of the outer seal assembly and its retaining clips shall be exposed to the flow. All other components shall be contained in the lubricant housing. All seal faces must be solid material capable of being relapped. The seals shall require neither maintenance nor adjustment, but shall be easy to check and replace. Shaft seals without positively driven rotating members shall not be considered acceptable or equal.

e. Lubricant Housing: Provide an oil housing with oil, as recommended by the pump Manufacturer, to lubricate the shaft sealing system and to dissipate the heat generated by the motor and bearings.

f. Impeller: The impeller design and manufacture shall be the Manufacturer's standard for self-cleaning technology. The impeller surface shall be smooth, without holes and fabrication offsets. The attachments to shaft shall be with keys or other fasteners which are to be made of stainless steel. The attachment should be of sturdy construction designed to not loosen, but be easily removed for maintenance. The impeller construction may be cast or fabricated. At the time of assembly the impeller clearances shall be those shown on assembly drawings and may be checked in the field or at the factory at the Engineer's option. The impeller shall be dynamically balanced at the design operating speed. The standard balance quality grade is G6.3 in accordance with ASA S2.19. Balancing procedure shall be in accordance with HI 9.6.4, except that a two-plane balance shall be required.

g. Shaft: The shaft shall be one piece integral with the motor of high-strength cold-rolled carbon steel or stainless steel with a factor of safety of five measured against the ultimate strength. The shaft shall be designed for all torque conditions during normal operation and for runaway speed during reverse flow.

h. Bowl Assembly: The bowl assembly may be of cast or fabricated manufacture. The hydraulic design shall be the Manufacturer's standard design as used in previous operating installations. The general manufacture quality relating to flange design, drilling, bolts, alignments, etc., shall be in accordance with industry standard practice.

i. Wear Rings: A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impeller. Each pump shall be equipped with a brass ring insert that is drive fitted to the volute inlet. The pump shall also have a stainless steel impeller wear ring heat-shrink fitted onto the suction inlet of the impeller.

4. Motor

a. General: The motor shall be submersible and conform to the requirements of NEMA MG 1. Motor shall be inverter duty rated for operation with a VFD. The motor shall be sized to avoid overload when operating at any point along the characteristic curve of the pump. Maximum motor horsepower shall be 100 horsepower. The motors shall be 3-phase, 60-Hz, 460 V, squirrel cage induction type, NEMA Design B Type. The stator windings and stator leads shall be insulated with a moisture-resistant Class H insulation with temperature resistance of 356 degrees F. The service factor shall be 1.15. The temperature rise above ambient for continuous full load rated conditions and for the class of insulation used shall

not exceed the values in NEMA MG 1. The motor shall be rated for continuous duty when submerged and shall also be capable of operation in the dry for short periods of time for testing and maintenance purposes. The motor shall be suitable for up to 10 evenly spaced starts per hour.

b. Torque: Starting torque shall be sufficient to start the pump, but in no case less than 60 percent of full-load torque. Break-down torque shall not be less than 150 percent of full-load torque.

c. Support: Thrust bearing support shall have sufficient strength and rigidity to support the weight of the entire rotating element of the motor, pump impeller and shaft, and the hydraulic thrust.

d. Environmental Rating: Motors shall be Factory Mutual or UL listed in accordance with UL 674 and 1207 for Class I, Group D hazardous atmospheres.

e. Sensors: The following sensors shall be provided:

1) Temperature Sensors:

a) Three (3) bi-metallic type thermal switches in the stator windings, one per phase, connected in series, to protect the motor against overheating.

2) PT100 (RTD) type temperature sensor in the stator winding for remote continuous monitoring of motor temperature.

3) Moisture Detection Sensors:

a) Moisture sensor/switch positioned to sense between the bearings and the stator-end coils for detection of liquid penetratating the stator housing. Switch shall be normally closed, dry contact, type rated for 3A at 24Vdc.

b) Float switch type sensor/switch to detect if liquid penetrates the junction chamber. Switch shall be normally closed, dry contact, type rated for 3A at 24Vdc.

f. External instrument enclosure: An enclosure, housing relays required for sensor integration with the plant control system, will be provided by the Contractor separately.

5. Cable

a. Power and instrumentation cable shall be specifically designed for use with a submersible pump application and shall conform to the requirements of NEMA WC 70 and NEMA WC 72, as well as receiving P-MSHA approval. Submersible cable shall be suitable for continuous submersion in water at the maximum depth encountered. Cable shall have an ampacity of not less than 125 percent of the motor full load current. The cable length shall be determined by the pump Manufacturer for the installation shown but shall not be less than 50 feet. Cable length shall include sufficient slack for maintenance withdrawal and sufficient slack to coil and support cable at disconnect such that weight of cable is not imposed on disconnect terminals.

b. Power and instrumentation cables shall enter the motor through a sealing system that prevents water entry into the unit and provides strain relief. The cable entry may be comprised of rubber bushings, flanked by stainless steel washers, having a close tolerance fit against the cable outside diameter and the entry inside diameter for sealing by compression of the bushing, or the entry may be sealed by other gland compression methods.

c. Provide a cable protection and suspension system for in-discharge tube cable runs.

6. Pump Sensors
    a. The following pump sensors shall be provided: PT100 (RTD) type temperature sensor to monitor the lower thrust bearing.
    b. Manufacturer shall coordinate pump sensor monitors with the Owner.
7. Moisture Detection: A water-in-oil detector in the seal chamber.
8. External instrument enclosure: An enclosure housing relays required for sensor integration with the plant control system will be provided by the Contractor separately (same as motor).

2.04 DISCHARGE TUBE AND SOLEPLATE

A. General
    1. The design, manufacture and installation of the discharge tube and soleplate shall be in accordance with the pump Manufacturer's instructions and Section 43 05 13. For purposes of performance and this specification it shall be treated as part of the pumping unit. The discharge tube shall be of such size to accommodate the dimensions of the pump supplied in accordance with the Manufacturer's requirements. It shall be permanently installed in the pump sump as shown on the attached Drawings.
    2. The design shall be such that the pumps will be automatically and firmly connected to the discharge tube when lowered into place and shall be in accordance with the pump Manufacturer's instructions. A locking device shall be provided that prohibits rotational movement of the pump within the tube.
    3. The pumps shall be easily removable for inspection or service without need to enter the pump sump. The pumps shall not require any bolts, nuts, or fasteners for connection to the discharge housing. Stiffening, guides, or other features shall be provided at the pump support to ensure concentric positioning of the pump in the discharge tube. Means shall be provided such that an effective seal is obtained between the pump and discharge tube.
B. Flanged Joints: Design flanged joints to be airtight and watertight, without the use of preformed gaskets, except that the use of a gasketing compound will be permitted. Mating flanges shall be male/female rabbet type or doweled with not less than four tapered dowels equally spaced around the flange. Flanges and drill bolt holes shall be machined concentric with the centerline, having a tolerance of plus or minus 1/4 of the clearance between the bolt and the bolt hole. When fabricated from steel plate, flanges shall not be less than 1-1/2 inch thick after machining. Flange machining shall not vary more than 10 percent of the greatest flange thickness. Fabricated flanges, as a minimum, shall be constructed to the dimensions of AWWA C207, Class B. Flanges shall be connected to the discharge tube and soleplate with two continuous fillet welds, one at the inside diameter of flange-to-pump-tube and the other at the outside diameter of pump-tube-to-flange. Weld design shall be the pump Manufacturer's responsibility. Mating flanges shall be machined parallel to a tolerance of 0.002 inch. The machine mating flange surface shall be finished to 125 microns or better.
C. Nuts and Bolts: Nuts and bolts shall be of the hexagonal type. Nuts, washers, and bolts, including assembly, anchor, harness, and dowels, shall be 316 series stainless steel. Apply antisieze compound to nuts and bolts.
D. Bolted Lid: NOT USED.
E. Dissimilar Metals: When dissimilar metals are used in intimate contact, suitable protection against galvanic corrosion shall be applied. The anodic member shall be protected by proper electrical insulation of the joint.

2.05 INTAKE DESIGN

A. General: The Owner will contract with Utah Statue University's Water Laboratory to conduct a physical model study of the selected pump including the pump configuration, tube size, and the inlet bell diameter. The slected Manufacturer shall support the Owner and the Engineer in completing the physical model study by providing requested information for the physical model study. The Manufacturer shall modify the design per the results of the physical model study.

2.06 SHOP ASSEMBLY

A. The discharge tube and soleplate shall be assembled in the Manufacturer's plant to ensure the proper fitting and alignment of all parts. Prior to disassembly, all parts shall be match-marked to facilitate the correct assembly in the field.

PART 3 EXECUTION

3.01 INSTALLATION

A. The Contractor shall perform correct installation and assembly of the pumping unit in accordance with the drawings and with the Manufacturer's installation instruction manual. Submit, no later than 30 days prior to time of pump delivery, three copies of a typed and bound, and one electronic copy, of the installation manual describing procedures to be followed by the Contractor in assembling, installing, and dry- and/or wet-testing the pump. Coordinate and consolidate the description of the pump with similar descriptions for other specified pump parts. The description shall be of such a nature that it may be comprehended by an engineer or mechanic without extensive experience in erecting or installing pumps of this type. The description shall be a step-by-step explanation of operations required, and shall include, where applicable, such as alignment procedures, bolt torque values, recommended instrument setups, recommended gauges and instruments, and similar details. Furnish all bolts, shims, tools, and other devices necessary for installing the pumping units. The Manufacturer's representative(s) familiar with the equipment being installed shall supervise the handling, installation, start-up, and testing of the equipment as required in Paragraph 1.08.

3.02 CLEANUP PRIOR TO START

A. After the pumping unit is installed and prior to start-up, complete clean-up of the sump area of any accumulated construction debris shall be performed. This final cleaning of the sump area will be witnessed by a representative of the Owner. Any damage to the pumping units or related equipment during initial start-up due to foreign objects left in the sump areas shall be corrected at the Contractor's expense.

3.03 PUMP FIELD TESTS

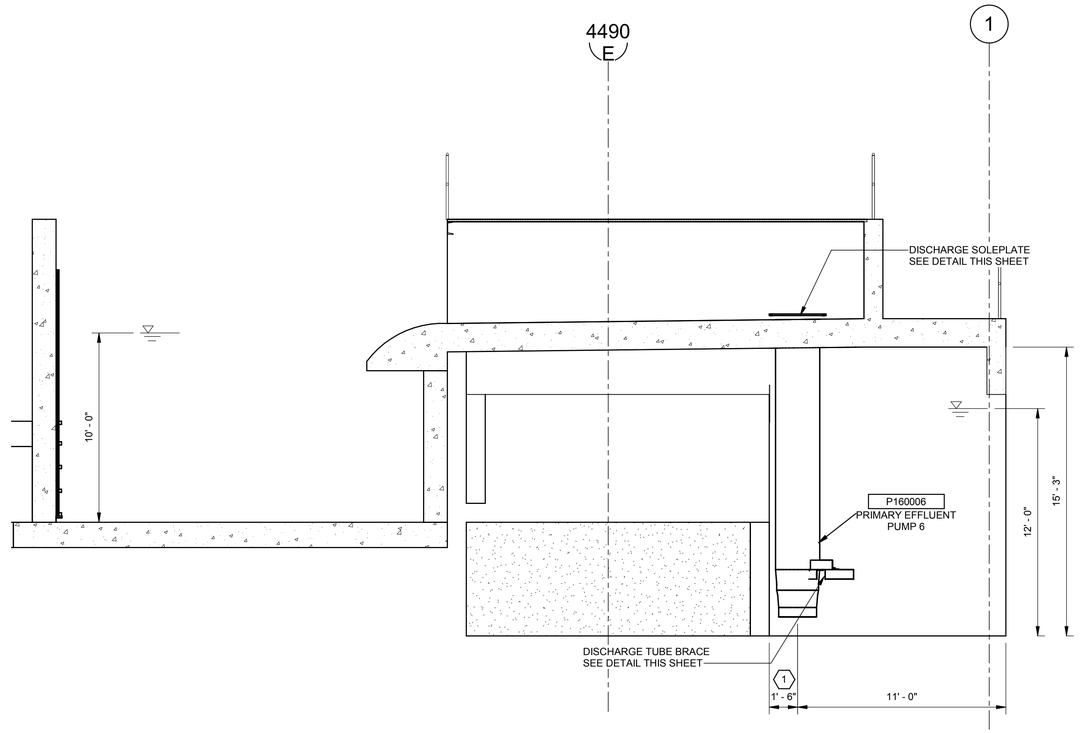
A. Submit a field test plan prior to field testing. Field testing shall be conducted by an experienced field test engineer and will be witnessed by the Engineer and Owner. Before initially energizing the pump/motors, ensure that all pumping plant control, monitoring, and protective circuits have been successfully tested. This thorough electrical checkout procedure shall have followed a detailed step-by-step approved test plan. The motor and other pumping unit elements undergoing tests should also be checked at this time. Field test the plan prior to field testing.

B. Dry Test: NOT USED.
C. Wet Test: Each unit shall be given an operating test under load for a period as directed by the Engineer. Conduct the tests to be witnessed by the Owner. During the tests, the operation of the pumping units shall be observed and measurement of noise (in accordance with HI 9.1-9.5), motor-bearing temperatures, voltage, and current shall be recorded for each pump. Measured parameters shall be within the Manufacturer's published limits. Vibration measurements shall be made at the top of the discharge tube for each pump. Vibration limits shall not exceed those recommended by HI 9.6.4.
D. Field Test Report: Prepare and submit five (5) copies of the field test report and an operation and maintenance manual for the completed system. Report shall be in accordance with Section 01 75 16 "Starting of Systems". Submit five (5) hard copies and one (1) electronic copy of the operation and maintenance manual containing complete information on operation, lubrication, adjustment, routine and special maintenance disassembly, repair, reassembly, and trouble diagnostics of pump and auxiliary equipment. The operation and maintenance manual shall be printed on high quality 8-1/2 by 11 inch paper, bound separately from the parts list, and bound between a flexible, durable cover. Drawings incorporated in manual may be reduced to page size provided they are clear and legible, or they may be folded into the manual to page size. Photographs or catalog cuts of components may be included for identification.

3.04 PAINTING

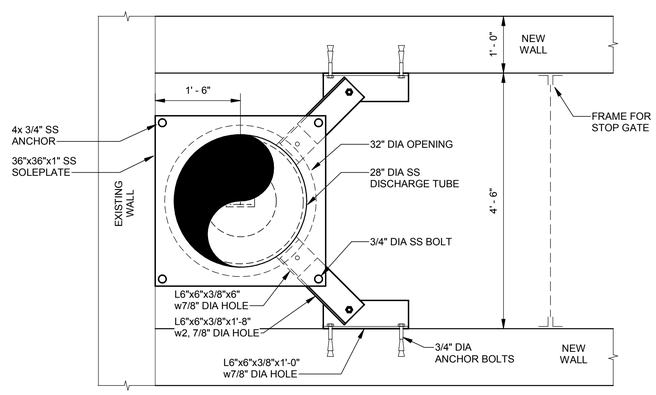
A. Paint the pump/motor with a coating system using either a high performance corrosion resistance polyeurethane or epoxy based product approved by the coating manufacturer for continuous submersion in wastewater.

END OF SECTION



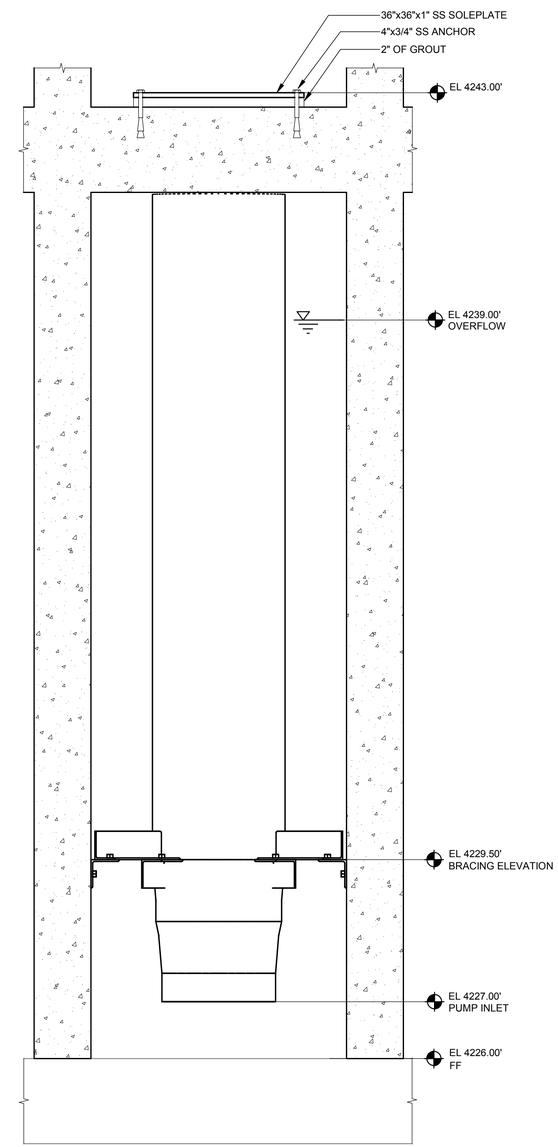
SECTION

SCALE: 1/4" = 1'-0"



DISCHARGE TUBE BRACE DETAIL

SCALE: 3/4" = 1'-0"



SECTION

SCALE: 3/4" = 1'-0"

GENERAL NOTES:

1. X

KEYNOTES:

1 ENGINEER WILL VERIFY THIS DIMENSION WITH PHYSICAL MODEL STUDY

Brown AND Caldwell

Brown & Caldwell
6975 Union Park Center
Salt Lake City, UT

60% Preliminary Design

C V W R F

NUTRIENT COMPLIANCE DESIGN

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: M. KOBE
DRAWN: T. LEMON
CHECKED:
CHECKED:
APPROVED: M. KOBE

FILENAME
151600-M-16V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
151600

PROCESS

PRIMARY PUMP STATION SECTIONS 1

DRAWING NUMBER
P-16-3001

326 SHEET NUMBER OF 682

Path: BIM 360://151600 - CVWRF Nutrients/151600-P-16V18.rvt
Plot Date: 1/4/2019 12:08:11 PM

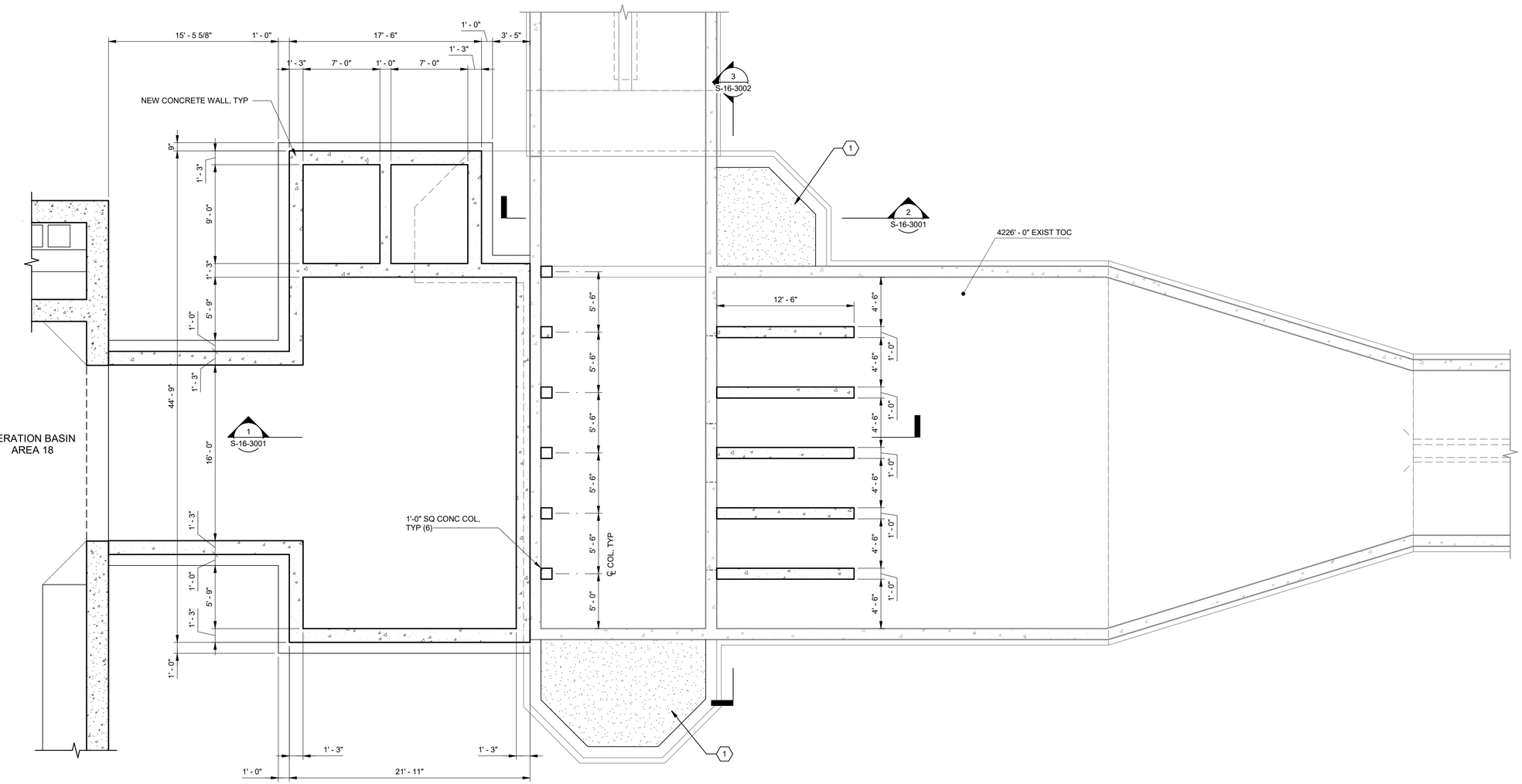
GENERAL NOTES

1. SEE S-00-501 AND S-00-502 FOR STANDARD CONCRETE DETAILS.
2. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
3. SEE DETAIL --/-- FOR SLIDE GATE FRAME DETAILS, TYP.

* VERIFY WITH APPROVED EQUIPMENT SUBMITTAL.

KEYNOTES:

1 FILL VOID WITH LOW DENSITY CELLULAR CONCRETE FILL, SEE SPECIFICATION SECTION 03 60 80 FOR MORE INFORMATION. VOIDS TO BE FILLED PRIOR TO INSTALLATION OF NEW STRUCTURE.



INTERMEDIATE PUMP STATION FOUNDATION PLAN

SCALE: 3/16" = 1'-0"

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Brown & Caldwell
6975 Union Park Center
Salt Lake City, UT

60% Preliminary Design

C V W R F

NUTRIENT COMPLIANCE DESIGN

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-16V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
151600

STRUCTURAL

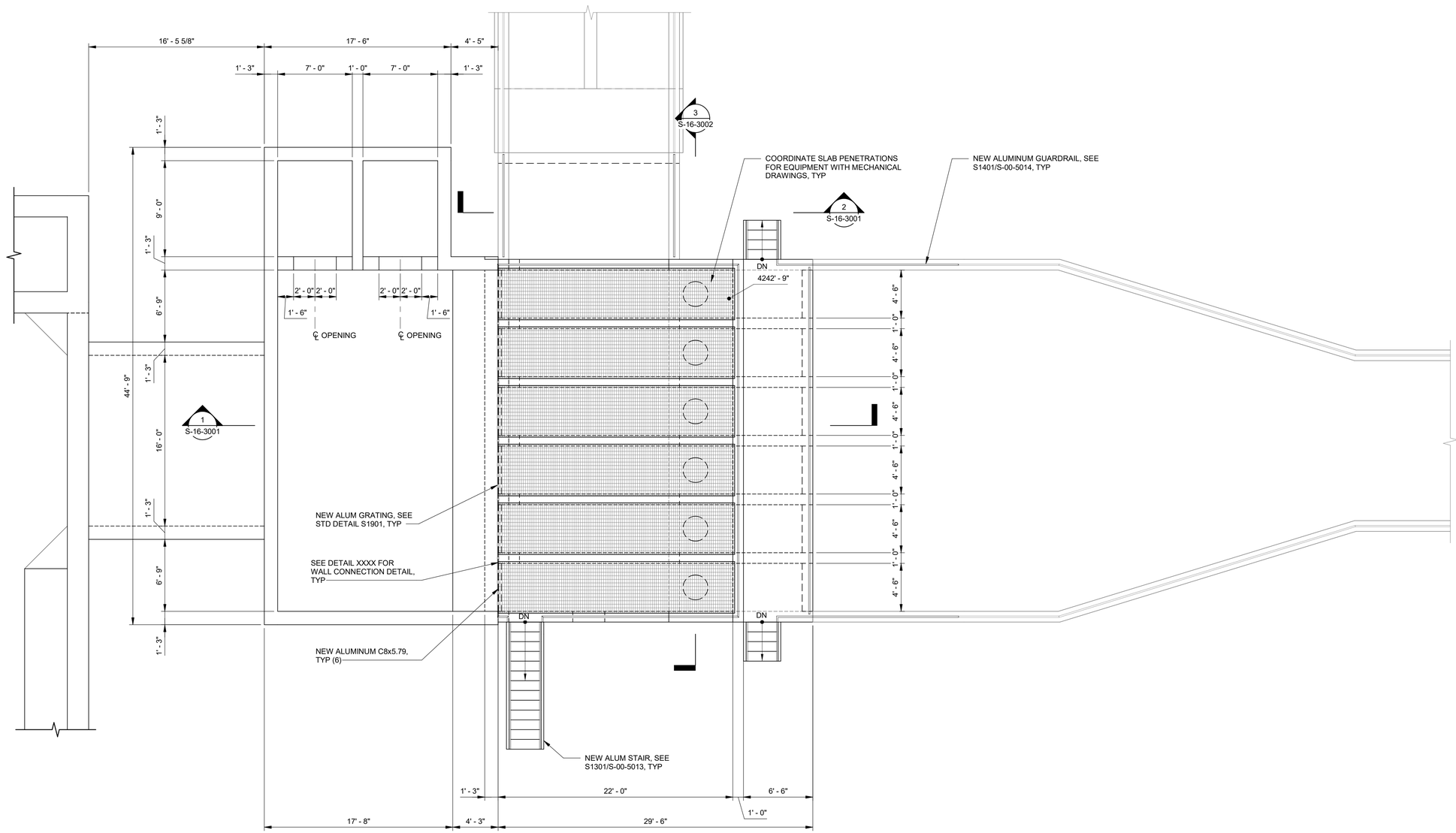
PRIMARY EFFLUENT PUMP STATION LOWER PLAN

DRAWING NUMBER
S-16-1001

219 SHEET NUMBER OF 682

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-16V18.rvt

Plot Date: 1/3/2019 11:12:54 AM



INTERMEDIATE PUMP STATION UPPER PLAN

SCALE: 3/16" = 1'-0"

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Salt Lake City, UT

60% Preliminary Design

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NUTRIENT COMPLIANCE DESIGN

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-16V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
151600

STRUCTURAL

PRIMARY EFFLUENT PUMP STATION UPPER PLAN

DRAWING NUMBER
S-16-1002

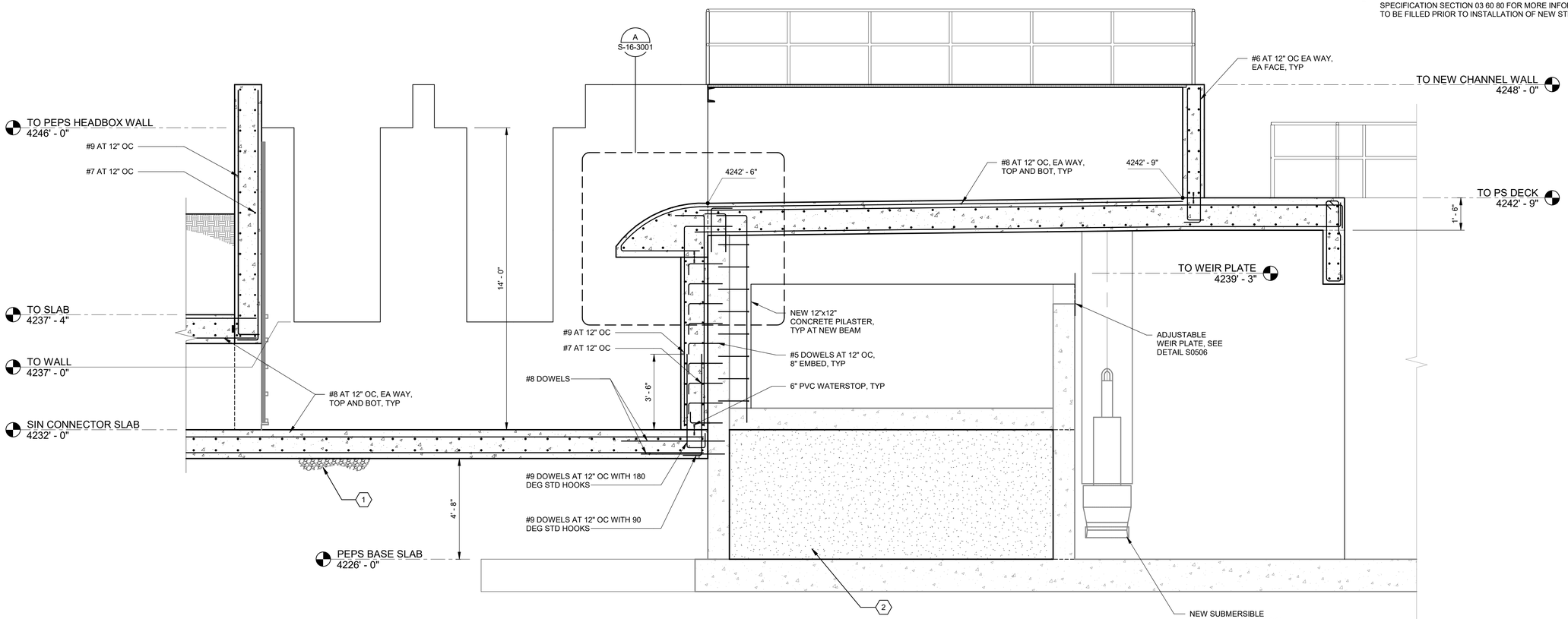
220 SHEET NUMBER OF 682

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-16V18.rvt

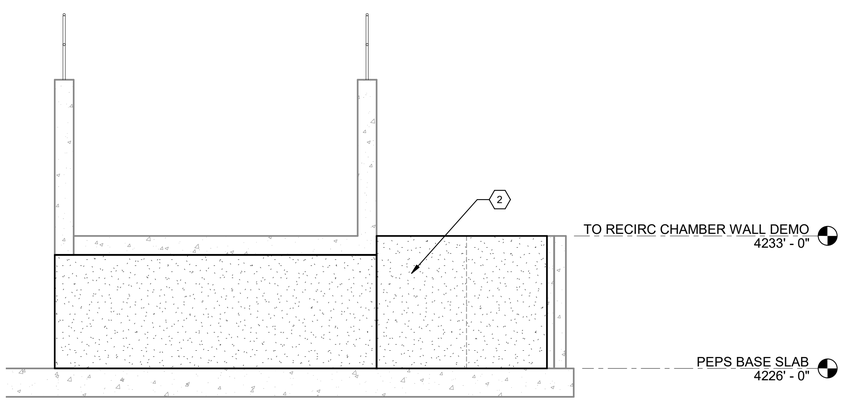
Plot Date: 1/3/2019 11:12:55 AM

KEYNOTES:

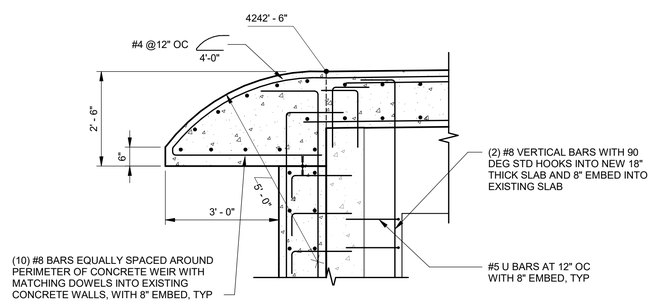
1. BACKFILL WITH CLASS F1 CRUSHED ROCK PER SPECIFICATION SECTION XXXXXX. DIFFERENTIAL HEIGHT ON EACH SIDE OF WALL SHALL NOT EXCEED 2'-0" DURING BACKFILLING. BACKFILL SHALL BE REPLACED WITH CLSM WHERE SPACE LIMITATIONS DO NOT ALLOW PROPER COMPACTION OF BACKFILL.
2. FILL VOID WITH LOW DENSITY CELLULAR CONCRETE FILL, SEE SPECIFICATION SECTION 03 60 80 FOR MORE INFORMATION. VOIDS TO BE FILLED PRIOR TO INSTALLATION OF NEW STRUCTURE.



1 SECTION
S-16-1001 SCALE: 3/8" = 1'-0"



2 SECTION
S-16-1001 SCALE: 1/4" = 1'-0"



A DETAIL
S-16-3001 SCALE: 1/2" = 1'-0"

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-16V18.rvt

Plot Date: 1/3/2019 11:12:55 AM

Brown AND Caldwell

Brown & Caldwell
6975 Union Park Center
Salt Lake City, UT

60% Preliminary Design

C V W R F

NUTRIENT COMPLIANCE DESIGN

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-16V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
151600

STRUCTURAL

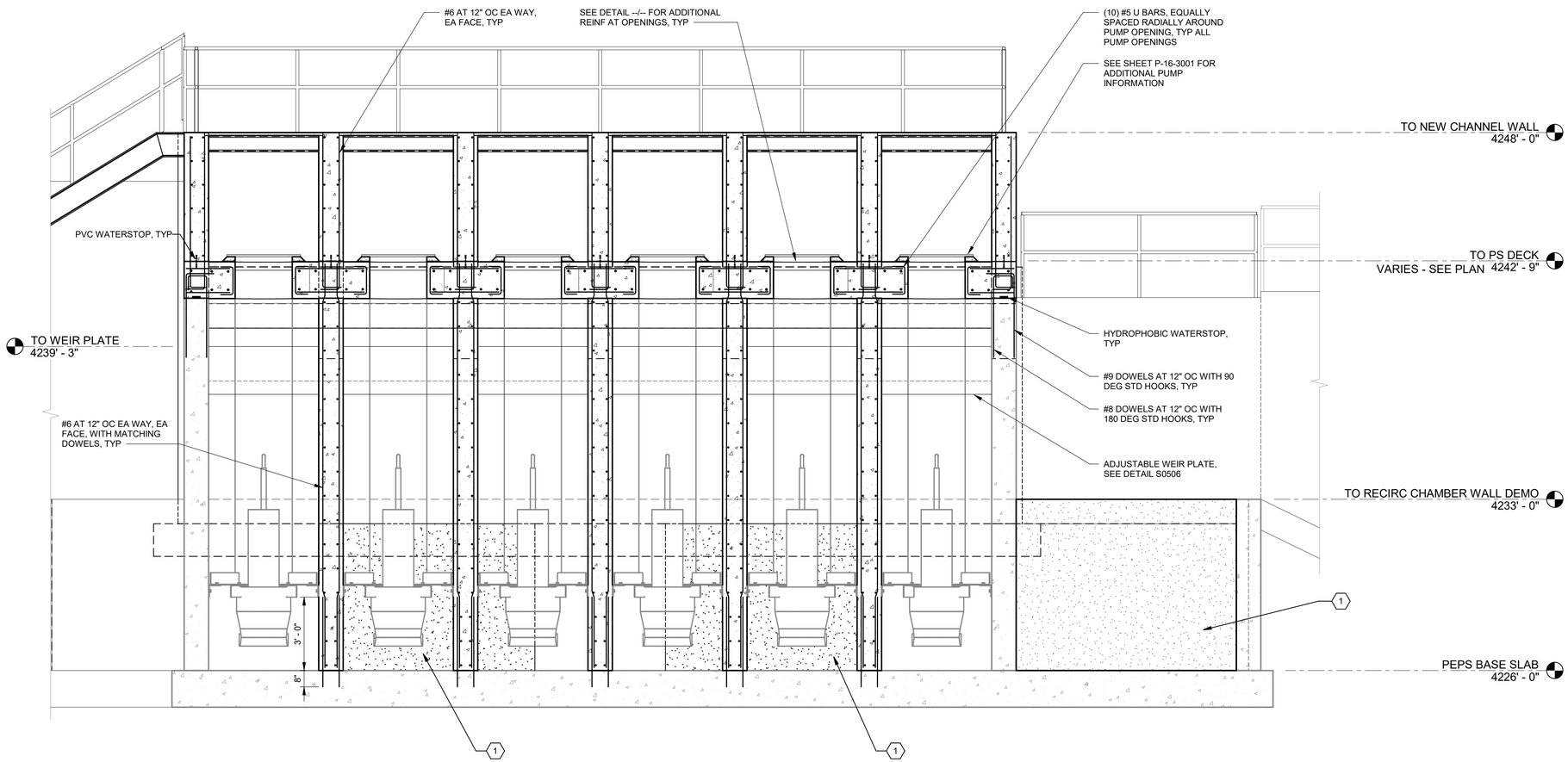
PRIMARY EFFLUENT PUMP STATION SECTIONS 1

DRAWING NUMBER
S-16-3001

221 SHEET NUMBER OF 682

KEYNOTES:

1 FILL VOID WITH LOW DENSITY CELLULAR CONCRETE FILL, SEE SPECIFICATION SECTION 03 60 80 FOR MORE INFORMATION. VOIDS TO BE FILLED PRIOR TO INSTALLATION OF NEW STRUCTURE.



3 SECTION
S-16-1001 SCALE: 3/8" = 1'-0"

Brown AND Caldwell

Brown & Caldwell
6975 Union Park Center
Salt Lake City, UT

60% Preliminary Design

C V W R F

NUTRIENT COMPLIANCE DESIGN

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. HARPER
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-16V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER 151600

STRUCTURAL

PRIMARY EFFLUENT PUMP STATION SECTIONS 2

DRAWING NUMBER
S-16-3002

222 SHEET NUMBER OF 682

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-16V18.rvt

Plot Date: 1/3/2019 11:12:56 AM

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

06/01/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119

151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 006_ Air Vacuum Assembly, Roadway lighting, Seat Angle Frame Credit, Aeration Basin Aluminum Handrail, RAS Anchor Block Delete, 8" PSC Drain at Manhole, 12" SSLC Loop, Compost Gate Size Increase, Admin Sewer Lateral Elevation Change, and Slide Gate Size Modifications

Dear Brandon,

Change Order 6 includes costs to:

- Provide a 1-inch combination **air vacuum** valve release assembly, per APWA plan 575,
- Supply and install Atlas Eagle Series lights for the (9) **roadway lights**,
- Deduct material for the 304 stainless steel **seat angle frames** used instead of 316 stainless steel associated with grating and floor plates,
- Supply and install **aluminum handrail** for the Aerobic Basin,
- Credit for the removal of the **RAS Anchor Blocks** and associated anchor lock retainers not required on the HDPE RAS lines,
- Provide an **8" pipe drop in the existing manhole** for the scum line that flows from the north box of the West Interconnection,
- Loop the **SSL City 12" water line** under the storm drain, including thrust blocks and restrained joints,
- Increase **Compost Gate Size** from 24 Ft. to 34 Ft. wide,
- **Lower** the existing **sewer lateral** under the 15" storm drain pipe South of Admin,
- Increase height of **slide gate SFTE223131** from 36 inches to 60 inches and decrease width from 72 inches to 60 inches

Air Vacuum Assembly: An 8" 1W line was encountered higher than anticipated during installation of the West Connector. The 1W line needed to be looped to clear the (2) 48" HDPE West Connector pipes. This loop required a combined air/vac release valve and vault. In accordance with control form 12, Gerber Construction is requesting $9,803.39 for this work. This was a changed condition; the labor and materials were documented and appear acceptable.

Roadway Lighting: CVWRF requested the change to Atlas Eagle Series lights and Valmont light poles. Gerber Construction is requesting $22,212.85 to change the lights and poles per change control form 14. Backup documentation was provided on material and labor pricing, both are acceptable.

Seat Angle Frames: During review of submittal 038, and 038.1, it was not recognized that the material of construction for grating rebates and support angles was called out

as 304 stainless steel. As per specification 05 50 00-6, 2.02, B, Steel angle support frames shall be stainless steel, ASTM A276, Type 316. In lieu of replacing these seat angle frames; Gerber construction is offering a credit of ($2,060.81) for the stainless-steel cost difference per change control form 15. The credit being provided was based on the difference in material by weight and is in line with material pricing at the time the credit was offered.

Aluminum Handrail: The design drawings inadvertently neglected to show handrail in several areas on the Aeration Basin. Per change control form 16, Gerber Construction is requesting $31,153.42 to supply and install the missing handrail. Costs for this work are in line with our expectations.

RAS Anchor Blocks: Anchor blocks and their associated anchor lock retainers are not required on the HDPE RAS lines as they enter the RAS selector on the northwest corner of the structure. Gerber Construction is offering a credit of ($5,456.17) to remove the anchor blocks and the associated anchor lock retainers per change control form 18. Concrete quantities were checked and the credit for material and labor is reasonable.

8-inch Drain at manhole: The manhole near the North box of the West Connector is quite deep. The design drawings did not detail the connection type required to mitigate the elevation drop into the manhole. In accordance with change control form 19, Gerber construction is requesting $7,576.06 to cover the costs associated with providing APWA Plan 433 as the scum line enters the manhole. Pricing for this change was reviewed and found acceptable.

12" SSL City Water line: The Contractor encountered a utility conflict when installing the 15" storm drain line per the contract documents. The conflict was with South Salt Lake City's potable water line. The water line needed to be looped per APWA detail 534-1 Style A, including thrust blocks and restrained joints. Per change control form 21, Gerber is requesting $21,259.96 for this work. This work was approved by South Salt Lake City.

Compost Gate: Central Valley requested a larger gate at the compost sales facility. Gerber Construction is requesting $4,104.32 to increase the gate size from 24' to 34'. The 24' gate was previously purchased and will be turned over to CVWRF for their use elsewhere on site. This work will be performed in accordance with change control form 22.

Lower Sewer Lateral: Per change control form 24, Gerber is requesting $8,193.41 to lower the elevation of the sewer lateral, including the connection to the 84" interceptor, so that the lateral runs under the 15" storm drain south of the Admin building.

Slide Gate SGTE223131: Per change control form 25, and submittal 105.1 response, Gerber Construction is requesting $6,277.75 to increase the height of slide gate SGTE223131 from 36 inches to 60 inches and decrease width from 72 inches to 60 inches.

The total price for the change order will be $103,064.18

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 12 – Air Vacuum Assembly 8 Inch w/ Contractor Quotation
3. CCF 14 – Roadway Lighting w/ Contractor Quotation
4. CCF 15 – Seat Angle Frame Credit w/ Contractor Quotation
5. CCF 16 – Aluminum Handrail w/ Contractor Quotation
6. CCF 18 – RAS Anchor block delete w/ Contractor Quotation
7. CCF 19 – 18-inch drain at manhole w/ Contractor Quotation
8. CCF 21 – 12-inch SSLC loop w/ Contractor Quotation
9. CCF 22 – Compost gate size increase w/ Contractor Quotation
10. CCF 24 – Admin sewer lateral relocate w/ Contractor Quotation
11. CCF 25 – Increase slide gate w/ Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 06

Date of Issuance: 06/01/2021		Effective Date: 6/01/2021	
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 6 includes costs to:

- Provide a 1-inch combination air vacuum valve release assembly, per APWA plan 575,
- Supply and install Atlas Eagle Series lights for the (9) roadway lights,
- Deduct material for the 304 stainless steel seat angle frames used instead of 316 stainless steel associated with grating and floor plates,
- Supply and install aluminum handrail for the Aerobic Basin,
- Credit for the removal of the RAS Anchor Blocks and associated anchor lock retainers not required on the HDPE RAS lines,
- Provide an 8" pipe drop in the existing manhole for the scum line that flows from the north box of the West Interconnection,
- Loop the SSL City 12" water line under the storm drain, including thrust blocks and restrained joints,
- Increase Compost Gate Size from 24 Ft. to 34 Ft. wide,
- Loop the existing sewer lateral under the 15" storm drain pipe South of Admin,
- Increase height of slide gate SFTE223131 from 36 inches to 60 inches and decrease width from 72 inches to 60 inches

Attachments:

1. CCF 12 – Air Vacuum Assembly 8 Inch w/ Contractor Quotation
2. CCF 14 – Roadway Lighting w/ Contractor Quotation
3. CCF 15 – Seat Angle Frame Credit w/ Contractor Quotation
4. CCF 16 – Aluminum Handrail w/ Contractor Quotation
5. CCF 18 – RAS Anchor block delete w/ Contractor Quotation
6. CCF 19 – 18-inch drain at manhole w/ Contractor Quotation
7. CCF 21 – 12-inch SSLC loop w/ Contractor Quotation
8. CCF 22 – Compost gate size increase w/ Contractor Quotation
9. CCF 24 – Admin sewer lateral relocate w/ Contractor Quotation
10. CCF 25 – Increase slide gate w/ Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price:	Original Contract Times:
	Substantial Completion: 1,491
$ 123,267,681.00	Ready for Final Payment: 1,581
	days or dates

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Increase **[Decrease]** from previous approved Change Orders No. 1 to No. 5 : $ 159,242.91	**[Increase]** [Decrease] from previous approved Change Orders No. 1 to No. 5 : Substantial Completion: 26 Ready for Final Payment: 26 days
Contract Price prior to this Change Order: $ 123,108,438.09	Contract Times prior to this Change Order: Substantial Completion: 1,517 Ready for Final Payment: 1,607 days or dates
[Increase] [Decrease] of this Change Order: $103,064.18	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 9 days Ready for Final Payment: 9 days days or dates
Contract Price incorporating this Change Order: $123,211,502.27	Contract Times with all approved Change Orders: Substantial Completion: 1,526 days Ready for Final Payment: 1,616 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 06/01/2021	Date 6/9/2021	Date 06/09/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

VIA EMAIL
READ RECEIPT REQUESTED

August 20, 2021

Phillip Heck, Ph.D., P.E.
heckp@cvwrf.org
Central Valley Water Reclamation Facility
800 West Central Valley Road
Salt Lake City, Utah 84119

Subject: Utah Wastewater Project Assistance Project, No: 261
Change Order Approval

Dear Dr. Heck:

The Division of Water Quality has reviewed Change Order No. 1-6 prepared by your consulting engineer, Brown and Caldwell, submitted to us on March 5,2021 (CO 1-5) and June 9, 2021(CO 6).

These changes are deemed appropriate and, based on review of the information provided, are hereby approved. Approved copies of change orders are returned herewith for your records.

The change order includes the following items:

- C001 (Increase of $41,993.96) Adds gate stops to bulkhead gates in the west interconnect and costs for realignment of storm drain and conduits due to unknown utility conflicts.
- C002 (Increase of $150,926.58) Replaces the Golf Course irrigation pump station power and signal duct banks due to unknown conflicts with the BNR Basin excavation.
- C003 (Increase of $16,281.82) Utility reroutes for NG, 1W and sidewalk replacement due to unknown utility conflicts around the North Pond #1/compost area.
- C004 (Increase of $94,051.73) Due to reconfigured compost area, electrical handholes were upsized with traffic rated lids and sump pumps due to groundwater and surface drainage.

- C005 (Decrease of $462,497.00) Deduct. This removes the preselected KSB (PEPS) pumps from Contractors scope of supply. These pumps, preselected by CVWRF in 2019, were assigned to the Contractor as part of the BNR contract documents. However, KSB did not include sales tax in their original bid price. As CVWRF is tax exempt, it was determined that it would be beneficial for CVWRF to handle receiving and install of the pumps as both training for maintenance staff and eliminate the need for sales tax. As such, the pumps were removed from the Contractor's scope of supply, while maintaining their responsibility for assistance in start-up and testing.
- C006 (Increase of $103,064.18) This Change includes an added 1" Combination Air Vacuum Assembly, Roadway lighting, Seat Angle Frame Credit due to change from 316 to 304 SS associated with floor grating and plates, add Aeration Basin Aluminum Handrail, Credit for RAS Anchor Block Delete, add 8" PSC Drain at Manhole, add 12" SSLC Loop under storm drain, Increase Compost Gate Size, Admin Sewer Lateral Elevation Change to go under storm drain, and increase Slide Gate SFTE223131 Size.

These change order result in an overall contract decrease of $56,178.73 bringing the total contract to $123,211,502.27. This change order includes a 35 day increase to project final completion time Increasing Substantial Completion to 1,526 days, and Final Completion to 1,616 days.

If you have any questions, please contact me at your convenience.

Sincerely,

Skyler Davies (Aug 19, 2021 15:23 MDT)

Skyler Davies, P.E.
Division of Water Quality

SD::cjh

Enclosure: Change Order No. 1 (DWQ-2021-016072)

Cc: Trevor Lindley, P.E. Brown and Caldwell (tlindley@brwncald.com)
Mark Hansen, Brown and Caldwell (MHansen@brwncald.com)

DWQ-2021-016072
FILE: SRF-CENTRAL VALLEY WATER RECLAMATION FACILITY, CONSTRUCTION, SECTION 4

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 016
Date: 3/12/2021
Description: Per Control Change Form #012: Cost for material and labor to install air vacuum release valve assembly for 8" 1W line.

Gerber Construction Manhole Material (see attached back-up):	$2,401.75
Gerber Construction Piping Material (see attached back-up):	$925.05
Gerber Construction Manhole Labor (see attached back-up):	$2,886.57
Gerber Construction Piping Labor (see attached back-up):	$923.96
Gerber Construction Coordination Labor (see attached back-up):	$1,299.13
Bonds:	$88.23
Mark-up (15%):	$1,278.70
Total:	**$9,803.39**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $9,803.39 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-016 Air Vac Assembly 8 Inch 1W - CC#012	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-016	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Manhole Materials	**1.00**	**UNIT**	**$2,401.75**	**$2,401.75**	**$2,790.90**	**$2,790.90**	**15.00%**
60"x3' Manhole W/ Sump, & Steps	1.00	EACH	$844.92	$844.92			
Grade Ring, 30"x6"	1.00	EACH	$169.64	$169.64			
Grade Ring, 30"x3"	1.00	EACH	$103.02	$103.02			
60" Eccentric Concrete Lid	1.00	EACH	$634.31	$634.31			
Manhole Ring, Cover & Mastic	1.00	EACH	$453.31	$453.31			
Concrete, 4500 PSI Engineered	1.00	CY	$196.55	$196.55			
D 02 - Gerber Piping Material	**1.00**	**UNIT**	**$925.05**	**$925.05**	**$1,074.94**	**$1,074.94**	**15.00%**
Nipple, 01"x06", Steel	4.00	EACH	$16.12	$64.48			
Valve, 01", Air/Vac,	1.00	EACH	$474.79	$474.79			
Tapping Saddle, 01" For 8"	1.00	EACH	$194.17	$194.17			
Ball Valve, Bronze IPS, 01"	1.00	EACH	$123.68	$123.68			
Pipe, Brass Elbow 90 1"	2.00	EACH	$17.13	$34.26			
Air Vac Pipe Screen, 01"	1.00	EACH	$33.67	$33.67			
D 03 - Gerber Manhole Labor	**1.00**	**UNIT**	**$2,886.57**	**$2,886.57**	**$3,354.27**	**$3,354.27**	**15.00%**
Excavation Crew, Medium (1.00 UNIT/DY, 1.00 DY)	1.00	UNIT	$2,055.15	$2,055.15			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
07 Operator	9.00	HR	$86.23	$776.09			
Loader, 5 Yard (Volvo 150)	2.00	HR	$70.03	$140.05			
Concrete Crew, 03 Men (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$691.36	$691.36			
04 Skilled Labor	4.50	HR	$83.01	$373.53			
05 General Labor	4.50	HR	$70.63	$317.83			
D 04 - Gerber Piping Labor	**1.00**	**UNIT**	**$923.96**	**$923.96**	**$1,073.66**	**$1,073.66**	**15.00%**
Mechanical Crew, 2 Man (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$373.53	$373.53			
04 Skilled Labor	4.50	HR	$83.01	$373.53			
03 Leadman	4.50	HR	$95.38	$429.20			
02 Foreman	1.13	HR	$107.76	$121.23			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
05 - Gerber Coordination Labor	**1.00**	**UNIT**	**$1,299.13**	**$1,299.13**	**$1,509.62**	**$1,509.62**	**15.00%**
01 Superintendent	2.25	HR	$157.26	$353.84			
02 Foreman	2.25	HR	$107.76	$242.45			
19 Project Engineer	2.25	HR	$120.14	$270.30			
17 Project Manager	2.25	HR	$182.02	$409.55			
Truck, Pickup, 1 Ton	0.01	MO	$1,976.63	$22.98			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,414.62	52.33%
Equipment Owned:	$695.03	8.24%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,826.81	33.51%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$500.00	5.93%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$8,436.46	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$8,436.46	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$88.23	0.90%
Total Overall Cost:	$8,524.69	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,278.70	13.04%
Total Margin:	$1,278.70	13.04%
Total Bid Price:	$9,803.39	

CHANGE CONTROL FORM 012
Combination Air Vacuum Valve Release Assembly – 8” 1W – West Connector

Owner: Central Valley Water Reclamation Facility	**Project: BNR/PEPS/RAS Selector**	
Contractor: Gerber Construction	**Date: 12/18/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

RFP to provide a 1-inch combination air vacuum valve release assembly, per APWA Plan 575 at the high point in the 8-inch, 1W loop over the West Interconnect.

- The extension of the vent piping to above grade and the galvanized steel enclosure to protect the vent piping is not required. Instead, provide a gooseneck on the vent piping inside the vault within 1 foot of the ring and cover.
- Provide a stainless steel saddle.
- Stainless steel tubing may be used as an alternative to brass for the piping.
- Offset the opening (ring and cover) for ease of entry.
- Provide steps.
- Provide a sump in the concrete base so that liquid can be pumped out.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:

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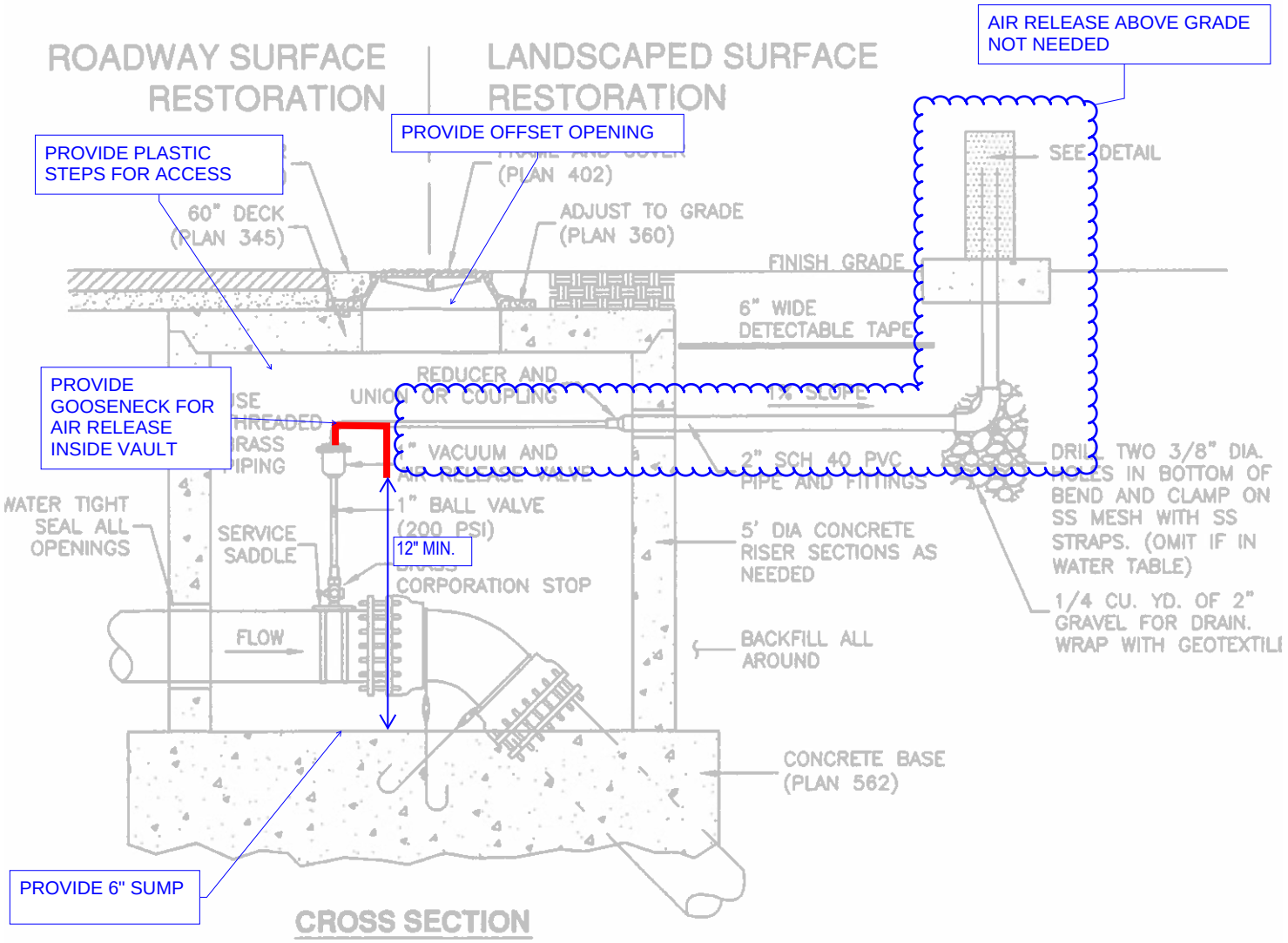
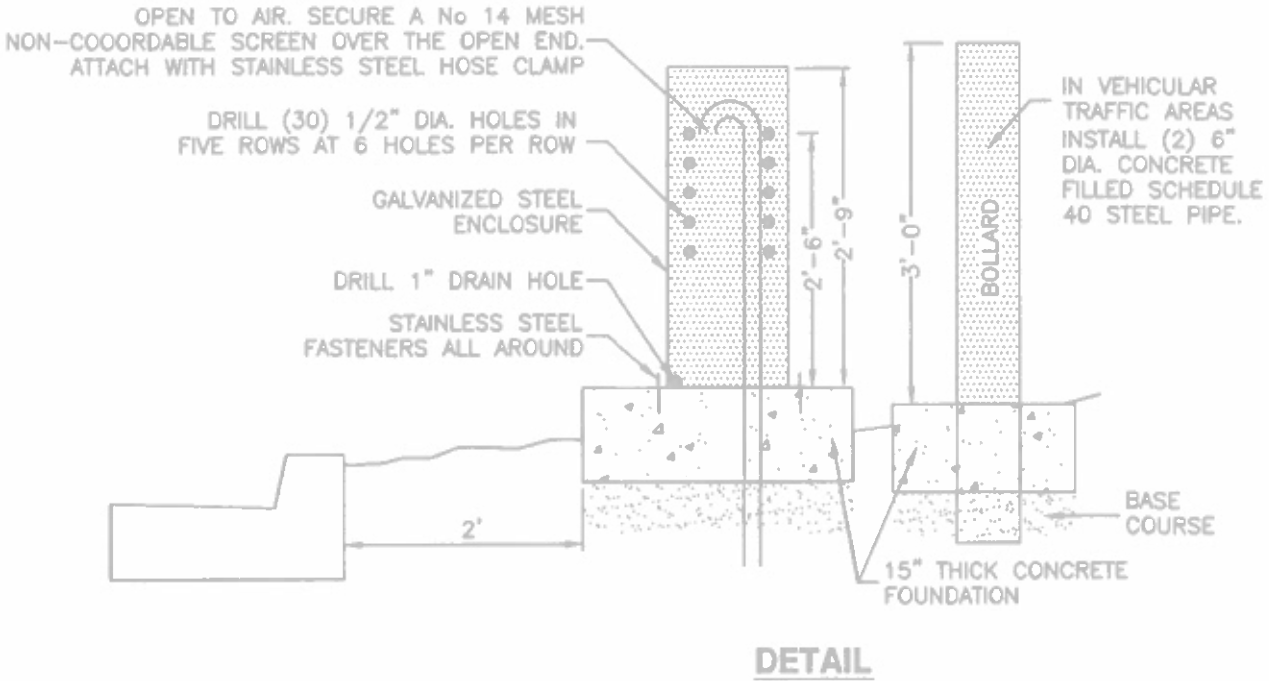
Accepted by Contractor:	Date:





APWA Utah Chapter

Air release assembly

Plan **575**

February 2011

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 011
Date: 2/3/2021
Description: Per Control Change Form #014: Cost to change light pole and fixtures on roadway lighting.

Skyline Electric (see attached):	$19,827.32
Mark-up (5%):	$991.36
Gerber Construction Coordination Labor (see attached back-up):	$1,012.40
Bonds:	$199.92
Mark-up (15%):	$181.85
Total:	**$22,212.85**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $22,212.85 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	1/19/2021		
Project:	BNR Basins CC30B	Submitted to:	Shay Clark
Project No:	2010001	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**CCF 014 Roadway Lighting**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide RL1-T3 (Atlas fixtures & Valmount poles) per CVWRF request. See below cut sheets.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$15,885.00		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..			
Base Labor Hours (from pricing sheets)……..			

LABOR FACTOR:

material handling		2.00%				0
cleanup		3.00%				0
safety		1.25%				0
other factors		0.00%				0
other impact*	OT	overmanning	stacking	shift	Composite	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%	0.00

Tax $1,183.43

SUBTOTAL loc 1 $ 17,068.43 loc 2 $ 0.00 0.00

RATE: $ 59.00

extension: $ 0.00

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST							loc 3 $	0.00

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$75.00	$0.00
project management	0	hrs@	$80.00	$0.00	Testing	0	hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0	hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$0.00
change management	0	hrs@	$75.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	1	hrs@	$75.00	$75.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$75.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	75.00

MATERIAL		from loc 1	$	17,068.43
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	75.00
LABOR		from loc 3	$	0.00
WARRANTEE	1.50%		$	0.00
BOND	0.57%		$	97.72
subtotal			$	17,241.15
OVERHEAD + PROFIT	15.00%		$	2,586.17
TOTAL CHANGE			$	19,827.32

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

CHANGE CONTROL FORM 014
Roadway Lighting

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 01/12/2021**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☒ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a proposal to supply and install the attached Atlas Eagle Series lights, and the attached Valmont light poles for the (9) roadway lights on this project. Include credit for the originally specified lights and poles.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date
Accepted by Contractor:	Date:

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Eagle Series

Project Information	
Job Name	
Fixture Type	Eagle Series
Catalog Number	SLPM30LT345K
Approved by	

2nd Generation LED Site Lighter

3000K or warmer CCTs only

SPECIFICATIONS:

Construction:
Designed for commercial and industrial applications, providing cooler operating temperatures, brighter light and longer LED life. The die cast aluminum housing utilizes external airflow fins allow for greater heat dissipation. The easy access driver compartment is a thermally independent compartment, separate from LED generated heat, for cooler operation and longer driver life.

Optics:
Atlas Site Lighter Pro fixtures utilize precision engineered individual lenses for maximum light intensity. The lens is made of optical grade polycarbonate. Advanced one piece optic board engineered for maximum light intensity. Types II, III, V and Forward Throw distributions are available. Types II, III and Forward Throw optics are rotatable allowing for optimal placement of the fixtures on the perimeter of any layout.

Mounting:
The easy mount bracket makes installation to any style pole quick and easy. Tenon and other mounting accessories also available.
For round poles **500-SLPMRPA** is required.

Thermal Management:
Atlas Site Lighter Pro fixtures are designed as a complete system to optimize LED life and light output. The thermal stacking heat removal technology extracts heat from within the housing moving it away from LEDs and components. The lower temperatures result in long LED life (200,000+ hrs[1]) and component life and also allows for higher light output.

Listings:
Luminaire is certified to UL/cUL Standards for Wet Locations
[2]The following qualify for DesignLights Consortium Premium:
SLPM6L (All colors/options), SLPM9L (All colors/options), SLPM12L (All colors/options), SLPM18L (All colors/options), SLPM24L (All colors/options), all other luminaires are DesignLights Consortium qualified. All are eligible for rebates from DLC member utilities.

AC Input:
120/208/240/277/347/480 V

Driver:
Constant current, 120-277 VAC, 50-60 Hz
High Efficiency – min. 88%
Off-State Power: 0 Watts
0-10 V Dimming

LEDs:
Available in 3000K, 4000K, 4500K and 5000K, CCT
Epoxy Guard™ protective conformal coated boards

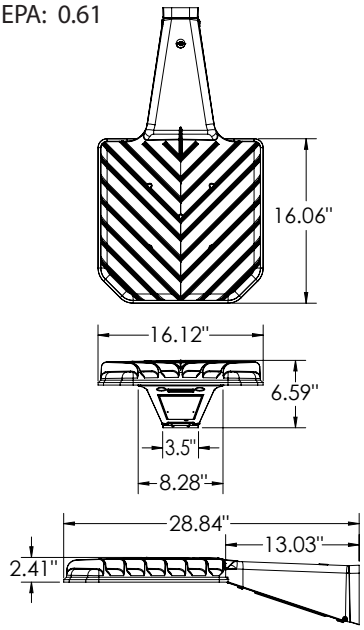
Reduced Glare:
Positioning of the LED modules within the housing result in light directed to desired locations and reduces offensive light.

Testing:
Atlas LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 & LM-80.

Warranty: Five-year limited warranty

DIMENSIONS:

Weight: 21 lbs.
EPA: 0.61



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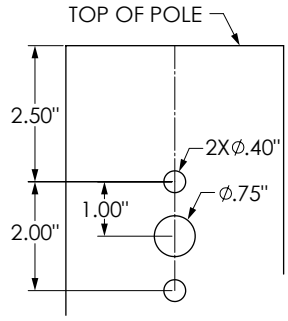


For round poles **500-SLPMRPA** is required.

Rebates and Incentives are available in many areas.
Contact an Atlas Representative for more information.

[1]LED Life Span Based Upon LM-80 Test Results

ATLAS LIGHTING PRODUCTS, INC.
PO BOX 2348 | BURLINGTON, NC 27216
800-849-8485 | FAX: 1-855-847-2794 | www.atlasled.com

*The majority of Atlas Lighting Products are assembled in USA facilities by an American Workforce utilizing both Domestic and Foreign components. Meets Buy American requirements within the ARRA.

Eagle Series

2nd Generation LED Site Lighter

ORDERING INFORMATION

SLPM | 9L | T3 | 4K | ☐ | ☐ | ☐ | ☐ | ☐

PRODUCT SERIES
SLPM = 2nd Generation Site Lighter Pro

LUMEN PACKAGE
6L = 6,000 Lumens
9L = 9,000 Lumens
12L = 12,000 Lumens
18L = 18,000 Lumens
24L = 24,000 Lumens
30L = 30,000 Lumens
36L = 36,000 Lumens
43L = 43,000 Lumens

DISTRIBUTION
T2 = Type 2
T3 = Type 3
T5 = Type 5
FT = Forward Throw
T2L = Type 2 Rotated Left
T3L = Type 3 Rotated Left
FTL = Forward Throw Rotated Left
T2R = Type 2 Rotated Right
T3R = Type 3 Rotated Right
FTR = Forward Throw Rotated Right

COLOR TEMP.
3K = 3000K
4K = 4000K
45K = 4500K
5K = 5000K

VOLTAGE
Blank = 120-277
4 = 347/480

DIMMING
Blank = 0-10vdc

COLOR RENDERING
Blank = 70CRI

FIXTURE COLOR
Blank = Bronze
BK = Black
SL = Silver
WT = White

OPTIONS
PR = 7 Pin Photocell Receptacle
SP = Surge Protection
IC = Integrated Motion Control
BTM = Bluetooth Microwave Motion Control
includes photocontrol

Lumen Package	Distribution	CRI	3000K CCT		4000K CCT		4500K CCT		5000K CCT		Wattage
			Delivered Lumens	Efficacy (LPW)	Delivered Lumens	Efficacy (LPW)	Delivered Lumens	Efficacy (LPW)	Delivered Lumens	Efficacy (LPW)	
6L	T2	70	5908	153	6067	158	6093	159	6152	160	39
	T3	70	5824	151	5981	155	6006	155	6065	157	
	FT	70	5712	148	5866	152	5891	153	5948	154	
	T5	70	5848	152	6005	156	6031	156	6090	158	
9L	T2	70	9155	159	9401	163	9442	164	9533	166	58
	T3	70	9082	158	9326	162	9366	163	9457	164	
	FT	70	8866	154	9104	158	9144	159	9232	160	
	T5	70	9086	158	9330	162	9370	163	9461	164	
12L	T2	70	12030	160	12354	164	12407	165	12527	167	75
	T3	70	11900	159	12220	163	12272	164	12391	165	
	FT	70	11670	156	11984	160	12035	160	12152	162	
	T5	70	11950	159	12271	164	12324	164	12444	166	
18L	T2	70	17840	155	18320	159	18398	160	18577	162	115
	T3	70	17810	155	18289	159	18367	160	18546	161	
	FT	70	17340	151	17806	155	17883	156	18056	157	
	T5	70	17820	155	18299	159	18378	160	18556	161	
24L	T2	70	23640	148	24276	152	24380	153	24616	154	160
	T3	70	23620	148	24255	152	24359	153	24596	154	
	FT	70	23030	144	23650	148	23751	149	23981	150	
	T5	70	23660	148	24296	152	24401	153	24637	154	
30L	T2	70	29450	140	30242	144	30372	145	30666	146	210
	T3	70	29440	140	30232	144	30361	145	30656	146	
	FT	70	28750	137	29523	141	29650	141	29937	143	
	T5	70	29470	141	30263	144	30392	145	30687	146	
36L	T2	70	35260	133	36208	137	36364	137	36716	139	265
	T3	70	35220	133	36167	137	36322	137	36675	139	
	FT	70	34490	131	35418	134	35570	135	35914	136	
	T5	70	35200	133	36147	137	36302	137	36654	139	
43L	T2	70	42200	121	43335	124	43521	125	43943	126	348
	T3	70	41940	120	43068	124	43253	124	43672	125	
	FT	70	41300	118	42411	122	42593	122	43006	123	
	T5	70	41970	120	43099	124	43284	124	43703	125	

ATLAS LIGHTING PRODUCTS, INC.
PO BOX 2348 | BURLINGTON, NC 27216
800-849-8485 | FAX: 1-855-847-2794 | www.atlasled.com

The majority of Atlas Lighting Products are assembled in USA facilities by an American Workforce utilizing both Domestic and Foreign components. Meets Buy American requirements within the ARRA.

Project Information	
Job Name	
Type	Round Pole Adapter
Catalog Number	500-SLPMRPA
Approved by	

500-SLPMRPA
Round Pole Adapter

SPECIFICATIONS:

Construction:
Die Cast Aluminum

Mounting:
Mounting Cleat(s) Included w/ SLP Fixture(s)
Fits Poles Sizes of 3.125" to 5"

Weight:
1.0 lbs. / 0.454 kg.

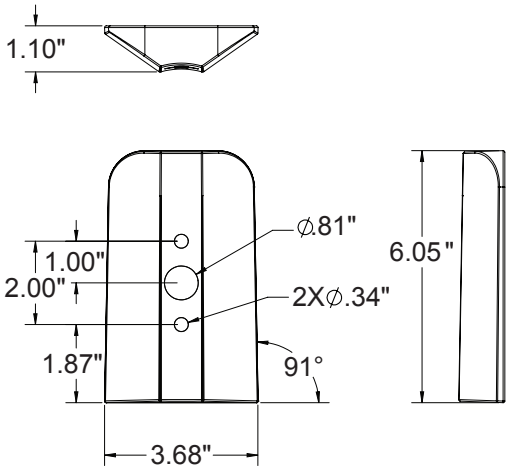
Overall Height:
6.05" (15.367 cm)

Overall Width:
3.68" (9.3472 cm)

ORDERING INFORMATION:

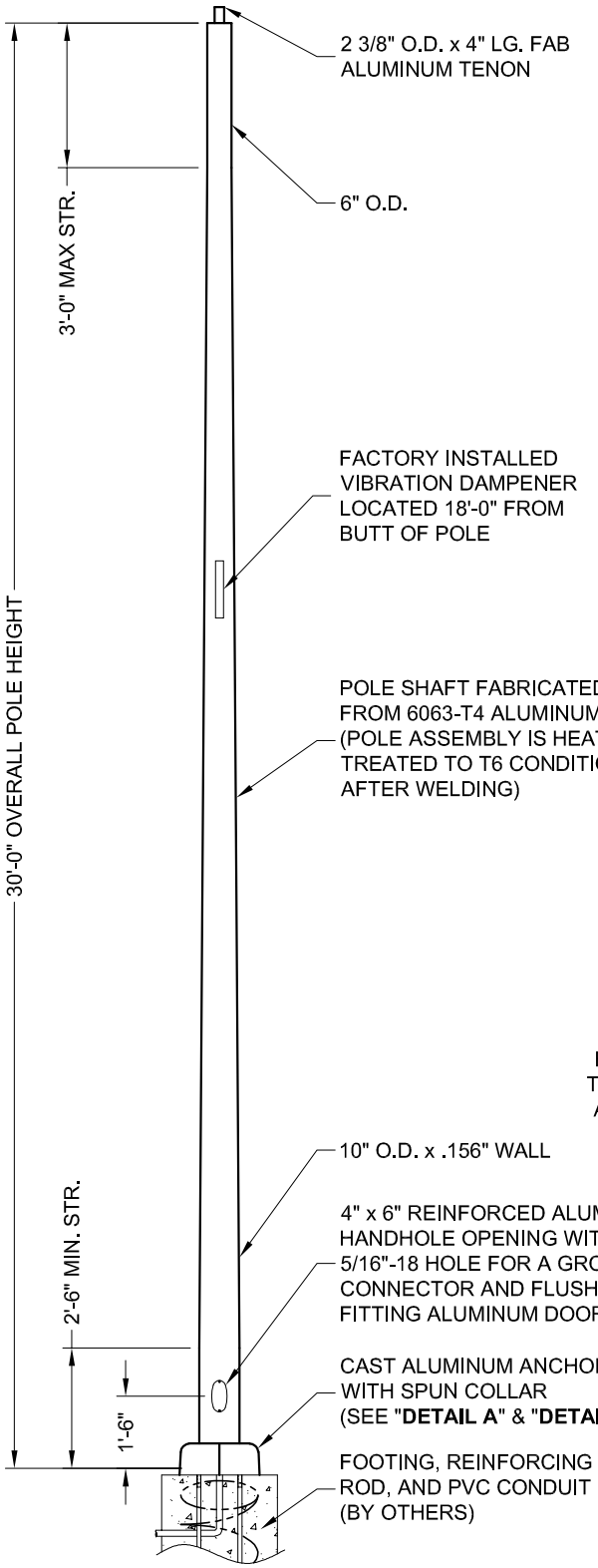
CATALOG #	DESCRIPTION	FINISH
500-SLPMRPA	Round Pole Adapter	Bronze

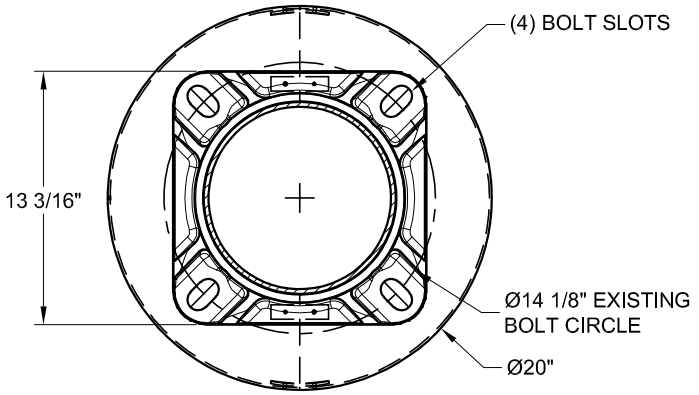
DIMENSIONS:



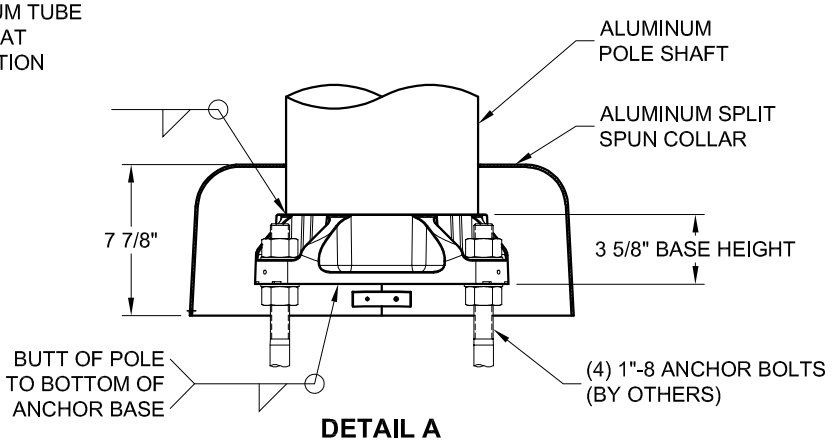
ATLAS LIGHTING PRODUCTS, INC.
PO BOX 2348 | BURLINGTON, NC 27216
800-849-8485 | FAX: 336-227-0110 | www.atlasled.com

Made in the USA of US and imported parts. Meets Buy American requirements within the ARRA.





DETAIL B



DETAIL A

DO NOT SCALE

valmont

Valmont Industries, Inc. Structures Division
20805 Eaton Ave Farmington, Minnesota 55024-7932
Phone: (651) 463-8990 (800) 899-7577
Fax: (651) 463-3349

CONFIDENTIAL
The information contained in this drawing is privileged and confidential, and may be protected from disclosure. Please be aware that any use or dissemination of this drawing may be subject to legal restriction or sanction.

TITLE:	S ANCHOR BASE ALUMINUM POLE
MODEL NO.:	300060105T4
MATERIAL:	ALUMINUM ALLOY
FINISH:	POWDER PAINT- PWD TS50OS37 MBZVAL
PROJECT:	CV WATER
SOLD TO:	
SHIP TO:	
P.O. NO:	
REP:	SSCO
QTY:	10
DWN BY:	PVB
CHK'D BY:	
APPR BY:	KGB
DATE:	09-08-20
DWG NO:	A3001E
PAGE:	2 / 4

REV	DATE	REVISION DESCRIPTION	BY
△			
△			
△			

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: 1/15/2021

Direct: 801-233-5460

Revision

JOB NAME: **CVWTF CC30B BNR BASINS**
ATTN: BRAD

Item	Qty.	Description	Notes
		TYPE RL1-T3 CHANGE	
		ADD	
RL1-T3	9	ATLAS LIGHTING HEAD & VALMONT POLE	$23,175.00
		DEDUCT	
RL1-T3	-9	FIXTURE HEAD & POLE	($7,290.00)

TOTAL $15,885.00 ADDER

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-011 Roadway Lighting - CC#014	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-011	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
01 - Gerber Labor & Materials	**1.00**	**UNIT**	**$1,012.40**	**$1,012.40**	**$1,175.43**	**$1,175.43**	**15.00%**
01 Superintendent	3.00	HR	$157.26	$471.79			
19 Project Engineer	4.50	HR	$120.14	$540.61			
02 - Skyline Labor And Materials	**1.00**	**UNIT**	**$19,827.32**	**$19,827.32**	**$21,037.42**	**$21,037.42**	**5.10%**
Electrical Sub	1.00	LS	$19,827.32	$19,827.32			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,012.40	4.86%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$19,827.32	95.14%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$20,839.72	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$20,839.72	93.82%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$199.92	0.90%
Total Overall Cost:	$21,039.63	94.72%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,173.22	5.28%
Total Margin:	$1,173.22	5.28%
Total Bid Price:	$22,212.85	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 013
Date: 2/3/2021
Description: Per Change Control #015: Credit for 304 stainless steel material used instead of 316 stainless steel material.

Gerber Construction 316 SS Credit (see attached back-up): -$2,060.81

Total: -$2,060.81

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$2,060.81 will be added to the contract price.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-013 BNR Change Control #015 Seat Angle Frame	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-013	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
D 01 - RAS WAS Grating Seat Angle Frame (Deduct)	**1.00**	**LS**	**($2,060.81)**	**($2,060.81)**	**($2,060.81)**	**($2,060.81)**	**0.00%**
Angle Price Difference (304 Vs 316)	315.00	LF	($6.54)	($2,060.81)			

CHANGE CONTROL FORM 015
Seat Angle Frames

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/01/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

During a general conformance review of submittal 038, and 038.1, it was not recognized that the material of construction for grating rebates and support angles (seat angle frames) was called out as 304 stainless steel. This is not per the specifications. 316 stainless steel is required per spec. section 05 50 00-6, 2.02, B, Seat Angle Frames, 1:

B. Seat Angle Frames

1. Provide recessed seat angle frames for grating and floor plates. Miter corners to ensure accurate fit. Match depth of recess with grating or floor plate thickness. Anchor frames in concrete with headed studs. Steel angle support frames shall be stainless steel, ASTM A276, Type 316, unless indicated otherwise.

In lieu of replacing these seat angle frames (as some of them are on site and installed), provide a credit back to CVWRF for the difference in material price (304 VS 316).

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date

© 1997 Brown and Caldwell

Accepted by Contractor:	Date:

Q U O T A T I O N No: 16 CU-977743

Quoted By:
AFFILIATED METALS-BRALCO #16
450 N. BILLY MITCHELL ROAD
SALT LAKE CITY, UTAH 84116
Tel: 801-363-1711 Fax: 801-741-4100

Quoted To: (204610)
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI UT 84043

Quoted Ship To: (1)
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI UT 84043

Trm NET 30 DAYS Qtd 01Feb21 Qte Ref
Frt OUR TRUCK Via DEL FOB
Tel 801 407-2000 Fax 801 407-2057 Ctc JORGE 801-380-9005
Slp RICK FOWLKS ERIC PARKER

==========

Q U O T A T I O N QT No: 16 CU-977743

****

* * * * * USE DOMESTIC MATERIAL ONLY!! * * * * *

PULL FROM ONE OR MORE OF THE FOLLOWING:
TAG#
HEAT/LOT#
MILL NAME: " NAS "

****

---

1 STAINLESS ANGLE T-304L H.R. ANN. & PICKLED 1 PCS 86 LBS
2-1/2" X 2-1/2" X 1/4" X 252.0000" 21 FT
MATERIAL 21 FT @ 22.5000 FT 472.50

DIFFERENCE IN PRICE IS
$6.10 PLUS TAX

2 STAINLESS ANGLE T-316L H.R. ANN. & PICKLED 1 PCS 86 LBS
2-1/2" X 2-1/2" X 1/4" X 252.0000" 21 FT
MATERIAL 21 FT @ 28.6000 FT 600.60

RECEIVING HOURS 8:00 - 5:00 WEEKDAYS
UNLESS NOTED OTHERWISE, ALL QUOTED PRICES AND
LEAD TIMES ARE FOR CURRENT DAY ONLY, AND ARE
SUBJECT TO CHANGE.

Order Totals: 2 Items LBS

****

Material	Processing	Freight	Other	Taxes	ORDER AMT
Taxes: UT		0.00	0.00		0.00

****

Page: 1 ....Last

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 017
Date: 4/5/2021
Description: Per Control Change Form #016: Cost and credit for aluminum handrail changes.

Gerber Construction Handrail Material (see attached back-up):	$19,703.97
Gerber Construction Labor (see attached back-up):	$8,098.37
Gerber Construction Equipment (see attached back-up):	$319.90
Bonds:	$294.11
Mark-up (15%):	$4,262.45
Gerber Construction Handrail Credit (see attached back-up):	-$1,525.38
Total:	**$31,153.42**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $31,153.42 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-017 Aluminum Handrail-CC#16	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-017	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Aluminum Handrail Per CC#16	**1.00**	**LS**	**$28,122.24**	**$28,122.24**	**$32,678.80**	**$32,678.80**	**15.00%**
D Additional Aluminum Handrail	1.00	LS	$27,537.42	$27,537.42			
Additional Handrail	1.00	LS	$18,159.57	$18,159.57			
Labor Crew, 2 Man (75.00 LF/DY, 4.68 DY)	351.00	LF	$22.32	$7,833.45			
03 Leadman	42.12	HR	$95.38	$4,017.27			
04 Skilled Labor	42.12	HR	$83.01	$3,496.28			
Truck, Pickup, 1 Ton	0.22	MO	$1,481.25	$319.90			
Threaded Rod 304 SS, .5" X 08" W/ 2 Nuts & Washers	360.00	EACH	$4.29	$1,544.40			
17 Project Manager	2.00	HR	$176.15	$352.30			
19 Project Engineer	2.00	HR	$116.26	$232.52			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$8,098.37	28.80%
Equipment Owned:	$319.90	1.14%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$19,703.97	70.07%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$28,122.24	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$28,122.24	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$294.11	0.90%
Total Overall Cost:	$28,416.35	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$4,262.45	13.04%
Total Margin:	$4,262.45	13.04%
Total Bid Price:	$32,678.80	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

To:	Central Valley Water Reclamation Facility	**Contact:**	
Address:	800 West Central Valley Road	**Phone:**	
	Salt Lake City, UT 84119	**Fax:**	
Project Name:	2008-017 Aluminum Handrail-CC#16	**Bid Number:**	2008-017
Project Location:		**Bid Date:**	

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
01	Aluminum Handrail Per CC#16	1.00	LS	$1,525.38	$1,525.38

Total Bid Price: $1,525.38

CREDIT

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

Purchase Orders MUST be addressed to:
Dant Clayton Corporation
1500 Bernheim Ln
Louisville, KY 40210

Gerber Construction

TDC:	46796R CO1
DATE:	2.18.21
F.O.B.:	Louisville, KY
ALLOWED FREIGHT:	Job Site
ADDEN. REV'D:	NA
JOB:	CVWRF BNR ADD
CITY:	Salt Lake City, UT

TUTTLE A Dant Clayton Division, is pleased to offer a **Change Order** quotation for the above referenced project. Additional guardrail per markups on Brown and Caldwell Submittal #100.0 dated 1.15.21

TDC 8000 Friction Fit Sub-Assembled: 351 LF **$16,932**

Description: 4 - Line Rail Mechanical Systems with 231 LF of F-Type Kick Plate.
Materials: 1-1/2" Sch. 40 Rails and Sch. 80 Posts.
Finish: Arch. Class 1 Clear Anodized Finish, .7 Mil (M12C22A41).
Fasteners: ½" x 4-1/2" T316 Epoxy Anchors.
Mounts: TDC Standard Cast Bases
Wall/Assist Brackets: Will be shipped loose for field attachment by others.
P.E. Stamp/Calcs: No add'l calcs needed-using same mounting conditions

10% OF TOTAL CONTRACT WILL BE INVOICED WITH 1ST ENGINEERING SUBMITTAL
2 Submittal revisions are included. Additional revisions may be an additional fee.
Billings begin 30 days after 1st submittal is sent to the customer.

Terms: NET 30 days (Subject to credit approval). No retention.

Freight: Our quotation includes a freight allowance for (1) hotshot shipment for Panel Assembled, to the job site in Salt Lake City, UT. Additional shipments, ***including partial shipments,*** will be made at your request, quoted, and a change order received prior to shipping.

Exclusions

Erection / Installation	Neoprene gaskets	Misc. ferrous metals & Carbon steel.
Unloading of trucks	Taxes	Field measurements
Grout / Caulk / Sleeves	Color	Temporary railing charges
PE stamp & calculations	FRP Railing	Non-Penetrating Roof Rail
Mock Ups & Full-Size Samples	Ladders & Gates	Beveled Washers
Retainage	Protective wrap	AIS Requirement
Partial Shipments		

Accepted: _____

Date: _____

TUTTLE A Dant Clayton Division
Katie Jones
email: Kjones@tuttlerailings.com

This quote is only Valid within 60 Days from quoted date above, Contact the sales person above if beyond that date.

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

Purchase Orders MUST be addressed to:
Dant Clayton Corporation
1500 Bernheim Ln
Louisville, KY 40210

Gerber Construction

TDC:	46796R CO2
DATE:	2.18.21
F.O.B.:	Louisville, KY
ALLOWED FREIGHT:	Job Site
ADDEN. REV'D:	NA
JOB:	CVWRF BNR Deduct Aeration Basin
CITY:	Salt Lake City, UT

TUTTLE A Dant Clayton Division, is pleased to offer a **DEDUCTIVE Change Order** quotation for the above referenced project. Remove guardrail from scope per markups on Brown and Caldwell Submittal #100.0 dated 1.15.21

TDC 8000 Friction Fit Sub-Assembled: 29 LF **($1,110)**

Description: 4 - Line Rail Mechanical Systems Ramp Railing
Materials: 1-1/2" Sch. 40 Rails and Sch. 80 Posts.
Finish: Arch. Class 1 Clear Anodized Finish, .7 Mil (M12C22A41).
Fasteners: ½" x 4-1/2" T316 Epoxy Anchors.
Mounts: TDC Standard Cast Bases

Credit cannot be given for detailing hours, since the are was already drawn.
Only material and shop labor can be deducted from the original contract

Terms: NET 30 days (Subject to credit approval). No retention.

Freight: Our quotation ***excludes*** a freight credit. Removal of 29LF does not remove a shipment, nor down grade from flatbed to hotshot.

Exclusions

Erection / Installation	Neoprene gaskets	Misc. ferrous metals & Carbon steel.
Unloading of trucks	Taxes	Field measurements
Grout / Caulk / Sleeves	Color	Temporary railing charges
PE stamp & calculations	FRP Railing	Non-Penetrating Roof Rail
Mock Ups & Full-Size Samples	Ladders & Gates	Beveled Washers
Retainage	Protective wrap	AIS Requirement
Freight	***Detailing***	

Accepted: _____

Date: _____

TUTTLE A Dant Clayton Division
Katie Jones
email: Kjones@tuttlerailings.com

This quote is only Valid within 60 Days from quoted date above, Contact the sales person above if beyond that date.

CHANGE CONTROL FORM 016
Aluminum Handrail

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/02/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a proposal to supply and install aluminum handrail for the Aerobic Basin along Gridline 9 from Gridline E.17 to Grid Line E.13 on wall, along Gridline 1 from Gridline E.15 to E.17 on ramp, along Gridline 1 from Grid Line E.9 to E.7 on ramp, and along gridline 10 from gridline E.1 to E.2 on wall.

Delete handrail on ramp along Grid Line 10 from gridline E.8 to E.7

See attached redlined drawings.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date
Accepted by Contractor:	Date:

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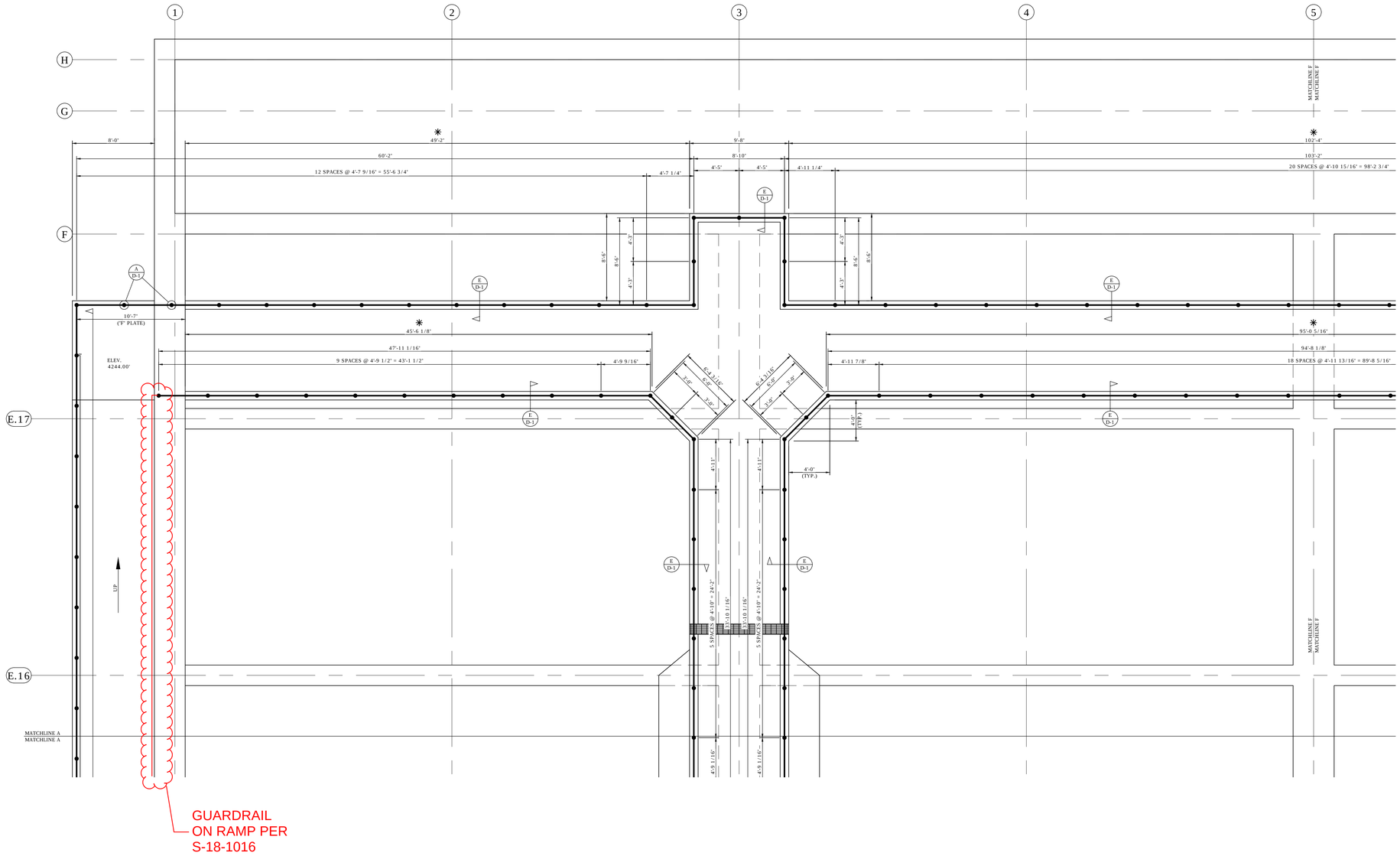


GUARDRAIL
ON RAMP PER
S-18-1016

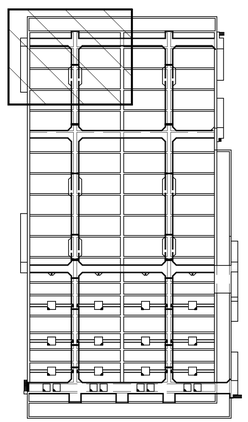
PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

KEY PLAN



TUTTLE A DANT CLAYTON DIVISION			120 Shadowlawn Drive, Fishers, Indiana 46038 Phone: (317) 842-2420 Fax: (317) 845-1328 Toll Free: (800) 328-4496 www.tuttlerailings.com engineering@tuttlerailings.com
CVWRF BNR BASINS PEPS RAS			DESIGNER -
SALT LAKE CITY, UT			CUSTOMER GERBER CONSTRUCTION INC.
DETAILS AERATION BASINS			CONTRACTOR -
FINISH CLEAR ANODIZED			
DR. CFC DATE 09-21-20	SCALE AS NOTED	DESCRIPTION APPROVAL	DATE 11/30/20
P.O. # 2008-PO-24			JOB NO. 46796R.1
			DRAWING NO. 14

NO.	REVISION	BY	DATE

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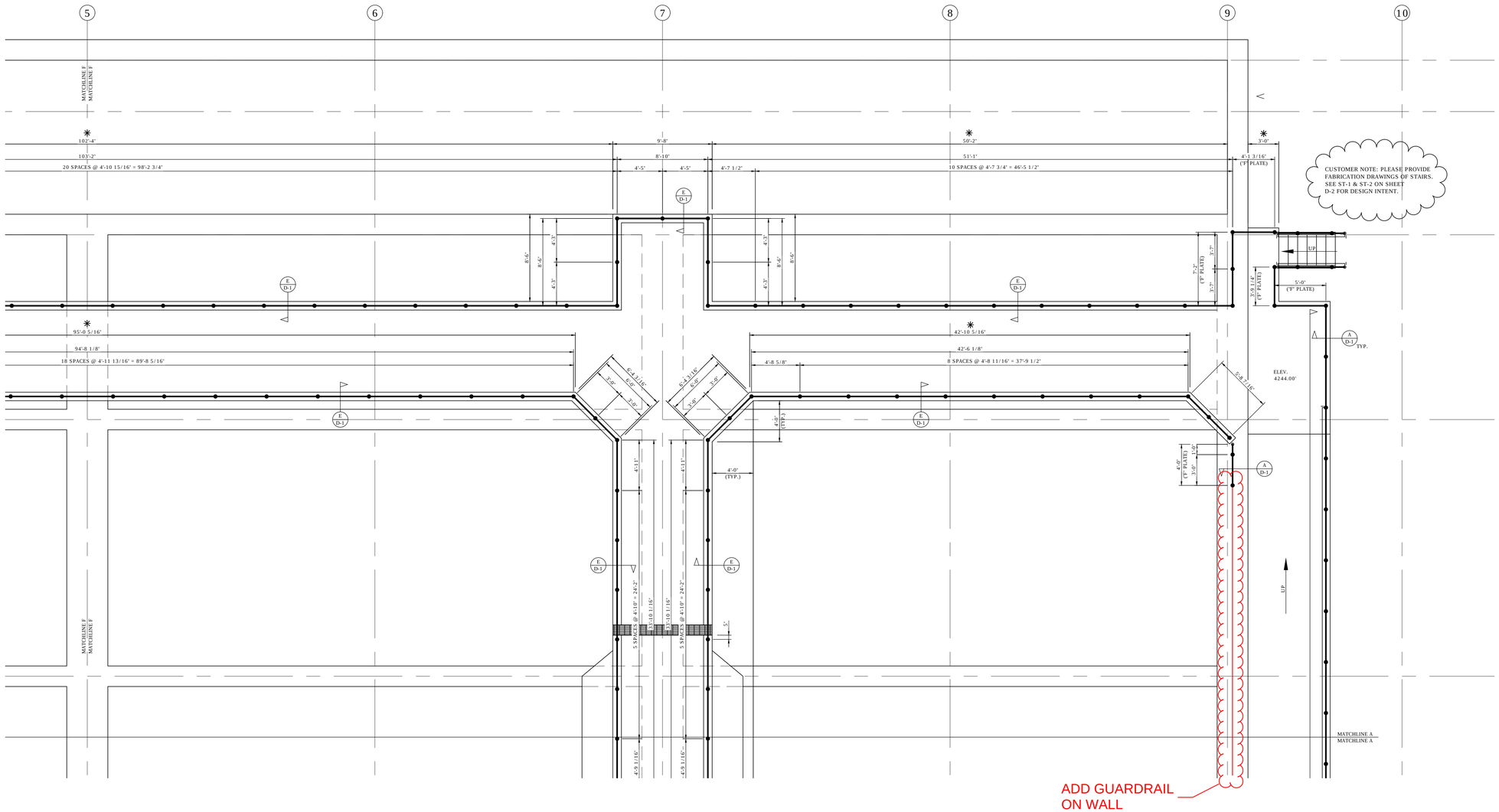
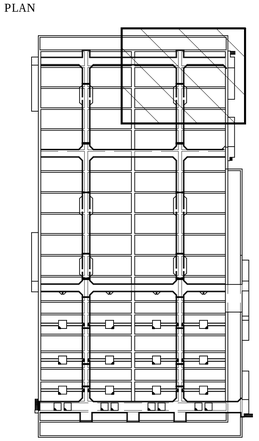


KEY PLAN



PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

NO.	REVISION	BY	DATE

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A DANT CLAYTON DIVISION

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SALT LAKE CITY, UT

DETAILS AERATION BASINS
FINISH CLEAR ANODIZED

DR. CFC DATE 09-21-20
P.O. # 2008-PO-24

SCALE AS NOTED

DESIGNER -
CUSTOMER GERBER CONSTRUCTION INC.
CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 15

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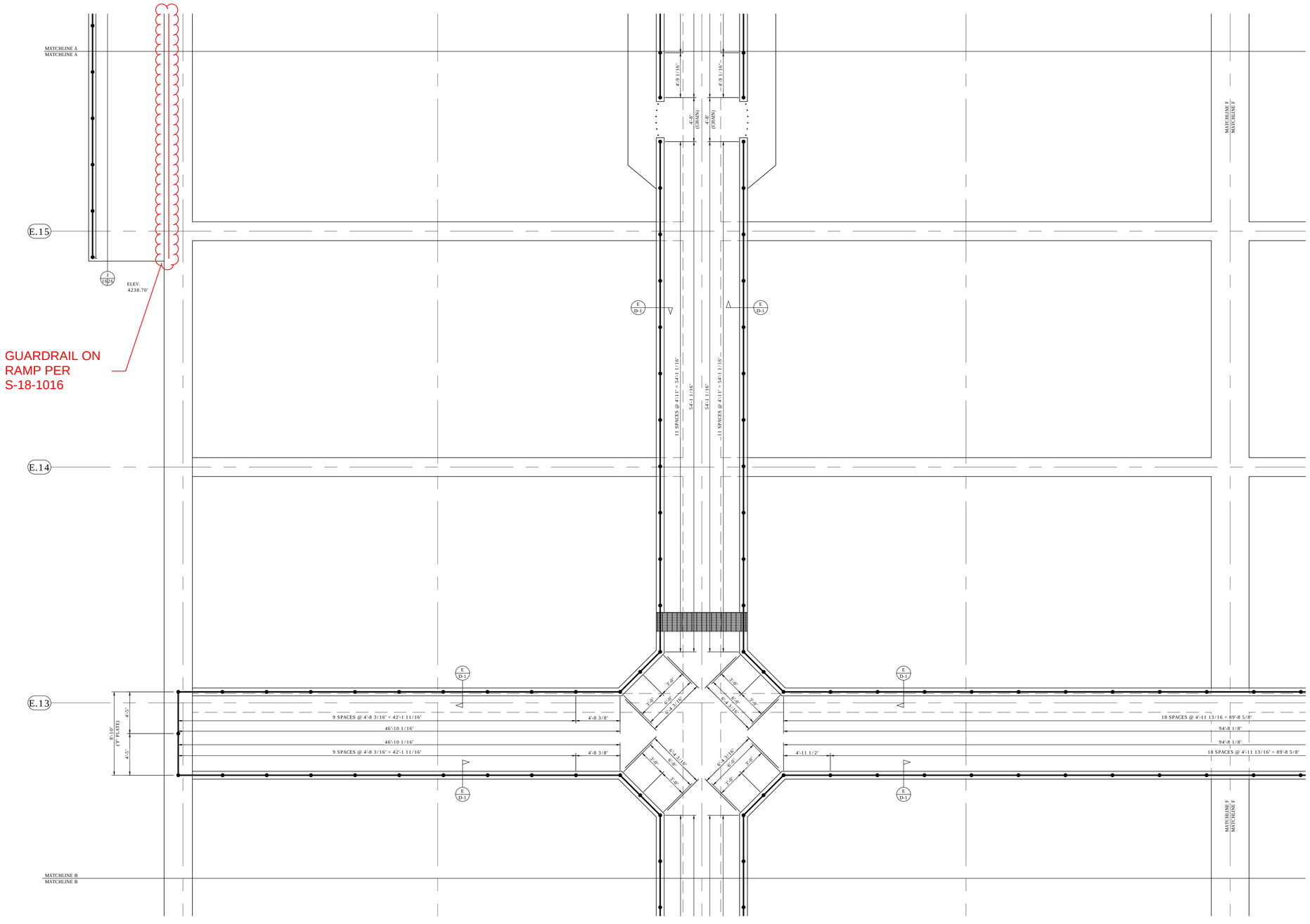


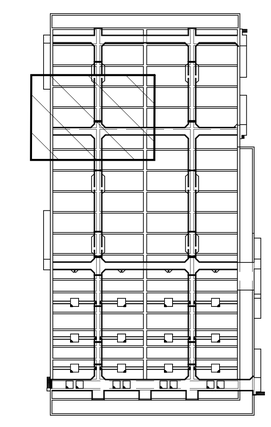
PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

KEY PLAN



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CVWRF BNR BASINS PEPS RAS

SALT LAKE CITY, UT

DETAILS AERATION BASINS

FINISH CLEAR ANODIZED

DR. CFC DATE 09-21-20

P.O. # 2008-PO-24

SCALE AS NOTED

DESIGNER -

CUSTOMER GERBER CONSTRUCTION INC.

CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 16

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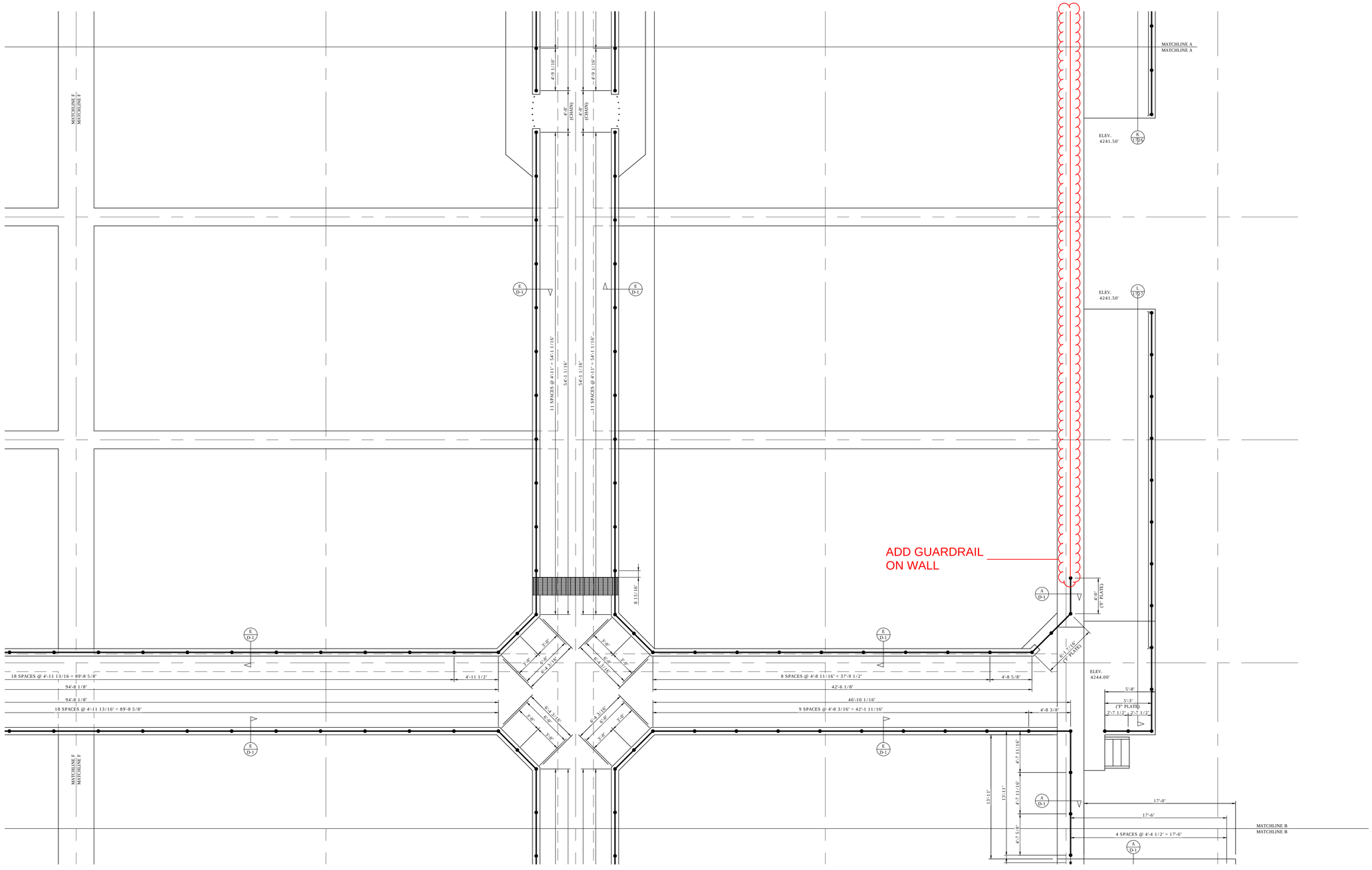


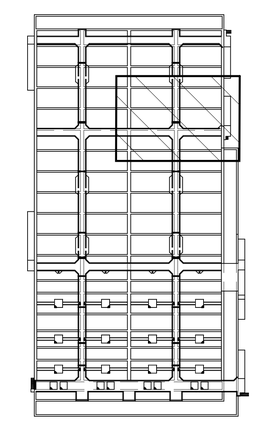
PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

KEY PLAN



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CVWRF BNR BASINS PEPS RAS

SALT LAKE CITY, UT

DETAILS AERATION BASINS

FINISH CLEAR ANODIZED

DR. CFC DATE 09-21-20

P.O. # 2008-PO-24

SCALE AS NOTED

DESIGNER -

CUSTOMER GERBER CONSTRUCTION INC.

CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 17

NO.	REVISION	BY	DATE

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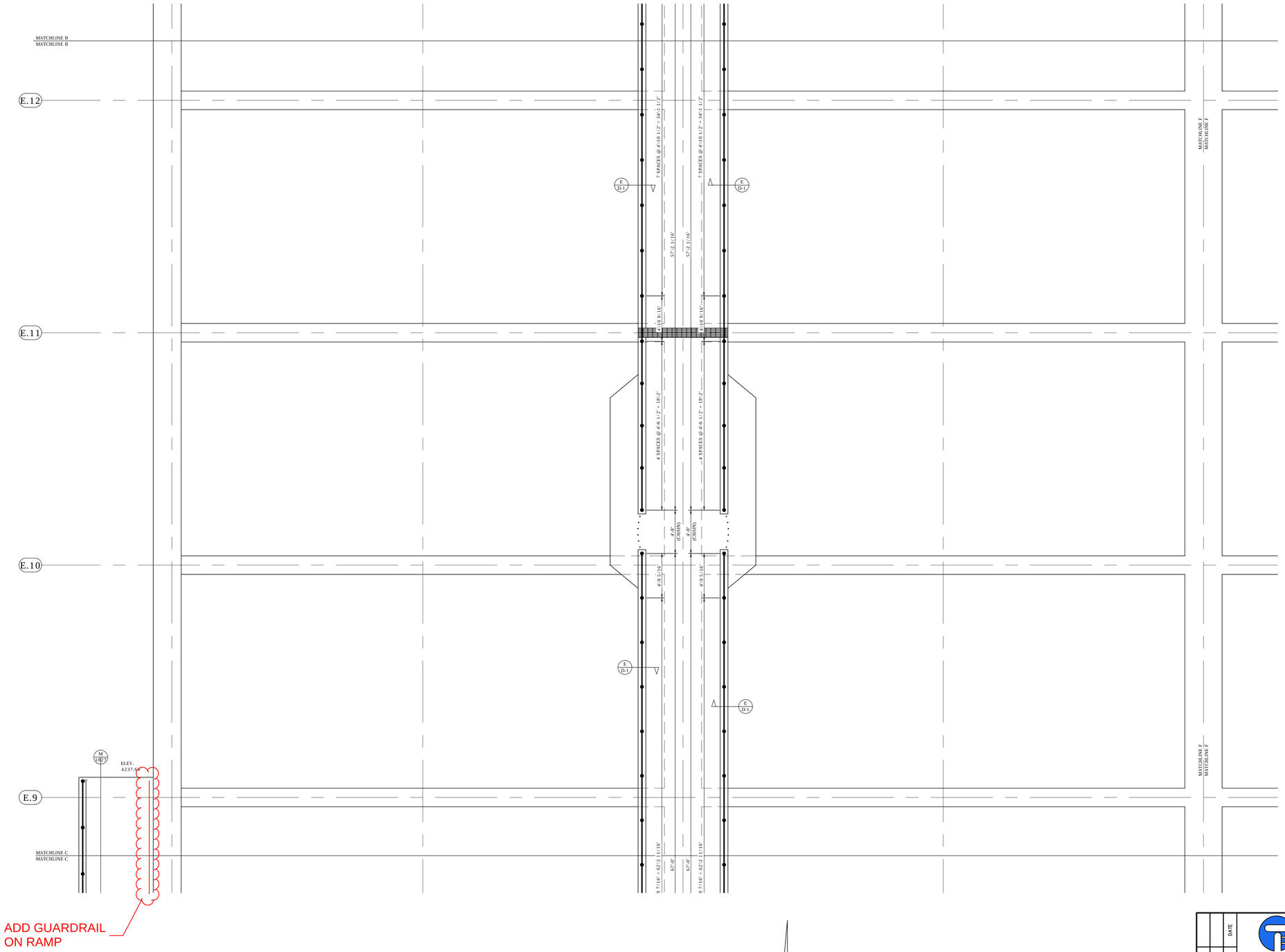
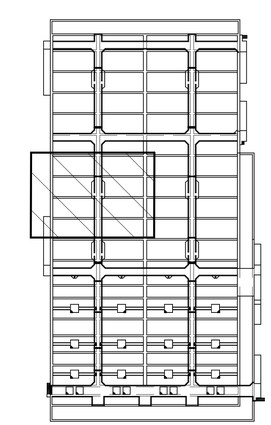


PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

KEY PLAN



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DETAILS AERATION BASINS
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DR. CFC DATE 09-21-20
P.O. # 2008-PO-24
SCALE AS NOTED

DESIGNER -
CUSTOMER GERBER CONSTRUCTION INC.
CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 18

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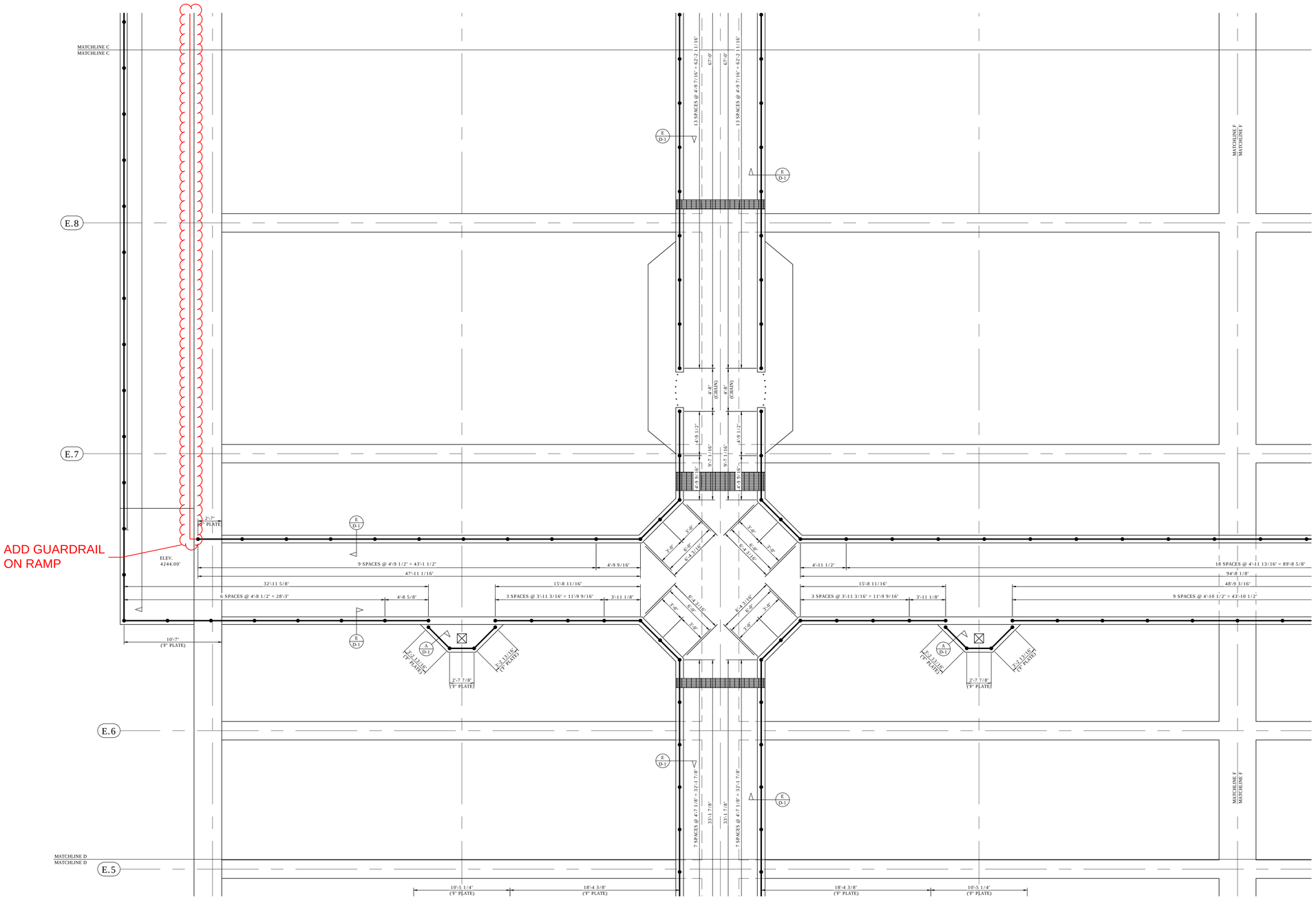


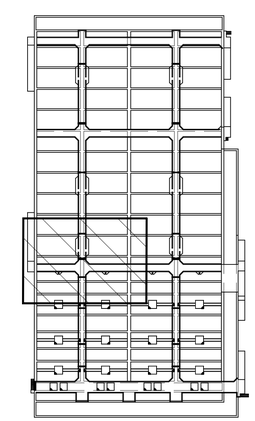
PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

KEY PLAN



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NO.	REVISION	BY	DATE

CVWRF BNR BASINS PEPS RAS

SALT LAKE CITY, UT

DETAILS AERATION BASINS

FINISH CLEAR ANODIZED

DR. CFC DATE 09-21-20

P.O. # 2008-PO-24

SCALE AS NOTED

DESIGNER -

CUSTOMER GERBER CONSTRUCTION INC.

CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 20

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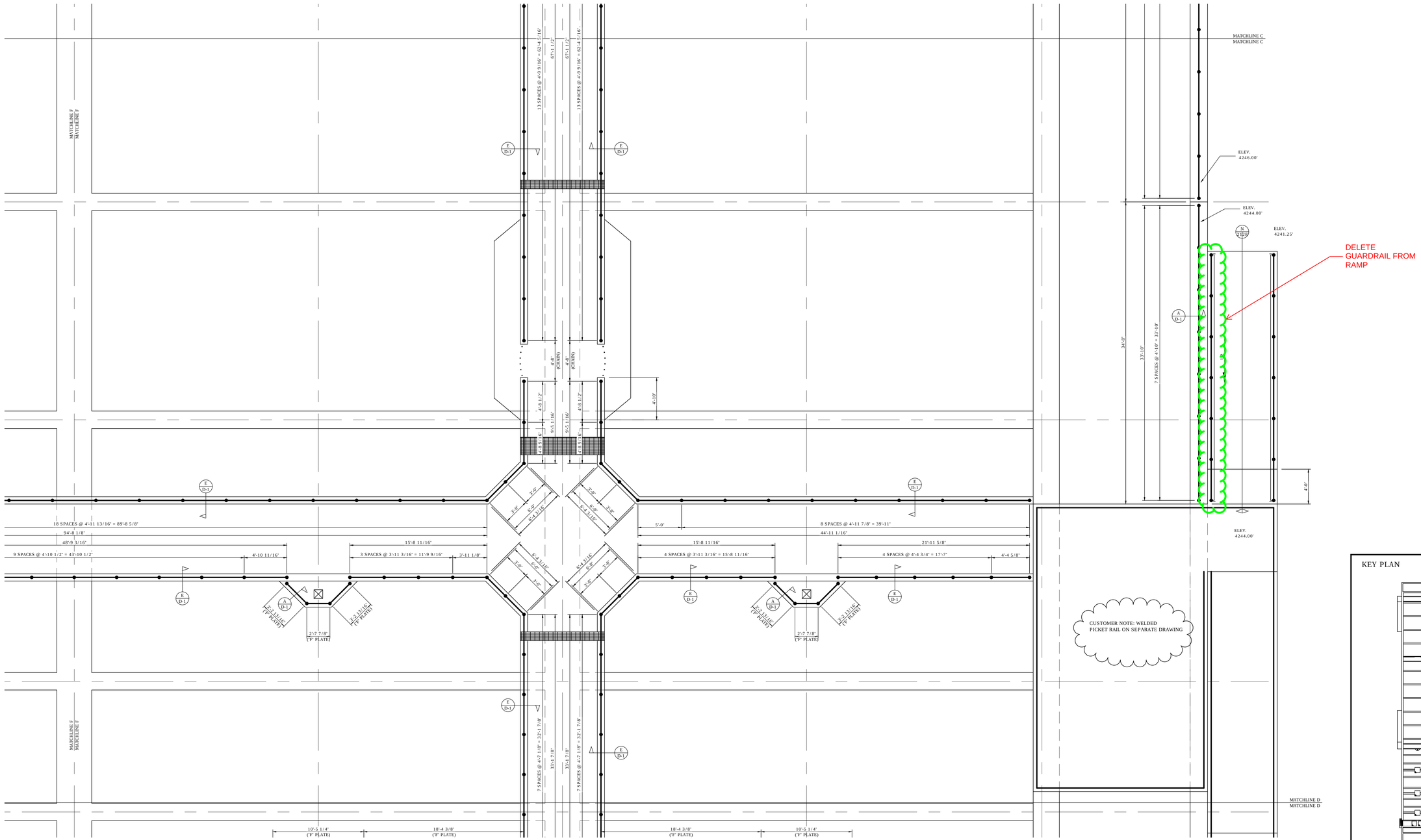
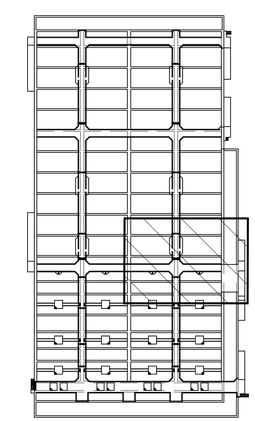


KEY PLAN



PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

NO.	REVISION	BY	DATE

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SALT LAKE CITY, UT

DETAILS AERATION BASINS
FINISH CLEAR ANODIZED
DR. CFC DATE 09-21-20
P.O. # 2008-PO-24
SCALE AS NOTED

DESIGNER -
CUSTOMER GERBER CONSTRUCTION INC.
CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1
DRAWING NO. 21

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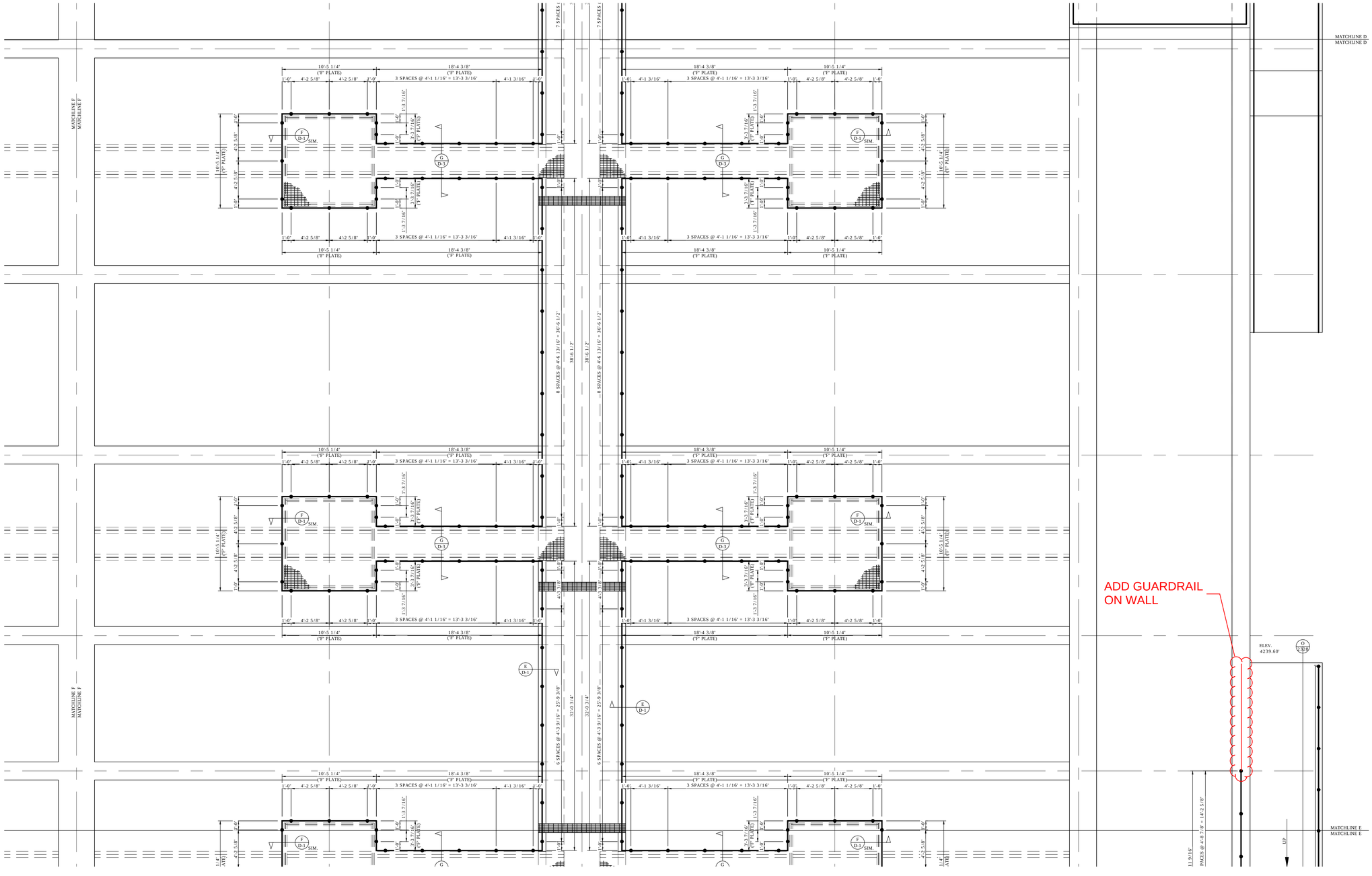
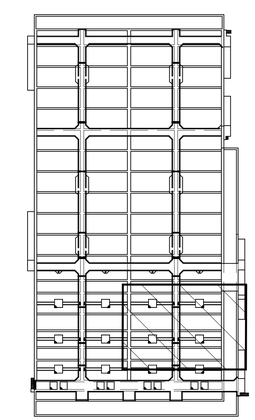


KEY PLAN



PLAN OF RAIL AT AERATION BASINS

SCALE: 3/4" = 1'-0"

S-18-1005, 1013, 1014, 1015, 1016, 1017, 1018, 1019

NORTH

NO.	REVISION	BY	DATE

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CVWRF BNR BASINS PEPS RAS
SALT LAKE CITY, UT

DETAILS AERATION BASINS
FINISH CLEAR ANODIZED
DR. CFC DATE 09-21-20
P.O. # 2008-PO-24
SCALE AS NOTED

DESIGNER -
CUSTOMER GERBER CONSTRUCTION INC.
CONTRACTOR -

DESCRIPTION	DATE
APPROVAL	11/30/20

JOB NO. 46796R.1

DRAWING NO. 23

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 018
Date: 4/5/2021
Description: Per Control Change Form #018: Credit to delete concrete anchors and HDPE flex restraints at the northwest corner of the RAS Selector.

Gerber Construction Credit (see attached back-up):	-$5,456.17
Total:	**-$5,456.17**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$5,456.17 will be added to the contract price.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

To:	Central Valley Water Reclamation Facility	**Contact:**	
Address:	800 West Central Valley Road	**Phone:**	
	Salt Lake City, UT 84119	**Fax:**	
Project Name:	2008-018 RAS Anchor Block Delete CC#18	**Bid Number:**	2008-018
Project Location:		**Bid Date:**	

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
01	RAS Anchor Block	1.00	LS	$5,456.17	$5,456.17

Total Bid Price: $5,456.17

CREDIT

CHANGE CONTROL FORM 018
RAS Anchor Block Delete

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 2/8/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Anchor Blocks and their associated anchor lock retainers are not required on the HDPE RAS lines as they enter the RAS Selector on the northwest corner of the structure. Please provide a credit for the removal of the anchor blocks and associated anchor lock retainers.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 010.1
Date: 2/16/2021
Description: Per RFI #054 response and Control Change Form #019: Cost to supply and install APWA Detail 433 on the 8" PSC line in manhole.

Gerber Construction Labor (see attached back-up):	$3,799.40
Materials (see attached back-up):	$2,261.70
Equipment (see attached back-up):	$458.60
Bonds:	$68.18
Mark-up (15%):	$988.18
Total:	**$7,576.06**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $7,576.06 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

CHANGE CONTROL FORM 019
8” PSC to Manhole Connection

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 2/8/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

See RFI # 54 for the connection detail to the existing sewer manhole.

Provide a pipe drop in the existing manhole per APWA Plan 433 for the Primary Scum Line that flows from the north box of the West Interconnection. See C-00-1315.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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RFI #54

Brown & Caldwell -Program Management
6975 Union Park Center, Suite 490
Salt Lake City, Utah 84047
Phone: +1 801 316 9832

Project: CC 30B - BNR Basins
800 West Central Valley Rd.
South Salt Lake City, Utah 84119
Phone: 8019739100

8 PSC to Ex Manhole Connection Detail

TO: Neil Kunz **(Brown & Caldwell -Program Management)**
Mark Hansen **(Brown & Caldwell -Program Management)**
Mike Kobe **(Brown & Caldwell -Program Management)**

DATE INITIATED: 11/20/2020

LOCATION:

PROJECT STAGE:

COST IMPACT:

DRAWING NUMBER:

LINKED DRAWINGS:

RECEIVED FROM:

FROM: Phil Duncan **(Gerber Construction)**

STATUS: Open

DUE DATE: 11/23/2020

COST CODE:

SCHEDULE IMPACT:

SPEC SECTION:

REFERENCE:

COPIES TO:
Shay Clark **(Gerber Construction)**, Phil Duncan **(Gerber Construction)**, Neil Kunz **(Brown & Caldwell -Program Management)**, Jordon Miller **(Gerber Construction)**, Jeromie Miner **(Gerber Construction)**

Question from Phil Duncan (Gerber Construction) at 02:02 PM on 11/20/2020

The 8" PSC line coming from the West North connector box and into the existing manhole nearby does not show a connection detail. Please provide connection detail.

Attachments:
RFI #54 8 PSC to EX Manhole.pdf

Official Response: **Mike Kobe (Brown & Caldwell -Program Management)** *responded on Tuesday, December 1st, 2020 at 12:31PM CST*

Please connect to the existing manhole per APWA Detail 433, Pipe Drop Alternative 2. The centerline elevation of the 8" PSC line entering the existing manhole shall be 4232.75; for 6" drop from the inlet. Thanks, MK

Attachments:

All Replies:

Response from Mike Kobe (Brown & Caldwell -Program Management) at 12:31 PM on 12/01/2020

Please connect to the existing manhole per APWA Detail 433, Pipe Drop Alternative 2. The centerline elevation of the 8" PSC line entering the existing manhole shall be 4232.75; for 6" drop from the inlet. Thanks, MK

Attachments:

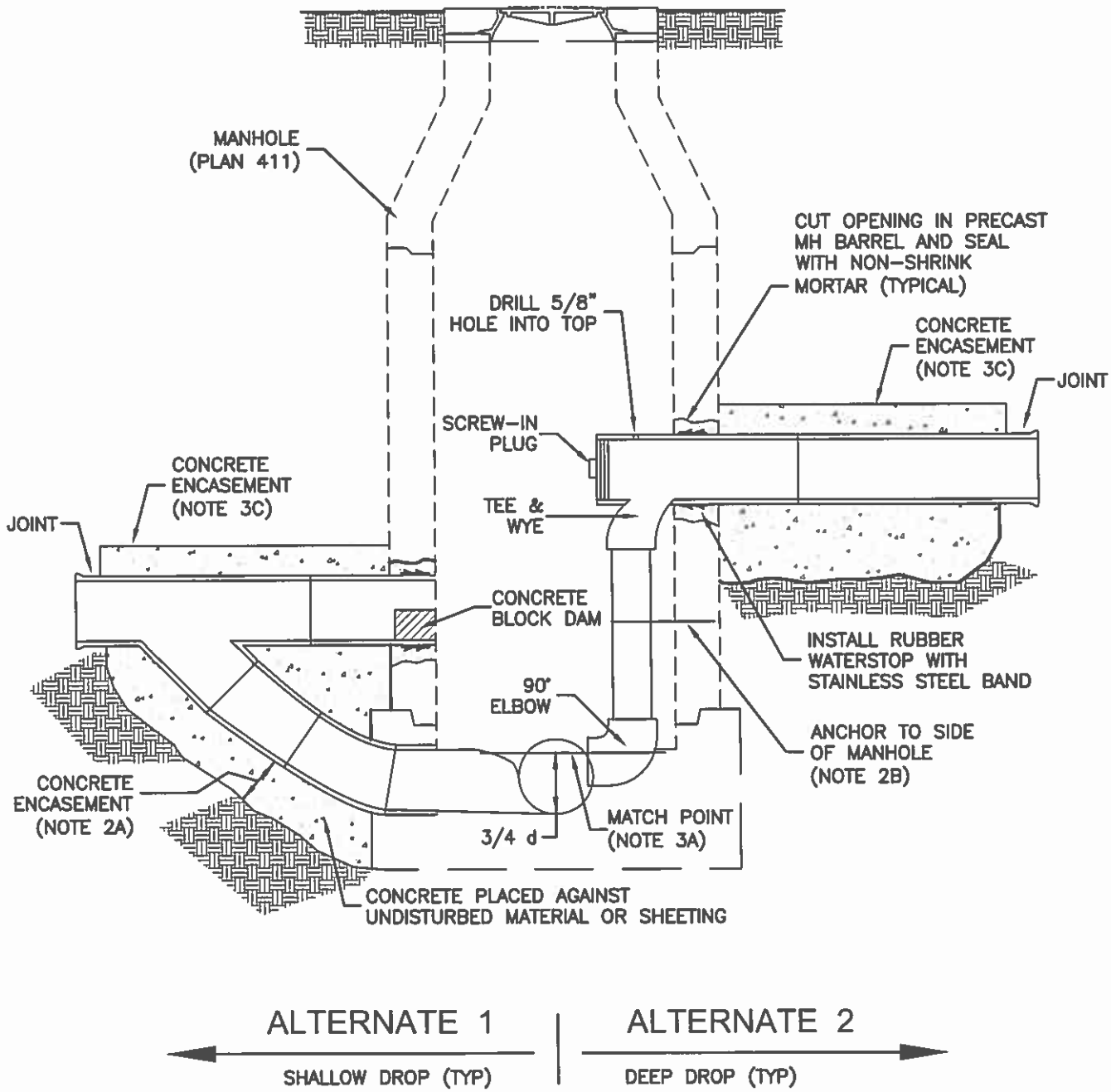
BY	DATE	COPIES TO

Pipe drop

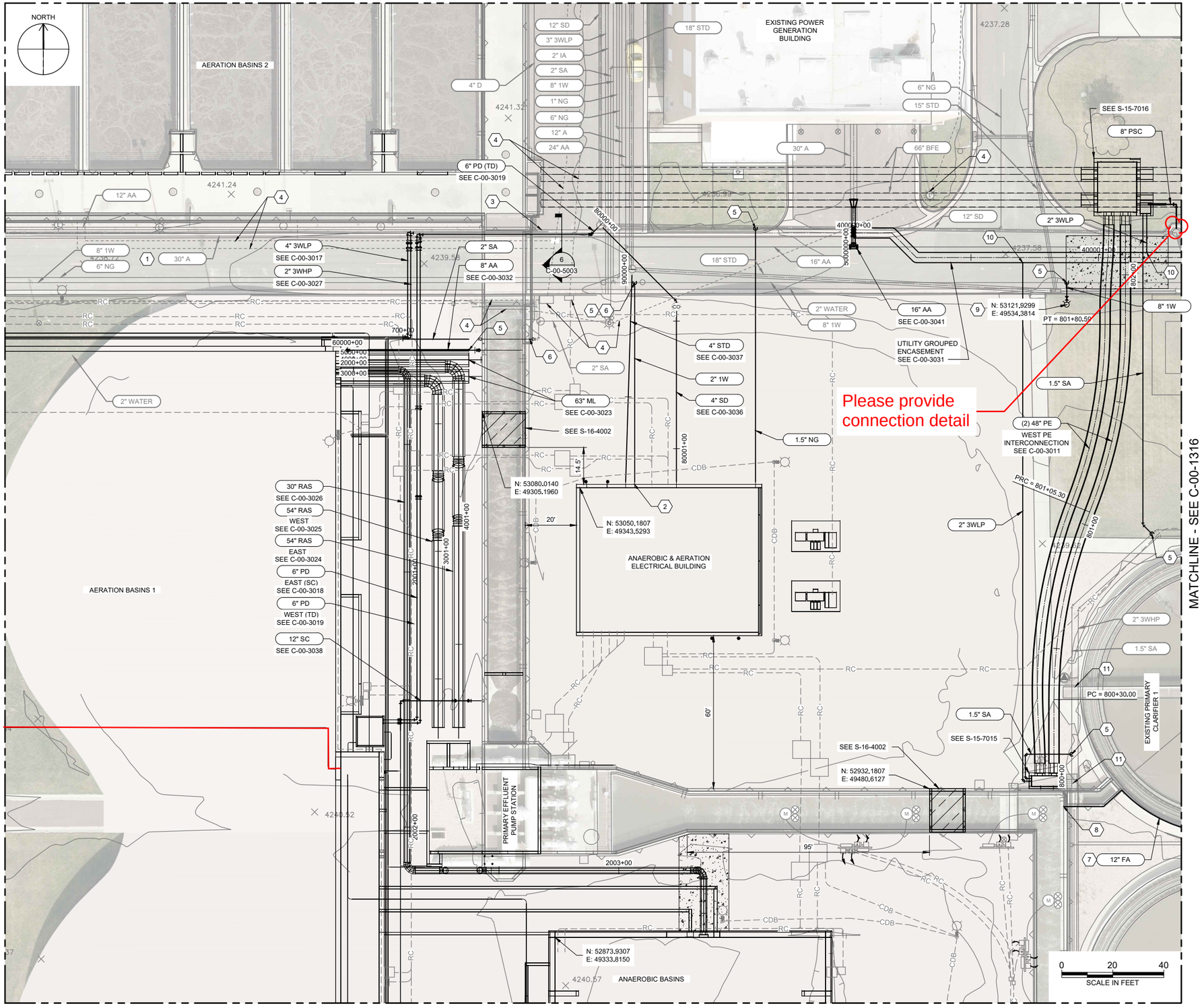
1. **GENERAL**
   A. Only one drop pipe is allowed inside the manhole.
   B. Size of drop pipe is to be the same diameter as sewer mainline pipe that it serves.

2. **PRODUCTS**
   A. Concrete: Class 4000, APWA Section 03 30 04.
   B. Anchors: Use stainless steel anchors that are acceptable to ENGINEER.

3. **EXECUTION**
   A. At the match point, match the 3/4 diameter points of the pipes.
   B. If the drop is more than 18-inches, anchor the riser to the wall every 12-inches.
   C. Extend concrete encasement to first joint beyond excavation for drop connection.


MANHOLE
(PLAN 411)
CUT OPENING IN PRECAST
MH BARREL AND SEAL
WITH NON-SHRINK
MORTAR (TYPICAL)
DRILL 5/8"
HOLE INTO TOP
CONCRETE
ENCASEMENT
(NOTE 3C)
JOINT
SCREW-IN
PLUG
CONCRETE
ENCASEMENT
(NOTE 3C)
JOINT
TEE &
WYE
CONCRETE
BLOCK DAM
INSTALL RUBBER
WATERSTOP WITH
STAINLESS STEEL BAND
90°
ELBOW
ANCHOR TO SIDE
OF MANHOLE
(NOTE 2B)
CONCRETE
ENCASEMENT
(NOTE 2A)
3/4 d
MATCH POINT
(NOTE 3A)
CONCRETE PLACED AGAINST
UNDISTURBED MATERIAL OR SHEETING
ALTERNATE 1
SHALLOW DROP (TYP)
ALTERNATE 2
DEEP DROP (TYP)

SECTION



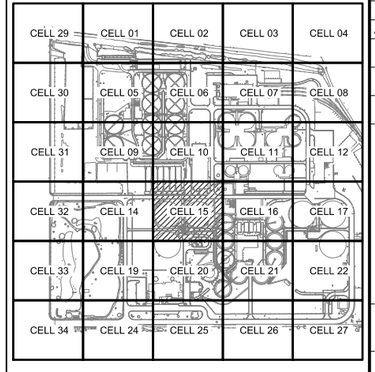
GENERAL NOTES:

1. LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. PROTECT ALL EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. VERIFY ALL LOCATIONS AND ELEVATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. CONTRACTOR SHALL PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR DESIGN AND INSPECTION OF THE FOUL AIR DUCT SUPPORTS. FINAL LAYOUT AND DETAILING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY ENGINEER. SUBMITTAL SHALL INCLUDE DRAWINGS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH. CONTRACTOR TO COORDINATE DESIGN WITH SPECIFICATIONS 01 33 00, 01 73 24, 05 10 00 AND 23 30 33.

KEY NOTES:

1. SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:
   12" WAS;
   6" FMT TO S1;
   6" FMT TO S2;
   6" FMT TO FUTURE S3;
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:
   12" WAS;
   6" FMT TO S1;
   6" FMT TO S2;
   6" FMT TO FUTURE S3;
   2" 3WHP;
   4" 3WLP;
   2 X 6" PD.
4. PROTECT IN PLACE. SEE ELECTRICAL.
5. CONNECT TO EXISTING. SEE GENERAL SITE PIPING NOTES 8 AND 9.
6. PROVIDE 2" AWWA C509 ISOLATION VALVE.
7. INSTALL 12" FA TO CLARIFIER 1 TOP OF WALL EL 4243.0 (CONTRACTOR TO VERIFY). INSTALL PIPE SUPPORT EVERY 10 FT.
8. CONNECT 12" FA TO EXISTING 12" AA. SEE PROCESS FOR CONTINUATION.
9. INSTALL FIRE HYDRANT PER DETAIL DC 1865.
10. INSTALL 4"x4"x2" 3WLP TEE.
11. REMOVE AND REPLACE EXISTING STAIRS.

KEY PLAN:



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

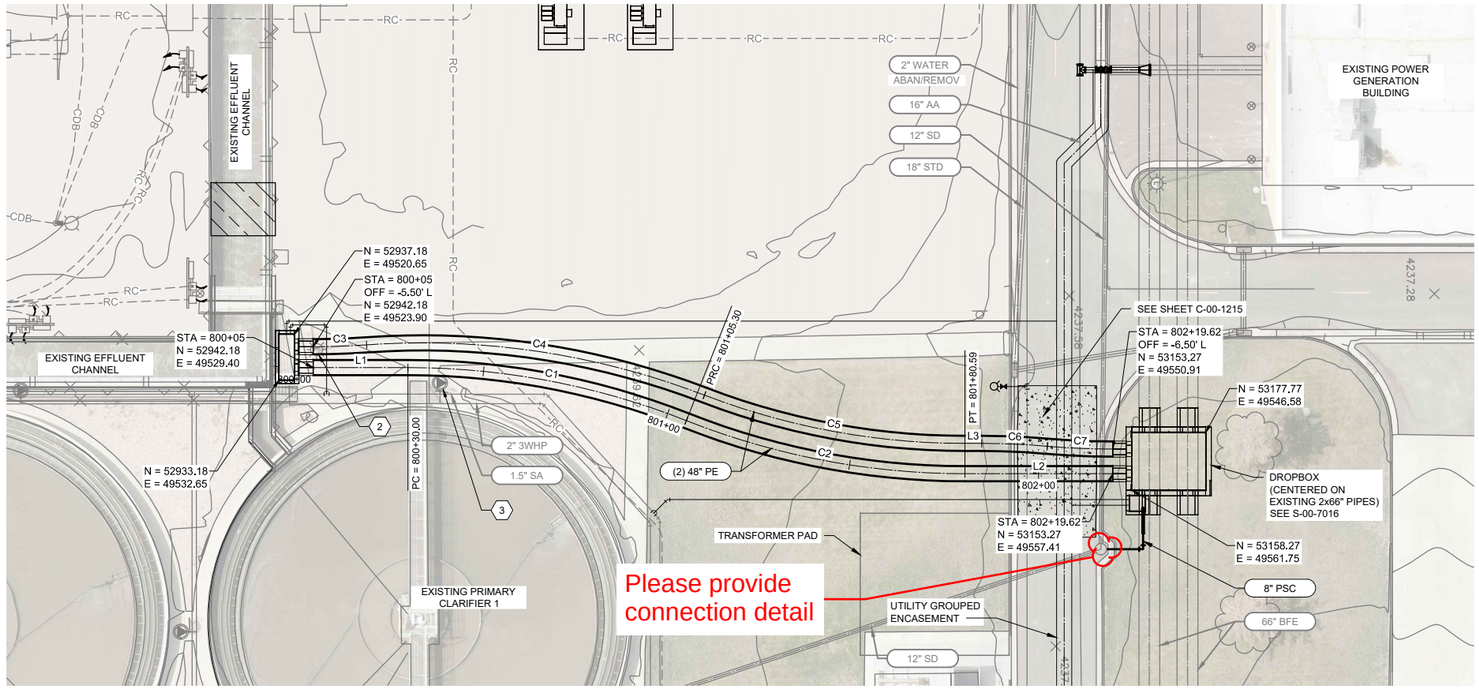
FILENAME
C-00-1315.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

SITE PIPING PLAN - AREA 16

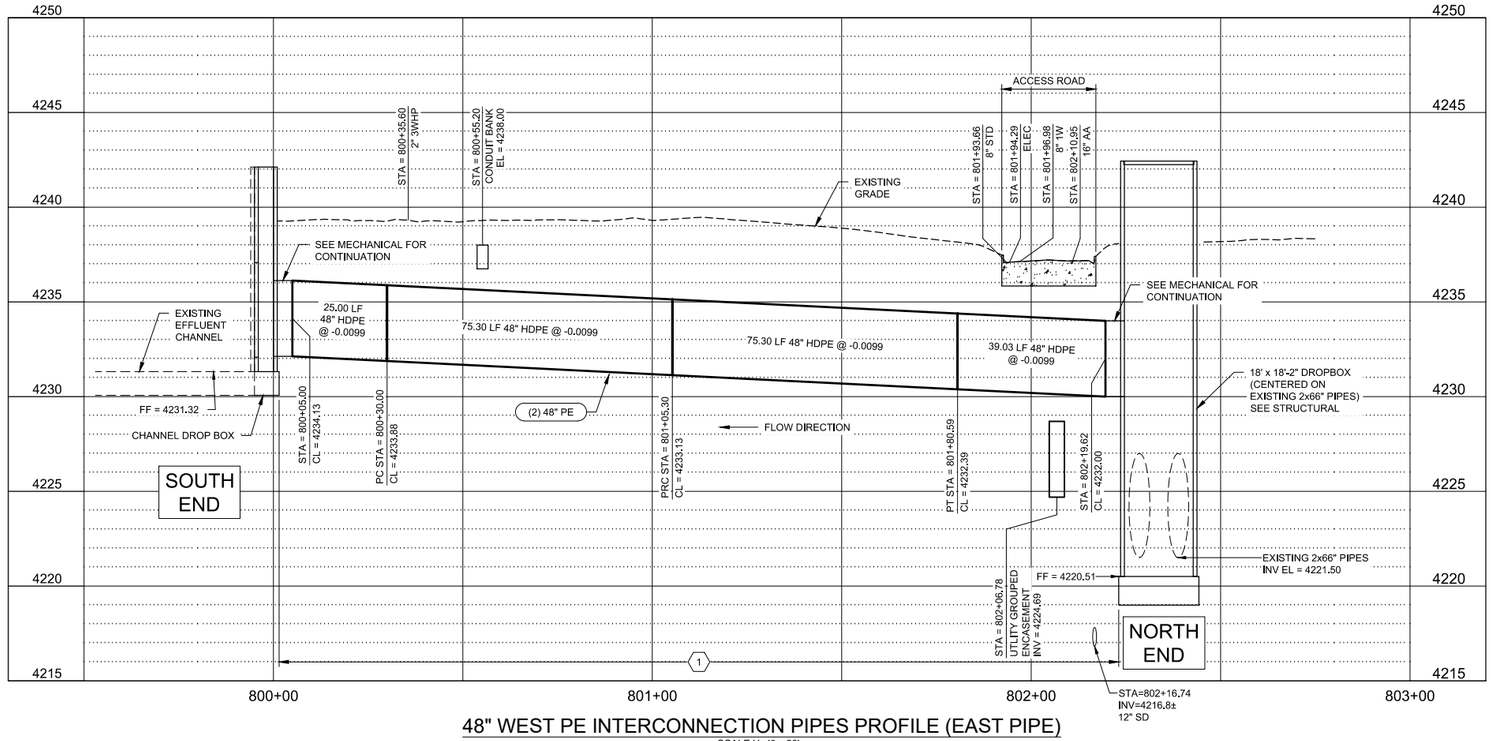
DRAWING NUMBER
C-00-1315

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\04-CIVIL\3D\02-SHEETS FILENAME: C-00-1315.DWG PLOT DATE: 6/5/2020 2:31 PM CAD USER: DAVID DAVIDSE
CVWRF_NW.sld



48" WEST PE INTERCONNECTION PIPES PLAN

SCALE H: 1" = 20'



48" WEST PE INTERCONNECTION PIPES PROFILE (EAST PIPE)

SCALE H: 1" = 20'
V: 1" = 4'

KEY NOTES:

1. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).
2. REMOVE AND RELOCATE AREA LIGHT.
3. REMOVE AND REPLACE EXISTING UTILITY STATION.

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA
C1	75.30'	200.00'	21°34'14"
C2	75.30'	200.00'	21°34'14"
C3	14.13'	200.00'	4°02'55"
C4	90.88'	208.00'	25°02'03"
C5	70.32'	192.00'	20°59'08"
C7	17.33'	200.00'	4°57'49"

LINE TABLE

LINE	LENGTH	DIRECTION
L1	25.00'	N00°00'00"E
L2	39.03'	N00°00'00"E
L3	4.42'	N00°00'00"E

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY
FILENAME C-00-3011.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

CIVIL

SITE PIPING PLAN AND PROFILE - WEST PE INTERCONNECTION

DRAWING NUMBER
C-00-3011

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\04-CIVIL3D\02-SHEETS FILENAME: C-00-3011.DWG PLOT DATE: 6/5/2020 7:58 AM CAD USER: DAVID DAVIDSE
CVWRF_NW.sd

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing By Phase

Project Name:	2008-010 8" Drain At Manhole - RFI #054	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-010	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
Phase: (None)							
D 01 - 8" Drain At Manhole	**1.00**	**UNIT**	**$6,519.70**	**$6,519.70**	**$7,576.06**	**$7,576.06**	**15.00%**
Pipe Fitter 3 Men (1.00 UNIT/DY, 1.25 DY)	1.25	UNIT	$3,039.52	$3,799.40			
Pipefitter	11.25	HR	$127.36	$1,432.78			
Pipefitter	11.25	HR	$127.36	$1,432.78			
04 Skilled Labor	11.25	HR	$83.01	$933.84			
HDPE Fusion Machine, 04"-12"	1.00	DY	$257.00	$257.00			
Material Lift, Manual, 650 Lb Load	0.20	WK	$50.00	$10.00			
Excavator, Crawler, 135	4.00	HR	$47.90	$191.60			
Pipe, & Fittings - 8" HDPE	1.00	LS	$1,499.73	$1,499.73			
Pipe Supports,	1.00	EACH	$761.97	$761.97			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,799.40	58.28%
Equipment Owned:	$191.60	2.94%
Equipment Rented:	$267.00	4.10%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,131.70	32.70%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$130.00	1.99%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$6,519.70	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$6,519.70	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$68.18	0.90%
Total Overall Cost:	$6,587.88	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$988.18	13.04%
Total Margin:	$988.18	13.04%
Total Bid Price:	$7,576.06	

Bill To:

102306
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Ship To:

GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Quote Number	17048855
Quote Date	01/14/21
Expiration Date	01/21/21
Page	1 of 1

Payment Terms NET 30	Customer Job/Project Name	Written By ERICH SCAGLIONE
Freight Terms PREPAID AND ADD	Contact	Sales Rep BOB KILPACK
Ship Via Best Way	Additional Info	

#	Qty	UM	Product	Description	Each	Extended
1	25	FT	10081718	8" DR 17 IPS PIPE HDPE GREEN STR	5.23	130.75
2	1	EA	40081719	8" DR 17 IPS CROSS FABBED HDPE	489.65	489.65
3	2	EA	40080010	8" DR 11 IPS GRAVITY CLEAN OUT HDPE MALE BOSS STD	142.36	284.72
4	2	EA	56080014	8" IPS ELECTROFUSION COUPLING, BLACK, CENTRAL	118.18	236.36
5	1	EA	50081711	8" DR 17 IPS 90 DEG ELBOW MOLDED HDPE	86.16	86.16

ISCO Standard Terms and Conditions apply. Please visit http://www.isco-pipe.com/terms-and-conditions.aspx

Merchandise Total	Tax(1)	Freight(2)	Quote Total
1,227.64	**89.00**	**0.00**	**US $ 1,316.64**

1 Sales tax will be charged based on the ship to address at the time of invoice if there is no tax certificate on file.

2 Freight amount in this quote is an estimate only. Actual freight terms and charges will be determined at the time the order is placed.

Accepted By: _____

Printed Name: _____

Date: _____

100 WITHERSPOON ST * LOUISVILLE, KY 40202

800-345-4726

SALES QUOTE

Quote #:
S-00054335

AVEX Supply, Inc.
3677 North Hwy. 126 Suite 3-C
Farr West, UT 84404
(801) 528-5118 Fax: (801) 528-5120

BILL TO: GERB100
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Contact: SHAY CLARK

SHIP TO: 01
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Terms: NET 30

Quote Date	Expiration Date	Entered By	Ship Via	Freight	Salesperson
02/11/2021	03/13/2021	MAM	OUR TRUCK	DELIVERY	BRYCE PARKER

Item # / Description	Your Part Number	Lead Days	U/M	Order Qty	Price / M	Ext Price
UNISTRUT 10J3 1-5/8" 316 S.S. SLOTTED STRUT X 10' DOMESTIC		0	EA	2	110.00000	220.00
RIGD0800S6 RIGID PIPE CLAMP 8"SS 316 (SAME AS 0D 8 5/8") DOMESTIC		0	EA	15	20.65000	309.75
AW 38 300 S/DOM 3/8 X 3" 316SS WEDGE ANCHOR DOMESTIC		0	EA	30	3.08000	92.40
AIS PAPERWORK + MTRS AIS PAPERWORK + MTRS		0	EA	1	0.00000	0.00

THANK YOU FOR ALLOWING US TO BE OF SERVICE TO YOU!

Order Total: $667.26

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 021
Date: 4/7/2021
Description: Per Control Change Form #021: Cost for labor, equipment and material to loop 12" SSL City water line under storm drain line.

Gerber Construction Material (see attached back-up):	$7,856.61
Gerber Construction Labor and Equipment (see attached back-up):	$8,017.74
Gerber Coordination Labor (see attached back-up):	$2,421.23
Bonds:	$191.34
Mark-up (15%):	$2,773.04
Total:	**$21,259.96**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $21,259.96 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-021 12inch SSLC Loop - CC#021	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-021	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Water Loop Material	**1.00**	**UNIT**	**$7,856.61**	**$7,856.61**	**$9,129.59**	**$9,129.59**	**15.00%**
DI Pipe, 12" Class 350	36.00	LF	$53.32	$1,919.61			
MJ, Bend, 45, 12"	4.00	EACH	$579.65	$2,318.60			
MJ, Megalug, 12"	10.00	EACH	$130.91	$1,309.08			
MJ, Long Sleeve, 12"	1.00	UNIT	$459.92	$459.92			
12" Foster Adapter	1.00	EACH	$447.36	$447.36			
MJ, 14" Megalug	3.00	EACH	$175.38	$526.14			
12" Bell Harnessed	1.00	EACH	$298.68	$298.68			
Valve Box Assembly	1.00	EACH	$229.09	$229.09			
Concrete	2.00	CY	$174.07	$348.14			
D 02 - Gerber Labor & Equipment	**1.00**	**UNIT**	**$8,017.74**	**$8,017.74**	**$9,316.83**	**$9,316.83**	**15.00%**
Excavation Crew, Medium (0.67 UNIT/DY, 1.50 DY)	1.00	UNIT	$4,361.87	$4,361.87			
04 Skilled Labor [2]	13.50	HR	$83.01	$2,241.43			
Excavator, Crawler, 220	12.00	HR	$66.50	$798.08			
07 Operator	13.50	HR	$86.23	$1,164.24			
Compactor, Jumping Jack	12.00	HR	$8.10	$97.21			
Saw, Cutoff, Gas, 14"	12.00	HR	$5.08	$60.91			
Loader, 5 Yard (Volvo 150)	8.00	HR	$70.03	$560.20			
Trench Box, 12'x05'x08' Deep	0.19	MO	$1,537.50	$286.05			
Pipe Crew, Small, 3 Man (1.00 UNIT/DY, 1.00 DY)	1.00	UNIT	$2,463.94	$2,463.94			
02 Foreman	9.00	HR	$107.76	$969.80			
04 Skilled Labor [2]	9.00	HR	$83.01	$1,494.14			
Concrete Crew, 02 Men (4.00 UNIT/DY, 0.25 DY)	1.00	UNIT	$345.68	$345.68			
04 Skilled Labor	2.25	HR	$83.01	$186.77			
05 General Labor	2.25	HR	$70.63	$158.91			
D 03 - Gerber Coordination Labor	**1.00**	**UNIT**	**$2,421.23**	**$2,421.23**	**$2,813.54**	**$2,813.54**	**15.00%**
01 Superintendent	6.75	HR	$157.26	$1,061.53			
19 Project Engineer	4.50	HR	$120.14	$540.61			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 03 - Gerber Coordination Labor continued)							
17 Project Manager	4.50	HR	$182.02	$819.10			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$8,636.53	47.21%
Equipment Owned:	$1,516.40	8.29%
Equipment Rented:	$286.05	1.56%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$7,618.61	41.64%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$45.00	0.25%
Trucking Hired:	$193.00	1.05%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$18,295.59	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$18,295.59	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$191.34	0.90%
Total Overall Cost:	$18,486.92	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,773.04	13.04%
Total Margin:	$2,773.04	13.04%
Total Bid Price:	$21,259.96	

CHANGE CONTROL FORM 021
12” South Salt Lake City 1W Loop

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 2/8/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

See RFI # 62 for the resolution of the conflict between the new STD and the existing SSLC water line.

Loop the SSL City 12" water line under the storm drain line per APWA detail 543.1, including thrust blocks and restrained joints, and coordinate with Dennis Pay at SSL City.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 019
Date: 4/5/2021
Description: Per Control Change Form #022: Cost to increase from a 24' wide gate to a 34' wide gate at the mulch facility. The 24' wide gate that has already been manufactured will be turned over to Central Valley.

Mountain States Fence (see attached back-up):	$3,046.00
Asphalt Paving Sub (see attached back-up):	$200.00
Mark-up (5%):	$162.30
Gerber Construction Labor (see attached back-up):	$568.30
Bonds:	$36.94
Mark-up (15%):	$90.78
Total:	**$4,104.32**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $4,104.32 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-019 Compost Gate Size Increase CC#22	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-019	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Compost Gate Size Increase	**1.00**	**LS**	**$3,814.30**	**$3,814.30**	**$4,104.32**	**$4,104.32**	**6.57%**
Fencing Sub	1.00	LS	$3,046.00	$3,046.00			
Asphalt Paving Sub	1.00	LS	$200.00	$200.00			
Gerber Supporting Tasks	1.00	LS	$568.30	$568.30			
Labor Crew, 1 Man (Pull Posts/Backfill/Asphalt Prep) (4.00 LS/DY, 0.25 DY)	1.00	LS	$299.85	$299.85			
03 Leadman	2.25	HR	$95.38	$214.60			
Skid Steer Loader 2,450 Lbs (90XT)	2.00	HR	$42.63	$85.25			
01 Superintendent	1.00	HR	$152.19	$152.19			
19 Project Engineer	1.00	HR	$116.26	$116.26			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$483.05	12.66%
Equipment Owned:	$85.25	2.24%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$3,246.00	85.10%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,814.30	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,814.30	92.93%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$36.94	0.90%
Total Overall Cost:	$3,851.24	93.83%
Total Overhead:	$0.00	0.00%
Total Profit:	$253.08	6.17%
Total Margin:	$253.08	6.17%
Total Bid Price:	$4,104.32	

Mountain States Fence Company

Memo

To: Jordon Miller

From: **Tyler Vass**

CC:

Date: 2/12/2021

Re: CVWRF Fence Changes #2

Revise 24' wide double gate to be 34' wide double gate
Relocate 1 ea. 6" O.D. gate post (removal of existing post, by others)
Re-install 4 ea. line posts which have been removed, re-dig 3 ea. holes which have been filled
(24' double gate has already been fabricated; it may be released to the owner or recycled).

Total…….. $3,046.00

CHANGE CONTROL FORM 022
Compost Gate Size Increase

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 2/8/2021**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The Owner has requested the gate at the Composting Facility be increased from 24 feet wide to 34 feet wide.

The Contractor shall remove the existing east gate post and install a new gate post 10 feet to the east.

The Contractor shall provide two, 17 foot wide swinging gates.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 023
Date: 4/9/2021
Description: Per Control Change Form #024: Cost for labor, equipment and material to loop sewer line under 15" STD line North of Admin.

Gerber Construction Material (see attached back-up):	$1,002.71
Gerber Construction Labor and Equipment (see attached back-up):	$4,027.79
Gerber Coordination Labor (see attached back-up):	$2,020.47
Bonds:	$73.74
Mark-up (15%):	$1,068.70
Total:	**$8,193.41**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $8,193.41 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-023	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-023	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 W Central Valley Road, South Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Materials	**1.00**	**UNIT**	**$1,002.71**	**$1,002.71**	**$1,165.18**	**$1,165.18**	**15.00%**
6"X8" Reducer	1.00	LS	$111.04	$111.04			
6" 45 Degree Elbows	3.00	LS	$47.44	$142.33			
6" Inserta Tee	1.00	LS	$216.29	$216.29			
6" SDR35 Pipe	28.00	LS	$4.80	$134.34			
1 QT Pipe Lube	1.00	LS	$9.03	$9.03			
6" Inserta Tee Hole Saw	1.00	LS	$339.29	$339.29			
8" Cap	1.00	LS	$50.40	$50.40			
D 02 - Gerber Equipment & Labor	**1.00**	**UNIT**	**$4,027.79**	**$4,027.79**	**$4,680.39**	**$4,680.39**	**15.00%**
Pipe Crew, Small, 3 Man (0.75 UNIT/DY, 1.33 DY)	1.00	UNIT	$4,027.79	$4,027.79			
Compactor, Jumping Jack	10.67	HR	$8.10	$86.40			
Trench Box, 12'x05'x08' Deep	0.06	MO	$1,537.50	$95.35			
Excavator, Crawler, 220	10.67	HR	$66.50	$709.33			
02 Foreman	12.00	HR	$107.76	$1,293.07			
04 Skilled Labor	12.00	HR	$83.01	$996.09			
05 General Labor	12.00	HR	$70.63	$847.54			
D 03 - Gerber Coordination Labor	**1.00**	**UNIT**	**$2,020.47**	**$2,020.47**	**$2,347.84**	**$2,347.84**	**15.00%**
01 Superintendent	4.50	HR	$157.26	$707.68			
17 Project Manager	3.00	HR	$182.02	$546.01			
19 Project Engineer	6.00	HR	$120.14	$720.80			
Truck, Pickup, 1 Ton	0.02	MO	$1,976.63	$45.97			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$5,111.20	72.49%
Equipment Owned:	$841.70	11.94%
Equipment Rented:	$95.35	1.35%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$910.71	12.92%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$92.00	1.30%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$7,050.97	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$7,050.97	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$73.74	0.90%
Total Overall Cost:	$7,124.71	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,068.70	13.04%
Total Margin:	$1,068.70	13.04%
Total Bid Price:	$8,193.41	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 024
Date: 4/20/2021
Description: Per Control Change Form #025: Cost for labor, equipment and material to increase the size of Slide Gate SGTE223131.

Golden Harvest Gate Change (see attached back-up):	$3,975.65
Gerber Construction Material, Labor, Equipment (see attached back-up):	$745.24
Gerber Coordination Labor (see attached back-up):	$681.52
Bonds:	$56.50
Mark-up (15%):	$818.84
Total:	**$6,277.75**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $6,277.75 will be added to the contract price.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-024 Increase Slide Gate - CC#025	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-025	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, South Salt Lake, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gate Increase (Golden Harvest)	**1.00**	**UNIT**	**$3,975.65**	**$3,975.65**	**$4,619.81**	**$4,619.81**	**15.00%**
Slide Gate Size Increase	1.00	LS	$3,975.65	$3,975.65			
D 02 - Gerber Labor & Materials	**1.00**	**UNIT**	**$745.24**	**$745.24**	**$865.99**	**$865.99**	**15.00%**
Mechanical Crew, 2 Man (2.67 UNIT/DY, 0.38 DY)	1.00	UNIT	$643.99	$643.99			
02 Foreman	3.38	HR	$107.76	$363.77			
04 Skilled Labor	3.38	HR	$83.01	$280.22			
Drill, Concrete 3/4"	0.07	WK	$61.50	$4.10			
Epoxy	2.00	EACH	$39.38	$78.77			
Truck, Pickup, 1 Ton	0.01	MO	$1,976.63	$18.39			
D 03 - Gerber Coordination Labor	**1.00**	**UNIT**	**$681.52**	**$681.52**	**$791.95**	**$791.95**	**15.00%**
01 Superintendent	1.80	HR	$157.26	$283.07			
19 Project Engineer	1.80	HR	$120.14	$216.24			
17 Project Manager	0.90	HR	$182.02	$163.82			
Truck, Pickup, 1 Ton	0.01	MO	$1,976.63	$18.39			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,307.12	24.20%
Equipment Owned:	$40.87	0.76%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$4,044.42	74.86%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$10.00	0.19%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$5,402.41	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$5,402.41	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$56.50	0.90%
Total Overall Cost:	$5,458.91	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$818.84	13.04%
Total Margin:	$818.84	13.04%
Total Bid Price:	$6,277.75	

Golden Harvest, Inc.

Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 CO-2

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: Joshua McGaughey @ 1-800-338-6238

PLEASE RESPOND TO:

GOBLE SAMPSON AND ASSOCIATES, INC
3500 SOUTH MAIN STREET, SUITE 200
SALT LAKE CITY, UT 84115

ATTN:

David Ritter
dritter@goblesampson.com

PHONE: 801-268-8790
FAX: 801-268-8792

DATE: **March 4, 2021**
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

SCOPE

SPECIFICATION: 40 05 59. 23 FABRICATED STEEL BULKHEAD GATES AND FRAMES						
Dwg #18		TAG # SGTE223131	60" x 60"	INCREASING THE GATE FROM 72 X 36 TO 60 X 60 WEIR GATE. LARGER 2" STEM, LARGER ROTORK IQ35, REVISED CALCULATIONS AND DRAWINGS	**1**	
				CHANGE ORDER TOTAL	**1**	**$3,700.00**

NOTES:

1. Stainless steel anchor bolts are included for concrete mounted frames.	3. **SALES TAX NOT INCLUDED IN PRICE.**
2. Epoxy adhesive by contractor.	4. Mill finish on stainless steel surfaces.

CHANGE CONTROL FORM 025
Increase Slide Gate SGTE223131 Height

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 04/14/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

The Contractor shall increase height of Slide Gate SGTE223131 from 36 inches to 60 inches and decrease width from 72 inches to 60 inches per submittal 105.1 comments.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

11/23/2021

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 007- Disconnect STD from Vitro, Formliner, Dampproofing Credit, ANB Electrical Junction Boxes, Modified Duct Bank North of ANB, and Shoring Credit

Dear Brandon,

Change Order 7 includes costs to:

- Disconnect the **storm drain from vitro** ditch per CCF 023
- Add **form-liner** to the Aeration Basin, Anaerobic Basin, and RAS Selector per CCF 026
- Credit to **delete damp proofing** around unoccupied buried structures per CCF 030
- Relocate **ANB Electrical Junction Boxes** per CCF 032
- Provide a **Modified Duct Bank** on North end of the Anaerobic Basin per CCF 035
- **Shoring Credit** to change from drilling H-piles to vibratory installation of H-piles per CCF 043

Disconnect Storm Drain from Vitro: During storm drain installation as a part of this project, a changed condition was identified. The storm drain inlets near 900 South were found to be connected directly to the Vitro ditch. In order to keep all storm drainage on site at the CVWRF, these inlets will need to be abandoned and new inlets will need to be installed connecting drainage to the on-site storm drain system. After two rounds of negotiations, the Contractor is requesting **$52,686.84** and **(8)** days to complete this work.

Form-liner: The Contractor was asked to provide formliner to the South wall of the RAS Selector, the North wall of the Aeration Basin, and the West and South walls of the Anaerobic Basin. The estimate for this additional work was $90,000.00. The Contractor is requesting **$68,657.83** and **(8)** days. The Contractor's quotation was reviewed and is in line with our expectations and appears to be fair and reasonable.

Damp proofing Credit: CVWRF requested a credit for the removal of concrete damp proofing from non-occupied areas of the BNR/PEPS/RAS Selector project. The Contractor is offering a credit of (**$25,786.00**) to remove the damp proofing as indicated above. The Contractor's proposal was reviewed and appears in line with our expectations.

ANB Electrical JB: Junction boxes at the N/E corner of the Anaerobic Basin need to be relocated slightly to the West to accommodate incoming duct bank and conduit. The relocation was required as the original design had wall mounted conduit, which would

interfere with expansion of the anaerobic basin to the west in the future. Relocation of the junction boxes includes providing and installing a conduit support bridge to transverse above the ANB wall and over to the relocated junction boxes. The Contractor is requesting **$18,261.38** and **(1)** day to relocate the junction boxes and associated infrastructure. The Contractor's proposal has been reviewed and appears in line with the work involved.

Modified Duct Bank: The original design of the Anaerobic Basin had buried reinforced concrete duct bank running E/W on the North end of the Anaerobic Basin. As the A2O inlet channel exists on the North end of the Anaerobic Basin, there is not room to install the buried reinforced concrete duct bank. The Contractor was asked to provide a proposal to modify the duct bank so that the conduit is flattened and centered between the rebar in the 15" concrete roadway per CCF 035. Also included with this change is the supply and installation of aluminum conduit to transition from the duct bank to the junction boxes on the N/W corner of the Anaerobic Basin. The Contractor is requesting **$31,574.66 and (3)** days to complete this work. This change was negotiated, redesigned, and revised from above-ground PVC conduit at an original proposed cost of $84,665.73.

Shoring Credit: The contractor was allowed to deviate from the spec requirement of drilling H-piles and was allowed to use vibratory methods for installation. The Contractor is offering a credit of (**$24,500.00**) for the time saved by utilizing vibratory installation methods.

The total price Change Order 7 is $120,894.71 and (20) days.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 023 – Disconnect STD from Vitro w/Contractor Quotation

3. CCF 026 – Formliner w/Contractor Quotation
4. CCF 030 – Damp Proofing Credit w/Contractor Quotation
5. CCF 032 – ANB Electrical JB Locations w/Contractor Quotation
6. CCF 035 – Modified Duct Bank North of ANB w/Contractor Quotation
7. CCF 043 – Shoring Credit w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 07

Date of Issuance:	11/23/2021	Effective Date:	11/23/2021
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30A

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 7 includes costs to:

- Disconnect the storm drain from vitro ditch per CCF 023
- Add form-liner to the Aeration Basin, Anaerobic Basin, and RAS Selector per CCF 026
- Credit to delete damp proofing around unoccupied buried structures per CCF 030
- Relocate ANB Electrical Junction Boxes per CCF 032
- Provide a modified duct bank on the North end of the Anaerobic Basin per CCF 035
- Shoring Credit to change from drilling H-piles to vibratory installation of H-piles per CCF 043

Attachments:

1. CCF 023 – Disconnect STD from Vitro w/Contractor Quotation
2. CCF 026 – Formliner w/Contractor Quotation
3. CCF 030 – Damp Proofing Credit w/Contractor Quotation
4. CCF 032 – ANB Electrical JB Locations w/Contractor Quotation
5. CCF 035 – Modified Duct Bank w/Contractor Quotation
6. CCF 043 – Shoring Credit w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
Increase **[Decrease]** from previously approved Change Orders No. 1 to No. 6 :	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 6 : Substantial Completion: 35

$56,178.73	Ready for Final Payment: 35 days
Contract Price prior to this Change Order: $ 123,211,502.27	Contract Times prior to this Change Order: Substantial Completion: 1,526 Ready for Final Payment: 1,616 days or dates
[Increase] [Decrease] of this Change Order: $120,894.71	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 20 days Ready for Final Payment: 20 days days or dates
Contract Price incorporating this Change Order: $123,332,396.98	Contract Times with all approved Change Orders: Substantial Completion: 1,546 days Ready for Final Payment: 1,636 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 11/23/2021	Date 12/2/2021	Date 11/29/2021

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 022.2
Date: 9/2/2021
Description: Per Control Change Form #023: Cost for labor, equipment and material to add 15" storm drain lines and boxes, and cap the top of Vitro pipes. This pricing also includes the additional 15" RCP and storm drain boxes needed south of the Admin parking lot.

Subcontractor – Asphalt Patch (see attached back-up):	$547.20
Subcontractor – Asphalt Saw Cutting (see attached back-up):	$239.40
Mark-up (5%):	$39.34
Gerber Construction Materials (see attached back-up):	$13,260.90
Gerber Construction Labor & Equipment (see attached back-up):	$25,365.20
Gerber Coordination Labor (see attached back-up):	$5,996.14
Bonds:	$474.18
Mark-up (15%):	$6,764.48
Total:	**$52,686.84**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $52,686.84 will be added to the contract price, and an additional 8 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-022 Disconnect STD From Vitro - CC#023	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-022	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 W. Central Valley Road, South Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Materials	**1.00**	**UNIT**	**$13,260.90**	**$13,260.90**	**$15,409.29**	**$15,409.29**	**15.00%**
Precast Box, 4'-0"x4'-0"x5' Deep,	2.00	EACH	$2,222.87	$4,445.74			
Precast Box, 4'-0"x10'-6"x5' Deep,	1.00	EACH	$4,219.03	$4,219.03			
Pipe, RCP, 15"	40.00	LF	$27.88	$1,115.13			
Road Base, Commercial	8.80	TON	$16.87	$148.48			
Gravel, 0.375" Rock, (Squeegy)	26.40	TON	$18.48	$487.98			
Geotextile Filter Fabric, Mirafi 140N	0.15	ROLL	$756.56	$111.52			
Concrete, 4000 PSI Engineered	11.00	CY	$174.07	$1,914.76			
Rebar	350.00	LB	$1.07	$376.08			
Curing Compound,	1.50	GAL	$10.75	$16.12			
Forming Materials	1.00	SF	$264.90	$264.90			
Landscaping Materials	1.00	LS	$161.18	$161.18			
D 02 - Gerber Asphalt & Concrete Demo	**1.00**	**UNIT**	**$2,811.26**	**$2,811.26**	**$3,266.70**	**$3,266.70**	**15.00%**
Excavation Crew, Medium (1.00 UNIT/DY, 1.00 DY)	1.00	UNIT	$2,055.15	$2,055.15			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
07 Operator	9.00	HR	$86.23	$776.09			
03 Leadman	3.00	HR	$95.38	$286.10			
Dump Fees/Ton	15.00	TON	$12.00	$180.00			
Trucking (Asphalt & Concrete) (0.25 DY, 1.00 Trucks, 7.50 TON/HR)	15.00	TON	$19.33	$290.00			
D 03 - Gerber Precast Box & Pipe Installation	**1.00**	**UNIT**	**$13,815.87**	**$13,815.87**	**$16,054.17**	**$16,054.17**	**15.00%**
Pipe Crew, Medium, 4 Man (0.24 UNIT/DY, 4.17 DY)	1.00	UNIT	$13,815.87	$13,815.87			
Compactor, Jumping Jack	33.33	HR	$8.10	$270.00			
Excavator, Crawler, 220	33.33	HR	$66.50	$2,216.67			
04 Skilled Labor	37.50	HR	$83.01	$3,112.79			
05 General Labor	37.50	HR	$70.63	$2,648.56			
Loader, 5 Yard (Volvo 150)	33.33	HR	$70.03	$2,334.17			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 03 - Gerber Precast Box & Pipe Installation continued)							
07 Operator	37.50	HR	$86.23	$3,233.69			
04 - Gerber Concrete & Rebar Labor	**1.00**	**UNIT**	**$8,364.54**	**$8,364.54**	**$9,719.68**	**$9,719.68**	**15.00%**
Concrete Crew, 03 Men (0.28 UNIT/DY, 3.56 DY)	1.00	UNIT	$8,364.54	$8,364.54			
02 Foreman	32.00	HR	$107.76	$3,448.19			
04 Skilled Labor	32.00	HR	$83.01	$2,656.25			
05 General Labor	32.00	HR	$70.63	$2,260.11			
05 - Gerber Landscape & Sprinkler Repair	**1.00**	**UNIT**	**$373.53**	**$373.53**	**$434.05**	**$434.05**	**15.00%**
04 Skilled Labor	4.50	HR	$83.01	$373.53			
06 - Subcontractors	**1.00**	**UNIT**	**$786.60**	**$786.60**	**$835.38**	**$835.38**	**5.10%**
Asphalt Patching Sub	114.00	SF	$4.80	$547.20			
Asphalt Saw Cutting sub	76.00	LF	$3.15	$239.40			
07 - Gerber Coordination Labor	**1.00**	**UNIT**	**$5,996.14**	**$5,996.14**	**$6,967.57**	**$6,967.57**	**15.00%**
01 Superintendent	18.00	HR	$157.26	$2,830.73			
19 Project Engineer	18.00	HR	$120.14	$2,162.44			
17 Project Manager	4.50	HR	$182.02	$819.10			
Truck, Pickup, 1 Ton	0.09	MO	$1,976.63	$183.87			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$25,354.64	55.84%
Equipment Owned:	$5,536.71	12.19%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$11,233.80	24.74%
Subcontracted:	$786.60	1.73%
Trucking Owned:	$290.00	0.64%
Trucking Hired:	$2,027.11	4.46%
Miscellaneous:	$180.00	0.40%
Plug:	$0.00	0.00%
Direct Cost:	$45,408.85	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$45,408.85	86.19%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$474.18	0.90%
Total Overall Cost:	$45,883.03	87.09%
Total Overhead:	$0.00	0.00%
Total Profit:	$6,803.81	12.91%
Total Margin:	$6,803.81	12.91%
Total Bid Price:	$52,686.84	

CHANGE CONTROL FORM 023
Disconnect Storm Drain from Vitro Culvert

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 3/9/21**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

During the course of construction, it was discovered that the existing curb inlets on 3185 South, near 900 West, were connected to the easterly Vitro Culvert. This change was requested by the Owner to comply with the Owner's Storm Water permit.

The work is described in RFI # 75, attached, and includes removal of the existing curb inlets, sealing and closing the storm drain connections to the Vitro Culvert, replacing the curb and gutter, providing new curb inlet boxes, revising storm drain Cleanout Box #1 and revising the storm drain piping. The figure from RFI #75 is attached.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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RFI #75

Brown & Caldwell -Program Management
6975 Union Park Center, Suite 490
Salt Lake City, Utah 84047
Phone: +1 801 316 9832

Project: CC 30B - BNR Basins
800 West Central Valley Rd.
South Salt Lake City, Utah 84119
Phone: 8019739100

STD Questions Near 900 W

TO:	Mark Hansen **(Brown & Caldwell -Program Management)** Mike Kobe **(Brown & Caldwell -Program Management)**	**FROM:**	Phil Duncan **(Gerber Construction)**
		STATUS:	Closed on 03/04/21
		DUE DATE:	02/26/2021
DATE INITIATED:	02/15/2021	**COST CODE:**	
LOCATION:		**SCHEDULE IMPACT:**	
PROJECT STAGE:		**SPEC SECTION:**	
COST IMPACT:		**REFERENCE:**	
DRAWING NUMBER:			
LINKED DRAWINGS:			
RECEIVED FROM:			

COPIES TO:
Shay Clark **(Gerber Construction)**, Phil Duncan **(Gerber Construction)**, Neil Kunz **(Brown & Caldwell -Program Management)**

Question from Phil Duncan (Gerber Construction) at 06:01 PM on 02/15/2021

The existing 15" RCP coming into cleanout box #2 from the north is ~0.3' low of the elevation shown on the plans. Because of this, our precast box will not accept it. We believe we have two options:

1. Lower the entire box 0.3' to accept the existing RCP on the north. This would require the other two penetrations for the east west lines to be modified by 0.3' and would leave ~0.5' of standing water in the box at all times
2. Dig back the existing 15" RCP to the north far enough to regrade and match the correct elevation.

We also would like to know if the two curb inlets and cleanout box #1 may be cast in place at our option rather than using precast vaults. Precast lead times are currently very long.
See attached.

Attachments:
RFI #75 - STD Questions Near 900 W.pdf

Official Response: **Mike Kobe (Brown & Caldwell -Program Management)** *responded on Thursday, March 4th, 2021 at 5:06PM CST*

BC has confirmed the reinforcing requirements of the gutter over the opening in the RCP pipe and revised the location of the new curb inlets. Please see attached. MK

Attachments:
RFI_75_STD_vs_VITRO_72s_C-00-3021_MPK-DAH.pdf

Official Response: **Mike Kobe (Brown & Caldwell -Program Management)** *responded on Friday, February 19th, 2021 at 3:44PM CST*

BC reviewed these alternatives and questions with CV on 2/16/21.
1. This is acceptable.
2. N/A.

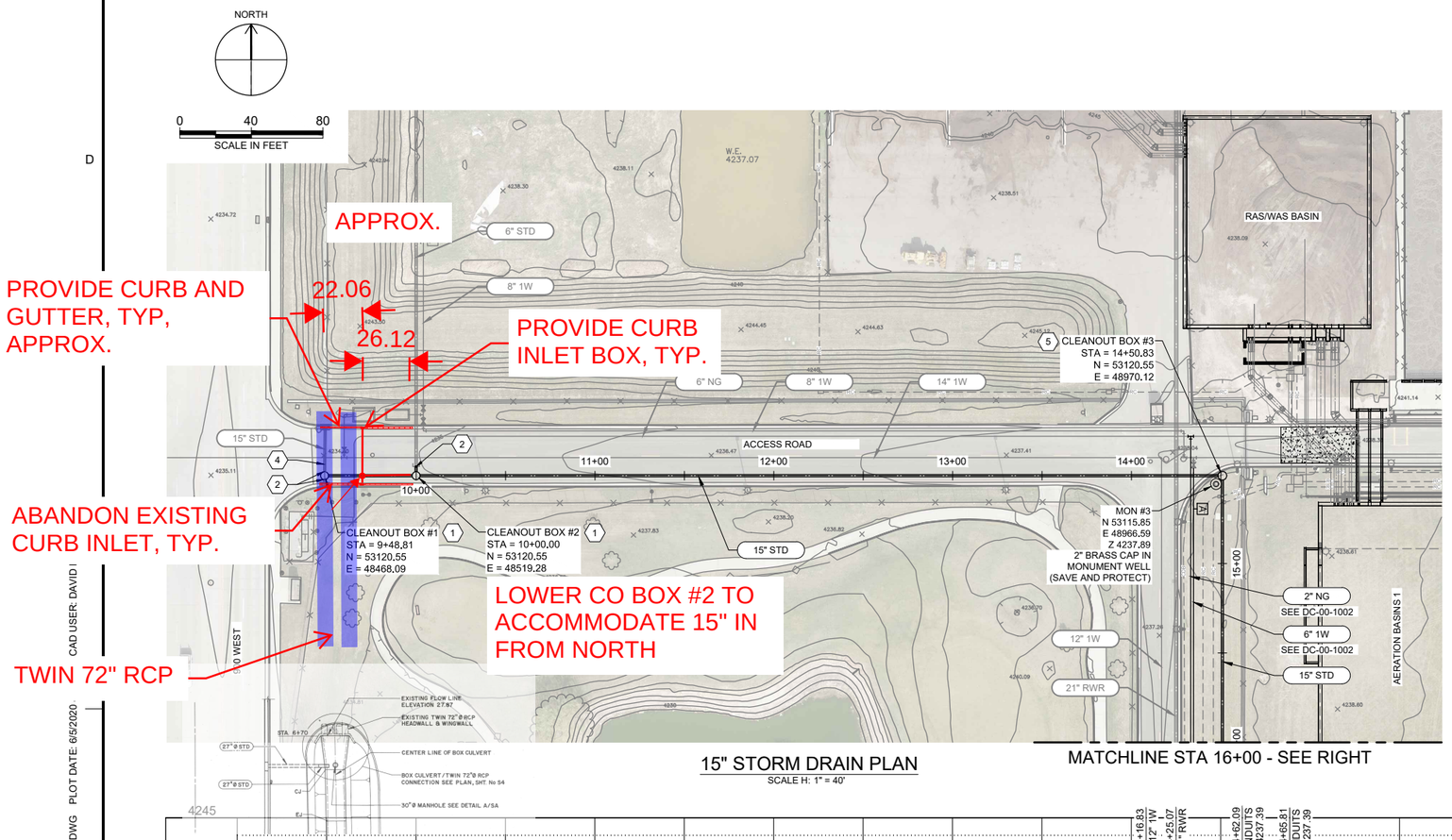
CIP curb inlets and a clean out box are acceptable. Please use the APWA details for the structural requirements. Install the new CIP curb inlet boxes lower than the existing curb inlet boxes so that they can accept flow from the east and west curb and gutter. Abandon the two existing curb inlet boxes and replace the existing curb and gutter as required.
See attached. Thanks, MK

Attachments:
RFI_75_STD_vs_VITRO_72s_C-00-3021.pdf

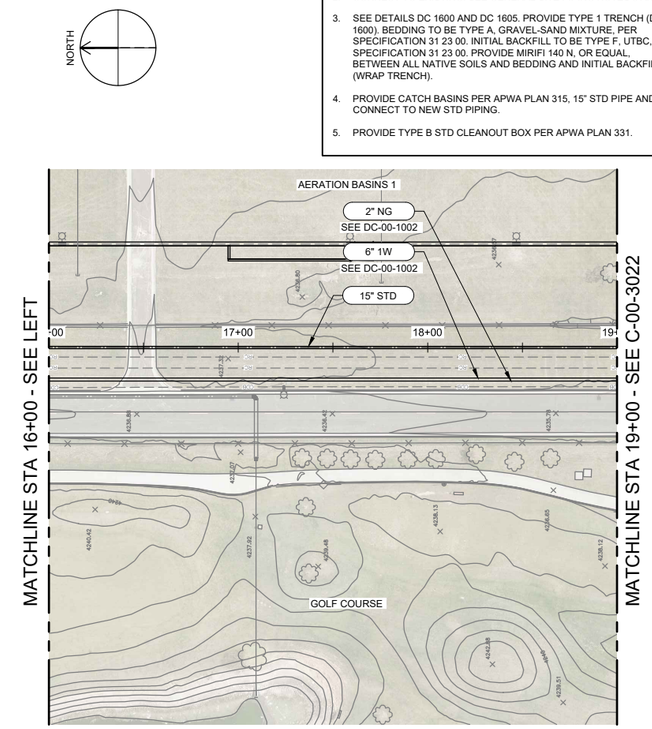
BY	DATE	COPIES TO

KEY NOTES:

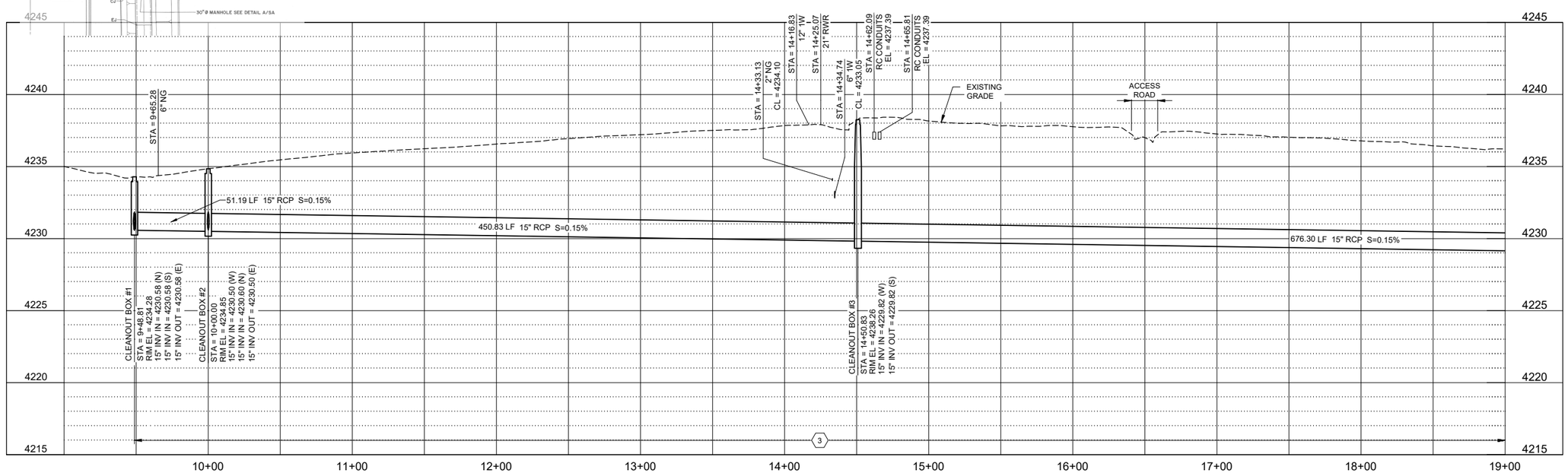
1. PROVIDE TYPE A STD CLEANOUT BOX PER APWA PLAN 331.
2. CONNECT TO EXISTING. SEE GENERAL SITE PIPING NOTES 8 AND 9.
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 1 TRENCH (DC 1600). BEDDING TO BE TYPE A, GRAVEL-SAND MIXTURE, PER SPECIFICATION 31 23 00. INITIAL BACKFILL TO BE TYPE F, UTBC, PER SPECIFICATION 31 23 00. PROVIDE MIRIFI 140 N, OR EQUAL, BETWEEN ALL NATIVE SOILS AND BEDDING AND INITIAL BACKFILL (WRAP TRENCH).
4. PROVIDE CATCH BASINS PER APWA PLAN 315, 15" STD PIPE AND CONNECT TO NEW STD PIPING.
5. PROVIDE TYPE B STD CLEANOUT BOX PER APWA PLAN 331.



15" STORM DRAIN PLAN
SCALE H: 1" = 40'



15" STORM DRAIN PLAN
SCALE H: 1" = 40'



15" STORM DRAIN PROFILE
SCALE H: 1" = 40'
V: 1" = 4'

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3021.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

CIVIL

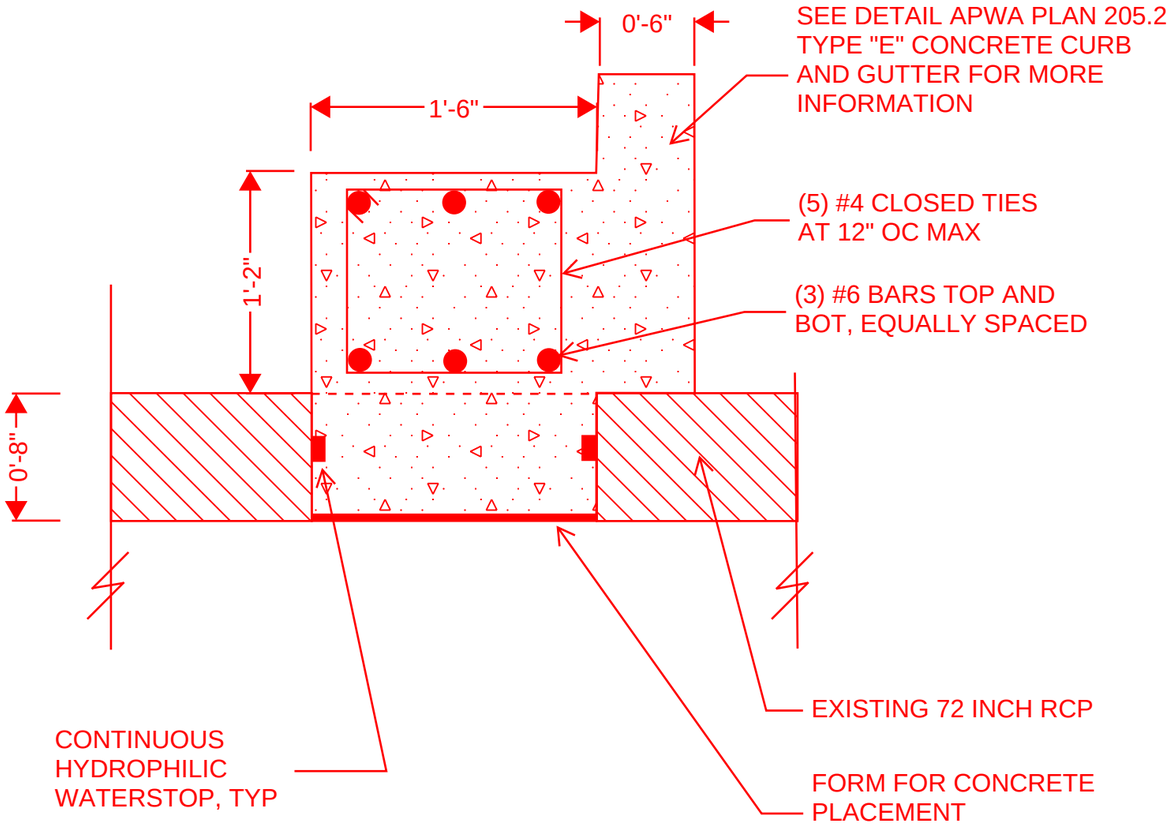
SITE PIPING PLAN AND PROFILE - 15" STD NORTH

RFI 75
PAGE 1

DRAWING NUMBER
C-00-3021

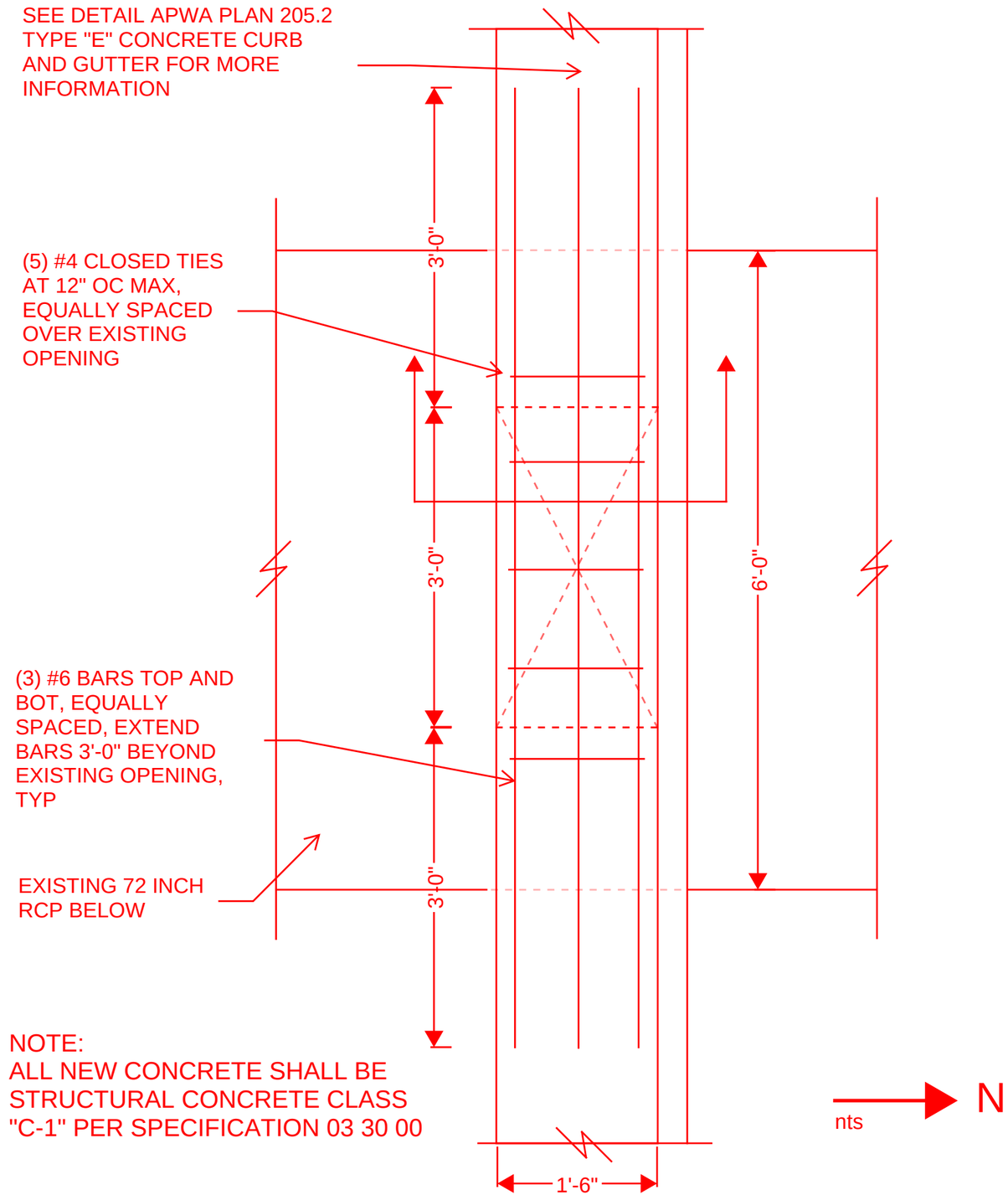
3/4/21

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\04-CIVIL3D\02-SHEETS FILENAME: C-00-3021.DWG PLOT DATE: 6/5/2020 CAD USER: DAVID
CVWRF_NW.ad



NOTE:
ALL NEW CONCRETE SHALL BE STRUCTURAL CONCRETE CLASS "C-1" PER SPECIFICATION 03 30 00

SECTION

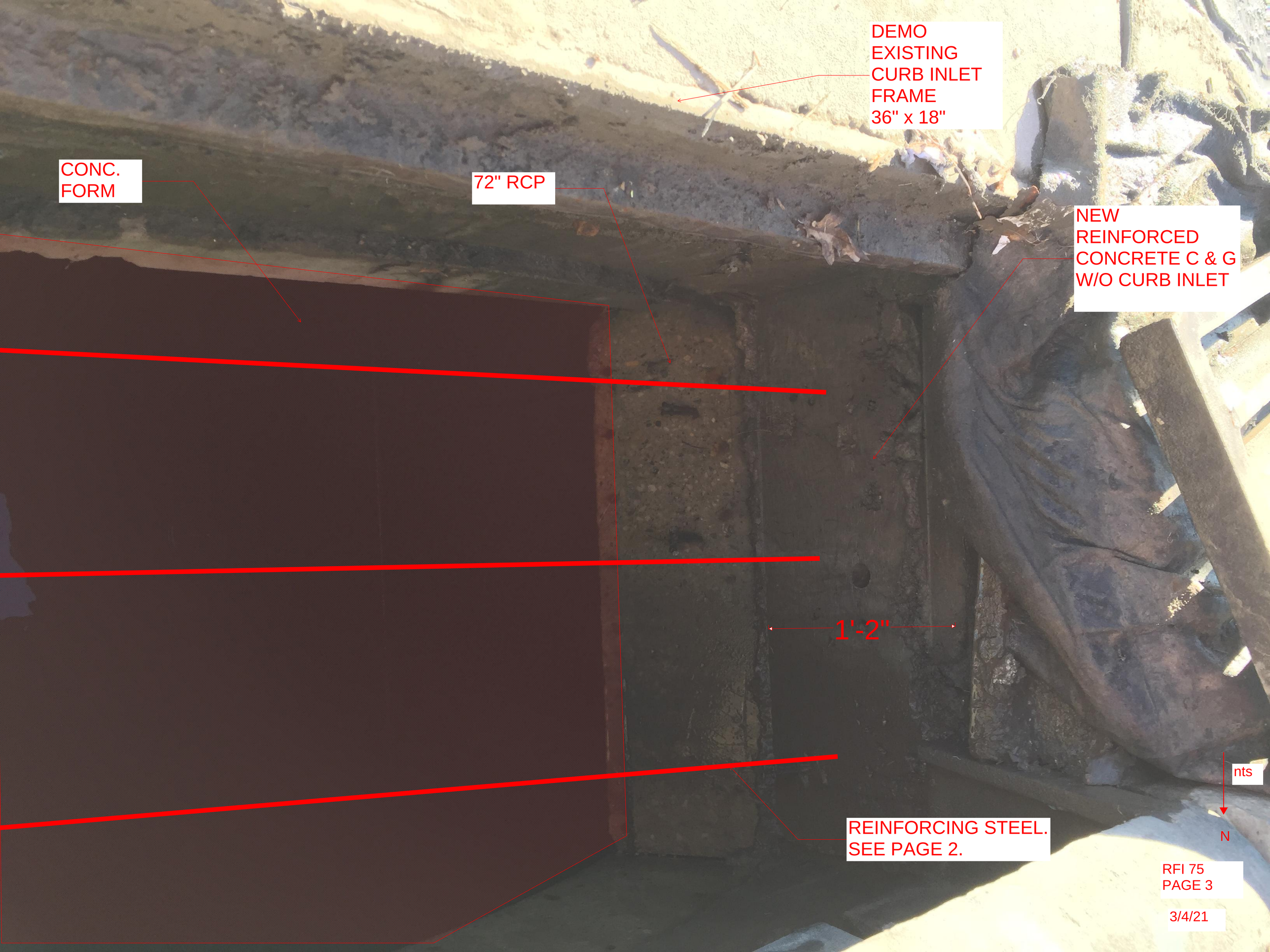


NOTE:
ALL NEW CONCRETE SHALL BE STRUCTURAL CONCRETE CLASS "C-1" PER SPECIFICATION 03 30 00

PLAN

RFI 75
PAGE 2

3/4/21



RFI 75
PAGE 3

3/4/21

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 026
Date: 6/3/2021
Description: Per Control Change Form #026: Cost for labor, equipment and material to add Formliner to Aeration, Anaerobic & RAS Basins.

Concrete Pumping Subcontractor (see attached back-up):	$525.00
Mark-up (5%):	$26.25
RAS/WAS Material, Equipment & Labor (see attached back-up):	$24,998.45
Aeration Basin Material, Equipment & Labor (see attached back-up):	$15,960.26
Anaerobic Basin Material, Equipment & Labor (see attached back-up):	$15,482.92
Onsite Coordination & Management (see attached back-up):	$2,163.58
Bonds:	$617.92
Mark-up (15%):	$8,883.45
Total:	**$68,657.83**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $68,657.83 will be added to the contract price, and an additional 8 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-026 Formliner-CC#026	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-026	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - RAS/WAS Basin	**1.00**	**LS**	**$25,523.45**	**$25,523.45**	**$29,606.20**	**$29,606.20**	**14.80%**
RAS/WAS South Side	1.00	LS	$25,523.45	$25,523.45			
Labor Crew, 2 Man (Non Veneer Wall) (50.00 LF/DY, 1.00 DY)	50.00	LF	$38.44	$1,922.21			
03 Leadman	9.00	HR	$95.38	$858.39			
04 Skilled Labor	9.00	HR	$83.01	$747.07			
Sand Blaster, 350 Lb	8.00	HR	$3.08	$24.60			
Truck, Pickup, 1 Ton	0.05	MO	$1,481.25	$68.35			
Manlift, 25' Scisoor Lift, 4x4	8.00	HR	$27.98	$223.80			
Lumber, Misc.	1.00	LS	$536.25	$536.25			
Form Liner, 4'x10' Sheet	11.00	SHT	$139.43	$1,533.68			
Sandblast Grit	1.00	BAG	$320.55	$320.55			
Concrete, (Veneer Wall)	7.00	CY	$3,030.11	$21,210.76			
Rebar, Material & Installation (Includes Drilled Dowels)	1,200.00	LB	$4.11	$4,927.41			
Rebar	1,200.00	LB	$0.64	$772.20			
Rebar Crew, 06 Men (33.33 LB/MH, 2.00 DY)	1,200.00	LB	$3.46	$4,155.21			
06 Iron Worker, Reinforcing [2]	18.00	HR	$108.64	$3,911.21			
Concrete Core drill	16.00	HR	$15.25	$244.00			
Concrete, Pumping Sub	7.00	CY	$75.00	$525.00			
Concrete Crew, 04 Men (17.36 MH/CY, 4.50 DY)	7.00	CY	$1,699.47	$11,896.28			
02 Foreman	40.50	HR	$107.76	$4,364.12			
03 Leadman	40.50	HR	$95.38	$3,862.76			
04 Skilled Labor	40.50	HR	$83.01	$3,361.81			
Truck, Pickup, 1 Ton	0.21	MO	$1,481.25	$307.60			
Concrete, 4000 PSI Engineered	8.40	CY	$155.51	$1,306.31			
Steel Ply Forms	306.00	SF	$0.80	$246.14			
Ties,	136.00	EACH	$3.22	$437.58			
Form Oil, Unitex Q2	5.00	GAL	$8.04	$40.22			
Lumber, Misc.	1.00	LS	$750.75	$750.75			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - RAS/WAS Basin continued)							
Epoxy, Hilti, HIT Re 500 SD 16.9 OZ	24.00	EACH	$45.05	$1,081.08			
02 - Aeration Basin	**1.00**	**LS**	**$15,960.26**	**$15,960.26**	**$18,546.10**	**$18,546.10**	**15.00%**
Aeration Basin - North Side	1.00	LS	$15,442.76	$15,442.76			
Labor Crew, 2 Man (50.00 LF/DY, 4.52 DY)	226.00	LF	$38.44	$8,688.41			
03 Leadman	40.68	HR	$95.38	$3,879.92			
04 Skilled Labor	40.68	HR	$83.01	$3,376.75			
Sand Blaster, 350 Lb	36.16	HR	$3.08	$111.19			
Truck, Pickup, 1 Ton	0.21	MO	$1,481.25	$308.96			
Manlift, 25' Scisoor Lift, 4x4	36.16	HR	$27.98	$1,011.58			
Lumber, Misc.	1.00	LS	$1,930.50	$1,930.50			
Form Liner, 4'x10' Sheet	30.00	SHT	$139.43	$4,182.75			
Sandblast Grit	2.00	BAG	$320.55	$641.10			
Shipping (Formliner)	1.00	LS	$517.50	$517.50			
03 - Anaerobic Basin	**1.00**	**LS**	**$15,482.92**	**$15,482.92**	**$17,991.42**	**$17,991.42**	**15.00%**
Anaerobic Basin - West & South Side	1.00	LS	$15,482.92	$15,482.92			
Labor Crew, 2 Man (50.00 LF/DY, 4.40 DY)	220.00	LF	$38.44	$8,457.74			
03 Leadman	39.60	HR	$95.38	$3,776.92			
04 Skilled Labor	39.60	HR	$83.01	$3,287.10			
Sand Blaster, 350 Lb	35.20	HR	$3.08	$108.24			
Manlift, 25' Scisoor Lift, 4x4	35.20	HR	$27.98	$984.72			
Truck, Pickup, 1 Ton	0.20	MO	$1,481.25	$300.76			
Lumber, Misc.	1.00	LS	$1,823.25	$1,823.25			
Form Liner, 4'x10' Sheet	29.00	SHT	$139.43	$4,043.33			
Sandblast Grit	2.00	BAG	$320.55	$641.10			
Shipping (Formliner)	1.00	LS	$517.50	$517.50			
04 - Management	**1.00**	**LS**	**$2,163.58**	**$2,163.58**	**$2,514.11**	**$2,514.11**	**15.00%**
01 Superintendent	9.00	HR	$157.26	$1,415.37			
19 Project Engineer	2.25	HR	$120.14	$270.30			
17 Project Manager	2.25	HR	$182.02	$409.55			
Truck, Pickup, 1 Ton	0.05	MO	$1,481.25	$68.35			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$33,521.27	56.69%
Equipment Owned:	$3,762.16	6.36%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$20,286.77	34.31%
Subcontracted:	$525.00	0.89%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$1,035.00	1.75%
Plug:	$0.00	0.00%
Direct Cost:	$59,130.20	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$59,130.20	86.12%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$617.92	0.90%
Total Overall Cost:	$59,748.12	87.02%
Total Overhead:	$0.00	0.00%
Total Profit:	$8,909.71	12.98%
Total Margin:	$8,909.71	12.98%
Total Bid Price:	$68,657.83	

Spec Formliners
INCORPORATED

QUOTATION

Michael Castillo
MikeCastillo@specformliners.com
(714) 429-9500 x233

TO:

Gerber Construction
815 East 675 South
Lehi, UT 84043

ATTN:

SHIP TO:

ATTN:

Quote No.	Date	Cust No	S/M	Your Referenced Inquiry	Delivery Promise	F.O.B.	Expiration
1705556	6/1/2021	100297	MTC	1133 Reorder	1-2 Weeks ARO	ORIGIN	NET 30

Item	Quantity	UM	Part	Description	Price $	Extension $
001	70.00	SH	1133SV1-48X120-.11	MABS110-4x10 Pattern #1133 Pontiac Rib (70) 4'x10' mult-use sheets. .110 mill multi-use material *additional backing may be required*	130.00	9,100.00
002	25.00	SH	1133SV1-48X120-.11	MABS110-4x10 Pattern #1133 Pontiac Rib (25) 4'x10' mult-use sheets. .110 mill multi-use material *additional backing may be required*	180.00	4,500.00
003	10.00	SH	1133SV1-48X120-.11	MABS110-4x10 Pattern #1133 Pontiac Rib (10) 4'x10' mult-use sheets. .110 mill multi-use material *additional backing may be required*	216.00	2,160.00
				Estimated freight to 84043: (70) sheets - $1035 (25) sheets - $650 (10) sheets - $525		

Price Escalation: Price valid for 30 days.
Due to unprecedented raw material shortages and price volatility, price escalations may apply.
Please request current pricing before issuing your purchase order.

By:_____

CHANGE CONTROL FORM 026
Formliner Aeration, Anaerobic, & RAS Selector

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 04/14/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

The Contractor shall add formliner to the basins as follows:

- South wall of the RAS Selector (this will be combination of a cast in place formliner and retrofit formliner, either a veneer wall or pre-cast panels see attached drawing A-22-1001). For veneer wall detail see attached Construction Sketch.
- North wall of the BNR Basin (shown on drawing A-18-1001)
- West and South walls of the Anaerobic Basin (shown on drawing A-17-9001)

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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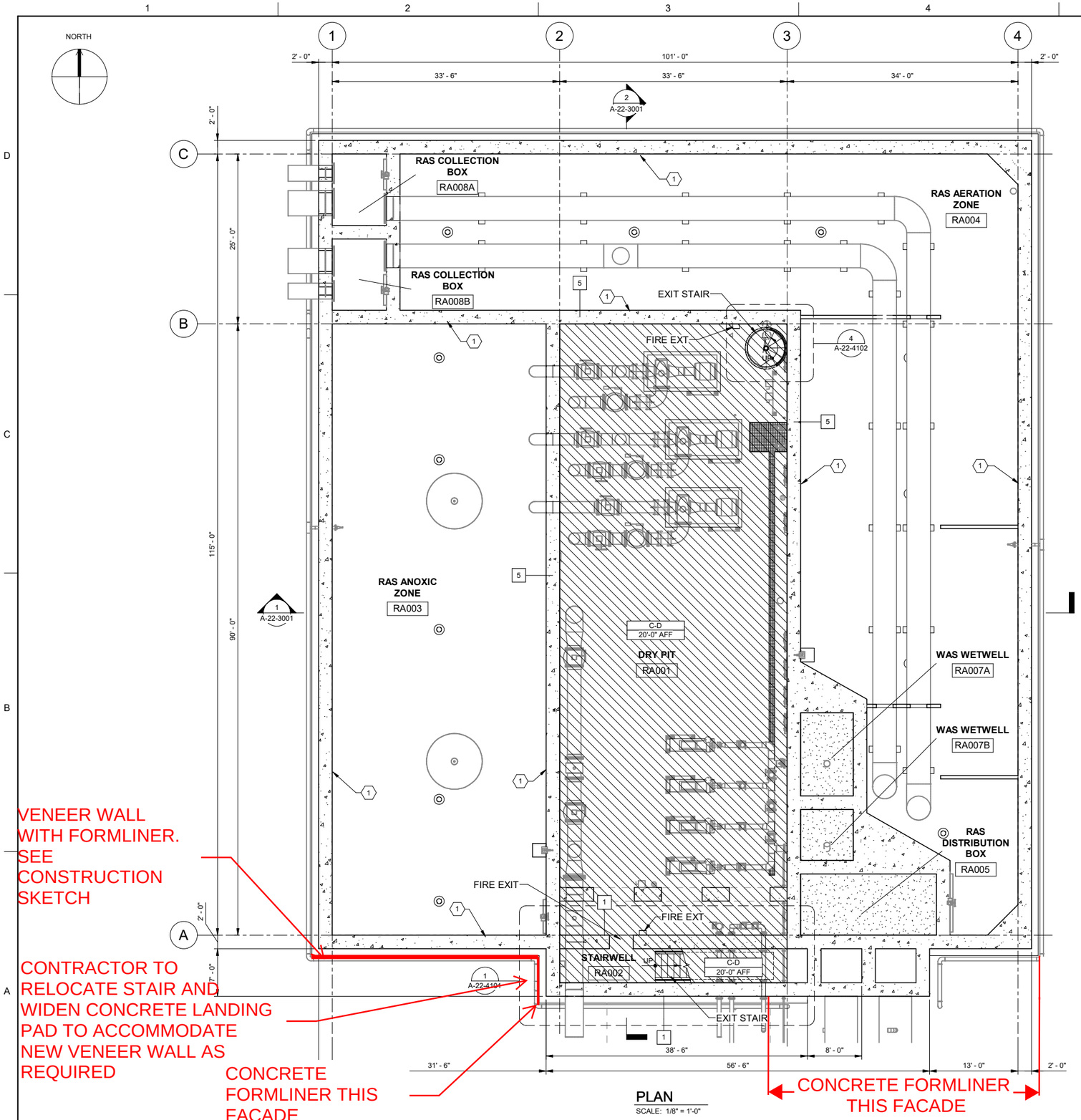


PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. FOR ROOM FINISH SCHEDULE, SEE SHEET A-22-6001.
2. FOR DOOR SCHEDULE AND TYPE LEGEND, SEE SHEET A-22-6001.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR FACE OF MASONRY UNLESS NOTED OTHERWISE.
4. DOOR AND WINDOW IN MASONRY AND CONCRETE WALLS LOCATION DIMENSIONS ARE TO ROUGH OPENING UNLESS NOTED OTHERWISE.
5. FOR FLOOR SLOPING, STRUCTURAL COMPONENTS AND DETAILING, SEE STRUCTURAL DRAWINGS.
6. FOR ELECTRICAL, MECHANICAL, AND PROCESS MECHANICAL, SEE ASSOCIATED DRAWINGS.
7. PROVIDE SOLID BLOCKING IN FRAMED WALLS FOR ALL WALL-MOUNTED EQUIPMENT AND FIXTURES.
8. FOR SITE WORK, INCLUDING BUT NOT LIMITTED TO WALKWAYS, DRIVES, BOLLARDS, AND EQUIPMENT PADS EXTERIOR TO THE BUILDING ENVOLOPE, SEE CIVIL DRAWINGS.

KEYNOTES:

1 WATER PROOFING MEMBRANE AT ALL BASIN WALLS, SEE STRUCTURAL

WALL TYPES

1 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

2 BRICK VENEER ON STRUCTURAL CMU WALL:
-4" X 4" x 16" ATLAS BRICK VENEER, SEE EXTERIOR ELEVATIONS FOR STYLE, FINISH AND COLOR
-1" MIN AIR GAP
-3" RIGID INSULATION, R-15
-LIQUID APPLIED AIR BARRIER AT CMU
-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR PAINT

3 PARAPET: BRICK VENEER ON CMU WALL
-4" X 4" x 16" ATLAS BRICK VENEER, SEE EXTERIOR ELEVATIONS FOR STYLE, FINISH AND COLOR
-1" MIN AIR GAP
-3" RIGID INSULATION, R-15
-LIQUID APPLIED AIR BARRIER AT CMU WALL
-CMU WALL PER STRUCTURAL
-FULLY ADHERED PVC SINGLE-PLY ROOF MEMBRANE

4 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
-3" RIGID INSULATION, R-15
-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR FINISH

5 WET WELL / DRY PIT:
-WATER PROOFING MEMBRANE, SEE STRUCTURAL
-STRUCTURAL CONCRETE WALL, SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

WET WELL

CEILING TYPES

C-A HEIGHT	EXPOSED STRUCTURE WITH SPRAYED FIRE PROOFING AT DECK AND BEAMS, 1 HOUR RATED PAINTED, SEE FINISH SCHEDULE
C-D HEIGHT	EXPOSED CONCRETE STRUCTURE 1 HOUR FIRE RATED WITH CLEAR SEALER

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

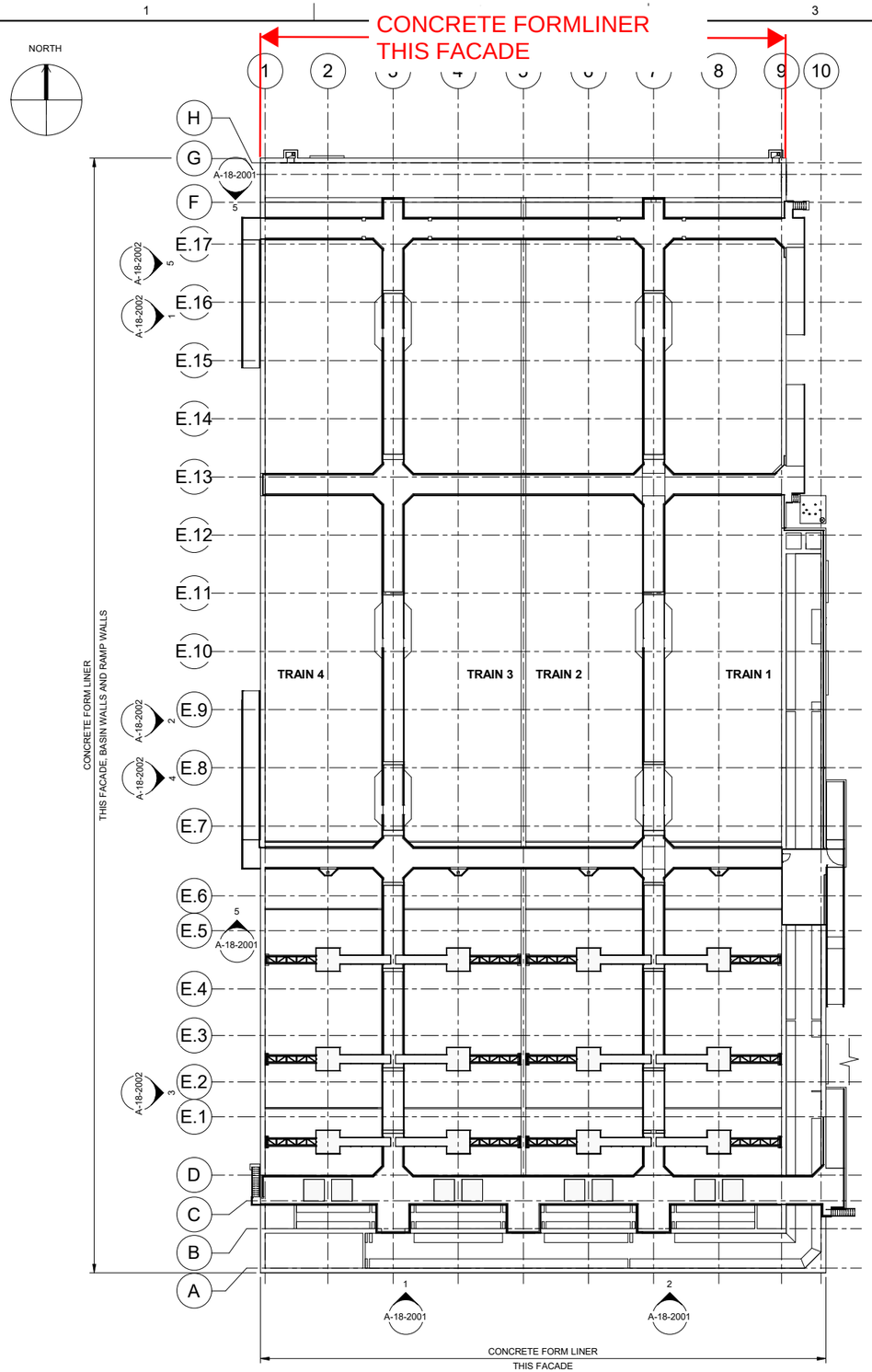
FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL

RAS/WAS BASIN OVERALL LOWER PLAN ELEV 4227.00

DRAWING NUMBER
A-22-1001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-22V18.rvt
Plot Date: 6/4/2020 12:37:43 PM



PLAN

SCALE: 1" = 30'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-18V18

BC PROJECT NUMBER
151600

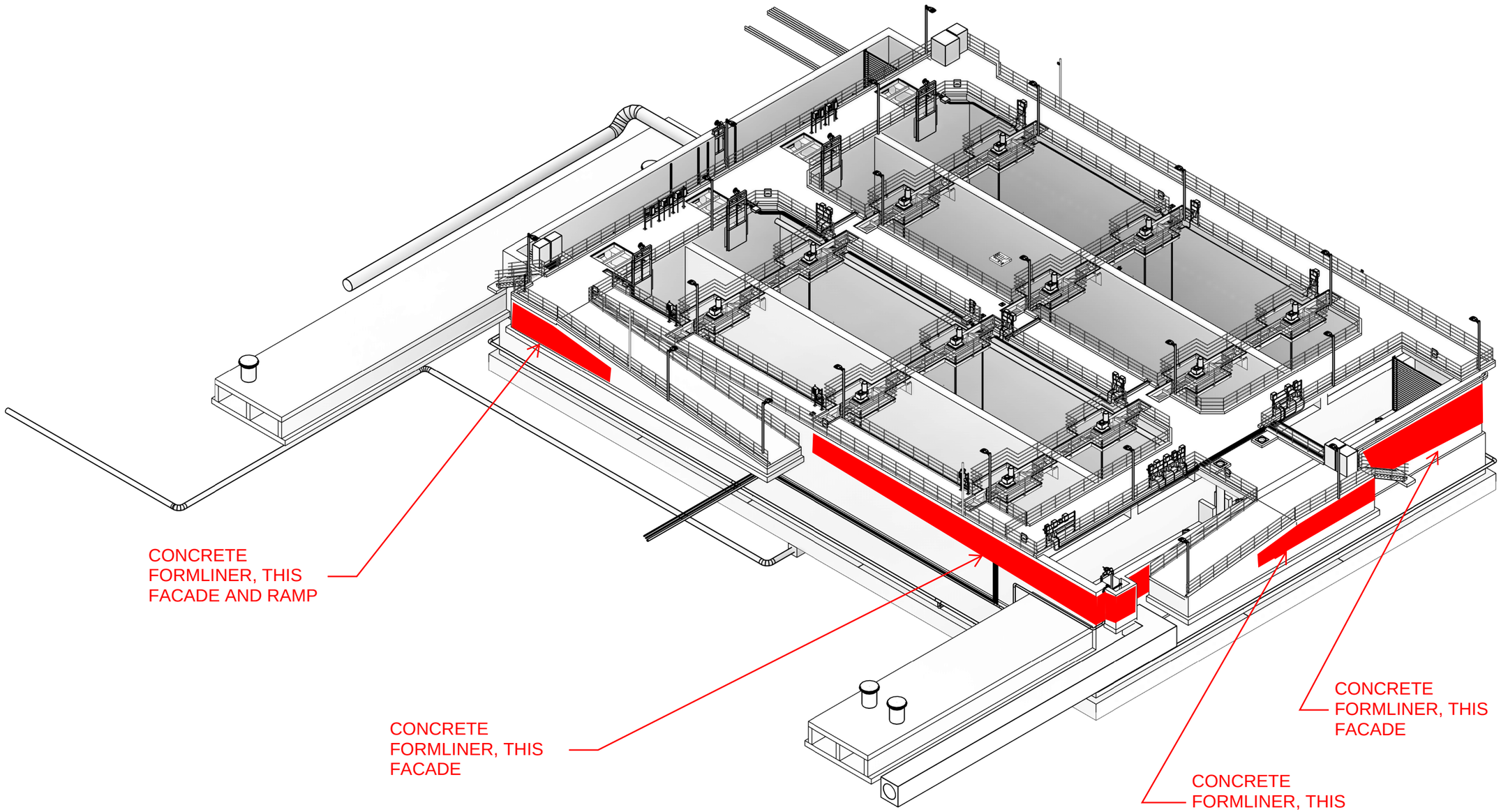
CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

AERATION BASINS
OVERALL PLAN

DRAWING NUMBER
A-18-1001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 11:59:36 AM



3D VIEW ANAEROBIC BASINS

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. WATSON
DRAWN: R. FULK
CHECKED: Z. MOORE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
151600-P-17V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

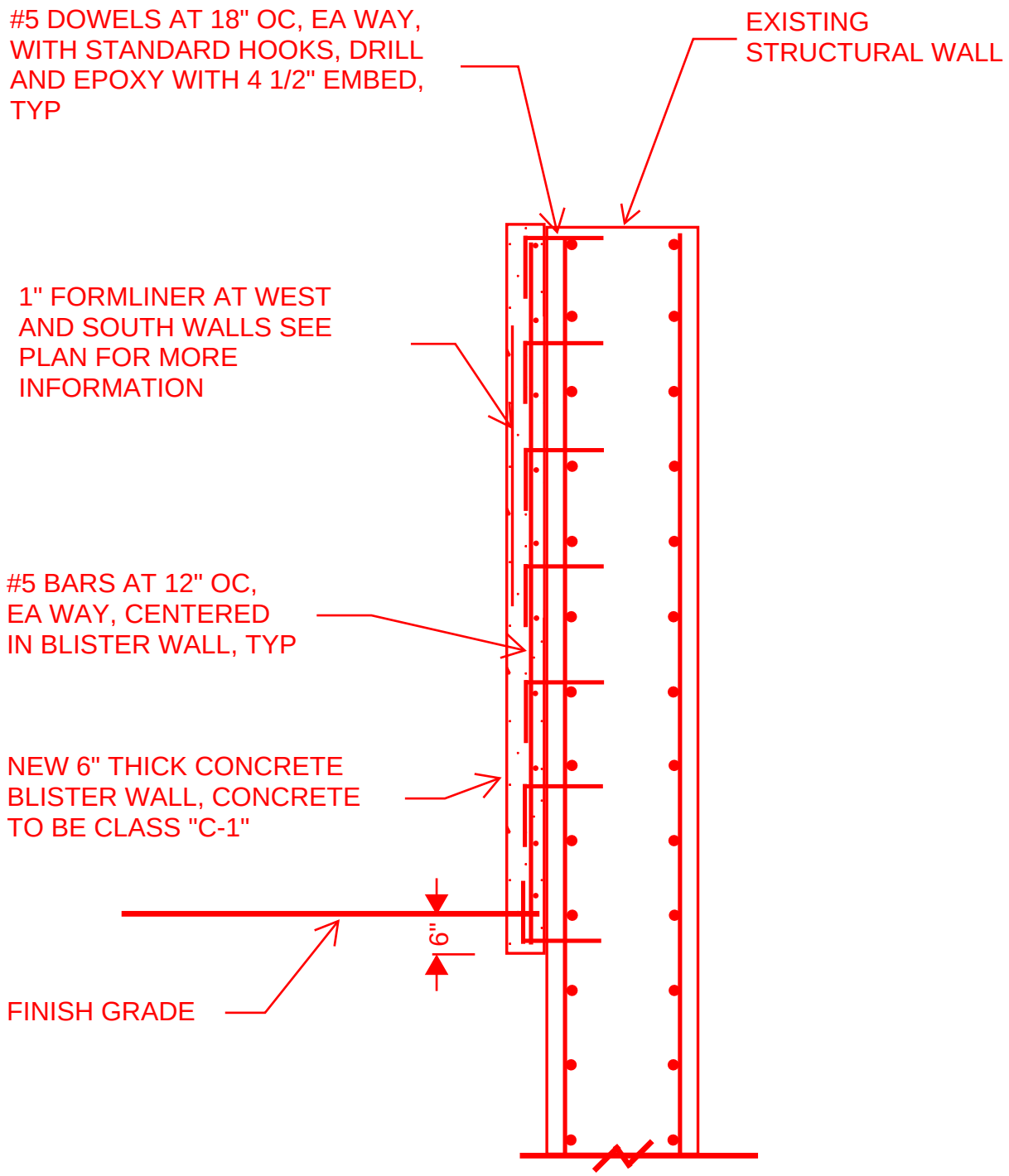
PROCESS

ANAEROBIC BASINS
3D VIEW

DRAWING NUMBER
P-17-9001

Path: BIM 360://151600 - CVWRF Nutrients/151600-P-17V18.rvt

Plot Date: 6/3/2020 3:15:20 PM



NOTE:

LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS. THIS MAY INVOLVE RELOCATING DOWELS FROM POSITIONS SHOWN. NOTIFY THE OWNER OF ANY DOWEL RELOCATIONS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.

CONSTRUCTION SKETCH

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 025.1
Date: 6/22/2021
Description: Per Control Change Form #030: Credit to delete dampproofing around basins and unoccupied structures.

Gerber Construction Credit (see attached back-up):	-$25,786.00
Total:	**-$25,786.00**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$25,786.00 will be added to the contract price.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-025 Dampproofing Credit-CC#30	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-025	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Dampproofing Credit	**1.00**	**LS**	**$25,786.00**	**$25,786.00**	**$25,786.00**	**$25,786.00**	**0.00%**
S Dampproofing Sub - Anaerobic Basin	15,176.00	SF	$0.50	$7,588.00			
S Dampproofing Sub - Aeration Basin	30,668.00	SF	$0.50	$15,334.00			
S Dampproofing Sub - Aeration Zone 2	1,232.00	SF	$0.50	$616.00			
S Dampproofing Sub - RAS / WAS (minus Footings Already Done)	4,496.00	SF	$0.50	$2,248.00			

Protecting Our Clients and Their Creations

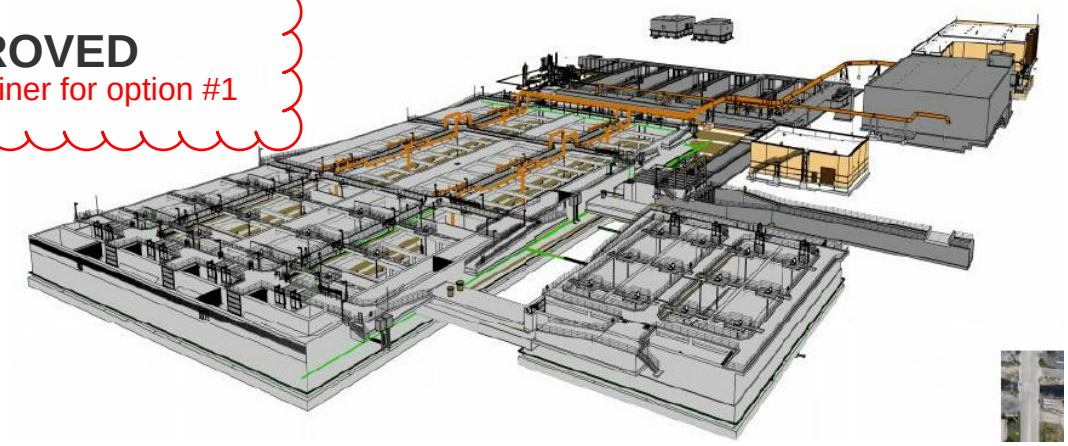
Bid by: Justin Douglas (801) 651-6636

Office/Scheduling (801) 282-2100

CVWRF BNR Basins

Job Address:	800 Central Valley Road, SLC, UT		
Requested by:	Jordan Miller 801-380-9005 jordonm@1gerber.com Gerber Construction		
Plan Dated:	June 2020	*Bid Sent (valid for 6 months):*	9/29/20

APPROVED
by Jeromie Miner for option #1



NOT PER SPEC LISTED / VE OPTION W/ STANDARD ASSEMBLY REQUIREMENTS

East Connector South Box

Dampproofing - Foundation Walls - 33'x10' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$170**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — $250~~

West Connector South Box

Dampproofing - Foundation Walls - 28'x10' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$140**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — $210~~

West Connector North Box

Dampproofing - Foundation Walls - 80'x20' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$800**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — $1,200~~

East Connector NorthWest Box

Dampproofing - Foundation Walls - N/A

Effluent Channel Infill Walls

Dampproofing - Foundation Walls - N/A

Primary Effluent Pump Station

Dampproofing - Foundation Walls - 50'x10' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$250**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$380**~~

Anaerobic and Aeration Electrical Building

Dampproofing - Foundation Walls - 264'x6' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$790**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$1,190**~~

Anaerobic Basins

Dampproofing - Foundation Walls - 542'x28' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$7,590**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$11,380**~~

Aeration Basins

Dampproofing - Foundation Walls - 1394'x22' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$15,330**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$23,000**~~

Aeration Zone New Connector Box

Dampproofing - Foundation Walls - 62'x10' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$310**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$470**~~

Aeration Zone New Connector Channel

Dampproofing - Foundation Walls - 102'x6' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$310**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$460**~~

RAS/WAS Basin

Dampproofing - Foundation Walls - 468'x12' +/- (includes footings/overlaps)

- ❑ Option 1 - VE BASIC — Basic Asphalt Emulsion Dampproofing — **$2,810**
- ~~❑ Option 2 - VE BETTER — Polymer-Modified Asphalt Emulsion Dampproofing — **$4,210**~~

PROJECT INSURANCE LIMITS

Projects requiring insurance exceeding our limits will result in a change order - complete Certificate of Liability can be provided upon request.

COMMERCIAL GENERAL LIABILITY

- Each Occurrence: $2,000,000.00
- Personal & Adv. Injury: $1,000,000.00
- General Aggregate: $2,000,000.00
- Products Comp/Ops: $2,000,000.00

AUTOMOTIVE LIABILITY

- Combined Single Limit Each Accident: $1,000,000.00

UMBRELLA LIABILITY

- Each Occurrence: $4,000,000.00
- Aggregate: $4,000,000.00

WORKERS COMPENSATION

- Each Accident: $1,000,000.00
- Disease Each Employee: $1,000,000.00
- Disease Policy Limit: $1,000,000.00

CHANGE CONTROL FORM 030
Delete Dampproofing around Basins

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 05/12/2021**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The Owner has requested deletion of dampproofing around Basins and unoccupied buried structures.
Provide a proposal to delete dampproofing from Basins and unoccupied buried spaces from the Work per attached redlined drawings S-17-3001, S-18-3001, S-19-3001, and S-19-4301.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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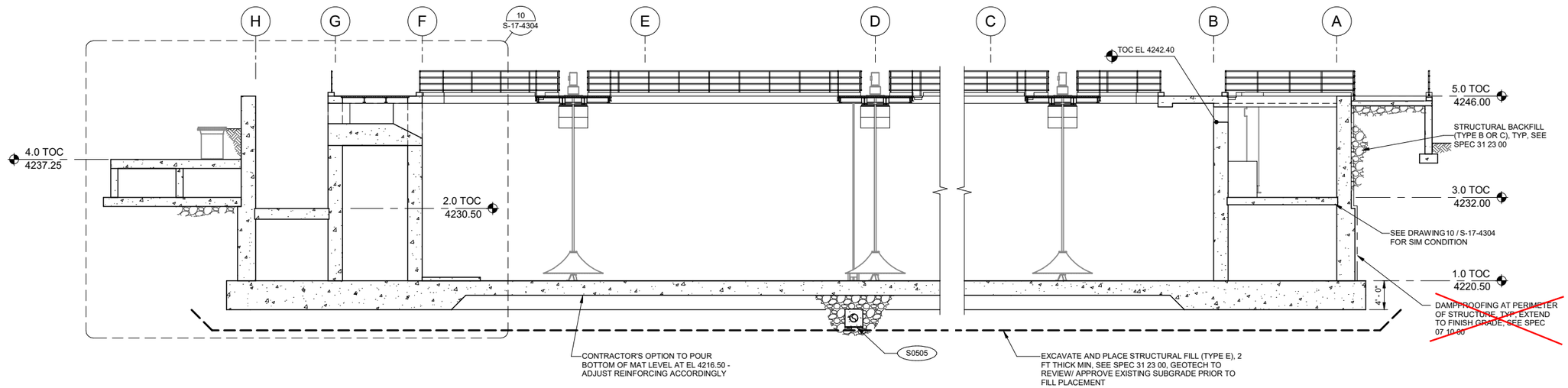
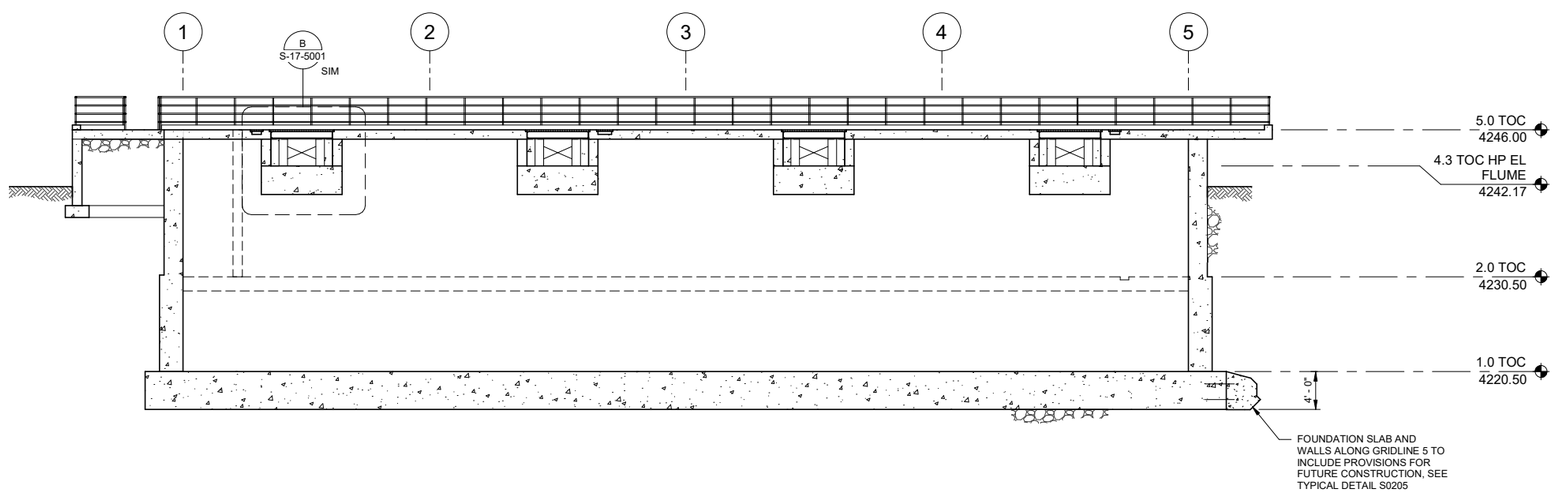


DELETE DAMPPROOFING

1 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"



2 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-17V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

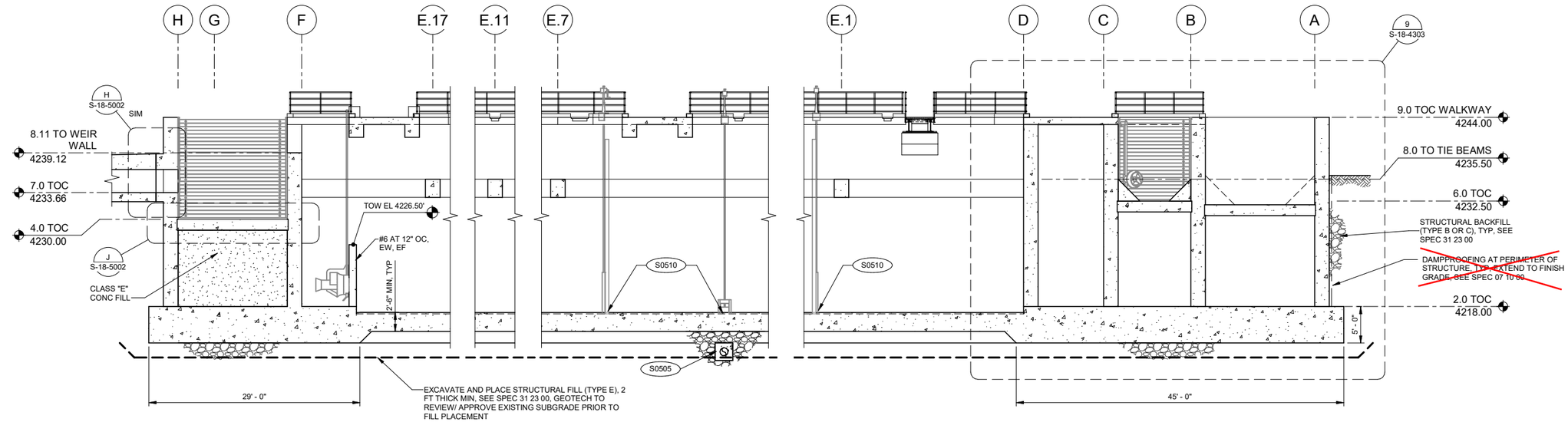
STRUCTURAL

ANAEROBIC BASINS SECTIONS 1

DRAWING NUMBER
S-17-3001

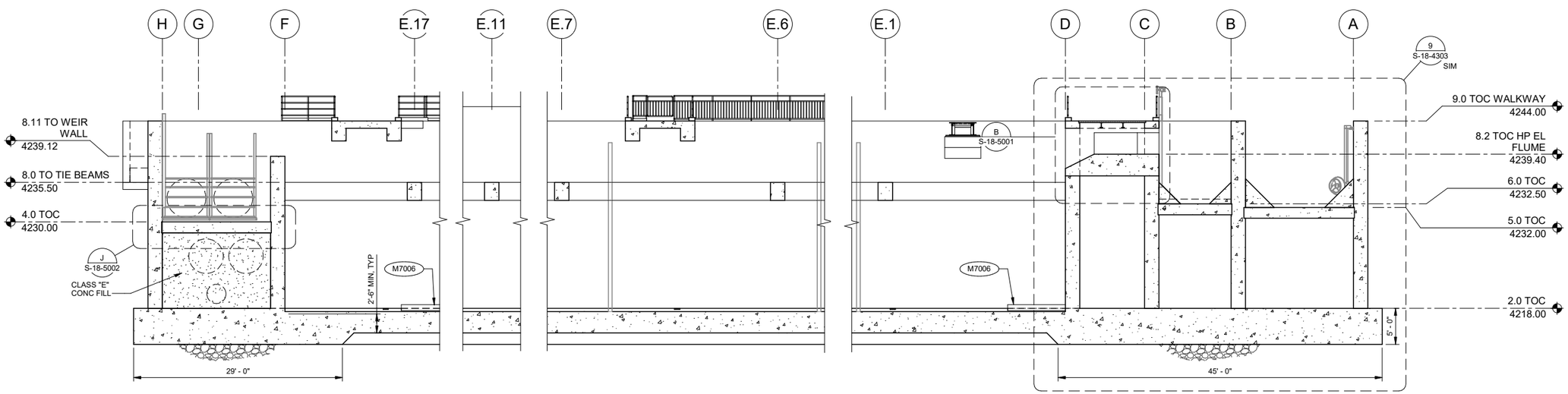
Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt

Plot Date: 6/4/2020 11:45:55 AM



1 S-18-1001 SECTION
SCALE: 1/8" = 1'-0"

DELETE DAMPPROOFING



2 S-18-1001 SECTION
SCALE: 1/8" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

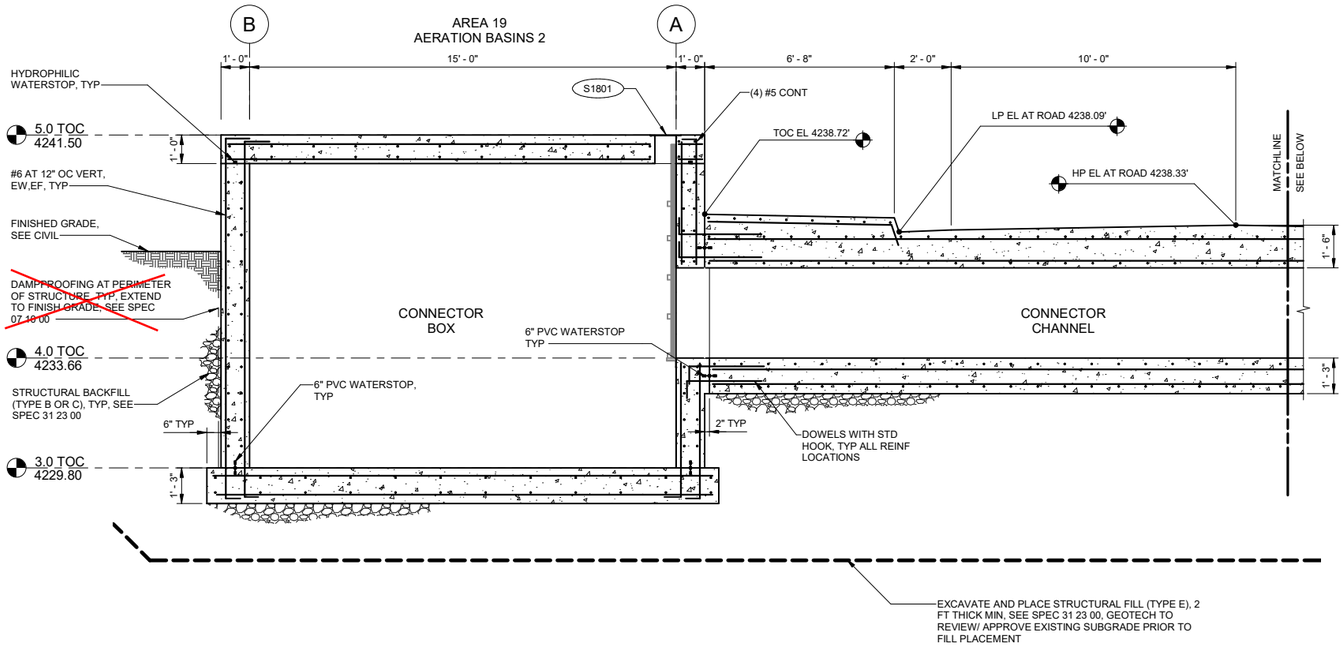
STRUCTURAL

AERATION BASINS SECTIONS 1

DRAWING NUMBER
S-18-3001

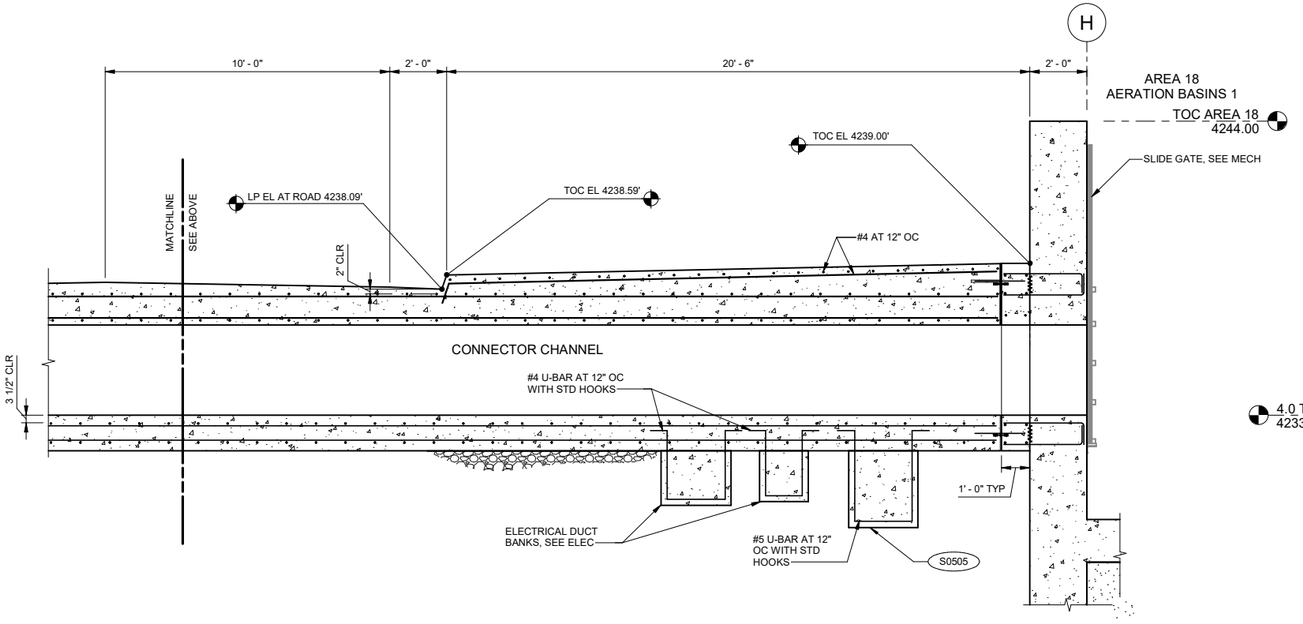
Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt

Plot Date: 6/4/2020 12:00:40 PM

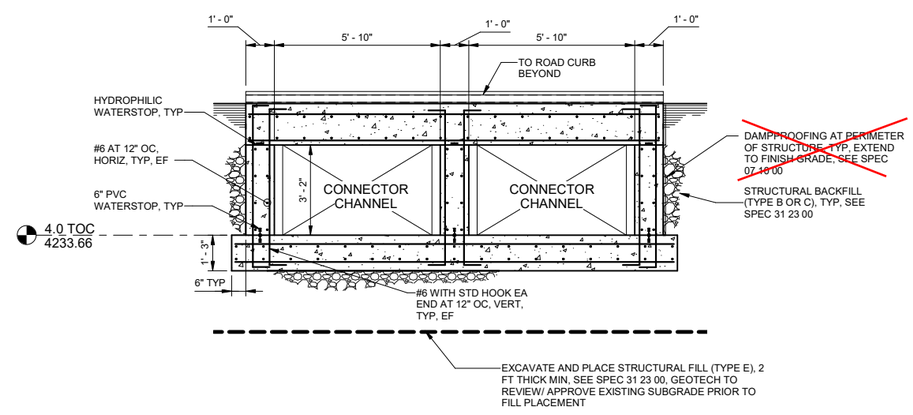


1 SECTION
S-19-4001 SCALE: 3/8" = 1'-0"

DELETE
DAMPPROOFING



2 SECTION
S-19-4001 SCALE: 3/8" = 1'-0"



3 SECTION
S-19-4001 SCALE: 3/8" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOUFFARD
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-19V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

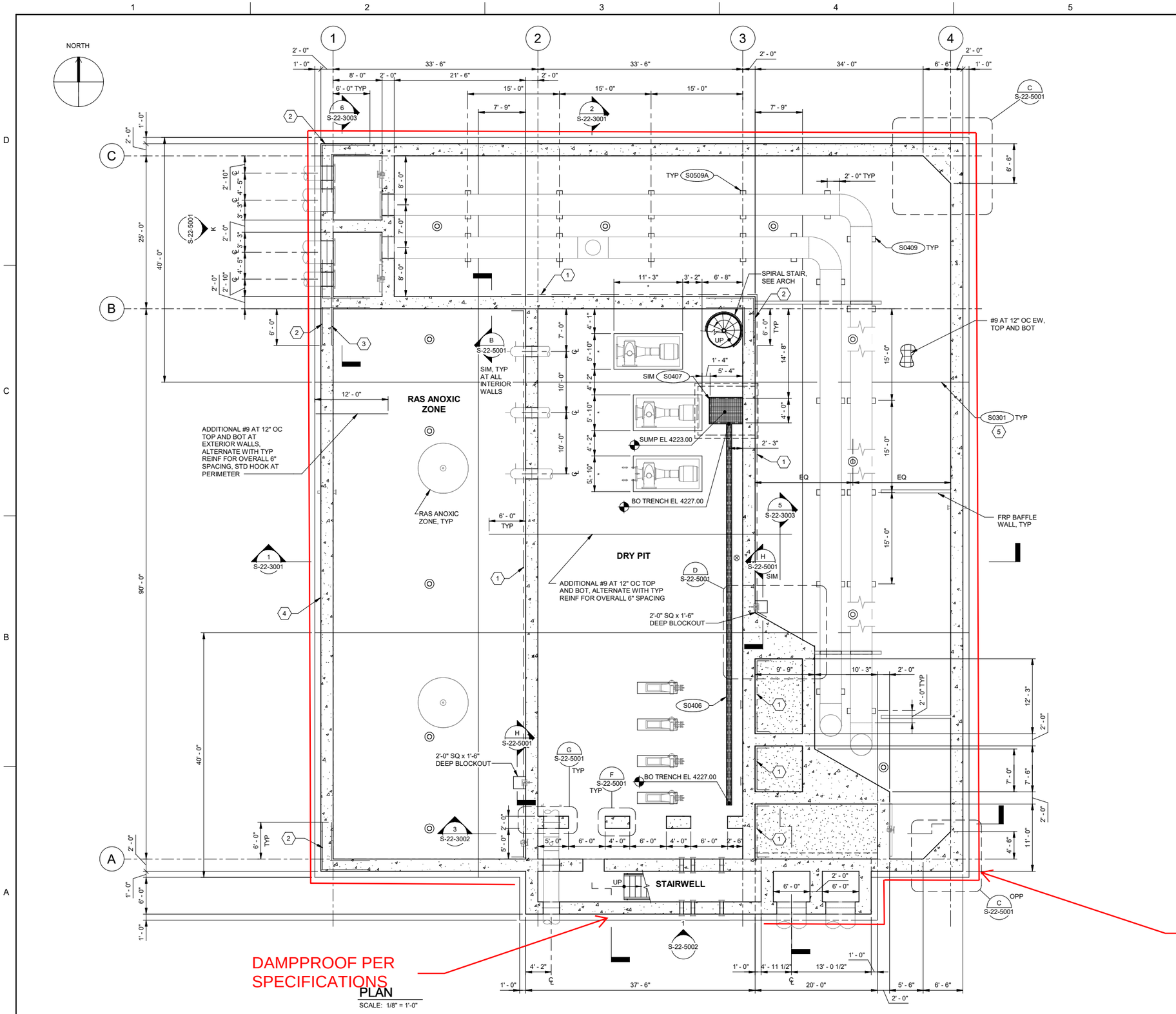
STRUCTURAL

AERATION ZONE 2 CONNECTOR SECTIONS 1

DRAWING NUMBER
S-19-4301

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-19V18.rvt

Plot Date: 6/4/2020 12:29:51 PM



PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.
7. COORDINATE ALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATION 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL AND HVAC EQUIPMENT PADS HEIGHT SHALL BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL AND HVAC DRAWINGS. SEE ELECTRICAL AND HVAC DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. MIXER SUPPORT PLATFORM LOCATION AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.

* VERIFY WITH APPROVED EQUIPMENT SUBMITTAL.

DESIGN CRITERIA

1. FOR GENERAL DESIGN CRITERIA AND GENERAL NOTES SEE S-00-0001 AND S-00-0002.
2. ADDITIONAL DESIGN CRITERIA:
   - A. DRY PIT ROOF LIVE LOAD (NOT DESIGNED FOR PUMP SET DOWN)..... 100 PSF
   - B. MIXER PLATFORMS (DESIGNED FOR FOOT TRAFFIC ONLY)..... 100 PSF
   - C. MAJOR EQUIPMENT LOADS
     1. RAS PUMPS, EACH.....4100 LB
     2. WAS PUMPS, EACH.....670 LB
     3. MIXERS, EACH..... 2000 LB
     4. MONORAIL..... 3 TON
   - D. SEISMIC DESIGN CRITERIA - BASIN
     RISK CATEGORY..... III
     SEISMIC IMPORTANCE FACTOR..... 1.25
     SITE CLASS..... D
     SEISMIC DESIGN CATEGORY..... D
     ANALYSIS PROCEDURE USED.....
     .....LIQUID CONTAINING STRUCTURE ACI 350
     R_i..... 2.67
     R_c..... 1.00
     BASE SHEAR..... 2017 KIPS
     BAFFLE WALLS NOT DESIGNED FOR SEISMIC LOADS
   - E. SEISMIC DESIGN CRITERIA - ELECTRICAL BUILDING
     RISK CATEGORY III
     SEISMIC IMPORTANCE FACTOR ..... I_E = 1.25 I_P = 1.00
     SITE CLASS..... D
     ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
     SEISMIC FORCE RESISTANCE SYSTEM:
     DESIGN BASE SHEAR..... V_{ULT} = 144 KIPS
     BEARING WALL SYSTEM - SPECIAL REINFORCED MASONRY
     SHEAR WALLS (ASCE 7-10, TABLE 12.2-1) ..R = 5 Ω_0 = 2.5
     SEISMIC RESPONSE COEFFICIENT..... C_S = 0.268

KEYNOTES:

1. COAT INTERIOR SURFACES OF BASIN EXPOSED TO LIQUID WITH EA-6 AS SHOWN.
2. ADDITIONAL #7 HORIZ BAR AT 12" OC- ALTERNATE WITH TYP WALL REINF FOR OVERALL 6" OC SPACING
3. ADDITIONAL #7 x 14'-0" HORIZ BAR AT 12" OC- ALTERNATE WITH TYP WALL REINF FOR OVERALL 6" OC SPACING
4. FORMLINER AT EXTERIOR FACE ALONG ENTIRE WEST WALL, SEE ARCHITECTURAL.
5. JOINTS SHOWN ARE FOR SLAB ONLY. SEE SPEC 03 30 00 FOR CONSTRUCTION JOINT LAYOUT REQUIREMENTS AT WALLS, ELEVATED SLABS, AND BEAMS.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-22V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

RAS/WAS BASIN LOWER PLAN

DRAWING NUMBER
S-22-1001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-22V18.rvt

Plot Date: 6/4/2020 12:37:57 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 029
Date: 8/4/2021
Description: Per Control Change Form #032: Cost to for labor and material to move junction boxes to new location.

Skyline Electric (see attached back-up):	$14,428.04
Mark-up (5%):	$721.40
Onsite Coordination & Labor (see attached back-up):	$2,541.68
Bonds:	$164.35
Mark-up (15%):	$405.91
Total:	**$18,261.38**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $14,428.04 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	7/27/2021		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**BNR - CCF032 Relocation of Junction Boxes**	City/State/Zip:	Lehi, UT 84043

Change Description:

Revise location of Junction Boxes JBX170003 and JBX17000.
**Junction boxes JBX170003 and JBX170004 shall be shifted approximately 8' to the west to line up directly with the handholes to the north. The junction boxes will be shifted off the "bump out" walkway that will be removed during the anaerobic basin expansion project in the future.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$3,649.21		
SUBCONTRACTOR PRICING (from quote sheets; attached).....			
Base Labor Hours (from pricing sheets).....			90.89

LABOR FACTOR:

material handling		2.00%					1.8178
cleanup		3.00%					2.7267
safety		1.25%					1.136125
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $271.87	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 3,921.08	loc 2 $ 0.00		96.57
			RATE: $	67.00
extension:			$	6,470.23

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	10.00	rate	$28.00	$90.00	$	280.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	6,750.23

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	6	hrs@	$75.00	$450.00
project management	8	hrs@	$80.00	$640.00	Testing	0	hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0	hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$129.40
change management	0	hrs@	$75.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$75.00	$150.00	Pick-up Truck	4	dy@	$80.00	$320.00
as-builds	0	hrs@	$75.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	1,689.40

MATERIAL		from loc 1	$	3,921.08
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,689.40
LABOR		from loc 3	$	6,750.23
WARRANTEE	1.50%		$	185.41
BOND	0.00%		$	0.00
subtotal			$	12,546.12
OVERHEAD + PROFIT	15.00%		$	1,881.92
TOTAL CHANGE			$	14,428.04

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

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Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF032: Revised Electrical ANB Electrical JB Locations

Takeoff

Vendor: Target

26 Jul 2021 10:23:16

Item: ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10108	90.00	FT	M	4	PVC COATED GRC 40MIL	39.6260	3,566.34	0.5700	51.30
10104	30.00	FT	M	2	PVC COATED GRC 40MIL	14.3816	431.45	0.2700	8.10
20261	6.00	EA	M	4	GRC/PVC COATED 90-DEG ELBOW	271.5000	1,629.00	4.9500	29.70
20257	4.00	EA	M	2	GRC/PVC COATED 90-DEG ELBOW	63.1500	252.60	1.8000	7.20
240839	12.00	EA	M	4	PVC-CTD STRUT CLAMP	31.4440	377.33	0.0900	1.08
240835	4.00	EA	M	2	PVC-CTD STRUT CLAMP	19.7600	79.04	0.0600	0.24
490021	6.00	EA	M	4	GRC/PVC CTD (MYERS TYPE) HUB	455.0000	2,730.00	3.7400	22.44
490017	2.00	EA	M	2	GRC/PVC CTD (MYERS TYPE) HUB	135.0000	270.00	2.6400	5.28
490354	20.00	EA	M	1-1/2 x 3	PVC CTD STL STRUT BACK TO BACK	16.7638	335.28	0.2475	4.95
490359	10.00	EA	M	1/2.	PVC CTD STRUT NUT	6.0116	60.12	0.0900	0.90
240053	4.00	EA	M	P1067GR	U-STRUT FLAT PLATE 4 HOLE	35.0000	140.00	0.0360	0.14
						Phase Totals:	**9,871.15**		**131.33**

Item: DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	-20.00				**5) 4" PVC, 2) 2" PVC reinforced concrete**				
TITLE	-20.00		M		6-DUCT W/TRENCH & REBAR 4" PVC	0.0000	0.00	0.0000	0.00
10066	-90.00	FT	M	4	PVC SCH 40	1.7880	-160.92	0.0840	-7.56
390498	-73.00	FT	M	#3	STEEL REBAR	0.2900	-21.17	0.0360	-2.63
390502	-25.00	FT	M	16 GA	STEEL TIE WIRE	0.1236	-3.09	0.0900	-2.25
390081	-12.00	EA	M	4 x 3	BASE DUCT BANK CONDUIT SPACER	1.8149	-21.78	0.1800	-2.16
390072	-12.00	EA	M	4 x 3	INTERMEDIATE DUCT BANK SPACER	1.7086	-20.50	0.1800	-2.16
390389	-20.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0318	-0.64	0.0054	-0.11
40048	-16.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	-4.97	0.0108	-0.17
TITLE	-20.00		M		2-DUCT W/TRENCH & REBAR 2" PVC	0.0000	0.00	0.0000	0.00
10062	-40.00	FT	M	2	PVC SCH 40	0.7347	-29.39	0.0540	-2.16
390498	-73.00	FT	M	#3	STEEL REBAR	0.2900	-21.17	0.0360	-2.63
390502	-25.00	FT	M	16 GA	STEEL TIE WIRE	0.1236	-3.09	0.0900	-2.25
390077	-8.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.7859	-14.29	0.2400	-1.92
40048	-3.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	-0.93	0.0144	-0.04
390553	-32.00	YD	M	4000#	CONCRETE	185.0000	-5,920.00	0.4500	-14.40
						Phase Totals:	**-6,221.94**		**-40.44**
						Job Totals:	**3,649.21**		**90.89**

CODALE
A Sonepar Company

** Quotation **

Send P/O To:
Codale Electric Supply, Inc.
5225 WEST 2400 SOUTH
SALT LAKE CITY, UT 84120-1264
Phone # : 801-975-7300

Bid #: S7481823
Page #: 1

Bid To:
SKYLINE ELECTRIC
PO BOX 26666
SALT LAKE CITY, UT 84126-0666

Phone # : 801-972-3656

Ship To:
SKYLINE ELECTRIC/ CVWRF CO-GEN
800 W CENTRAL VALLEY RD
SALT LAKE CITY, UT 84119

JOB: CCF032

Bid-Date	Expr-Date	Writer	Salesman	Ship Via
07/20/21	08/19/21	Tyler Brown	Joseph Wice	103AM SLC SW

Qty	Description	Net Prc	Ext Prc
90	OCAL COND4-G 4-IN GRC PVC COATED CONDUIT Pn: 1786934	3234.940c	2911.45
9	OCAL CPL4-GNC 4" GRC PVC CTD COUPLING - NO CHARGE **ONLY SOLD WITH PVC CTD CONDUIT** Pn: 4277821	0.000ea	0.00
30	OCAL COND2-G 2-IN GRC GRAY PVC COATED CONDUIT Pn: 1786929	1090.820c	327.25
3	OCAL CPL2-GNC 2" GRC PVC COATED COUPLING - NO CHARGE **ONLY SOLD WITH PVC CTD CONDUIT** Pn: 4277807	0.000ea	0.00
6	OCAL ELL4-G 4-IN PVC COATED ELBOW Pn: 1786138	161.620ea	969.72
4	OCAL ELL2-G 2-IN GRC 90DEG PVC COATED ELBOW Pn: 1786128	40.460ea	161.84
12	OCAL SS4-G 4-IN CTD PIPE STRAP N/S Item: Mfg Return Policy Applies Pn: 3245898	20.420ea	245.04
4	OCAL SS2-G 2-IN PVC COATED PIPE STRUT STRAP Pn: 1786602	12.290ea	49.16
6	OCAL HUB4-G 4-IN PVC COATED HUB	291.370ea	1748.22

*** Continued on Next Page ***
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All Sales subject to Codale's Terms and Conditions (T&C's) available at www.codale.com/terms. Price listed on this quotation are subject to change without notice beyond expiration date. Sales Tax is not included in any Bid. Payment terms are subject to approved credit. Prices are exclusive of applicable taxes unless noted.

CODALE
A Sonepar Company

** Quotation **

Send P/O To:
Codale Electric Supply, Inc.
5225 WEST 2400 SOUTH
SALT LAKE CITY, UT 84120-1264
Phone # : 801-975-7300

Bid #: S7481823
Page #: 2

Bid To:
SKYLINE ELECTRIC
PO BOX 26666
SALT LAKE CITY, UT 84126-0666

Phone # : 801-972-3656

Ship To:
SKYLINE ELECTRIC/ CVWRF CO-GEN
800 W CENTRAL VALLEY RD
SALT LAKE CITY, UT 84119

JOB: CCF032

Bid-Date	Expr-Date	Writer	Salesman	Ship Via
07/20/21	08/19/21	Tyler Brown	Joseph Wice	103AM SLC SW

Qty	Description	Net Prc	Ext Prc
	N/S Item: Mfg Return Policy Applies Pn: 1786296		
2	OCAL HUB2-G 2-IN PVC COATED HUB GRAY Pn: 3332091	79.430ea	158.86
20	T&B A12A-G OCAL 1-5/8" BACKTOBACK CHANNEL GRAY N/S Item: Mfg Return Policy Applies Pn: 3451220	2530.520c	506.10
10	T&B A1001/2-G PVC CTD STEEL SPRING NUT 1/2IN GRAY N/S Item: Mfg Return Policy Applies Pn: 4359484	21.400ea	214.00

Bid Total	7291.64
Sales tax	528.64
Bid Amount	7820.28

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All Sales subject to Codale's Terms and Conditions (T&C's) available at www.codale.com/terms. Price listed on this quotation are subject to change without notice beyond expiration date. Sales Tax is not included in any Bid. Payment terms are subject to approved credit. Prices are exclusive of applicable taxes unless noted.

CHANGE CONTROL FORM 032
Revised ANB Electrical JB locations

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 05/28/2021**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide a proposal to revise location of Junction Boxes JBX170003 and JBX170004.
Junction boxes JBX170003 and JBX170004 shall be shifted approximately 8' to the west to line up directly with the handholes to the north. The junction boxes will be shifted off the "bump out" walkway that will be removed during the anaerobic basin expansion project in the future. Junction box locations must avoid conflict with removal of slide gate. Conduit handholes HH170001 and HH170002 south of the influent channel, and HH160009 and HH160010 north of the influent channel, will be shifted approximately 8' east to line up with the relocated junction boxes. This will remove the bends in the ductbanks getting to the junction boxes. Conduit ductbanks will come out of handholes in the ground and head south to area 17 basins. Then conduits transition to above grade, up the area 17 north wall. Install a conduit support bridge as necessary to transverse above wall over to relocated junction boxes, see attached redline drawings C-00-1315, S-17-1005, E-16EB-1001, and E-17-1204.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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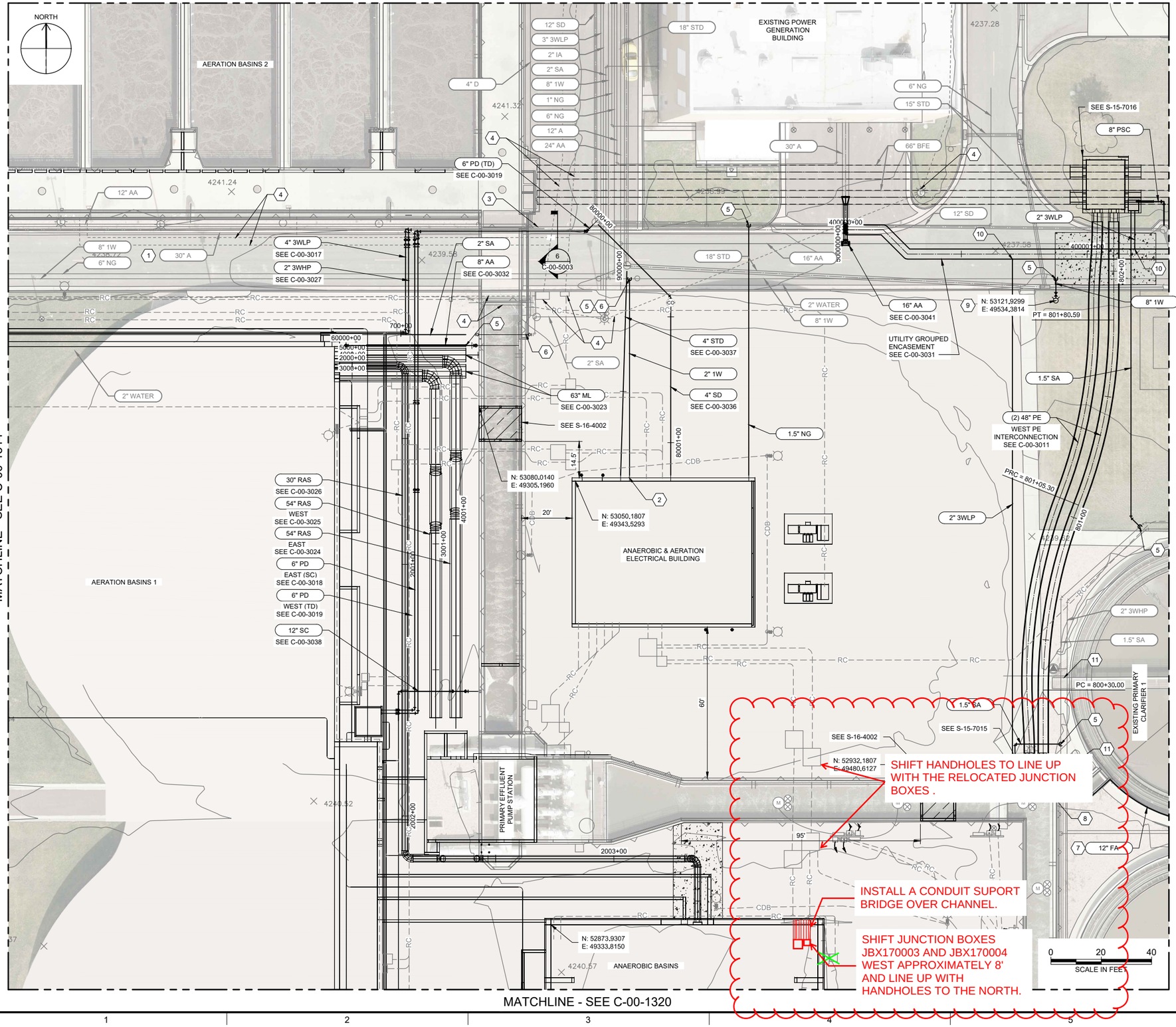


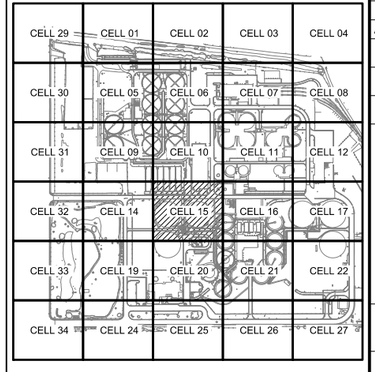
GENERAL NOTES:

1. LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. PROTECT ALL EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. VERIFY ALL LOCATIONS AND ELEVATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. CONTRACTOR SHALL PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR DESIGN AND INSPECTION OF THE FOUL AIR DUCT SUPPORTS. FINAL LAYOUT AND DETAILING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY ENGINEER. SUBMITTAL SHALL INCLUDE DRAWINGS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH. CONTRACTOR TO COORDINATE DESIGN WITH SPECIFICATIONS 01 33 00, 01 73 24, 05 10 00 AND 23 30 33.

KEY NOTES:

1. SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:
   12" WAS;
   6" FMT TO S1;
   6" FMT TO S2;
   6" FMT TO FUTURE S3;
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:
   12" WAS;
   6" FMT TO S1;
   6" FMT TO S2;
   6" FMT TO FUTURE S3;
   2" 3WHP;
   4" 3WLP;
   2 X 6" PD.
4. PROTECT IN PLACE. SEE ELECTRICAL.
5. CONNECT TO EXISTING. SEE GENERAL SITE PIPING NOTES 8 AND 9.
6. PROVIDE 2" AWWA C509 ISOLATION VALVE.
7. INSTALL 12" FA TO CLARIFIER 1 TOP OF WALL EL 4243.0 (CONTRACTOR TO VERIFY). INSTALL PIPE SUPPORT EVERY 10 FT.
8. CONNECT 12" FA TO EXISTING 12" AA. SEE PROCESS FOR CONTINUATION.
9. INSTALL FIRE HYDRANT PER DETAIL DC 1865.
10. INSTALL 4"x4"x2" 3WLP TEE.
11. REMOVE AND REPLACE EXISTING STAIRS.

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

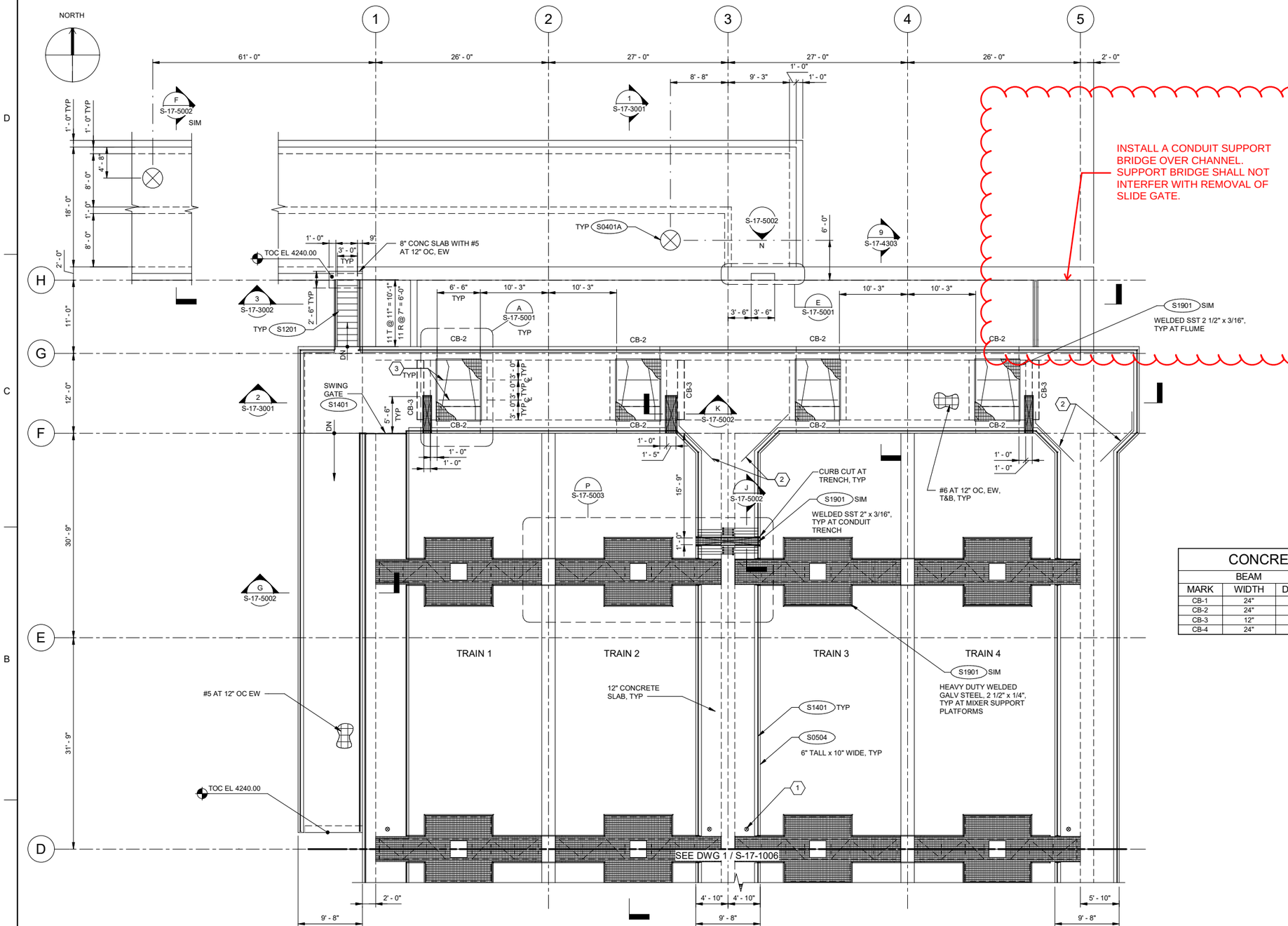
FILENAME
C-00-1315.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

SITE PIPING PLAN - AREA 16

DRAWING NUMBER
C-00-1315

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\04-CIVIL\3D\02-SHEETS FILENAME: C-00-1315.DWG PLOT DATE: 6/5/2020 2:31 PM CAD USER: DAVID DAVIDSE
CVWRF_NW.sld



UPPER PLAN NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

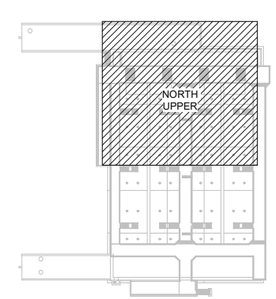
1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW / APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS, AND FRAMING SHOWN ARE ALUMINUM UNLESS NOTED OTHERWISE.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. CB-"X" CONCRETE BEAM, SEE THIS SHEET FOR SCHEDULE.
14. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.
15. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. ACTUATOR SLEEVE, SEE MECHANICAL, TYP
2. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS.
3. SST W8X15 GRATING SUPPORT BEAMS OVER FLUMES

CONCRETE BEAM SCHEDULE

BEAM			REINFORCING		SHEAR
MARK	WIDTH	DEPTH	TOP	BOTTOM	ES
CB-1	24"	18"	(6) #9	(6) #9	#4 AT 8" OC
CB-2	24"	12"	(4) #7	(4) #7	#4 AT 12" OC
CB-3	12"	12"	(4) #6	(4) #6	#4 AT 12" OC
CB-4	24"	12"	(6) #9	(6) #9	#4 AT 4" OC



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

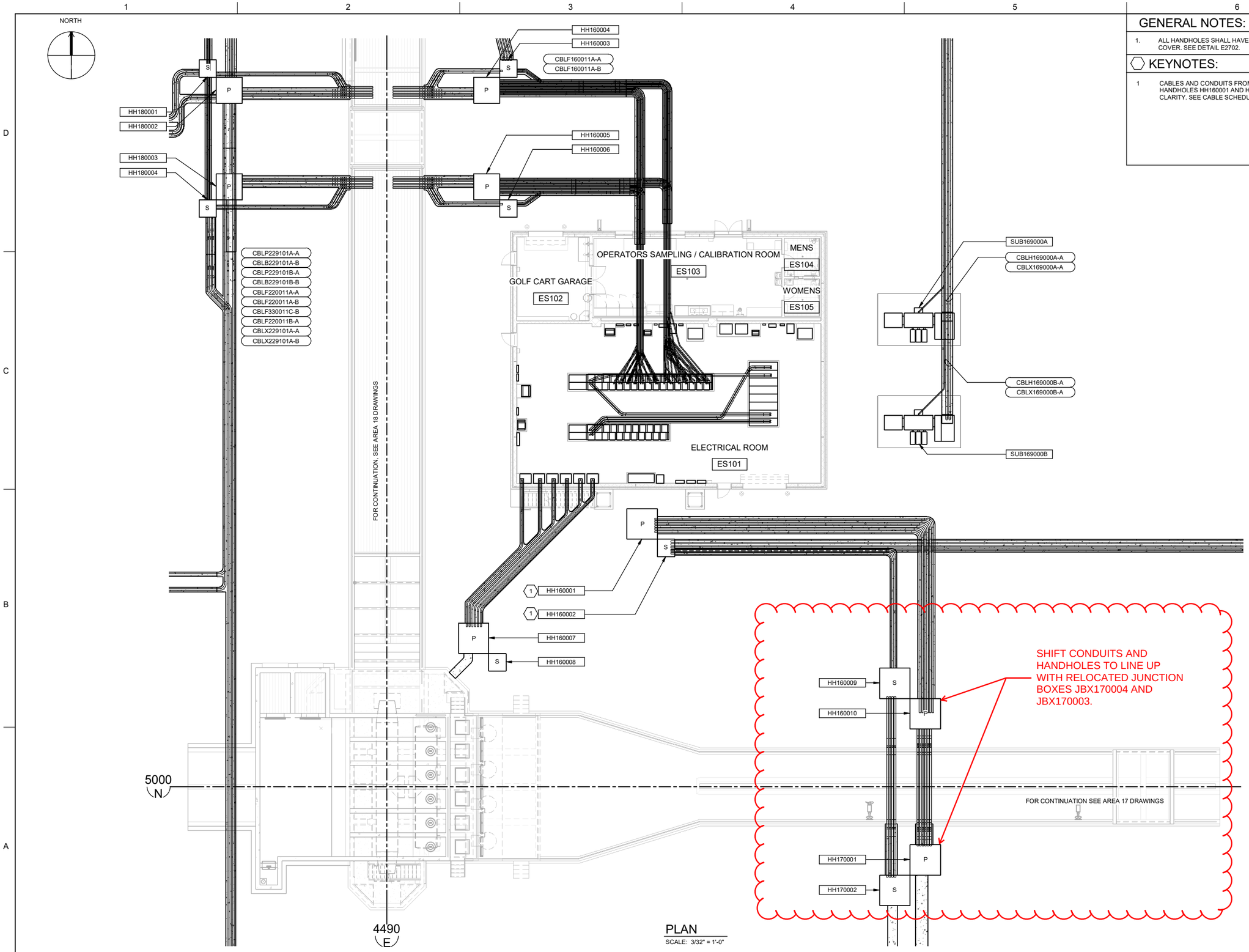
FILENAME 151600-S-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

ANAEROBIC BASINS UPPER PLAN NORTH

DRAWING NUMBER
S-17-1005

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:45:52 AM



PLAN
SCALE: 3/32" = 1'-0"

GENERAL NOTES:

1. ALL HANDHOLES SHALL HAVE AN H-20 TRAFFIC RATED COVER. SEE DETAIL E2702.

KEYNOTES:

1 CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

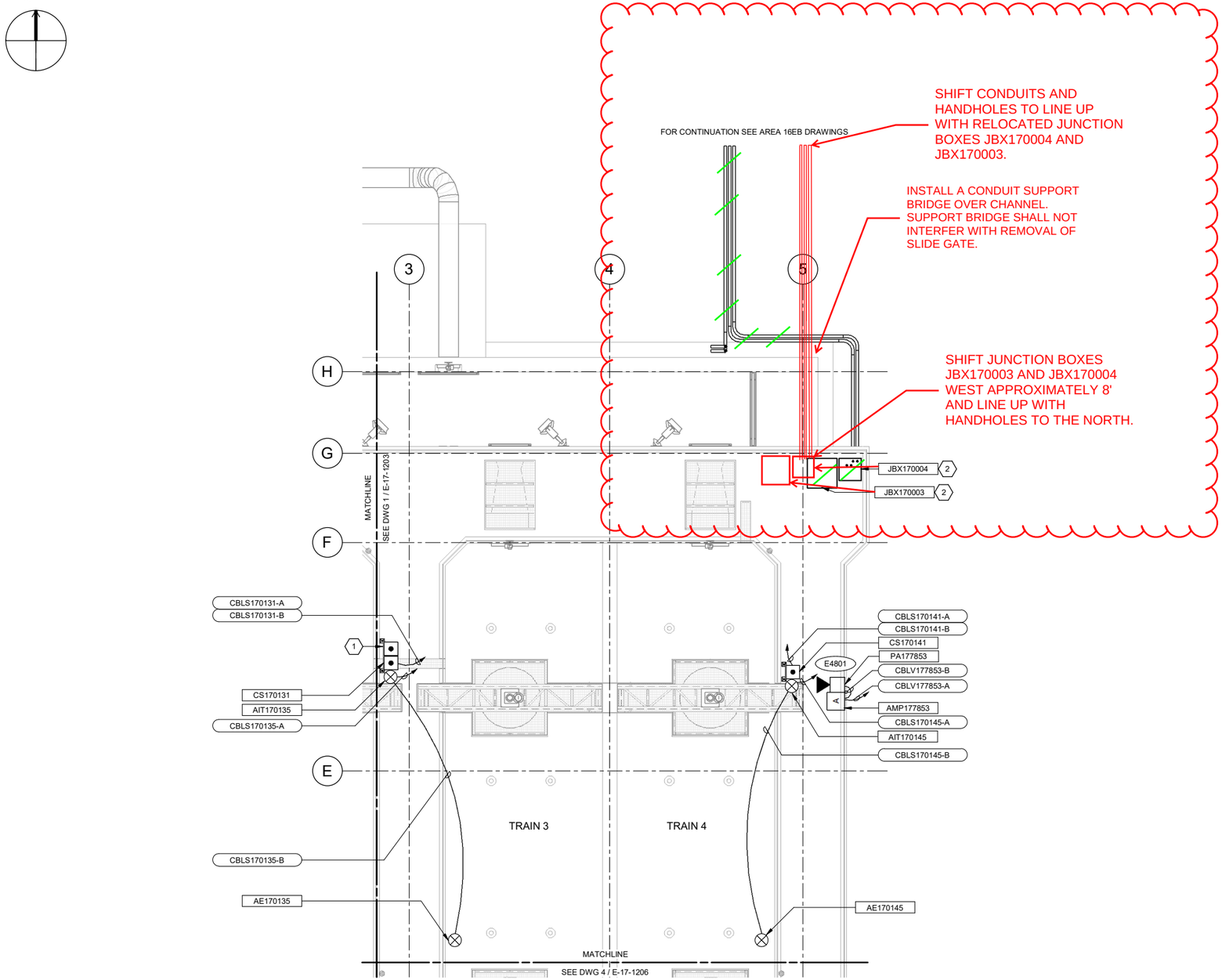
ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL BUILDING OVERALL PLAN

DRAWING NUMBER
E-16EB-1001

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-16EBV18.rvt
Plot Date: 6/12/2020 11:34:41 AM

NORTH

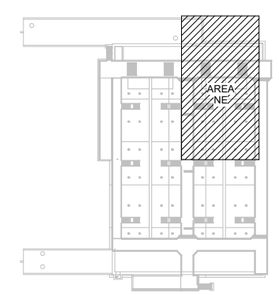


PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES:

1. SEE SHEET E-17-1203 FOR INFORMATION PERTAINING TO CS170121.
2. ALL CONDUITS FOR EQUIPMENT AND INSTRUMENTS IN THE ANAEROBIC AND AERATION BASINS SHALL BE ROUTED VIA JUNCTION BOXES. JUNCTION BOXES SHALL BE NEMA 4X, FREESTANDING ENCLOSURE WITH LEGS. SIZES SHOWN ON THE PLAN DRAWINGS ARE ESTIMATED BASED ON PROPOSED ROUTING OF CONDUITS. CONTRACTOR SHALL BE RESPONSIBLE TO SIZE ALL JUNCTION BOXES PER NEC 314. FOR BID PURPOSES, ASSUME MINIMUM SIZE FOR POWER JUNCTION BOX TO BE 3'W X 3'D' X 5'H AND MINIMUM SIZE FOR SIGNAL JUNCTION BOX TO BE 2'W X 3'D' X 5'H.



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

ANAEROBIC BASIN TRAIN 3 & 4 NORTH SIGNAL AND DATA PLAN

DRAWING NUMBER
E-17-1204

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-17V18.rvt
Plot Date: 6/12/2020 7:46:18 AM

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-029 Revised ANB Electrical JB Location - CC#032	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-029	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, South Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Electrical (Skyline)	**1.00**	**UNIT**	**$14,428.04**	**$14,428.04**	**$15,310.14**	**$15,310.14**	**5.10%**
Electrical Sub	1.00	LS	$14,428.04	$14,428.04			
02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$2,541.68**	**$2,541.68**	**$2,951.24**	**$2,951.24**	**15.00%**
01 Superintendent	6.75	HR	$157.26	$1,061.53			
17 Project Manager	3.00	HR	$182.02	$546.01			
19 Project Engineer	6.75	HR	$120.14	$810.91			
Truck, Pickup, 1 Ton	0.03	MO	$1,976.63	$68.95			
Truck, Pickup, 3/4 Ton	0.03	MO	$1,556.00	$54.28			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,418.45	14.25%
Equipment Owned:	$123.23	0.73%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$14,428.04	85.02%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$16,969.72	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$16,969.72	92.93%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$164.35	0.90%
Total Overall Cost:	$17,134.07	93.83%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,127.31	6.17%
Total Margin:	$1,127.31	6.17%
Total Bid Price:	$18,261.38	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 030.2
Date: 11/9/2021
Description: Per Control Change Form #035_Rev1: Cost to modify duct bank north of the Anaerobic Basin. Conduit is flattened and centered between the rebar in the 15" concrete roadway slab, and aluminum conduit risers and LB's at the Anaerobic Basin enclosure.

Skyline Electric (see attached back-up):	$26,039.37
Mark-up (5%):	$1,301.97
Onsite Coordination & Labor (see attached back-up):	$3,396.97
Bonds:	$284.17
Mark-up (15%):	$552.18
Total:	**$31,574.66**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $31,574.66 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-030 Exposed PVC Coating On North Wall End ANB - CC#035	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-030	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, South Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Electrical (Skyline)	**1.00**	**UNIT**	**$26,039.37**	**$26,039.37**	**$27,630.43**	**$27,630.43**	**5.10%**
Electrical Sub	1.00	LS	$26,039.37	$26,039.37			
02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$3,396.97**	**$3,396.97**	**$3,944.23**	**$3,944.23**	**15.00%**
01 Superintendent	3.00	HR	$157.26	$471.32			
02 Foreman	9.00	HR	$107.76	$969.80			
19 Project Engineer	9.00	HR	$120.14	$1,081.22			
17 Project Manager	3.00	HR	$182.02	$546.01			
Truck, Pickup, 1 Ton [2]	0.05	MO	$1,976.63	$183.87			
Truck, Pickup, 3/4 Ton [2]	0.05	MO	$1,556.00	$144.74			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,068.35	10.42%
Equipment Owned:	$328.62	1.12%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$26,039.37	88.46%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$29,436.34	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$29,436.34	93.23%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$284.17	0.90%
Total Overall Cost:	$29,720.51	94.13%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,854.15	5.87%
Total Margin:	$1,854.15	5.87%
Total Bid Price:	$31,574.66	

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	11/8/2021		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JAMES BOLANDER	Address:	815 E 675 S
Change Title:	**CCF035 REV 1 - DUCT BANK NORTH OF ANB**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide all labor and materials listed per CCF035. See CCF035 Description scope and takeoff.

Provide a modified duct bank north of the anaerobic basin, so that the conduit is flattened and centered between the rebar in the 15" concrete roadway as shown in the sketches. Exposed aluminum conduit risers with LB's to enclosure at ANB.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$8,551.01		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			159.01
LABOR FACTOR:			
material handling 2.00%			3.1802
cleanup 3.00%			4.7703
safety 1.25%			1.987625
other factors 0.00%			0
other impact* OT 0.00% / overmanning 0.00% / stacking 0.00% / shift 0.00% / Composite 0.00%	Tax $662.70		
cumulative Impact			0.00
SUBTOTAL	loc 1 $ 9,213.71	loc 2 $ 0.00	168.95
		RATE:	$ 67.00
extension:			$ 11,319.52

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	11,319.52

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	8	hrs@	$77.00	$616.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$226.39
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	8	hrs@	$77.00	$616.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	1,458.39

MATERIAL		from loc 1	$	9,213.71
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,458.39
LABOR		from loc 3	$	11,319.52
WARRANTEE	1.50%		$	329.87
BOND	1.44%		$	321.43
subtotal			$	22,642.93
OVERHEAD + PROFIT	15.00%		$	3,396.44
TOTAL CHANGE			$	26,039.37

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF035 REV 1: DUCT BANK NORTH OF ANB

Takeoff

9 Nov 2021 11:10:17

Item: ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10144	80.00	FT	M	4	ALUM CONDUIT	12.0372	962.97	0.2370	18.96
30682	4.00	EA	M	4	ALUM LB CONDUIT BODY	523.1104	2,092.44	5.0000	20.00
10142	20.00	FT	M	3	ALUM CONDUIT	8.6508	173.02	0.1500	3.00
30680	3.00	EA	M	3	ALUM LB CONDUIT BODY	276.1175	828.35	3.1000	9.30
10140	20.00	FT	M	2	ALUM CONDUIT	4.0810	81.62	0.1000	2.00
30678	1.00	EA	M	2	ALUM LB CONDUIT BODY	99.6645	99.66	1.8500	1.85
10139	20.00	FT	M	1 1/2	ALUM CONDUIT	3.0522	61.04	0.0870	1.74
30677	1.00	EA	M	1 1/2	ALUM LB CONDUIT BODY	58.9928	58.99	1.5500	1.55
160336	50.00	EA	M	1/2-13 x 2"	MACHINE SCREWS (SS)	0.9500	47.50	0.1000	5.00
160191	50.00	EA	M	1/2"	LOCK WASHER (SS)	0.1500	7.50	0.0015	0.08
160191	50.00	EA	M	1/2"	LOCK WASHER (SS)	0.1500	7.50	0.0015	0.08
160588	4.00	EA	M	CARTRIDGE (8.5 OZ)	CONCRETE DOWL EPOXY (1-PART)	20.2600	81.04	0.3000	1.20
240218	30.00	EA	M	P2343R-EG	U-STRUT 90d WING 4 HOLES	16.0418	481.25	0.0300	0.90
240686	50.00	EA	M	1/2-13	SS U-STRUT SPRING NUT (1 3/8 - 1 5/8H)	3.5700	178.50	0.0750	3.75
40087	4.00	EA	M	4	MYERS THREADED GRD HUB	82.2554	329.02	2.8000	11.20
40085	1.00	EA	M	3	MYERS THREADED GRD HUB	44.0858	44.09	2.4000	2.40
40083	1.00	EA	M	2	MYERS THREADED GRD HUB	10.5760	10.58	2.0000	2.00
40082	1.00	EA	M	1 1/2	MYERS THREADED GRD HUB	9.9439	9.94	1.8000	1.80
	0.00				**4-DUCT W/TRENCH & REBAR 4" PVC**				
10066	160.00	FT	M	4	PVC SCH 40	10.2400	1,638.40	0.0800	12.80
390498	147.00	FT	M	#3	STEEL REBAR	0.2900	42.63	0.0300	4.41
390502	50.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	5.73	0.0750	3.75
390080	16.00	EA	M	4 x 2	BASE DUCT BANK CONDUIT SPACER	1.2372	19.80	0.1750	2.80
390071	16.00	EA	M	4 x 2	INTERMEDIATE DUCT BANK SPACER	1.2787	20.46	0.1750	2.80
40048	23.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	7.15	0.0105	0.24
	0.00				**1-DUCT W/TRENCH & REBAR 3" PVC**				
10064	40.00	FT	M	3	PVC SCH 40	7.5300	301.20	0.0550	2.20

Item: ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
390498	110.00	FT	M	#3	STEEL REBAR	0.2900	31.90	0.0300	3.30
390502	38.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	4.35	0.0750	2.85
390078	12.00	EA	M	3 x 2	BASE DUCT BANK CONDUIT SPACER	1.1583	13.90	0.1750	2.10
390069	12.00	EA	M	3 x 2	INTERMEDIATE DUCT BANK SPACER	1.3076	15.69	0.1750	2.10
390389	32.00	FT	M	3"	RED TRENCH CAUTION TAPE	0.0294	0.94	0.0045	0.14
40048	15.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	4.66	0.0105	0.16
	0.00				**1-DUCT W/ TRENCH & REBAR 2" PVC**				
10062	40.00	FT	M	2	PVC SCH 40	3.9300	157.20	0.0450	1.80
390050	314.00	FT	M	#4	STEEL REBAR	0.3500	109.90	0.0300	9.42
390502	56.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	6.41	0.0750	4.20
390077	16.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5120	24.19	0.2000	3.20
40048	8.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	2.49	0.0120	0.10
10061	40.00	FT	M	1 1/2	PVC SCH 40	3.1500	126.00	0.0875	3.50
390551	3.00	YD	M	2500#	CONCRETE	185.0000	555.00	0.3750	1.13
	0.00				**1-DUCT W/ TRENCH & REBAR 1-1/2" PVC**				
10061	40.00	FT	M	1 1/2	PVC SCH 40	3.1500	126.00	0.0438	1.75
390516	40.00	FT	M	24" WIDE	3" SAND BEDDING	0.3500	14.00	0.1500	6.00
390498	147.00	FT	M	#3	STEEL REBAR	0.2900	42.63	0.0300	4.41
390502	50.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	5.73	0.0750	3.75
390077	8.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5120	12.10	0.2250	1.80
40048	1.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.31	0.0135	0.01
						Phase Totals:	**8,843.78**		**167.52**

Item: DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**4" PVC DUCT (4)**				
10066	-80.00	FT	M	4	PVC SCH 40	1.7880	-143.04	0.0240	-1.92
390498	-74.00	FT	M	#3	STEEL REBAR	0.2900	-21.46	0.0200	-1.48
390502	-25.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	-2.86	0.0200	-0.50
390080	-8.00	EA	M	4 x 2	BASE DUCT BANK CONDUIT SPACER	1.2372	-9.90	0.0350	-0.28
390071	-8.00	EA	M	4 x 2	INTERMEDIATE DUCT BANK SPACER	1.2787	-10.23	0.0350	-0.28
40048	-12.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	-3.73	0.0070	-0.08
	0.00				**3" PVC DUCT (1)**				
10064	-20.00	FT	M	3	PVC SCH 40	1.4410	-28.82	0.0200	-0.40
390498	-35.00	FT	M	#3	STEEL REBAR	0.2900	-10.15	0.0200	-0.70
390502	-12.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	-1.37	0.0200	-0.24
390078	-4.00	EA	M	3 x 2	BASE DUCT BANK CONDUIT SPACER	1.1583	-4.63	0.0350	-0.14
390069	-4.00	EA	M	3 x 2	INTERMEDIATE DUCT BANK SPACER	1.3076	-5.23	0.0350	-0.14
40048	-9.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	-2.80	0.0070	-0.06
	-20.00				**2" PVC DUCT (1)**				
10062	-20.00	FT	M	2	PVC SCH 40	0.7347	-14.69	0.0180	-0.36
390050	-35.00	FT	M	#4	STEEL REBAR	0.3500	-12.25	0.0200	-0.70
390502	-12.00	FT	M	16 GA	STEEL TIE WIRE	0.1145	-1.37	0.0200	-0.24
390077	-4.00	EA	M	2 x 3	BASE DUCT BANK CONDUIT SPACER	1.5120	-6.05	0.0400	-0.16
40048	-3.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	-0.93	0.0080	-0.02
	0.00				**1-1/2" PVC DUCT (1)**				
10061	-20.00	FT	M	1 1/2	PVC SCH 40	0.6624	-13.25	0.0400	-0.80
						Phase Totals:	**-292.77**		**-8.51**
						Job Totals:	**8,551.01**		**159.01**

CHANGE CONTROL FORM 035_Rev 1
Duct Bank North of ANB

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/13/2021**	**CC# 30B**

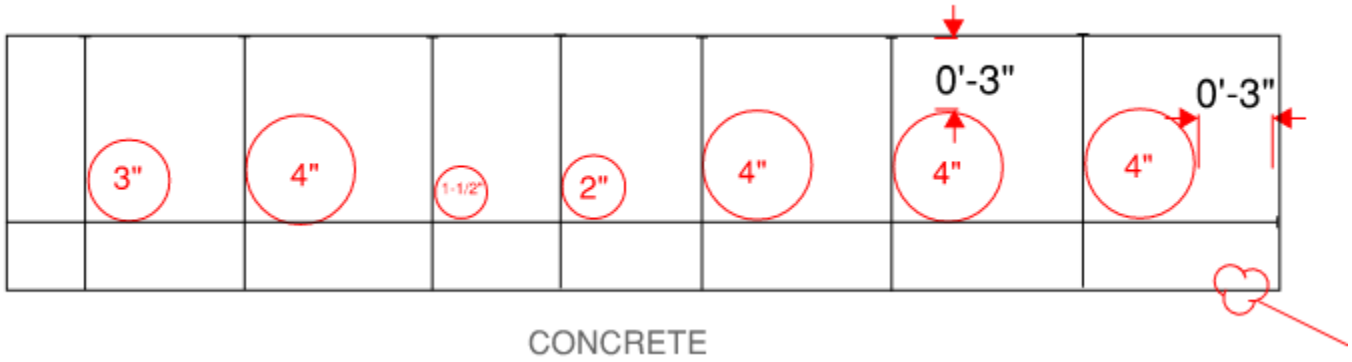
Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:

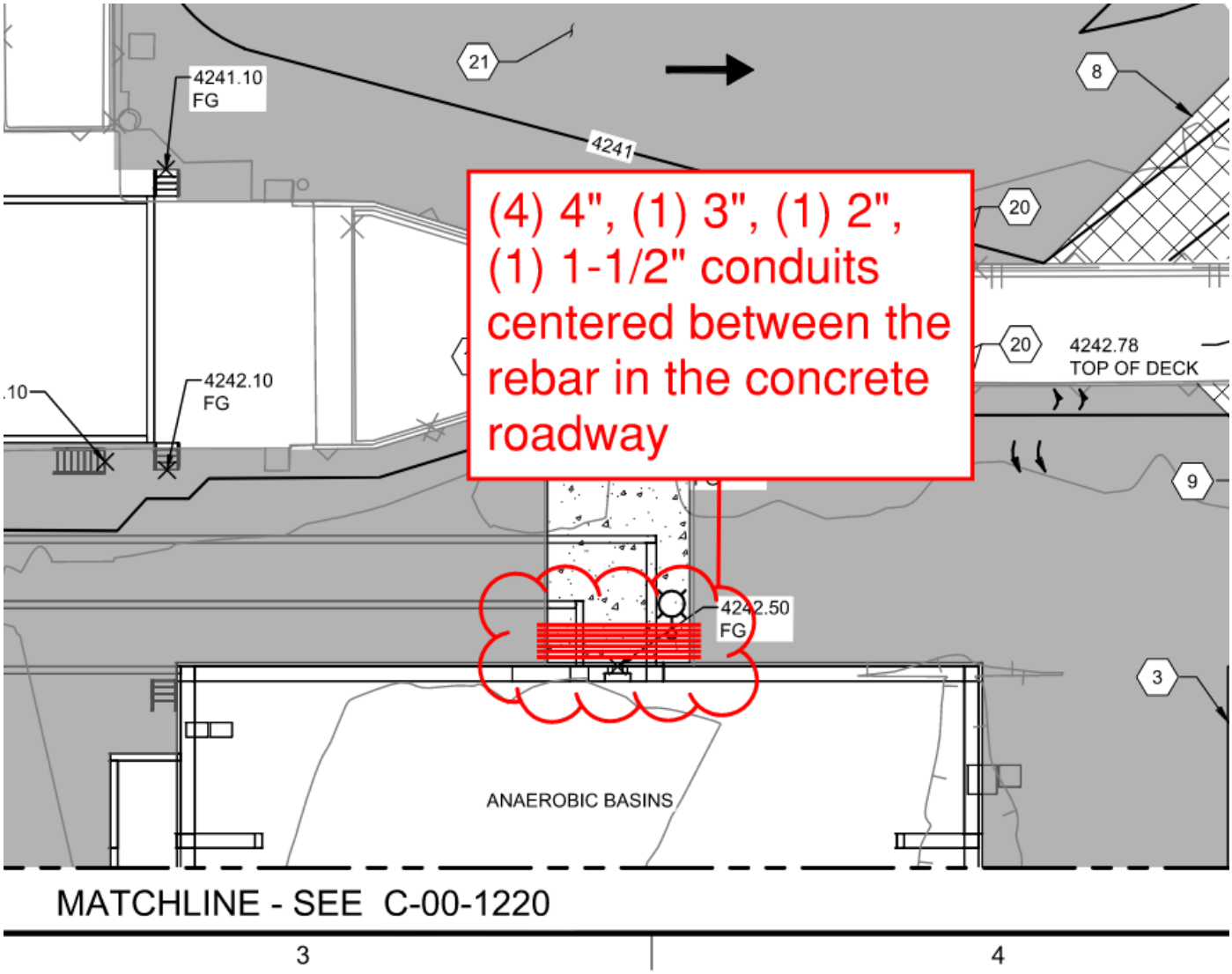
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

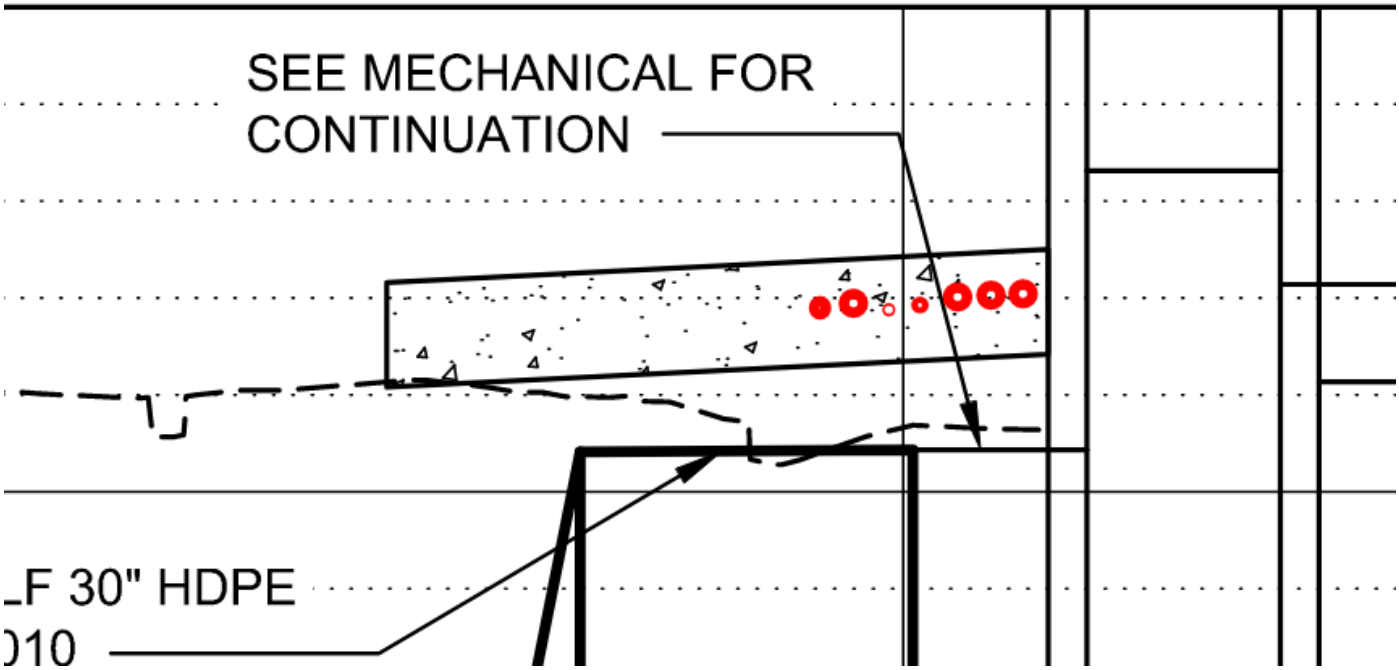
Description of Change

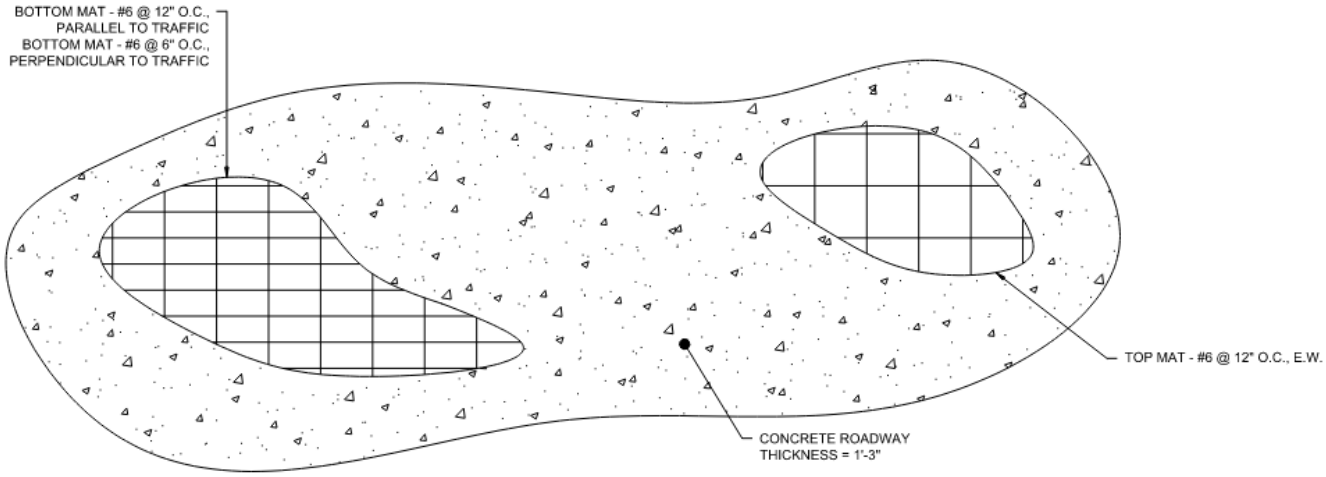
Provide a modified duct bank north of the anaerobic basin, so that the conduit is flattened and centered between the rebar in the 15" concrete roadway as shown in the sketches below. Work with C-00-1215, C-00-3026 & C-00-5004.



© 1997 Brown and Caldwell


4241.10
FG
21
8
4241
(4) 4", (1) 3", (1) 2", (1) 1-1/2" conduits centered between the rebar in the concrete roadway
20
20
4242.78
TOP OF DECK
4242.10
FG
9
4242.50
FG
3
ANAEROBIC BASINS
MATCHLINE - SEE C-00-1220
3
4





K
CONCRETE ROADWAY ALT. 2 - SECTION
SCALE: 1" = 2'-0"

Request for Proposal/Contractor Requested Change/Claim		
We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:		
	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection		Date:
Owner Signature ☐ Accepts Proposal ☐ Rejects Proposal		Date:

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

CHANGE CONTROL FORM 043
H-Pile Shoring Credit

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/03/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The Contractor was allowed to deviate from spec requirement of drilling h-piles. Provide a credit for driving the h-piles.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 012
Date: 2/3/2021
Description: Credit to drive H-piles instead of Drill H-Piles for temporary shoring.

Sunroc H-Pile Credit: -$24,500.00

Total: -$24,500.00

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$24,500.00 will be added to the contract price.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/28/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 008_Transformers & MBS, HVAC Specification, Network Cabinet Fiber & Data, Anaerobic Basin Suspended Slab, and Area 17 AIT Cable Additions

Dear Brandon,

Change Order 8 includes costs to:

- Change the sizing of the **transformers**, MBS and circuit breakers in area 16 & area 22 per CCF011
- Provide HVAC equipment per revised **HVAC specification** as detailed in CCF017
- Make **Network Cabinet, fiber, and data** changes per CCF020
- Install a **suspended slab** at the anaerobic basins per CCF027
- Make changes to the **Area 17 AIT cables** per CCF029

Transformer: The area 16 “B” side transformer was called out incorrectly in the contract documents and needs to be upsized to 30kVA. The circuit breakers downstream of the transformer and maintenance bypass switch need to be upsized to match. The area 22 transformer was sized correctly at 30kVA; however, the circuit breaker needs to be upsized from 50A to 80A, and the maintenance bypass switch needs to change from 100A to 80A. The Contractor is requesting **$15,686.11** and **2 days** to complete this work in accordance with change control form 11. The pricing has been reviewed and appears fair and reasonable.

HVAC specification: Change control form 17 was issued to add requirements to the Common Work Results for HVAC specification and to add requirements to the Instrumentation and Control for HVAC specification. The additions to the specification focused largely on hardware and programming requirements to work with CVWRF’s SCADA system. The Contractor is requesting **$21,616.36** and **3 days** for this work. The pricing has been reviewed and is in line with our expectations.

Network cabinet, fiber and data: Change control form 20 was issued to detail a number of changes, additions, and requirements to NCE, fiber, and data. In this change, CVWRF will provide the network cabinet and hardware; and the Contractor will install the internal cable termination and patch panels. The Contractor will provide, install, and terminate network cables between the existing hard-wired and new smart MCC buckets to the network switches located inside the MCCs – none of which were scheduled in the original contract documents. This change also includes modifying, adding, and upsizing cables, conduits, and raceways. The total cost for this change is **$104,049.75** and **6 days**,

which includes the credit received for network cabinets and hardware of ($25,375.00). The pricing has been reviewed and appears fair and reasonable.

Suspended slab: A 12" thick elevated slab is required for mounting electrical equipment in the N/W corner of the anaerobic basin, including handrail. The slab was not included in the original contract documents. To complete this work per change control form 27, the Contractor is requesting **$15,612.67** and **3 days**, which is fair and reasonable.

Area 17 AIT cables: Twenty signal and control cables to support four AITs were inadvertently left off the cable, raceway, and ductbank schedules in the bid set contract documents. Change control form 029 was issued to provide the missing cable, conduit, raceway and ductbank. The Contractor is requesting **$39,888.24** and **4 days** for this work. Pricing has been reviewed in detail and appears in line with our expectations.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 8 is $196,853.13 and eighteen (18) days.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 011 – Transformer Changes w/Contractor Quotation
3. CCF 017 – HVAC Specification Changes w/Contractor Quotation
4. CCF 020 – NCE, Fiber & Data w/Contractor Quotation
5. CCF 027 – Suspended Slab for Electrical Panels w/Contractor Quotation
6. CCF 029 – Area 17 AIT Cable Additions w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 08

Date of Issuance:	01/28/2022	Effective Date:	01/28/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 8 includes costs to:

- Change the sizing of the transformers, MBS and circuit breakers in area 16 & area 22 per CCF011
- Provide HVAC equipment per revised HVAC specification as detailed in CCF017
- Make Network Cabinet, fiber, and data changes per CCF020
- Install a suspended slab at the anaerobic basins per CCF027
- Make changes to the Area 17 AIT cables per CCF029

Attachments:

1. CCF 011 – Transformer Changes w/Contractor Quotation
2. CCF 017 – HVAC Specification Changes w/Contractor Quotation
3. CCF 020 – NCE, Fiber & Data w/Contractor Quotation
4. CCF 027 – Suspended Slab for Electrical Panels w/Contractor Quotation
5. CCF 029 – Area 17 AIT Cable Additions w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previous approved Change Orders No. 1 to No. 7: $64,715.98	**[Increase]** [Decrease] from previous approved Change Orders No. 1 to No. 7: Substantial Completion: 55 Ready for Final Payment: 55 days

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Contract Price prior to this Change Order: $ 123,332,396.98	Contract Times prior to this Change Order: Substantial Completion: 1,546 Ready for Final Payment: 1,636 days or dates
[Increase] [Decrease] of this Change Order: $196,853.13	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 18 days Ready for Final Payment: 18 days days or dates
Contract Price incorporating this Change Order: $123,529,250.11	Contract Times with all approved Change Orders: Substantial Completion: 1,564 days Ready for Final Payment: 1,654 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 01/28/2022	Date 1/31/2022	Date 1/31/2022

Approved by Funding Agency (if applicable)

By: _____ Date: _____

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 015.1
Date: 6/24/2021
Description: Per Control Change Form #011: Cost to change transformer and circuit breakers.

Skyline Electric (see attached):	$13,090.80
Mark-up (5%):	$654.54
Gerber Construction Coordination Labor (see attached back-up):	$1,546.45
Bonds:	$141.17
Mark-up (15%):	$253.15
Total:	**$15,686.11**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $15,686.11 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-015 Transformer Changes - CC#011	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-015	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical (Skyline)	**1.00**	**UNIT**	**$13,090.80**	**$13,090.80**	**$13,890.54**	**$13,890.54**	**5.10%**
S Electrical Sub	1.00	LS	$13,090.80	$13,090.80			
D 02 - Gerber Labor	**1.00**	**UNIT**	**$1,546.45**	**$1,546.45**	**$1,795.57**	**$1,795.57**	**15.00%**
01 Superintendent	2.25	HR	$157.26	$353.84			
02 Foreman	2.25	HR	$107.76	$242.45			
19 Project Engineer	4.50	HR	$120.14	$540.61			
17 Project Manager	2.25	HR	$182.02	$409.55			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,546.45	10.57%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$13,090.80	89.43%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$14,637.25	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$14,637.25	93.31%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$141.17	0.90%
Total Overall Cost:	$14,778.43	94.21%
Total Overhead:	$0.00	0.00%
Total Profit:	$907.68	5.79%
Total Margin:	$907.68	5.79%
Total Bid Price:	$15,686.11	

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	6/22/2021		
Project:	CVWRF- BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**CCF 011 Areas 16 & 22 XFMR-MBS Sizing**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide revised Transformer 169302 15kVA to a 30kVA and enclosed circuit breakers as called out in CCF 011 REV 2 document.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$9,287.40		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..			
Base Labor Hours (from pricing sheets)……..			8.87

LABOR FACTOR:

material handling		2.00%					0.1774
cleanup		3.00%					0.2661
safety		1.25%					0.110875
Sick Pay		3.30%					0.29271
other impact*	OT	overmanning	stacking	shift	Composite	Tax $691.91	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL loc 1 $ 9,979.31 loc 2 $ 0.00 9.72

RATE: $ **67.00**

extension: $ 651.04

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST							loc 3 $	651.04

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	1	hrs@	$75.00	$75.00
project management	0	hrs@	$80.00	$0.00	Testing	0	hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0	hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$13.02
change management	2	hrs@	$75.00	$150.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$75.00	$150.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0.5	hrs@	$75.00	$37.50	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	425.52

MATERIAL		from loc 1	$	9,979.31
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	425.52
LABOR		from loc 3	$	651.04
WARRANTEE	1.50%		$	165.84
BOND	1.44%		$	161.59
subtotal			$	11,383.31
OVERHEAD + PROFIT	15.00%		$	1,707.50
TOTAL CHANGE			$	13,090.80

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF 011: AREAS 16 & 22 XFMR-MBS Sizing

Takeoff

Vendor: **Labor Level:** **22 Jun 2021 16:22:43**

Item: BASE BID
└**Phase:** CREDIT

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**CBLP169202 A**				
70062	-144.00	FT	M	10	XHHW CU (STR)	0.4400	-63.36	0.0200	-2.88
	0.00				**RWYP169202 A**				
10065	-40.00	FT	M	3 1/2	PVC SCH 40	1.7100	-68.40	0.1560	-6.24
20137	2.00	EA	M	3 1/2	GRC 90-DEG ELBOW	-61.4700	-122.94	3.1000	6.20
30292	-2.00	EA	M	3 1/2	PVC FEMALE ADAPTER	11.7987	-23.60	0.8100	-1.62
10008	-10.00	FT	M	3 1/2	GRC	31.2022	-312.02	0.3120	-3.12
10187	-2.00	EA	M	3 1/2	CONDUIT CUT & THREAD	0.0000	0.00	1.5600	-3.12
30008	-2.00	EA	M	3 1/2	GRC COUPLING	21.8800	-43.76	0.5600	-1.12
40225	-2.00	EA	M	3 1/2	GRD BUSHING INSULATED	51.2314	-102.46	1.1250	-2.25
	0.00				**CBLP169202 B**				
70062	-144.00	FT	M	10	XHHW CU (STR)	0.4400	-63.36	0.0200	-2.88
	0.00				**RWYP169202 B**				
10065	-40.00	FT	M	3 1/2	PVC SCH 40	1.7100	-68.40	0.1560	-6.24
20137	2.00	EA	M	3 1/2	GRC 90-DEG ELBOW	-61.4700	-122.94	3.1000	6.20
30292	-2.00	EA	M	3 1/2	PVC FEMALE ADAPTER	11.7987	-23.60	0.8100	-1.62
10008	-10.00	FT	M	3 1/2	GRC	31.2022	-312.02	0.3120	-3.12
10187	-2.00	EA	M	3 1/2	CONDUIT CUT & THREAD	0.0000	0.00	1.5600	-3.12
30008	-2.00	EA	M	3 1/2	GRC COUPLING	21.8800	-43.76	0.5600	-1.12
40225	-2.00	EA	M	3 1/2	GRD BUSHING INSULATED	51.2314	-102.46	1.1250	-2.25
	0.00				**CBLP169302 A**				
70062	-72.00	FT	M	10	XHHW CU (STR)	0.2600	-18.72	0.0200	-1.44
	0.00				**CBLP169302 B**				
70064	-112.00	FT	M	6.	XHHW CU (STR)	0.6600	-73.92	0.0250	-2.80
70063	-28.00	FT	M	8	XHHW CU (STR)	0.4400	-12.32	0.0225	-0.63
	0.00				**CBLP169302 C**				

Item: BASE BID
└**Phase:** CREDIT

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70064	-69.00	FT	M	6.	XHHW CU (STR)	0.6600	-45.54	0.0250	-1.73
70062	-23.00	FT	M	10	XHHW CU (STR)	0.2600	-5.98	0.0200	-0.46
	0.00				**CBLP169302 E**				
70068	-84.00	FT	M	1.	XHHW CU (STR)	1.8200	-152.88	0.0362	-3.04
70064	-28.00	FT	M	6.	XHHW CU (STR)	0.6600	-18.48	0.0250	-0.70
	0.00				**CBLP169302 F**				
70065	-84.00	FT	M	4.	XHHW CU (STR)	0.6800	-57.12	0.0275	-2.31
70063	-28.00	FT	M	8	XHHW CU (STR)	0.4400	-12.32	0.0225	-0.63
	0.00				**RWYP169302**				
10005	-10.00	FT	M	2	GRC	3.4300	-34.30	0.1370	-1.37
40083	-2.00	EA	M	2	MYERS THREADED GRD HUB	45.6946	-91.39	2.0000	-4.00
240043	-2.00	EA	M	2	STRUT CLAMP	3.6897	-7.38	0.0500	-0.10
	0.00				**CBLP169302 G**				
70064	-69.00	FT	M	6.	XHHW CU (STR)	0.6600	-45.54	0.0250	-1.73
70062	-23.00	FT	M	10	XHHW CU (STR)	0.2600	-5.98	0.0200	-0.46
	0.00				**RWYP169302 G**				
10002	-10.00	FT	M	1	GRC	2.2500	-22.50	0.0870	-0.87
40080	-1.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	-28.47	1.5000	-1.50
240040	-2.00	EA	M	1	STRUT CLAMP	2.4402	-4.88	0.0375	-0.08
	0.00				**CBLP169302 H**				
70065	-69.00	FT	M	4.	XHHW CU (STR)	0.6800	-46.92	0.0275	-1.90
70063	-23.00	FT	M	8	XHHW CU (STR)	0.4400	-10.12	0.0225	-0.52
	0.00				**CBLP169403 D**				
70068	-69.00	FT	M	1.	XHHW CU (STR)	1.8200	-125.58	0.0362	-2.50
70063	-23.00	FT	M	8	XHHW CU (STR)	0.4400	-10.12	0.0225	-0.52
	0.00				**CBLP169403 E**				
70064	-69.00	FT	M	6.	XHHW CU (STR)	0.6600	-45.54	0.0250	-1.73
70062	-23.00	FT	M	10	XHHW CU (STR)	0.2600	-5.98	0.0200	-0.46
	0.00				**CBLP169403 F**				
70068	-84.00	FT	M	1.	XHHW CU (STR)	1.8200	-152.88	0.0362	-3.04
70064	-28.00	FT	M	6.	XHHW CU (STR)	0.6600	-18.48	0.0250	-0.70
	0.00				**CBLP169403 G**				
70068	-84.00	FT	M	1.	XHHW CU (STR)	1.8200	-152.88	0.0362	-3.04
70064	-28.00	FT	M	6.	XHHW CU (STR)	0.6600	-18.48	0.0250	-0.70

Item: BASE BID
└**Phase:** CREDIT

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**CBLP169403 H**				
70068	-84.00	FT	M	1.	XHHW CU (STR)	1.8200	-152.88	0.0362	-3.04
70064	-28.00	FT	M	6.	XHHW CU (STR)	0.6600	-18.48	0.0250	-0.70
						Phase Totals:	**-2,869.15**		**-70.97**

Item: BASE BID
└**Phase:** ADDED

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**CBLP169202 A**				
70063	144.00	FT	M	8	XHHW CU (STR)	0.5900	84.96	0.0225	3.24
	0.00				**RWYP169202 A**				
10059	40.00	FT	M	1	PVC SCH 40	1.5700	62.80	0.0650	2.60
20131	2.00	EA	M	1	GRC 90-DEG ELBOW	22.2100	44.42	0.6200	1.24
30286	2.00	EA	M	1	PVC FEMALE ADAPTER	1.4842	2.97	0.2200	0.44
10002	10.00	FT	M	1	GRC	12.5136	125.14	0.0870	0.87
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
30002	2.00	EA	M	1	GRC COUPLING	6.2300	12.46	0.2500	0.50
40219	2.00	EA	M	1	GRD BUSHING INSULATED	18.2742	36.55	0.3700	0.74
	0.00				**CBLP169202 B**				
70063	144.00	FT	M	8	XHHW CU (STR)	0.5900	84.96	0.0225	3.24
	0.00				**RWYP169202 B**				
10059	40.00	FT	M	1	PVC SCH 40	1.5700	62.80	0.0650	2.60
20131	2.00	EA	M	1	GRC 90-DEG ELBOW	22.2100	44.42	0.6200	1.24
30286	2.00	EA	M	1	PVC FEMALE ADAPTER	1.4842	2.97	0.2200	0.44
10002	10.00	FT	M	1	GRC	4.5136	45.14	0.0870	0.87
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
30002	2.00	EA	M	1	GRC COUPLING	6.2300	12.46	0.2500	0.50
40219	2.00	EA	M	1	GRD BUSHING INSULATED	18.2742	36.55	0.3700	0.74
	0.00				**CBLP169302 A**				
70065	54.00	FT	M	4.	XHHW CU (STR)	1.4600	78.84	0.0275	1.48
70063	18.00	FT	M	8	XHHW CU (STR)	0.5900	10.62	0.0225	0.41
	0.00				**CBLP169302 B**				
70068	112.00	FT	M	1.	XHHW CU (STR)	2.5700	287.84	0.0362	4.05
70064	28.00	FT	M	6.	XHHW CU (STR)	0.9100	25.48	0.0250	0.70

Item: BASE BID
└**Phase:** ADDED

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**CBLP169302 C**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**CBLP169302 E**				
70040	112.00	FT	M	1.	THHN/THWN CU (STR)	2.5700	287.84	0.0238	2.66
70036	28.00	FT	M	6.	THHN/THWN CU (STR)	0.9100	25.48	0.0138	0.39
	0.00				**CBLP169302 F**				
70068	112.00	FT	M	1.	XHHW CU (STR)	2.5700	287.84	0.0362	4.05
70064	28.00	FT	M	6.	XHHW CU (STR)	0.9100	25.48	0.0250	0.70
	0.00				**RWYP169302 E**				
10006	10.00	FT	M	2 1/2	GRC	15.5600	155.60	0.1870	1.87
40084	2.00	EA	M	2 1/2	MYERS THREADED GRD HUB	90.4994	181.00	2.2000	4.40
240044	2.00	EA	M	2 1/2	STRUT CLAMP	4.2609	8.52	0.0625	0.13
	0.00				**CBLP169302 G**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**RWYP169302 G**				
10004	10.00	FT	M	1 1/2	GRC	12.9800	129.80	0.1120	1.12
40082	2.00	EA	M	1 1/2	MYERS THREADED GRD HUB	42.9634	85.93	1.8000	3.60
240042	2.00	EA	M	1 1/2	STRUT CLAMP	3.4188	6.84	0.0500	0.10
	0.00				**CBLP169302 H**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**CBLP169403 D**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**CBLP169403 E**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**CBLP169403 F**				
70068	112.00	FT	M	1.	XHHW CU (STR)	2.5700	287.84	0.0362	4.05
70064	28.00	FT	M	6.	XHHW CU (STR)	0.9100	25.48	0.0250	0.70
	0.00				**CBLP169403 G**				
70068	112.00	FT	M	1.	XHHW CU (STR)	2.5700	287.84	0.0362	4.05

Item: BASE BID
└**Phase:** ADDED

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70064	28.00	FT	M	6.	XHHW CU (STR)	0.9100	25.48	0.0250	0.70
	0.00				**CBLP169403 H**				
70068	92.00	FT	M	1.	XHHW CU (STR)	2.5700	236.44	0.0362	3.33
70064	23.00	FT	M	6.	XHHW CU (STR)	0.9100	20.93	0.0250	0.58
	0.00				**CODALE QUOTE**				
1	1.00		M		GEAR QUOTATION	7,730.0000	7,730.00	0.0000	0.00
						Phase Totals:	**12,156.55**		**79.84**
						Job Totals:	**9,287.40**		**8.87**

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: **12/8/2020**

Direct: 801-233-5460

Revision

JOB NAME: **CVWRF CC30B BNR BASINS**
ATTN: BRAD

Item	Qty.	Description	Notes

CCF 011 - UPS CHANGES

	1	XFMR169302 TRANSFORMER
	1	CB229301 ENCLOSED BREAKER
	1	CB169403 ENCLOSED BREAKER
	1	CB169302 ENCLOSED BREAKER

TOTAL $4,200.00

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: **5/25/2021**

Direct: 801-233-5460

Revision

JOB NAME: **CC30B BNR BASINS**
Attn:Brad

Item	Qty.	Description	Notes

CCF-011 REV2 CHANGES

1 CHANGE XFMR169403 & XFMR229031 FROM K1 TO K4
ADDED SHIELDING PER REVISED PLANS

1 CHANGE MCC FEEDER BUCKETS FOR ATS169202
TO 40AMP BREAKERS IN MCC169102A&B
PER RIVSED PLANS

TOTAL $3,530.00 ADDER

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

CHANGE CONTROL FORM 011
Areas 16 & 22 XFMR-MBS sizing

Owner: Central Valley Water Reclamation Facility	**Project: Headworks Improvements**	
Contractor: Gerber Construction	**Date: 11/23/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

CCF 11 is a change order request for the sizing of the transformer and MBS in Area 16 and 22 electrical rooms. In Area 16, the "B side" transformer should be upsized to 30KVA. Therefore, the circuit breaker downstream of the transformer and maintenance bypass switch (MBS) should be upsized accordingly. In Area 22, the transformer is correctly sized at 30kVA. But the circuit breaker should be upsized from 50A to 80A and the MBS should be size at 80A instead of 100A. See attached drawings E-16-7006 and E-22-7002 for details. These drawings should be revised in the BNR Basins final Conformed Documents.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		Date:
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		Date:

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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CHANGE CONTROL FORM 011 Revision 2
Areas 16 & 22 XFMR-MBS sizing

Owner: Central Valley Water Reclamation Facility	**Project: Headworks Improvements**	
Contractor: Gerber Construction	**Date: 11/23/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

CCF 11 is a change order request for the sizing of the transformer and MBS in Area 16 and 22 electrical rooms. In Area 16, the "B side" transformer should be upsized to 30KVA. Therefore, the circuit breaker downstream of the transformer and maintenance bypass switch (MBS) should be upsized accordingly. In Area 22, the transformer is correctly sized at 30kVA. But the circuit breaker should be upsized from 50A to 80A and the MBS should be size at 80A instead of 100A. See attached drawings E-16-7006 and E-22-7002 for details. Also note, the symbols for the upstream transformers have been changed to reflect isolation transformer symbols instead of power transformer symbols. These are for transformers XFMR169403, XFMR169302, and XFMR229301. These drawings should be revised in the BNR Basins final Conformed Documents.

The cable and raceway schedules in Specification 26 06 20 will be reissued at a later but will have the following changes included:

- From MCC169102A TO ATS169202, CBLP169202-A changed from 3#10, 1#10G to 3#8, 1#10G. Conduit RWYP169202-A changed from 3-1/2" to 1".
- From MCC169102B TO ATS169202, CBLP169202-B changed from 3#10, 1#10G to 3#8, 1#10G. Conduit RWYP169202-B changed from 3-1/2" to 1".
- From ATS169202 to XFMR169302, CBLP169302-A changed from 3#10, 1#10G to 3#4, 1#8G.
- From XFMR169302 to CB169302, CBLP169302-B changed from 3#6, 1#6N, 1#8G to 3#1, 1#1N, 1#6G.
- From CB169302 to MBS169302, CBLP169302-C changed from 3#6, 1#10G to 3#1, 1#1N, 1#6G.
- From MBS169302 to UPS169302, CBLP169302-E changed from 3#1, 1#6G to 3#1, 1#1N, 1#6G.
- From UPS169302 to MBS169302, CBLP169302-F changed from 3#4, 1#8G to 3#1, 1#1N, 1#6G. Conduit RWYP169302-E changed from 2" to 2 ½".
- From MBS169302 to PNL169302, CBLP169302-G changed from 3#6, 1#10G to 3#1, 1#1N, 1#6G. Conduit RWYP169302-G changed from 1" to 1 ½".
- From UPS169302 to BAT169302, CBLP169302-H changed from 3#4, 1#8G to 3#1, 1#1N, 1#6G.
- From CB169403 to MBS169403, CBLP169403-D changed from 3#1, 1#6G to 3#1, 1#1N, 1#6G.
- From MBS169403 to PNL169403, CBLP169403-E changed from 3#6, 1#10G to 3#1, 1#1N, 1#6G.
- From MBS169403 to UPS169403, CBLP169403-F changed from 3#1, 1#6G to 3#1, 1#1N, 1#6G.
- From UPS169403 to MBS169403, CBLP169403-G changed from 3#1, 1#6G to 3#1, 1#1N, 1#6G.
- From UPS169403 to BAT169403, CBLP169403-H changed from 3#1, 1#6G to 3#1, 1#1N, 1#6G.

Note: If a conduit size is not mentioned above, then the conduit size does not deviate from the Raceway schedule.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		Date:

© 1997 Brown and Caldwell

Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**	Date:

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

CHANGE CONTROL FORM 011
Areas 16 & 22 XFMR-MBS sizing

Owner: Central Valley Water Reclamation Facility	**Project: Headworks Improvements**	
Contractor: Gerber Construction	**Date: 11/23/2020**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

CCF 11 is a change order request for the sizing of the transformer and MBS in Area 16 and 22 electrical rooms. In Area 16, the "B side" transformer should be upsized to 30KVA. Therefore, the circuit breaker downstream of the transformer and maintenance bypass switch (MBS) should be upsized accordingly. In Area 22, the transformer is correctly sized at 30kVA. But the circuit breaker should be upsized from 50A to 80A and the MBS should be size at 80A instead of 100A. See attached drawings E-16-7006 and E-22-7002 for details. These drawings should be revised in the BNR Basins final Conformed Documents.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		Date:
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		Date:

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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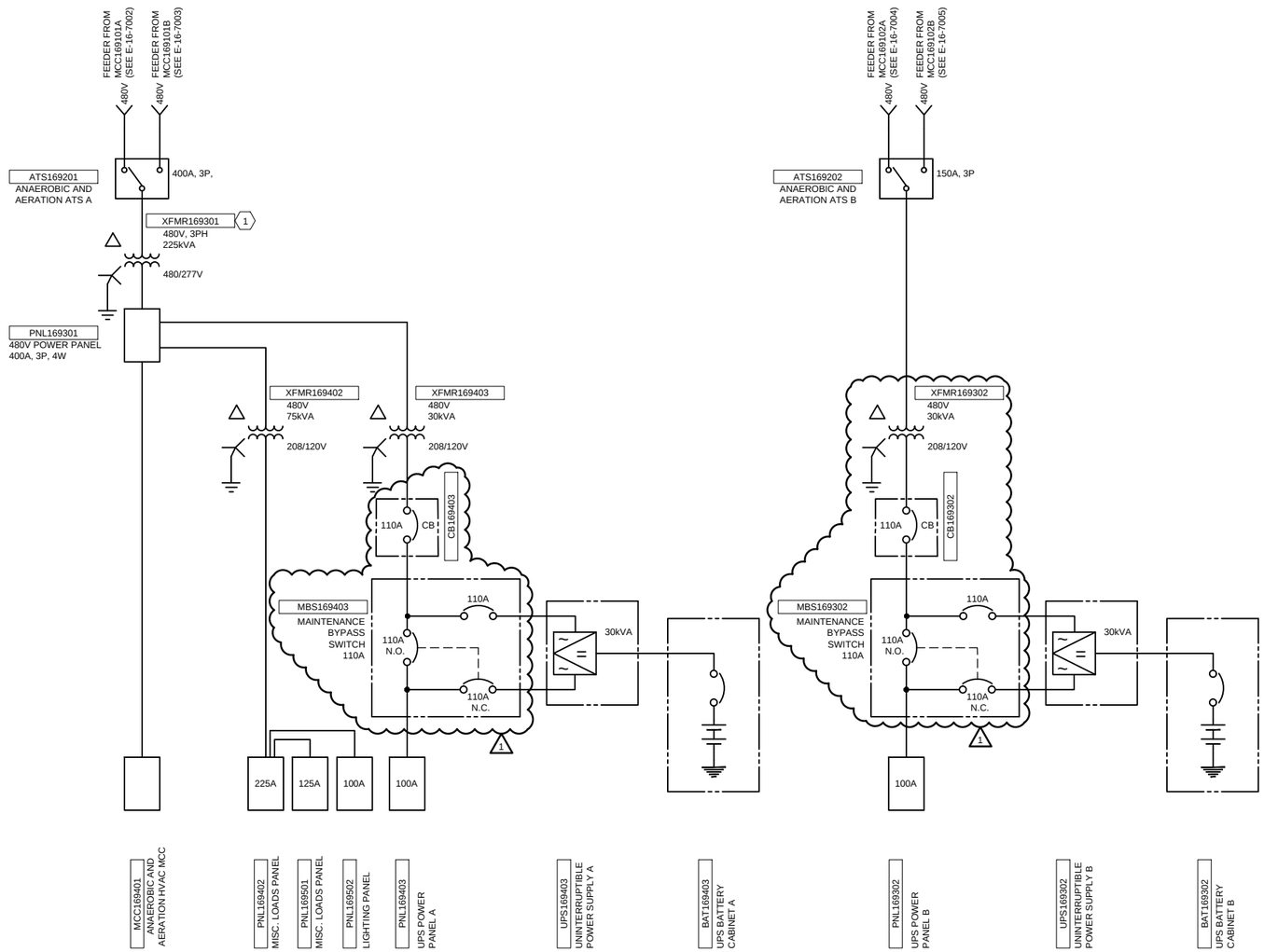


GENERAL NOTES :

1. VFD MOTOR CIRCUIT PROTECTORS (MCP) SIZED PER MANUFACTURER'S RECOMMENDATIONS.

KEYNOTES :

1 CONTRACTOR SHALL PROVIDE 225KVA, DELTA-WYE 480-480V, DRY-TYPE TRANSFORMER WITH K-FACTOR 4.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/13/20	CCF 011

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7006.DWG

BC PROJECT NUMBER
151600

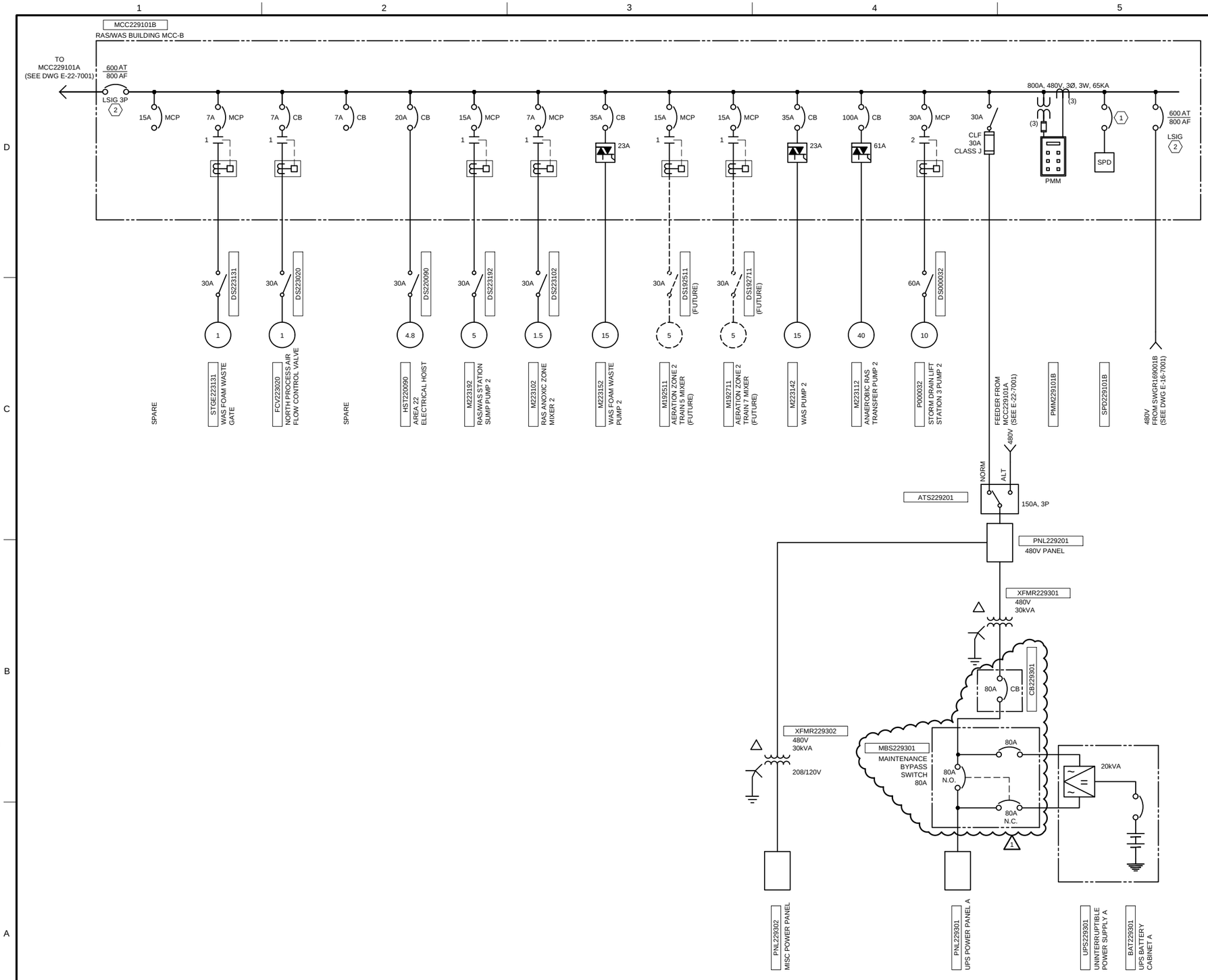
CLIENT PROJECT NUMBER
CC30C

ELECTRICAL

ANAEROBIC AND AERATION 120V UPS A AND UPS B ONE LINE

DRAWING NUMBER
E-16-7006

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-16-7006.DWG PLOT DATE: 11/19/2020 5:10 PM CAD USER: JEREMY J. MILLER



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE SET PER SHORT CIRCUIT AND COORDINATION STUDY.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/13/20	CCF 011

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-22-7002.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30C

ELECTRICAL

RAS/WAS BASIN AND AERATION BASIN 2 MCC229101B

DRAWING NUMBER
E-22-7002

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-22-7002.DWG PLOT DATE: 11/19/2020 5:08 PM CAD USER: JEREMY J. MILLER

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 042
Date: 12/10/2021
Description: Per Control Change Form #017: Cost to provide HVAC equipment per revised specifications Section 23 05 00 Common Work Results for HVAC and Section 23 09 00 Instrumentation and Control for HVAC.

United Team Mechanical (see attached back-up):	$18,607.05
Mark-up (5%):	$930.34
Onsite Coordination & Management (see attached back-up):	$1,613.25
Bonds:	$194.55
Mark-up (15%):	$271.17
Total:	**$21,616.36**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $21,616.36 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-042 HVAC Specification Changes - CC#017	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-042	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - HVAC Subcontractor (United Team Mechanical)	**1.00**	**UNIT**	**$18,607.05**	**$18,607.05**	**$19,743.28**	**$19,743.28**	**5.10%**
HVAC Sub	1.00	LS	$18,607.05	$18,607.05			
02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$1,613.25**	**$1,613.25**	**$1,873.08**	**$1,873.08**	**15.00%**
01 Superintendent	4.50	HR	$157.26	$707.68			
20 Project Engineer	3.00	HR	$120.14	$360.05			
18 Project Manager	3.00	HR	$182.02	$545.52			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,613.25	7.98%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$18,607.05	92.02%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$20,220.30	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$20,220.30	93.54%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$194.55	0.90%
Total Overall Cost:	$20,414.85	94.44%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,201.51	5.56%
Total Margin:	$1,201.51	5.56%
Total Bid Price:	$21,616.36	

UNITED TEAM MECHANICAL

P.O. BOX 257
KAYSVILLE, UT 84037
Phone: (801) 991-1100
Fax: (801) 991-1994

Request for Change Order

To: Gerber Construction
815 E. 675 S.
Lehi, UT 84043
Project: CVWRF CC30B BNR

RFC No: 901
Date: 12/8/2021
Description: Control changes as per CCF-17

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated. Work will not be performed until official change order is approved and fully executed.

Upon approval the sum of $18,607.05will be added to the contract price.

Authorized Signature: _____ Date: _____
UNITED TEAM MECHANICAL
Steven Lamb

Authorized Signature: _____ Date: _____
Gerber Construction
Shay Clark

UNITED TEAM MECHANICAL - PRICING ESTIMATE

Date	12/8/2021	
Job Number	21ut7684	
PCO Number	901	
JOB NAME:	CVWRF BRN	
REF NO.:		
Description of Work	Control changes as per CCF-17	

1	Material					
1A	Sales Tax	7.15%				$0.00
	Sub-total (material)					**$0.00**
2	Labor			Rate	Subsistance	(rates determined per prc
	A. fabrication		Hrs @			$0.00
	B. Installation		Hrs @			$0.00
	C. Project Mgmt.	6	Hrs @	$85.00		$510.00
	D. Service		Hrs @			$0.00
	E. Design		Hrs @			$0.00
	F. Supervision		Hrs @			$0.00
	Sub-total (labor)					**$510.00**
3	Extended Job Cost					$0.00
4	Equipment, Tools, Trucks			Hrs @		$0.00
5	Freight					$0.00
6	Lift Rental		0	Days @		$0.00
6A	Tax on Rentals	7.15%				$0.00
	Sub-total (other)					**$0.00**
	Total Cost (on Self-performed Work)					**$510.00**
7	Overhead	10.00%			$51.00	$561.00
8	Profit	5.00%			$28.05	$589.05
	Sub-total					**$589.05**
9	Sub-Contracts		**Yamas**			$15,600.00
10	Overhead	10.00%			$1,560.00	$17,160.00
11	Profit	5.00%			$858.00	$18,018.00
	Sub-total (Sub-contracts)					**$18,018.00**
	Total					**$18,607.05**
12	Bond Premium	0.00%				$0.00
13	Warranty	0.00%				$0.00
14	Permits					$0.00
	Total					**$18,607.05**
15	Deduct / Credits					$0.00
	Total ADD to Contract					**$18,607.05**

Exclusions

Time extension (days)

Quote effective for (days)

UtahYamas Controls

13526 South 110 West
Draper, Utah 84020 Phone 801-990-1950

Date: December 7, 2021
To: John Case
Organization: United Team Mechanical
Referencing: CVWRF – Building CC30B BNR - CCF 017

The issued CCF 017 will require additional engineering and project manager time to implement the items in the revised specification sections given as part of CCF 017. This time is detailed below and is based on this project requiring prevailing wage for on-site labor.

Scope of Work:

- Programming time for integration to SCADA system
- Time to test wire and label equipment
- Provide project management time to document wiring and network cabling. Update drawings for pipe layouts and calibrating equipment, coordination meetings
- Provide engineering support to update submittals, O&M's sequence of operations.

Direct Costs for Labor

Part Number	Qty.	Unit Price	Extended Cost
Project Management Labor	44	$ 105.00	$ 4,620.00
Engineering Labor	24	$ 95.00	$ 2,280.00
Administration Labor	16	$ 75.00	$ 1,200.00
Programming Labor	60	$ 125.00	$ 7,500.00
Installation Labor	0	$ 95.00	$ -
			$ 15,600.00

Total Price:	**$ 15,600.00**

Thank you for allowing Utah-Yamas Controls Inc. to present this quotation to you. If you should have any questions, please give me a call at (801) 859-4847.

Sincerely,

Roy Stephenson
Director of Business Development
Utah-Yamas Controls Inc.

This quotation, when signed by the purchaser or his representative, implies an acceptance of the attached terms and conditions and becomes a contract in full force and effect. All quotations are for prompt acceptance and are subject to change without notice after 60 days.

Printed Name	
Signature	
Date	

The Proposal by Utah Controls, Inc. dba Utah-Yamas Controls ("UYC") is based upon and subject to the following terms and conditions:

SCOPE OF WORK. This Proposal is based upon the use of straight time labor only, and does not include any overtime labor that might be required to complete any other work and/or any changes requested by Purchaser. Plastering, patching and painting are excluded. "In-line" duct and piping devices, including, but not limited to, valves, dampers, humidifiers, wells, taps, flow meters, orifices, etc., if required hereunder to be furnished by UYC, shall be distributed and installed by others under UYC's supervision but at no additional cost to UYC. For clarity, all such costs will be the responsibility of Purchaser. Purchaser agrees to provide UYC with required field utilities (electricity, toilets, drinking water, project hoist, elevator service, etc.) without charge to UYC. UYC agrees to keep the job site clean of debris arising out of its own operations. Purchaser shall not back charge UYC for any costs or expenses without UYC's written consent and agreement to any such back charges.

Unless specifically detailed in the statement of the scope of work or services agreed to be performed by UYC under this agreement, UYC's obligations under this agreement expressly exclude any work or service of any nature associated or connected with the identification, abatement, clean up, control, removal, or disposal of environmental hazards or dangerous substances, to include but not be limited to asbestos or PCBs, discovered in or on the premises. Any language or provision of the agreement elsewhere contained which may authorize or empower the Purchaser to change, modify, or alter the scope of work or services to be performed by UYC shall not operate to compel UYC to perform any work relating to the foregoing without UYC's express written consent.

INVOICING & PAYMENTS. UYC may invoice Purchaser on a monthly basis for all material delivered to the job site or to an off-site storage facility and for all work performed on-site and off-site by Purchaser, its subcontractors, fabricators and/or suppliers. Purchaser shall pay UYC at the time Purchaser signs this agreement an advance payment equal to ten percent (10%) of the contract price, which advance payment shall be credited against the final payment (but not any progress payment) due hereunder and Purchaser agrees to pay UYC additional amounts invoiced upon receipt of invoice. At the discretion of UYC, lien waivers may be furnished by UYC covering only the work or services for which payment has been made to UYC by Purchaser. All work or services invoiced by UYC shall be paid in full by Purchaser within thirty (30) days of each invoice issued by UYC. UYC may bill monthly for work or services provided to projects lasting more than thirty (30) days. Materials may be billed at time they are provided. In the event that UYC or its agents or subcontractors are asked by Purchaser, the owner of the project, a government representative or inspector, or any of their agents, to provide materials or services not detailed in the Proposal, or to otherwise alter UYC's performance. Purchaser shall pay UYC additional compensation for the changes performed at UYC's ordinary rates, including any overtime paid by UYC to complete such work in a timely manner. If UYC's invoice is not paid within thirty (30) days of its issuance, Purchaser shall be deemed delinquent, interest will accrue at the greater of one and one-half percent (1 ½%) per month or the highest rate allowed by applicable law, and UYC will be allowed to stop any work for Purchaser.

MATERIALS. If the materials or equipment included in this Proposal become temporarily or permanently unavailable for reasons beyond the control and without the fault of UYC, then in the case of such temporary unavailability, the time for performance of the work shall be extended to the extent thereof, and in the case of permanent unavailability, UYC shall be (a) excused from furnishing said materials or equipment, and (b) reimbursed for the difference between the cost of the materials or equipment permanently unavailable and the cost of a reasonably available substitute therefore.

LIMITED WARRANTY. UYC warrants that for equipment furnished and/or installed but not manufactured by UYC, UYC will extend the same warranty terms and conditions which UYC receives from the manufacturer of said equipment. For equipment installed by UYC, if Purchaser provides written notice to UYC of any defect in such equipment within thirty (30) days after appearance of discovery of such defect, UYC shall, at its option, repair or replace the defective equipment. For equipment not installed by UYC, if Purchaser returns the defective equipment to UYC within thirty (30) days after appearance or discovery of such defect, UYC shall, at its option, repair or replace the defective equipment and return said equipment to Purchaser. All transportation charges incurred in connection with the warranty for warranties outlined herein do not extend to any equipment which has been repaired by others, abused, altered or misused, or which has not been properly and reasonably maintained. THESE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE OF MERCHANT ABILITY AND FITNESS FOR A SPECIFIC PURPOSE.

LIABILITY. UYC SHALL NOT BE LIABLE FOR ANY MATTER UNDER THIS AGREEMENT FOR AMOUNTS IN EXCESS OF THE PAYMENTS PURCHASER HAS MADE TO UYC HEREUNDER. UYC SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTAL DAMAGES ARISING IN ANY MANNER FROM, AMONG OTHER THINGS, THE FAILURE OR MALFUNCTION OF THE EQUIPMENT OR MATERIAL FURNISHED OR THE WORK PERFORMED PURSUANT TO THIS AGREEMENT. THIS PROVISION SHALL APPLY TO ANY LOSS, DAMAGE, OR INJURY, IRRESPECTIVE OF CAUSE OR ORGIN, WHICH RESULTS DIRECTLY OR INDIRECTLY TO ANY PERSON OR PROPERTY FROM PERFORMANCE OR NON PERFORMANCE OF OBLIGATIONS IMPOSED BY THIS AGREEMENT OR FROM THE NEGLIGENCE, ACTIVE, PASSIVE OR OTHER WISE, STRICT LIABILITY, BREACH OF WARRANTY, VIOLATION OF ANY APPLICABLE CONSUMER PROTECTION LAW OR ANY OTHER ALLEGED FAULT ON THE PART OF UYC OR ITS SUBCONTRACTORS. NO SUIT OR ACTION SHALL BE BROUGHT AGAINST UYC OR ITS SUBCONTRACTORS MORE THAN ONE (1) YEAR AFTER THE ACCRUAL OF THE CAUSE OF ACTION THEREFORE.

TAXES. The price of this proposal includes use tax, if applicable. Purchaser shall pay, in addition to the stated Proposal amount, all taxes not legally required to be paid by UYC or, alternatively, shall provide UYC with acceptable tax exemption certificates. UYC shall provide Purchaser with any tax payment certificate upon request and after completion and acceptance of the work.

DELAYS. UYC shall not be liable for any delay in the performance of the work resulting from or attributed to acts or circumstances beyond UYC's control, including but not limited to, acts of God, fire, riots, labor disputes, conditions of the premises, acts or omissions of the Purchaser, owner, or other contractors or delays caused by suppliers or subcontractors of UYC, etc.

COMPLIANCE WITH LAWS. UYC shall comply with all applicable federal, state and local laws and regulations and shall obtain all temporary licenses and permits required for UYC's work. Licenses and permits of a permanent nature shall be procured and paid for by the Purchaser.

DISPUTES. All disputes involving more than $10,000 shall be resolved by arbitration in accordance with the rules of the American Arbitration Association. The prevailing party shall be entitled to recover all legal costs and attorney's fees incurred in connection with the enforcement of the terms of the parties' agreement. Nothing herein shall limit any rights available to UYC under any applicable construction lien laws or other applicable laws.

INSURANCE. Insurance coverage in excess of UYC standard limits will be furnished when requested and required by Purchaser in writing. No credit will be given or premium paid by UYC for insurance provided or covered by others.

INDEMNITY. Subject to Section 5, each party (the "Indemnifying Party") agrees to indemnify the other party and its officers, directors, managers, representatives and agents from any and all liabilities, claims, expenses, losses or damages, including attorneys' fees, which may arise in connection with the execution of the work herein specified and which are caused, in whole or in part, by the negligent act or omission of the Indemnifying Party.

OCCUPATIONAL SAFETY AND HEALTH. The parties hereto agree to notify each other immediately upon becoming aware of an inspection under, or any alleged violation of, the Occupational Safety and Health Act relating in any way to the project or project site.

ENTIRE AGREEMENT. This proposal, upon acceptance shall constitute the entire agreement between the parties and supersedes any prior representations, negotiations, agreements or understandings, either written or oral.

CHANGES. No change or modification of any of the terms and conditions stated herein shall be binding upon UYC unless accepted by UYC in writing.

ACCESS TO PROPERTY. Purchaser, owner, and/or their agents shall provide UYC with reasonable access to the property, project, or premises whenever reasonably necessary, so that UYC can timely perform and complete its work.

GOVERNING LAW. THIS AGREEMENT SHALL BE CONSTRUED AND INTERPETED IN ACCORDANCE WITH THE State of Utah and any dispute arising out of or relating to this agreement shall be brought and maintained in the state or federal courts of the State of Utah.

CHANGE CONTROL FORM 017
HVAC Specifications

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/02/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a proposal to supply and install HVAC equipment per revised Specification Section 23 05 00 Common Work Results for HVAC and Section 23 09 00 Instrumentation and Control for HVAC.

See attached Specifications.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date
Accepted by Contractor:	Date:

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SECTION 23 05 00

COMMON WORK RESULTS FOR HVAC (CCF17~~XX~~)

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies general requirements which are applicable to providing a complete, functional Heating Ventilation Air Conditioning system (HVAC), including the detailed design, supply, procurement, installation, and calibration of the control system network, instrumentation, and signal systems for Central Valley Water Reclamation Facility (CVWRF).
2. The requirements of this section are applicable to all work specified on the HVAC drawings and in Sections 40 61 13, 40 61 12, 40 67 00, and 23 09 00 of these specifications.
3. Electrical requirements applicable to this work include those specified in Section 26 05 00 (Common Work Results for Electrical Systems), 26 05 19 (Low-Voltage Conductors and Cables), and 26 05 26 (Grounding and Bonding for Electrical Systems), and 26 05 33 (Raceways, Boxes and Supports).
4. Mechanical, instrumentation and control, electrical, non-structural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

B. Description of Work:

1. *The HVAC specifications are a performance type section with the intent for the HVAC Contractor has the responsibility for the design, provision, and installation of their system, including final design documentation and coordination for a fully functional system.*
2. This section covers general work requirements. Detailed requirements are in individual related specification sections.
3. HVAC instrumentation and control system: The work consists of the following:
   a. The Contractor shall be responsible to the Owner for implementation of the project HVAC instrumentation, HVAC equipment, HVAC networks, HVAC control and signal wiring, and the integration of the HVAC with required instruments and control devices for the CVWRF.
   b. All control and signal wiring, associated conduit, and all miscellaneous accessory equipment for control wiring systems associated with the HVAC system shall be provided by the Control Subcontractor as part of the control system. Control and signal wiring and cable for HVAC is identified as part of Unscheduled Conductors and Cables in Section 26 05 19. Coordinate raceway, wiring /cable and control device locations, routing and installation with Division 26, other trades, CM and Owner's representative. Conform to Division 26 Electrical requirements.

c. The Contractor shall collaborate with the Owner's Programmer to fully integrate the project instrumentation and HVAC components into the existing PCS SCADA system.

d. The Contractor shall provide, test, configure, and calibrate new instrumentation and control devices under the HVAC design.

e. The Contractor shall fabricate and test custom control panels consisting of Contractor-, and/or vendor-furnished components.

f. The Contractor shall provide testing, start up, and commissioning services in coordination with the Owner, equipment suppliers, vendors, and subcontractors.

4. Programming: The HVAC programming work shall be provided by the Contractor. Owner's Programmer shall furnish SCADA HMI screens available based on coordination of the contractor:

   a. Controllers: Application programming for the HVAC automation controllers specified in Section 23 09 00.

   b. Workstation HMIs: CVWRF workstation human-machine interfaces (HMIs) include all plant graphics covering all process areas. The new and modified graphic files and database files for the Owner's HMI platform specified in Section 40 68 00 shall be provided and integrated into the PCS by the Owner's Programmer.

   c. Historian: Integration of assets and associated data introduced by the project to the Owner's historian shall be provided by the Owner's Programmer.

5. Communications and Network Installation and Testing: The work consists of the following:

   a. HVAC communications hardware and cable installation and testing requirements specified on the Drawings and in Division 26.

   b. The Contractor shall obtain host IP address, subnet mask, and default gateway information for the Ethernet networked equipment specified on the Drawings and in Divisions 23, 26, and 40 from the Owner. The Contractor is responsible for providing this information to the Division 26, 40, 43, and 46 vendors and subcontractors to allow for factory configuration and testing of Ethernet networked devices, where applicable and specified.

6. Communications and Networking: Installation of Owner-provided equipment and final configuration of communications and network hardware shall be provided by the Owner and consists of the following:

   a. Installation of fiber-optic and Category patch cables, and network switches within network cabinets and racks, except where specified as Contractor-provided on the Drawings.

A.C. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Dielectric fittings.
3. Mechanical sleeve seals.
4. Sleeves.
5. Escutcheons.
6. Grout.
7. Equipment installation requirements common to equipment sections.
8. Concrete bases.
9. Supports and anchorages.

1.02 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.03 SUBMITTALS

A. Welding certificates.

B. Full detailed HVAC design and system drawings to include:

1. Fully marked vendor cutsheets, with indicated model numbers and options being provided
2. Shop Drawings including project specific:
   a. Scaled plan drawings of the HVAC system including all power and control systems equipment and device locations, and raceways
   b. Interconnection diagrams with conduit and cabling identification and sizing and specifications
   c. HVAC control panel wiring diagrams, bill of materials, and internal/external plan views, with required clearances shown for ventilation
   d. Power and control requirements and interfaces for all HVAC control devices and equipment
   e. Control panel submittals – Refer to 40 67 00 for additional requirements
   f. Equipment installation, network diagrams, and design lists as required by other specifications.

C. Refer to 40 61 13 for drawing types and associated content requirements

D. Refer to 23 09 00 for additional requirements

E. System, assembly, and component testing plan – Refer to 40 61 21

F. Record close out

1. Provide project redlines & field changes.
2. Provide copies of all controller, drives, or controlled device settings, program files, and modifications.

~~1.05~~1.04 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 PRODUCTS

2.01 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 23 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.02 JOINING MATERIALS

A. Refer to individual Division 23 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.

C. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series or BAg1, unless otherwise indicated.

F. Welding Filler Metals: Comply with AWS D10.12.

G. Solvent Cements for Joining Plastic Piping:

1. CPVC Piping: ASTM F 493.
2. PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

2.03 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

E. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

F. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

2.04 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

B. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

C. Pressure Plates: Carbon steel. Include two for each sealing element.

D. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.05 SLEEVES

A. Galvanized-Steel Sheet: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

B. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

C. Cast Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

   1. Underdeck Clamp: Clamping ring with set screws.

E. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.

F. PVC Pipe: ASTM D 1785, Schedule 40.

G. Molded PE: Reusable, PE, tapered-cup shaped, and smooth-outer surface with nailing flange for attaching to wooden forms.

2.06 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. One-Piece, Cast-Brass Type: With set screw.

   1. Finish: Polished chrome-plated and rough brass.

D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

   1. Finish: Polished chrome-plated and rough brass.

2.07 GROUT

A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic-cement grout.

1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

PART 3 EXECUTION

3.01 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 23 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors.

M. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

N. Aboveground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.
3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

O. Underground, Exterior-Wall Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

P. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.

Q. Verify final equipment locations for roughing-in.

R. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.02 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 23 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Plastic Piping Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:

1. Comply with ASTM F 402, for safe-handling practice of cleaners, primers, and solvent cements.
2. CPVC Piping: Join according to ASTM D 2846/D 2846M Appendix.

3. PVC Pressure Piping: Join schedule number ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
4. PVC Nonpressure Piping: Join according to ASTM D 2855.

J. Plastic Pressure Piping Gasketed Joints: Join according to ASTM D 3139.

K. Plastic Nonpressure Piping Gasketed Joints: Join according to ASTM D 3212.

L. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
1. Plain-End Pipe and Fittings: Use butt fusion.
2. Plain-End Pipe and Socket Fittings: Use socket fusion.

M. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

3.03 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:
1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.04 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.05 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of the base.
3. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.

4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.
6. Install anchor bolts according to anchor-bolt manufacturer's written instructions.
7. Use 3000-psi, 28-day compressive-strength concrete and reinforcement as specified in Division 03 Section "Cast-in-Place Concrete".

3.06 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 05 Section "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor HVAC materials and equipment.

C. Field Welding: Comply with AWS D1.1.

3.07 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor HVAC materials and equipment.

B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

3.08 GROUTING

A. Mix and install grout for HVAC equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION

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SECTION 23 09 00

INSTRUMENTATION AND CONTROL FOR HVAC (CCF17)

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes control equipment for HVAC systems and components, including control components for terminal heating and cooling units not supplied with factory-wired controls. The control system specified in this section is to integrate with the facilities SCADA system.

B. See Refer to Division 23 Sections 23 05 00, and 23 09 93 "Sequence of Operations for HVAC Controls" for requirements that relate to this Section.

1.02 SUBMITTALS

A. Product Data: For HVAC system components.

B. Shop Drawings:
   1. Schematic air flow diagrams.
   2. Power, signal, and control wiring diagrams to include:
      a. Scaled plan drawings of the HVAC system including all power and control systems equipment, device locations, and raceways
      b. Network wiring diagrams
      c. Internal control panel wiring diagrams
      d. Input/output loop wiring diagrams
      e. Power and control requirements, details and interfaces for all HVAC control devices and equipment
      f. Internal power distribution (including redundancy, where indicated on Drawings)
   3. Details of HVAC local control panels:
      a. Panel layout-back panel (to scale)
      b. Exterior panel layout (elevation) (to scale)
      c. Terminal block layout & numbering
      d. Bill of Materials, with items identified and coordinated with layout drawings
      e. Power supply calculations
      f. Panel heat load calculations
   4. Damper schedule.
   5. Valve schedule.
   6. Conduit and Cable schedule
      a. Review and coordinate details against Owner's engineer schedule to determine duplicates and/or missing signals, communications or hardwired power or control.
      b. Provide type and size of all unscheduled power, control and signal wiring (as identified as part of Conductors and Cables in Section 26 05 19), associated conduit, and all miscellaneous accessory equipment for control wiring systems associated with the HVAC system. Coordinate raceway, wiring /cable and control

device locations, routing and installation with Division 26, other trades, CM and Owner's representative. Conform to Division 26 Electrical requirements.

7. Wiring details of interface to fire protection system.
8. HVAC Control System Software:
   a. Software name and version
   b. Written detailed control descriptions of equipment operations for programming based upon 23 09 93
      1) Control tags for remote start / stop operation, power load shedding, and set point control
      2) SCADA interface data point list, with ID, description, type, range, and engineering units for SCADA integration
      3) Recommended list of Historian logging data points
      4) SCADA alarms listing
      5) Fully documented control logic in native and .pdf formats (Draft provided prior to testing; Final provided after commissioning)

C. Software and firmware operational documentation.

D. Field quality-control test reports.

E. Factory Acceptance Testing(FAT) - Control Panel fabrication. Refer to 40 61 21 for additional FAT test submittal requirements

F. Operation and maintenance data & manuals.

1.03 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.02 CONTROL SYSTEM

1. Schneider Electric as installed by Utah Yamas Controls
   a. SmartX IP Controller (MP-C) platform shall be used.
   b. No substitute

B. Control system shall consist of sensors, indicators, actuators, final control elements, interface equipment, other apparatus, accessories, and software connected to distributed controllers operating in multiuser, multitasking environment on token-passing

network and programmed to control mechanical systems. The controller shall be capable of communicating via Modbus TCP to the remote plant SCADA system, with status, alarm, and control tags mapped to be available via this networked connection.

2.03 DDC EQUIPMENT

A. Operator Workstation: PC-based microcomputer
   1. Operator workstations are provided by the owner.
   2. Provide 1 licensed copy in support of Schneider Controls controller

B. Control Units: Modular, comprising processor board with programmable, nonvolatile, random-access memory; local operator access and display panel; integral interface equipment; and backup power source.
   1. Contractor shall select all control hardware to include controllers, I/O expansion modules and communication modules as required by each area design requirement.
   2. Units monitor or control each I/O point; process information; execute commands from other control units, devices, and operator stations; and download from or upload to operator workstation.
   3. Stand-alone mode control functions operate regardless of network status. Functions include the following:
      a. Global communications.
      b. Discrete/digital, analog, and pulse I/O.
      c. Monitoring, controlling, or addressing data points.
      d. Software applications, scheduling, and alarm processing.
      e. Testing and developing control algorithms without disrupting field hardware and controlled environment.

C. Local Control Units: Modular, comprising processor board with electronically programmable, nonvolatile, read-only memory; and backup power source.
   1. Units monitor or control each I/O point, process information, and download from or upload to operator workstation or diagnostic terminal unit.
   2. Stand-alone mode control functions operate regardless of network status. Functions include the following:
      a. Global communications.
      b. Discrete/digital, analog, and pulse I/O.
      c. Monitoring, controlling, or addressing data points.
   3. Local operator interface provides for download from or upload to operator workstation.

D. I/O Interface: Hardwired inputs and outputs may tie into system through controllers. Protect points so that shorting will cause no damage to controllers.
   1. Binary Inputs: Allow monitoring of on-off signals without external power.
   2. Pulse Accumulation Inputs: Accept up to 10 pulses per second.
   3. Analog Inputs: Allow monitoring of low-voltage (0- to 10-V dc), current (4 to 20 mA), or resistance signals.
   4. Binary Outputs: Provide on-off or pulsed low-voltage signal, selectable for normally open or normally closed operation with three-position (on-off-auto) override switches and status lights.

5. Analog Outputs: Provide modulating signal, either low voltage (0- to 10-V dc) or current (4 to 20 mA) with status lights, two-position (auto-manual) switch, and manually adjustable potentiometer.
6. Tri-State Outputs: Provide two coordinated binary outputs for control of three-point, floating-type electronic actuators.
7. Universal I/Os: Provide software selectable binary or analog outputs.

E. Power Supplies: Transformers with Class 2 current-limiting type or overcurrent protection; limit connected loads to 80 percent of rated capacity. DC power supply shall match output current and voltage requirements and be full-wave rectifier type with the following:
1. Output ripple of 5.0 mV maximum peak to peak.
2. Combined 1 percent line and load regulation with 100-mic.sec. response time for 50 percent load changes.
3. Built-in overvoltage and overcurrent protection and be able to withstand 150 percent overload for at least 3 seconds without failure.

F. Power Line Filtering: Internal or external transient voltage and surge suppression for workstations or controllers with the following:
1. Minimum dielectric strength of 1000 V.
2. Maximum response time of 10 nanoseconds.
3. Minimum transverse-mode noise attenuation of 65 dB.
4. Minimum common-mode noise attenuation of 150 dB at 40 to 100 Hz.

2.04 UNITARY CONTROLLERS

A. Unitized, capable of stand-alone operation with sufficient memory to support its operating system, database, and programming requirements, and with sufficient I/O capacity for the application.
1. Configuration: Local keypad and display; diagnostic LEDs for power, communication, and processor; wiring termination to terminal strip or card connected with ribbon cable; memory with bios; and 72-hour battery backup.
2. Operating System: Manage I/O communication to allow distributed controllers to share real and virtual object information and allow central monitoring and alarms. Perform scheduling with real-time clock. Perform automatic system diagnostics; monitor system and report failures.
3. Enclosure: Dustproof rated for operation at 32 to 120 deg F.

2.05 ANALOG CONTROLLERS

A. Step Controllers: 6- or 10-stage type, with heavy-duty switching rated to handle loads and operated by electric motor.

B. Electric, Outdoor-Reset Controllers: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range, adjustable set point, scale range minus 10 to plus 70 deg F, and single- or double-pole contacts.

C. Electronic Controllers: Wheatstone-bridge-amplifier type, in steel enclosure with provision for remote-resistance readjustment. Identify adjustments on controllers, including proportional band and authority.
1. Single controllers can be integral with control motor if provided with accessible control readjustment potentiometer.

D. Fan-Speed Controllers: Solid-state model providing field-adjustable proportional control of motor speed from maximum to minimum of 55 percent and on-off action below minimum fan speed. Controller shall briefly apply full voltage, when motor is started, to rapidly bring motor up to minimum speed. Equip with filtered circuit to eliminate radio interference.

2.06 ELECTRONIC SENSORS

A. Description: Vibration and corrosion resistant; for wall, immersion, or duct mounting as required.

B. Thermistor Temperature Sensors and Transmitters:
   1. Manufacturers:
      a. BEC Controls Corporation.
      b. Ebtron, Inc.
      c. Heat-Timer Corporation.
      d. I.T.M. Instruments Inc.
      e. MAMAC Systems, Inc.
      f. RDF Corporation.
   2. Accuracy: Plus or minus 0.5 deg F at calibration point.
   3. Wire: Twisted, shielded-pair cable.
   4. Insertion Elements in Ducts: Single point, 18 inches long; use where not affected by temperature stratification or where ducts are smaller than 9 sq. ft.
   5. Averaging Elements in Ducts: 36 inches (915 mm) long, flexible 18 inches long, rigid; use where prone to temperature stratification or where ducts are larger than 10 sq. ft.
   6. Insertion Elements for Liquids: Brass or stainless-steel socket with minimum insertion length of 2-1/2 inches.
   7. Room Sensor Cover Construction: Manufacturer's standard locking covers.
      a. Set-Point Adjustment: Exposed.
      b. Set-Point Indication: Exposed.
      c. Thermometer: Exposed.
      d. Color: Choose color from manufacturer's full range.
      e. Orientation: Vertical.
   8. Outside-Air Sensors: Watertight inlet fitting, shielded from direct sunlight.
   9. Room Security Sensors: Stainless-steel cover plate with insulated back and security screws.

C. RTDs and Transmitters:
   1. Manufacturers:
      a. BEC Controls Corporation.
      b. MAMAC Systems, Inc.
      c. RDF Corporation.
   2. Accuracy: Plus or minus 0.2 percent at calibration point.
   3. Wire: Twisted, shielded-pair cable.
   4. Insertion Elements in Ducts: Single point, 18 inches long; use where not affected by temperature stratification or where ducts are smaller than 9 sq. ft.

5. Averaging Elements in Ducts: 24 inches long, rigid 24 feet long, flexible; use where prone to temperature stratification or where ducts are larger than 9 sq. ft; length as required.
6. Insertion Elements for Liquids: Brass socket with minimum insertion length of 2-1/2 inches.
7. Room Sensor Cover Construction: Manufacturer's standard locking covers.
   a. Set-Point Adjustment: Exposed.
   b. Set-Point Indication: Exposed.
   c. Thermometer: Exposed.
   d. Color: Choose color from manufacturer's full range.
   e. Orientation: Vertical.
8. Outside-Air Sensors: Watertight inlet fitting, shielded from direct sunlight.
9. Room Security Sensors: Stainless-steel cover plate with insulated back and security screws.

D. Pressure Transmitters/Transducers:
1. Manufacturers:
   a. BEC Controls Corporation.
   b. General Eastern Instruments.
   c. MAMAC Systems, Inc.
   d. ROTRONIC Instrument Corp.
   e. TCS/Basys Controls.
   f. Vaisala.

   Static-Pressure Transmitter: Nondirectional sensor with suitable range for expected input, and temperature compensated.
   g. Accuracy: 2 percent of full scale with repeatability of 0.5 percent.
   h. Output: 4 to 20 mA.
   i. Building Static-Pressure Range: 0- to 0.25-inch wg.
   j. Duct Static-Pressure Range: 0- to 5-inch wg.
2. Water Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig operating pressure; linear output 4 to 20 mA.
3. Water Differential-Pressure Transducers: Stainless-steel diaphragm construction, suitable for service; minimum 150-psig operating pressure and tested to 300-psig ; linear output 4 to 20 mA.
4. Differential-Pressure Switch (Air or Water): Snap acting, with pilot-duty rating and with suitable scale range and differential.
5. Pressure Transmitters: Direct acting for gas or liquid service; range suitable for system; linear output 4 to 20 mA.

E. Room Sensor Cover Construction: Manufacturer's standard locking covers.
1. Set-Point Adjustment: Exposed.
2. Set-Point Indication: Exposed.
3. Thermometer: Exposed.
4. Color: Choose color from manufacturer's full range.
5. Orientation: Vertical

F. Room sensor accessories include the following:
   1. Insulating Bases: For sensors located on exterior walls.
   2. Guards: Metal wire, tamperproof.
   3. Adjusting Key: As required for calibration and cover screws.

2.07 STATUS SENSORS

A. Status Inputs for Fans: Differential-pressure switch with pilot-duty rating and with adjustable range of 0- to 5-inch wg.

B. Status Inputs for Pumps: Differential-pressure switch with pilot-duty rating and with adjustable pressure-differential range of 8 to 60 psig, piped across pump.

C. Status Inputs for Electric Motors: Comply with ISA 50.00.01, current-sensing fixed- or split-core transformers with self-powered transmitter, adjustable and suitable for 175 percent of rated motor current.

D. Voltage Transmitter (100- to 600-V ac): Comply with ISA 50.00.01, single-loop, self-powered transmitter, adjustable, with suitable range and 1 percent full-scale accuracy.

E. Power Monitor: 3-phase type with disconnect/shorting switch assembly, listed voltage and current transformers, with pulse kilowatt hour output and 4- to 20-mA kW output, with maximum 2 percent error at 1.0 power factor and 2.5 percent error at 0.5 power factor.

F. Current Switches: Self-powered, solid-state with adjustable trip current, selected to match current and system output requirements.

G. Electronic Valve/Damper Position Indicator: Visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.

H. Water-Flow Switches: Bellows-actuated mercury or snap-acting type with pilot-duty rating, stainless-steel or bronze paddle, with appropriate range and differential adjustment, in NEMA 250, Type 1 enclosure.
   1. Manufacturers:
      a. BEC Controls Corporation.
      b. I.T.M. Instruments Inc.

2.08 GAS DETECTION EQUIPMENT

A. Manufacturers:
   1. B. W. Technologies.
   2. CEA Instruments, Inc.
   3. Ebtron, Inc.
   4. Gems Sensors Inc.
   5. Greystone Energy Systems Inc.
   6. Honeywell International Inc.; Home & Building Control.
   7. INTEC Controls, Inc.
   8. I.T.M. Instruments Inc.
   9. MSA Canada Inc.
   10. QEL/Quatrosense Environmental Limited.
   11. Sauter Controls Corporation.
   12. Sensidyne, Inc.

13. TSI Incorporated.
14. Vaisala.
15. Vulcain Inc.

B. Carbon Monoxide Detectors: Single or multichannel, dual-level detectors using solid-state plug-in sensors with a 3-year minimum life; suitable over a temperature range of 32 to 104 deg F; with 2 factory-calibrated alarm levels at 50 and 100 ppm.

C. Carbon Dioxide Sensor and Transmitter: Single detectors using solid-state infrared sensors; suitable over a temperature range of 23 to 130 deg F and calibrated for 0 to 2 percent, with continuous or averaged reading, 4- to 20-mA output;, for wall mounting.

D. Occupancy Sensor: Passive infrared, with time delay, daylight sensor lockout, sensitivity control, and 180-degree field of view with vertical sensing adjustment; for flush mounting.

2.09 THERMOSTATS

A. Manufacturers:
1. Erie Controls.
2. Alerton Controls
3. Danfoss Inc.; Air-Conditioning and Refrigeration Div.
4. Heat-Timer Corporation.
5. Sauter Controls Corporation.
6. tekmar Control Systems, Inc.
7. Theben AG - Lumilite Control Technology, Inc.

B. Electric, solid-state, microcomputer-based room thermostat with remote sensor.
1. Automatic switching from heating to cooling.
2. Preferential rate control to minimize overshoot and deviation from set point.
3. Set up for four separate temperatures per day.
4. Instant override of set point for continuous or timed period from 1 hour to 31 days.
5. Short-cycle protection.
6. Programming based on every day of week.
7. Selection features include degree F or degree C display, 12- or 24-hour clock, keyboard disable, remote sensor, and fan on-auto.
8. Battery replacement without program loss.
9. Thermostat display features include the following:
   a. Time of day.
   b. Actual room temperature.
   c. Programmed temperature.
   d. Programmed time.
   e. Duration of timed override.
   f. Day of week.
   g. System mode indications include "heating," "off," "fan auto," and "fan on."

C. Low-Voltage, On-Off Thermostats: NEMA DC 3, 24-V, bimetal-operated, mercury-switch type, with adjustable or fixed anticipation heater, concealed set-point adjustment, 55 to 85 deg F set-point range, and 2 deg F maximum differential.

D. Line-Voltage, On-Off Thermostats: Bimetal-actuated, open contact or bellows-actuated, enclosed, snap-switch or equivalent solid-state type, with heat anticipator; listed for electrical rating; with concealed set-point adjustment, 55 to 85 deg F set-point range, and 2 deg F maximum differential.
   1. Electric Heating Thermostats: Equip with off position on dial wired to break ungrounded conductors.
   2. Selector Switch: Integral, manual on-off-auto.

E. Remote-Bulb Thermostats: On-off or modulating type, liquid filled to compensate for changes in ambient temperature; with copper capillary and bulb, unless otherwise indicated.
   1. Bulbs in water lines with separate wells of same material as bulb.
   2. Bulbs in air ducts with flanges and shields.
   3. Averaging Elements: Copper tubing with either single- or multiple-unit elements, extended to cover full width of duct or unit; adequately supported.
   4. Scale settings and differential settings are clearly visible and adjustable from front of instrument.
   5. On-Off Thermostat: With precision snap switches and with electrical ratings required by application.
   6. Modulating Thermostats: Construct so complete potentiometer coil and wiper assembly is removable for inspection or replacement without disturbing calibration of instrument.

F. Fire-Protection Thermostats: Listed and labeled by an NRTL acceptable to authorities having jurisdiction; with fixed or adjustable settings to operate at not less than 75 deg F above normal maximum operating temperature, and the following:
   1. Reset: Manual.
   2. Reset: Automatic, with control circuit arranged to require manual reset at central control panel; with pilot light and reset switch on panel labeled to indicate operation.

G. Room Thermostat Cover Construction: Manufacturer's standard locking covers.
   1. Set-Point Adjustment: Exposed..
   2. Set-Point Indication: Exposed.
   3. Thermometer: Exposed.
   4. Color: Choose color from manufacturer's full range.
   5. Orientation: Vertical.

H. Room thermostat accessories include the following:
   1. Insulating Bases: For thermostats located on exterior walls.
   2. Thermostat Guards: Metal wire, tamperproof.
   3. Adjusting Key: As required for calibration and cover screws.
   4. Set-Point Adjustment: 1/2-inch- diameter, adjustment knob.

I. Immersion Thermostat: Remote-bulb or bimetal rod-and-tube type, proportioning action with adjustable throttling range and adjustable set point.

J. Airstream Thermostats: Two-pipe, fully proportional, single-temperature type; with adjustable set point in middle of range, adjustable throttling range, plug-in test fitting or permanent pressure gage, remote bulb, bimetal rod and tube, or averaging element.

K. Electric, Low-Limit Duct Thermostat: Snap-acting, single-pole, single-throw, manual- [or automatic-]reset switch that trips if temperature sensed across any 12 inches of bulb length is equal to or below set point.
   1. Bulb Length: Minimum 20 feet.
   2. Quantity: One thermostat for every 20 sq. ft. of coil surface.

L. Electric, High-Limit Duct Thermostat: Snap-acting, single-pole, single-throw, manual- [or automatic-]reset switch that trips if temperature sensed across any 12 inches of bulb length is equal to or above set point.
   1. Bulb Length: Minimum 20 feet.
   2. Quantity: One thermostat for every 20 sq. ft. of coil surface.

M. Heating/Cooling Valve-Top Thermostats: Proportional acting for proportional flow, with molded-rubber diaphragm, remote-bulb liquid-filled element, direct and reverse acting at minimum shutoff pressure of 25 psig , and cast housing with position indicator and adjusting knob.

2.10 HUMIDISTATS

A. Manufacturers:
   1. MAMAC Systems, Inc.
   2. ROTRONIC Instrument Corp.

B. Duct-Mounting Humidistats: Electric insertion, 2-position type with adjustable, 2 percent throttling range, 20 to 80 percent operating range, and single- or double-pole contacts.

2.11 ACTUATORS

A. Electric Motors: Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.
   1. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."
   2. Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.
   3. Nonspring-Return Motors for Valves Larger Than NPS 2-1/2: Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf.
   4. Spring-Return Motors for Valves Larger Than NPS 2-1/2: Size for running and breakaway torque of 150 in. x lbf.
   5. Nonspring-Return Motors for Dampers Larger Than 25 Sq. Ft.: Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf.
   6. Spring-Return Motors for Dampers Larger Than 25 Sq. Ft.: Size for running and breakaway torque of 150 in. x lbf.

B. Electronic Actuators: Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.
   1. Manufacturers:
      a. Belimo Aircontrols (USA), Inc.
   2. Valves: Size for torque required for valve close off at maximum pump differential pressure.
   3. Dampers: Size for running torque calculated as follows:

a. Parallel-Blade Damper with Edge Seals: 7 inch-lb/sq. ft. of damper.
b. Opposed-Blade Damper with Edge Seals: 5 inch-lb/sq. ft. of damper.
c. Parallel-Blade Damper without Edge Seals: 4 inch-lb/sq. ft of damper.
d. Opposed-Blade Damper without Edge Seals: 3 inch-lb/sq. ft. of damper.
e. Dampers with 2- to 3-Inch wg of Pressure Drop or Face Velocities of 1000 to 2500 fpm: Increase running torque by 1.5.
f. Dampers with 3- to 4-Inch wg of Pressure Drop or Face Velocities of 2500 to 3000 fpm: Increase running torque by 2.0.

4. Coupling: V-bolt and V-shaped, toothed cradle.
5. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
6. Fail-Safe Operation: Mechanical, spring-return mechanism. Provide external, manual gear release on nonspring-return actuators.
7. Power Requirements (Two-Position Spring Return): 120-V ac.
8. Power Requirements (Modulating): Maximum 10 VA at 24-V ac or 8 W at 24-V dc.
9. Proportional Signal: 2- to 10-V dc or 4 to 20 mA, and 2- to 10-V dc position feedback signal.
10. Temperature Rating: Minus 22 to plus 122 deg F.
11. Temperature Rating (Smoke Dampers): Minus 22 to plus 250 deg F
12. Run Time: 12 seconds open, 5 seconds closed.

2.12 CONTROL VALVES

A. Manufacturers:
1. Danfoss Inc.; Air Conditioning & Refrigeration Div.
2. Erie Controls.
3. Hayward Industrial Products, Inc.
4. Magnatrol Valve Corporation.
5. Neles-Jamesbury.
6. Parker Hannifin Corporation; Skinner Valve Division.
7. Pneuline Controls.
8. Sauter Controls Corporation.
9. Watts

B. Control Valves: Factory fabricated, of type, body material, and pressure class based on maximum pressure and temperature rating of piping system, unless otherwise indicated.

C. Hydronic system globe valves shall have the following characteristics:
1. NPS 2 and Smaller: Class [125] [250] bronze body, bronze trim, rising stem, renewable composition disc, and screwed ends with backseating capacity repackable under pressure.
2. NPS 2-1/2 and Larger: Class 125 iron body, bronze trim, rising stem, plug-type disc, flanged ends, and renewable seat and disc.
3. Internal Construction: Replaceable plugs and stainless-steel or brass seats.
a. Single-Seated Valves: Cage trim provides seating and guiding surfaces for plug on top and bottom.
b. Double-Seated Valves: Balanced plug; cage trim provides seating and guiding surfaces for plugs on top and bottom.

4. Sizing: 5-psig maximum pressure drop at design flow rate or the following:
   a. Two Position: Line size.
   b. Two-Way Modulating: Either the value specified above or twice the load pressure drop, whichever is more.
   c. Three-Way Modulating: Twice the load pressure drop, but not more than value specified above.
5. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics.
6. Close-Off (Differential) Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150 percent of total system (pump) head for two-way valves and 100 percent of pressure differential across valve or 100 percent of total system (pump) head.

D. Butterfly Valves: 150-psig maximum pressure differential, ASTM A 126 cast-iron or ASTM A 536 ductile-iron body and bonnet, extended neck, stainless-steel stem, field-replaceable EPDM or Buna N sleeve and stem seals.
   1. Body Style: Lug.
   2. Disc Type: Elastomer-coated ductile iron.
   3. Sizing: 1-psig maximum pressure drop at design flow rate.

E. Terminal Unit Control Valves: Bronze body, bronze trim, two or three ports as indicated, replaceable plugs and seats, and union and threaded ends.
   1. Rating: Class 125 for service at 125 psig and 250 deg F operating conditions.
   2. Sizing: 3-psig maximum pressure drop at design flow rate, to close against pump shutoff head.
   3. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics.

F. Self-Contained Control Valves: Bronze body, bronze trim, two or three ports as indicated, replaceable plugs and seats, and union and threaded ends.
   1. Rating: Class 125 for service at 125 psig and 250 deg F operating conditions.
   2. Thermostatic Operator: Liquid-filled sensor with integral adjustable dial.

2.13 DAMPERS

A. Manufacturers:
   1. Air Balance Inc.
   2. Don Park Inc.; Autodamp Div.
   3. TAMCO (T. A. Morrison & Co. Inc.).
   4. United Enertech Corp.
   5. Vent Products Company, Inc.

B. Dampers: AMCA-rated, opposed-blade design; 0.108-inch- minimum thick, galvanized-steel or 0.125-inch- minimum thick, extruded-aluminum frames with holes for duct mounting; damper blades shall not be less than 0.064-inch- thick galvanized steel with maximum blade width of 8 inches (200 mm) and length of 48 inches.
   1. Secure blades to 1/2-inch- diameter, zinc-plated axles using zinc-plated hardware, with [oil-impregnated sintered bronze] [nylon] blade bearings, blade-linkage hardware of zinc-plated steel and brass, ends sealed against spring-stainless-steel blade bearings, and thrust bearings at each end of every blade.

2. Operating Temperature Range: From minus 40 to plus 200 deg F.
3. Edge Seals, Standard Pressure Applications: Closed-cell neoprene.
4. Edge Seals, Low-Leakage Applications: Use inflatable blade edging or replaceable rubber blade seals and spring-loaded stainless-steel side seals, rated for leakage at less than 10 cfm per sq. ft. of damper area, at differential pressure of 4-inch wg when damper is held by torque of 50 in. x lbf; when tested according to AMCA 500D.

2.14 CONTROL CABLE

A. Electronic and fiber-optic cables for control wiring are specified in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

PART 3 EXECUTION

3.01 GENERAL

A. Contractor is to coordinate directly with the Owner's SCADA programmer to detail the available data points for remote monitoring and control. The Contractor shall coordinate meetings prior to controller configuration to define the total list of data points to be communicated to / from the plant SCADA system.

3.02 INSTALLATION

A. Verify location of thermostats, humidistats, and other exposed control sensors with Drawings and room details before installation. Install devices 48 inches above the floor.
   1. Install averaging elements in ducts and plenums in crossing or zigzag pattern.

B. Install guards on thermostats in the following locations:
   1. Entrances.
   2. Public areas.
   3. Where indicated.

C. Install automatic dampers according to Division 23 Section "Air Duct Accessories."

D. Install damper motors on outside of duct in warm areas, not in locations exposed to outdoor temperatures.

E. Install labels and nameplates to identify control components according to Division 23 Section "Identification for HVAC Piping and Equipment."

F. Install hydronic instrument wells, valves, and other accessories according to Division 23 Section "Hydronic Piping."

G. Install refrigerant instrument wells, valves, and other accessories according to Division 23 Section "Refrigerant Piping."

H. Install duct volume-control dampers according to Division 23 Sections specifying air ducts.

I. Install electronic and fiber-optic cables according to Division 27 Section "Communications Horizontal Cabling."

3.03 ELECTRICAL WIRING AND CONNECTION INSTALLATION

A. Install raceways, boxes, and cabinets according to Division 26 Section "Raceway and Boxes for Electrical Systems."

B. Install building wire and cable according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

B. Install signal and communication cable according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

1. Conceal cable, except in mechanical rooms and areas where other conduit and piping are exposed.
2. Install exposed cable in raceway.
3. Install concealed cable in raceway.
4. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.
5. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.
6. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.
7. Install wire and cable with sufficient slack and flexible connections to allow for vibration of piping and equipment.

C. Connect manual-reset limit controls independent of manual-control switch positions. Automatic duct heater resets may be connected in interlock circuit of power controllers.

D. Connect hand-off-auto selector switches to override automatic interlock controls when switch is in hand position.

3.04 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.

B. Perform the following field tests and inspections and prepare test reports:

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove and replace malfunctioning units and retest.
2. Test and adjust controls and safeties.
3. Test calibration of controllers by disconnecting input sensors and stimulating operation with compatible signal generator.
4. Test each point through its full operating range to verify that safety and operating control set points are as required.
5. Test each control loop to verify stable mode of operation and compliance with sequence of operation. Adjust PID actions.
6. Test each system for compliance with sequence of operation.
7. Test software and hardware interlocks.

C. DDC Verification:

1. Verify that instruments are installed before calibration, testing, and loop or leak checks.
2. Check instruments for proper location and accessibility.
3. Check instrument installation for direction of flow, elevation, orientation, insertion depth, and other applicable considerations.
4. Check instrument tubing for proper fittings, slope, material, and support.

5. Check pressure instruments, piping slope, installation of valve manifold, and self-contained pressure regulators.
6. Check temperature instruments and material and length of sensing elements.
7. Check control valves. Verify that they are in correct direction.
8. Check air-operated dampers. Verify that pressure gages are provided and that proper blade alignment, either parallel or opposed, has been provided.
9. Check DDC system as follows:
    a. Verify that DDC controller power supply is from emergency power supply, if applicable.
    b. Verify that wires at control panels are tagged with their service designation and approved tagging system.
    c. Verify that spare I/O capacity has been provided.
    d. Verify that DDC controllers are protected from power supply surges.

D. Replace damaged or malfunctioning controls and equipment and repeat testing procedures.

3.05 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain HVAC instrumentation and controls. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 027
Date: 6/10/2021
Description: Per Control Change Form #020: Cost for labor, equipment and material to make network cabinet, fiber, and data changes.

Skyline Electric (see attached back-up):	$93,552.77
Mark-up (5%):	$4,677.64
Onsite Coordination & Management (see attached back-up):	$4,134.78
Bonds:	$925.51
Mark-up (15%):	$759.05
Total:	**$104,049.75**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $104,049.75 will be added to the contract price, and an additional 6 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-027 NCE Fiber Data - CC#020	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-027	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical (Skyline)	**1.00**	**UNIT**	**$93,552.77**	**$93,552.77**	**$99,249.70**	**$99,249.70**	**5.09%**
S Electrical Sub	1.00	LS	$93,552.77	$93,552.77			
D 02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$4,134.78**	**$4,134.78**	**$4,800.05**	**$4,800.05**	**15.00%**
01 Superintendent	9.00	HR	$157.26	$1,415.37			
19 Project Engineer	9.00	HR	$120.14	$1,081.22			
17 Project Manager	9.00	HR	$182.02	$1,638.20			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,134.78	4.23%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$93,552.77	95.77%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$97,687.55	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$97,687.55	93.89%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$925.51	0.89%
Total Overall Cost:	$98,613.06	94.77%
Total Overhead:	$0.00	0.00%
Total Profit:	$5,436.69	5.23%
Total Margin:	$5,436.69	5.23%
Total Bid Price:	$104,049.75	

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	5/7/2021		
Project:	CVWRF- CC30B BNR BASINS	Submitted to:	Shay Clark
Project No:	2010001	Company:	Gerber Construction
Submitted by:	Brad Wilding	Address:	815 E 675 S
Change Title:	**CCF 020 Network Cabinet & Fiber, Data Changes**	City/State/Zip:	Lehi, UT 84043

Change Description:

Per CCF 020 document.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$38,900.45		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..		-$25,375.00	
Base Labor Hours (from pricing sheets)……..			702.50

LABOR FACTOR:

material handling		2.00%					14.05
cleanup		3.00%					21.075
safety		1.25%					8.78125
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $2,898.08	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 41,798.53	loc 2 $ -25,375.00		746.41
			RATE: $	**65.00**
extension:			$	48,516.41

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	48,516.41

JOB EXPENSE:

permit				$0.00	FIELD Cont.					
OFFICE					Layout / Coordination	10		hrs@	$75.00	$750.00
project management	0	hrs@	$80.00	$0.00	Testing	0		hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0		hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight					$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables					$0.00
FIELD					Tools & Equipment		2% of Labor Dollars			$970.33
change management	70	hrs@	$75.00	$5,250.00	Jobsite Trailer / Storage Rental	2		mo@	$125.00	$250.00
change estimating	70	hrs@	$75.00	$5,250.00	Pick-up Truck	20		dy@	$80.00	$1,600.00
as-builds	0	hrs@	$75.00	$0.00	Equipment Rental	0		wk@	$600.00	$0.00
EXPENSE TOTAL									loc 4 $	14,070.33

MATERIAL		from loc 1	$	41,798.53
SUBCONTRACTS		from loc 2	$	-25,375.00
JOB EXPENSE		from loc 4	$	14,070.33
LABOR		from loc 3	$	48,516.41
WARRANTEE	1.50%		$	1,185.15
BOND	1.44%		$	1,154.81
subtotal			$	81,350.24
OVERHEAD + PROFIT	15.00%		$	12,202.54
TOTAL CHANGE			$	93,552.77

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2021-0030
Project: CVWRF - CCF20

CO: CC30B: BNR

Takeoff

Vendor: **Labor Level:** **7 May 2021 13:05:12**

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**3. CC30B**				
	0.00				**NCE160011**				
59	-4.00	EA	M	2U	RACK MOUNT ENCLOSURE	180.0000	-720.00	0.0000	0.00
60	-3.00	EA	M	1U	RACK MOUNT ENCLOSURE	145.0000	-435.00	0.0000	0.00
58	-8.00		M	24 FIBER	24 FIBER CASSETTE	260.0000	-2,080.00	0.0000	0.00
57	-1.00		M	12 FIBER	12 FIBER CASSETTE	190.0000	-190.00	0.0000	0.00
	0.00				**NCE220011**				
59	-3.00	EA	M	2U	RACK MOUNT ENCLOSURE	180.0000	-540.00	0.0000	0.00
60	-3.00	EA	M	1U	RACK MOUNT ENCLOSURE	145.0000	-435.00	0.0000	0.00
58	-6.00		M	24 FIBER	24 FIBER CASSETTE	260.0000	-1,560.00	0.0000	0.00
	0.00				**NCE240011**				
59	-3.00	EA	M	2U	RACK MOUNT ENCLOSURE	180.0000	-540.00	0.0000	0.00
60	-3.00	EA	M	1U	RACK MOUNT ENCLOSURE	145.0000	-435.00	0.0000	0.00
58	-14.00		M	24 FIBER	24 FIBER CASSETTE	260.0000	-3,640.00	0.0000	0.00
	0.00				**3. OWNER PROVIDE NCE AND EQUIPMENT - PDI CREDIT AMOUNT**				
	0.00				**11. CC30A MULTIMODE TO SINGLE MODE - MATERIAL ONLY**				
51	-1,320.00		M	12 FIBER	12 FIBER CABLE MM TO REMOVE	1.1000	-1,452.00	0.0134	-17.69
	0.00				**31. CC30B - NO COST CHANGE. CBLD109105A-E TERMINATE AT NET100001 INSTEAD OF PLC100001.**				
	0.00				**32. CC30B - NO COST CHANGE. CBLD109105A-D. TERMINATE AT NETWORK CABINET INSTEAD OF PLC.**				
	0.00				**33. CC30B - DEDUCT 3/4" GRC AND INCREASE TO 1"**				
	0.00				**RWYD109105A-D 120' DEDUCT 3/4 GRC**				
10001	-120.00	FT	M	3/4	GRC	2.1060	-252.72	0.0750	-9.00
	0.00				**RWYD109105B-D 120' DEDUCT 3/4 GRC**				

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10001	-120.00	FT	M	3/4	GRC	2.1060	-252.72	0.0750	-9.00
	0.00				**39. CHANGE 12 STRAND MM TO 12 STRAND SM**				
51	-720.00		M	12 FIBER	12 FIBER CABLE MM TO REMOVE	1.1000	-792.00	0.0000	0.00
	0.00				**44. CC30B - NO COST CHANGE. TERMINATE PLC PANEL CABLES AT NETWORK SWITCH.**				
	0.00				**45 CC30B - DELETE NC2 ETHERNET CABLES CBLD160001-C & F.**				
3	-144.00		M	NC2	NC2 CABLES TO REMOVE	0.5000	-72.00	0.0100	-1.44
	0.00				**46. CC30B - NC2 CABLES FOR CLARITY, NOTED.**				
	0.00				**47. DELETE NC4 ETHERNET CABLES AND RACEWAYS**				
48	-1,374.00	FT	M	NC4	BELDEN 7953A	1.7000	-2,335.80	0.0400	-54.96
10001	-650.00	FT	M	3/4	GRC	2.1060	-1,368.92	0.0750	-48.75
10002	-60.00	FT	M	1	GRC	4.6500	-279.00	0.0870	-5.22
	0.00				**48. CC30B - DUPLICATED CABLES AND RACEWAYS TO REMOVE.**				
5	-240.00		M	NC2	NC2 CABLES TO REMOVE	1.6500	-396.00	0.0175	-4.20
	0.00				**RACEWAYS - FEED THROUGH MCC.**				
	0.00				**51. CC30B - DELETE NC2 CABLE AND RACEWAY**				
10	-60.00		M	NC2	CBLD169101B-V	1.6500	-99.00	0.0175	-1.05
10002	-20.00	FT	M	1	GRC	4.6500	-93.00	0.0870	-1.74
	0.00				**55. CC30B - RACEWAY RWYD167901-A INCREASE FROM 3/4 TO 1"**				
10001	-50.00	FT	M	3/4	GRC	2.1060	-105.30	0.0750	-3.75
160705	-7.00	EA	M	3/4	GRC 1-HOLE MALLEABLE STRAP	1.5000	-10.50	0.0500	-0.35
10180	-2.00	EA	M	3/4	CONDUIT CUT & THREAD	0.0000	0.00	0.4350	-0.87
40079	-2.00	EA	M	3/4	MYERS THREADED GRD HUB	25.8015	-51.60	1.3500	-2.70
	0.00				**56. CC30B - ACCESS CONTROL PANELS ON DRAWINGS - NOTED.**				
	0.00				**59. DELETE FIBER CABLE CBLF160010-B**				
19	-100.00		M	2 FIBER MM	CBLF220010-A	0.3000	-30.00	0.0175	-1.75
	0.00				**60. CC30B - CHANGE CBLF160010-A TO 6 STRAND SM FIBER**				
20	-30.00		M		CBLF160010-A MM TO REMOVE	0.6000	-18.00	0.0135	-0.41
	0.00				**64. CC30B - NOTED. NO COST CHANGE**				
	0.00				**65. CC30B - DELETE NC2 CABLES**				
24	-30.00		M	NC2	CBLD210011A-D	0.5000	-15.00	0.0200	-0.60

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
25	-30.00		M	NC2	CBLD210011B-D	0.5000	-15.00	0.0200	-0.60
	0.00				**66. DELETE NC4 CABLES**				
26	-30.00		M	CBLD219101BA-B	NC4 CABLES TO REMOVE	1.7000	-51.00	0.0200	-0.60
	0.00				**68. CC30B - INCREASE RACEWAYS FROM 3/4 TO 1"**				
10001	-120.00	FT	M	3/4	GRC	2.1060	-252.72	0.0750	-9.00
160705	-16.00	EA	M	3/4	GRC 1-HOLE MALLEABLE STRAP	1.5000	-24.00	0.0500	-0.80
40079	-4.00	EA	M	3/4	MYERS THREADED GRD HUB	25.8015	-103.21	1.3500	-5.40
10180	-2.00	EA	M	3/4	CONDUIT CUT & THREAD	0.0000	0.00	0.4350	-0.87
	0.00				**70. CC30B - NOTED. NO COST CHANGE**				
	0.00				**71. CBLF249101A-A CHANGE FROM 24 TO 48 STRAND SM FIBER**				
27	-220.00		M	CBLF249101A-A	24 FIBER SM TO REMOVE	1.5600	-343.20	0.0112	-2.46
	0.00				**72. CHANGE CBLF210011B-A FROM 48 STRAND TO 96 STRAND**				
28	-1,771.00		M	CBLF210011B-A	48 FIBER CABLE TO REMOVE	1.9000	-3,364.90	0.0112	-19.84
	0.00				**73. CHANGE CBLF210011A-A FROM 144 FIBER TO 48 FIBER SM CABLE**				
30	-1,471.00		M		144 FIBER SM CABLE TO REMOVE	6.5000	-9,561.50	0.0125	-18.39
	0.00				**76. NOTED. NO COST CHANGE**				
	0.00				**77. NOTED. NO COST CHANGE**				
	0.00				**78. NOTED. NO COST CHANGE**				
	0.00				**79. NOTED. NO COST CHANGE**				
	0.00				**84. CC30B - NOTED. NO COST CHANGE**				
	0.00				**85. CC30B - NOTED. NO COST CHANGE - RACEWAY SIZES NOT IDENTIFIED. NEED TO BE 3/4"**				
10002	-320.00	FT	M	1	GRC	3.1172	-997.51	0.0870	-27.84
160706	-40.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.1266	-45.07	0.0500	-2.00
10181	-2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	-0.99
10101	-110.00	FT	M	1	PVC COATED GRC 40MIL	7.6500	-841.50	0.1250	-13.75
240843	-14.00	EA	M	1	PVC CTD LAY-IN STRAP	19.2932	-270.10	0.3750	-5.25
	0.00				**86. CC30B - NOTED. NO COST CHANGE**				
	0.00				**87. CC30B - CHANGE 12 STRAND MM TO 12 STRAND SM FIBER.**				
34	-1,172.00		M	CBLF330011CA-A	12 STRAND FIBER MM TO REMOVE	1.1000	-1,289.20	0.0112	-13.13
	0.00				**88. CC30B - DELETE NC2 CABLES**				

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
3	-156.00		M	NC2	NC2 CABLES TO REMOVE	0.5000	-78.00	0.0200	-3.12
	0.00				**89. CC30B - NOTED. NO COST CHANGE**				
	0.00				**90. CC30B - DELETE FIBER OPTIC CABLE CBLF220010-B**				
36	-15.00		M	CBLF220010-B	2 FIBER SM TO REMOVE	0.3000	-4.50	0.0175	-0.26
	0.00				**91. CC30B - CHANGE CBLF220010-A TO 6 STRAND SM FIBER. DELETE 2 FIBER CABLE**				
19	-15.00		M	2 FIBER MM	CBLF220010-A	0.3000	-4.50	0.0175	-0.26
	0.00				**93. CC30B - INCREASE RWYD227901 REMOVE 3/4".**				
10001	-90.00	FT	M	3/4	GRC	2.1060	-189.54	0.0750	-6.75
160705	-12.00	EA	M	3/4	GRC 1-HOLE MALLEABLE STRAP	1.5000	-18.00	0.0500	-0.60
40079	-2.00	EA	M	3/4	MYERS THREADED GRD HUB	25.8015	-51.60	1.3500	-2.70
	0.00				**95. CHANGE 12 STRAND MM TO SM FIBER.**				
34	-1,172.00		M	CBLF330011CB-A	12 STRAND FIBER MM TO REMOVE	1.1000	-1,289.20	0.0112	-13.13
						Phase Totals:	**-36,992.82**		**-311.21**

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**5. MCC NETWORK CABLING (INSTALL, TERMINATIONS AND TESTING)**				
	0.00				**MCC109105A**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	18.00	EA	M		SHEILDED CAT6 RJ45	27.0000	486.00	0.5000	9.00
	0.00				**MCC109105B**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	18.00	EA	M		SHEILDED CAT6 RJ45	27.0000	486.00	0.5000	9.00
	0.00				**MCC169101A**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**MCC169101B**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**MCC169102A**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**MCC169102B**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**MCC229101A**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**MCC229101B**				
48	100.00	FT	M	NC4	BELDEN 7953A	1.7000	170.00	0.0400	4.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**6. FINAL TERMS COORDINATE WITH OWNER - NOTED.**				
	0.00				**11. CC30B MULTIMODE TO SINGLE MODE - MATERIAL**				
50	1,320.00		M		12 FIBER CABLE SM TO QUOTE	0.9000	1,188.00	0.0135	17.82
	0.00				**30. CC30B - ADD NEW NC2 CABLE CBLD100001-H**				
10002	70.00	FT	M	1	GRC	4.6500	325.50	0.0870	6.09
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
160706	9.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	16.09	0.0500	0.45
90292	100.00	FT	M	4 PAIR	CAT6 UTP CABLE-PLENUM	1.6500	165.00	0.0088	0.88
49	2.00	EA	M		SHEILDED CAT6 RJ45	27.0000	54.00	0.5000	1.00
	0.00				**31. CC30B - NO COST CHANGE. CBLD109105A-E TERMINATE AT NET100001 INSTEAD OF PLC100001.**				
	0.00				**32. CC30B - NO COST CHANGE. CBLD109105A-D. TERMINATE AT NETWORK CABINET INSTEAD OF PLC.**				
	0.00				**33. CC30B - ADD NC2 ETHERNET CABLES TO EACH MCC PLC SWITCHES TO NCE10011**				
	0.00				**RWYD109105A-D 120' 1" GRC**				
10002	120.00	FT	M	1	GRC	4.6500	558.00	0.0870	10.44
	0.00				**RWYD109105B-D 120'**				
10002	120.00	FT	M	1	GRC	4.6500	558.00	0.0870	10.44
1	120.00		M	NC2	CBLD109105A-F	1.6500	198.00	0.0200	2.40
2	120.00		M	NC2	CBLD109105B-F	1.6500	198.00	0.0200	2.40
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**39. CHANGE 12 STRAND MM TO 12 STRAND SM**				

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
32	720.00		M	CBLF220011BA-A	12 FIBER SM TO QUOTE	0.9000	648.00	0.0100	7.20
	0.00				**40. CC30B - NO COST CHANGE. TERMINATE PLC PANEL CABLES AT NETWORK SWITCH.**				
	0.00				**44. CC30B - NO COST CHANGE. TERMINATE PLC PANEL CABLES AT NETWORK SWITCH.**				
	0.00				**49. ADD NEW NC2 CABLES BETWEEN NCE160011 & CAB169101A**				
6	90.00		M	NC2	CBLD169101A-V	1.6500	148.50	0.0880	7.92
7	90.00		M	NC2	CBLD169101A-W	1.6500	148.50	0.0880	7.92
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	1.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	28.47	1.5000	1.50
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**50. CC30B - INSTALL 2 NC2 CABLES & 1" RACEWAY**				
8	90.00		M	NC2	CBLD169101B-V	1.6500	148.50	0.0880	7.92
9	90.00		M	NC2	CBLD169101B-W	1.6500	148.50	0.0880	7.92
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**52. CC30B - INSTALL NEW NC2 CABLES AND NEW 1" GRC RACEWAY**				
11	90.00		M	NC2	CBLD169101B-V	1.6500	148.50	0.0880	7.92
12	90.00		M	nc2	CBLD169102A-L	1.6500	148.50	0.0880	7.92
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**53. CC30B - INSTALL NEW NC2 CABLES AND NEW 1" GRC RACEWAY**				
13	90.00		M	NC2	CBLD169102B-J	1.6500	148.50	0.0880	7.92
14	90.00		M	NC2	CBLD169102B-K	1.6500	148.50	0.0880	7.92

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**54. CC30B - OUTDOOR CAMERA RACEWAYS TO ACCESS CONTROL PANEL**				
10002	350.00	FT	M	1	GRC	4.6500	1,627.50	0.0870	30.45
160706	42.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	75.11	0.0500	2.10
10181	8.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	3.96
40080	8.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	227.79	1.5000	12.00
	0.00				**55. CC30B - RACEWAY RWYD167901-A INCREASE FROM 3/4 TO 1"**				
10002	50.00	FT	M	1	GRC	4.6500	232.50	0.0870	4.35
160706	7.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	12.52	0.0500	0.35
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
	0.00				**56. CC30B - ACCESS CONTROL PANELS ON DRAWINGS - NOTED.**				
	0.00				**57. CC30B - INSTALL 4 NEW NC2 CABLES.**				
15	80.00		M	NC2	CBLD167901-B	1.6500	132.00	0.0880	7.04
16	80.00		M	NC2	CBLD167901-C	1.6500	132.00	0.0880	7.04
17	80.00		M	NC2	CBLD167901-D	1.6500	132.00	0.0880	7.04
18	80.00		M	NC2	CBLD227901-C	1.6500	132.00	0.0880	7.04
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
49	8.00	EA	M		SHEILDED CAT6 RJ45	27.0000	216.00	0.5000	4.00
	0.00				**58. CC30B - INSTALL NEW 1" RACEWAY RWYD167901-B**				
10002	30.00	FT	M	1	GRC	4.6500	139.50	0.0870	2.61
160706	5.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	8.94	0.0500	0.25
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**60. CC30B - CHANGE CBLF160010-A TO 6 STRAND SM FIBER**				
55	30.00		M	6 FIBER	6 STRAND FIBER TO QUOTE	0.6000	18.00	0.0135	0.41
	0.00				**61. CC30B - INSTALL 12 STRAND MM FO CABLE WITH NEW 1 1/2" RACEWAY W/1" 3 CELL INNDERDUCT**				
37	200.00		M	CBLF160011-A	12 STRAND MM FIBER TO QUOTE	1.1000	220.00	0.0100	2.00
440031	2.00	EA	M		FIBER OPTIC FUSION SPLICES	0.0000	0.00	0.6000	1.20
10061	160.00	FT	M	1 1/2	PVC SCH 40	2.4000	384.00	0.0875	14.00
40048	6.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	1.0358	6.21	0.0150	0.09
30276	2.00	EA	M	1 1/2	PVC MALE ADAPTER	1.2000	2.40	0.3100	0.62
40135	2.00	EA	M	1 1/2	LOCKNUT	5.6300	11.26	0.3750	0.75
40173	2.00	EA	M	1 1/2	PLASTIC BUSHING	2.7677	5.54	0.3100	0.62
21	160.00		M	1" - 3 CELL IDFM	1”- 3 CELL INNDERDUCT W/STRING TO QUOTE	3.0000	480.00	0.0052	0.83
	0.00				**62. CC30B - INSTALL 12 STRAND MM FO CABLE WITH NEW 1 1/2" RACEWAY W/1" 3 CELL INNDERDUCT**				
37	180.00		M	CBLD160011-B	12 STRAND MM FIBER TO QUOTE	1.1000	198.00	0.0125	2.25
440031	2.00	EA	M		FIBER OPTIC FUSION SPLICES	0.0000	0.00	0.6000	1.20
10061	140.00	FT	M	1 1/2	PVC SCH 40	2.4000	336.00	0.0875	12.25
40048	6.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	1.0358	6.21	0.0150	0.09
30276	2.00	EA	M	1 1/2	PVC MALE ADAPTER	1.2000	2.40	0.3100	0.62
40135	2.00	EA	M	1 1/2	LOCKNUT	5.6300	11.26	0.3750	0.75
40173	2.00	EA	M	1 1/2	PLASTIC BUSHING	2.7677	5.54	0.3100	0.62
21	140.00		M	1" - 3 CELL IDFM	1”- 3 CELL INNDERDUCT W/STRING TO QUOTE	3.0000	420.00	0.0052	0.73
	0.00				**63. CC30B - CABLES CBLF340102-C & CBLF340102-J ROUTED TO NCE160011 INSTEAD OF CAB169000**				
22	160.00		M	CBLF340102-C	12 FIBER MM TO QUOTE	1.1000	176.00	0.0100	1.60
23	160.00		M	CBLF340102-J	12 FIBER MM TO QUOTE	1.1000	176.00	0.0100	1.60
	0.00				**64. CC30B - NOTED. NO COST CHANGE**				
	0.00				**67. CC30B - INSTALL NC4 CABLES**				
48	240.00	FT	M	NC4	BELDEN 7953A	1.7000	408.00	0.0000	0.00
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**68. CC30B - INCREASE RACEWAYS FROM 3/4 TO 1"**				
10002	60.00	FT	M	1	GRC	4.6500	279.00	0.0870	5.22
160706	8.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	14.31	0.0500	0.40
40080	4.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	113.89	1.5000	6.00

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10181	2.00	EA	M	1	CONDUIT CUT & THREAD	0.0000	0.00	0.4950	0.99
	0.00				**69. CC30B - CBLD219101AA-A ADD 30'**				
48	30.00	FT	M	NC4	BELDEN 7953A	1.7000	51.00	0.0000	0.00
49	2.00	EA	M		SHEILDED CAT6 RJ45	27.0000	54.00	0.5000	1.00
	0.00				**70. CC30B - NOTED. NO COST CHANGE**				
	0.00				**71. CC30B - CBLF249101A-A CHANGE FROM 24 TO 48 STRAND SM FIBER**				
31	220.00		M	CBLF249101A-A	48 STRAND FIBER TO QUOTE	2.1000	462.00	0.0112	2.46
440031	48.00	EA	M		FIBER OPTIC FUSION SPLICES	0.0000	0.00	0.6000	28.80
	0.00				**72. CC30B - CHANGE CBLF210011B-A FROM 48 STRAND TO 96 STRAND**				
29	1,771.00		M	CBLF210011A-A	96 STRAND FIBER TO QUOTE	5.5000	9,740.50	0.0200	35.42
440031	96.00	EA	M		FIBER OPTIC FUSION SPLICES	0.0000	0.00	0.6000	57.60
	0.00				**73. CC30B - CHANGE CBLF210011A-A FROM 144 FIBER TO 48 FIBER SM CABLE**				
31	1,471.00		M	CBLF210011A-A	48 STRAND FIBER TO QUOTE	2.1000	3,089.10	0.0112	16.48
	0.00				**76. NOTED. NO COST CHANGE**				
	0.00				**77. NOTED. NO COST CHANGE**				
	0.00				**78. NOTED. NO COST CHANGE**				
	0.00				**79. NOTED. NO COST CHANGE**				
	0.00				**81. CC30B - CBLF230011A-B TERMINATE AT NCE240011 INSTEAD OF NCE210011.**				
31	220.00		M	CBLF230011A-B	48 STRAND FIBER TO QUOTE	2.1000	462.00	0.0112	2.46
440031	96.00	EA	M		FIBER OPTIC FUSION SPLICES	0.0000	0.00	0.6000	57.60
	0.00				**82. CC30B - INSTALL IDFM - 2" 4 CELL RWYF24224A-A**				
1030107	320.00	FT	M	(2) INCH	PVC HORIZONTAL INNERDUCT/CONDUIT LABOR	3.0000	960.00	0.0875	28.00
1020671	320.00	FT	M	(2) INCH	PLENUM HORIZONTAL INNERDUCT LABOR	3.0000	960.00	0.0875	28.00
	0.00				**83. CC30B - INSTALL NEW 144 STRAND SM FIBER CBLF240011A-A**				
38	1,725.00		M	CBLF20011A-A	144 STRAND SM FIBER QUOTE	10.6500	18,371.25	0.0125	21.56
160802	500.00	EA	M	11-1/2"	TY-WRAP	0.6206	310.30	0.0300	15.00
440038	288.00	EA	M		FIBER OPTIC ST TERMINATION -	0.0000	0.00	0.6000	172.80
TITLE	4.00		M		HORIZONTAL INNERDUCT ONLY	0.0000	0.00	0.0000	0.00
	0.00				**84. CC30B - NOTED. NO COST CHANGE**				
	0.00				**85. CC30B - NOTED. NO COST CHANGE - RACEWAY SIZES NEED TO BE 3/4""**				

Item: INDUSTRIAL (Electric)
└**Phase:** COMMUNICATIONS
└**Sub Phase:** ADDITIONAL

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10001	320.00	FT	M	3/4	GRC	2.1060	673.93	0.0750	24.00
160705	40.00	EA	M	3/4	GRC 1-HOLE MALLEABLE STRAP	1.5000	60.00	0.0500	2.00
10180	2.00	EA	M	3/4	CONDUIT CUT & THREAD	0.0000	0.00	0.4350	0.87
10100	110.00	FT	M	3/4	PVC COATED GRC 40MIL	6.5726	722.98	0.1000	11.00
240842	14.00	EA	M	3/4	PVC CTD LAY-IN STRAP	18.6016	260.42	0.3750	5.25
	0.00				**86. CC30B - NOTED. NO COST CHANGE**				
	0.00				**87. CC30B - CHANGE 12 STRAND MM TO 12 STRAND SM FIBER.**				
32	1,172.00		M	CBLF330011CA-A	12 FIBER SM TO QUOTE	0.9000	1,054.80	0.0100	11.72
	0.00				**89. CC30B - NOTED. NO COST CHANGE**				
	0.00				**91. CC30B - CHANGE CBLF220010-A TO 6 STRAND SM FIBER. ADD 6 FIBER CABLE**				
55	15.00		M	6 FIBER	6 STRAND FIBER TO QUOTE	0.6000	9.00	0.0135	0.20
	0.00				**92. OUTDOOR CAMERA RACEWAYS RWYX227950-A, RWYX227951-A**				
10002	110.00	FT	M	1	GRC	4.6500	511.50	0.0870	9.57
160706	14.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	25.04	0.0500	0.70
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
150534	2.00	EA	M	2.69"DEEP 45-CI	2G FD MALLEABLE BOX W/ 1 x 1" HUB	58.9700	117.94	1.1000	2.20
160104	16.00	EA	M	1/4 x 3 1/4"	WEDGE ANCHOR (SS)	1.2500	20.00	0.2500	4.00
	0.00				**93. CC30B - INCREASE RWYD227901 INCREASE FROM 3/4 TO 1".**				
10002	90.00	FT	M	1	GRC	4.6500	418.50	0.0870	7.83
160706	12.00	EA	M	1	GRC 1-HOLE MALLEABLE STRAP	1.7883	21.46	0.0500	0.60
40080	2.00	EA	M	1	MYERS THREADED GRD HUB	28.4735	56.95	1.5000	3.00
	0.00				**94. CC30B - INSTALL 2 NEW NC2 CABLES**				
18	85.00		M	NC2	CBLD227901-C	1.6500	140.25	0.0880	7.48
18	85.00		M	NC2	CBLD227901-C	1.6500	140.25	0.0880	7.48
430101	4.00	EA	M		RJ45 CATEGORY 6 INSERT	0.2500	1.00	0.3125	1.25
49	4.00	EA	M		SHEILDED CAT6 RJ45	27.0000	108.00	0.5000	2.00
	0.00				**95. CHANGE 12 STRAND MM TO SM FIBER.**				
32	1,172.00		M	CBLF330011CB-A	12 FIBER SM TO QUOTE	0.9000	1,054.80	0.0100	11.72
38	1,725.00		M	CBLF20011A-A	144 STRAND SM FIBER QUOTE	10.6500	18,371.25	0.0125	21.56
						Phase Totals:	**75,893.27**		**1,013.70**

PDI *Leading by Design…*

CVWRF, CC30B BNR Basins Project:
Network Racks Removal Credit: March 23rd, 2021

Scope of Credit:
Remove the Following Network Racks:

Network Cabinet Per Drawing "I-00-6521" (Typ-2)

- Control Panel Enclosure (30x24x12"), Type 4X w/ Back-Plate (27x21").
- Managed Network Switch, 6-Port, 120VAC.
- New Door Mounted Nameplate.
- Vent Drain, Nema 4X.
- Fiber Optic Patch Panel (SPH).
- Panel Mount Spools.
- Adapter Plate for 12-Fiber, MM, LC.
- SFP Transceiver, MM-LC.
- Circuit Breakers.
- Surge Protective Device.
- Feed-thru and Grounding TBs.
- Panduit & Dinrail.
- Wire, Wire Labels and Misc. Consumables.
- Completely Assembled per Contract Drawings.
- Network Cabinet #s: CAB180150, CAB180250.

Network Cabinet Per Drawing "I-00-6511" (Typ-3)

- Wall Mount Network Rack Enclosure, Nema 12K, 19U, Hinged Back with Intake Fans.
- Fiber Optic Patch Panels (2U) w/ Adapter Plates to Accommodate up to 96 LC Single-Mode fiber strands.
- Fiber Optic Patch Panels (1U) w/ Adapter Plates to Accommodate up to 24 LC Multi-Mode fiber strands
- CAT 6 Ethernet Patch Panels, 24 Ports (1U) (3).
- Horizontal Cable Managers (1U) (6).
- Rack Mount ATS Power Distribution Unit (PDU).
- Fan/Louver Kit.
- Ethernet Switches Provided/Installed by Owner.
- Completely Assembled per Contract Drawings.
- Network Cabinet #s: NCE160011, 220011, 240011.

Credit ***$ 25,375.00***

PDI appreciates the opportunity to work with you. We will be available at the number below. Please, do not hesitate to call if you have any questions.
Phone 208-705-1350

Sincerely,

Trent Powell

Trent Powell

CHANGE CONTROL FORM 020
Network Cabinet, Fiber & Data

Owner: Central Valley Water Reclamation Facility	**Project: 3W Improvements, Blower Building, BNR/PEPS/RAS Selector**	
Contractor: Alder Construction/COP Construction/Gerber Construction	**Date: 2/24/2021**	**CC# 05F, 30A, 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

1. CC30A: The following network cabinets and all interior components are Owner provided. Contractor to provide network cabinet (NCE) specific bill of materials indicating required fiber optic and copper network cable termination and patch panel requirements. The network cabinets/racks and associated internal cable termination and patch panels shall be installed by the Contractor. Network enclosure requirements have been updated, see attached updated Section 27 11 00. See affected equipment ID and referenced drawing below:

Network Cabinet ID	Drawing Number
NCE130011	I-13-6101
NCE290011	I-29-6101
NCE330001	I-33-6101
NCE340012	I-34-6101
NCE340013	I-34-6101
NCE340051	I-34-6101
NCE340052	I-34-6101
NCR340021	I-34-6101
NCE340022	I-34-6101
NCE340023	I-34-6101
NCR340001	I-34-6101
NCR340011	I-34-6101
NCE340101	I-34-6102
NCE340102	I-34-6111

2. CC30A: Owner to provide and install new interior components for the following existing network cabinets. Contractor to provide network cabinet (NCE) specific bill of materials indicating required fiber optic and copper network cable termination and patch panel requirements. The network cabinets/racks and associated internal cable termination and patch panels shall be installed by the Contractor. Network enclosure requirements have been updated, see attached updated Section 27 11 00.

Network Cabinet ID	Drawing Number
NCE050004	I-05-6101

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NCE330001	I-33-6101
NCE330002	I-33-6102
NCE331011	I-33-6102

3. CC30B: The following network cabinets and all interior components are Owner provided. Contractor to provide network cabinet (NCE) specific bill of materials indicating required fiber optic and copper network cable termination and patch panel requirements. The network cabinets/racks and associated internal cable termination and patch panels shall be installed by the Contractor. Network enclosure requirements have been updated, see attached updated Section 27 11 00. See affected equipment ID and referenced drawing below:

Network Cabinet ID	Drawing Number
NCE160011	I-16-6101
NCE220011	I-22-6101
NCE240011	I-24-6101

4. CC5F: The following network cabinets and all interior components are Owner provided. Contractor to provide network cabinet (NCE) specific bill of materials indicating required fiber optic and copper network cable termination and patch panel requirements. The network cabinets/racks and associated internal cable termination and patch panels shall be installed by the Contractor. Network enclosure requirements have been updated, see attached updated Section 27 11 00. See affected equipment ID and referenced drawing below:

Network Cabinet ID	Drawing Number
NCE020011	I-02-6101
NCE210011	I-21-6101
NCE230011	I-23-6101

5. CC30A, CC30B, CC5F: Contractor shall provide, install, and terminate network cables between the existing hard-wired and new smart MCC buckets to the network switches that are located internal to the MCC. These cables are unscheduled. See attached updated technical specification section 26 24 19.
6. CC30A, CC30B, CC5F: Contractor shall coordinate final terminations within network cabinets and PLC cabinets with Owner.
7. CC30A: Install new network cabinet, NCE000011, in the tunnel to support the fire fiber optic communication. See attached drawings E-00-1016 and I-00-6110.
8. CC30A: Add 6-strand single-mode fiber optic cable between NCE050004 and FACP050010. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. See attached drawing E-05-4002.
9. CC30A: Add one - 1” raceway, RWYF050010-A, between NCE050004 and FACP050010. See attached Raceway Schedule.
10. CC30A: Change CBLF330011CC-A and CBLF050001CA-A to a 12-strand single-mode fiber optic cable. See attached cable schedule.
11. CC30B: Change CBLF160011BA-A to a 12-strand single-mode fiber optic cable. See attached cable schedule.
12. CC5F: Delete the following cables: CBLD020001-C, CBLD020001-E, and CBLD020001-F. See attached

cable schedule.

13. CC5F: Install new fiber optic patch panel in the Area 02 PLC, CAB020001. Install new 6-strand single-mode fiber optic cable, CBLF020011D-A, between CAB020001 and NCE020011. Install new 1” raceway between CAB020001 and CTS020100. See attached drawing I-02-6101 and updated cable and raceway schedule.
14. CC5F: The following cables shall be routed to the same PLC Panel CAB as previously identified; however, they will be terminated at the network switch instead of the PLC ECNM module: CBLD029001AA-A, CBLD029001BB-A, CBLD020230-A, CBLD020220-A, CBLD020210-A, and CBLD020610B-A. See attached drawing, I-02-6101. Contractor shall coordinate final terminations with the Owner.
15. CC5F: Add the following NC2 ethernet cables between each of the MCC PLC ethernet switches and NCE020011: CBLD029001AA-B and CBLD029001BB-B. See attached drawings I-02-6101, E-02-1203, and cable schedule.
16. CC5F: The following raceway for the outdoor cameras shall be routed to the Access Control Panel, CAB027901, see attached drawing I-02-6101 and updated cable and raceway schedule.

RWYD027950-A	RWYD027956-A
RWYD027953-A	RWYD027957-A
RWYD027955-A	

17. CC5F: Raceway, RWYD027901-A shall be increased from ¾” to 1” raceway. See attached raceway schedule.
18. CC5F: Install new 1” raceway, RWYD027901-B, between CTS020102 and CAB027901. See attached cable and raceway schedule.
19. CC5F: Delete fiber optic cable CBLF020010-B. See drawing E-02-1203 and updated cable schedule.
20. CC5F: Change CBLF020010-A to a 6-strand single mode fiber optic cable. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. See attached drawing I-02-6101.
21. CC5F: CBLF020011A-B shall terminate at NCE240011 instead of NCE210011. See attached drawing I-02-6101, E-21-1201, E-02-1203, and cable schedule. Install a new 3” raceway, RWYF240011-A, between CTS24 and NCE240011 with a (2) 3” – 3 cell innerduct, see attached raceway schedule. Contractor to coordinate any required conduit penetrations.
22. CC5F: CBLF020011BB-A shall terminate at NCE240011 instead of NCE210011. Change cable type to a 12-strand single mode fiber optic cable. See attached drawing I-02-6101, E-21-1201, E-02-1203, and cable schedule. Install a new 2” raceway, RWYF240011-B, between CTS24 and NCE240011 with a 2” – 4 cell innerduct, see attached raceway schedule. Contractor to coordinate any required conduit penetrations.
23. CC5F: The following raceways: RWYF210001-C and RWYF210011-C shall be installed as a spare raceway. See attached cable and raceway schedule.
24. CC5F: Cable type for CBLF230011BA-A shall be a 12-strand single-mode fiber optic cable.
25. CC5F: CBLF230005A-A shall be routed to the same network cabinet, NCE020011, as previously identified, but shall be terminated at FOP020011D instead of FOP020011A. See attached drawing I-02-6101.
26. CC5F: Install new 6-strand single mode fiber optic cable, CBLF230010-A, between NCE230011 and FACP230010. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Install new 3/4” raceway, RWYF230010-A. See attached drawings I-23-6101, E-23-1101 and updated schedules.
27. CC5F: Install the following new NC2 type ethernet data cables between UV channel control cabinet network switches and NCE230011; CBLD230611-D, CBLD230619-D, CBLD230631-D, and CBLD230639-D. See

drawing I-23-6101, E-23-1101, and cable schedule for detailed routing. Contractor shall coordinate final terminations with the Owner.

28. CC5F: Increase the following raceway from 1” to 1-1/2”: RWYD230611-A, RWYD230619-A, RWYD230631-A and RWYD230639-A.
29. CC5F: For clarity, drawing I-02-6091 has been updated to show 120V power to the fire alarm control panel, HVAC ATC control panel and access control panel. Power to these control cabinets have been provided as part of the current contract documents as detailed in the existing electrical schedules and drawings.
30. CC30B: Add new NC2 type cable, CBLD100001-H, between CAB109105B and CAB100001. Install new 1” raceway, RWYD100001-H. See attached drawings I-10-6101, E-10-1231, cable schedule, and raceway schedule.
31. CC30: CBLD109105A-E shall be routed to the same Area PLC cabinet, CAB100001, as previously identified, but shall be terminated at the network switch, NET100001, instead of PLC100001 Processor A. See attached drawing I-10-6101.
32. CC30B: The following cables shall be routed to the same PLC Panel CAB as previously identified; however, they will be terminated at the network switch instead of the PLC ECNM module: CBLD109105A-D and CBLD109105B-D. See attached drawing, I-10-6101. Contractor shall coordinate final terminations with the Owner.
33. CC30B: Add the following NC2 ethernet cables between each of the MCC PLC ethernet switches and NCE100011: CBLD109105A-F and CBLD109105B-F. Increase the following raceways from ¾” to 1” raceway: RWYD109105A-D and RWYD109105B-D. See attached drawings I-10-6101, E-10-1231, and updated schedules.
34. CC30A: Install new 6-strand single mode fiber optic cable, CBLF100010-A, between NCE100011 and FACP100010. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Install new 1” raceway, RWYF100010-A. See attached drawings I-10-6101, E-10-1231 and updated schedules.
35. CC30A: Install new 12-strand single-mode fiber optic cable, CBLF000011BA-A, between NCE100011 and NCE000011. Install a new 2” raceway, RWYF000011BA-A, between CTS000006B and NCE000011. See updated raceway and cable schedules for detailed routing. See drawing E-00-1016.
36. CC30A: Delete cable, CBLF100011BA-B. See updated schedules and drawing E-10-1231.
37. CC30A: Install new 6-strand single mode fiber optic cable, CBLF130010-A, between NCE130011 and FACP130010. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Install new 1” raceway, RWYF130010-A. See attached drawings I-13-6101, E-13-1211 and updated schedules.
38. CC30A: Change CBLF290011BA-A and CBLF130011BA-A to a 12-strand single-mode fiber optic cable. See attached cable schedule.
39. CC30B: Change CBLF220011BA-A to a 12-strand single-mode fiber optic cable. See attached cable schedule.
40. CC30A: The following cables shall be routed to the same PLC Panel CAB as previously identified; however, they will be terminated at the network switch instead of the PLC ECM module: CBLD130011-B and CBLD130011-C. See attached drawing, I-13-6101. Contractor shall coordinate final terminations with the Owner.
41. CC30A: Delete cable, CBLD130011-D, see updated drawing E-13-1211 and schedules.
42. CC30A: Cable, CBLD139001-A shall be routed to the same MCC PLC panel CAB as previously identified; however, it shall be terminated at the PLC CPU module instead of the network switch. See attached drawing, I-13-6101. Contractor shall coordinate final terminations with the Owner.
43. CC30A: Install new NC2 type ethernet cable, CBLD139001-B, between MCC 13A and CAB139001. See attached drawings I-13-6101, E-13-1211 and updated schedules.

44. CC30B: The following cables shall be routed to the same PLC Panel CAB as previously identified; however, they will be terminated at the network switch instead of the PLC ECNM module: CBLD160001-A, CBLD160001-D, CBLD169001A-B and CBLD169001B-B. See attached drawing, I-16-6101. Contractor shall coordinate final terminations with the Owner.
45. CC30B: Delete the following NC2 ethernet cables: CBLD160001-C and CBLD160001-F.
46. CC30B: The following NC2 ethernet cables, CBLD160001-D and CBLD160001-E, have been added to the E-16EB-1201 for clarity. These cables appeared in the Contract Documents in Specification 26 06 20.23.
47. CC30B: Delete the following NC4 Ethernet cables and associated raceway:

Cable Tag	Raceway ID	Cable Tag	Raceway ID
CBLD169101A-C	RWYD169101A-C	CBLD169101B-G	RWYD169101B-G
CBLD169101A-D	RWYD169101A-D	CBLD169101B-H	RWYD169101B-H
CBLD169101A-E	RWYD169101A-E	CBLD169101B-J	RWYD169101B-J
CBLD169101A-F	RWYD169101A-F	CBLD169101B-K	RWYD169101B-K
CBLD169101A-G	RWYD169101A-G	CBLD169101B-L	RWYD169101B-L
CBLD169101A-H	RWYD169101A-H	CBLD169101B-M	RWYD169101B-M
CBLD169101A-J	RWYD169101A-J	CBLD169101B-N	RWYD169101B-N
CBLD169101A-K	RWYD169101A-K	CBLD169101B-P	RWYD169101B-P
CBLD169101A-L	RWYD169101A-L	CBLD169101B-Q	RWYD169101B-Q
CBLD169101A-M	RWYD169101A-M	CBLD169101B-R	RWYD169101B-R
CBLD169101A-N	RWYD169101A-N	CBLD169101B-S	RWYD169101B-S
CBLD169101A-P	RWYD169101A-P	CBLD169102A-D	RWYD169102A-D
CBLD169101A-Q	RWYD169101A-Q	CBLD169102A-E	RWYD169102A-E
CBLD169101A-R	RWYD169101A-R	CBLD169102A-F	RWYD169102A-F
CBLD169101A-S	RWYD169101A-S	CBLD169102A-G	RWYD169102A-G
CBLD169101A-T	RWYD169101A-T	CBLD169102B-D	RWYD169102B-D
CBLD169101A-U	RWYD169101A-U	CBLD169102B-E	RWYD169102B-E
CBLD169101B-A	RWYD169101B-A	CBLD169102B-F	RWYD169102B-F
CBLD169101B-C	RWYD169101B-C		
CBLD169101B-D	RWYD169101B-D		
CBLD169101B-E	RWYD169101B-E		
CBLD169101B-F	RWYD169101B-F		

48. Cable schedules reflect a duplication of ethernet cables listed below, delete the NC2 type of the cable duplication and associated raceway. See updated cable schedule

Cable Tag	Raceway ID	Cable Tag	Raceway ID
CBLD169101AB-A	RWYD169101AB-A	CBLD169102AB-A	RWYD169102AB-A
CBLD169101AD-A	RWYD169101AD-A	CBLD169102AC-A	RWYD169102AC-A
CBLD169102BB-A	RWYD169102BB-A	CBLD169102B-B	RWYD169102B-B
CBLD169102BC-A	RWYD169102BC-A	CBLD169102B-C	RWYD169102B-C

49. CC30B: Install new NC2 type cables, CBLD169101A-V and CBLD169101A-W, between NCE160011 and

CAB169101A. Install new 1” raceway, RWYD169101A-V, between NCE160011 and CAB169101A. See drawings I-16-6101, E-16EB-1210, and updated raceway and cable schedules for detailed information.

50. CC30B: Install new NC2 type cables, CBLD169101B-V and CBLD169101B-W, between NCE160011 and CAB169101B. Install new 1” raceway, RWYD169101B-W, between NCE160011 and CAB169101B. See drawings I-16-6101, E-16EB-1210, and updated raceway and cable schedules for detailed information.
51. CC30B: Delete NC2 type cable, CBLD169102A-B, and associated raceway, RWYD169102A-B. See updated raceway and cable schedules.
52. CC30B: Install new NC2 type cables, CBLD169102A-K and CBLD169102A-L, between NCE160011 and CAB169102A. Install new 1” raceway, RWYD169102A-K, between NCE160011 and CAB169102A. See drawings I-16-6101, E-16EB-1210, and updated raceway and cable schedules for detailed information.
53. CC30B: Install new NC2 type cables, CBLD169102B-J and CBLD169102B-K, between NCE160011 and CAB169102B. Install new 1” raceway, RWYD169102B-J, between NCE160011 and CAB169102B. See drawings I-16-6101, E-16EB-1210, and updated raceway and cable schedules for detailed information.
54. CC30B: The following raceway for the outdoor cameras shall be routed to the Access Control Panel, CAB167901, see attached drawing I-16-6101 and updated cable and raceway schedule.

RWYX167950-A	RWYX167952-A
RWYX167951-A	RWYX167953-A

55. CC30B: Raceway, RWYD167901-A shall be increased from ¾” to 1” raceway. See attached raceway schedule.
56. CC30B: For clarity, drawings I-16-6091 and I-22-6091 have been updated to show the access control panels.
57. CC30B: Install four new NC2 type cables, CBLD167901-B, CBLD167901-C, CBLD167901-D and CBLD167901-E, between NCE160011 and CAB167901. See drawing I-16-6101, E-16EB-1201 and cable schedule.
58. CC30B: Install new 1” raceway, RWYD167901-B, between CAB167901 AND NCE160011. See attached cable and raceway schedule.
59. CC30B: Delete fiber optic cable CBLF160010-B.
60. CC30B: Change CBLF160010-A to a 6-strand single mode fiber optic cable. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. See attached drawing I-16-6101.
61. CC30B: Install 12-strand multi-mode fiber optic cable, CBLF160011-A, between Area 16 Substation, CAB169000A, and Area 16 network cabinet, NCE160011. Install new 1-1/2” raceway with 1”- 3 cell innerduct between CAB169000A and NCE160011.
62. CC30B: Install 12-strand multi-mode fiber optic cable, CBLD160011-B, between Area 16 Substation, CAB169000B, and Area 16 network cabinet, NCE160011. Install new 1-1/2” raceway with 1”- 3 cell innerduct between CAB169000B and NCE160011.
63. CC30B: Cables, CBLF340102-C and CBLF340102-J, shall be routed to NCE160011 instead of CAB169000. See updated cable and raceway schedule for detailed routing.
64. CC30B: The following cables shall be routed to the same PLC Panel CAB as previously identified; however, they will be terminated at the network switch instead of the PLC ECNM module: CBLD210011A-B and CBLD210011B-B. See attached drawing, I-21-6101. Contractor shall coordinate final terminations with the Owner.
65. CC30B: Delete the following NC2 type cables: CBLD210011A-D and CBLD210011B-D
66. CC30B: Delete the following NC4 type cables: CBLD219101BA-B.

67. CC30B: Install NC4 type cables, CBLD210011A-F and CBLD210011B-F, between MCC21A and NCE210011. See drawing I-21-6101, E-21-1201, and updated cable schedule.

68. CC30B: Increase raceways, RWYD210011A-A and RWYD210011B-A from ¾” to a 1”. See updated raceway schedule.

69. CC30B: CBLD219101AA-A shall originate from CAB210001A instead of the previously identified location of RIO 21A. See updated cable schedule and I-21-6101.

70. CC30B: CBLE219101AA-B and CBLD219101BA-A shall be routed to the same MCC as previously identified; however, the final terminations within the cabinet have been updated. See attached drawing, I-21-6101. Contractor shall coordinate final terminations with Owner.

71. CC30B: CBLF249101A-A shall be a 48-strand single mode fiber cable. See drawing I-21-6101 and updated cable schedule.

72. CC30B: CBLF210011B-A shall be a 96-stand single mode fiber cable. See drawing I-21-6101 and updated cable schedule.

73. CC30B: CBLF210011A-A shall be a 48-strand single mode fiber cable. See drawing I-21-6101 and updated cable schedule.

74. CC30A: Install new 12-strand single mode fiber, CBLF240011CA-A, between NCE340101 and NCE240011. See attached drawings I-24-6101, I-00-6108, E-24-1211 and updated schedules for detailed routing.

75. CC30A: Fire alarm fiber optic cable, CBLF210011DA-A, shall be a 12-strand single-mode fiber optic cable. Cable shall originate at NCE240011 instead of the previously identified NCE340101. See update raceway and cable schedule for detailed routing.

76. CC30B: CBLF340102-C shall be routed to NCE160011 instead of CAB169000A. Raceway, RWYF169000A-A, shall be installed as a spare raceway in DB160001. Raceway, RWFY340001A-D, is no longer required and has been removed from the schedule. See updated raceway and cable schedule for detailed routing.

77. CC30B: CBLF340102-J shall be routed to NCE160011 instead of CAB169000B. Raceway, RWYF169000B-A, shall be installed as a spare raceway in DB160001. Raceway, RWFY340002B-D, is no longer required and has been removed from the schedule. See updated raceway and cable schedule for detailed routing.

78. CC30B: Modules for PLC processors in SWGR169001A/B have been updated. See attached drawing I-16-6101.

79. CC30B: Fiber cables, CBLF210001A-A and CBLF210001A-B, patched between CAB210001 and NCE210011 shall terminate at FOP210011D. See drawing I-21-6101. Contractor shall coordinate final terminations with Owner.

80. CC30A: Install new 6-strand single mode fiber optic cable, CBLF240010-A, between NCE240011 and FACP240010. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Install new 1” raceway, RWYF240010-A. See attached drawings I-24-6101, E-24-1211 and updated schedules.

81. CC30B: CBLF230011A-B shall terminate at NCE240011 instead of NCE210011. See attached drawing I-24-6101, I-23-6101, and cable schedule.

82. CC30B: Install a IDFM - 2" - 4 cell innerduct per, spec 26 05 33 in raceway, RWYF24224-A and RWYF240000-A.

83. CC30B: Install new 144-strand single-mode fiber optic cable, CBLF240011A-A, between Area 34 network rack, NCR340001, and Area 24 network cabinet, NCE240011. Contractor shall field route cable per RFI 060. Contractor to provide updated cable and raceway schedule. See attached drawings I-24-6101, E-24-1211, and updated schedules.

84. CC30B: For clarity, the following raceways have been added in the Area 21, 24 raceway schedule. These raceways appeared in the contract documents under the Site schedule.

RWYF240000-A	RWYF24224-A	RWYF24224-D
RWYF240000-B	RWYF24224-B	RWYF24224-E
RWYF240000-C	RWYF24224-C	RWYF24225-A
RWYF24225-B	RWYF24225-D	RWYF24225-E

85. CC30B: Raceway sizes had not been previously identified on the Area 24 raceway schedule. The following raceways shall be sized at ¾":

RWYC240024A-A	RWYD240011-C	RWYP240011-B
RWYC240024B-A	RWYD240011-D	RWYP240011-E
RWYD240011-A	RWYD240011-E	RWYP240011A-A
RWYD240011-B	RWYD240024A-A	RWYP240011A-B

86. CC30B: Raceway for cable CBLP240011A-A between JP21 and PBX210001P shall be renamed from RWYP240011A-B to RWYP210001P-B, due to a duplicative raceway tag being used. Raceway, RWYP210001P-B shall be ¾".
87. CC30A: Change CBLF330011CA-A to a 12-strand single-mode fiber optic cable. See attached cable schedule and I-00-6108.
88. CC30B: Delete the following NC2 type cables and associated raceway: CBLD220001-C (RWYD220001-C) and CBLD220001-F (RWYD220001-F).
89. CC30B: The following cables shall be routed to the same PLC Panel CAB as previously identified; however they will be terminated at the network switch instead of the PLC ECNM module: CBLD220001-B and CBLD220001-E. See attached drawing, I-22-6101. Contractor shall coordinate final terminations with the Owner.
90. CC30B: Delete fiber optic cable CBLF220010-B.
91. CC30B: Change CBLF220010-A to a 6-strand single mode fiber optic cable. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. See attached drawing I-22-6101.
92. CC30B: The following raceway for the outdoor cameras shall be routed to the Access Control Panel, CAB227901, see attached drawing I-22-6101 and updated cable and raceway schedule.

RWYX227950-A	RWYX227951-A

93. CC30B: Raceway, RWYD227901-A shall be increased from ¾" to 1" raceway. See attached raceway schedule.
94. CC30B: Install two new NC2 type cables, CBLD227901-B and CBLD227901-C, between NCE220011 and CAB227901. See drawing I-22-6101, E-22-3001 and cable schedule.
95. CC30B: Change CBLF330011CB-A to a 12-strand single-mode fiber optic cable. See attached cable schedule and drawing I-22-6101 for final terminations.
96. CC30A: CBLF28011B-A shall terminate at FOP290011A instead of FOP290011B. See drawing I-29-6101 for final terminations.

97. CC30A: CBLF290011A-A shall terminate at FOP290011B instead of FOP290011A. See drawing I-29-6101 for final terminations.

98. CC30A: Install new 12-strand single-mode fiber optic cable, CBLF000011BA-B, between NCE290011 and NCE000011. See updated raceway and cable schedules for detailed routing. See drawing E-00-1016.

99. CC30A: Install new 6-strand single-mode fiber optic cable, CBLF290010-A, between FACP290010 and NCE290011. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Contractor shall field route a new 1" raceway between FACP290010 and NCE290011. FACP290010 is located on the upper floor in the HVAC room directly above the electrical room. Contractor shall coordinate any required conduit penetrations.

100. CC30A: Fire alarm fiber optic cable, CBLF340101BA-A, shall be a 12-strand single-mode fiber optic cable. See drawing I-34-6102.

101. CC30A: Install new 6-strand single-mode fiber optic cable, CBLF330010-A, between FACP330010 and NCE330002. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Contractor shall field route a new 1" raceway between FACP330010 and NCE330001.

102. CC30A: Install new 6-strand single-mode fiber optic cable, CBLF330010-B, between FACP330010 and the dedicated fire alarm system workstation located in the Control Room. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. Contractor shall field route a new 3/4" raceway.

103. CC30A: The following raceway for the outdoor cameras shall be routed to the Access Control Panel, CAB347901, see attached drawing I-34-6101 and I-34-6103 and updated cable and raceway schedule.

RWYX347976-A	RWYX347957-A
RWYX347958-A	RWYX347962-A
RWYX347964-A	RWYX347965-A

104. CC30A: The following raceway for the outdoor cameras shall be routed to the Access Control Panel, CAB347902, see attached drawing I-34-6101 and I-34-6103 and updated cable and raceway schedule.

RWYX347972-A	RWYX347960-A
RWYX347961-A	RWYX347963-A

105. CC30A: Cable, CBLX347959-A, for the outdoor camera shall be routed to the Access Control Panel, CAB347903, see attached drawing I-34-6103. Raceway, RWYX347959-A, routing has been modified, see updated cable and raceway schedule.

106. CC30A: Install new 1-1/2" raceway. RWYD347901-B, between CAB347901 and CTS340003A. See attached raceway schedule.

107. CC30A: Install new 1-1/2" raceway. RWYD347901-C, between CAB347901 and CTS340020B. See attached raceway schedule.

108. CC30A: Install new 1" raceway. RWYD347903-B, between CAB347903 and CTS340203. See attached raceway schedule.

109. CC30A: Install new NC1 type cable, CBLD347903-B, between NCR340021 and CAB347903. See drawing I-34-6103, E-34-1223 and cable schedule.

110. CC30A: Increase raceway, RWYD347901-A, from 1" to 1-1/2". See attached raceway schedule.

111. CC30A: Install six new NC2 type cables between NCE340101 and CAB347901. See drawing I-34-

6102, E-34-1212 and cable schedule.

112. CC30A: Install four new NC2 type cables between NCE340101 and CAB347902. See drawing I-34-6102, E-34-1213 and cable schedule.

113. CC30A: Increase raceway, RWYD347902-A, from 1” to 1-1/2”. See attached raceway schedule.

114. CC30A: Delete fiber optic cable CBLF340010-B.

115. CC30A: Change CBLF340010-A to a 6-strand single mode fiber optic cable. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract. See attached drawing I-34-6102.

116. CC30A: CBLF340101A-B shall terminate at FOP340101B instead of FOP340101A. See drawing I-34-6102 for final terminations.

117. CC30A: CBLF340101A-A shall terminate at FOP340101A instead of FOP340101B. See drawing I-34-6102 for final terminations.

118. CC30A: Delete the following NC2 type cables: CBLD340001-C and CBLD340001-F.

119. CC30A: The following cables shall be routed to the same PLC Panel CAB as previously identified; however they will be terminated at the network switch instead of the PLC ECNM module: CBLD340001-A, CBLD340001-C, CBLD349101A-B, CBLD349101B-B, CBLD349201-B, CBLD349001-A, CBLD 349001-B, CBLD340111-A, CBLD340211-A, CBLD340311-A, CBLD340411-A, and CBLD340511-A . See attached drawing, I-34-6102. Contractor shall coordinate final terminations with the Owner.

120. CC30A: Add the following NC2 ethernet cables between each of the MCC PLC ethernet switches and NCE340101: CBLD349101A-F, CBLD349101B-F, CBLD349201-G. See attached drawings I-02-6101, E-02-1203, and cable schedule.

121. CC30A: Raceway, RWYD340003-B, shall be installed as a spare raceway in between CTS340014B and JBX34003. See updated raceway and cable schedule for detailed routing.

122. CC30A: Install 12-strand multi-mode fiber optic cable, CBLF340102-M, between NCE340102 and NCE340001. See cable schedule for detailed routing.

123. CC30A: Raceway, RWYF340013A-A shall have two - 4”- 3 cell innerduct. See updated raceway schedule.

124. CC30A: Modules for PLC processors in SWGR349001A/B have been updated. See attached drawing I-34-6102.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

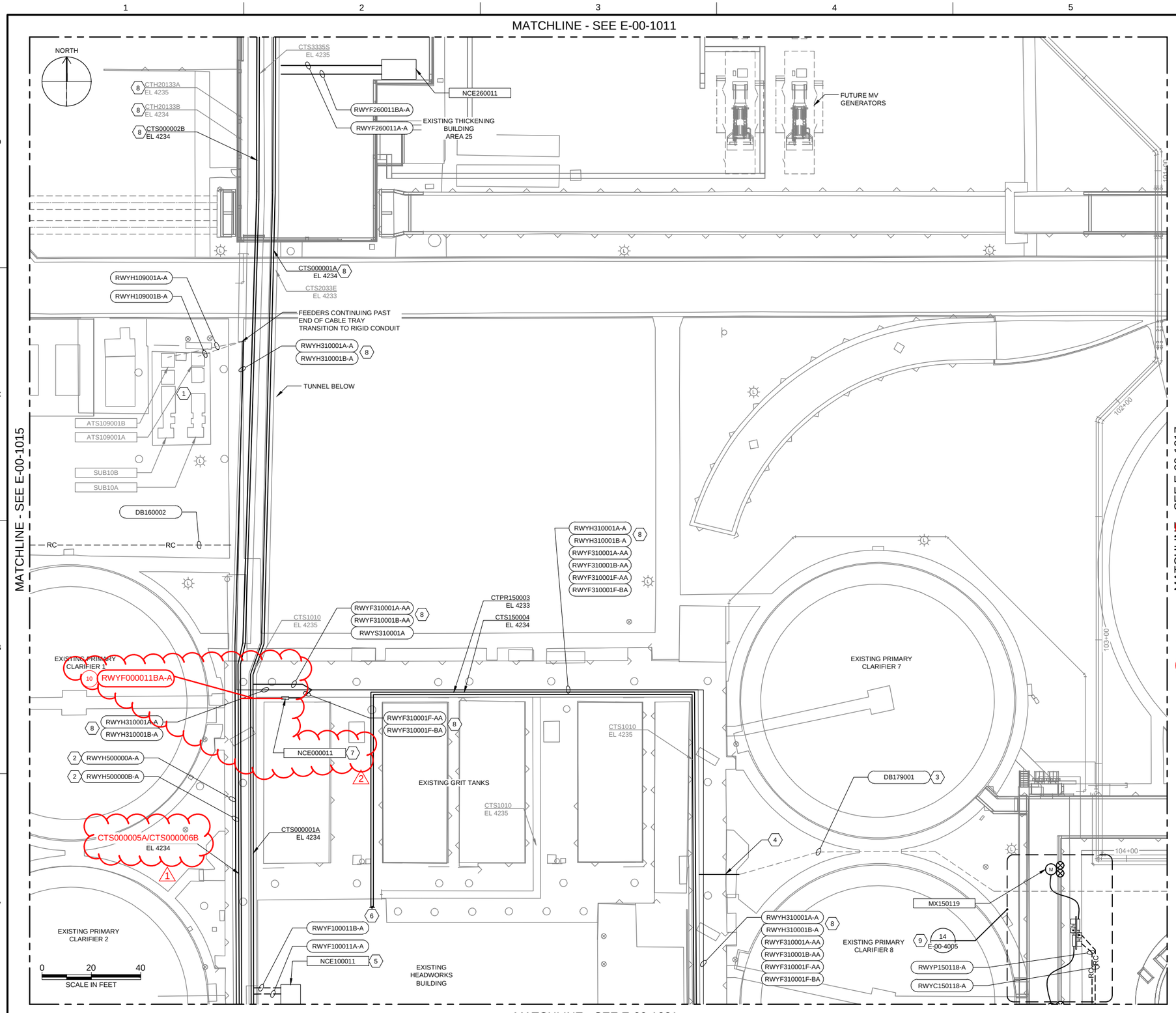
	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:



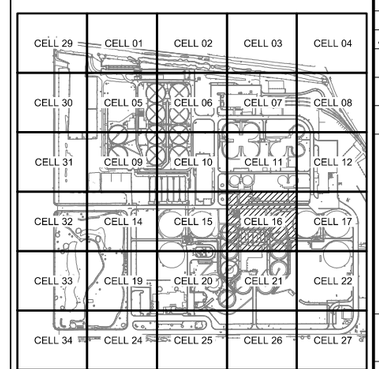
GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. EXISTING CABLE TRAYS DEPICTED WITHIN THE TUNNELS DO NOT REFLECT ALL THE EXISTING CABLE TRAYS. ONLY CABLE TRAYS BEING UTILIZED OR FOR LOCATIONAL REFERENCE HAVE BEEN SHOWN FOR CLARITY. CONFIRM EACH CABLE TRAY AND ITS ROUTING PRIOR TO ANY CABLE INSTALLATION.
3. POWER OUTAGES REQUIRED TO REPLACE NEW FEEDER CONDUCTORS TO SUBSTATION SUB10A AND SUB10B SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER AND SEQUENCE OF CONSTRUCTION SPECIFICATION.
4. RACEWAYS IN DUCTBANKS IDENTIFIED ON THE DRAWINGS ARE LISTED IN SPECIFICATION 26 06 20.25.
5. REFERENCE DRAWING E-15-1001 FOR AREA CLASSIFICATION OF PRIMARY EFFLUENT CHANNEL.
6. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS, CC30A, CC30B, CC30D AND CC30E. REFERENCE SITE AREA 00 CABLE, RACEWAY, DUCTBANK AND MANHOLE SCHEDULES FOR CONTRACT DELINEATIONS AS WELL AS THE LISTED CONTRACT DOCUMENT NOTES FOR ADDITIONAL SCOPE DELINEATION.

KEYNOTES:

1. UNDER CC30A; EXISTING ATS109001A AND ATS109001B REFED FROM NEW SWITCHGEAR SWGR340133A AND SWGR340133B RESPECTFULLY. EXISTING FEEDER CABLES FROM THE ATS TO EXISTING SWITCHGEAR SWGR MV133 SHALL BE REMOVED. CONTRACTOR TO INSTALL NEW CABLES BETWEEN THE ATS AND NEW SWITCHGEAR AS SPECIFIED AND TERMINATE TO ACCOMMODATE THE NEW POWER SCHEME.
2. UNDER CC30A; PROVIDE NEW B FEEDER FOR SUB 50 (ADMIN BLDG) RACEWAY ROUTED ADJACENT TO EXISTING. B FEEDER WILL TRANSITION TO CABLE TRAY CTH20133B.
3. RACEWAY SIZES DEPICTED ON THE RACEWAY SCHEDULE FOR RACEWAYS IN EXISTING DUCT BANK DB179001 WERE OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS PROVIDED BY THE OWNER. CONFIRM RACEWAY SIZES AND ROUTING PRIOR TO CABLE INSTALLATION.
4. CONTRACTOR TO CONFIRM THE LOCATION OF WHERE THE DUCT BANK ENTERS THE TUNNEL. IT IS POSSIBLE IT WAS ROUTED TO THE GALLERY IN LIEU OF THE TUNNEL. EXTEND THE EXISTING RACEWAY FROM WHERE THE DUCT BANK ENTERS TO EXISTING CABLE TRAY CTS1010.
5. UNDER CC30A; FIBER TERMINATION FOR CBLF100011A-A. SEE CABLE AND RACEWAY SCHEDULE FOR DETAILED ROUTING. SEE CONTRACT CC 10C REFERENCE DRAWING E-10-1131 FOR BUILDING DETAILS.
6. UNDER CC30B; REFERENCE AREA 10 BASEMENT LEVEL CABLE TRAY PLAN DRAWINGS FOR CONTINUATION AND ROUTING OF CABLE TRAYS.
7. UNDER CC30A; NEW NETWORK CABINET FOR FIRE ALARM FIBER TERMINATIONS.
8. UNDER CC30E: INSTALL NEW FIBER CABLES CBLF000011BA-B, CBLF310011A-A, CBLF310011A-B, CBLF310011BA-A, CBLF500011A-A, CBLF500011A-B, NEW PAC CABLE CBLV317850 AND NEW MEDIUM VOLTAGE FEEDER CABLES CBLH310001A-A AND CBLH310001A-B ON CABLE TRAY INSTALLED UNDER PREVIOUS CONTRACT AND NEW RACEWAYS INSTALLED IN THIS CONTRACT. REFERENCE SITE AREA 00 AND SIDESTREAM NITROGEN AND COMPOST BUILDING AREA 31/50 CABLE, RACEWAY AND DUCT BANK SCHEDULES FOR COMPLETE CABLE ROUTINGS.
9. INSTALLED UNDER CC30B.
10. UNDER CC30A: FIBER TERMINATION FOR CBLF000011BA-A. SEE CABLE AND RACEWAY SCHEDULE FOR DETAILED ROUTING.

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
---		---
1	1/2021	CC30A - CCF 007
2	1/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1016.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30C

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1016

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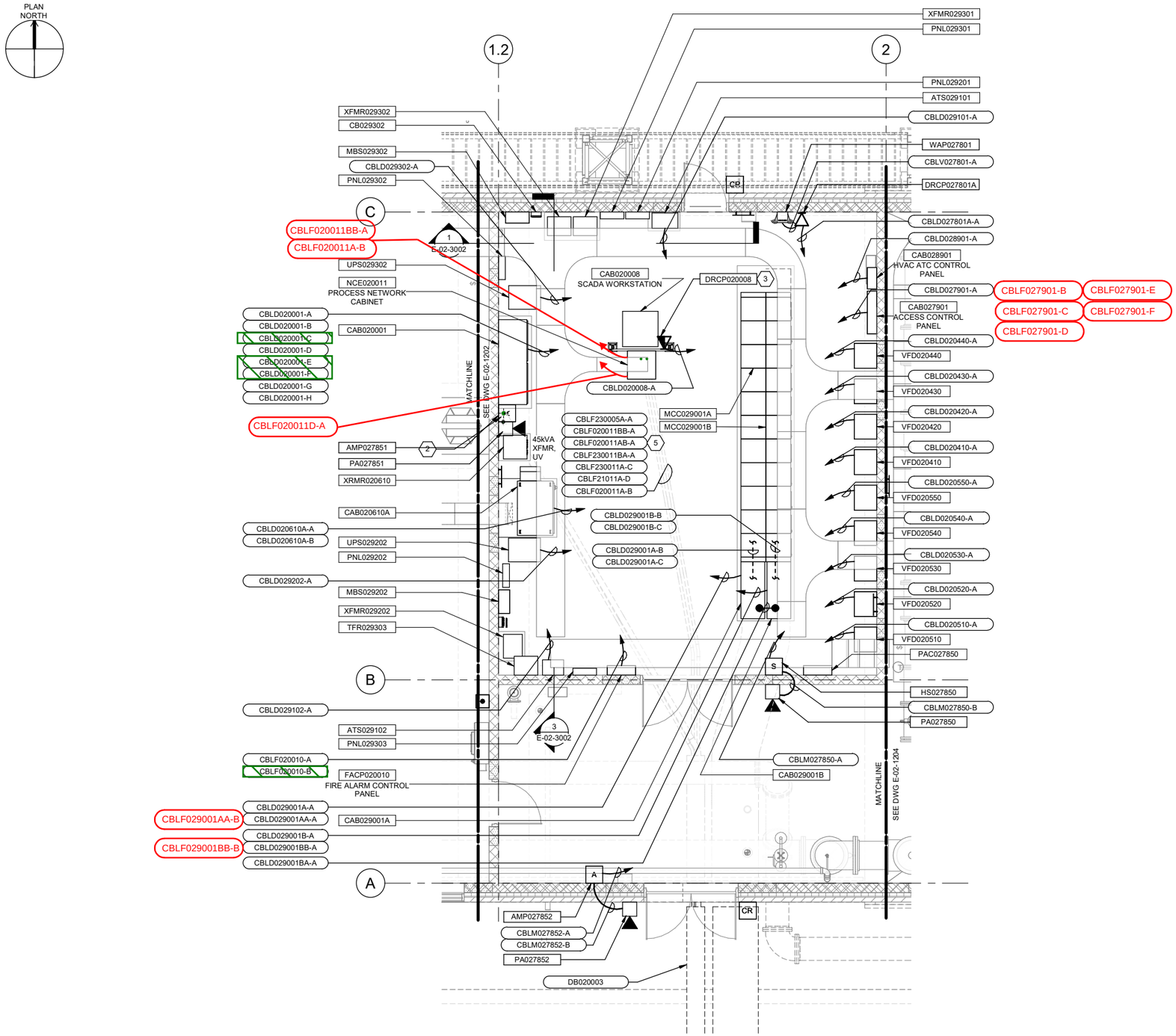
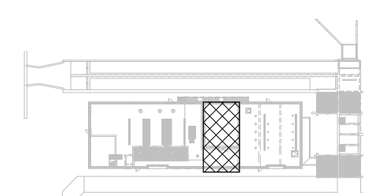


PLAN (1)

SCALE: 1/4" = 1'-0"

KEYNOTES:

1. SEE DRAWING E-00-1301 FOR CONTINUATION.
2. 4" SPARE DUCT FOR SIGNAL CABLING STUBBED UP AFF AND CAPPED OFF FOR FUTURE USE. COORDINATE LOCATION WITH FINAL EQUIPMENT LAYOUT.
3. DEDICATED DATA RECEPTACLE FOR SCADA WORKSTATION.
4. PULL BOX SIZE AND TYPE TYPICAL FOR ALL CAMERA INSTALLATIONS. STANDARD 4-SQAURE BOX (4"x4"x2-1/8"), 1" KNOCKOUTS, BLANK COVER PLATE. SEE SPECIFICATION 26 05 33. PULL STRING SHALL BE INSTALLED IN RACEWAYS AND PULL BOXES TO ACCOMMODATE VENDOR INSTALLATION.
5. CONTRACTOR TO INSTALL FIBER OPTIC CABLES AS PART OF THE BLOWER BUILDING CONSTRUCTION PACKAGE CC30A.



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

CC 5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. PRIESTLEY
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151606-E-02V18
BC PROJECT NUMBER 151606
CLIENT PROJECT NUMBER 151606

ELECTRICAL

3W ELECTRICAL ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-02-1203

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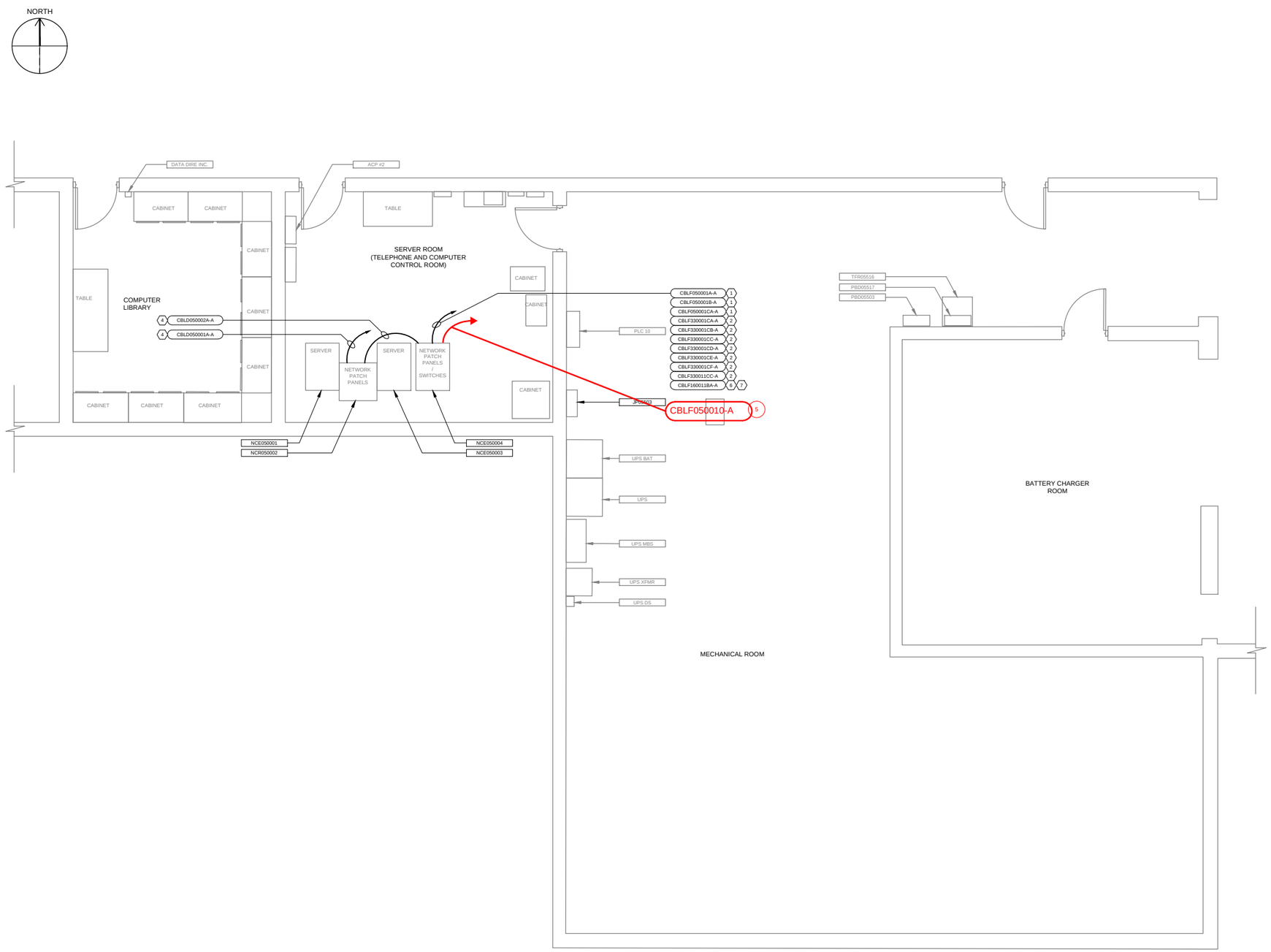

ENLARGED PLAN
E-05-1001 SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. ALL WORK SHOWN ON THIS DRAWING IS PART OF BLOWER BUILDING CONTRACT CC30A UNLESS OTHERWISE NOTED.
2. GENERAL ARRANGEMENT SHOWN IS BASED ON OWNER-PROVIDED RECORD DOCUMENTATION. SOME FEATURES HAVE BEEN OMITTED FOR CLARITY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND ACCOUNT FOR ELECTRICAL, BUILDING MECHANICAL, AND STRUCTURAL FEATURES PRIOR TO WORK IN THE AREA.
3. THIS DRAWING ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC30A):

1 REFER TO ELECTRICAL SITE PLANS FOR DETAILED ROUTING.

2 FIBER CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING E-33-1221 FOR TERMINATION LOCATION.

3 ETHERNET TO PQM050001 LOCATED IN ADMINISTRATION BUILDING SWITCHGEAR LV-50.

4 ETHERNET TO NCR050002 IN ADMINISTRATION BUILDING SERVER ROOM.

5 CONTRACTOR TO FIELD ROUTE FIBER OPTIC CABLE TO FIRE ALARM CONTROL PANEL, FACP050010, LOCATED ON THE 1ST FLOOR ELECTRICAL UTILITY ROOM.

KEYNOTES (CC30B):

6 PLANT FIRE ALARM FIBER CABLE TO PRIMARY EFFLUENT PUMP STATION ELECTRICAL BUILDING (AREA 16) ELECTRICAL ROOM. SEE DRAWING E-16EB-1201 FOR TERMINATION LOCATION.

7 CABLE TO BE INSTALLED IN EXISTING RACEWAY RWYF050004CA-A.

8 NOT USED.

9 NOT USED.

10 NOT USED.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: R. LEWIS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-05-4002.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ADMINISTRATION BUILDING ENLARGED PLAN SERVER ROOM

DRAWING NUMBER
E-05-4002

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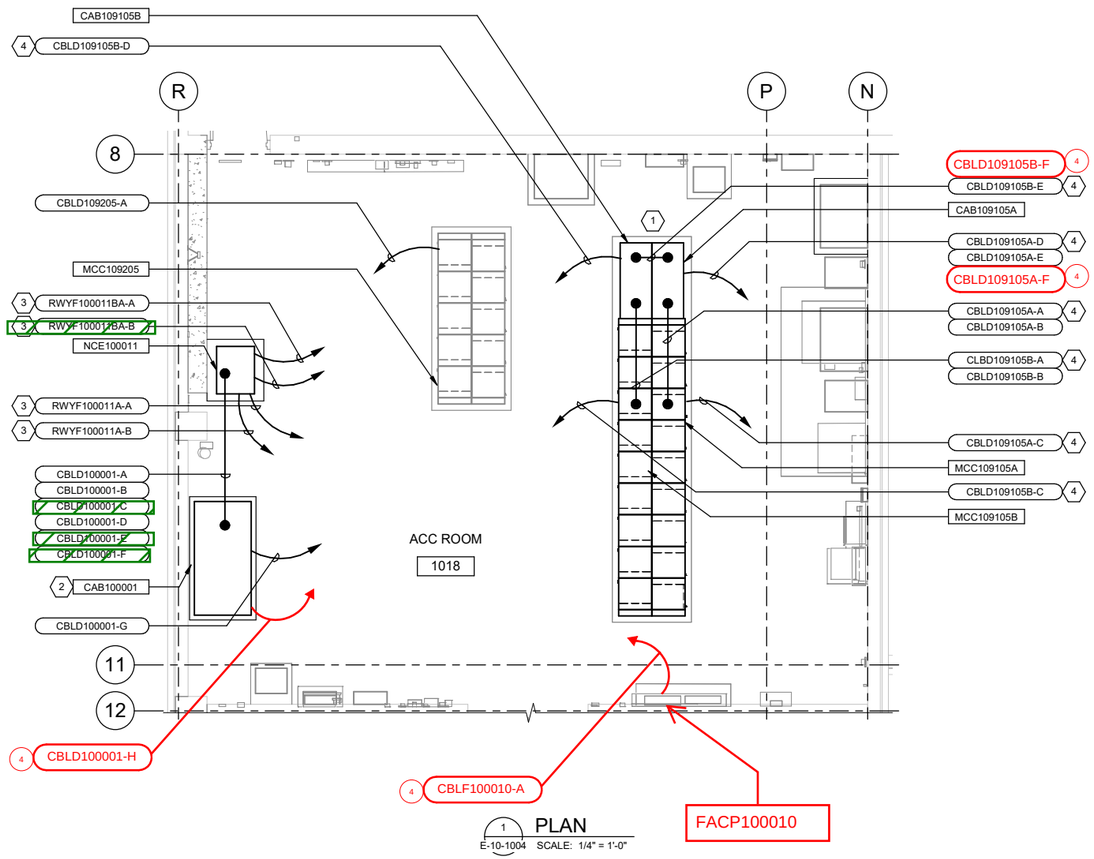
NORTH



1 PLAN
E-10-1004 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. ALL HEADWORKS PROJECT ELECTRICAL EQUIPMENT INSTALLATION SHALL BE COORDINATED WITH WORK SEQUENCE SPECIFICATION 01 12 16, PLAN VIEW DRAWINGS, AND ASSOCIATED ONE-LINE DIAGRAMS.
2. GENERAL ARRANGEMENT SHOWN BASED ON LIDAR SCANS. SOME FEATURES HAVE BEEN OMITTED FOR CLARITY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND ACCOUNT FOR ELECTRICAL, BUILDING MECHANICAL, AND STRUCTURAL FEATURES PRIOR TO WORK IN THE AREA.
3. THIS DRAWING IS ISSUED UNDER MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.
4. CABLE TAGS WITHOUT KEYNOTE DELINEATION ARE TO BE INSTALLED UNDER CONTRACT CC10C.

KEYNOTES: (CC10C)

1 MCC109105 INSTALLATION TO OCCUR DURING BIOLOGICAL NUTRIENT REMOVAL PROJECT. FOR SECTION VIEW REFERENCES REFER TO BNR PROJECT DRAWINGS.

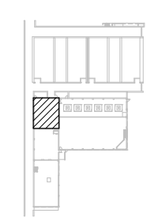
2 CONTRACTOR TO ADJUST PLC LOCATION TO COMPENSATE FOR EXISTING WIRING.

KEYNOTES: (CC30A)

3 CONTRACTOR TO INSTALL FIBER OPTIC CABLES. CONTRACTOR TO COORDINATE WITH CC10C FOR INSTALLATION OF NCE100011.

KEYNOTES: (CC30B)

4 CABLES TO BE INSTALLED UNDER CC30B CONTRACT.



KEY PLAN

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	T. HALL
DRAWN:	N. ROBERTS
CHECKED:	G. KUMATAKA
CHECKED:	
APPROVED:	J. COX

FILENAME
152721-E-10V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ACC ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-10-1231

Path: BIM 360://152721 - CVWRF Headworks Rehab/152721-E-10V18.rvt

Plot Date: 6/12/2020 10:21:30 AM

GENERAL NOTES :

1. GENERAL ARRANGEMENT SHOWN IS BASED ON OWNER-PROVIDED RECORD DOCUMENTATION. SOME FEATURES HAVE BEEN OMITTED FOR CLARITY. FIELD VERIFY EXISTING CONDITIONS AND ACCOUNT FOR ELECTRICAL, BUILDING MECHANICAL, AND STRUCTURAL FEATURES PRIOR TO WORK IN THE AREA.

KEYNOTES (CC30A):

1 INSTALL NEW PLC RACK, NETWORK SWITCH, AND POWER SUPPLIES IN EXISTING RIO CABINET. REFER TO I-13-6101 AND I-13-6151 FOR ADDITIONAL REQUIREMENTS.

2 NOT USED.

3 NOT USED

4 NOT USED.

4 NOT USED.

NORTH

PLAN

SCALE: 1/8" = 1'-0"

NEW DRAWING ADDED TO CONSTRUCTION PACKAGE CC30A

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: K. GROSS
CHECKED: J. COX
CHECKED:
APPROVED: J. COX

FILENAME
E-13-1211.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

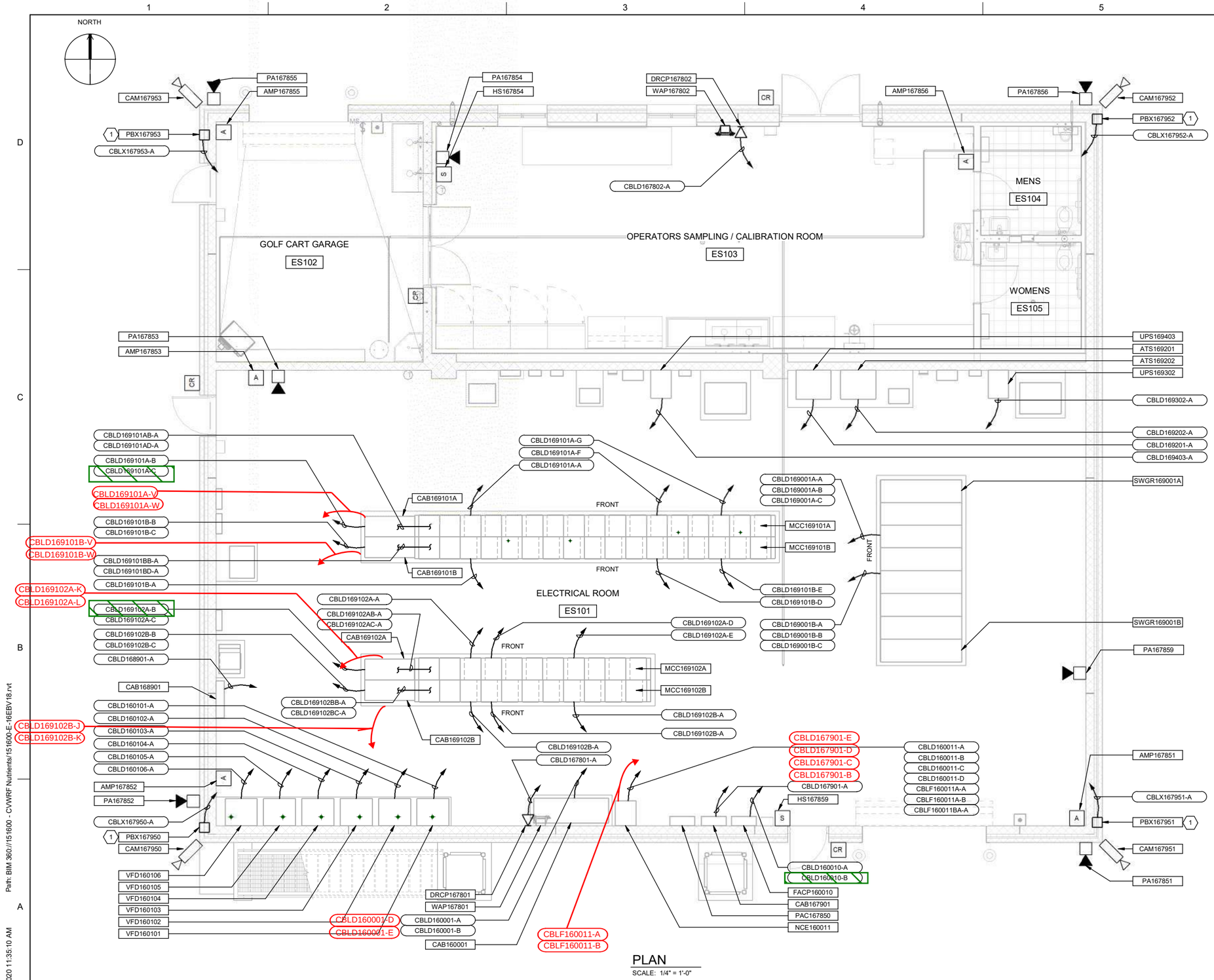
ELECTRICAL

OPERATION AND MAINTENANCE BUILDING GROUND LEVEL SIGNAL AND DATA PLAN

DRAWING NUMBER

E-13-1211

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-13-1211.DWG PLOT DATE: 6/11/2020 12:15 PM CAD USER: STEVEN CANAS



PLAN

SCALE: 1/4" = 1'-0"

KEYNOTES:

1 PULL BOX SIZE AND TYPE TYPICAL FOR ALL CAMERA INSTALLATIONS. STANDARD 4-SQUARE BOX (4"X4"X2-1/8"), 1" KNOCKOUTS, BLANK COVER PLATE. SEE SPECIFICATION 26 05 33. PULL STRING SHALL BE INSTALLED IN RACEWAYS AND PULL BOXES TO ACCOMODATE VENDOR INSTALLTION.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-16EBV18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

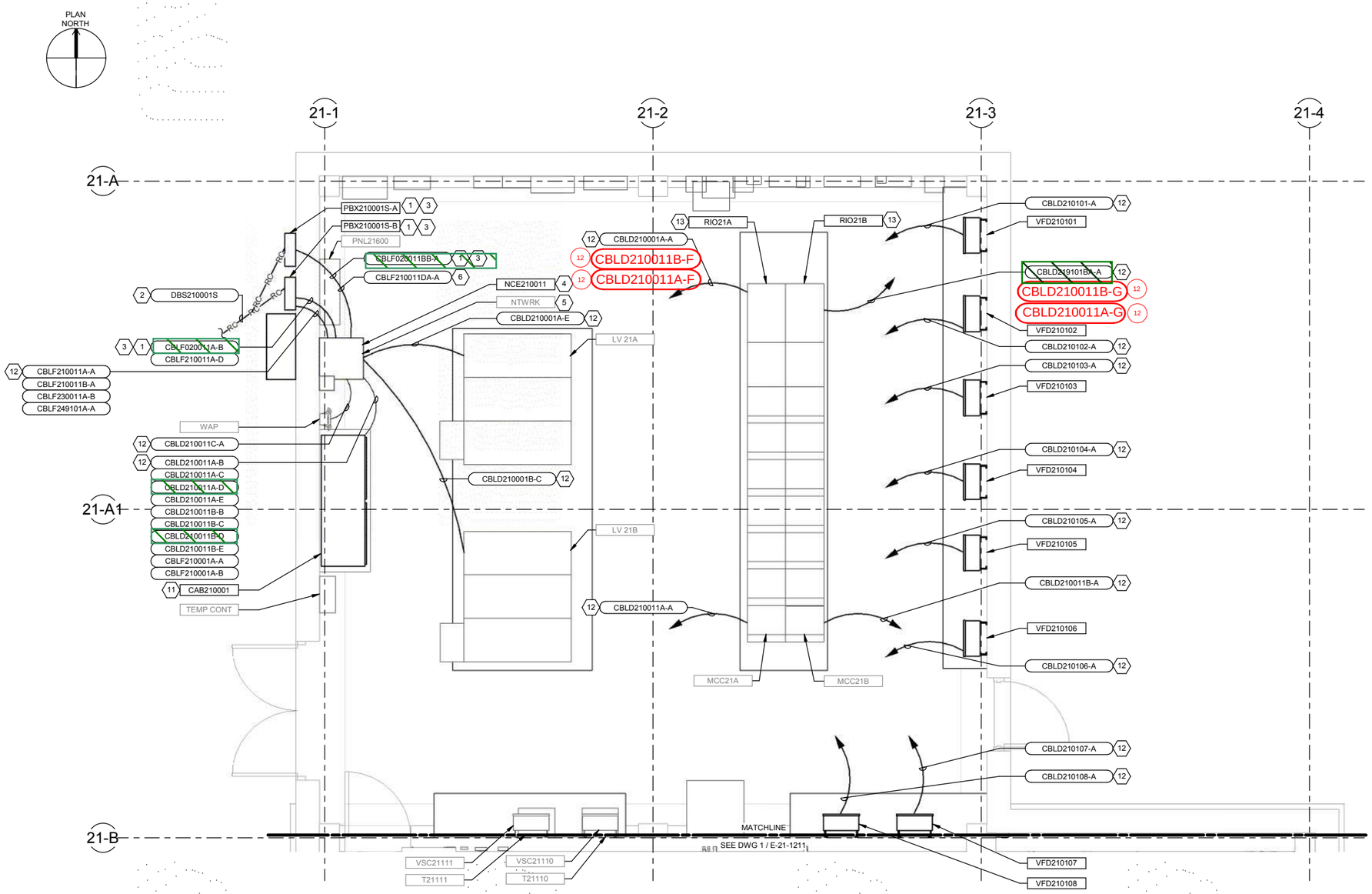
ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL BUILDING SIGNAL AND DATA PLAN

DRAWING NUMBER
E-16EB-1201

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-16EBV18.rvt

Plot Date: 6/12/2020 11:35:10 AM



PLAN

SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. THIS DRAWING ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC5F):

1 NEW NEMA 4X SS JUNCTION BOXES WITH REMOVABLE FRONT COVER FOR SIGNAL CIRCUITS. SIZED PER NEC, 12"Wx12"Hx8D" (MIN). PENETRATE WALL AND EXTEND RACEWAYS AND NETWORK CABLING TO NCE210011.

2 DUCTBANK TO WEST RAS-WAS PUMP BUILDING CABLE ROOM. SEE DRAWING E-00-1304 FOR CONTINUATION.

3 NEW CONDUIT ROUTING WITHIN AREA 21 ELECTRICAL ROOM AND PULLBOX LOCATION ON EXTERIOR WALL OF AREA 21 ELECTRICAL ROOM TO BE FIELD DETERMINED AND COORDINATED WITH CVW CONSTRUCTION MANAGER. SUBMIT PROPOSED ROUTING AND PULLBOX LOCATIONS, COORDINATING WITH FIELD CONDITIONS, TO ENGINEER AND CVW CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO INSTALLATION.

4 NEW NETWORK CABINET LOCATION. SEE DRAWINGS I-00-6511, I-21-6101 AND I-21-6091 FOR ADDITIONAL REQUIREMENTS.

5 EXISTING NETWORK CABINET RE-LOCATED BELOW THE NEW NETWORK CABINET (NCE210011) TO AVOID NEW PLC PANEL INSTALLATION.

KEYNOTES (CC30A):

6 NEW NETWORK CABLING. REFER TO INSTRUMENTATION NETWORK DIAGRAMS AND CABLE SCHEDULES FOR ADDITIONAL REQUIREMENTS. REFER TO SITE PLANS FOR SITE CABLE ROUTING.

7 NOT USED.

8 NOT USED.

9 NOT USED.

10 NOT USED.

KEYNOTES (CC30B):

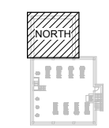
11 NEW PLC PANEL LOCATION. SEE DRAWING I-21-6101 FOR ADDITIONAL REQUIREMENTS.

12 NEW NETWORK CABLING. REFER TO INSTRUMENTATION NETWORK DIAGRAMS AND CABLE SCHEDULES FOR ADDITIONAL REQUIREMENTS. REFER TO SITE PLANS FOR SITE CABLE ROUTING.

13 INSTALL NEW NETWORK SWITCH AND POWER SUPPLIES IN EXISTING RIO CABINET. REFER TO I-21-6101 FOR ADDITIONAL REQUIREMENTS.

14 NOT USED.

15 NOT USED.



KEY PLAN

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: K. GROSS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-21V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL
EAST RAS/WAS PUMP BUILDING ELECTRICAL ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-21-1201

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-21V18.rvt
Plot Date: 11/12/2019 5:35:53 PM

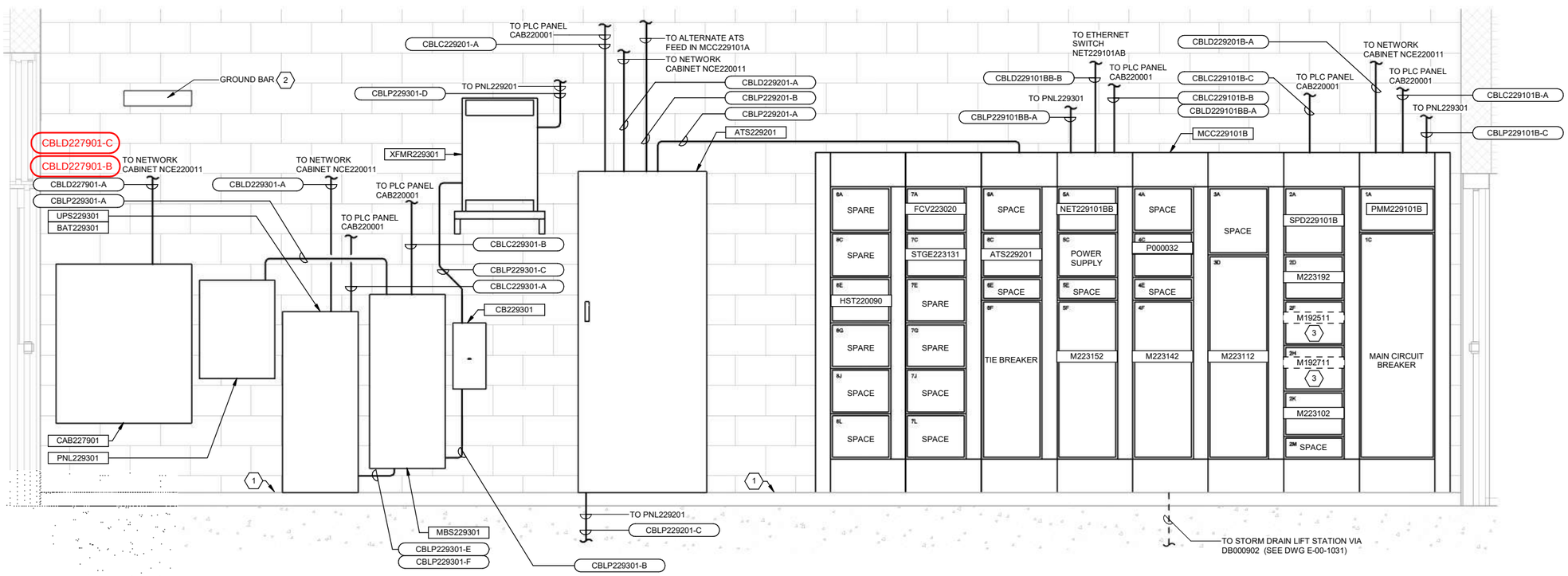
LOADING	BUS ID	DEMAND kV	kVA	AMPS
CONNECTED LOAD TOTAL			111.4	134
ESTIMATED LOAD SHED TOTAL	MCC229101B	0.48	21	25
125% ESTIMATED LOAD SHED TOTAL			26	31

MCC229101B

BUCKET LOCATION	EQUIPMENT NUMBER	EQUIPMENT NAME
1A	PMM229101B	POWER METER
1C		MAIN CIRCUIT BREAKER
2A	SPD229101B	SPD
2D	M223192	RAS WAS STATION SUMP PUMP 2
2F	M192511	AERATION ZONE 2 TRAIN 5 MIXER (FUTURE)
2H	M192711	AERATION ZONE 2 TRAIN 7 MIXER (FUTURE)
2K	M223102	RAS ANOXIC ZONE MIXER 2
2M		SPACE
3A		SPACE
3D	M223112	ANAEROBIC RAS TRANSFER PUMP 2
4A		SPACE
4C	P000032	STORM DRAIN LIFT STATION 3 PUMP 2
4E		SPACE
4F	M223142	WAS PUMP 2
5A	NET229101BB	ETHERNET SWITCH
5C		POWER SUPPLY
5E		SPACE
5F	M223152	WAS FOAM WASTE PUMP 2
6A		SPACE
6C	ATS229201	
6E		SPACE
6F		TIE BREAKER
7A	FCV223020	
7C	STGE223131	WAS FOAM WASTE GATE
7E		SPARE
7G		SPARE
7J		SPACE
7L		SPACE
8A		SPARE
8C		SPARE
8E	HST220090	AREA 22 ELECTRICAL HOIST
8G		SPARE
8J		SPACE
8L		SPACE

KEYNOTES:

1. COORDINATE EQUIPMENT PAD REQUIREMENTS WITH CONTRACTOR SELECTED EQUIPMENT. SEE DETAIL E4002 FOR PAD DETAILS AND CABLE ENTRY OF FLOOR MOUNTED EQUIPMENT.
2. SEE DRAWING E-22-1402 FOR GROUNDING IN ELECTRICAL ROOM.
3. INSTALL MCC BUCKET AS COMPLETE. M192511 AND M192711 ARE FUTURE EQUIPMENT IN AREA 19.



2 SECTION
E-22-1102 SCALE: 3/4" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

RAS/WAS BASIN SECTIONS 1

DRAWING NUMBER
E-22-3001

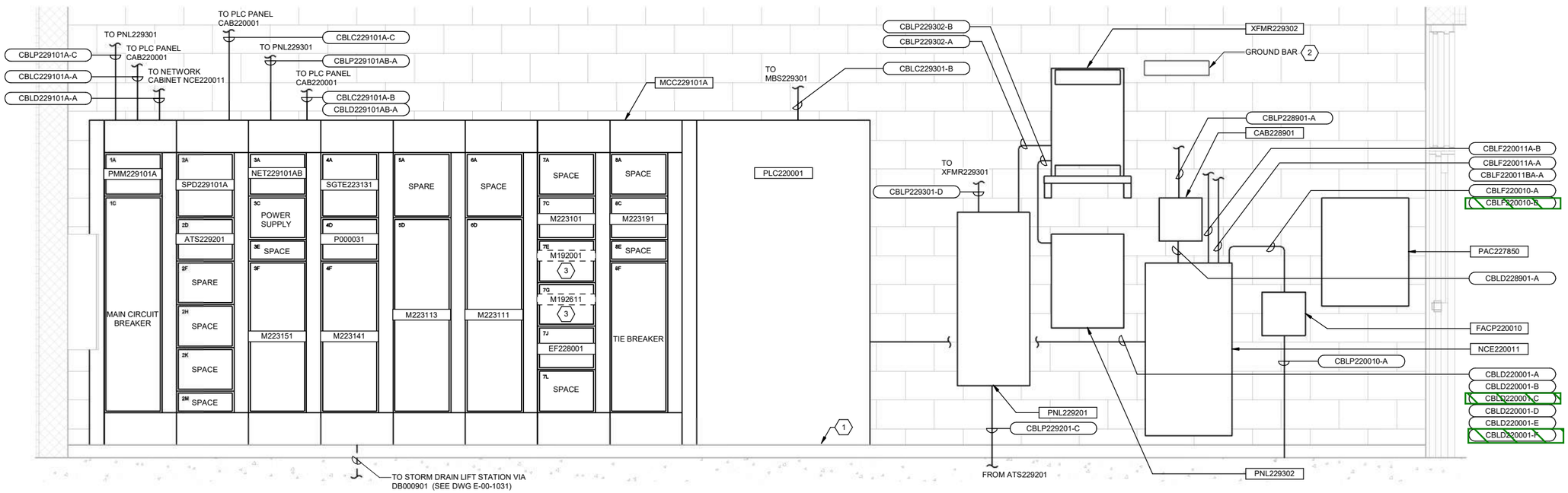
Path: BIM 360://151600 - CVWRF Nutrients/151600-E-22V18.rvt
Plot Date: 6/12/2020 1:56:10 PM

	BUS	DEMAND		
LOADING	ID	kV	kVA	AMPS
CONNECTED LOAD TOTAL	MCC229101A	0.48	151.3	182
ESTIMATED LOAD SHED TOTAL			41	50
125% ESTIMATED LOAD SHED TOTAL			51	61

MCC229101A		
BUCKET LOCATION	EQUIPMENT NUMBER	EQUIPMENT NAME
1A	PMM229101A	POWER METER
1C		MAIN CIRCUIT BREAKER
2A	SPD229101A	SPD
2D	ATS229201	
2F		SPARE
2H		SPACE
2K		SPACE
2M		SPACE
3A	NET229101AB	ETHERNET SWITCH
3C		POWER SUPPLY
3E		SPACE
3F	M223151	WAS FOAM WASTE PUMP 1
4A	SGTE223131	WAS FOAM WASTE GATE
4D	P000031	STORM DRAIN LIFT STATION 3 PUMP 1
4F	M223141	WAS PUMP 1
5A		SPARE
5D	M223113	ANAEROBIC RAS TRANSFER PUMP 3
6A		SPACE
6D	M223111	ANAEROBIC RAS TRANSFER PUMP 1
7A		SPACE
7C	M223101	RAS ANOXIC ZONE MIXER 1
7E	M192001	INTERMEDIATE MIXING BOX MIXER (FUTURE)
7G	M192611	AERATION ZONE 2 TRAIN 6 MIXER (FUTURE)
7J	EF228001	ROOF EXHAUST FAN
7L		SPACE
8A		SPACE
8C	M223191	RAS WAS STATION SUMP PUMP 1
8E		SPACE
8F		TIE BREAKER

KEYNOTES:

1. COORDINATE EQUIPMENT PAD REQUIREMENTS WITH CONTRACTOR SELECTED EQUIPMENT. SEE DETAIL x/xx FOR PAD DETAILS OF FLOOR MOUNTED EQUIPMENT.
2. SEE DRAWING E-22-1402 FOR GROUNDING IN ELECTRICAL ROOM.
3. INSTALL MCC BUCKET AS COMPLETE. M192001 AND M192611 ARE FUTURE EQUIPMENT IN AREA 19.



1 SECTION
E-22-1102 SCALE: 3/4" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

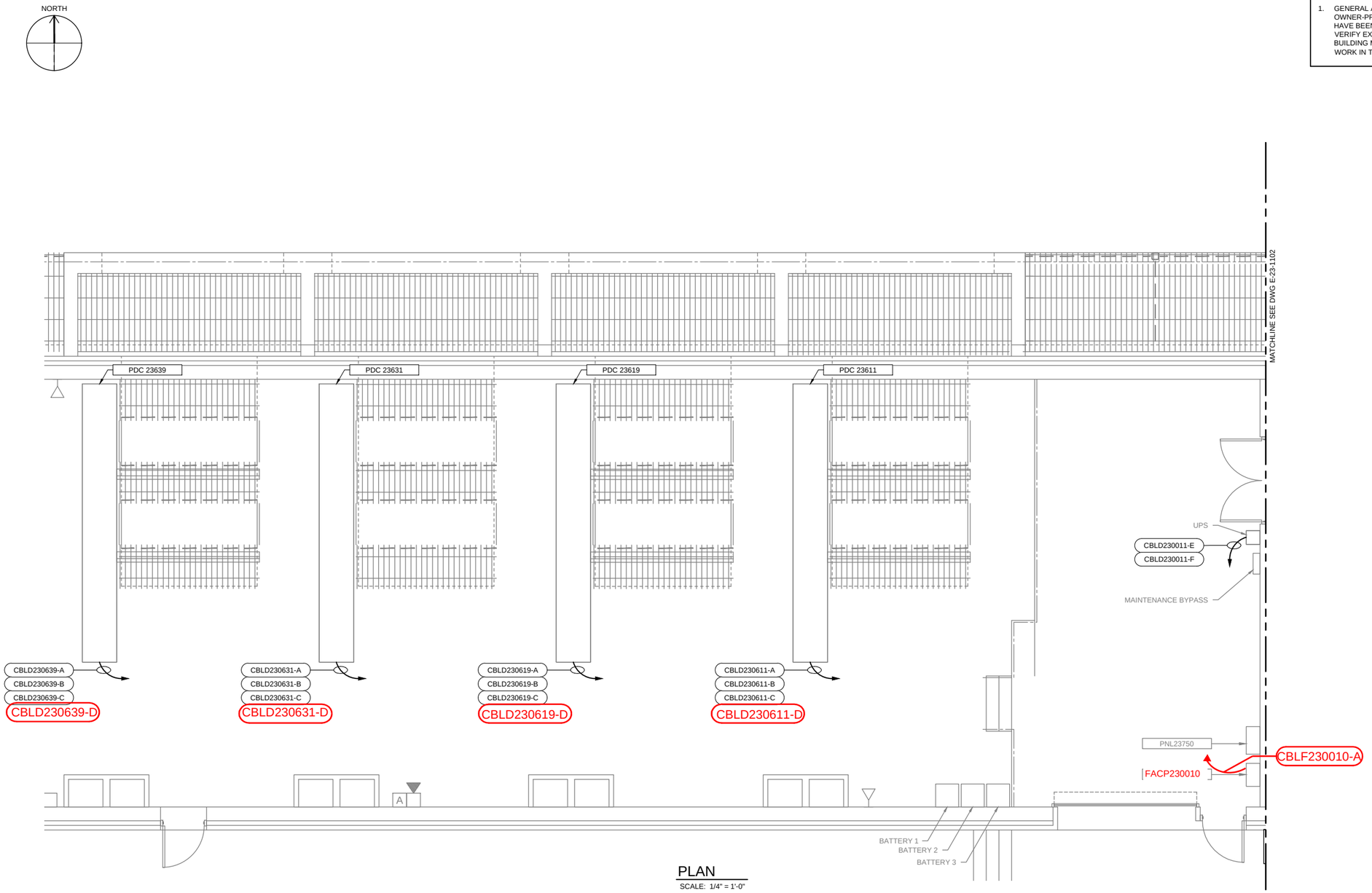
RAS/WAS BASIN SECTIONS 2

DRAWING NUMBER
E-22-3002

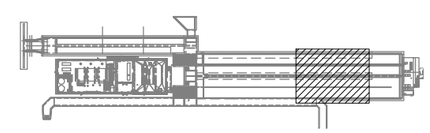
Path: BIM 360://151600 - CVWRF Nutrients/151600-E-22V18.rvt
Plot Date: 6/12/2020 1:56:11 PM

GENERAL NOTES:

1. GENERAL ARRANGEMENT SHOWN IS BASED ON OWNER-PROVIDED RECORD DOCUMENTATION. SOME FEATURES HAVE BEEN OMITTED FOR CLARITY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND ACCOUNT FOR ELECTRICAL, BUILDING MECHANICAL, AND STRUCTURAL FEATURES PRIOR TO WORK IN THE AREA.



PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. PRIESTLEY
DRAWN: K. GROSS
CHECKED:
CHECKED:
APPROVED: J. COX

FILENAME
E-23-1101.DWG

BC PROJECT NUMBER
151606

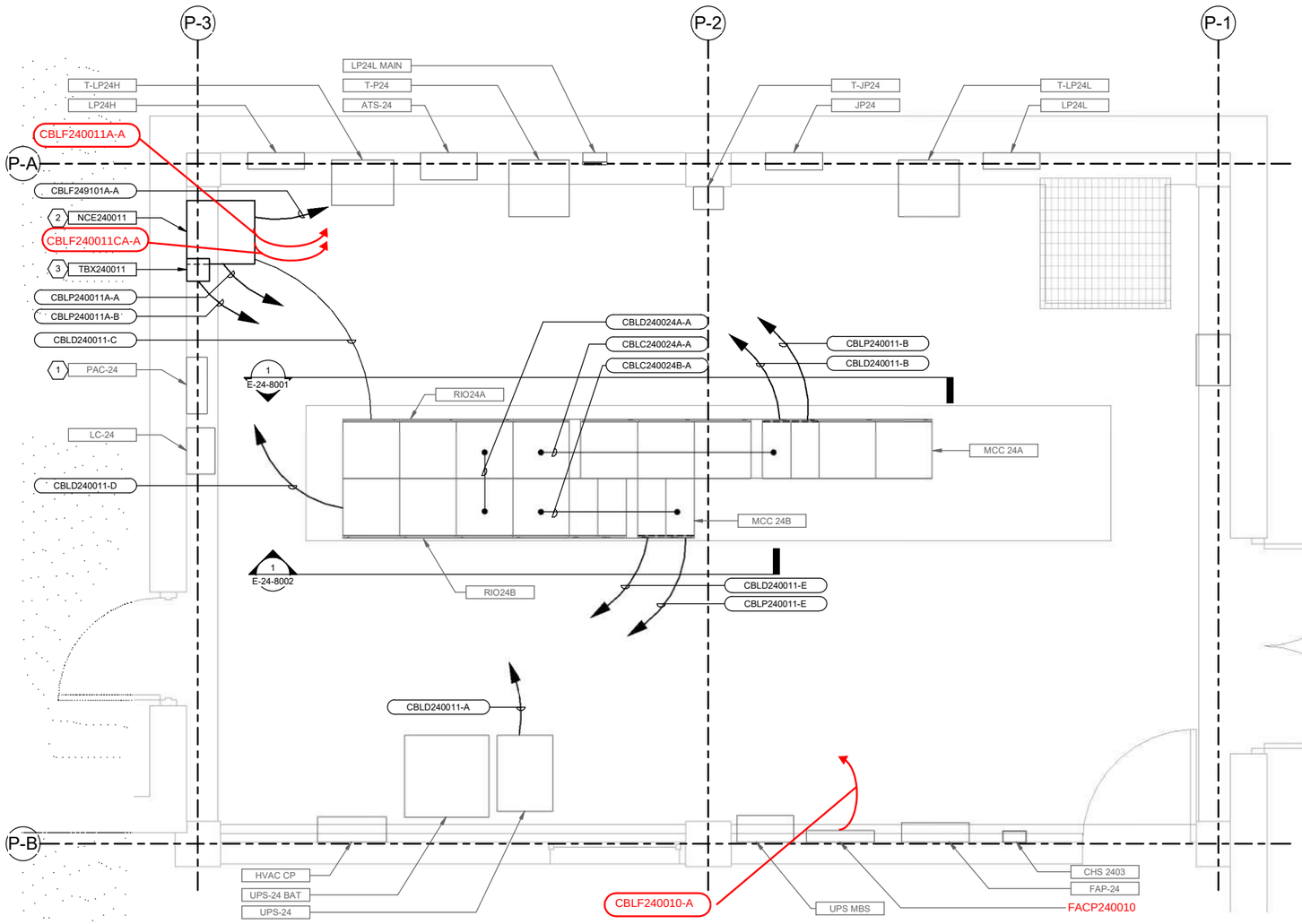
CLIENT PROJECT NUMBER
151606

ELECTRICAL

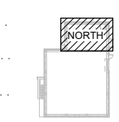
UV DISINFECTION BUILDING PROCESS ROOM ELECTRICAL PLAN

DRAWING NUMBER
E-23-1101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151606\00-BIM\03-AUTOCAD\07-SHEETS\ELECTRICAL FILENAME: E-23-1101.DWG PLOT DATE: 11/19/2019 2:53 PM CAD USER: CHRISTINE SHEESLEY



PLAN
SCALE: 1/2" = 1'-0"



KEY PLAN

GENERAL NOTES:

1. CONDUIT ROUTING TO OTHER AREAS SHALL UTILIZE CABLE TRAYS LOCATED BELOW AREA 24 ELECTRICAL ROOM. REFER TO CABLE SCHEDULES AND SITE PLANS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

KEYNOTES:

1. EXISTING SOUND SYSTEM CABINET RELOCATED SOUTH TO AVOID NEW PLC PANEL INSTALLATION. SEE DRAWING DE-24-1211 FOR ADDITIONAL REQUIREMENTS.
2. NEW WALL MOUNT CABINET PER I-00-6511. PROVIDE RACK MOUNTED UPS IN CABINET.
3. INSTALL TERMINAL BOX IN A FEASIBLE LOCATION NEAR THE NETWORK CABINET. USE TERMINAL BLOCKS TO CONNECT EXTERNAL UPS POWER FEEDS TO POWER CORDS INTEGRAL TO RACK-MOUNTED ATS POWER DISTRIBUTION UNIT (PDU). SEE PANEL SCHEDULES AND DRAWING I-00-6511 FOR ADDITIONAL REQUIREMENTS.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

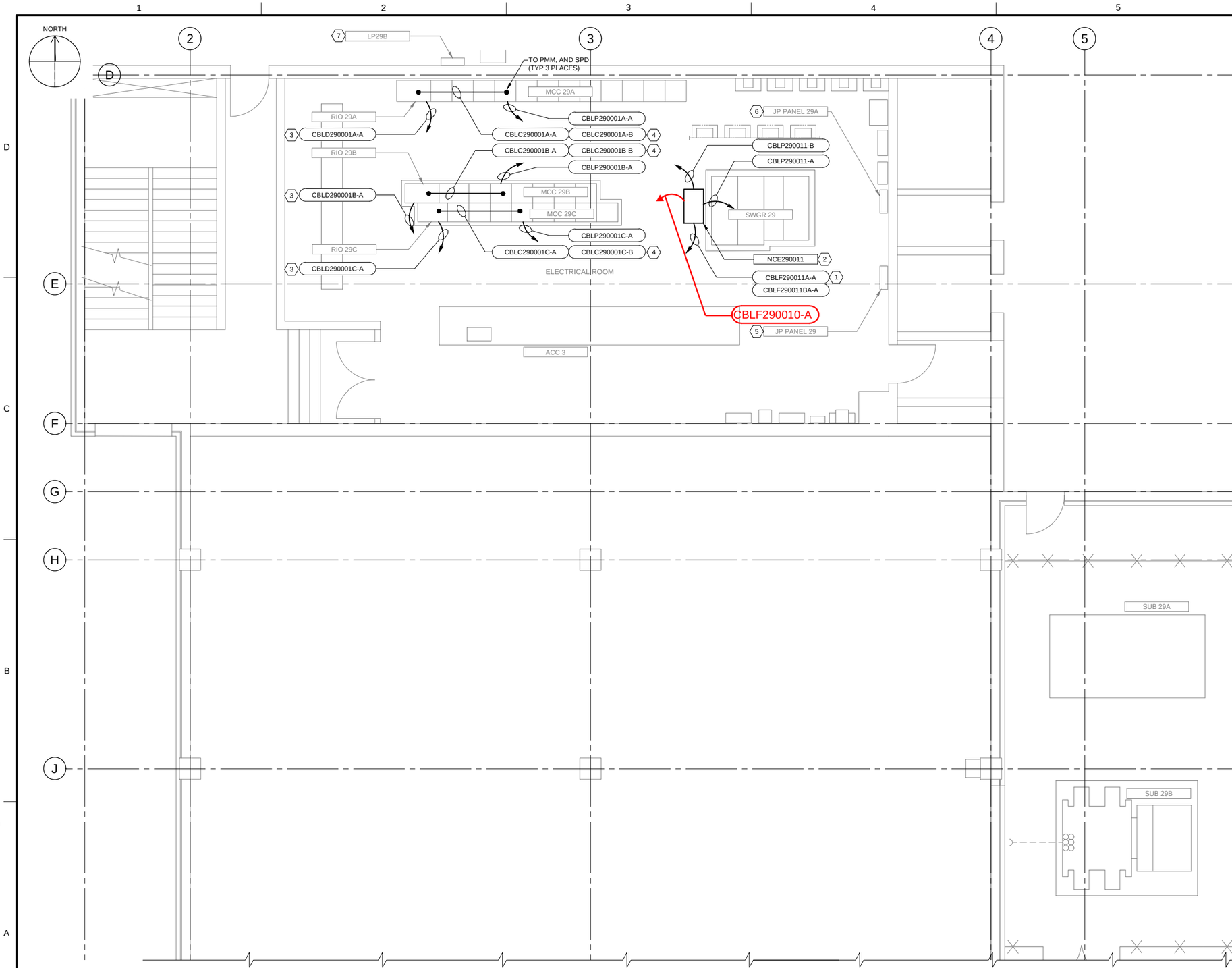
DESIGNED: K. GROSS
DRAWN: K. GROSS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-24V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL
WEST RAS/WAS PUMP BUILDING ELECTRICAL ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-24-1211

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-24V18.rvt
Plot Date: 6/12/2020 8:40:48 AM



FLOOR ELEV. 4238.50

PLAN

SCALE: 1/4" = 1'-0"

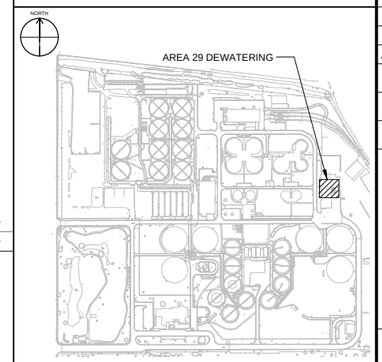
0 4 8
Scale in Feet

GENERAL NOTES :

KEYNOTES (CC30A) :

1. INSTALL CABLES IN TO ELECTRICAL ROOM FROM BELOW AT LOCATION OF NCE EQUIPMENT.
2. INSTALL NCE EQUIPMENT IN ELECTRICAL ROOM AND COMPLETE CONNECTING CABLES.
3. CONNECT DATA CABLES TO POWER MONITORS (PMM) FROM NETWORK CABINET (NCE).
4. CONNECT CONTROL CABLES TO POWER MONITORS (PMM), AND SPD FROM RIO AT END OF MCC OVERHEAD.
5. UTILIZE EXISTING 20A, 1P CIRCUIT BREAKER 1 IN PANEL TO FEED UPS POWER TO NEW NCE290011.
6. INSTALL (3) NEW 20A, 1-POLE CIRCUIT BREAKERS IN EXISTING PANEL JP PANEL 29A AT CIRCUITS 7, 9 AND 11. PANEL IS A WESTINGHOUSE PRL1. BREAKERS SHALL MATCH THE OTHERS IN PANEL FOR MFR, AND AIC RATING. NEW BREAKERS TO FEED POWER MONITORS IN MCC'S.
7. INSTALL A NEW SEIMENS 20A, TYPE BL (10KAIC), 1-POLE BREAKER AT CIRCUIT 19 TO PROVIDE NORMAL POWER TO NCE29011.

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
A	01/31/20	CC30A ADDENDUM 1
B	02/21/20	CC30A ADDENDUM 2

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED:
CHECKED:
APPROVED: J. COX

FILENAME
E-29-1101.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

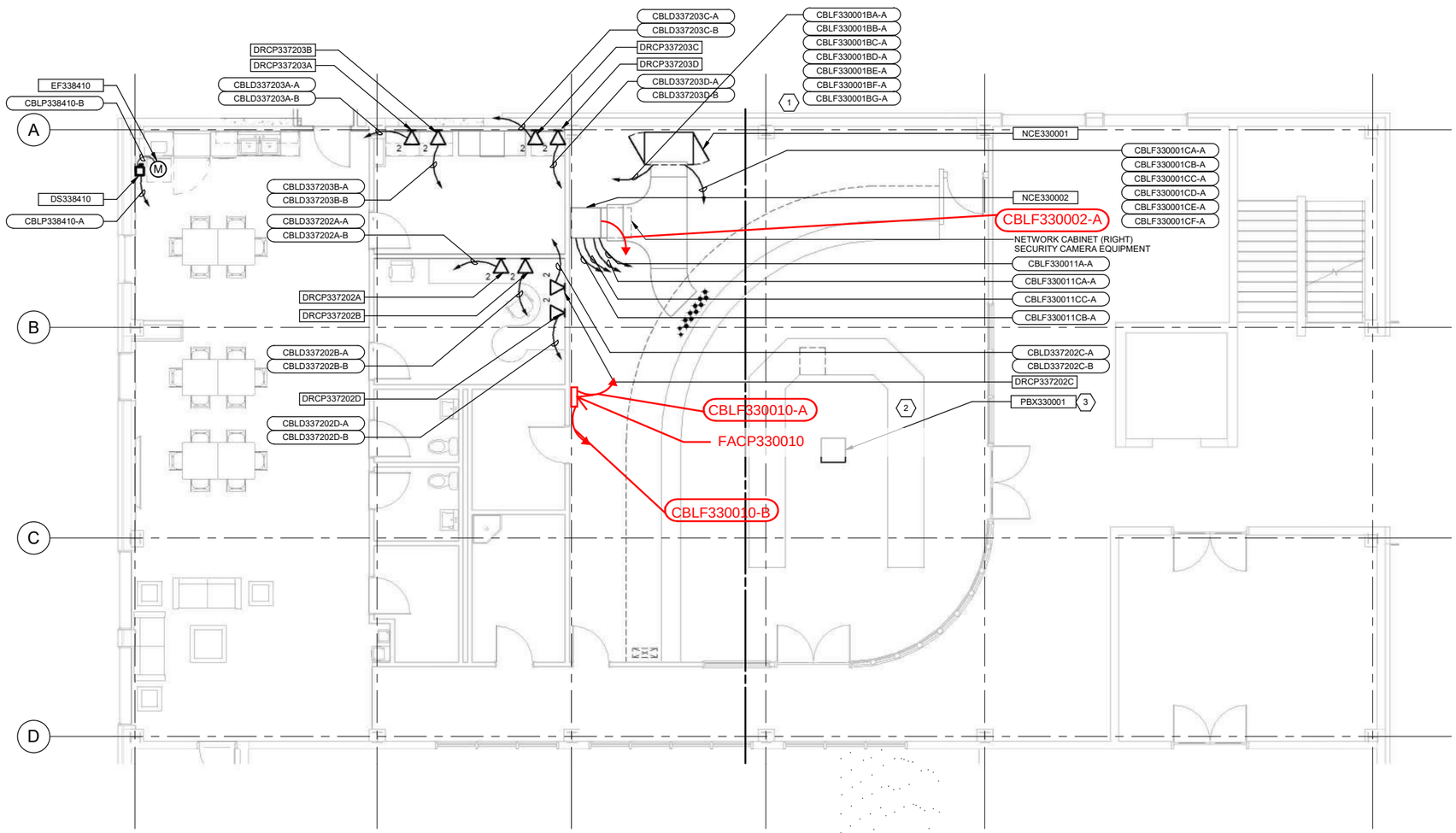
ELECTRICAL

DEWATERING BLDG MAIN LVL POWER AND CONTROL PLAN

DRAWING NUMBER
E-29-1101

Path: V:\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-29-1101.DWG PLOT DATE: 10/23/2020 3:45 PM CAD USER: NICHOLAS ROBERTS

NORTH



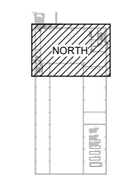
1 PLAN
E-33-1003 SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. GENERAL ARRANGEMENT SHOWN BASED ON LIDAR SCANS. SOME FEATURES HAVE BEEN OMITTED FOR CLARITY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND ACCOUNT FOR ELECTRICAL, BUILDING MECHANICAL, AND STRUCTURAL FEATURES PRIOR TO WORK IN THIS AREA.
2. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.

KEYNOTES:

1. SEE AREA 33 NETWORK DIAGRAM I-33-6101 AND REFERENCE CABLE SCHEDULE FOR INFORMATION REGARDING FIBER OPTIC CABLES NEEDING TO BE ROUTED TO AND FROM NCE330001.
2. APPROXIMATE CURRENT LOCATION OF CONTROL ROOM CONSOLE DESK.
3. CONTRACTOR TO INSTALL PULLBOX IN DROP CEILING TO ROUTE ETHERNET CABLES FOR THE DATA RECEPTACLES.



KEY PLAN

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: N. ROBERTS
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

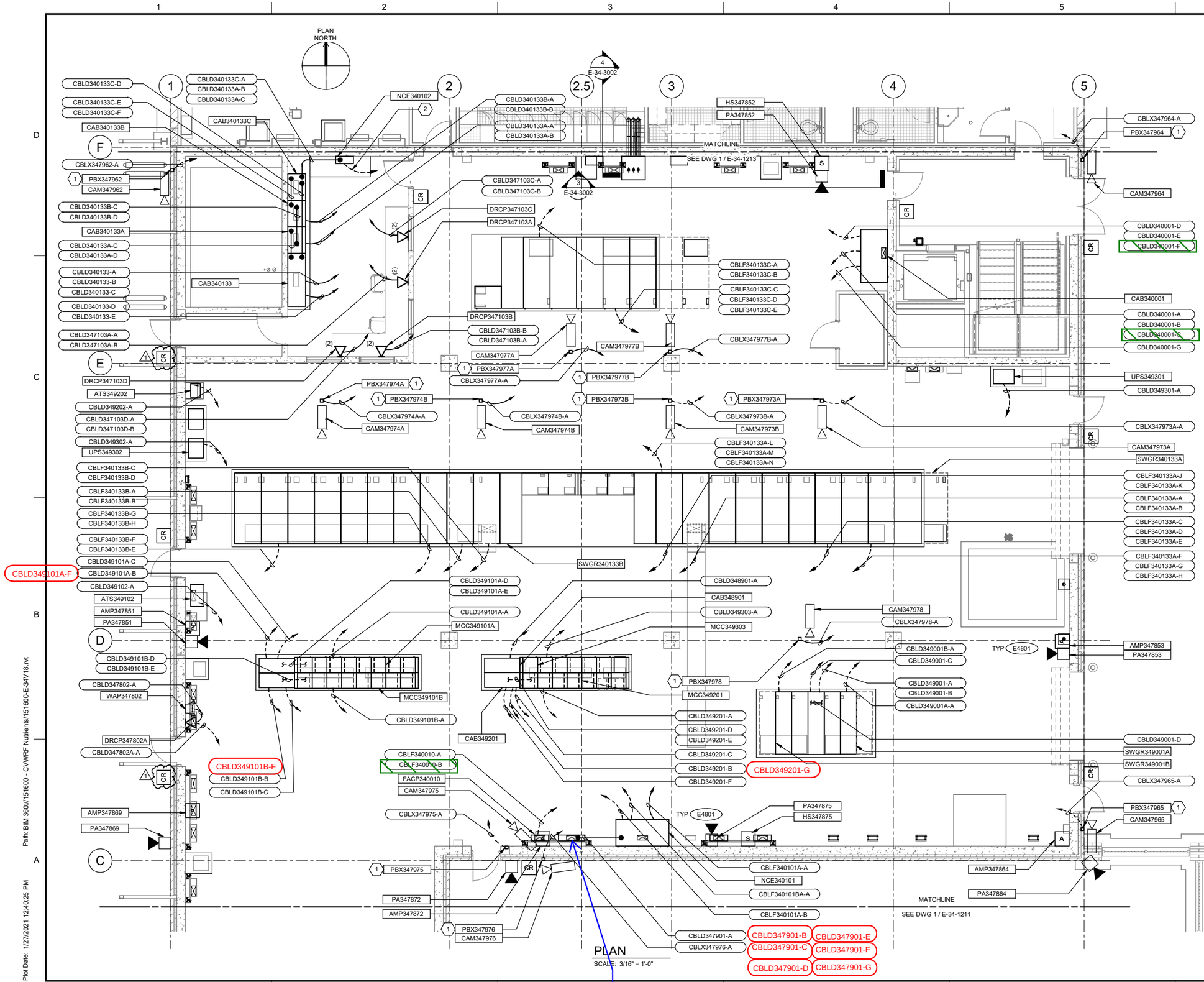
ELECTRICAL

PWR GEN BLDG SECOND LEVEL SIGNAL AND DATA PLAN

DRAWING NUMBER
E-33-1221

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-33V18.rvt

Plot Date: 12/19/2019 4:03:49 PM



GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. PROVIDE AND INSTALL EMBEDDED RACEWAYS FOR CARD READERS.

KEYNOTES:

1. PULL BOX SIZE AND TYPE TYPICAL FOR ALL CAMERA INSTALLATIONS. STANDARD 4-SQUARE BOX (4"X4"X2-1/8"), 1" KNOCKOUTS, BLANK COVER PLATE. SEE SPECIFICATION 26 05 33. PULL STRING SHALL BE INSTALLED IN RACEWAYS AND PULL BOXES TO ACCOMMODATE VENDOR INSTALLATION.
2. FIBER OPTIC CABLES TO NCE340102: CBLF340102-A, CBLF340102-B, CBLF340102-C, CBLF340102-D, CBLF340102-E, CBLF340102-F, CBLF340102-G, CBLF340102-H, CBLF340102-J, CBLF340102-K AND CBLF340102-L. SEE SPECIFICATION 26 06 20.23 FOR ADDITIONAL DETAILS.

CBLF340102-M

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	01/07/21	CHANGE CONTROL FORM 002

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: N. ROBERTS
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-34V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

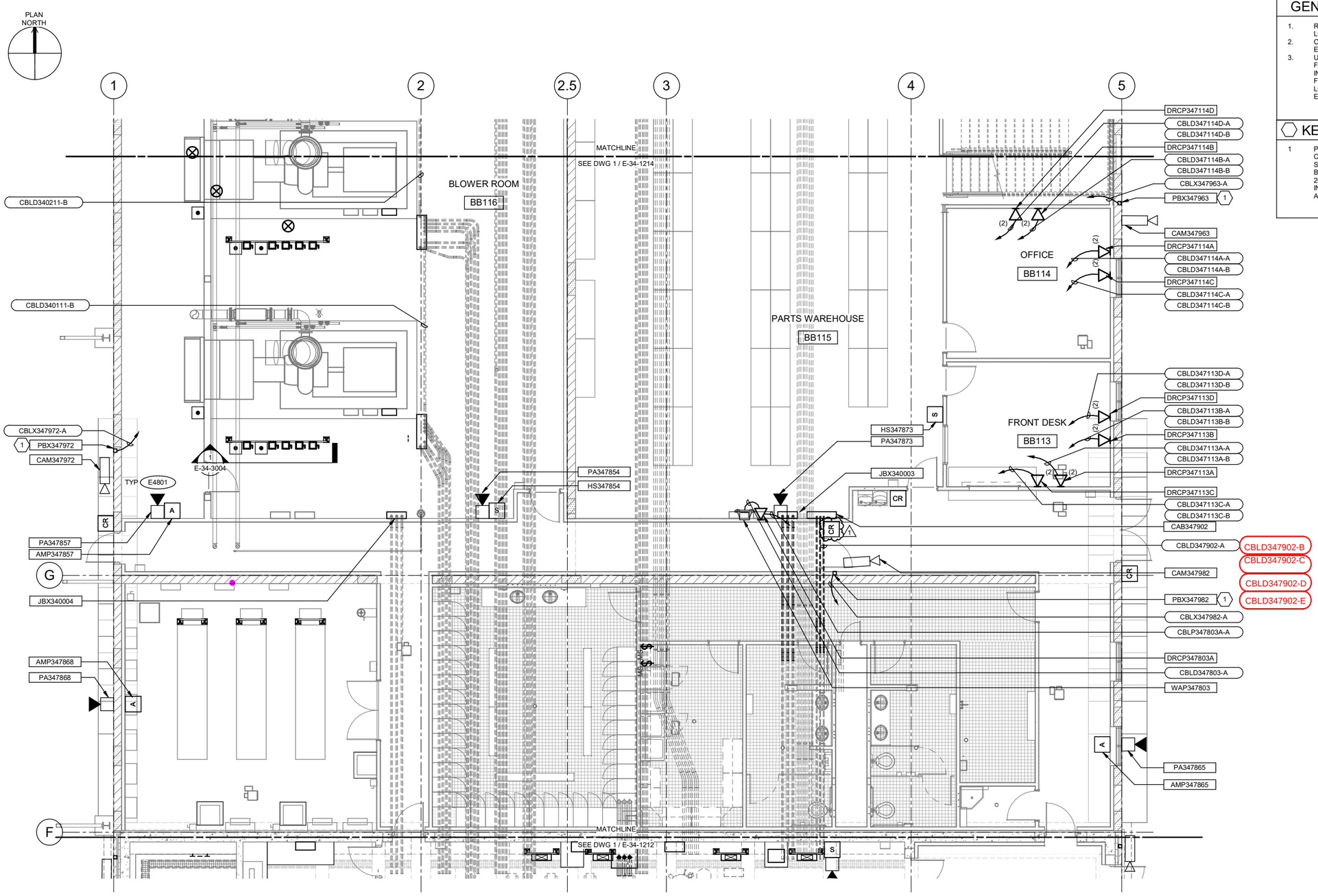
ELECTRICAL

BLOWER BUILDING GROUND LEVEL SIGNAL AND DATA PLAN AREA B

DRAWING NUMBER
E-34-1212

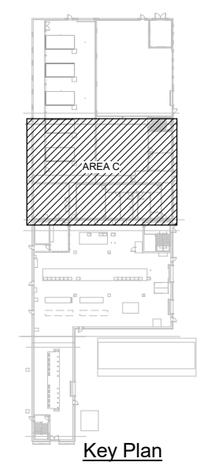
Path: BIM 360://151600 - CVWRF Nutrients/151600-E-34V18.rvt

Plot Date: 1/27/2021 12:40:25 PM



PLAN

SCALE: 3/16" = 1'-0"



Key Plan

GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. CONTRACTOR TO PROVIDE AND INSTALL EMBEDDED RACEWAYS FOR CARD READERS.
3. UNDERGROUND CONDUIT ROUTING SHOWN FOR REFERENCE ONLY. FOR EASE OF INSTALLATION, CONTRACTOR TO DETERMINE FINAL ROUTING. FOR EXACT PENETRATION LOCATIONS IN BASEMENT WALLS, SEE DWGS E-34-8009 THRU E-34-8012.

KEYNOTES:

1. PULL BOX SIZE AND TYPE TYPICAL FOR ALL CAMERA INSTALLATIONS. STANDARD 4-SQUARE BOX (4"X4"X2-1/8"), 1" KNOCKOUTS, BLANK COVER PLATE. SEE SPECIFICATION 26 05 33. PULL STRING SHALL BE INSTALLED IN RACEWAYS AND PULL BOXES TO ACCOMMODATE VENDOR INSTALLATION.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	09/02/20	CHANGE ORDER #007

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: N. ROBERTS
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-34V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

ELECTRICAL

BLOWER BUILDING GROUND LEVEL SIGNAL AND DATA PLAN AREA C

DRAWING NUMBER
E-34-1213

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-34V18.rvt

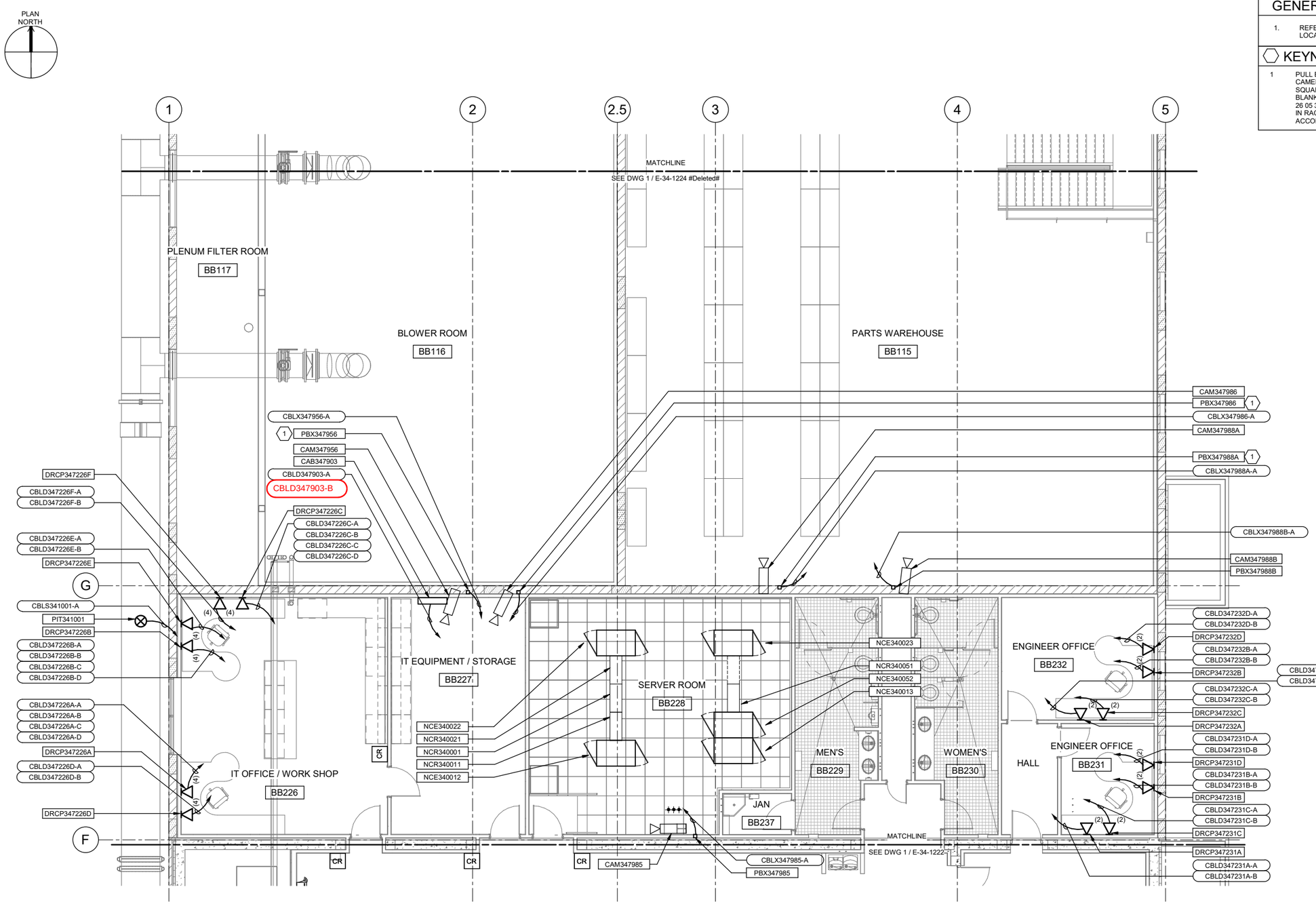
Plot Date: 9/3/2020 1:37:01 PM

GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.

KEYNOTES:

1. PULL BOX SIZE AND TYPE TYPICAL FOR ALL CAMERA INSTALLATIONS. STANDARD 4-SQUARE BOX (4"X4"X2-1/8"), 1" KNOCKOUTS, BLANK COVER PLATE. SEE SPECIFICATION 26 05 33. PULL STRING SHALL BE INSTALLED IN RACEWAYS AND PULL BOXES TO ACCOMMODATE VENDOR INSTALLATION.



PLAN

SCALE: 3/16" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: N. ROBERTS
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-34V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

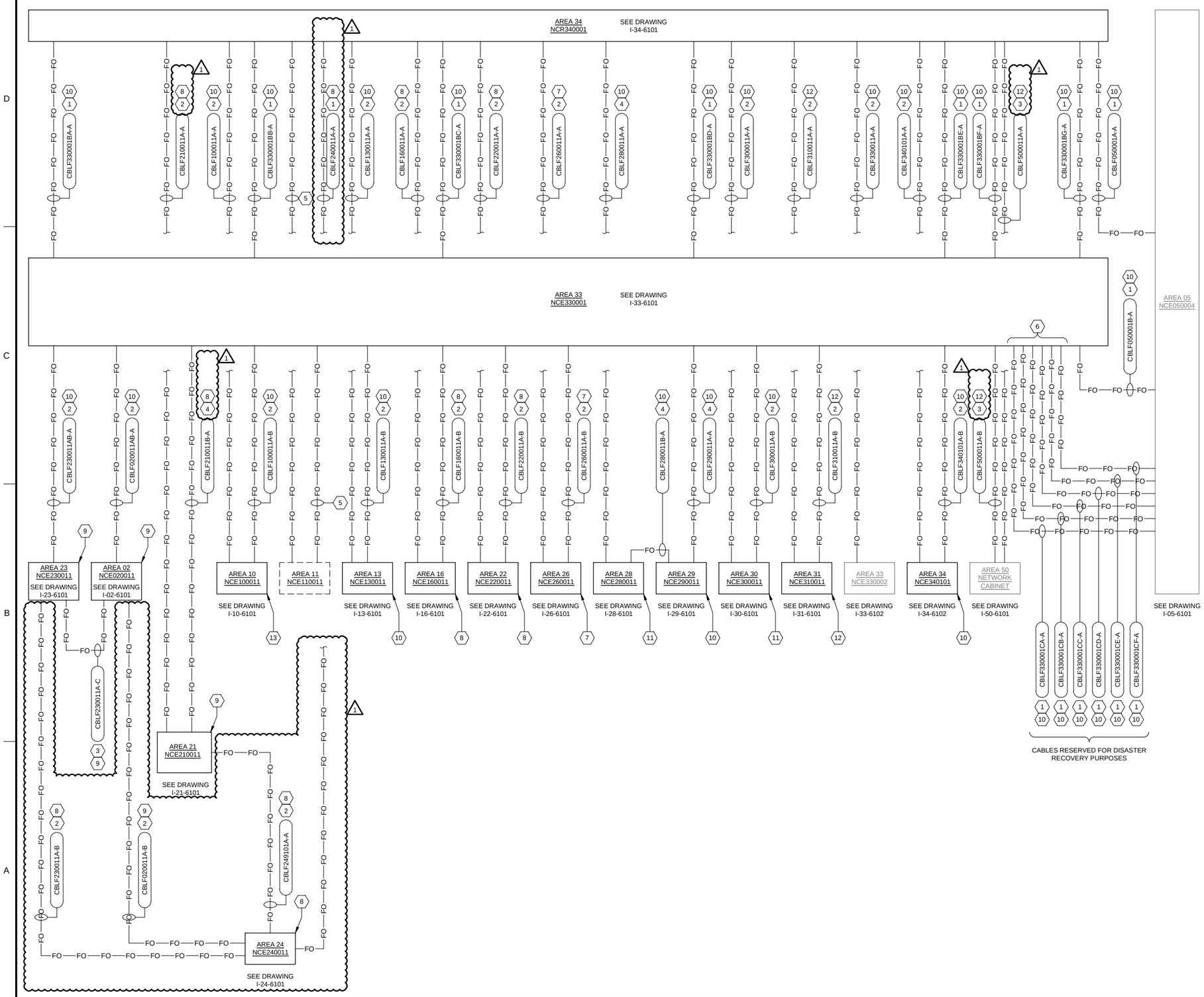
ELECTRICAL

BLOWER BUILDING SECOND LEVEL SIGNAL AND DATA PLAN AREA C

DRAWING NUMBER
E-34-1223

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-34V18.rvt

Plot Date: 4/22/2020 12:14:57 PM



GENERAL NOTES:

1. THIS DRAWING PROVIDES AN OVERVIEW OF THE PLANT SINGLE-MODE FIBER-OPTIC NETWORK. EXCEPT WHERE OTHERWISE SPECIFIED, ALL PLANT AREAS SHOWN SHALL HAVE REDUNDANT, PHYSICALLY SEPARATE FIBER-OPTIC CABLE CONNECTIONS TO THE PLANT OPERATIONS ZONE AND ENTERPRISE ZONE PRIMARY SERVERS IN THE BLOWER BUILDING SERVER ROOM (VIA NETWORK RACK NCR340001). ONE OF THESE CABLES (DESIGNATED AS "B" CABLES IN THE DESIGN DOCUMENTS) SHALL BE ROUTED THROUGH A FIBER-OPTIC PATCH PANEL WITHIN NETWORK CABINET NCE330001 IN THE POWER GENERATION BUILDING, AS SHOWN ON THIS DRAWING. REDUNDANT, PHYSICALLY SEPARATE FIBER-OPTIC CABLES SHALL ALSO CONNECT THE PRIMARY SERVERS IN THE BLOWER BUILDING SERVER ROOM TO THE SECONDARY SERVERS LOCATED IN THE ADMINISTRATION BUILDING SERVER ROOM (VIA NETWORK RACK NCR050001).

2. FIBER-OPTIC CABLES RESERVED FOR DISASTER RECOVERY PURPOSES SHALL BE CONNECTED FROM NCE330001 TO THE ADMINISTRATION BUILDING SERVER ROOM. IF A CATASTROPHIC EVENT WERE TO IMPACT THE BLOWER BUILDING SERVER ROOM , THESE CABLES WILL ALLOW THE OWNER TO QUICKLY ESTABLISH NETWORK CONNECTIVITY BETWEEN THE PLANT AREAS AND THE ADMINISTRATION SERVER ROOM BY MAKING TEMPORARY PATCHING MODIFICATIONS AT NCE330001.

3. REFER TO PLANT AREA NUMBER KEY ON DRAWING I-00-0004 FOR BUILDINGS AND PROCESS AREAS ASSOCIATED WITH AREA NUMBERS REFERENCED ON THE DRAWINGS.

4. PROVIDE, TERMINATE, AND TEST ALL NEW FIBER-OPTIC CABLES.

5. FIBER-OPTIC PATCHING PROVIDED BY OWNER.

6. REFER TO DRAWING E-00-0001 FOR CABLE IDENTIFICATION INFORMATION.

KEYNOTES:

1 144-FIBER CABLE.

2 48-FIBER CABLE.

3 24-FIBER CABLE.

4 96-FIBER CABLE.

5 FUTURE 48-FIBER CABLE.

6 OWNER TO TEMPORARILY MODIFY PATCHING SHOWN TO PATCH INCOMING "B" CABLES FROM PLANT AREAS TO THESE CABLES IN A DISASTER RECOVERY SCENARIO.

7 INSTALL AS PART OF THICKENING / STRAINING CONSTRUCTION PACKAGE CC 30D.

8 INSTALL AS PART OF BNR BASINS / PEPS / RAS SELECTOR CONSTRUCTION PACKAGE CC 30B.

9 INSTALL AS PART OF 3W/FILTERS CONSTRUCTION PACKAGE CC 05F.

10 INSTALL AS PART OF BLOWER BUILDING CONSTRUCTION PACKAGE CC 30A.

11 INSTALL AS PART OF SIDESTREAM PHOSPHORUS CONSTRUCTION PACKAGE CC 30C.

12 INSTALL AS PART OF SIDESTREAM NITROGEN CONSTRUCTION PACKAGE CC 30E.

13 INSTAL AS PART OF HEADWORKS CONSTRUCTION PACKAGE CC 10C.

LEGEND:

—FO— SINGLE-MODE FIBER-OPTIC CABLE

– – – – OWNER-PROVIDED SINGLE-MODE FIBER-OPTIC PATCH CABLES. QUANTITY DETERMINED BY OWNER.

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Salt Lake City, UT

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CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

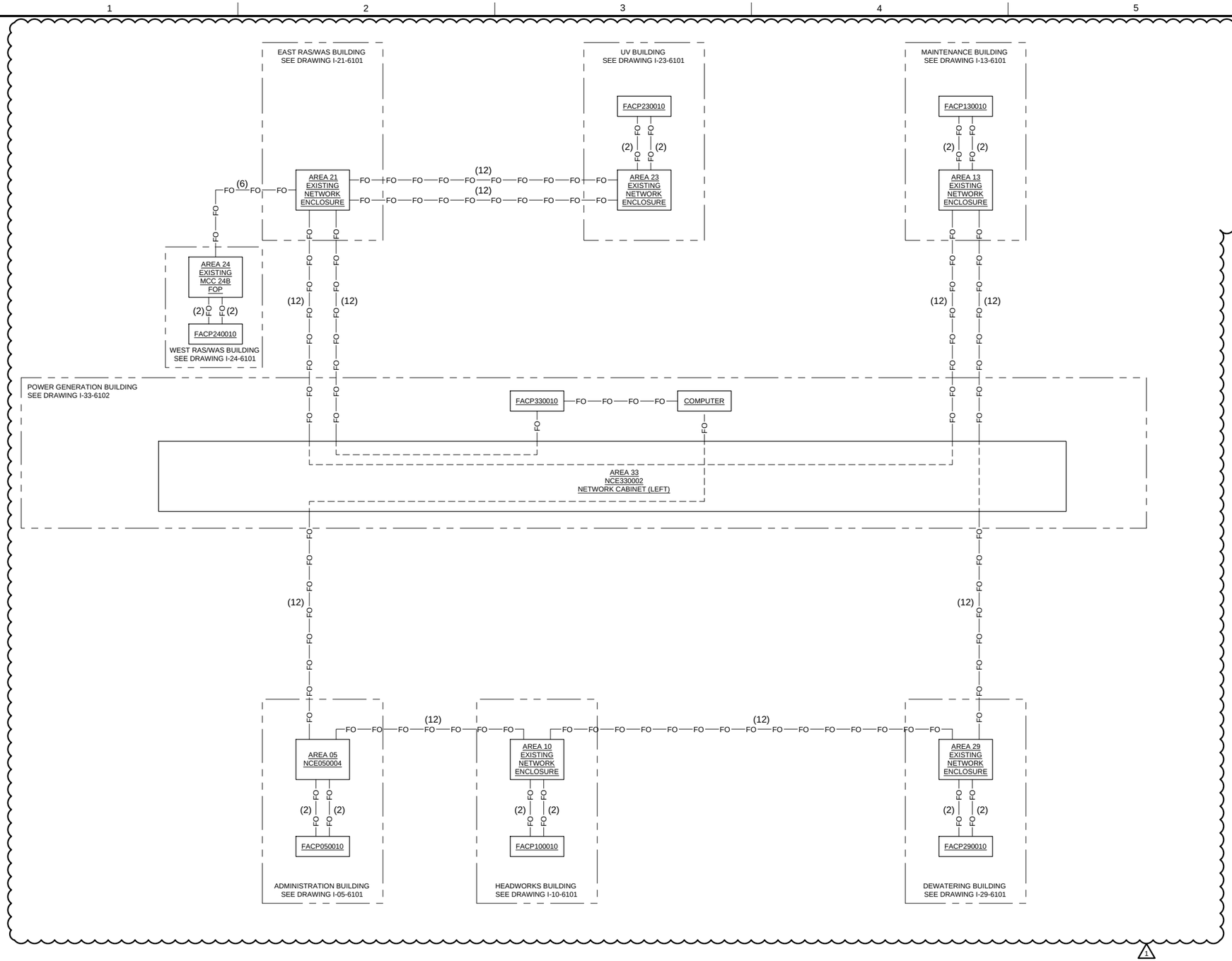
FILENAME
I-00-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

PLANT SINGLE-MODE FIBER-OPTIC NETWORK OVERVIEW DIAGRAM

DRAWING NUMBER
I-00-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-00-6101.DWG PLOT DATE: 2/16/2021 7:15 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. THIS DRAWING IS A REPRESENTATIVE OF THE EXISTING FIRE ALARM PANEL CONNECTIONS AND REQUIRES NO SCOPE OF WORK.
2. FOR 3W CONTRACT CC05F AND BLOWER CONTRACT CC30A WORK REFER TO DRAWING I-00-6104.
3. FOR SIDESTREAM NITROGEN CONTRACT CC30E REFER TO DRAWING I-00-6105.
4. FOR THICKENING BUILDING CONTRACT CC30D REFER TO DRAWING I-00-6106.
5. FOR BNR CONTRACT CC30B REFER TO DRAWING I-00-6107.
6. FOR FINAL FIRE ALARM PANEL CONNECTIONS REFER TO DRAWING I-00-6108.

LEGEND:

—FO— 12-FIBER, MULTI-MODE FIBER-OPTIC CABLE

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Salt Lake City, UT

CONFORMED SET

C V W R F

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-00-6102.DWG

BC PROJECT NUMBER
151600

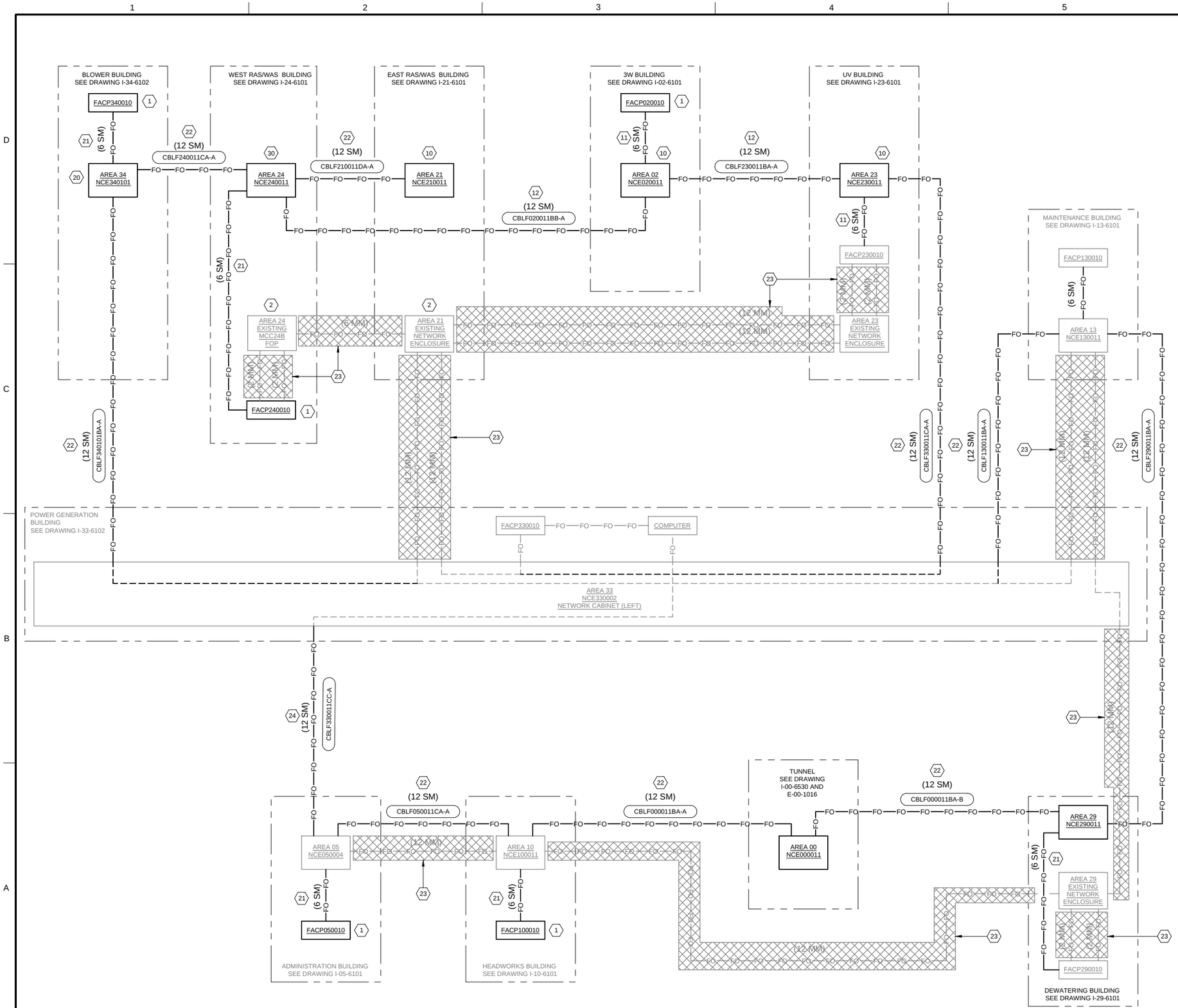
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

PLANT FIRE ALARM EXISTING NETWORK DIAGRAM

DRAWING NUMBER
I-00-6102

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-00-6102.DWG PLOT DATE: 2/2/2021 7:54 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. ALL EXISTING DEVICES AND CABLES ARE SHOWN SHADED BACK.

KEYNOTES (GENERAL):

1 NEW FIBER ALARM PANEL INSTALLED ON A SEPARATE CONTRACT.

2 ONCE ALL NEW SINGLE-MODE FIBER IS INSTALLED, TESTED AND COMMISSIONED, REMOVE OLD DEVICES.

KEYNOTES (CC05F):

10 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC05F.

11 ROUTE NEW 6-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC05F.

12 ROUTE NEW 12-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC05F.

KEYNOTES (CC30A):

20 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30A.

21 ROUTE NEW 6-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30A.

22 ROUTE NEW 12-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30A.

23 REMOVE EXISTING MULTI-MODE FIBER AS PART OF CONSTRUCTION PACKAGE CC30A.

24 ROUTE TEMPORARY 12-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30A. FIBER SHALL BE REMOVED AS PART OF CONSTRUCTION PACKAGE CC30B.

KEYNOTES (CC30B):

30 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30B.

LEGEND:

(12 MM) —FO—FO— 12-FIBER, MULTI-MODE FIBER-OPTIC CABLE

(12 SM) —FO—FO— 12-FIBER, SINGLE-MODE FIBER-OPTIC CABLE

Brown AND Caldwell

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Salt Lake City, UT

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CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

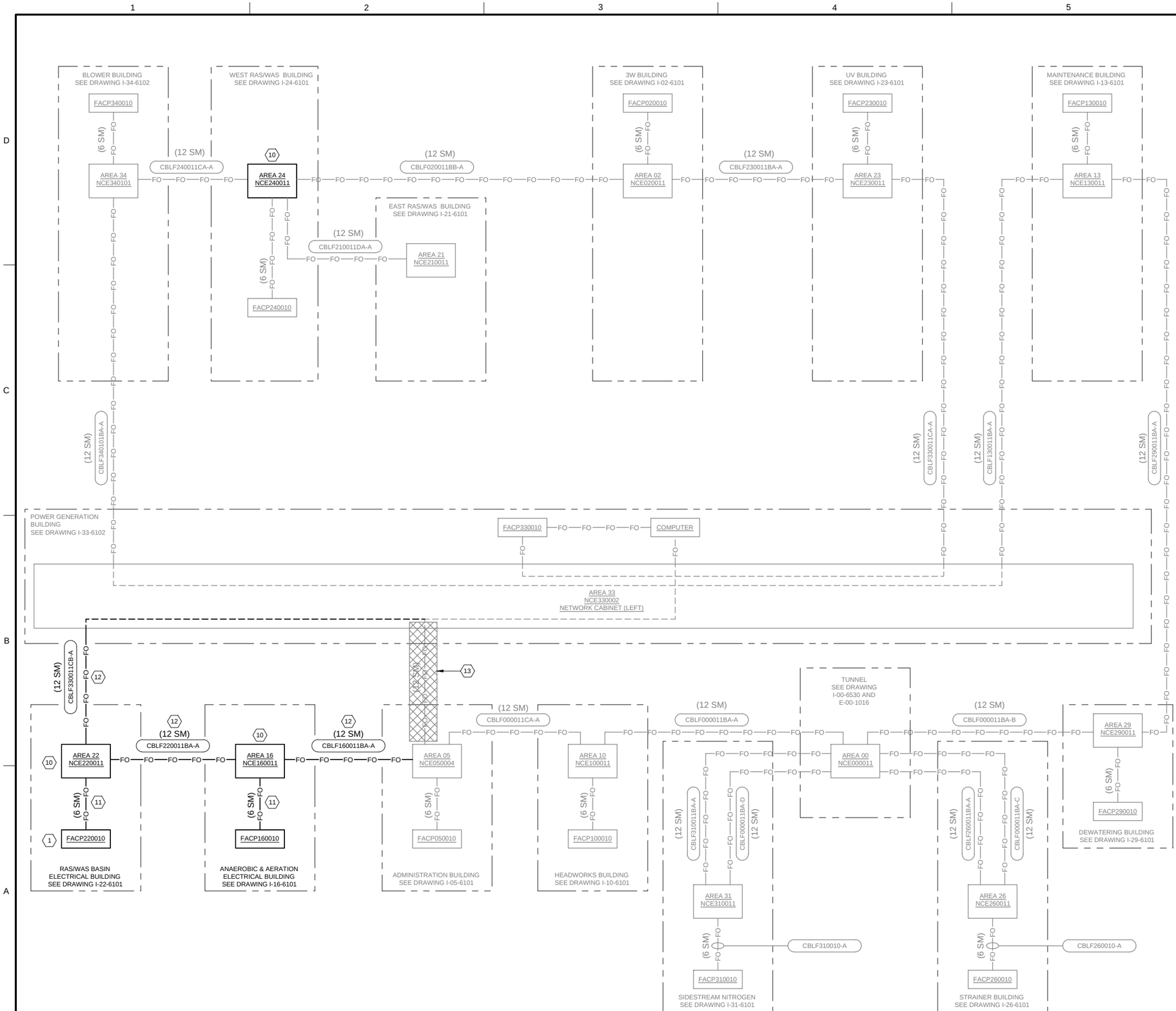
FILENAME
I-00-6104.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

PLANT FIRE ALARM BLOWER BUILDING NETWORK DIAGRAM

DRAWING NUMBER
I-00-6104

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS\V17\PID.DWG FILENAME: I-00-6104.DWG PLOT DATE: 2/23/2021 7:08 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. ALL EXISTING DEVICES AND CABLES ARE SHOWN SHADED BACK.

KEYNOTES (GENERAL):

1 NEW FIBER ALARM PANEL INSTALLED ON A SEPARATE CONTRACT.

KEYNOTES (CC30B):

10 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30B.

11 ROUTE NEW 6-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

12 ROUTE NEW 12-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

13 REMOVE TEMPORARY 12-FIBER, SINGLE-MODE CABLE INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30A.

LEGEND:

(12 MM) —FO—FO— 12-FIBER, MULTI-MODE FIBER-OPTIC CABLE

(12 SM) —FO—FO— 12-FIBER, SINGLE-MODE FIBER-OPTIC CABLE

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Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

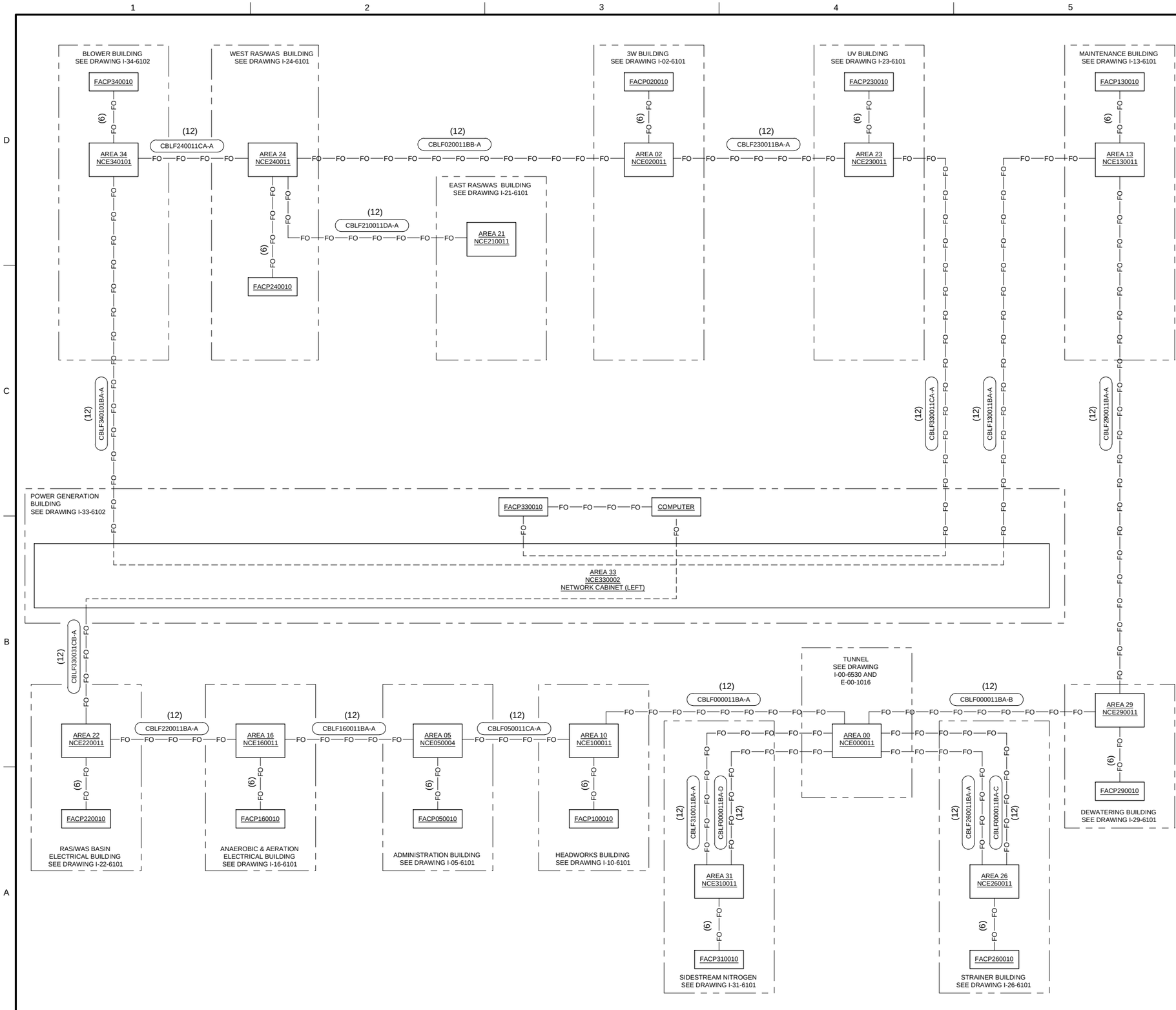
FILENAME I-00-6107.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

INSTRUMENTATION

PLANT FIRE ALARM BNR NETWORK DIAGRAM

DRAWING NUMBER
I-00-6107

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-00-6107.DWG PLOT DATE: 2/23/2021 7:10 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. THIS DRAWING REPRESENTS FINAL FIRE ALARM PANEL CONNECTIONS AND REQUIRES NO SCOPE OF WORK.

LEGEND:

(12) —FO— 12-FIBER, SINGLE-MODE FIBER-OPTIC CABLE

(6) —FO— 6-FIBER, SINGLE-MODE FIBER-OPTIC CABLE

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CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-00-6108.DWG

BC PROJECT NUMBER
151600

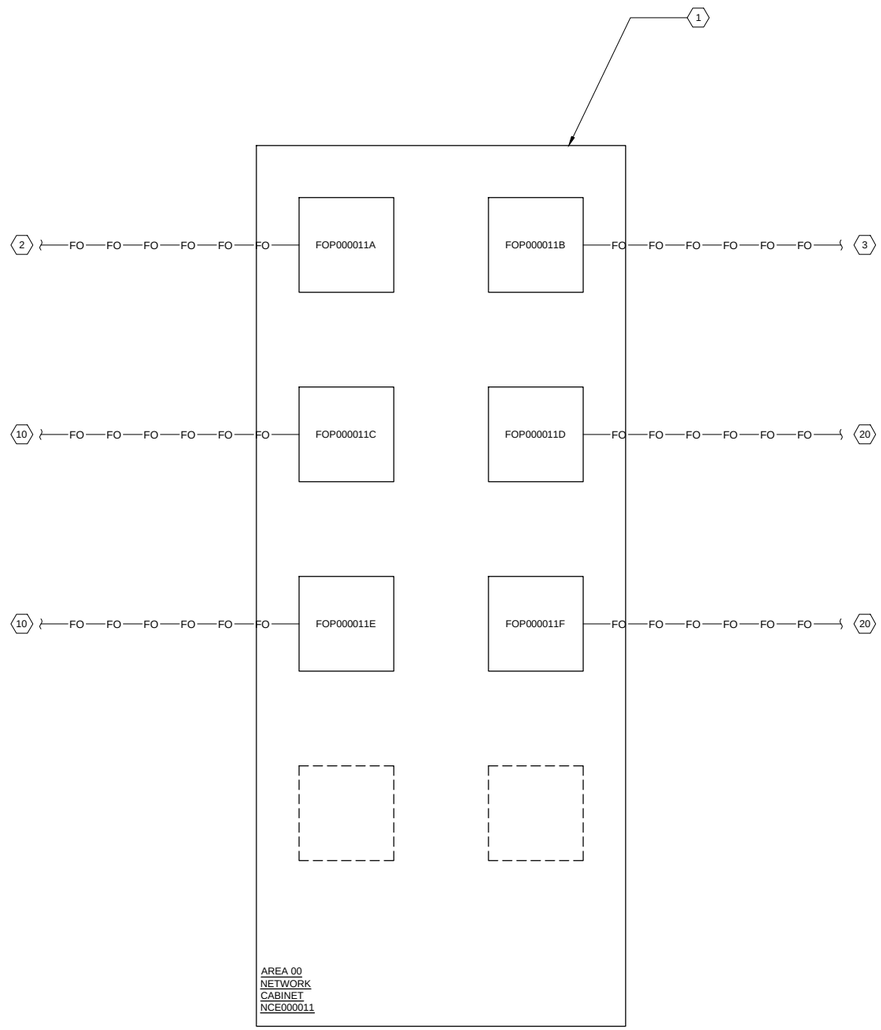
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

PLANT FIRE ALARM FINAL CONNECTIONS NETWORK DIAGRAM

DRAWING NUMBER
I-00-6108

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-00-6108.DWG PLOT DATE: 2/16/2021 9:03 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. CONTRATOR SHALL PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT.

4. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

5. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC30A):

1 NETWORK PANEL IS INSTALLED UNDER CONSTRUCTION PACKAGE CC30A. FOR PANEL LAYOUT REFER TO I-00-6530. FOR LOCATION REFER TO E-00-1016.

2 ROUTE 12-FIBER, SINGLE-MODE CABLE TO TPP100011C IN NCE100011. SEE DRAWING I-10-6101.

3 ROUTE 12-FIBER, SINGLE-MODE CABLE TO TPP290011C IN NCE290011. SEE DRAWING I-29-6101.

KEYNOTES (CC30E):

10 ROUTE 12-FIBER, SINGLE-MODE CABLE TO TPP310011C IN NCE310011. SEE DRAWING I-31-6101.

KEYNOTES (CC30D):

20 ROUTE 12-FIBER, SINGLE-MODE CABLE TO TPP260011C IN NCE260011. SEE DRAWING I-26-6101.

LEGEND:

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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Salt Lake City, UT

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C V W R F

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-00-6110.DWG

BC PROJECT NUMBER
151600

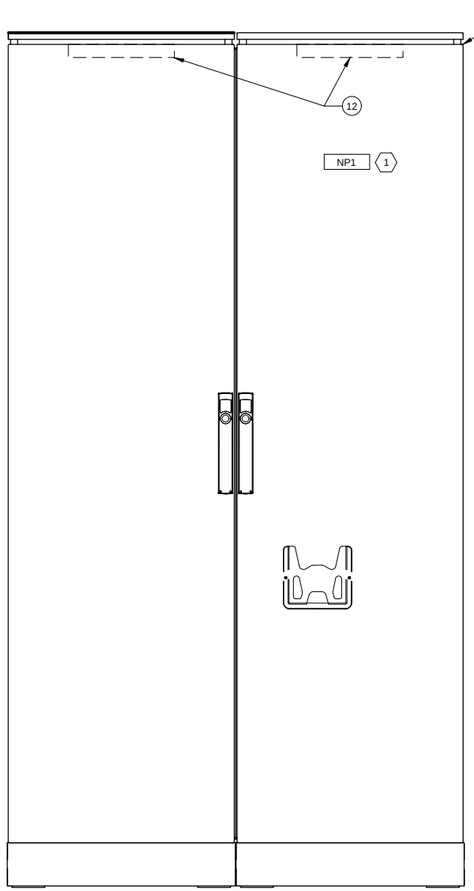
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION
NCE000011 PLANT FIRE PANEL CONNECTIONS

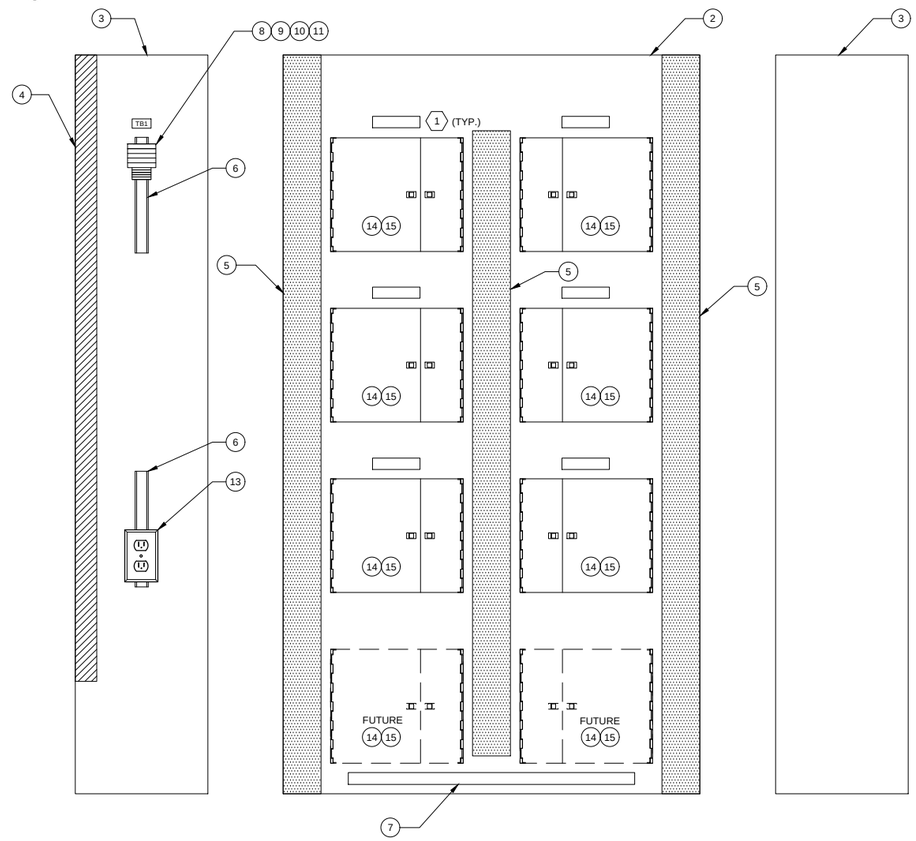
1

DRAWING NUMBER
I-00-6110

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-00-6110.DWG PLOT DATE: 2/16/2021 9:45 AM CAD USER: KEN WESTERBERG



ENCLOSURE EXTERIOR
FRONT LAYOUT
1 1/2" = 1'-0"



ENCLOSURE INTERIOR
BACK PANEL LAYOUT
1 1/2" = 1'-0"

GENERAL NOTES:

1. PANEL FABRICATION AND COMPONENTS SHALL CONFORM TO DIVISION 40 REQUIREMENTS. PROVIDE CONDUCTOR COLORS AND IDENTIFICATION AS SPECIFIED IN SECTION 40 67 00.

2. PROVIDE VOLTAGE SEPARATION IN COVERED WIREWAYS AS DEPICTED.

3. THIS DRAWING IS TYPICAL IN NATURE AND SPECIFIES GENERAL PANEL LAYOUT, FABRICATION, AND POWER DISTRIBUTION REQUIREMENTS FOR APPLICABLE CONTROL PANELS SPECIFIED IN THE SECTION 40 67 00 PANEL SCHEDULE.

KEYNOTES:

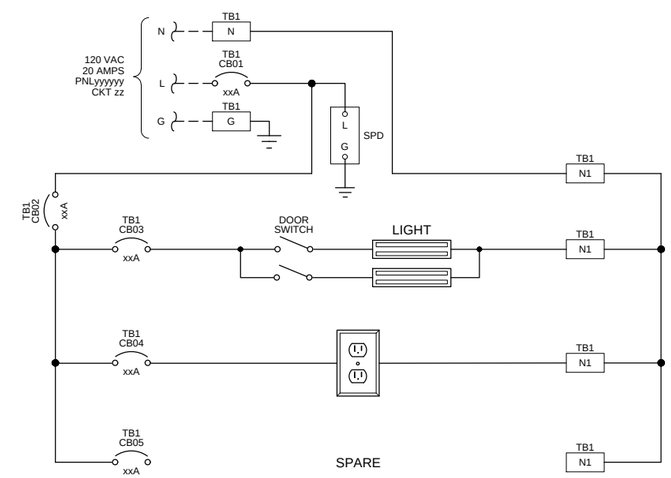
1 PROVIDE 2"X6" NAMEPLATE PER DIVISION 40 REQUIREMENTS. REFER TO SECTION 40 67 00 PANEL SCHEDULE FOR ENGRAVING REQUIREMENTS SPECIFIC TO EACH PANEL.

2 PROVIDE FIBER PATCH PANEL NAMEPLATES ACCORDING TO INDIVIDUAL AREA CONNECTION DIAGRAM.

BILL OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1	CONTROL PANEL ENCLOSURE - 90"X48"X20" NEMA 4X
2	1	BACK PANEL - 78"X44"
3	2	SIDE PANEL - 78"X14"
4	AS REQ'D	2WX4H 120 VAC WIREWAY WITH COVER
5	AS REQ'D	4WX4H FIBER WIREWAY WITH COVER
6	AS REQ'D	35 MM DIN RAIL
7	1	GROUND BAR
8	AS REQ'D	CIRCUIT BREAKER - 120 VAC
9	AS REQ'D	TERMINAL BLOCK
10	AS REQ'D	END CLAMP
11	1	SURGE PROTECTION DEVICE
12	2	ENCLOSURE LIGHT - LED
13	1	GFCI CONVENIENCE RECEPTACLE
14	1	FIBER-OPTIC PATCH PANEL - WALL-MOUNT, SMALL LEVITON OPTX SDX
15	1	FIBER-OPTIC CONNECTOR PANEL - 12-FIBER, SINGLE-MODE, LC CONNECTORS

POWER DISTRIBUTION



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

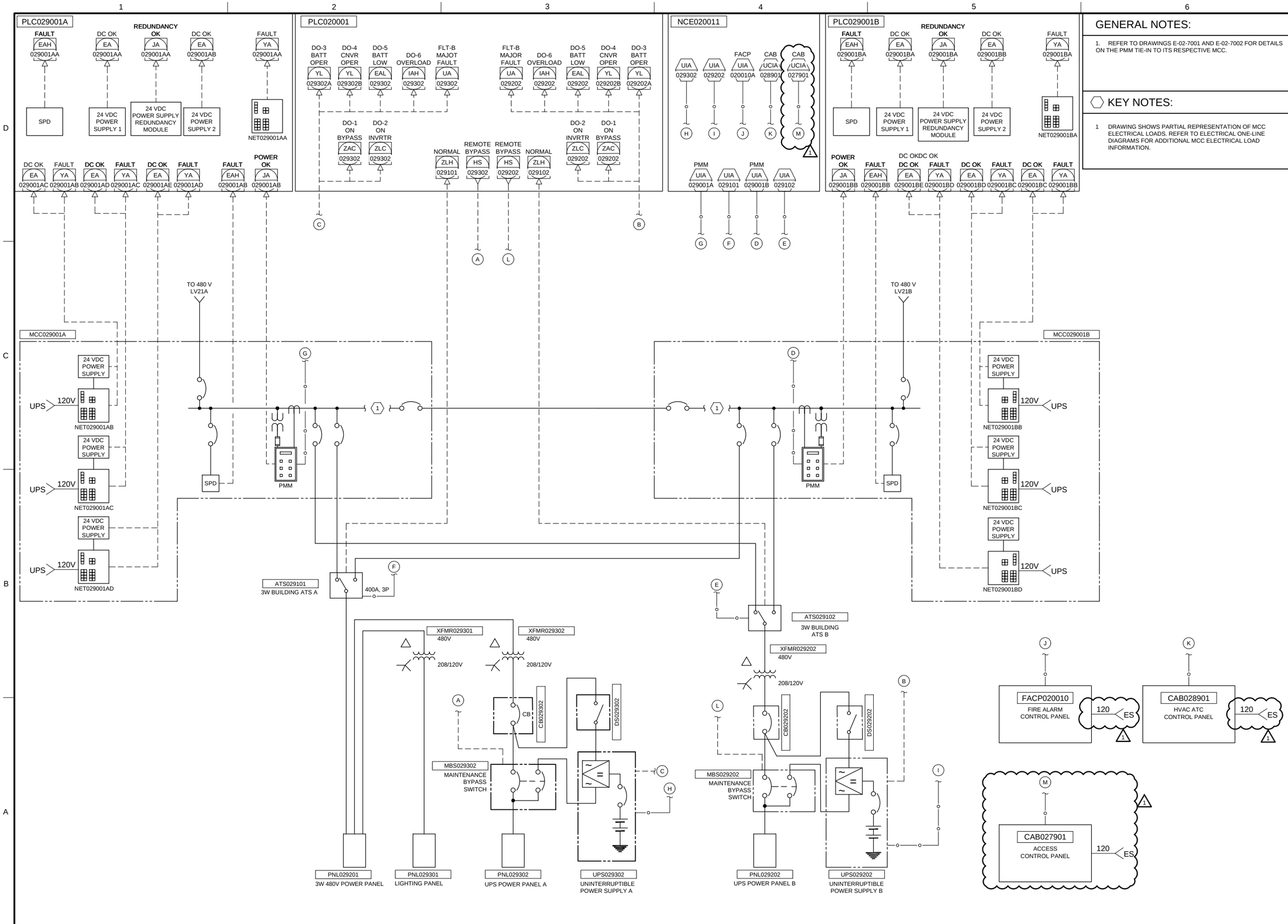
DESIGNED: K. WESTERBERG
DRAWN: S. MCBRIDE
CHECKED: J. JACKSON
CHECKED:
APPROVED: J. COX

FILENAME
I-00-6530.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION
TYPICAL FREESTANDING NETWORK CABINET - 3

DRAWING NUMBER
I-00-6530

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS\V17\PID.DWG FILENAME: I-00-6530.DWG PLOT DATE: 2/16/2021 9:46 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. REFER TO DRAWINGS E-02-7001 AND E-02-7002 FOR DETAILS ON THE PMM TIE-IN TO ITS RESPECTIVE MCC.

KEY NOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: C. DAY
DRAWN: W. SCHRUPP
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME I-02-6091.DWG
BC PROJECT NUMBER 151606
CLIENT PROJECT NUMBER CC5F

INSTRUMENTATION

ELECTRICAL MONITORING

DRAWING NUMBER
I-02-6091

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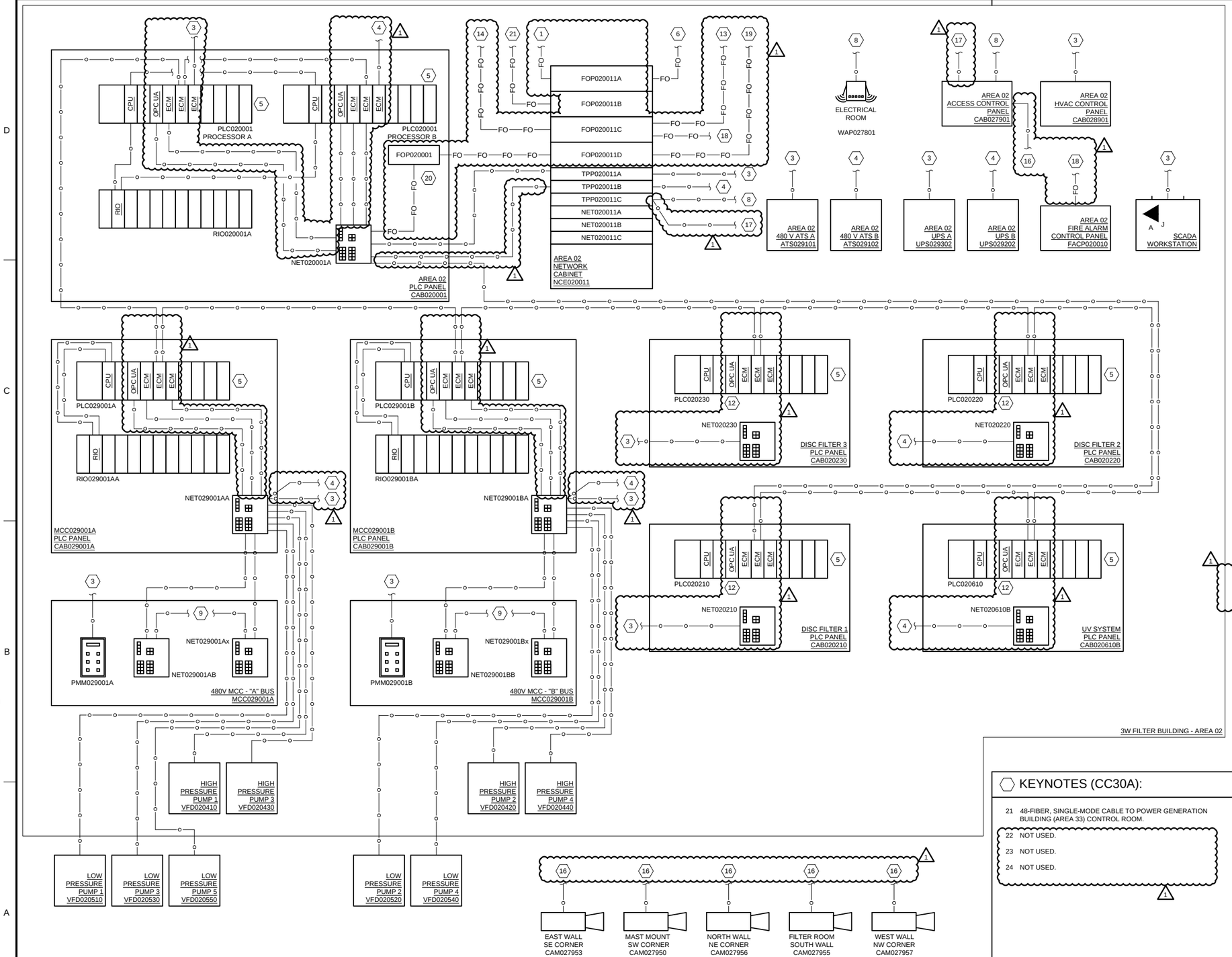


GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKETED COLOR FOR CABLES CONNECTING TO TPP020011C SHALL BE WHITE. JACKETED COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES, OVERLOAD RELAYS AND VFDS WITHIN MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.
5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
6. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC5F):

1. 48-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET NCE240011 IN WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. REFER TO DRAWING I-24-6101.
2. NOT USED.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP020011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP020011B IN AREA NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATHCING.
6. ROUTE 24-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET IN UV BUILDING (AREA 23) ELECTRICAL ROOM. REFER TO DRAWING I-23-6101
7. NOT USED.
8. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP020011C IN AREA NETWORK CABINET.
9. INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.
10. NOT USED.
11. NOT USED.
12. NETWORK CONNECTIONS INTERNAL TO THE PLC PANEL ARE NOT SHOWN ON THIS DRAWING.
13. 12-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET IN WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101.
14. 12-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET IN UV BUILDING (AREA 23) ELECTRICAL ROOM. REFER TO DRAWING I-23-6101.
15. NOT USED.
16. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB027901.
17. ROUTE FROM ACCESS CONTROL PANEL CAB027901 TO NCE020011 FOR EACH OUTDOOR CAMERA CONNECTED TO CAB027901. (MULTIPLE CABLES).
18. 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP020011C TO FIRE ALARM CONTROL PANEL FAC020010.
19. 12-FIBER, MULTI-MODE CABLE TO FOP230005A IN EXISTING 3W BUILDING (AREA 23). SEE DRAWING I-23-6101.
20. INSTALL SMALL FIBER PATCH PANEL FOP020001 IN AREA PLC AND ROUTE 6-FIBER SINGLE-MODE FROM FOP020011D TO NET020001A THROUGH PATCH PANEL.

KEYNOTES (CC30A):

21. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM.
22. NOT USED.
23. NOT USED.
24. NOT USED.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: C. DAY
DRAWN: W. SCHRUPP
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-02-6101.DWG

BC PROJECT NUMBER
151600

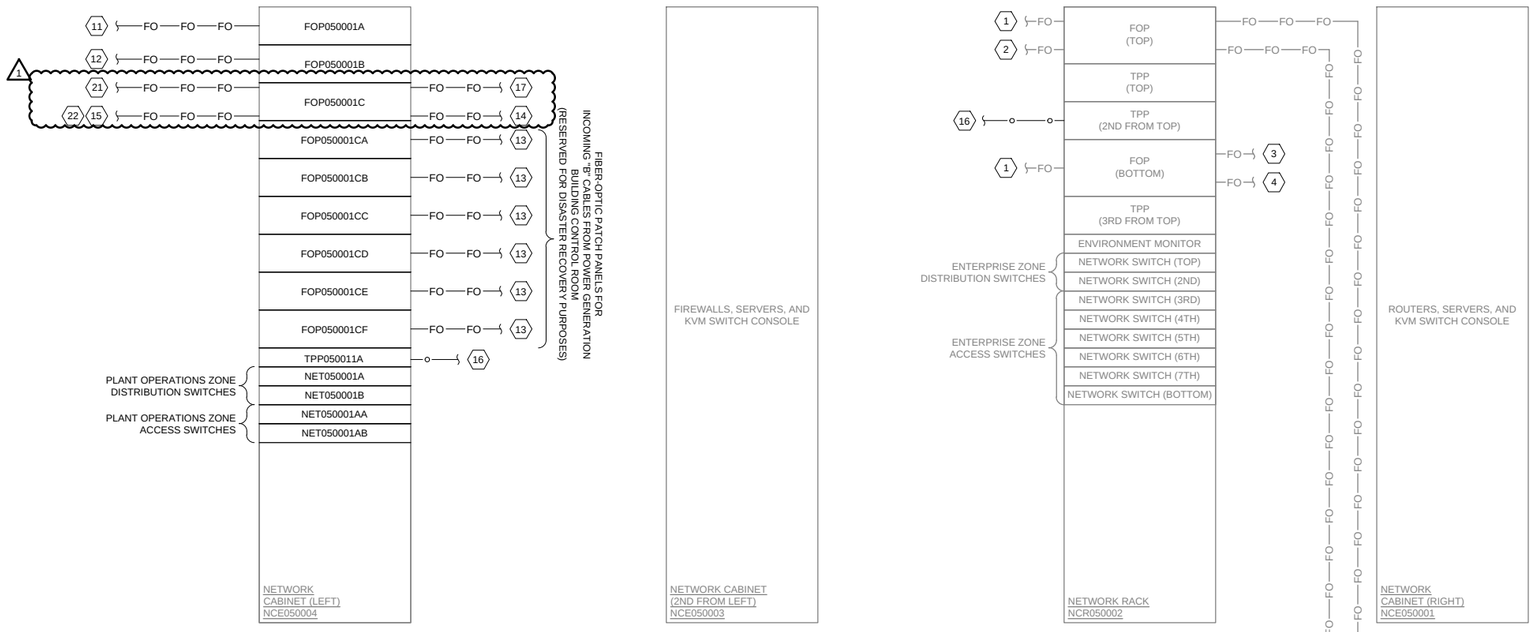
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

AREA 02 NETWORK DIAGRAM

DRAWING NUMBER
I-02-6101

Path: V:\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151606-CVWRF-3W FILTER PROJECT_V18\PID.DWG FILENAME: I-02-6101.DWG PLOT DATE: 2/16/2021 10:39 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. OWNER TO FURNISH, INSTALL, CONFIGURE, AND TEST ALL SERVERS, NETWORK SWITCHES, AND FIREWALLS SHOWN ON THIS DRAWING.

3. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

5. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 05 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 EXISTING 48-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

2 EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK RACK NCE100011 IN HEADWORKS BUILDING (AREA 10) TOP FLOOR ELECTRICAL ROOM. SEE DRAWING I-10-6101 FOR CONTINUATION.

3 EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK RACK NCR-MTN-1 IN MAINTENANCE BUILDING (AREA 13) TELEPHONE ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

4 EXISTING 6-FIBER, MULTI-MODE CABLE TO SOUTH GATE ACCESS CONTROL PANEL.

KEYNOTES (CC30A):

11 144-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.

12 144-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.

13 144-FIBER, SINGLE-MODE CABLE TO FOP330001xx WITHIN NCE330001 IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCR050001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP330001CA AND FOP050001CA.

14 12-FIBER, SINGLE-MODE CABLE TO NCE100011 IN HEADWORKS BUILDING (AREA 10). SEE DRAWING I-10-6101 FOR CONTINUATION.

15 TEMPORARY 12-FIBER, SINGLE-MODE CABLE TO NCE330002. SEE DRAWING I-33-6102.

16 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO EXISTING STP PATCH PANEL IN NCR050002.

17 6-FIBER, SINGLE-MODE CABLE FROM FOP050001C TO FIRE ALARM CONTROL PANEL FACP050010.

18 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH THE NEW CABLING.

KEYNOTES (CC30B):

21 12-FIBER, SINGLE-MODE CABLE TO NCE160011 IN ANAEROBIC AND AERATION ELECTRICAL BUILDING (AREA 16) ELECTRICAL ROOM. SEE DRAWING I-16-6101 FOR CONTINUATION.

22 REMOVE TEMPORARY CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-05-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION
AREA 05 NETWORK DIAGRAM

DRAWING NUMBER
I-05-6101

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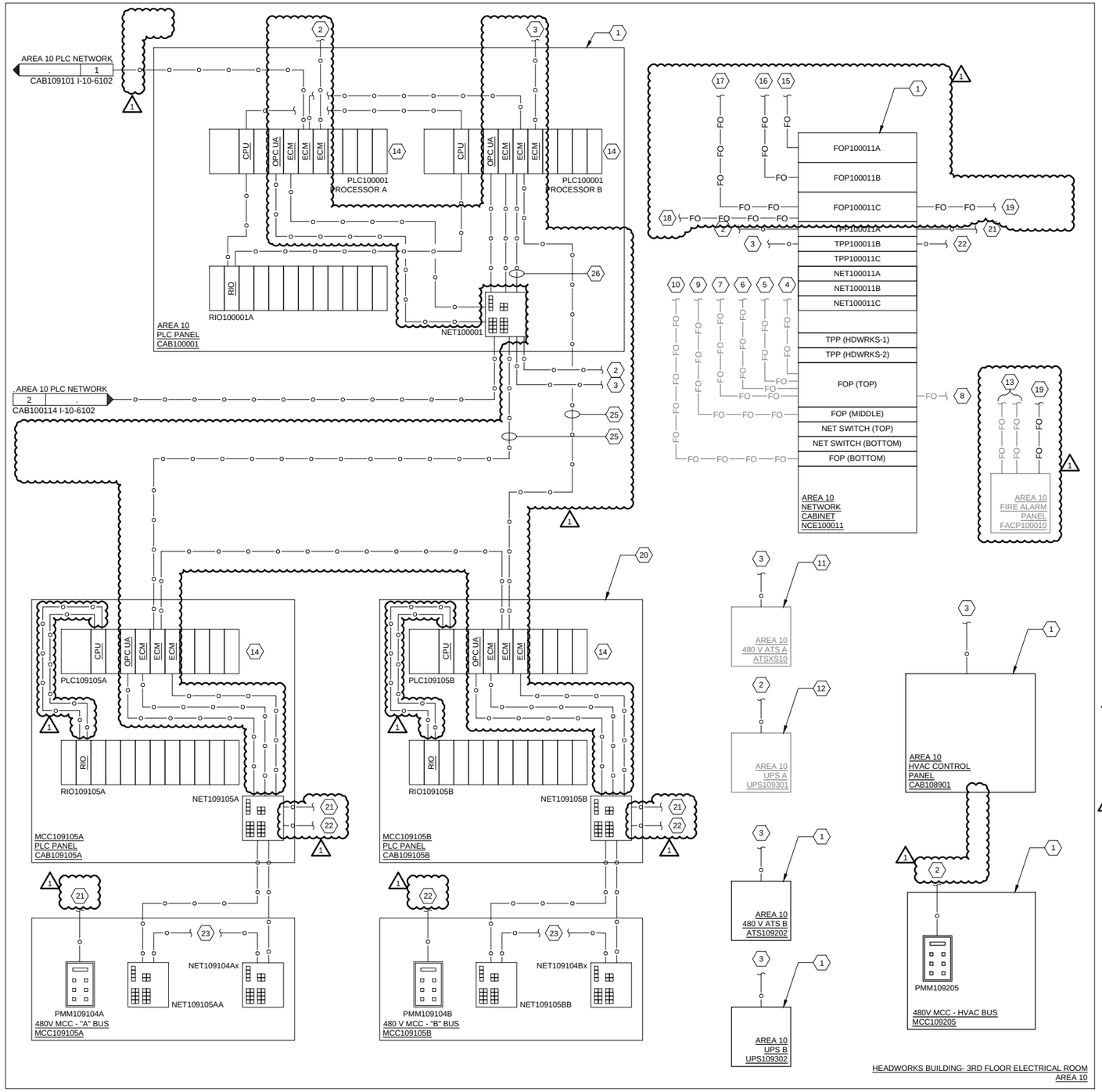

GENERAL NOTES:

1. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

2. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 2.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 2.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 2.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 2.4. JACKET COLOR SHALL BE BLUE.

3. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

5. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 10 ETHERNET NETWORKS, WHICH ARE BEING MODIFIED UNDER A SEPARATE HEADWORKS CONTRACT THAT PRECEDES THIS PROJECT. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC10C):

1 INSTALL AS PART OF HEADWORKS CONSTRUCTION PACKAGE CC 10C.

2 ROUTE SHIELDED CAT6A CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP100011A IN AREA NETWORK CABINET NCE100011.

3 ROUTE SHIELDED CAT6A CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP100011B IN AREA NETWORK CABINET NCE100011.

4 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK RACK IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

5 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO ACC 3 - AA IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

6 RELOCATE EXISTING 12-FIBER, MULTI-MODE CABLE TO CP101 IN SAND FILTERS ELECTRICAL ROOM.

7 RELOCATE EXISTING 6-FIBER, MULTI-MODE CABLE TO CC 10A IN TUNNEL.

8 RELOCATE EXISTING 2-FIBER, MULTI-MODE PATCH CORD FROM EQUIPMENT IN MCC 10A TO FOP (TOP) IN NCR-HWK-1.

9 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN COMPOST AREA (AREA 50) COMPOST BUILDING. SEE DRAWING I-50-6101 FOR CONTINUATION.

10 RELOCATE EXISTING 6-FIBER, MULTI-MODE CABLE TO CC 10 IN TUNNEL.

11 EXISTING ATS.

12 EQUIPMENT PROVIDED BY OWNER.

13 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLES.

14 CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.

KEYNOTES (CC30B):

20 INSTALLED AS PART OF BNR CONSTRUCTION PACKAGE CC30B)

21 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP100011A IN AREA NETWORK CABINET.

22 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP100011B IN AREA NETWORK CABINET.

23 INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.

24 NOT USED.

25 ROUTE NEW CABLE FROM MCC PLC TO AREA PLC AS PART OF CONSTRUCTION PACKAGE CC30B.

26 REMOVE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

KEYNOTES (CC30A):

15 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34). SEE DRAWING I-34-6101 FOR CONTINUATION.

16 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33). SEE DRAWING I-33-6101 FOR CONTINUATION.

17 12-FIBER, SINGLE-MODE CABLE TO NCE050004 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

18 12-FIBER, SINGLE-MODE CABLE TO NCE000011 IN TUNNEL AREA. SEE DRAWING I-00-6104, I-00-6110 AND I-00-6530.

19 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP100011C TO FIRE ALARM CONTROL PANEL FACP100010. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. SEE
DRAWN: A. LAPIERRE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-10-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION
AREA 10 NETWORK DIAGRAM 1

DRAWING NUMBER
I-10-6101

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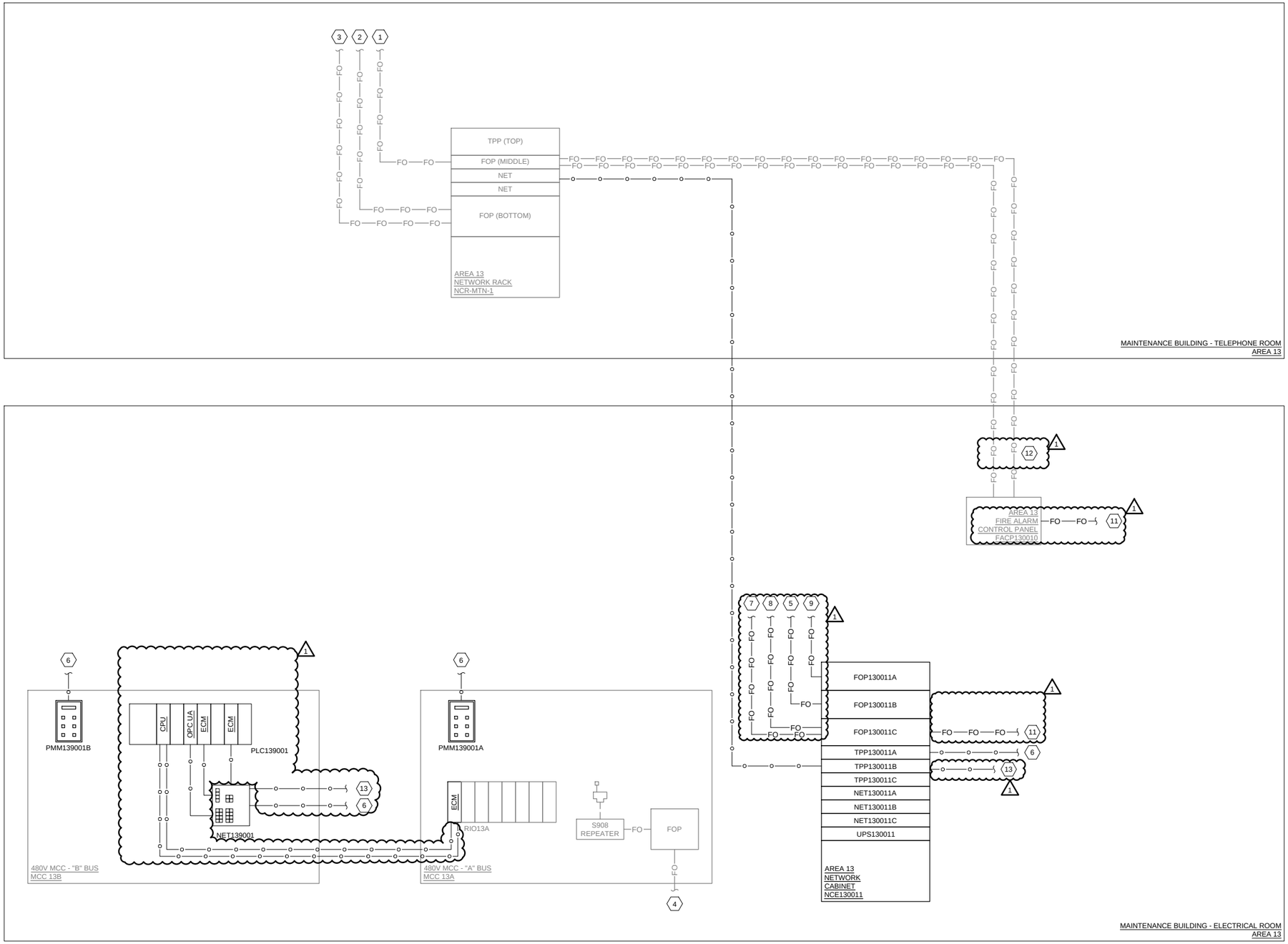

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC NUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION. (1)

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS.
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR SHALL BE BLUE.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

5. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING MAINTENANCE BUILDING (AREA 13) ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES (CC30A):

1. EXISTING 12-FIBER AND 6-FIBER MULTI-MODE CABLES TO NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
2. EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK RACK NCR050002 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.
3. EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
4. EXISTING 6-FIBER, MULTI-MODE CABLE TO MCC 33A IN POWER GENERATION BUILDING (AREA 33) ELECTRICAL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
5. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
6. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP130011A IN AREA NETWORK RACK.
7. 12-FIBER, SINGLE-MODE CABLE TO NCE290011 IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION. (1)
8. 12-FIBER, SINGLE-MODE CABLE TO NCE330002 IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
9. 48-FIBER, SINGLE MODE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
10. NOT USED.
11. 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP130011C TO FIRE ALARM CONTROL PANEL FACP130010. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMO WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.
12. COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.
13. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP130011B IN AREA NETWORK RACK. (1)

LEGEND:

- —o—— CATEGORY CABLE. SEE SECTION 26 05 19.
- —FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES
- – – – – S908 (COAXIAL) CABLE

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-13-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION

AREA 13 NETWORK DIAGRAM

DRAWING NUMBER
I-13-6101

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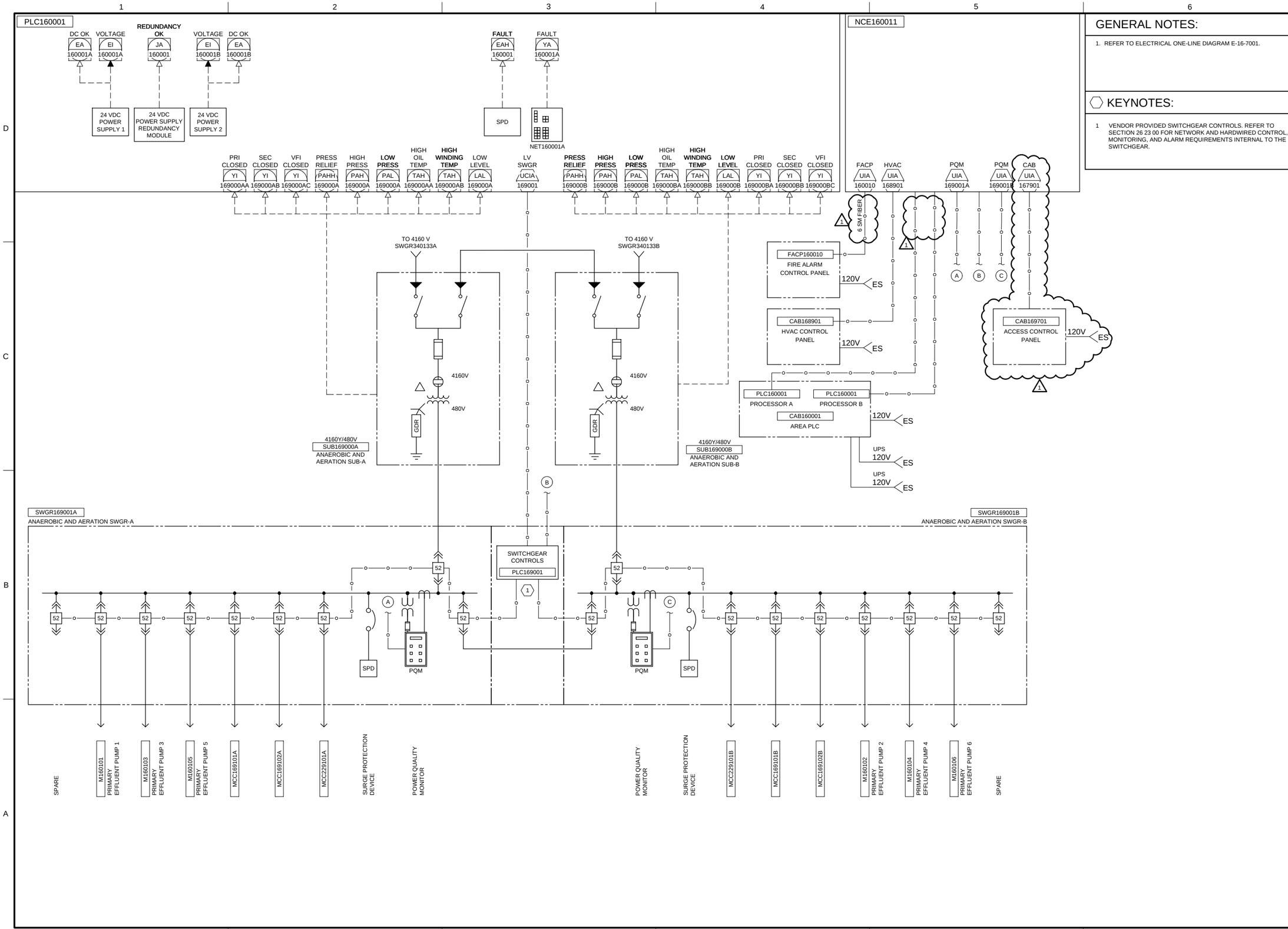

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAM E-16-7001.

KEYNOTES:

1 VENDOR PROVIDED SWITCHGEAR CONTROLS. REFER TO SECTION 26 23 00 FOR NETWORK AND HARDWIRED CONTROL, MONITORING, AND ALARM REQUIREMENTS INTERNAL TO THE SWITCHGEAR.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-16-6091.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 16 POWER 1

DRAWING NUMBER
I-16-6091

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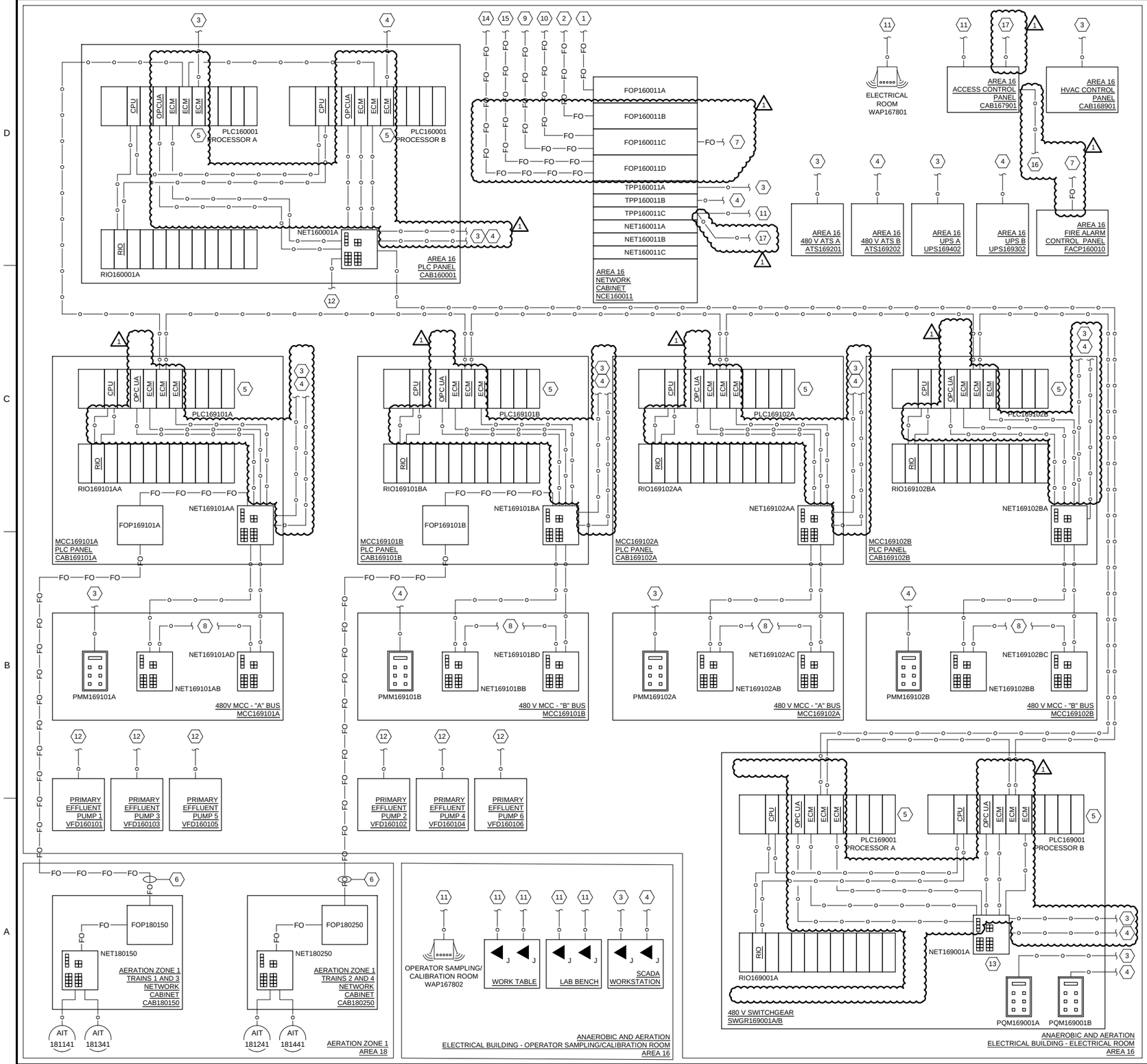

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP160011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.
5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP160011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP160011B IN AREA NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.
6. 6-FIBER, MULTI-MODE.
7. 6-FIBER, SINGLE-MODE CABLE FROM FIRE ALARM CONTROL PANEL TO FIBER-OPTIC PATCH PANEL FOP160011C.
8. INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.
9. 12-FIBER, SINGLE-MODE CABLE TO NCE220011 IN RAS SELECTOR (AREA 22) ELECTRICAL BUILDING. SEE DRAWING I-22-6101 FOR CONTINUATION.
10. 12-FIBER, SINGLE-MODE CABLE TO NCE050004 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.
11. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP160011C IN AREA NETWORK CABINET.
12. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH IN AREA PLC PANEL CAB160001.
13. ADDITIONAL NETWORK CONNECTIONS INTERNAL TO THE SWITCHGEAR ARE NOT SHOWN ON THIS DRAWING.
14. TWO 12-FIBER MULTI-MODE CABLES FROM NCE340102 IN ARC FLASH ROOM OF THE BLOWER BUILDING. SEE DRAWING I-34-6111.
15. TWO 12-FIBER MULTI-MODE CABLES TO SUBSTATION SWITCHGEAR 169000.
16. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB167901.
17. ROUTE FROM ACCESS CONTROL PANEL CAB167901 TO NCE160011 FOR EACH OUTDOOR CAMERA CONNECTED TO CAB167901.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

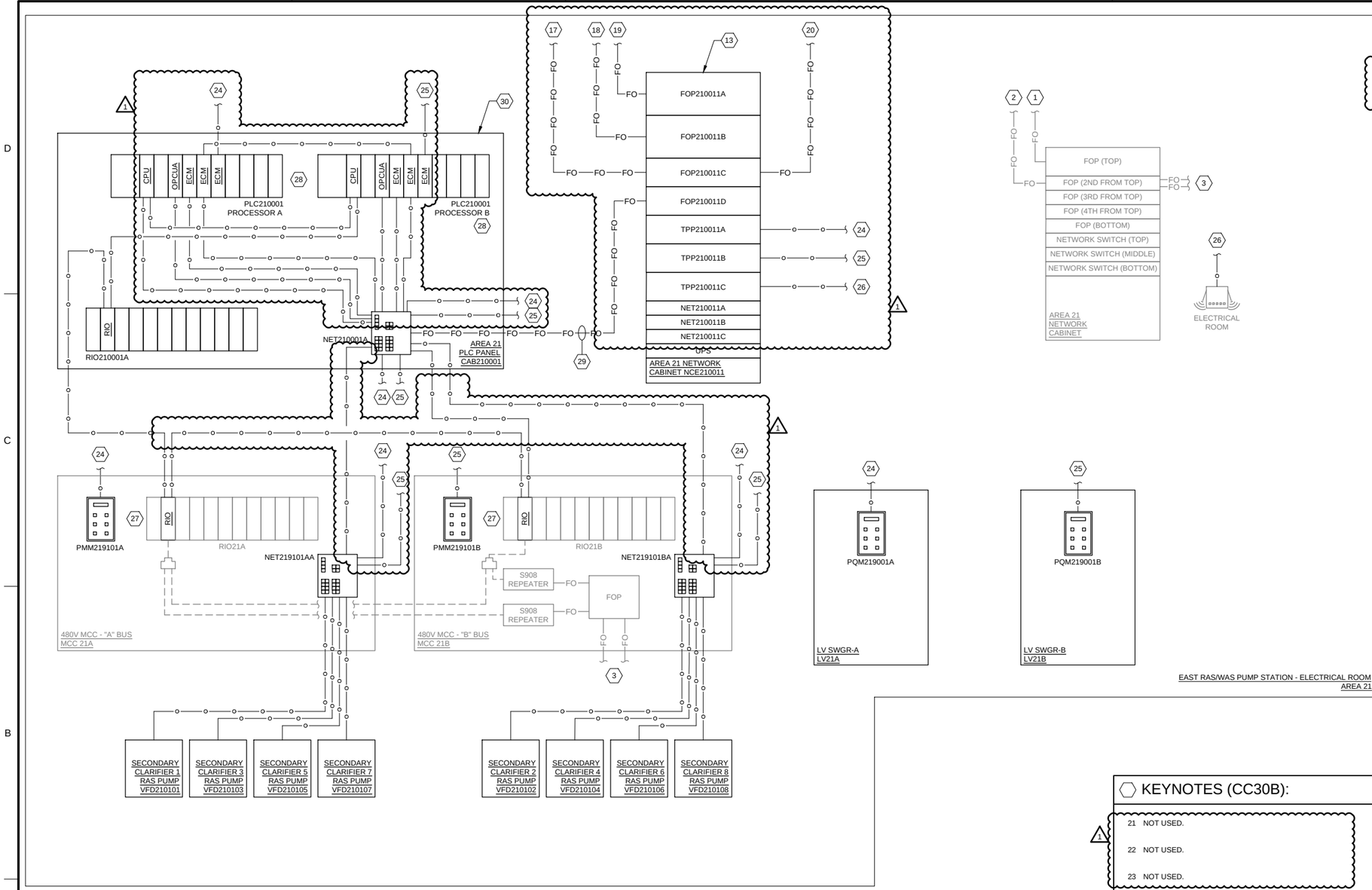
FILENAME I-16-6101.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

INSTRUMENTATION

AREA 16 NETWORK DIAGRAM

DRAWING NUMBER
I-16-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\000-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-16-6101.DWG PLOT DATE: 2/17/2021 7:59 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP210011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 21 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.
8. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 EXISTING 48-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

2 EXISTING 12-FIBER, MULTI-MODE CABLE TO MCC 24B IN WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. MOVE EXISTING FIBER TERMIATIONS TO FOP (3RD FROM TOP) SEE DRAWING I-24-6101 FOR CONTINUATION.

3 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

KEYNOTES (CC5F):

10 NOT USED.

11 NOT USED.

12 NOT USED.

13 INSTALL AS PART AS 3W WATER IMPROVEMENT CONSTRUCTION PACKAGE CC05F.

KEYNOTES (CC30B):

21 NOT USED.

22 NOT USED.

23 NOT USED.

24 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP210011A IN AREA NETWORK CABINET.

25 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP210011B IN AREA NETWORK CABINET.

26 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP210011C IN AREA NETWORK CABINET.

27 OWNER TO REPLACE EXISTING MODICON QUANTUM S908 RIO DROP ADAPTER WITH MODICON QUANTUM ETHERNET RIO DROP ADAPTER (140CRA31200C).

28 CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.

29 TWO 2-FIBER, SINGLE MODE PATCH CABLES TO PATCH THROUGH NETWORK AREA 24 REMOTE I/O RACKS FROM PLC210001. 24 FIBER, SINGLE MODE CABLE TO BE USED BETWEEN BUILDINGS.

30 INSTALL AS PART OF BNR CONSTRUCTION PACKAGE CC 30B.

KEYNOTES (CC30A):

16 NOT USED.

17 12-FIBER, SINGLE-MODE CABLE TO WEST EAS/WAS BUILDING ELECTRICAL ROOM (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101.

KEYNOTES (CC30B):

18 96-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.

19 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.

20 48-FIBER, SINGLE-MODE CABLE TO WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101 FOR CONTINUATION.

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

– – – – S908 (COAXIAL) CABLE

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C V W R F

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-21-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

AREA 21 NETWORK DIAGRAM

DRAWING NUMBER
I-21-6101

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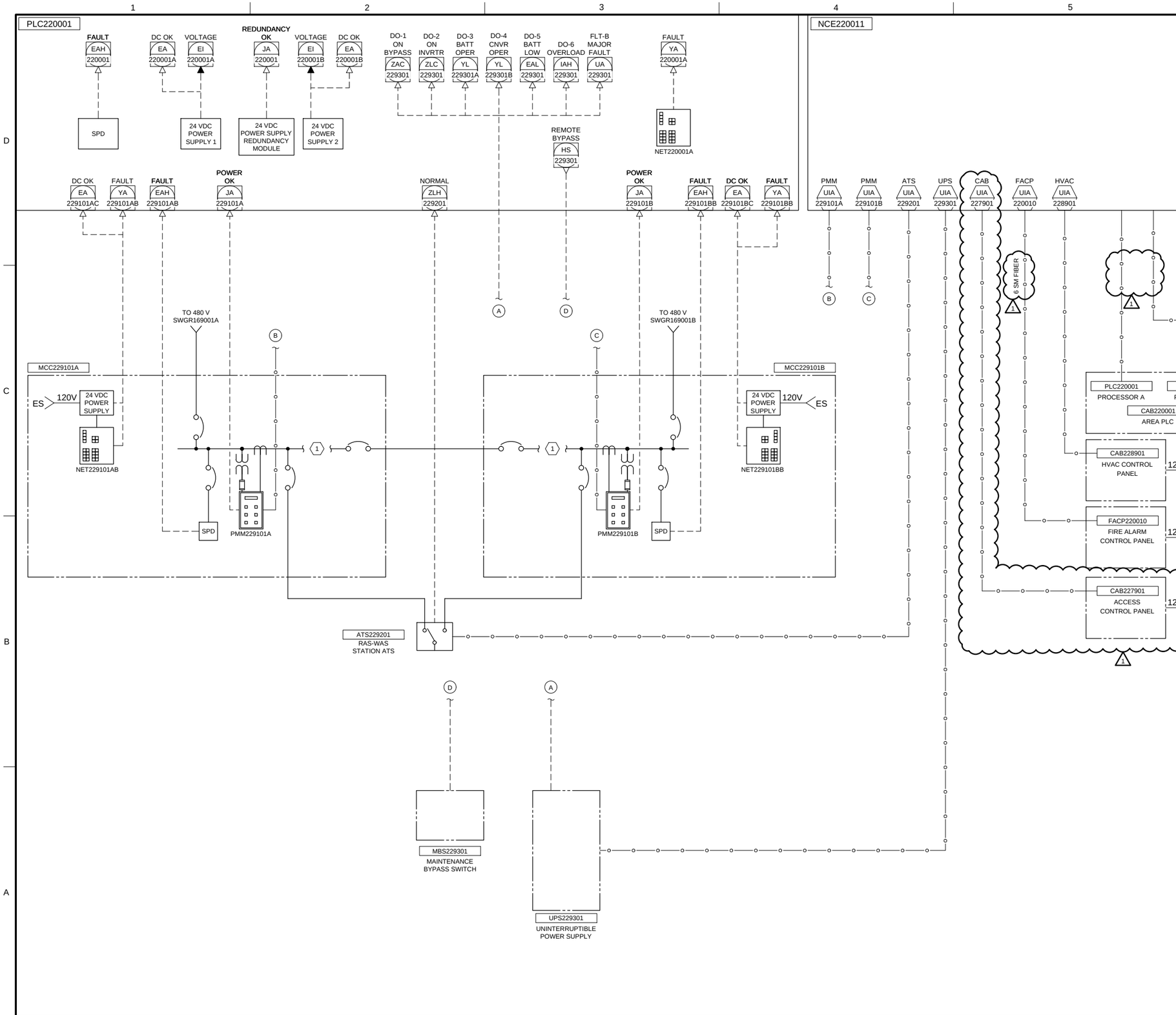

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAMS E-22-7001 AND E-22-7002.

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

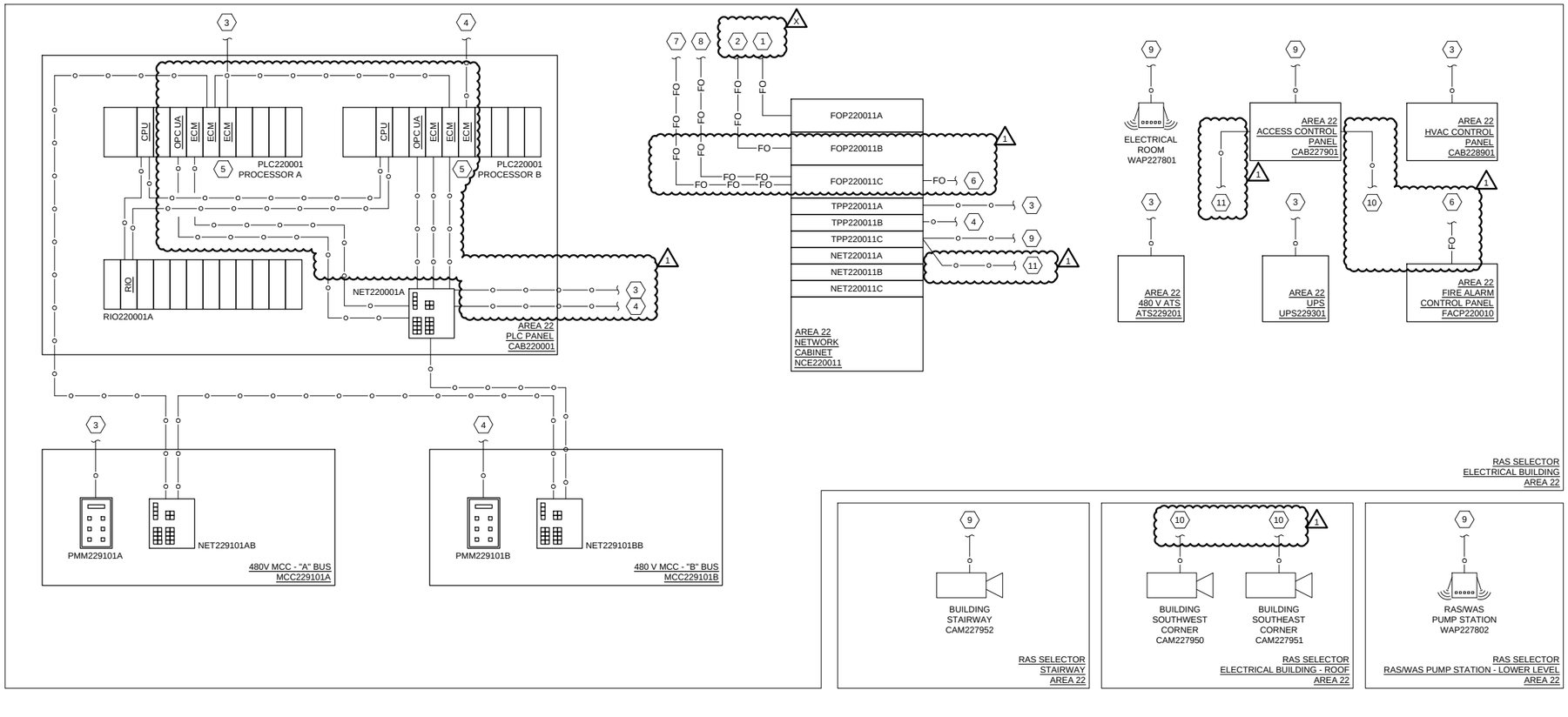
DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME I-22-6091.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

INSTRUMENTATION
AREA 22 POWER 1

DRAWING NUMBER
I-22-6091

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\000-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-22-6091.DWG PLOT DATE: 2/2/2021 8:36 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP220011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.
5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP220011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011B IN AREA NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.
6. 6-FIBER, SINGLE-MODE CABLE FROM FIRE ALARM CONTROL PANEL TO FIBER-OPTIC PATCH PANEL FOP220011C.
7. 12-FIBER, SINGLE-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
8. 12-FIBER, SINGLE-MODE CABLE TO NCE160011 IN PEPS ELECTRICAL BUILDING (AREA 16) ELECTRICAL ROOM. SEE DRAWING I-16-6101 FOR CONTINUATION.
9. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011C IN AREA NETWORK CABINET.
10. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB227901.
11. ROUTE FROM ACCESS CONTROL PANEL CAB227901 TO NCE220011 FOR EACH OUTDOOR CAMERA CONNECTED TO CAB227901.

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-22-6101.DWG

BC PROJECT NUMBER
151600

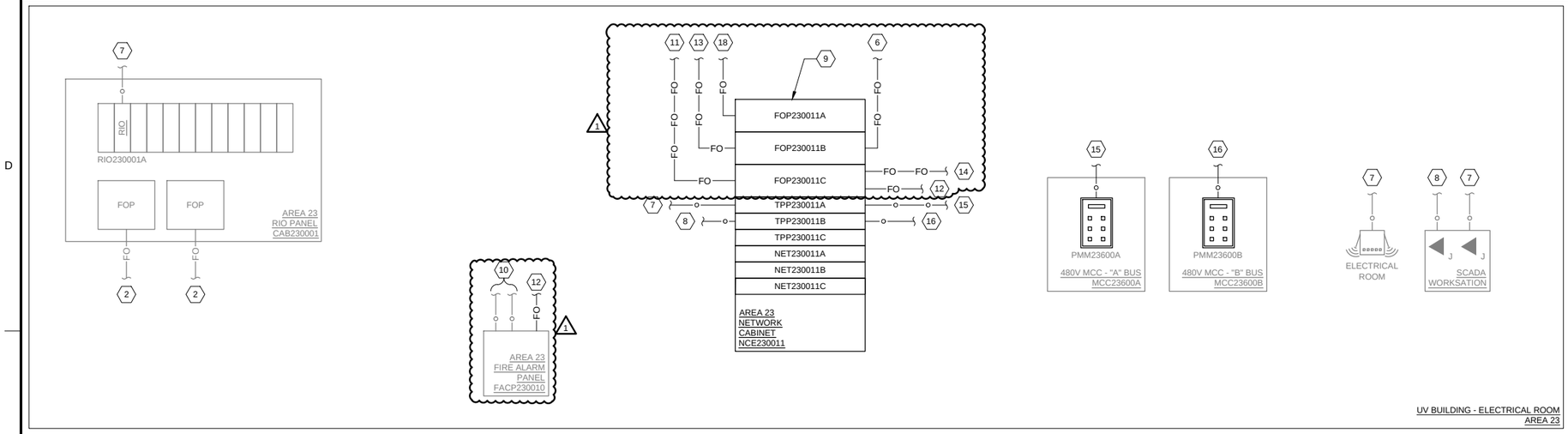
CLIENT PROJECT NUMBER
CC30B

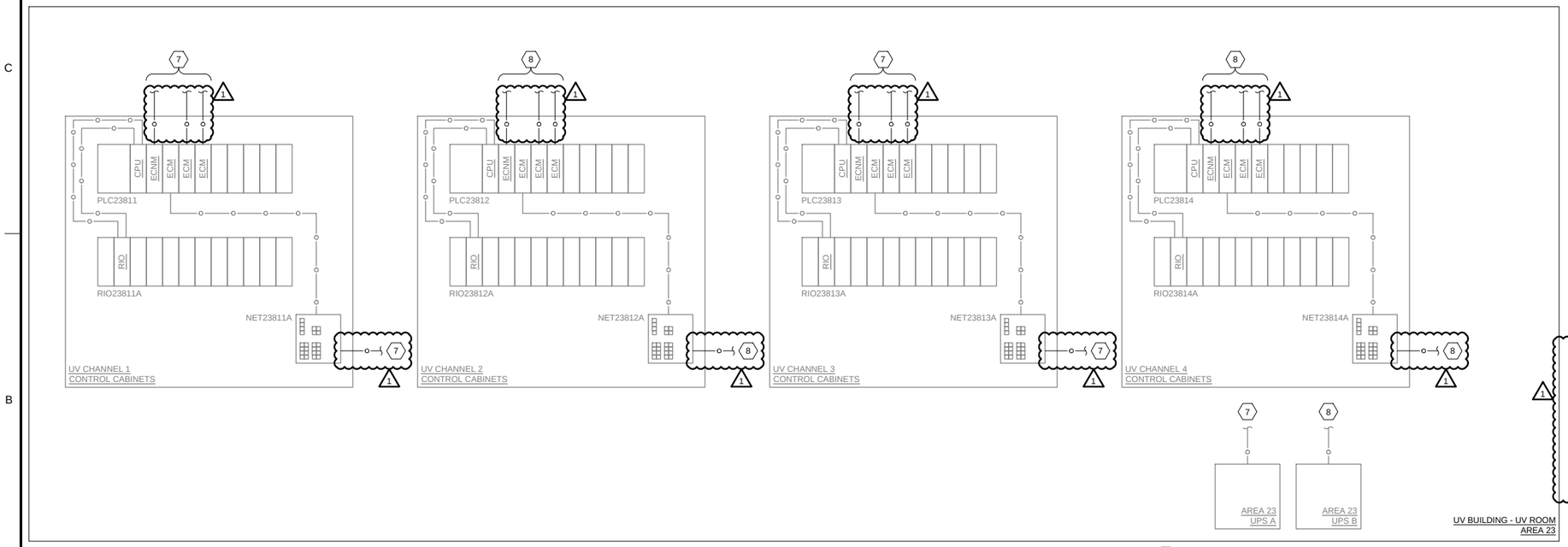
INSTRUMENTATION

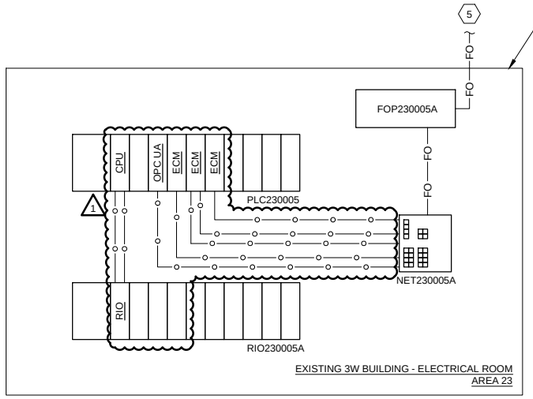
AREA 22 NETWORK DIAGRAM

DRAWING NUMBER
I-22-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-22-6101.DWG PLOT DATE: 2/17/2021 9:03 AM CAD USER: KEN WESTERBERG







GENERAL NOTES:

1. CONTRATOR SHALL PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. JACKET COLOR SHALL BE BLUE.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 23 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

8. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 NOT USED.

2 EXISTING 24-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK CABINET IN EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

KEYNOTES (CC5F):

5 12-FIBER, MULTI-MODE CABLE TO NCE020011 (FOP020011D) IN 3W BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

6 24-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET IN UTILITY WATER FILTRATION BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

7 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011A IN AREA NETWORK CABINET.

8 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011B IN AREA NETWORK CABINET.

9 INSTALL AS PART OF 3W IMPROVEMENT CONSTRUCTION PROJECT CC 05F.

10 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

11 12-FIBER, SINGLE-MODE CABLE TO NCE020011 IN 3W BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101.

12 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP230011C TO FIRE ALARM CONTROL PANEL FACP230010. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

KEYNOTES (CC30A):

13 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.

14 12-FIBER, SINGLE-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

15 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011A IN AREA NETWORK CABINET.

16 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011B IN AREA NETWORK CABINET.

17 NOT USED.

18 48-FIBER, SINGLE-MODE CABLE TO WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101 FOR CONTINUATION.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-23-6101.DWG

BC PROJECT NUMBER
151600

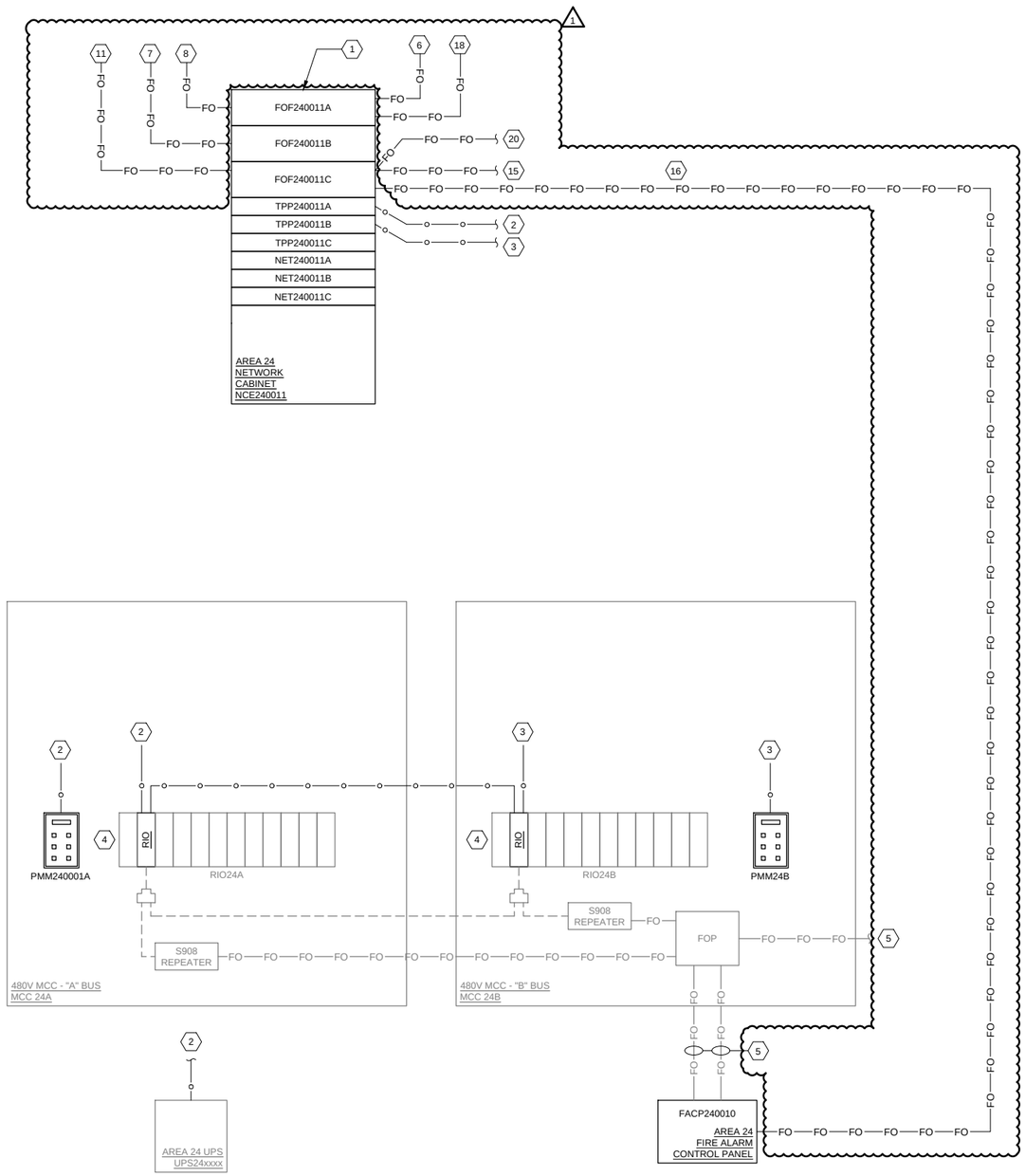
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

AREA 23 NETWORK DIAGRAM

DRAWING NUMBER
I-23-6101

Path: V:\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151606-CVWRF-3W FILTER PROJECT_V18\PID.DWG FILENAME: I-23-6101.DWG PLOT DATE: 2/23/2021 7:56 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMARION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR SHALL BE BLUE.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 24 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES (CC30B):

1 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30B.

2 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH TPP240011A IN NETWORK CABINET.

3 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH TPP240011B IN NETWORK CABINET.

4 OWNER TO REPLACE EXISTING MODICON QUANTUM S908 RIO DROP ADAPTER WITH MODICON QUANTUM ETHERNET RIO DROP ADAPTER (140CRA31200C).

5 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

6 48-FIBER, SINGLE-MODE TO 3W (AREA 02) NCE020011 IN ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

7 48-FIBER, SINGLE-MODE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

8 144-FIBER, SINGLE-MODE TO BLOWER BUILDING SERVER ROOM (AREA 34). SEE DRAWING I-34-6102 FOR CONTINUATION.

KEYNOTES (CC30A):

10 NOT USED.

11 12-FIBER SINGLE-MODE CABLES TO EAST RAS/WAS PUMP STATION NETWORK CABINET NCE210011. SEE DRAWING I-21-6101.

12 NOT USED.

13 NOT USED.

14 NOT USED.

15 12-FIBER, SINGLE-MODE TO NCE340101 IN BLOWER BUILDING (AREA 34) ELECTRICAL BUILDING. SEE DRAWING I-34-6102 FOR CONTINUATION.

16 6-FIBER, SINGLE MODE.

17 NOT USED.

18 48-FIBER, SINGLE-MODE TO UV BUILDING (AREA 23) NCE230011 IN ELECTRICAL ROOM. SEE DRAWING I-23-6101 FOR CONTINUATION.

KEYNOTES (CC5F):

20 12-FIBER, SINGLE-MODE TO NCE020011 IN 3W (AREA 02) ELECTRICAL BUILDING. SEE DRAWING I-02-6101 FOR CONTINUATION.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

– – – – S908 (COAXIAL) CABLE

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

CC5F 3 WATER IMPROVEMENTS PROJECT

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

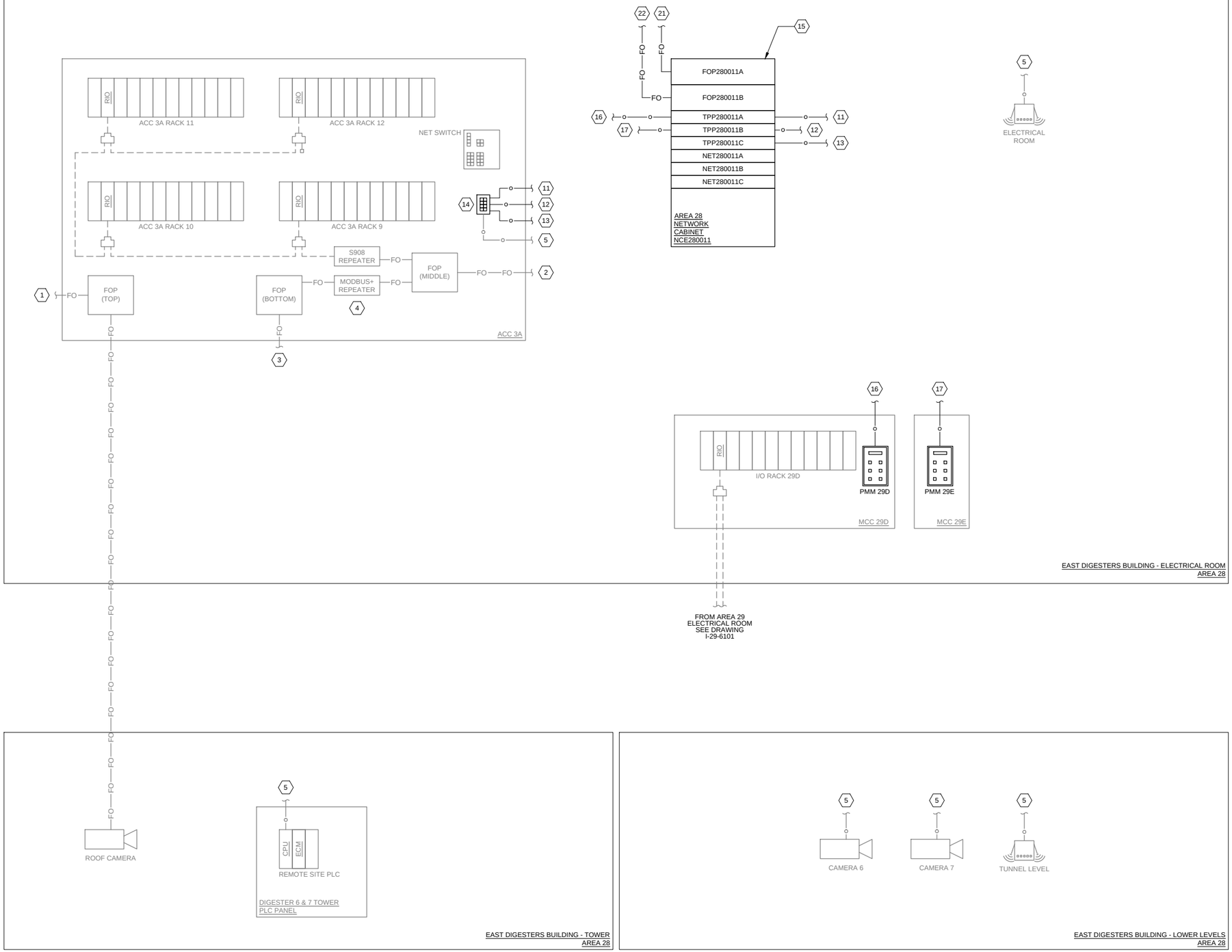
FILENAME
I-24-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC5F

INSTRUMENTATION

AREA 24 NETWORK DIAGRAM

DRAWING NUMBER
I-24-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-24-6101.DWG PLOT DATE: 2/23/2021 7:42 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS.
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP280011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 28 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

8. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 EXISTING 6-FIBER, MULTI-MODE CABLE TO ACC 3 - AA IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

2 EXISTING 6-FIBER, MULTI-MODE CABLE TO MCC 29A IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

3 EXISTING 12-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN TUNNEL BELOW GBT BUILDING (AREA 25). SEE DRAWING I-25-6101 FOR CONTINUATION.

4 EXISTING MODBUS+ NETWORK CONNECTIONS FROM MODBUS+ REPEATER TO AREA 28 DEVICES NOT SHOWN ON THIS DRAWING.

5 EXISTING COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO NEW STP PATCH PANEL IN ACC 3A.

KEYNOTES (CC30C):

11 ROUTE FROM SHIELDED TWISTED PAIR (STP) PATCH PANEL IN ACC 3A TO STP PATCH PANEL TPP280011A IN AREA NETWORK CABINET.

12 ROUTE FROM STP PATCH PANEL IN ACC 3A TO STP PATCH PANEL TPP280011B IN AREA NETWORK CABINET.

13 ROUTE FROM STP PATCH PANEL IN ACC 3A TO STP PATCH PANEL TPP280011C IN AREA NETWORK CABINET.

14 OWNER TO INSTALL DIN-RAIL MOUNTED, 8-PORT, CAT 6 STP PATCH PANEL IN ACC 3A. OWNER TO DISCONNECT CATEGORY CABLE CONNECTIONS TO EXISTING NETWORK SWITCH IN ACC 3A AND TERMINATE AT NEW STP PATCH PANEL. CONTRACTOR SHALL COORDINATE TERMINATIONS OF NEW CATEGORY CABLE FROM THE AREA NETWORK CABINET AT THE NEW STP PATCH PANEL.

15 INSTALLED AS PART OF SIDESTREAM PHOSPHORUS CONSTRUCTION PACKAGE CC 30C.

16 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP280011A IN AREA NETWORK CABINET NCE280011.

17 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP280011B IN AREA NETWORK CABINET NCE280011.

KEYNOTES (CC30A):

21 96-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.

22 96-FIBER, SINGLE-MODE CABLE TO DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

– – – – S908 (COAXIAL) CABLE

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-28-6101.DWG

BC PROJECT NUMBER
151600

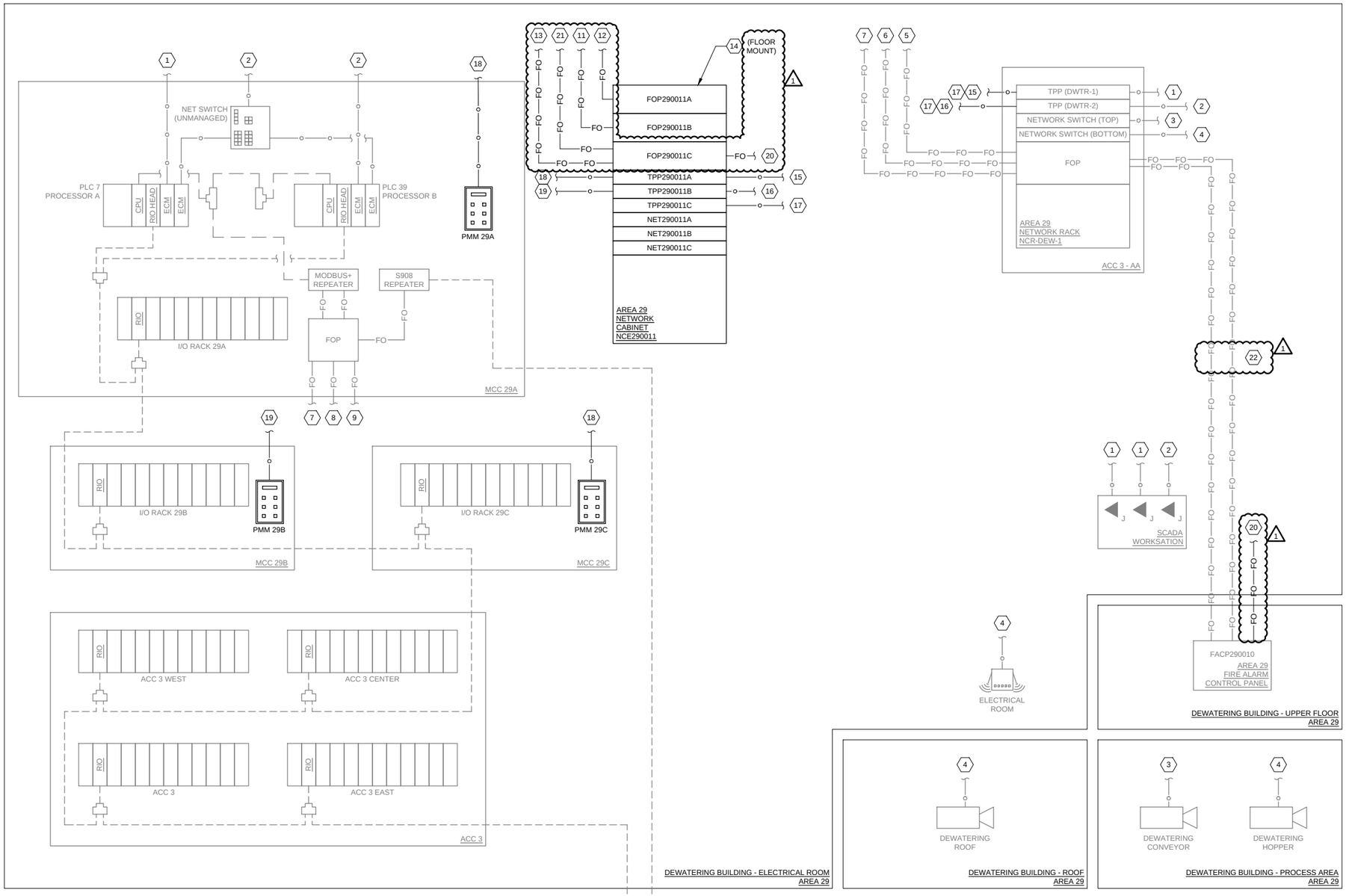
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION

AREA 28 NETWORK DIAGRAM

DRAWING NUMBER
I-28-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-28-6101.DWG PLOT DATE: 2/2/2021 9:22 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED: (1)
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP290011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
5. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 29 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.
7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1. EXISTING COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO UTP PATCH PANEL DWTR-1 IN EXISTING NETWORK RACK.
2. EXISTING COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO UTP PATCH PANEL DWTR-2 IN EXISTING NETWORK RACK.
3. EXISTING COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH (TOP) IN EXISTING NETWORK RACK. OWNER TO DISCONNECT CABLE FROM NETWORK SWITCH AND TERMINATE AT UTP PATCH PANEL DWTR-1.
4. EXISTING COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH (BOTTOM) IN EXISTING NETWORK RACK. OWNER TO DISCONNECT CABLE FROM NETWORK SWITCH AND TERMINATE AT UTP PATCH PANEL DWTR-2.
5. EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
6. EXISTING 24-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK RACK IN HEADWORKS BUILDING (AREA 10) TOP FLOOR ELECTRICAL ROOM. SEE DRAWING I-10-6101 FOR CONTINUATION.
7. EXISTING 6-FIBER, MULTI-MODE CABLE TO ACC 3A IN EAST DIGESTERS BUILDING (AREA 28) ELECTRICAL ROOM. SEE DRAWING I-28-6101 FOR CONTINUATION.
8. EXISTING 24-FIBER, MULTI-MODE CABLE TO MCC 33A IN POWER GENERATION BUILDING (AREA 33) ELECTRICAL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
9. EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN TUNNEL BELOW GBT BUILDING (AREA 25). SEE DRAWING I-25-6102 FOR CONTINUATION.

KEYNOTES (CC30A):

11. 96-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
12. 96-FIBER, SINGLE-MODE CABLE TO EAST DIGESTERS BUILDING (AREA 28) ELECTRICAL ROOM. SEE DRAWING I-28-6101 FOR CONTINUATION.
13. 12-FIBER, SINGLE-MODE CABLE TO NCE130011 IN MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION. (1)
14. INSTALLED AS PART OF BLOWER BUILDING CONSTRUCTION PACKAGE CC30A.
15. ROUTE FIVE CATEGORY CABLES FROM UNSHIELDED TWISTED PAIR (UTP) PATCH PANEL (DWTR-1) IN EXISTING NETWORK RACK TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP290011A IN AREA NETWORK CABINET. OWNER TO PROVIDE PATCHING AND COORDINATE TERMINATIONS AT EXISTING PATCH PANEL TO EXTEND EXISTING COMMUNICATIONS CONNECTIONS FOR AREA 29 EQUIPMENT TO NEW NETWORK CABINET.
16. ROUTE FIVE CATEGORY CABLES FROM UTP PATCH PANEL (DWTR-2) IN EXISTING NETWORK RACK TO STP PATCH PANEL TPP290011B IN AREA NETWORK CABINET. OWNER TO PROVIDE PATCHING AND COORDINATE TERMINATIONS AT EXISTING PATCH PANEL TO EXTEND EXISTING COMMUNICATIONS CONNECTIONS FOR AREA 29 EQUIPMENT TO NEW NETWORK CABINET.

KEYNOTES (CC30A):

21. 12-FIBER, SINGLE-MODE CABLE TO NCE000011 IN TUNNEL AREA. REFERENCE DRAWING I-00-6104, I-00-6110 AND I-00-6530.
22. COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

LEGEND:

- —o— CATEGORY CABLE. SEE SECTION 26 05 19.
- —FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES
- – – – – S908 (COAXIAL) CABLE
- —— —— MODBUS+ RS-485 CABLE

17. ROUTE SIX CATEGORY CABLES FROM UTP PATCH PANELS (DWTR-1 AND DWTR-2) IN EXISTING NETWORK RACK TO STP PATCH PANEL TPP290011C IN AREA NETWORK CABINET. OWNER TO PROVIDE PATCHING AND COORDINATE TERMINATIONS AT EXISTING PATCH PANELS TO EXTEND EXISTING COMMUNICATIONS CONNECTIONS FOR AREA 29 EQUIPMENT TO NEW NETWORK CABINET.
18. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP290011A IN AREA NETWORK CABINET NCE290011.
19. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP290011B IN AREA NETWORK CABINET NCE290011.
20. 6-FIBER, SINGLE-MODE CABLE ROUTED FROM FOP290011C TO DEWATERING BUILDING FIRE ALARM CONTROL PANEL. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULT-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING. (1)

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Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

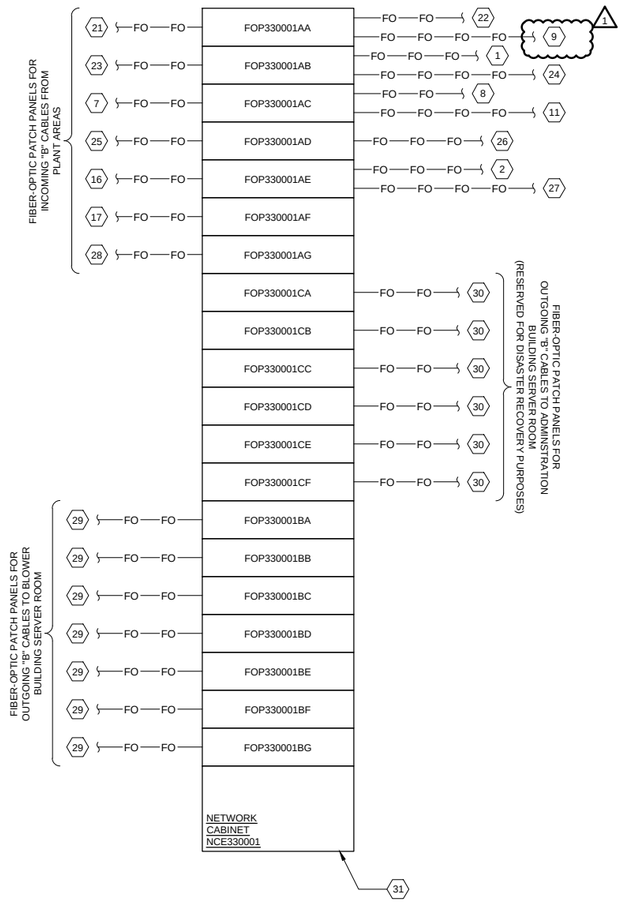
FILENAME I-29-6101.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

INSTRUMENTATION

AREA 29 NETWORK DIAGRAM

DRAWING NUMBER
I-29-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-29-6101.DWG PLOT DATE: 2/17/2021 9:28 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION. (1)
3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
4. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.
5. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 FUTURE 48-FIBER, SINGLE-MODE CABLE TO FOOD WASTE RECEIVING AREA (AREA 11). RESERVE MIDDLE TWO SLOTS.

2 OWNER TO MAKE FIBER-OPTIC PATCH CORD TERMINATIONS FROM EXISTING NETWORK CABINETS IN POWER GENERATION BUILDING CONTROL ROOM AS REQUIRED.

KEYNOTES (CC30B):

(1) 6 NOT USED.

7 48-FIBER, SINGLE-MODE CABLE TO PEPS ELECTRICAL BUILDING (AREA 16). SEE DRAWING I-16-6101 FOR CONTINUATION.

8 48-FIBER, SINGLE-MODE CABLE TO RAS/WAS AREA (AREA 22) ELECTRICAL ROOM. SEE DRAWING I-22-6101 FOR CONTINUATION.

(1) 9 96-FIBER, SINGLE-MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

KEYNOTES (CC30D):

11 48-FIBER, SINGLE-MODE CABLE TO SLUDGE HANDLING (AREA 26) ELECTRICAL ROOM. SEE DRAWING I-26-6101 FOR CONTINUATION.

KEYNOTES (CC30E):

16 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM NITROGEN AREA (AREA 31). RESERVE LEFT TWO SLOTS.

17 24-FIBER, SINGLE-MODE CABLE TO COMPOST BUILDING IN COMPOST AREA. SEE DRAWING I-50-6101 FOR CONTINUATION.

KEYNOTES (CC30A):

21 48-FIBER, SINGLE-MODE CABLE TO UTILITY WATER FILTRATION BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

22 48-FIBER, SINGLE-MODE CABLE TO UV BUILDING (AREA 23) ELECTRICAL ROOM. SEE DRAWING I-23-6101 FOR CONTINUATION.

23 48-FIBER, SINGLE-MODE CABLE TO HEADWORKS BUILDING (AREA 10). SEE DRAWING I-10-6101 FOR CONTINUATION.

24 48-FIBER, SINGLE-MODE CABLE TO MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

25 96-FIBER, SINGLE-MODE CABLE TO DEWATER BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

26 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM PHOSPHORUS AREA (AREA 30). RESERVE RIGHT TWO SLOTS.

27 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

28 144-FIBER, SINGLE-MODE CABLE TO ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

29 144-FIBER, SINGLE-MODE CABLE TO FOP340001xx WITHIN NCR340001 IN BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCE330001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP340001BA AND FOP330001BA.

30 144-FIBER, SINGLE-MODE CABLE TO FOP050001xx WITHIN NCR050001 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCE330001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP330001CA AND FOP050001CA.

31 INSTALLED AS PART OF BLOWER BUILDING CONSTRUCTION PACKAGE CC 30A.

(1) 32 NOT USED.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-33-6101.DWG

BC PROJECT NUMBER
151600

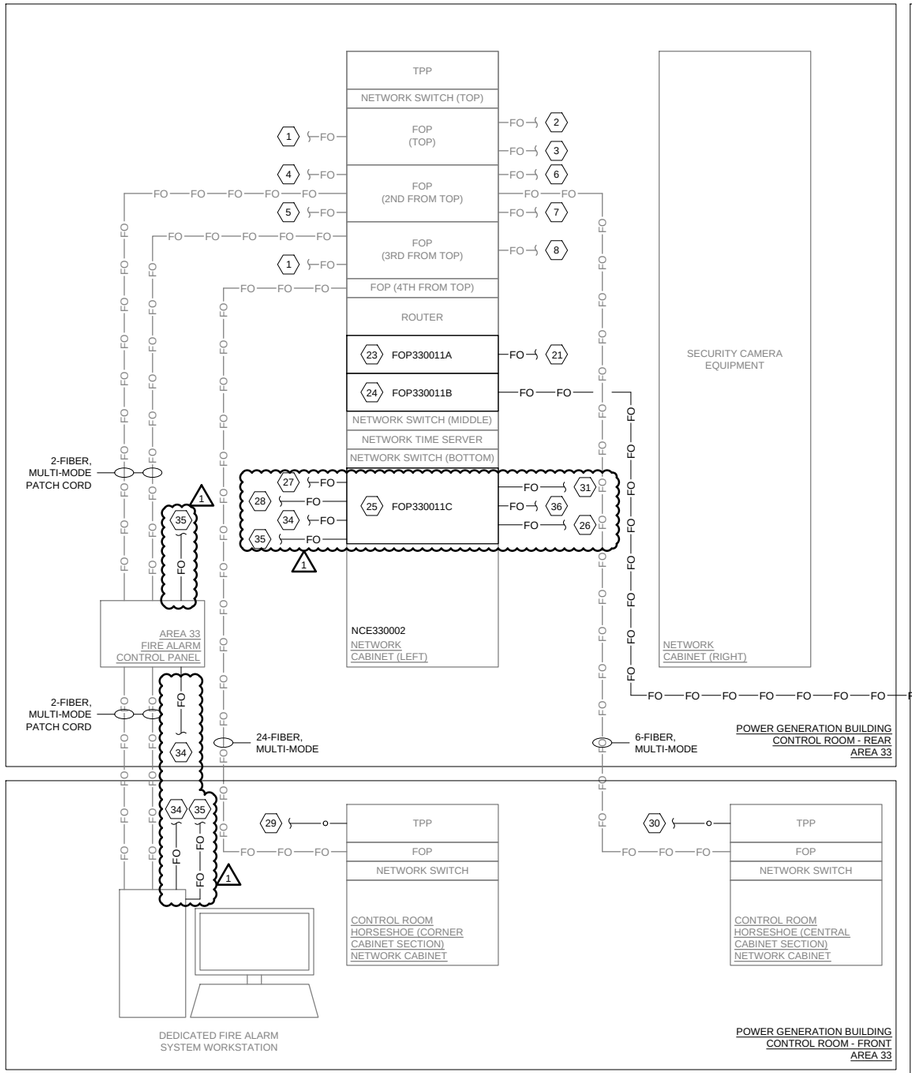
CLIENT PROJECT NUMBER
CC30A

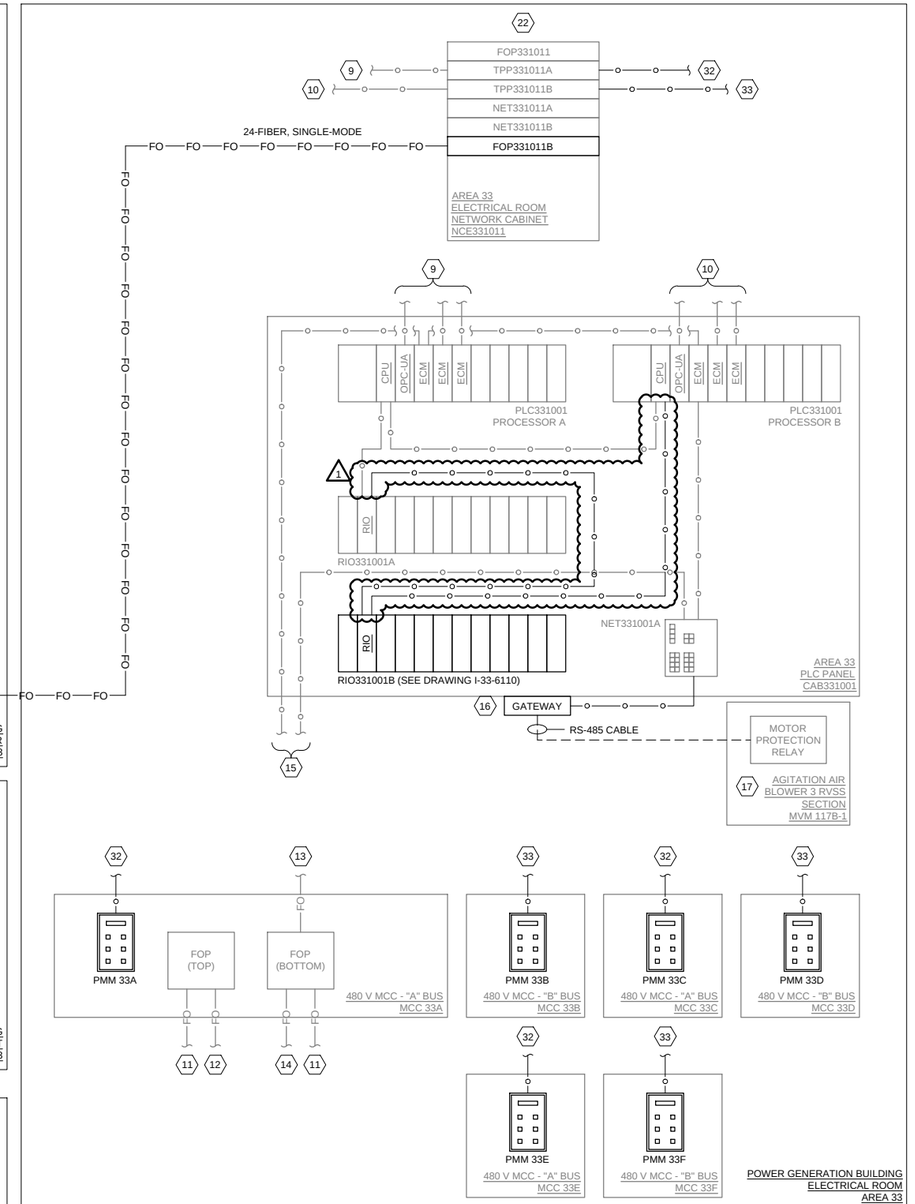
INSTRUMENTATION

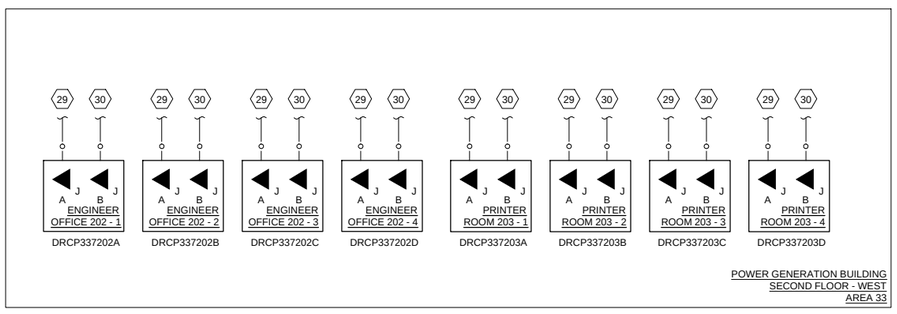
AREA 33 NETWORK DIAGRAM 1

DRAWING NUMBER
I-33-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-33-6101.DWG PLOT DATE: 2/17/2021 10:23 AM CAD USER: KEN WESTERBERG







GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
4. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 33 ETHERNET NETWORKS, WHICH ARE BEING MODIFIED UNDER A SEPARATE COGENERATION CONTRACT THAT PRECEDES THIS PROJECT. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
5. REFER TO SECTION 27 11 00 FOR NEW FIBER-OPTIC PATCH PANEL COMPONENT AND INSTALLATION REQUIREMENTS.
6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.
7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 EXISTING 48-FIBER, MULTI-MODE (MM) CABLE TO NCR050002 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

2 EXISTING 12-FIBER AND 6-FIBER MM CABLES TO NCR-MTN-1 IN MAINTENANCE BUILDING (AREA 13) TELEPHONE ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

3 EXISTING 24-FIBER, MM CABLE TO NCR-DEW-1 IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

4 EXISTING 6-FIBER, MM CABLE TO 3W/COOLING WATER PUMP STATION ROOF CAMERA.

5 EXISTING 6-FIBER, MM CABLE TO TUNNEL INTERSECTION ACCESS CONTROL PANEL.

6 EXISTING 6-FIBER, MM CABLE TO VIDEO JUNCTION BOX AT WEST GATE.

7 EXISTING 48-FIBER, MM CABLE TO EXISTING NETWORK CABINET IN EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

8 EXISTING 24-FIBER, MM CABLE TO NCR-MTN-1 IN MAINTENANCE BUILDING (AREA 13) TELEPHONE ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

9 EXISTING CABLE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP331011A IN ELECTRICAL ROOM NETWORK CABINET.

10 EXISTING CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP331011B IN ELECTRICAL ROOM NETWORK CABINET.

11 EXISTING 6-FIBER, MM CABLE TO MCC 21B IN EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

12 EXISTING 6-FIBER, MM CABLE TO MCC 13B IN MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

13 EXISTING 24-FIBER, MM CABLE TO MCC 10A IN HEADWORKS BUILDING (AREA 10) ELECTRICAL ROOM. SEE DRAWING I-10-6101 FOR CONTINUATION.

14 EXISTING 24-FIBER, MM CABLE TO MCC 29A IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

15 EXISTING COMMUNICATIONS CABLE IS PART OF DEVICE-LEVEL RING FOR EXISTING PLCS IN AREA 33. SEE EXISTING AREA 33 NETWORK DIAGRAM(S) FROM COGEN PROJECT FOR CONTINUATION.

16 OWNER TO INSTALL, CONFIGURE, AND TEST 2-PORT MODBUS RTU TO MODBUS TCP GATEWAY.

17 EXISTING MODBUS RTU SERIAL FIELD WIRING AT MEDIUM VOLTAGE SWITCHGEAR HAS NOT BEEN FIELD VERIFIED. COORDINATE WITH OWNER TO DETERMINE WHERE IN MVM 117A-1 AND MVM 117B-1 TO EXTEND EXISTING MODBUS RTU DAISY CHAIN(S) TO CAB331001.

KEYNOTES (CC30A):

21 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.

22 INSTALL 1U FOP WITH ONE 24-FIBER, LC, SINGLE-MODE FIBER SPLICE MODULE IN EXISTING NETWORK CABINET.

23 INSTALL 2U FOP WITH TWO 24-FIBER, LC, SINGLE-MODE FIBER SPLICE MODULES IN EXISTING NETWORK CABINET.

24 INSTALL 2U FOP WITH ONE 24-FIBER, LC, SINGLE-MODE FIBER SPLICE MODULE IN EXISTING NETWORK CABINET.

25 INSTALL 2U FOP WITH FOUR 12-FIBER, LC, MULTI-MODE FIBER SPLICE MODULES IN EXISTING NETWORK CABINET.

KEYNOTES (CC30A):

26 12-FIBER, SINGLE-MODE CABLE TO NCE130011 IN MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

27 12-FIBER, SINGLE-MODE CABLE TO NCE340101 IN BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

28 12-FIBER, SINGLE-MODE CABLE TO NCE230011 IN UV BUILDING (AREA 23) ELECTRICAL ROOM. SEE DRAWING I-23-6101 FOR CONTINUATION.

29 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO EXISTING STP PATCH PANEL IN HORSESHOE CORNER CABINET SECTION AND CONNECT TO SPARE PORT.

30 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO EXISTING STP PATCH PANEL IN HORSESHOE CENTRAL CABINET SECTION AND CONNECT TO SPARE PORT.

31 INSTALL TEMPORARY 12-FIBER, SINGLE-MODE CABLE TO NCE050004. SEE DRAWING I-05-6101 FOR CONTINUATION.

KEYNOTES (CC30A):

32 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP331011A IN AREA NETWORK CABINET.

33 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP331011B IN AREA NETWORK CABINET.

34 6-FIBER SINGLE-MODE CABLE ROUTED FROM FIRE ALARM CONTROL PANEL FACP330010 TO EXISTING WORKSTATION. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

35 6-FIBER SINGLE-MODE CABLE ROUTED FROM EQUIPMENT TO FOP330011C IN AREA NETWORK CABINET NCE330002.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

KEYNOTES (CC30B):

36 12-FIBER, SINGLE-MODE CABLE TO NCE220011 IN RAS SELECTOR (AREA 22) ELECTRICAL ROOM. SEE DRAWING I-22-6101 FOR CONTINUATION.

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Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

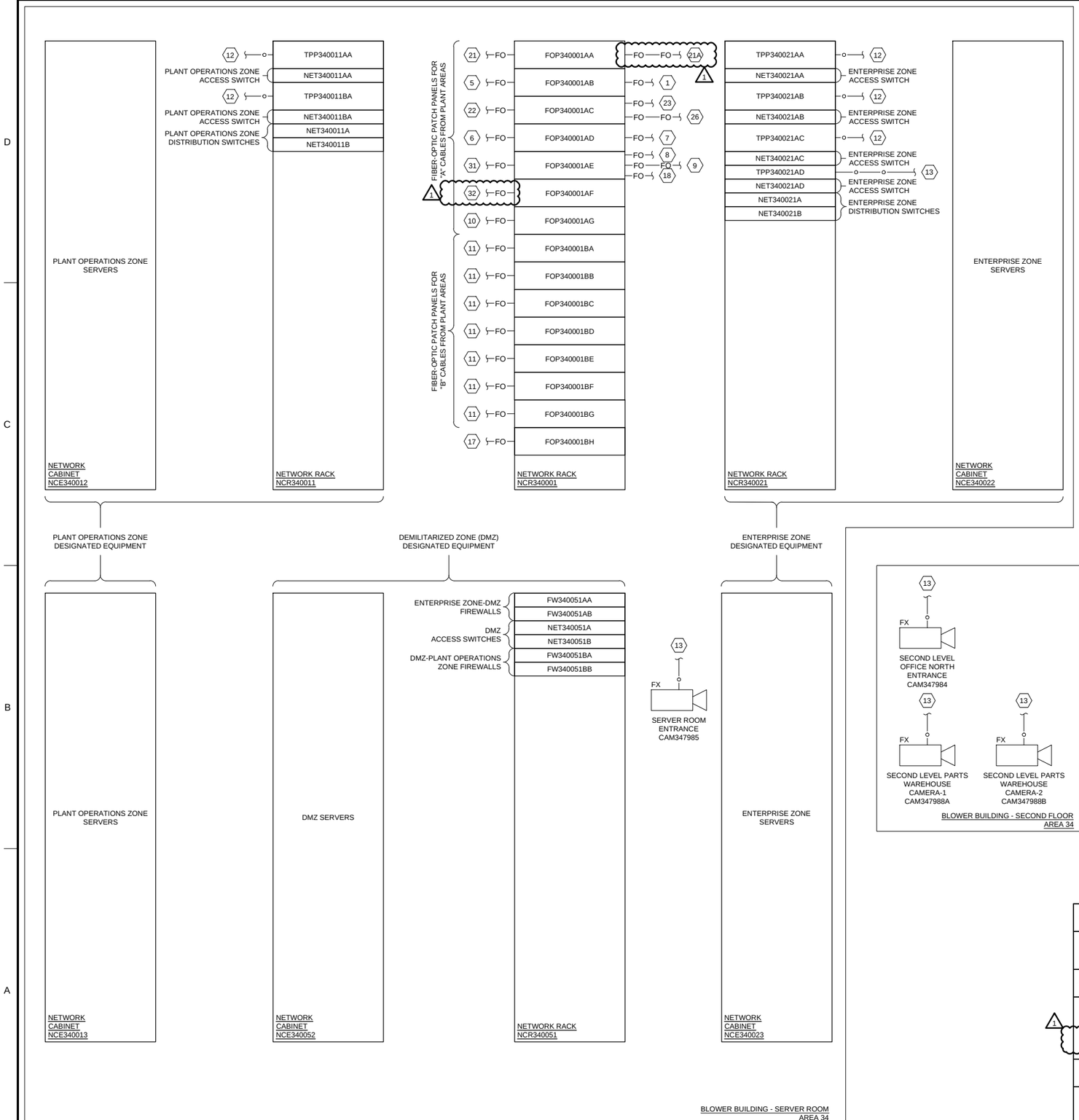
DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME I-33-6102.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

INSTRUMENTATION
AREA 33 NETWORK DIAGRAM 2

DRAWING NUMBER
I-33-6102

Path: \\BCSJNFF01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-33-6102.DWG PLOT DATE: 2/17/2021 11:17 AM CAD USER: KEN WESTERBERG



KEYNOTES (CC30D):

26 48-FIBER, SINGLE-MODE CABLE TO SLUDGE HANDLING (AREA 26) ELECTRICAL ROOM. SEE DRAWING I-26-6101 FOR CONTINUATION.

KEYNOTES (CC30E):

31 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM NITROGEN AREA (AREA 31). RESERVE LEFT TWO SLOTS.

32 24-FIBER, SINGLE-MODE CABLE TO COMPOST BUILDING IN (AREA 50). SEE DRAWING I-50-6101 FOR CONTINUATION.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. OWNER TO FURNISH, INSTALL, CONFIGURE, AND TEST ALL SERVERS, NETWORK SWITCHES, AND FIREWALLS SHOWN ON THIS DRAWING.

3. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION. 1

4. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 4.1. SHIELDED CAT 6A: OUTDOOR CAMERAS
   - 4.2. UNSHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 4.3. JACKET COLOR FOR CABLES CONNECTING TO TPPS IN NCR340021 SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 FUTURE 48-FIBER, SINGLE-MODE CABLE TO FOOD WASTE RECEIVING AREA (AREA 11). RESERVE MIDDLE TWO SLOTS.

2 FUTURE 48-FIBER, SINGLE-MODE CABLE TO COMPOST BUILDING IN COMPOST AREA. SEE DRAWING I-50-6101 FOR CONTINUATION.

KEYNOTES (CC30A):

5 48-FIBER, SINGLE-MODE CABLE TO HEADWORKS BUILDING (AREA 10). SEE DRAWING I-10-6101 FOR CONTINUATION.

6 96-FIBER, SINGLE-MODE CABLE TO EAST DIGESTERS BUILDING (AREA 28) ELECTRICAL ROOM. SEE DRAWING I-28-6101 FOR CONTINUATION.

7 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM PHOSPHORUS AREA (AREA 30). RESERVE RIGHT TWO SLOTS.

8 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

9 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

10 144-FIBER, SINGLE-MODE CABLE TO ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

11 144-FIBER, SINGLE-MODE CABLE TO FOP330001xx WITHIN NCE330001 IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCR340001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP330001BA AND FOP340001BA.

12 COMMUNICATIONS CABLES TO BLOWER BUILDING SECOND LEVEL DATA JACKS AND EQUIPMENT NETWORK INTERFACES. SEE DRAWING I-34-6104 FOR CONTINUATION.

13 COMMUNICATIONS CABLES TO SECOND FLOOR CAMERAS FROM TPP340021D.

14 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101A IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

15 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101B IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

16 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101C IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

17 48-FIBER, SINGLE MODE CABLE TO MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE I-13-6101 FOR CONTINUATION.

18 ROUTE 12-FIBER, MULTI-MODE CABLE TO NCE340102 IN ARC FLASH ROOM. SEE DRAWING I-34-6111.

19 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347901. SEE DRAWING I-34-6102.

20 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347902. SEE DRAWING I-34-6102.

21 48-FIBER, SINGLE-MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

21A 144-FIBER, SINGLE-MODE CABLE TO WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101 FOR CONTINUATION. 1

KEYNOTES (CC30B):

22 48-FIBER, SINGLE-MODE CABLE TO PEPS ELECTRICAL BUILDING (AREA 16). SEE DRAWING I-16-6101 FOR CONTINUATION.

23 48-FIBER, SINGLE-MODE CABLE TO RAS/WAS AREA (AREA 22) ELECTRICAL ROOM. SEE DRAWING I-22-6101 FOR CONTINUATION.

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NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

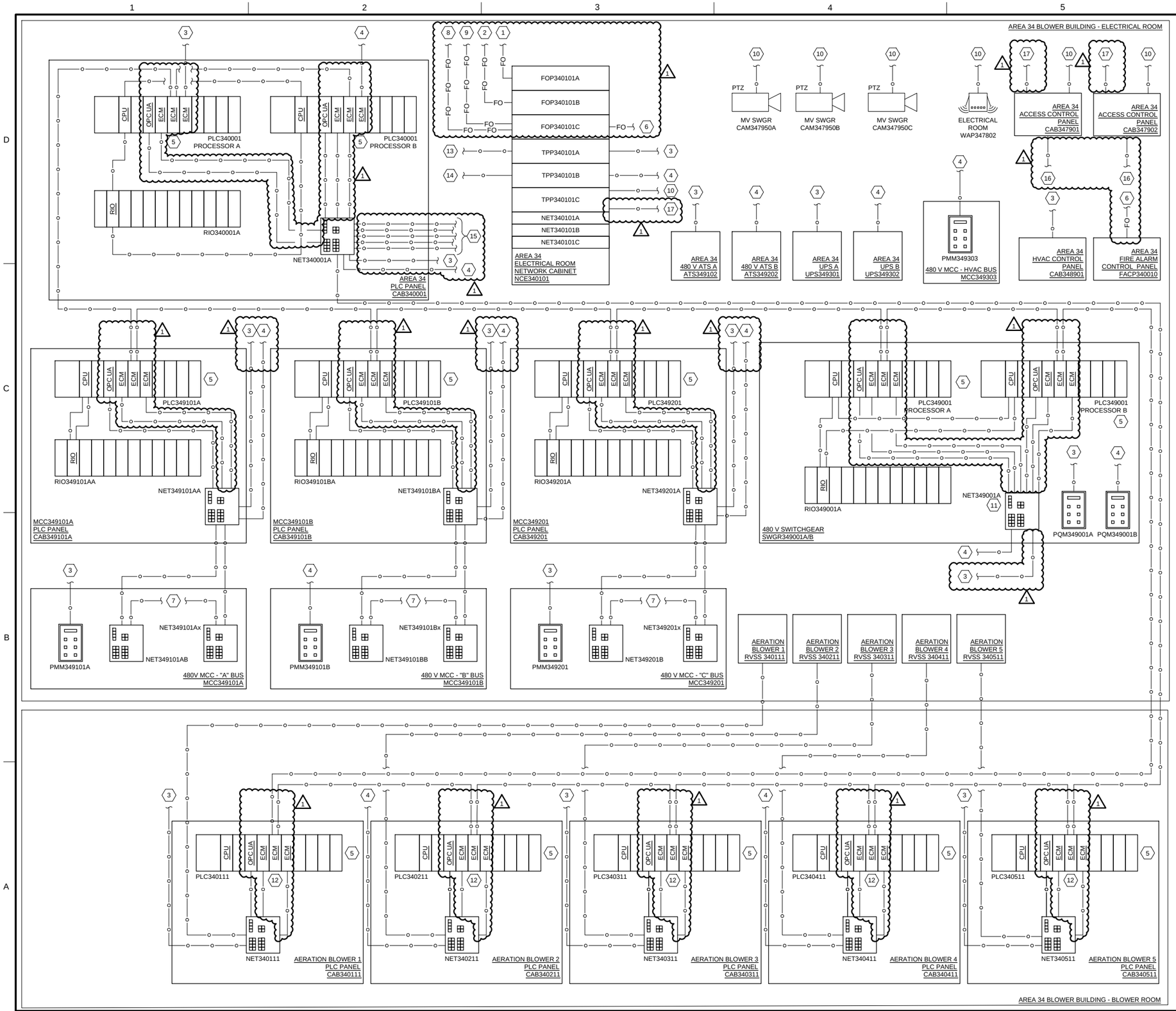
FILENAME I-34-6101.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

INSTRUMENTATION

AREA 34 NETWORK DIAGRAM - 1

DRAWING NUMBER
I-34-6101

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\000-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-34-6101.DWG PLOT DATE: 2/19/2021 7:03 AM CAD USER: KEN WESTERBERG



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS.
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP340101C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.
4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.
5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP340101A IN ELECTRICAL ROOM NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP340101B IN ELECTRICAL ROOM NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.
6. 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP340101C TO FIRE ALARM CONTROL PANEL FACP340010.
7. INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.
8. 12-FIBER, SINGLE-MODE CABLE TO EXISTING NETWORK CABINET NCE330002 IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
9. 12-FIBER, SINGLE-MODE CABLE TO NCE240011 IN EAST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. SEE DRAWING I-24-6101 FOR CONTINUATION.
10. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP340101C IN ELECTRICAL ROOM NETWORK CABINET.
11. ADDITIONAL NETWORK CONNECTIONS INTERNAL TO THE SWITCHGEAR ARE NOT SHOWN ON THIS DRAWING.
12. ADDITIONAL NETWORK CONNECTIONS INTERNAL TO THE VENDOR CONTROL PANEL ARE NOT SHOWN ON THIS DRAWING.
13. ROUTE FROM TPP340101A TO TPP340102A IN NCE340102 LOCATED IN ARC FLASH ROOM. SEE DRAWING I-34-6111.
14. ROUTE FROM TPP340101B TO TPP340102B IN NCE340102 LOCATED IN ARC FLASH ROOM. SEE DRAWING I-34-6111.
15. ROUTE FROM SERVICE AIR COMPRESSOR AND DRYER PANEL NETWORK INTERFACE TO NETWORK SWITCH. SEE DRAWING I-34-6103.
16. ROUTE FROM CAMERA NETWORK INTERFACE TO ACCESS CONTROL PANELS. SEE DRAWINGS I-34-6101 AND I-34-6103.
17. ROUTE FROM ACCESS CONTROL PANELS TO NCE340011 FOR EACH OUTDOOR CAMERA CONNECTED TO THEM.

LEGEND:

—o——o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO—FO— FIBER-OPTIC CABLE

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CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

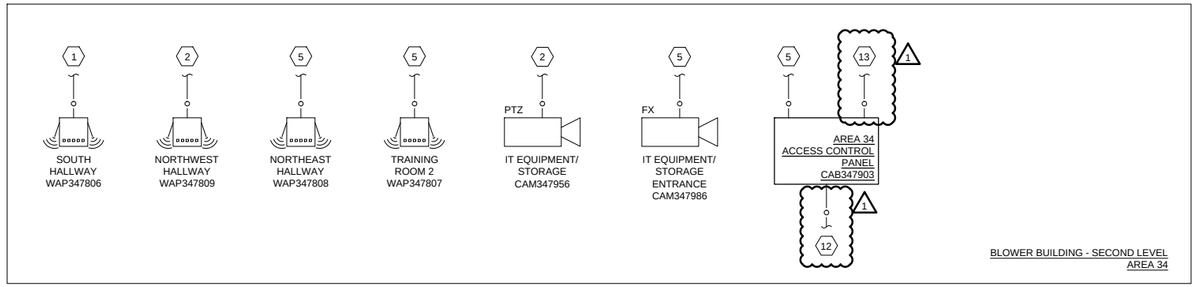
FILENAME I-34-6102.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

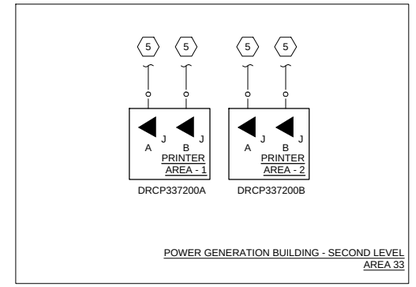
INSTRUMENTATION

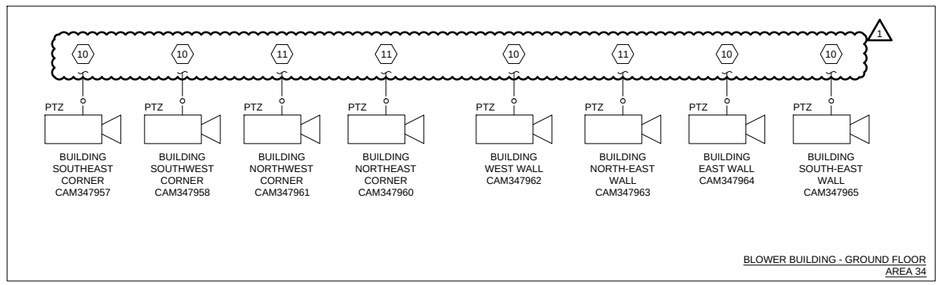
AREA 34 NETWORK DIAGRAM - 2

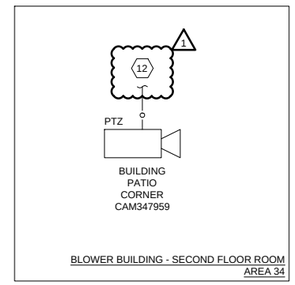
DRAWING NUMBER
I-34-6102

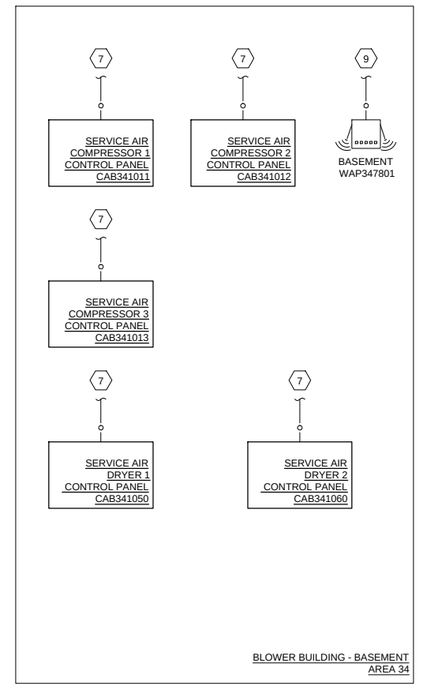
Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-34-6102.DWG PLOT DATE: 2/19/2021 7:52 AM CAD USER: KEN WESTERBERG

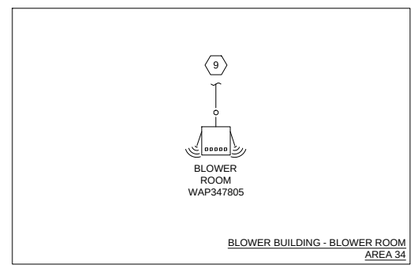


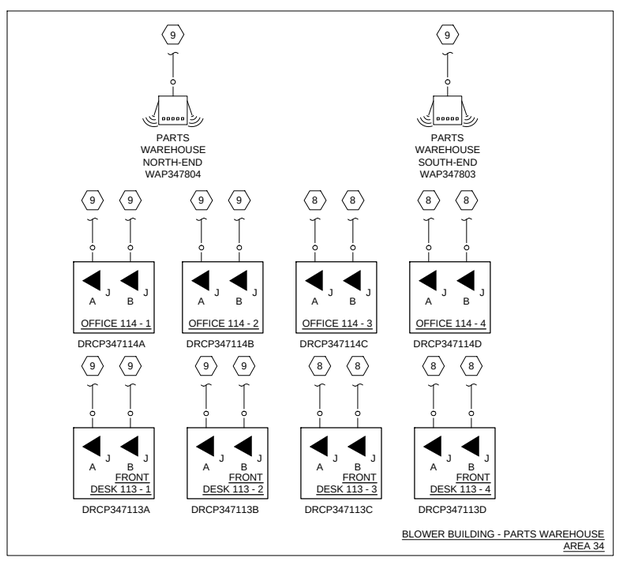












GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 2.1. SHIELDED CAT 6A: OUTDOOR CAMERAS AND CABLES ENTERING OR LEAVING ELECTRICAL ROOM.
   - 2.2. UNSHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 2.3. JACKET COLOR FOR CABLES CONNECTING TO TPPS IN NCR340021 AND TPP340101C IN NCE340101 SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

3. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. ROUTE FROM DATA JACK OR EQUIPMENT NETWORK INTERFACE TO UNSHIELDED TWISTED PAIR (UTP) PATCH PANEL TPP340021A IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340021. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. ROUTE FROM DATA JACK OR EQUIPMENT NETWORK INTERFACE TO UTP PATCH PANEL TPP340021B IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340021. SEE DRAWING I-34-6101 FOR CONTINUATION.
3. ROUTE FROM DATA JACK TO UTP PATCH PANEL TPP340011AA IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340011. SEE DRAWING I-34-6101 FOR CONTINUATION.
4. ROUTE FROM DATA JACK TO UTP PATCH PANEL TPP340011BA IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340011. SEE DRAWING I-34-6101 FOR CONTINUATION.
5. ROUTE FROM DATA JACK OR EQUIPMENT NETWORK INTERFACE TO UTP PATCH PANEL TPP340021C IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340021. SEE DRAWING I-34-6101 FOR CONTINUATION.
6. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP340021D IN BLOWER BUILDING SERVER ROOM NETWORK RACK NCR340021. SEE DRAWING I-34-6101 FOR CONTINUATION.
7. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH IN AREA PLC CAB34001. SEE DRAWING I-34-6102 FOR CONTINUATION.
8. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR STP TPP340101B IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.
9. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR STP TPP340101C IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.
10. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347901. SEE DRAWING I-34-6102.
11. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347902. SEE DRAWING I-34-6102.
12. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347903.
13. ROUTE FROM ACCESS CONTROL PANEL TO NCR340021 FOR EACH OUTDOOR CAMERA CONNECTED TO THEM.

1

LEGEND:

—o—— CATEGORY CABLE. SEE SECTION 26 05 19.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-34-6103.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

INSTRUMENTATION

AREA 34 NETWORK DIAGRAM - 3

DRAWING NUMBER
I-34-6103

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-34-6103.DWG PLOT DATE: 2/19/2021 8:12 AM CAD USER: KEN WESTERBERG

Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC000010-A	XHHW2	6#14, 1#14G	TBX000010	PLC131001	RWYC000010-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
CBLV000010-A	VENDOR	Special	LSL,M,H000010	TBX000010						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL I6101	CC30B
CBLC000011-A	XHHW2	11#14, 1#14G	CS000011	MCC 13A	RWYC000011-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
CBLC000011-B	XHHW2	10#14, 1#14G	TBX000011	CS000011	RWYC000011-B					E-00-4001		CC30B
CBLM000011-A	VENDOR	Special	M000011	TBX000011						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000011-A	XHHW2	3#10, 1#10G	DS000011	MCC 13A	RWYP000011-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
CBLP000011-B	XHHW2	3#10, 1#10G	TBX000011	DS000011	RWYP000011-B					E-00-4001		CC30B
CBLF000011BA-A	**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**INSTR1010**	**CTS100101**	**CTS100103**	**CTS100105**	**INSTR1010**	**E-00-1016**	**PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF000011BA-A	**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**RWYF100011A-B**	**CTS000006B**	**RWYF000011BA-A**			**E-00-1016**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF000011BA-B	**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**RWYF290011A-A**	**JBX000010**	**RWYF000010-A**	**CTS000002B**	**CTS000004B**	**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF000011BA-B	**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**CTS000006B**	**RWYF000011BA-A**				**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLC000012-A	XHHW2	11#14, 1#14G	CS000012	MCC 13B	RWYC000012-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
CBLC000012-B	XHHW2	10#14, 1#14G	TBX000012	CS000012	RWYC000012-B					E-00-4001		CC30B
CBLM000012-A	VENDOR	Special	M000012	TBX000012						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000012-A	XHHW2	3#10, 1#10G	DS000012	MCC 13B	RWYP000012-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
CBLP000012-B	XHHW2	3#10, 1#10G	TBX000012	DS000012	RWYP000012-B					E-00-4001		CC30B
CBLC000020-A	XHHW2	6#14, 1#14G	TBX000020	PLC020001	RWYC000020-A	HH020003	RWYC000020-B			E-00-4001	CABLE ALSO APPEARS IN 02 CABLE SCHEDULE	CC30B
CBLV000020-A	VENDOR	Special	LSL,M,H000020	TBX000020						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL I6101	CC30B
CBLC000021-A	XHHW2	11#14, 1#14G	CS000021	MCC029001A	RWYC000021-A	HH020003	RWYC000021-C			E-00-4001	CABLE ALSO APPEARS IN 02 CABLE SCHEDULE	CC30B
CBLC000021-B	XHHW2	10#14, 1#14G	TBX000021	CS000021	RWYC000021-B					E-00-4001		CC30B
CBLM000021-A	VENDOR	Special	M000021	TBX000021						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000021-A	XHHW2	3#10, 1#10G	DS000021	MCC029001A	RWYP000021-A	HH020002	RWYP000021-C			E-00-4001	CABLE ALSO APPEARS IN 02 CABLE SCHEDULE	CC30B
CBLP000021-B	XHHW2	3#10, 1#10G	TBX000021	DS000021	RWYP000021-B					E-00-4001		CC30B
CBLC000022-A	XHHW2	11#14, 1#14G	CS000022	MCC029001B	RWYC000022-A	HH020003	RWYC000022-C			E-00-4001	CABLE ALSO APPEARS IN 02 CABLE SCHEDULE	CC30B
CBLC000022-B	XHHW2	10#14, 1#14G	TBX000022	CS000022	RWYC000022-B					E-00-4001		CC30B
CBLM000022-A	VENDOR	Special	M000022	TBX000022						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000022-A	XHHW2	3#10, 1#10G	DS000022	MCC029001B	RWYP000022-A	HH020002	RWYP000022-C			E-00-4001	CABLE ALSO APPEARS IN 02 CABLE SCHEDULE	CC30B
CBLP000022-B	XHHW2	3#10, 1#10G	TBX000022	DS000022	RWYP000022-B					E-00-4001		CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC000030-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	CABLE ALSO APPEARS IN 22 CABLE SCHEDULE	CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	CONITNUED FROM LINE ABOVE	CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC220001-A					E-00-4001	CONITNUED FROM LINE ABOVE	CC30B
CBLV000030-A	VENDOR	Special	LSL,M,H000030	TBX000030						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL I6101	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC000031-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	CABLE ALSO APPEARS IN 22 CABLE SCHEDULE	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC229101A-C					E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLC000031-B	XHHW2	10#14, 1#14G	TBX000031	CS000031	RWYC000031-B					E-00-4001		CC30B
CBLM000031-A	VENDOR	Special	M000031	TBX000031						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP000031-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A	E-00-4001	CABLE ALSO APPEARS IN 22 CABLE SCHEDULE	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001	E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP229101A-E					E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLP000031-B	XHHW2	3#10, 1#10G	TBX000031	DS000031	RWYP000031-B					E-00-4001		CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC000032-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	CABLE ALSO APPEARS IN 22 CABLE SCHEDULE	CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC229101B-C					E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLC000032-B	XHHW2	10#14, 1#14G	TBX000032	CS000032	RWYC000032-B					E-00-4001		CC30B
CBLM000032-A	VENDOR	Special	M000032	TBX000032						E-00-4001	EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP000032-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A	E-00-4001	CABLE ALSO APPEARS IN 22 CABLE SCHEDULE	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001	E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP229101B-E					E-00-4001	CONTINUED FROM LINE ABOVE	CC30B
CBLP000032-B	XHHW2	3#10, 1#10G	TBX000032	DS000032	RWYP000032-B					E-00-4001		CC30B
CBLX000901A	PULLROPE	PULLROPE	HH003101	HH000901	RWYX000901-A					E-00-1031		CC30B
CBLX000902A	PULLROPE	PULLROPE	HH003102	HH000902	RWYX000902-A					E-00-1031		CC30B
CBLP001001-A	TCER	2#12, 1#12G	PNL349304	HH001001	CTPR340013A	RWYP341001-K	HH341001	RWYP001001-K	HH001001		HANDHOLE HH001001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX001001A	PULLROPE	PULLROPE	HH001002	MH23613	RWYX23613-A					E-00-1006		CC30A
CBLX001001B	PULLROPE	PULLROPE	HH001002	MH23613	RWYX23613-B					E-00-1006		CC30A
CBLX001001C	PULLROPE	PULLROPE	HH001002	MH23613	RWYX23613-C					E-00-1006		CC30A
CBLX001401A	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-A					E-00-1014		CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLX001402A	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-A					E-00-1014		CC30B
CBLX001403A	PULLROPE	PULLROPE	HH001405	HH001403	RWYX001403-A					E-00-1014		CC30B
CBLX001404A	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-A					E-00-1014		CC30B
CBLX001405A	PULLROPE	PULLROPE	HH000901	HH001405	RWYX001405-A					E-00-1009		CC30B
CBLX001406A	PULLROPE	PULLROPE	HH000902	HH001406	RWYX001406-A					E-00-1009		CC30B
CBLC009100-A	XHHW2	18#14, 1#14G	CAB340134A	SWGR009100	RWYC007002-A	HH007002	RWYC007001-A	HH007001	RWYC009100-A	E-00-1006	CONTROL FEED TO SWGR0091000 FOR VFI009100-1 AND VFI009100-3. USE EXISTING RACEWAY SPARE RWYC004001-A. CABLE ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30A
CBLC009100-B	XHHW2	18#14, 1#14G	CAB340134B	SWGR009100	RWYC007002-B	HH007002	RWYC007001-A	HH007001	RWYC009100-A	E-00-1006	CONTROL FEED TO SWGR0091000 FOR VFI009100-2 AND VFI009100-4. USE EXISTING RACEWAY SPARE RWYC004001-A. CABLE ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	RWYP009100-AA	CTPR340019A	CTPR340021A	CTPR340023A	CTPR340025A	E-00-1006	120V UPS FEED TO SWGR0091000. USE EXISTING RACEWAY SPARE RWYX004001-E. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	CTPR340005A	CTPR340003A	RWYP006002-A	HH006002	RWYP006001-A	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	HH006001	RWYP009100-AB				E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX020001A	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001A					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020001B	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001B					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020001C	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001C					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020002A	PULLROPE	PULLROPE	HH020001	HH24225	RWYF020002-C					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020003A	PULLROPE	PULLROPE	3W ELEC ROOM	HH020001	RWYSX020003A					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020003B	PULLROPE	PULLROPE	3W ELEC ROOM	HH020001	RWYSX020003B					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020005A	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-A					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020005B	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-B					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020005C	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-C					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLX020005D	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYF020005-B					E-00-1005	SPARE FIBER CONDUIT TO AREA 23. CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**RWYF240011-A**	**CTS24**	**RWYF24224-E**	**HH24224**	**RWYF24225-E**	E-00-1005	**CABLE ALSO APPEARS IN AREA 02 AND 24 CABLE SCHEDULE (CCF 020 CHANGE PENDING)**	CC5F
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**HH24225**	**RWYF24225-B**	**HH020001**	**RWYF020011-B**		E-00-1005	**CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 24 CABLE SCHEDULE. (CCF 020 CHANGE PENDING)**	CC5F
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-00-1005	CABLE ALSO APPEARS IN AREA 02, 33 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02, 33 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02, 33 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	MH23613	RWYF230001A-A	JBX230001-A	RWYF020011-A	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02, 33 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF230001B-C	HH020001	RWYF020011-B			E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02, 33 AND SITE CABLE SCHEDULES	CC30A
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	**RWYF240011-B**	**CTS24**	**RWYF240000-C**	**HH24224**	**RWYF24224-C**	E-00-1005	**PLANT FIRE ALARM, CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULE. (CCF 020 CHANGE PENDING)**	CC5F
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	**HH24225**	**RWYF24225-A**	**HH020001**	**RWYF020011-C**		E-00-1005	**CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES. (CCF 020 CHANGE PENDING)**	CC5F
CBLP029001A-A1	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A1	PBX210001P	RWYP029001A-B1	RWYP029001A-C1	RWYP029001A-D1	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A1	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E1	MH24225	RWYP029001A-F1		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A2	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A2	PBX210001P	RWYP029001A-B2	RWYP029001A-C2	RWYP029001A-D2	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A2	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E2	MH24225	RWYP029001A-F2		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A3	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A3	PBX210001P	RWYP029001A-B3	RWYP029001A-C3	RWYP029001A-D3	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP029001A-A3	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E3	MH24225	RWYP029001A-F3		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A4	PULLROPE	PULLROPE	LVSWGR21A	MCC029001A	RWYP029001A-A4	PBX210001P	RWYP029001A-B4	RWYP029001A-C4	RWYP029001A-D4	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001A-A4	PULLROPE	PULLROPE	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E4	MH24225	RWYP029001A-F4		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A1	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A1	PBX210001P	RWYP029001B-B1	RWYP029001B-C1	RWYP029001B-D1	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A1	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E1	MH24225	RWYP029001B-F1		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A2	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A2	PBX210001P	RWYP029001B-B2	RWYP029001B-C2	RWYP029001B-D2	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A2	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E2	MH24225	RWYP029001B-F2		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A3	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A3	PBX210001P	RWYP029001B-B3	RWYP029001B-C3	RWYP029001B-D3	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A3	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E3	MH24225	RWYP029001B-F3		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A4	PULLROPE	PULLROPE	LVSWGR21B	MCC029001B	RWYP029001B-A4	PBX210001P	RWYP029001B-B4	RWYP029001B-C4	RWYP029001B-D4	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029001B-A4	PULLROPE	PULLROPE	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E4	MH24225	RWYP029001B-F4		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULES	CC5F
CBLP029201-39,41	TCER	2#12, 1#12G	PNL029201	RDWY LTG	RWYP020001-A					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULE	CC5F
CBLP029303-C	XHHW2	1#12, 1#12N, 1#12G	PNL029303	HH020001	RWYP020001-D					E-00-1005	CABLE ALSO APPEARS IN AREA 02 CABLE SCHEDULES	
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-05-4002	CABLE ALSO APPEARS IN AREA 05, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340001A	RWYF000001A-C	CTS000001A	CTS000003A	CTS000005A	E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	RWYF050004A-A					E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-00-1010	CABLE ALSO APPEARS IN AREA 05 AND 33 CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS000002B	CTS000004B	CTS000006B	RWYF050004B-A		E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND 33 CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF050001CA-A	**FOTSM**	**12 FiberSM**	NCE100011	NCE050004	INSTR1010	CTS100101	CTS100103	CTS100105	INSTR1010	E-00-1021	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 05 AND 10 CABLE SCHEDULE. (CCF 007) (CCF 020 CHANGE ORDER PENDING)	CC30A / REV 1
CBLF050001CA-A	**FOTSM**	**12 FiberSM**	NCE100011	NCE050004	RWYF100011A-A	CTS000005A	RWYF050001CA-A			E-00-1021	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 05 AND 10 CABLE SCHEDULE. (CCF 007) (CCF 020 CHANGE ORDER PENDING)	CC30A / REV 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-00-1010	CABLE ALSO APPEARS IN AREA 10, 33 AND 34 CABLE SCHEDULES	CC30A / REV 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340001A	RWYF000001A-A	CTS000001A	CTS000003A	CTS000005A	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND 34 CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	RWYF100011A-A	INSTR1010	CTS100105	CTS100103	CTS100101	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND 34 CABLE SCHEDULES	CC30A / REV 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	INSTR1010						CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND 34 CABLE SCHEDULES	CC30A / REV 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 10 AND 33 CABLE SCHEDULES	CC30A / REV 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS000002B	CTS000004B	CTS000006B	RWYF100011A-B	INSTR1010	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND 33 CABLE SCHEDULES. (CCF 007)	CC30A / REV 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS100105	CTS100103	CTS100101	INSTR1010		E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND 33 CABLE SCHEDULES.	CC30A / REV 1
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**RWYF130011A-B**~~	~~**CTS000002B**~~	~~**CTS000004B**~~	~~**CTS000006B**~~	~~**RWYF100011A-B**~~	~~**E-00-1016**~~	~~**TEMP PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 10 AND 13 CABLE SCHEDULES (CCF 020 CHANGE PENDING)**~~	**CC30A**
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**INSTR1010**~~	~~**CTS100105**~~	~~**CTS100103**~~	~~**CTS100101**~~	~~**INSTR1010**~~	~~**E-00-1016**~~	~~**TEMP PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 10 AND 13 CABLE SCHEDULES (CCF 020 CHANGE PENDING)**~~	**CC30A**
CBLH109001A-A	MV105	3#500, 1#4/0G	SWGR340133A	ATS109001A	CTH340005A	CTH340003A	CTH10133A	CTH20133A	RWYH109001A-A	E-00-1016	5 KV "A" SIDE FEED TO AREA 10 SUBSTATION EPLACES EXISTING CABLE H10001A.AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLH109001B-A	MV105	3#500, 1#4/0G	SWGR340133B	ATS109001B	CTH340006B	CTH340004B	CTH10133B	CTH20133B	RWYH109001B-A	E-00-1016	5 KV "B" SIDE FEED TO AREA 10 SUBSTATION REPLACES EXISTING CABLE H10001B. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-13-1201	CABLE ALSO APPEARS IN AREA 13, 33 AND 34 CABLE SCHEDULES	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340001A	RWYF000001A-A	CTS000001A	RWYF130011A-A		E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13, 33 AND 34 CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-13-1201	CABLE ALSO APPEARS IN AREA 13 AND 33 CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS000002B	RWYF130011A-B					CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13, AND 33 CABLE SCHEDULES	CC30A
CBLF130011BA-A	FOTMM	12 FiberMM	NCE330002	NCE130011	CTS330201	RWYF330105-A	CTS330105	CTS330103	RWYF000002B-E	E-13-1201	PLANT FIRE ALARM. CABLE ALSO APEARS IN 13 AND 33 CABLE SCHEDULE	CC30A
CBLF130011BA-A	FOTMM	12 FiberMM	NCE330002	NCE130011	CTS000002B	RWYF130011A-B						
CBLX150001-A	PULLROPE	PULLROPE	TUNNEL	HH151001	RWYX150001-A					E-00-1020		CC30B
CBLX150001-B	PULLROPE	PULLROPE	TUNNEL	HH151001	RWYX150001-B					E-00-1020		CC30B
CBLX150002-A	PULLROPE	PULLROPE	TUNNEL	HH151002	RWYX150002-A					E-00-1020		CC30B
CBLX150002-B	PULLROPE	PULLROPE	TUNNEL	HH151002	RWYX150002-B					E-00-1020		CC30B
CBLX150003-A	PULLROPE	PULLROPE	HH151001	HH151003	RWYX150003-A					E-00-1020		CC30B
CBLX150003-B	PULLROPE	PULLROPE	HH151001	HH151003	RWYX150003-B					E-00-1020		CC30B
CBLX150004-A	PULLROPE	PULLROPE	HH151002	HH151004	RWYX150004-A					E-00-1020		CC30B
CBLX150004-B	PULLROPE	PULLROPE	HH151002	HH151004	RWYX150004-B					E-00-1020		CC30B
CBLX150005-A	PULLROPE	PULLROPE	HH151003	HH151005	RWYX150005-A					E-00-1020		CC30B
CBLX150006-A	PULLROPE	PULLROPE	HH151004	HH151006	RWYX150006-A					E-00-1020		CC30B
CBLX150007-C	PULLROPE	PULLROPE	TUNNEL	HH1007	RWYX150007-A					E-00-1021		CC30B
CBLX150007-D	PULLROPE	PULLROPE	TUNNEL	HH1007	RWYX150007-B					E-00-1021		CC30B
CBLX150008-C	PULLROPE	PULLROPE	TUNNEL	HH1008	RWYX150008-A					E-00-1021		CC30B
CBLX150008-D	PULLROPE	PULLROPE	TUNNEL	HH1008	RWYX150008-B					E-00-1021		CC30B
CBLX150009-C	PULLROPE	PULLROPE	HH1007	HH1009	RWYX150009-A					E-00-1021		CC30B
CBLX150009-D	PULLROPE	PULLROPE	HH1007	HH1009	RWYX150009-B					E-00-1021		CC30B
CBLX150010-C	PULLROPE	PULLROPE	HH1008	HH1010	RWYX150010-A					E-00-1021		CC30B
CBLX150010-D	PULLROPE	PULLROPE	HH1008	HH1010	RWYX150010-B					E-00-1021		CC30B
CBLC150101-A	TCER	11#14, 1#14G	MCC109101A	CS150101	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150101-A	TCER	11#14, 1#14G	MCC109101A	CS150101	CTS150002	RWYC150101-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150101-B	XHHW2	2#14, 1#14G	CS150101	TBX150101	RWYC150101-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150101-A	TCER	3#12, 1#12G	MCC109101A	DS150101	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150101-A	TCER	3#12, 1#12G	MCC109101A	DS150101	CTPR150001	RWYP150101-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150101-B	XHHW2	3#12, 1#12G	DS150101	TBX150101	RWYP150101-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150101	VENDOR	Special	TBX150101	MX150101						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150102-A	TCER	11#14, 1#14G	MCC109101B	CS150102	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150102-A	TCER	11#14, 1#14G	MCC109101B	CS150102	CTS150002	RWYC150102-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150102-B	XHHW2	2#14, 1#14G	CS150102	TBX150102	RWYC150102-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150102-A	TCER	3#12, 1#12G	MCC109101B	DS150102	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150102-A	TCER	3#12, 1#12G	MCC109101B	DS150102	CTPR150001	RWYP150102-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150102-B	XHHW2	3#12, 1#12G	DS150102	TBX150102	RWYP150102-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150102	VENDOR	Special	TBX150102	MX150102						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150103-A	TCER	11#14, 1#14G	MCC109101A	CS150103	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150103-A	TCER	11#14, 1#14G	MCC109101A	CS150103	CTS150002	RWYS151002-A	HH151002	RWYC150103-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150103-B	XHHW2	2#14, 1#14G	CS150103	TBX150103	RWYC150103-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150103-A	TCER	3#12, 1#12G	MCC109101A	DS150103	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150103-A	TCER	3#12, 1#12G	MCC109101A	DS150103	CTPR150001	RWYP151001-A	HH151001	RWYP150103-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150103-B	XHHW2	3#12, 1#12G	DS150103	TBX150103	RWYP150103-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150103	VENDOR	Special	TBX150103	MX150103						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC150104-A	TCER	11#14, 1#14G	MCC109101B	CS150104	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150104-A	TCER	11#14, 1#14G	MCC109101B	CS150104	CTS150002	RWYS151002-A	HH151002	RWYC150104-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150104-B	XHHW2	2#14, 1#14G	CS150104	TBX150104	RWYC150104-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150104-A	TCER	3#12, 1#12G	MCC109101B	DS150104	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150104-A	TCER	3#12, 1#12G	MCC109101B	DS150104	CTPR150001	RWYP151001-A	HH151001	RWYP150104-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150104-B	XHHW2	3#12, 1#12G	DS150104	TBX150104	RWYP150104-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150104	VENDOR	Special	TBX150104	MX150104						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	CTS150002	RWYS151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	RWYC150105-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150105-B	XHHW2	2#14, 1#14G	CS150105	TBX150105	RWYC150105-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	RWYP150105-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150105-B	XHHW2	3#12, 1#12G	DS150105	TBX150105	RWYP150105-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150105	VENDOR	Special	TBX150105	MX150105						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	CTS150002	RWYS151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	RWYC150106-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150106-B	XHHW2	2#14, 1#14G	CS150106	TBX150106	RWYC150106-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	RWYP150106-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150106-B	XHHW2	3#12, 1#12G	DS150106	TBX150106	RWYP150106-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150106	VENDOR	Special	TBX150106	MX150106						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	RWYC150107-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150107-B	XHHW2	2#14, 1#14G	CS150107	TBX150107	RWYC150107-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	RWYP150107-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150107-B	XHHW2	3#12, 1#12G	DS150107	TBX150107	RWYP150107-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150107	VENDOR	Special	TBX150107	MX150107						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	RWYC150108-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150108-B	XHHW2	2#14, 1#14G	CS150108	TBX150108	RWYC150108-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	RWYP150108-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150108-B	XHHW2	3#12, 1#12G	DS150108	TBX150108	RWYP150108-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150108	VENDOR	Special	TBX150108	MX150108						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	RWYC150109-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150109-B	XHHW2	2#14, 1#14G	CS150109	TBX150109	RWYC150109-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	RWYP150109-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150109-B	XHHW2	3#12, 1#12G	DS150109	TBX150109	RWYP150109-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150109	VENDOR	Special	TBX150109	MX150109						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	RWYC150110-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150110-B	XHHW2	2#14, 1#14G	CS150110	TBX150110	RWYC150110-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	RWYP150110-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150110-B	XHHW2	3#12, 1#12G	DS150110	TBX150110	RWYP150110-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150110	VENDOR	Special	TBX150110	MX150110						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	RWYC150111-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150111-B	XHHW2	2#14, 1#14G	CS150111	TBX150111	RWYC150111-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	RWYP150111-A					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150111-B	XHHW2	3#12, 1#12G	DS150111	TBX150111	RWYP150111-B					E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150111	VENDOR	Special	TBX150111	MX150111						E-00-4003	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150112-A	TCER	11#14, 1#14G	MCC109101B	CS150112	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC150112-A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150112-B	XHHW2	2#14, 1#14G	CS150112	TBX150112	RWYC150112-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150112-A	TCER	3#12, 1#12G	MCC109101B	DS150112	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150112-A	TCER	3#12, 1#12G	MCC109101B	DS150112	CTP150003	RWYP150112-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150112-B	XHHW2	3#12, 1#12G	DS150112	TBX150112	RWYP150112-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150112	VENDOR	Special	TBX150112	MX150112						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150113-A	TCER	11#14, 1#14G	MCC109101A	CS150113	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC150113-A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150113-B	XHHW2	2#14, 1#14G	CS150113	TBX150113	RWYC150113-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP150113-A	TCER	3#12, 1#12G	MCC109101A	DS150113	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150113-A	TCER	3#12, 1#12G	MCC109101A	DS150113	CTP150003	RWYP150113-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150113-B	XHHW2	3#12, 1#12G	DS150113	TBX150113	RWYP150113-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150113	VENDOR	Special	TBX150113	MX150113						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150114-A	TCER	11#14, 1#14G	MCC109101B	CS150114	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150114-A	TCER	11#14, 1#14G	MCC109101B	CS150114	HH151008	RWYC150114-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150114-B	XHHW2	2#14, 1#14G	CS150114	TBX150114	RWYC150114-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150114-A	TCER	3#12, 1#12G	MCC109101B	DS150114	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150114-A	TCER	3#12, 1#12G	MCC109101B	DS150114	CTP150003	RWYP151007-A	HH151007	RWYP150114-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150114-B	XHHW2	3#12, 1#12G	DS150114	TBX150114	RWYP150114-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150114	VENDOR	Special	TBX150114	MX150114						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150115-A	TCER	11#14, 1#14G	MCC109101A	CS150115	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150115-A	TCER	11#14, 1#14G	MCC109101A	CS150115	HH151008	RWYC150115-A				E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150115-B	XHHW2	2#14, 1#14G	CS150115	TBX150115	RWYC150115-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150115-A	TCER	3#12, 1#12G	MCC109101A	DS150115	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150115-A	TCER	3#12, 1#12G	MCC109101A	DS150115	CTP150003	RWYP151007-A	HH151007	RWYP150115-A		E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150115-B	XHHW2	3#12, 1#12G	DS150115	TBX150115	RWYP150115-B					E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150115	VENDOR	Special	TBX150115	MX150115						E-00-4004	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150116-A	TCER	11#14, 1#14G	MCC109101B	CS150116	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150116-A	TCER	11#14, 1#14G	MCC109101B	CS150116	HH151008	RWYC151010-A	HH151010	RWYC150116-A		E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150116-B	XHHW2	2#14, 1#14G	CS150116	TBX150116	RWYC150116-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	RWYP150116-A					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150116-B	XHHW2	3#12, 1#12G	DS150116	TBX150116	RWYP150116-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150116	VENDOR	Special	TBX150116	MX150116						E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150117-A	TCER	11#14, 1#14G	MCC109101A	CS150117	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150117-A	TCER	11#14, 1#14G	MCC109101A	CS150117	HH151008	RWYC151010-A	HH151010	RWYC150117-A		E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150117-B	XHHW2	2#14, 1#14G	CS150117	TBX150117	RWYC150117-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	RWYP150117-A					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150117-B	XHHW2	3#12, 1#12G	DS150117	TBX150117	RWYP150117-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150117	VENDOR	Special	TBX150117	MX150117						E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150118-A	TCER	11#14, 1#14G	MCC109101B	CS150118	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150118-A	TCER	11#14, 1#14G	MCC109101B	CS150118	HH151008	RWYC151010-A	HH151010	RWYC150118-A		E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150118-B	XHHW2	2#14, 1#14G	CS150118	TBX150118	RWYC150118-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	RWYP150118-A					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150118-B	XHHW2	3#12, 1#12G	DS150118	TBX150118	RWYP150118-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150118	VENDOR	Special	TBX150118	MX150118						E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLC150119-A	TCER	11#14, 1#14G	MCC109101A	CS150119	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150119-A	TCER	11#14, 1#14G	MCC109101A	CS150119	HH151008	RWYC151010-A	HH151010	RWYC150119-A		E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150119-B	XHHW2	2#14, 1#14G	CS150119	TBX150119	RWYC150119-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	RWYP150119-A					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150119-B	XHHW2	3#12, 1#12G	DS150119	TBX150119	RWYP150119-B					E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLV150119	VENDOR	Special	TBX150119	MX150119						E-00-4005	CABLE ALSO APPEARS IN AREA 10 AND 15 CABLE SCHEDULES	CC30B
CBLX160001-X	PULLROPE	PULLROPE	MCC169102A	HH160001	RWYP160001-X					E-00-1015	SPARE CONDUIT	CC30B
CBLX160001-Y	PULLROPE	PULLROPE	MCC169102B	HH160001	RWYP160001-Y					E-00-1015	SPARE CONDUIT	CC30B
CBLX160002-C	PULLROPE	PULLROPE	TUNNEL	HH160002	RWYF160002-C						SPARE FIBER OPTIC RACEWAY. PROVIDE INNERDUCT SEE RACEWAY SCHEDULE.	CC30B
CBLX160002-D	PULLROPE	PULLROPE	TUNNEL	HH160002	RWYF160002-D						SPARE FIBER OPTIC RACEWAY. PROVIDE INNERDUCT SEE RACEWAY SCHEDULE.	CC30B
CBLX160002-W	PULLROPE	PULLROPE	MCC169102A	HH160002	RWYP160002-W					E-00-1015	SPARE CONDUIT	CC30B
CBLX160002-X	PULLROPE	PULLROPE	MCC169102B	HH160002	RWYP160002-X					E-00-1015	SPARE CONDUIT	CC30B
CBLX160003-A	PULLROPE	PULLROPE	MCC169101B	HH160003	RWYX160003-C					E-00-1015	SPARE RACEWAY	CC30B
CBLX160003-B	PULLROPE	PULLROPE	MCC169101B	HH160003	RWYX160003-D					E-00-1015	SPARE RACEWAY	CC30B
CBLX160004-A	PULLROPE	PULLROPE	MCC169101B	HH160004	RWYX160004-H					E-00-1015	SPARE RACEWAY	CC30B
CBLX160004-B	PULLROPE	PULLROPE	MCC169101B	HH160004	RWYX160004-J					E-00-1015	SPARE RACEWAY	CC30B
CBLX160005-A	PULLROPE	PULLROPE	MCC169101A	HH160005	RWYX160005-S					E-00-1015	SPARE RACEWAY	CC30B
CBLX160005-B	PULLROPE	PULLROPE	MCC169101A	HH160005	RWYX160005-T					E-00-1015	SPARE RACEWAY	CC30B
CBLC160006-A	XHHW2	2#14, 1#14G	CAB160001	SV160006	RWYC160008-G	HH160008	RWYC160006-U			E-00-1015	SOLENOID VALVE.	CC30B
CBLX160006-A	PULLROPE	PULLROPE	MCC169101A	HH160006	RWYX160006-U					E-00-1015	SPARE RACEWAY	CC30B
CBLX160006-B	PULLROPE	PULLROPE	MCC169101A	HH160006	RWYX160006-T					E-00-1015	SPARE RACEWAY	CC30B
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-00-1010	CABLE ALSO APPEARS IN AREA 16 AND 34 CABLE SCHEDULES	CC30B
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	CTS340001A	RWYF000001A-A	CTS000001A	CTS000003A	RWYF160002-A	E-00-1010		CC30B
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	HH160002	RWYF160011A-A				E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 AND 34 CABLE SCHEDULES	CC30B
CBLF160011A-B	FOTSM	48 FiberSM	NCE330001	NCE160011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 16 AND 33 CABLE SCHEDULES	CC30B
CBLF160011A-B	FOTSM	48 FiberSM	NCE330001	NCE160011	CTS000002B	CTS000004B	RWYF160002-B	HH160002	RWYF160011A-B	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 AND 34 CABLE SCHEDULES	CC30B
CBLF160011BA-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE160011	RWYF050004CA-A	CTS000005A	CTS000003A	RWYF160002-A	HH160002	E-00-1015	PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF160011BA-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE160011	RWYF160011A-A					E-00-1015	CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLS160100-A	INS	1PR #18SH	CAB160001	LI160100	RWYS160008-H	HH160008	RWYS160100-A			E-00-1015	PRIMARY EFFLUENT PUMPS CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160100-B	INS	1PR #18SH	LI160100	LT160100	RWYS160100-B					E-00-1015	PRIMARY EFFLUENT PUMPS CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160101-A	XHHW2	10#14, 1#14G	VFD160101	CS160101	RWYC160008-A	HH160008	RWYC160101-A			E-00-1015	PRIMARY EFFLUENT PUMP 1.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160101-B	XHHW2	10#14, 1#14G	CS160101	M160101	RWYC160101-B					E-00-1015	PRIMARY EFFLUENT PUMP 1.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160101-B	VFD2	3#2/0, 3#4G	VFD160101	JBX160101	RWYP160007-A	HH160007	RWYP160101-B			E-00-1015	PRIMARY EFFLUENT PUMP 1. PULL THROUGH JBX160101.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP160101-C	XHHW2	2#12, 1#12G	PNL169403	CS160101	RWYP160007-K	HH160007	RWYP160101-C			E-00-1015	PRIMARY EFFLUENT PUMP 1 MPR.	CC30B
CBLS160101-A	INS	1TR #18SH	VFD160101	CS160101	RWYS160008-A	HH160008	RWYS160101-A			E-00-1015	PRIMARY EFFLUENT PUMP 1.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160101-B	INS	1PR #18SH	VFD160101	CS160101	RWYS160008-A	HH160008	RWYS160101-B			E-00-1015	PRIMARY EFFLUENT PUMP 1.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160101-C	INS	1PR #18SH	CS160101	PLC160001	RWYS160101-C	HH160008	RWYS160000-A			E-00-1015	PRIMARY EFFLUENT PUMP 1. PULL THROUGH TERMINAL BOX TB160101.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160101-D	INS	1PR #18SH	CS160101	PLC160001	RWYS160101-D	HH160008	RWYS160000-A			E-00-1015	PRIMARY EFFLUENT PUMP 1. PULL THROUGH TERMINAL BOX TB160101.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160101-E	INS	1PR #18SH	CS160101	PLC160001	RWYS160101-E	HH160008	RWYS160000-A			E-00-1015	PRIMARY EFFLUENT PUMP 1. PULL THROUGH TERMINAL BOX TB160101.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLV160101-C	VENDOR	Special	JBX160101	M160101	RWYP160101-D					E-00-1015	VENDOR CABLE	CC30B
CBLC160102-A	XHHW2	10#14, 1#14G	VFD160102	CS160102	RWYC160008-B	HH160008	RWYC160102-A			E-00-1015	PRIMARY EFFLUENT PUMP 2. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE.	CC30B
CBLC160102-B	XHHW2	10#14, 1#14G	CS160102	M160102	RWYC160102-B					E-00-1015	PRIMARY EFFLUENT PUMP 2. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE.	CC30B
CBLP160102-B	VFD2	3#2/0, 3#4G	VFD160102	JBX160102	RWYP160007-B	HH160007	RWYP160102-B			E-00-1015	PRIMARY EFFLUENT PUMP 2. PULL THROUGH JBX160102.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP160102-C	XHHW2	2#12, 1#12G	PNL169302	CS160102	RWYP160007-L	HH160007	RWYP160102-C			E-00-1015	PRIMARY EFFLUENT PUMP 2 MPR.	CC30B
CBLS160102-A	INS	1TR #18SH	VFD160102	CS160102	RWYS160008-B	HH160008	RWYS160102-A			E-00-1015	PRIMARY EFFLUENT PUMP 2. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE.	CC30B
CBLS160102-B	INS	1PR #18SH	VFD160102	CS160102	RWYS160008-B	HH160008	RWYS160102-B			E-00-1015	PRIMARY EFFLUENT PUMP 2.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160102-C	INS	1PR #18SH	CS160102	PLC160001	RWYS160102-C	HH160008	RWYS160000-B			E-00-1015	PRIMARY EFFLUENT PUMP 2. PULL THROUGH TERMINAL BOX TB160101.. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160102-D	INS	1PR #18SH	CS160102	PLC160001	RWYS160102-D	HH160008	RWYS160000-B			E-00-1015	PRIMARY EFFLUENT PUMP 2. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160102-E	INS	1PR #18SH	CS160102	PLC160001	RWYS160102-E	HH160008	RWYS160000-B			E-00-1015	PRIMARY EFFLUENT PUMP 2. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLV160102-C	VENDOR	Special	JBX160102	M160102	RWYP160102-D					E-00-1015	VENDOR CABLE	CC30B
CBLC160103-A	XHHW2	10#14, 1#14G	VFD160103	CS160103	RWYC160008-C	HH160008	RWYC160103-A			E-00-1015	PRIMARY EFFLUENT PUMP 3. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160103-B	XHHW2	10#14, 1#14G	CS160103	M160103	RWYC160103-B					E-00-1015	PRIMARY EFFLUENT PUMP 3. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160103-B	VFD2	3#2/0, 3#4G	VFD160103	JBX160103	RWYP160007-C	HH160007	RWYP160103-B			E-00-1015	PRIMARY EFFLUENT PUMP 3. PULL THROUGH JBX160103. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP160103-C	XHHW2	2#12, 1#12G	PNL169403	CS160103	RWYP160007-K	HH160007	RWYP160103-C			E-00-1015	PRIMARY EFFLUENT PUMP 3 MPR.	CC30B
CBLS160103-A	INS	1TR #18SH	VFD160103	CS160103	RWYS160008-C	HH160008	RWYS160103-A			E-00-1015	PRIMARY EFFLUENT PUMP 3. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160103-B	INS	1PR #18SH	VFD160103	CS160103	RWYS160008-C	HH160008	RWYS160103-B			E-00-1015	PRIMARY EFFLUENT PUMP 3. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160103-C	INS	1PR #18SH	CS160103	PLC160001	RWYS160103-C	HH160008	RWYS160000-C			E-00-1015	PRIMARY EFFLUENT PUMP 3. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160103-D	INS	1PR #18SH	CS160103	PLC160001	RWYS160103-D	HH160008	RWYS160000-C			E-00-1015	PRIMARY EFFLUENT PUMP 3. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160103-E	INS	1PR #18SH	CS160103	PLC160001	RWYS160103-E	HH160008	RWYS160000-C			E-00-1015	PRIMARY EFFLUENT PUMP 3. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLV160103-C	VENDOR	Special	JBX160103	M160103	RWYP160103-D					E-00-1015	VENDOR CABLE	CC30B
CBLC160104-A	XHHW2	10#14, 1#14G	VFD160104	CS160104	RWYC160008-D	HH160008	RWYC160104-A			E-00-1015	PRIMARY EFFLUENT PUMP 4. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160104-B	XHHW2	10#14, 1#14G	CS160104	M160104	RWYC160104-B					E-00-1015	PRIMARY EFFLUENT PUMP 4. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160104-B	VFD2	3#2/0, 3#4G	VFD160104	JBX160104	RWYP160007-E	HH160007	RWYP160104-B			E-00-1015	PRIMARY EFFLUENT PUMP 4. PULL THROUGH JBX160104. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP160104-C	XHHW2	2#12, 1#12G	PNL169302	CS160104	RWYP160007-L	HH160007	RWYP160104-C			E-00-1015	PRIMARY EFFLUENT PUMP 4 MPR.	CC30B
CBLS160104-A	INS	1TR #18SH	VFD160104	CS160104	RWYS160008-D	HH160008	RWYS160104-A			E-00-1015	PRIMARY EFFLUENT PUMP 4. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160104-B	INS	1PR #18SH	VFD160104	CS160104	RWYS160008-D	HH160008	RWYS160104-B			E-00-1015	PRIMARY EFFLUENT PUMP 4. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160104-C	INS	1PR #18SH	CS160104	PLC160001	RWYS160104-C	HH160008	RWYS160000-D			E-00-1015	PRIMARY EFFLUENT PUMP 4. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160104-D	INS	1PR #18SH	CS160104	PLC160001	RWYS160104-D	HH160008	RWYS160000-D			E-00-1015	PRIMARY EFFLUENT PUMP 4. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160104-E	INS	1PR #18SH	CS160104	PLC160001	RWYS160104-E	HH160008	RWYS160000-D			E-00-1015	PRIMARY EFFLUENT PUMP 4. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLV160104-C	VENDOR	Special	JBX160104	M160104	RWYP160104-D					E-00-1015	VENDOR CABLE	CC30B
CBLC160105-A	XHHW2	10#14, 1#14G	VFD160105	CS160105	RWYC160008-E	HH160008	RWYC160105-A			E-00-1015	PRIMARY EFFLUENT PUMP 5. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160105-B	XHHW2	10#14, 1#14G	CS160105	M160105	RWYC160105-B					E-00-1015	PRIMARY EFFLUENT PUMP 5. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160105-B	VFD2	3#2/0, 3#4G	VFD160105	JBX160105	RWYP160007-F	HH160007	RWYP160105-B			E-00-1015	PRIMARY EFFLUENT PUMP 5. PULL THROUGH JBX160105. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP160105-C	XHHW2	2#12, 1#12G	PNL169403	CS160105	RWYP160007-K	HH160007	RWYP160105-C			E-00-1015	PRIMARY EFFLUENT PUMP 5 MPR.	CC30B
CBLS160105-A	INS	1TR #18SH	VFD160105	CS160105	RWYS160008-E	HH160008	RWYS160105-A			E-00-1015	PRIMARY EFFLUENT PUMP 5. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160105-B	INS	1PR #18SH	VFD160105	CS160105	RWYS160008-E	HH160008	RWYS160105-B			E-00-1015	PRIMARY EFFLUENT PUMP 5. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160105-C	INS	1PR #18SH	CS160105	PLC160001	RWYS160105-C	HH160008	RWYS160000-E			E-00-1015	PRIMARY EFFLUENT PUMP 5. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160105-D	INS	1PR #18SH	CS160105	PLC160001	RWYS160105-D	HH160008	RWYS160000-E			E-00-1015	PRIMARY EFFLUENT PUMP 5. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160105-E	INS	1PR #18SH	CS160105	PLC160001	RWYS160105-E	HH160008	RWYS160000-E			E-00-1015	PRIMARY EFFLUENT PUMP 5. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLV160105-C	VENDOR	Special	JBX160105	M160105	RWYP160105-D					E-00-1015	VENDOR CABLE	CC30B
CBLC160106-A	XHHW2	10#14, 1#14G	VFD160106	CS160106	RWYC160008-F	HH160008	RWYC160106-A			E-00-1015	PRIMARY EFFLUENT PUMP 6. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLC160106-B	XHHW2	10#14, 1#14G	CS160106	M160106	RWYC160106-B					E-00-1015	PRIMARY EFFLUENT PUMP 6. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160106-B	VFD2	3#2/0, 3#4G	VFD160106	JBX160106	RWYP160007-G	HH160007	RWYP160106-B			E-00-1015	PRIMARY EFFLUENT PUMP 6. PULL THROUGH JBX160106. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP160106-C	XHHW2	2#12, 1#12G	PNL169302	CS160106	RWYP160007-L	HH160007	RWYP160106-C			E-00-1015	PRIMARY EFFLUENT PUMP 6 MPR.	CC30B
CBLS160106-A	INS	1TR #18SH	VFD160106	CS160106	RWYS160008-F	HH160008	RWYS160106-A			E-00-1015	PRIMARY EFFLUENT PUMP 6. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160106-B	INS	1PR #18SH	VFD160106	CS160106	RWYS160008-F	HH160008	RWYS160106-B			E-00-1015	PRIMARY EFFLUENT PUMP 6. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160106-C	INS	1PR #18SH	CS160106	PLC160001	RWYS160106-C	HH160008	RWYS160000-F			E-00-1015	PRIMARY EFFLUENT PUMP 6. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160106-D	INS	1PR #18SH	CS160106	PLC160001	RWYS160106-D	HH160008	RWYS160000-F			E-00-1015	PRIMARY EFFLUENT PUMP 6. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLS160106-E	INS	1PR #18SH	CS160106	PLC160001	RWYS160106-E	HH160008	RWYS160000-F			E-00-1015	PRIMARY EFFLUENT PUMP 6. PULL THROUGH TERMINAL BOX TB160101. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLV160106-C	VENDOR	Special	JBX160106	M160106	RWYP160106-D					E-00-1015	VENDOR CABLE	CC30B
CBLS160200-A	INS	1PR #18SH	PLC160001	LI160200	RWYS160008-I	HH160008	RWYS160200-A			E-00-1015	PRIMARY EFFLUENT PUMPS LEVEL INDICATION	CC30B
CBLS160200-B	INS	1PR #18SH	LI160100	LT160200	RWYS160200-B					E-00-1015	PRIMARY EFFLUENT PUMPS LEVEL INDICATION	CC30B
CBLP160250-A	XHHW2	2#10, 1#10G	PNL169402	DS160250	RWYP160007-J	HH160007	RWYP160250-A			E-00-1015	HEAT TRACE POWER CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160250-B	XHHW2	2#12, 1#12G	DS160250	CS160250	RWYP160250-B					E-00-1015	HEAT TRACE POWER CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP160250-C	XHHW2	2#12, 1#12G	CS160250	HTT160250	RWYP160250-C					E-00-1015	HEAT TRACE POWER CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP166001-A	XHHW2	3#1, 1#6G	PNL169204	WRCP166001	RWYP160007-H	HH160007	RWYP166001-A			E-00-1015	WELDING RECEPTACLE.	CC30B
CBLH169000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB169000A	CTH340005A	CTH340001A	RWYH33010CA-A	HH33010C	RWYH17001BA-A	E-00-1015	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30B
CBLH169000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB169000A	HH17001B	RWYH169000A-A				E-00-1015	CONTINUED FROM LINE ABOVE. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30B
CBLH169000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB169000B	CTH340006B	CTH340002B	RWYH33010CB-A	HH33010C	RWYH17001BB-A	E-00-1015	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30B
CBLH169000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB169000B	HH17001B	RWYH169000B-A				E-00-1015	CONTINUED FROM LINE ABOVE. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30B
CBLX169000A-A	PULLROPE	PULLROPE	HH17001B	SUB169000A	RWYX169000A-A					E-00-1015		CC30B
CBLX169000B-A	PULLROPE	PULLROPE	HH17001B	SUB169000B	RWYX169000B-A					E-00-1015		CC30B
CBLP169301-D	XHHW2	2#12, 1#12G	PNL169301	RDWY LTG	RWYP160001-S	HH160001	RWYP160010-O	HH160010	RWYP170001-E	E-00-1015	480V ROADWAY LIGHTING AREA 17. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169301-D	XHHW2	2#12, 1#12G	PNL169301	RDWY LTG	HH170001	RWYP169301-D				E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169301-E	XHHW2	1#12, 1#12N, 1#12G	PNL169301	FLOOD LTG	RWYP160001-S	HH160001	RWYP160010-A	HH160010	RWYP170001-E	E-00-1015	277V AREA 17 BASIN FLOOD LIGHTING. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169301-E	XHHW2	1#12, 1#12N, 1#12G	PNL169301	FLOOD LTG	HH170001	RWYP170003-C	JBX170003	RWYP169301-E		E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-K	XHHW2	2#12, 1#12G	PNL169402	HH160005	RWYP160005-R					E-00-1015	HH160005 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP169402-L	XHHW2	2#12, 1#12G	PNL169402	HH160007	RWYP160007-D					E-00-1015	HH160007 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-M	XHHW2	2#12, 1#12G	PNL169402	HH160010	RWYP160001-W	HH160001	RWYP160010-O			E-00-1015	HH160010 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-N	XHHW2	2#10, 1#10G	PNL169402	HH170001	RWYP160001-W	HH160001	RWYP160010-O	HH160010	RWYP170001-E	E-00-1015	HH170001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-O	XHHW2	2#10, 1#10G	PNL169402	HH180002	RWYP160004-G	HH160004	RWYP180002-E			E-00-1015	HH180002 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-P	XHHW2	2#10, 1#10G	PNL169402	HH180003	RWYP160005-Q	HH160005	RWYP180003-I			E-00-1015	HH180003 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLP169402-Q	XHHW2	2#10, 1#10G	PNL169402	HH180007	RWYP160005-Q	HH160005	RWYP180003-J	HH180003	RWYP180007-F	E-00-1015	HH180007 SUMP PUMP. CABLE ALSO APPEARS IN AREA 16 CABLE SCHEDULE	CC30B
CBLX169000A-A	**PULLROPE**	**PULLROPE**	**CAB169000A**	**HH17001B**	**RWYF169000A-A**					**E-00-1015**	**SPARE FIBER OPTIC RACEWAY. PROVIDE INNERDUCT SEE RACEWAY SCHEDULE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLX169000B-B	**PULLROPE**	**PULLROPE**	**CAB169000B**	**HH17001B**	**RWYF169000B-A**					**E-00-1015**	**SPARE FIBER OPTIC RACEWAY. PROVIDE INNERDUCT SEE RACEWAY SCHEDULE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLX170003-A	PULLROPE	PULLROPE	HH160001	JBX170003	RWYX160010-J	HH160010	RWYX170001-A	HH170001	RWYX170003-K	E-00-1015	SPARE RACEWAY	CC30B
CBLX170003-B	PULLROPE	PULLROPE	HH160001	JBX170003	RWYX160010-K	HH160010	RWYX170001-B	HH170001	RWYX170003-L	E-00-1015	SPARE RACEWAY	CC30B
CBLX170003-C	PULLROPE	PULLROPE	HH160001	JBX170003	RWYX160010-L	HH160010	RWYX170001-C	HH170001	RWYX170003-M	E-00-1015	SPARE RACEWAY	CC30B
CBLX170003-D	PULLROPE	PULLROPE	HH160001	JBX170003	RWYX160010-M	HH160010	RWYX170001-D	HH170001	RWYX170003-N	E-00-1015	SPARE RACEWAY	CC30B
CBLX170004-A	PULLROPE	PULLROPE	HH160002	JBX170004	RWYX160009-B	HH160009	RWYX170002-A	HH170002	RWYX170004-F	E-00-1015	SPARE RACEWAY	CC30B
CBLC170101-A	XHHW2	10#14, 1#14G	MCC169102A	CS170101	RWYC160002-U	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170101-A	XHHW2	10#14, 1#14G	MCC169102A	CS170101	HH170002	RWYC170004-B	JBX170004	RWYC170101-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170101-B	XHHW2	2#14, 1#14G	CS170101	JBX170101	RWYC170101-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 1.	CC30B
CBLP170101-A	XHHW2	3#12, 1#12G	MCC169102A	DS170101	RWYP160001-U	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170101-A	XHHW2	3#12, 1#12G	MCC169102A	DS170101	HH170001	RWYP170003-C	JBX170003	RWYP170101-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170101-B	XHHW2	3#12, 1#12G	DS170101	JBX170101	RWYP170101-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 1.	CC30B
CBLV170101-A	VENDOR	Special	JBX170101	M170101	RWYP170101-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 1.	CC30B
CBLC170102-A	XHHW2	10#14, 1#14G	MCC169102B	CS170102	RWYC160002-V	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170102-A	XHHW2	10#14, 1#14G	MCC169102B	CS170102	HH170002	RWYC170004-B	JBX170004	RWYC170102-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170102-B	XHHW2	2#14, 1#14G	CS170102	JBX170102	RWYC170102-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 2.	CC30B
CBLP170102-A	XHHW2	3#12, 1#12G	MCC169102B	DS170102	RWYP160001-B	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170102-A	XHHW2	3#12, 1#12G	MCC169102B	DS170102	HH170001	RWYP170003-C	JBX170003	RWYP170102-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170102-B	XHHW2	3#12, 1#12G	DS170102	JBX170102	RWYP170102-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 2.	CC30B
CBLV170102-A	VENDOR	Special	JBX170102	M170102	RWYP170102-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 2.	CC30B
CBLC170103-A	XHHW2	10#14, 1#14G	MCC169102A	CS170103	RWYC160002-U	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170103-A	XHHW2	10#14, 1#14G	MCC169102A	CS170103	HH170002	RWYC170004-B	JBX170004	RWYC170103-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170103-B	XHHW2	2#14, 1#14G	CS170103	JBX170103	RWYC170103-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 3.	CC30B
CBLP170103-A	XHHW2	3#12, 1#12G	MCC169102A	DS170103	RWYP160001-U	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP170103-A	XHHW2	3#12, 1#12G	MCC169102A	DS170103	HH170001	RWYP170003-C	JBX170003	RWYP170103-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170103-B	XHHW2	3#12, 1#12G	DS170103	JBX170103	RWYP170103-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 3.	CC30B
CBLV170103-A	VENDOR	Special	JBX170103	M170103	RWYP170103-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 3.	CC30B
CBLC170104-A	XHHW2	10#14, 1#14G	MCC169102B	CS170104	RWYC160002-V	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170104-A	XHHW2	10#14, 1#14G	MCC169102B	CS170104	HH170002	RWYC170004-B	JBX170004	RWYC170104-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170104-B	XHHW2	2#14, 1#14G	CS170104	JBX170104	RWYC170104-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 4.	CC30B
CBLP170104-A	XHHW2	3#12, 1#12G	MCC169102B	DS170104	RWYP160001-B	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170104-A	XHHW2	3#12, 1#12G	MCC169102B	DS170104	HH170001	RWYP170003-C	JBX170003	RWYP170104-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170104-B	XHHW2	3#12, 1#12G	DS170104	JBX170104	RWYP170104-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 4.	CC30B
CBLV170104-A	VENDOR	Special	JBX170104	M170104	RWYP170104-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 4.	CC30B
CBLC170105-A	XHHW2	10#14, 1#14G	MCC169102A	CS170105	RWYC160002-U	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLC170105-A	XHHW2	10#14, 1#14G	MCC169102A	CS170105	HH170002	RWYC170004-B	JBX170004	RWYC170105-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B
CBLC170105-B	XHHW2	2#14, 1#14G	CS170105	JBX170105	RWYC170105-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. (FUTURE)	CC30B
CBLP170105-A	XHHW2	3#12, 1#12G	MCC169102A	DS170105	RWYP160001-U	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLP170105-A	XHHW2	3#12, 1#12G	MCC169102A	DS170105	HH170001	RWYP170003-C	JBX170003	RWYP170105-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B
CBLP170105-B	XHHW2	3#12, 1#12G	DS170105	JBX170105	RWYP170105-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. (FUTURE)	CC30B
CBLV170105-A	VENDOR	Special	JBX170105	M170105	RWYP170105-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 5. (FUTURE)	CC30B
CBLC170106-A	XHHW2	10#14, 1#14G	MCC169102B	CS170106	RWYC160002-V	HH160002	RWYC160009-C	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLC170106-A	XHHW2	10#14, 1#14G	MCC169102B	CS170106	HH170002	RWYC170004-B	JBX170004	RWYC170106-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B
CBLC170106-B	XHHW2	2#14, 1#14G	CS170106	JBX170106	RWYC170106-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. (FUTURE)	CC30B
CBLP170106-A	XHHW2	3#12, 1#12G	MCC169102B	DS170106	RWYP160001-B	HH160001	RWYP160010-F	HH160010	RWYP170003-B	E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLP170106-A	XHHW2	3#12, 1#12G	MCC169102B	DS170106	HH170001	RWYP170003-C	JBX170003	RWYP170106-A		E-00-1015	ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B
CBLP170106-B	XHHW2	3#12, 1#12G	DS170106	JBX170106	RWYP170106-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. (FUTURE)	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLV170106-A	VENDOR	Special	JBX170106	M170106	RWYP170106-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC DISTRIBUTION CHANNEL MIXER 6. (FUTURE)	CC30B
CBLC170111-A	XHHW2	8#14, 1#14G	VFD170111	CS170111	RWYC160002-X	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170111-A	XHHW2	8#14, 1#14G	VFD170111	CS170111	HH170002	RWYC170001-B	JBX170001	RWYC170111-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170111-B	XHHW2	2#14, 1#14G	CS170111	TSH170111	RWYC170111-B					E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170111-A	VFD1	3#12, 1#12G	VFD170111	M170111	RWYP160001-C	HH160001	RWYP160010-A	HH160010	RWYP170001-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170111-A	VFD1	3#12, 1#12G	VFD170111	M170111	HH170001	RWYP170002-A	JBX170002	RWYP170111-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170111-B	XHHW2	2#14, 1#14G	VFD170111	HTR170111	RWYP160001-AA	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170111-B	XHHW2	2#14, 1#14G	VFD170111	HTR170111	HH170001	RWYP170002-G	JBX170002	RWYP170111-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170111-A	INS	1TR #18SH	VFD170111	CS170111	RWYS160002-A	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170111-A	INS	1TR #18SH	VFD170111	CS170111	HH170002	RWYS170001-A	JBX170001	RWYS170111-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170111-B	INS	1PR #18SH	VFD170111	CS170111	RWYS160002-A	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170111-B	INS	1PR #18SH	VFD170111	CS170111	HH170002	RWYS170001-A	JBX170001	RWYS170111-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170112-A	XHHW2	8#14, 1#14G	VFD170112	CS170112	RWYC160002-B	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170112-A	XHHW2	8#14, 1#14G	VFD170112	CS170112	HH170002	RWYC170001-B	JBX170001	RWYC170112-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170112-B	XHHW2	2#14, 1#14G	CS170112	TSH170112	RWYC170112-B					E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170112-A	VFD1	3#12, 1#12G	VFD170112	M170112	RWYP160001-D	HH160001	RWYP160010-A	HH160010	RWYP170001-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170112-A	VFD1	3#12, 1#12G	VFD170112	M170112	HH170001	RWYP170002-A	JBX170002	RWYP170112-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170112-B	XHHW2	2#14, 1#14G	VFD170112	HTR170112	RWYP160001-AB	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170112-B	XHHW2	2#14, 1#14G	VFD170112	HTR170112	HH170001	RWYP170002-G	JBX170002	RWYP170112-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170112-A	INS	1TR #18SH	VFD170112	CS170112	RWYS160002-B	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170112-A	INS	1TR #18SH	VFD170112	CS170112	HH170002	RWYS170001-A	JBX170001	RWYS170112-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170112-B	INS	1PR #18SH	VFD170112	CS170112	RWYS160002-B	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170112-B	INS	1PR #18SH	VFD170112	CS170112	HH170002	RWYS170001-A	JBX170001	RWYS170112-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170113-A	XHHW2	8#14, 1#14G	VFD170113	CS170113	RWYC160002-C	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170113-A	XHHW2	8#14, 1#14G	VFD170113	CS170113	HH170002	RWYC170001-B	JBX170001	RWYC170113-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170113-B	XHHW2	2#14, 1#14G	CS170113	TSH170113	RWYC170113-B					E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170113-A	VFD1	3#12, 1#12G	VFD170113	M170113	RWYP160001-E	HH160001	RWYP160010-A	HH160010	RWYP170001-A	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP170113-A	VFD1	3#12, 1#12G	VFD170113	M170113	HH170001	RWYP170002-A	JBX170002	RWYP170113-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170113-B	XHHW2	2#14, 1#14G	VFD170113	HTR170113	RWYP160001-AC	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170113-B	XHHW2	2#14, 1#14G	VFD170113	HTR170113	HH170001	RWYP170002-G	JBX170002	RWYP170113-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170113-A	INS	1TR #18SH	VFD170113	CS170113	RWYS160002-C	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170113-A	INS	1TR #18SH	VFD170113	CS170113	HH170002	RWYS170001-A	JBX170001	RWYS170113-A		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170113-B	INS	1PR #18SH	VFD170113	CS170113	RWYS160002-C	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170113-B	INS	1PR #18SH	VFD170113	CS170113	HH170002	RWYS170001-A	JBX170001	RWYS170113-B		E-00-1015	ANAEROBIC ZONE TRAIN 1 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170115-L	XHHW2	2#10, 1#10G	PNL169402	AIT170115	RWYP160001-Z	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE	CC30B
CBLP170115-L	XHHW2	2#10, 1#10G	PNL169402	AIT170115	HH170001	RWYP170002-A	JBX170002	RWYP170115-A		E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE	CC30B
CBLC170121-A	XHHW2	8#14, 1#14G	VFD170121	CS170121	RWYC160002-D	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170121-A	XHHW2	8#14, 1#14G	VFD170121	CS170121	HH170002	RWYC170001-B	JBX170001	RWYC170121-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170121-B	XHHW2	2#14, 1#14G	CS170121	TSH170121	RWYC170121-B					E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170121-A	VFD1	3#12, 1#12G	VFD170121	M170121	RWYP160001-F	HH160001	RWYP160010-B	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170121-A	VFD1	3#12, 1#12G	VFD170121	M170121	HH170001	RWYP170002-B	JBX170002	RWYP170121-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170121-B	XHHW2	2#14, 1#14G	VFD170121	HTR170121	RWYP160001-AD	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170121-B	XHHW2	2#14, 1#14G	VFD170121	HTR170121	HH170001	RWYP170002-G	JBX170002	RWYP170121-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170121-A	INS	1TR #18SH	VFD170121	CS170121	RWYS160002-D	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170121-A	INS	1TR #18SH	VFD170121	CS170121	HH170002	RWYS170001-A	JBX170001	RWYS170121-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170121-B	INS	1PR #18SH	VFD170121	CS170121	RWYS160002-D	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170121-B	INS	1PR #18SH	VFD170121	CS170121	HH170002	RWYS170001-A	JBX170001	RWYS170121-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170122-A	XHHW2	8#14, 1#14G	VFD170122	CS170122	RWYC160002-E	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170122-A	XHHW2	8#14, 1#14G	VFD170122	CS170122	HH170002	RWYC170001-B	JBX170001	RWYC170122-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170122-B	XHHW2	2#14, 1#14G	CS170122	TSH170122	RWYC170122-B					E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170122-A	VFD1	3#12, 1#12G	VFD170122	M170122	RWYP160001-G	HH160001	RWYP160010-B	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170122-A	VFD1	3#12, 1#12G	VFD170122	M170122	HH170001	RWYP170002-B	JBX170002	RWYP170122-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170122-B	XHHW2	2#14, 1#14G	VFD170122	HTR170122	RWYP160001-AE	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170122-B	XHHW2	2#14, 1#14G	VFD170122	HTR170122	HH170001	RWYP170002-G	JBX170002	RWYP170122-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS170122-A	INS	1TR #18SH	VFD170122	CS170122	RWYS160002-E	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170122-A	INS	1TR #18SH	VFD170122	CS170122	HH170002	RWYS170001-A	JBX170001	RWYS170122-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170122-B	INS	1PR #18SH	VFD170122	CS170122	RWYS160002-E	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170122-B	INS	1PR #18SH	VFD170122	CS170122	HH170002	RWYS170001-A	JBX170001	RWYS170122-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170123-A	XHHW2	8#14, 1#14G	VFD170123	CS170123	RWYC160002-F	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170123-A	XHHW2	8#14, 1#14G	VFD170123	CS170123	HH170002	RWYC170001-B	JBX170001	RWYC170123-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLC170123-B	XHHW2	2#14, 1#14G	CS170123	TSH170123	RWYC170123-B					E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170123-A	VFD1	3#12, 1#12G	VFD170123	M170123	RWYP160001-H	HH160001	RWYP160010-B	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170123-A	VFD1	3#12, 1#12G	VFD170123	M170123	HH170001	RWYP170002-B	JBX170002	RWYP170123-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170123-B	XHHW2	2#14, 1#14G	VFD170123	HTR170123	RWYP160001-AF	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170123-B	XHHW2	2#14, 1#14G	VFD170123	HTR170123	HH170001	RWYP170002-G	JBX170002	RWYP170123-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170123-A	INS	1TR #18SH	VFD170123	CS170123	RWYS160002-F	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170123-A	INS	1TR #18SH	VFD170123	CS170123	HH170002	RWYS170001-A	JBX170001	RWYS170123-A		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170123-B	INS	1PR #18SH	VFD170123	CS170123	RWYS160002-F	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLS170123-B	INS	1PR #18SH	VFD170123	CS170123	HH170002	RWYS170001-A	JBX170001	RWYS170123-B		E-00-1015	ANAEROBIC ZONE TRAIN 2 MIXER 3. CABLE CONTINUED ABOVE.	CC30B
CBLP170125-A	XHHW2	2#10, 1#10G	PNL169402	AIT170125	RWYP160001-Z	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170125-A	XHHW2	2#10, 1#10G	PNL169402	AIT170125	HH170001	RWYP170002-A	JBX170002	RWYP170125-A		E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170131-A	XHHW2	8#14, 1#14G	VFD170131	CS170131	RWYC160002-G	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170131-A	XHHW2	8#14, 1#14G	VFD170131	CS170131	HH170002	RWYC170001-B	JBX170001	RWYC170131-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170131-B	XHHW2	2#14, 1#14G	CS170131	TSH170131	RWYC170131-B					E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170131-A	VFD1	3#12, 1#12G	VFD170131	M170131	RWYP160001-J	HH160001	RWYP160010-C	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170131-A	VFD1	3#12, 1#12G	VFD170131	M170131	HH170001	RWYP170002-C	JBX170002	RWYP170131-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170131-B	XHHW2	2#14, 1#14G	VFD170131	HTR170131	RWYP160001-AG	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170131-B	XHHW2	2#14, 1#14G	VFD170131	HTR170131	HH170001	RWYP170002-G	JBX170002	RWYP170131-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170131-A	INS	1TR #18SH	VFD170131	CS170131	RWYS160002-G	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170131-A	INS	1TR #18SH	VFD170131	CS170131	HH170002	RWYS170001-A	JBX170001	RWYS170131-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170131-B	INS	1PR #18SH	VFD170131	CS170131	RWYS160002-G	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS170131-B	INS	1PR #18SH	VFD170131	CS170131	HH170002	RWYS170001-A	JBX170001	RWYS170131-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170132-A	XHHW2	8#14, 1#14G	VFD170132	CS170132	RWYC160002-H	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED BELOW.	CC30B
CBLC170132-A	XHHW2	8#14, 1#14G	VFD170132	CS170132	HH170002	RWYC170001-B	JBX170001	RWYC170132-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170132-B	XHHW2	2#14, 1#14G	CS170132	TSH170132	RWYC170132-B					E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170132-A	VFD1	3#12, 1#12G	VFD170132	M170132	RWYP160001-K	HH160001	RWYP160010-C	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170132-A	VFD1	3#12, 1#12G	VFD170132	M170132	HH170001	RWYP170002-C	JBX170002	RWYP170132-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170132-B	XHHW2	2#14, 1#14G	VFD170132	HTR170132	RWYP160001-AH	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170132-B	XHHW2	2#14, 1#14G	VFD170132	HTR170132	HH170001	RWYP170002-G	JBX170002	RWYP170132-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170132-A	INS	1TR #18SH	VFD170132	CS170132	RWYS160002-H	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170132-A	INS	1TR #18SH	VFD170132	CS170132	HH170002	RWYS170001-A	JBX170001	RWYS170132-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170132-B	INS	1PR #18SH	VFD170132	CS170132	RWYS160002-H	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170132-B	INS	1PR #18SH	VFD170132	CS170132	HH170002	RWYS170001-A	JBX170001	RWYS170132-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170133-A	XHHW2	8#14, 1#14G	VFD170133	CS170133	RWYC160002-J	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170133-A	XHHW2	8#14, 1#14G	VFD170133	CS170133	HH170002	RWYC170001-B	JBX170001	RWYC170133-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170133-B	XHHW2	2#14, 1#14G	CS170133	TSH170133	RWYC170133-B					E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170133-A	VFD1	3#12, 1#12G	VFD170133	M170133	RWYP160001-L	HH160001	RWYP160010-C	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170133-A	VFD1	3#12, 1#12G	VFD170133	M170133	HH170001	RWYP170002-C	JBX170002	RWYP170133-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170133-B	XHHW2	2#14, 1#14G	VFD170133	HTR170133	RWYP160001-AJ	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170133-B	XHHW2	2#14, 1#14G	VFD170133	HTR170133	HH170001	RWYP170002-G	JBX170002	RWYP170133-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170133-A	INS	1TR #18SH	VFD170133	CS170133	RWYS160002-J	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170133-A	INS	1TR #18SH	VFD170133	CS170133	HH170002	RWYS170001-A	JBX170001	RWYS170133-A		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170133-B	INS	1PR #18SH	VFD170133	CS170133	RWYS160002-J	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170133-B	INS	1PR #18SH	VFD170133	CS170133	HH170002	RWYS170001-A	JBX170001	RWYS170133-B		E-00-1015	ANAEROBIC ZONE TRAIN 3 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170135-A	XHHW2	2#10, 1#10G	PNL169402	AIT170135	RWYP160001-Z	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170135-A	XHHW2	2#10, 1#10G	PNL169402	AIT170135	HH170001	RWYP170003-C	JBX170003	RWYP170135-A		E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170141-A	XHHW2	8#14, 1#14G	VFD170141	CS170141	RWYC160002-K	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170141-A	XHHW2	8#14, 1#14G	VFD170141	CS170141	HH170002	RWYC170004-B	JBX170004	RWYC170141-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170141-B	XHHW2	2#14, 1#14G	CS170141	TSH170141	RWYC170141-B					E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP170141-A	VFD1	3#12, 1#12G	VFD170141	M170141	RWYP160001-M	HH160001	RWYP160010-D	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170141-A	VFD1	3#12, 1#12G	VFD170141	M170141	HH170001	RWYP170003-C	JBX170003	RWYP170141-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170141-B	XHHW2	2#14, 1#14G	VFD170141	HTR170141	RWYP160001-AK	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170141-B	XHHW2	2#14, 1#14G	VFD170141	HTR170141	HH170001	RWYP170003-D	JBX170003	RWYP170141-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170141-A	INS	1TR #18SH	VFD170141	CS170141	RWYS160002-K	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170141-A	INS	1TR #18SH	VFD170141	CS170141	HH170002	RWYS170004-C	JBX170004	RWYS170141-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170141-B	INS	1PR #18SH	VFD170141	CS170141	RWYS160002-K	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170141-B	INS	1PR #18SH	VFD170141	CS170141	HH170002	RWYS170004-C	JBX170004	RWYS170141-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170142-A	XHHW2	8#14, 1#14G	VFD170142	CS170142	RWYC160002-L	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170142-A	XHHW2	8#14, 1#14G	VFD170142	CS170142	HH170002	RWYC170004-B	JBX170004	RWYC170142-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170142-B	XHHW2	2#14, 1#14G	CS170142	TSH170142	RWYC170142-B					E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170142-A	VFD1	3#12, 1#12G	VFD170142	M170142	RWYP160001-N	HH160001	RWYP160010-D	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170142-A	VFD1	3#12, 1#12G	VFD170142	M170142	HH170001	RWYP170003-C	JBX170003	RWYP170142-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170142-B	XHHW2	2#14, 1#14G	VFD170142	HTR170142	RWYP160001-AL	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170142-B	XHHW2	2#14, 1#14G	VFD170142	HTR170142	HH170001	RWYP170003-D	JBX170003	RWYP170142-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170142-A	INS	1TR #18SH	VFD170142	CS170142	RWYS160002-L	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170142-A	INS	1TR #18SH	VFD170142	CS170142	HH170002	RWYS170004-C	JBX170004	RWYS170142-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170142-B	INS	1PR #18SH	VFD170142	CS170142	RWYS160002-L	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170142-B	INS	1PR #18SH	VFD170142	CS170142	HH170002	RWYS170004-C	JBX170004	RWYS170142-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170143-A	XHHW2	8#14, 1#14G	VFD170143	CS170143	RWYC160002-M	HH160002	RWYC160009-D	HH160009	RWYC170002-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170143-A	XHHW2	8#14, 1#14G	VFD170143	CS170143	HH170002	RWYC170004-B	JBX170004	RWYC170143-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170143-B	XHHW2	2#14, 1#14G	CS170143	TSH170143	RWYC170143-B					E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170143-A	VFD1	3#12, 1#12G	VFD170143	M170143	RWYP160001-P	HH160001	RWYP160010-D	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170143-A	VFD1	3#12, 1#12G	VFD170143	M170143	HH170001	RWYP170003-C	JBX170003	RWYP170143-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170143-B	XHHW2	2#14, 1#14G	VFD170143	HTR170143	RWYP160001-AM	HH160001	RWYP160010-P	HH160010	RWYP170001-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170143-B	XHHW2	2#14, 1#14G	VFD170143	HTR170143	HH170001	RWYP170003-D	JBX170003	RWYP170143-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS170143-A	INS	1TR #18SH	VFD170143	CS170143	RWYS160002-M	HH160002	RWYS160009-A	HH160009	RWYS170002-F	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170143-A	INS	1TR #18SH	VFD170143	CS170143	HH170002	RWYS170004-C	JBX170004	RWYS170143-A		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170143-B	INS	1PR #18SH	VFD170143	CS170143	RWYS160002-M	HH160002	RWYS160009-A	HH160009	RWYS170002-G	E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170143-B	INS	1PR #18SH	VFD170143	CS170143	HH170002	RWYS170004-C	JBX170004	RWYS170143-B		E-00-1015	ANAEROBIC ZONE TRAIN 4 MIXER 3. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170145-A	XHHW2	2#10, 1#10G	PNL169402	AIT170145	RWYP160001-Z	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170145-A	XHHW2	2#10, 1#10G	PNL169402	AIT170145	HH170001	RWYP170003-C	JBX170003	RWYP170145-A		E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170201-A	XHHW2	10#14, 1#14G	MCC169102A	CS170201	RWYC160002-U	HH160002	RWYC160009-A	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170201-A	XHHW2	10#14, 1#14G	MCC169102A	CS170201	HH170002	RWYC170006-A	JBX170006	RWYC170201-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170201-B	XHHW2	2#14, 1#14G	CS170201	JBX170201	RWYC170201-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 1.	CC30B
CBLP170201-A	XHHW2	3#12, 1#12G	MCC169102A	DS170201	RWYP160001-U	HH160001	RWYP160010-E	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170201-A	XHHW2	3#12, 1#12G	MCC169102A	DS170201	HH170001	RWYP170005-A	JBX170005	RWYP170201-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170201-B	XHHW2	3#12, 1#12G	DS170201	JBX170201	RWYP170201-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 1.	CC30B
CBLV170201-A	VENDOR	Special	JBX170201	M170201	RWYV170201-A					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 1.	CC30B
CBLC170202-A	XHHW2	10#14, 1#14G	MCC169102B	CS170202	RWYC160002-V	HH160002	RWYC160009-A	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170202-A	XHHW2	10#14, 1#14G	MCC169102B	CS170202	HH170002	RWYC170006-A	JBX170006	RWYC170202-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170202-B	XHHW2	2#14, 1#14G	CS170202	JBX170202	RWYC170202-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 2.	CC30B
CBLP170202-A	XHHW2	3#12, 1#12G	MCC169102B	DS170202	RWYP160001-B	HH160001	RWYP160010-E	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170202-A	XHHW2	3#12, 1#12G	MCC169102B	DS170202	HH170001	RWYP170005-A	JBX170005	RWYP170202-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170202-B	XHHW2	3#12, 1#12G	DS170202	JBX170202	RWYP170202-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 2.	CC30B
CBLV170202-A	VENDOR	Special	JBX170202	M170202	RWYV170202-A					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 2.	CC30B
CBLC170203-A	XHHW2	10#14, 1#14G	MCC169102A	CS170203	RWYC160002-U	HH160002	RWYC160009-A	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC170203-A	XHHW2	10#14, 1#14G	MCC169102A	CS170203	HH170002	RWYC170006-A	JBX170006	RWYC170203-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC170203-B	XHHW2	2#14, 1#14G	CS170203	JBX170203	RWYC170203-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 3.	CC30B
CBLP170203-A	XHHW2	3#12, 1#12G	MCC169102A	DS170203	RWYP160001-U	HH160001	RWYP160010-E	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP170203-A	XHHW2	3#12, 1#12G	MCC169102A	DS170203	HH170001	RWYP170005-A	JBX170005	RWYP170203-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP170203-B	XHHW2	3#12, 1#12G	DS170203	JBX170203	RWYP170203-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 3.	CC30B
CBLV170203-A	VENDOR	Special	JBX170203	M170203	RWYP170203-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 3.	CC30B
CBLC170204-A	XHHW2	10#14, 1#14G	MCC169102B	CS170204	RWYC160002-V	HH160002	RWYC160009-A	HH160009	RWYC170004-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLC170204-A	XHHW2	10#14, 1#14G	MCC169102B	CS170204	HH170002	RWYC170004-B	JBX170004			E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC170204-B	XHHW2	2#14, 1#14G	CS170204	JBX170204	RWYC170204-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 4. (FUTURE)	CC30B
CBLP170204-A	XHHW2	3#12, 1#12G	MCC169102B	DS170204	RWYP160001-B	HH160001	RWYP160010-E	HH160010	RWYP170003-A	E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED BELOW. (FUTURE)	CC30B
CBLP170204-A	XHHW2	3#12, 1#12G	MCC169102B	DS170204	HH170001	RWYP170003-E	JBX170003	RWYP170204-A		E-00-1015	ANAEROBIC COLLECTION CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 17 SCHEDULE. CABLE CONTINUED ABOVE. (FUTURE)	CC30B
CBLP170204-B	XHHW2	3#12, 1#12G	DS170204	JBX170204	RWYP170204-B					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 4. (FUTURE)	CC30B
CBLV170204-A	VENDOR	Special	JBX170204	M170204	RWYP170204-C					E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. ANAEROBIC COLLECTION CHANNEL MIXER 4. (FUTURE)	CC30B
CBLC170211-A	XHHW2	10#14, 1#14G	VFD170211	CS170211	RWYC160002-N	HH160002	RWYC160009-A	HH160009	RWYC170002-E	E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170211-A	XHHW2	10#14, 1#14G	VFD170211	CS170211	HH170002	RWYC170006-A	JBX170006	RWYC170211-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170211-B	XHHW2	2#14, 1#14G	CS170211	JBX170211	RWYC170211-B					E-00-1015	ANAEROBIC RECIRCULATION PUMP 1.	CC30B
CBLP170211-A	VFD1	3#10, 1#10G	VFD170211	JBX170211	RWYP160001-R	HH160001	RWYP160010-G	HH160010	RWYP170001-B	E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170211-A	VFD1	3#10, 1#10G	VFD170211	JBX170211	HH170001	RWYP170005-A	JBX170005	RWYP170211-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170211-A	INS	1TR #18SH	VFD170211	CS170211	RWYC160002-Q	HH160002	RWYC160009-B	HH160009	RWYS170002-A	E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170211-A	INS	1TR #18SH	VFD170211	CS170211	HH170002	RWYS170006-A	JBX170006	RWYS170211-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170211-B	INS	1PR #18SH	VFD170211	CS170211	RWYC160002-S	HH160002	RWYC160009-B	HH160009	RWYS170002-A	E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170211-B	INS	1PR #18SH	VFD170211	CS170211	HH170002	RWYS170006-A	JBX170006	RWYS170211-B		E-00-1015	ANAEROBIC RECIRCULATION PUMP 1. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLV170211-A	VENDOR	Special	JBX170211	M170211	RWYP170211-C					E-00-1015		CC30B
CBLC170212-A	XHHW2	10#14, 1#14G	VFD170212	CS170212	RWYC160002-P	HH160002	RWYC160009-A	HH160009	RWYC170002-E	E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170212-A	XHHW2	10#14, 1#14G	VFD170212	CS170212	HH170002	RWYC170006-A	JBX170006	RWYC170212-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170212-B	XHHW2	2#14, 1#14G	CS170212	JBX170212	RWYC170212-B					E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170212-A	VFD1	3#10, 1#10G	VFD170212	JBX170212	RWYP160001-Q	HH160001	RWYP160010-H	HH160010	RWYP170001-B	E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170212-A	VFD1	3#10, 1#10G	VFD170212	JBX170212	HH170001	RWYP170005-A	JBX170005	RWYP170212-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170212-A	INS	1TR #18SH	VFD170212	CS170212	RWYC160002-R	HH160002	RWYC160009-B	HH160009	RWYS170002-A	E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170212-A	INS	1TR #18SH	VFD170212	CS170212	HH170002	RWYS170006-A	JBX170006	RWYS170212-A		E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170212-B	INS	1PR #18SH	VFD170212	CS170212	RWYC160002-T	HH160002	RWYC160009-B	HH160009	RWYS170002-A	E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLS170212-B	INS	1PR #18SH	VFD170212	CS170212	HH170002	RWYS170006-A	JBX170006	RWYS170212-B		E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLV170212-A	VENDOR	Special	JBX170212	M170212	RWYP170212-C					E-00-1015	ANAEROBIC RECIRCULATION PUMP 2. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170220-A	XHHW2	3#10, 1#10G	PNL169203	DS170220	RWYP160001-V	HH160001	RWYP160010-A	HH160010	RWYP170001-A	E-00-1015	SLIDE GATE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170220-A	XHHW2	3#10, 1#10G	PNL169203	DS170220	HH170001	RWYP170005-A	JBX170005	RWYP170220-A		E-00-1015	SLIDE GATE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170220-B	XHHW2	3#10, 1#10G	DS170220	SGTE170220	HH170001	RWYP170220-B				E-00-1015	SLIDE GATE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLC170222-A	XHHW2	2#12, 1#12G	PLC160001	SV170222	RWYC160001-A	HH160001	RWYC160009-E	HH160009	RWYC170004-F	E-00-1015	SOLENOID VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC170222-A	XHHW2	2#12, 1#12G	PLC160001	SV170222	HH170001	RWYC170005-A	JBX170005	RWYC170222-A		E-00-1015	SOLENOID VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 17 SCHEDULE.	CC30B
CBLP170250-A	XHHW2	2#10, 1#10G	PNL169402	DS170250	RWYP160001-A	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	HEAT TRACE POWER. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170250-A	XHHW2	2#10, 1#10G	PNL169402	DS170250	HH170001	RWYP170005-A	JBX170005	RWYP170250-A		E-00-1015	HEAT TRACE POWER. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170250-B	XHHW2	2#12, 1#12G	DS170250	CS170250	RWYP170250-B					E-00-1015	HEAT TRACE POWER CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP170250-C	XHHW2	2#12, 1#12G	CS170250	HTT170250	RWYP170250-C					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS IN AREA 17 CABLE SCHEDULE.	CC30B
CBLP176001-A	XHHW2	3#1, 1#6G	PNL169203	WRCP176001	RWYP160001-V	HH160001	RWYP160010-A	HH160010	RWYP170001-F	E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. WELDING RECEPTACLE. CABLE CONTINUED BELOW.	CC30B
CBLP176001-A	XHHW2	3#1, 1#6G	PNL169203	WRCP176001	HH170001	RWYP170002-F	JBX170002			E-00-1015	CABLE ALSO APPEARS ON AREA 17 SCHEDULE. WELDING RECEPTACLE. CABLE CONTINUED ABOVE.	CC30B
CBLX180001-A	PULLROPE	PULLROPE	HH180002	HH180005	RWYX180001-A					E-00-1015		CC30B
CBLX180001-B	PULLROPE	PULLROPE	HH180002	HH180005	RWYX180001-B					E-00-1015		CC30B
CBLX180002-A	PULLROPE	PULLROPE	HH160004	HH180002	RWYX180002-F					E-00-1015	SPARE RACEWAY	CC30B
CBLX180002-A	PULLROPE	PULLROPE	HH180001	HH180006	RWYX180002-C					E-00-1015		CC30B
CBLX180002-B	PULLROPE	PULLROPE	HH160004	HH180002	RWYX180002-G					E-00-1015	SPARE RACEWAY	CC30B
CBLX180002-B	PULLROPE	PULLROPE	HH180001	HH180006	RWYX180002-D					E-00-1015		CC30B
CBLX180003-A	PULLROPE	PULLROPE	HH160005	HH180003	RWYX180003-K					E-00-1015	SPARE RACEWAY	CC30B
CBLX180003-A	PULLROPE	PULLROPE	HH180002	HH180003	RWYX180003-M					E-00-1015	SPARE RACEWAY	CC30B
CBLX180003-B	PULLROPE	PULLROPE	HH160005	HH180003	RWYX180003-L					E-00-1015	SPARE RACEWAY	CC30B
CBLX180003-B	PULLROPE	PULLROPE	HH180002	HH180003	RWYX180003-N					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-A	PULLROPE	PULLROPE	HH160006	HH180004	RWYX180004-L					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-A	PULLROPE	PULLROPE	HH160003	HH180001	RWYX180001-C					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-A	PULLROPE	PULLROPE	HH180001	HH180004	RWYX180004-N					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-B	PULLROPE	PULLROPE	HH160006	HH180004	RWYX180004-M					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-B	PULLROPE	PULLROPE	HH160003	HH180001	RWYX180001-D					E-00-1015	SPARE RACEWAY	CC30B
CBLX180004-B	PULLROPE	PULLROPE	HH180001	HH180004	RWYX180004-P					E-00-1015	SPARE RACEWAY	CC30B
CBLX180007-A	PULLROPE	PULLROPE	HH180003	HH180007	RWYX180007-G					E-00-1015	SPARE RACEWAY	CC30B
CBLX180007-B	PULLROPE	PULLROPE	HH180003	HH180007	RWYX180007-H					E-00-1015	SPARE RACEWAY	CC30B
CBLX180008-A	PULLROPE	PULLROPE	HH180004	HH180008	RWYX180008-P					E-00-1015	SPARE RACEWAY	CC30B
CBLX180008-B	PULLROPE	PULLROPE	HH180004	HH180008	RWYX180008-Q					E-00-1015	SPARE RACEWAY	CC30B
CBLC180101-A	XHHW2	10#14, 1#14G	MCC169101A	CS180101	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180006-A	E-00-1015	SIN-S2 CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180101-A	XHHW2	10#14, 1#14G	MCC169101A	CS180101	JBX180006	RWYC180101-A				E-00-1015	SIN-S2 CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180101-B	XHHW2	2#14, 1#14G	CS180101	JBX180101	RWYC180101-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 1	CC30B
CBLP180101-A	XHHW2	3#12, 1#12G	MCC169101A	DS180101	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180005-A	E-00-1015	SIN-S2 CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180101-A	XHHW2	3#12, 1#12G	MCC169101A	DS180101	JBX180005	RWYP180101-A				E-00-1015	SIN-S2 CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180101-B	XHHW2	3#12, 1#12G	DS180101	JBX180101	RWYP180101-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 1	CC30B
CBLV180101-A	VENDOR	Special	JBX180101	M180101	RWYM180101-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 1	CC30B
CBLC180102-A	XHHW2	10#14, 1#14G	MCC169101B	CS180102	RWYC160003-E	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180102-A	XHHW2	10#14, 1#14G	MCC169101B	CS180102	HH180004	RWYC180008-A	HH180008	RWYC180008-L	JBX180008	E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180102-A	XHHW2	10#14, 1#14G	MCC169101B	CS180102	RWYC180102-A					E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180102-B	XHHW2	2#14, 1#14G	CS180102	JBX180102	RWYC180102-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 2	CC30B
CBLP180102-A	XHHW2	3#12, 1#12G	MCC169101B	DS180102	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180102-A	XHHW2	3#12, 1#12G	MCC169101B	DS180102	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180102-A	XHHW2	3#12, 1#12G	MCC169101B	DS180102	RWYP180102-B					E-00-1015	SIN-S2 CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180102-B	XHHW2	3#12, 1#12G	DS180102	JBX180102	RWYP180102-C					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 2	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLV180102-A	VENDOR	Special	JBX180102	M180102	RWYM180102-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 2	CC30B
CBLC180103-A	XHHW2	10#14, 1#14G	MCC169101A	CS180103	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180006-A	E-00-1015	SIN-S2 CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180103-A	XHHW2	10#14, 1#14G	MCC169101A	CS180103	JBX180006	RWYC180103-A				E-00-1015	SIN-S2 CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180103-B	XHHW2	2#14, 1#14G	CS180103	JBX180103	RWYC180103-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 3	CC30B
CBLP180103-A	XHHW2	3#12, 1#12G	MCC169101A	DS180103	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180005-A	E-00-1015	SIN-S2 CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180103-A	XHHW2	3#12, 1#12G	MCC169101A	DS180101	JBX180005	RWYP180103-A				E-00-1015	SIN-S2 CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180103-B	XHHW2	3#12, 1#12G	DS180103	JBX180103	RWYP180103-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 3	CC30B
CBLV180103-A	VENDOR	Special	JBX180103	M180103	RWYM180103-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 3	CC30B
CBLC180104-A	XHHW2	10#14, 1#14G	MCC169101B	CS180104	RWYC160003-E	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180104-A	XHHW2	10#14, 1#14G	MCC169101B	CS180104	HH180004	RWYC180008-A	HH180008	RWYC180008-L	JBX180008	E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180104-A	XHHW2	10#14, 1#14G	MCC169101B	CS180104	RWYC180104-A					E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180104-B	XHHW2	2#14, 1#14G	CS180104	JBX180104	RWYC180104-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 4	CC30B
CBLP180104-A	XHHW2	3#12, 1#12G	MCC169101B	DS180104	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180104-A	XHHW2	3#12, 1#12G	MCC169101B	DS180104	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180104-A	XHHW2	3#12, 1#12G	MCC169101B	DS180104	RWYP180104-A					E-00-1015	SIN-S2 CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180104-B	XHHW2	3#12, 1#12G	DS180104	JBX180104	RWYP180104-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 4	CC30B
CBLV180104-A	VENDOR	Special	JBX180104	M180104	RWYM180104-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 4	CC30B
CBLC180105-A	XHHW2	10#14, 1#14G	MCC169101A	CS180105	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180008-B	E-00-1015	SIN-S2 CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180105-A	XHHW2	10#14, 1#14G	MCC169101A	CS180105	HH180008	RWYC180008-K	JBX180008	RWYC180105-A		E-00-1015	SIN-S2 CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180105-B	XHHW2	2#14, 1#14G	CS180105	JBX180105	RWYC180105-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 5	CC30B
CBLP180105-A	XHHW2	3#12, 1#12G	MCC169101A	DS180105	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180007-A	E-00-1015	SIN-S2 CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180105-A	XHHW2	3#12, 1#12G	MCC169101A	DS180105	HH180007	RWYP180007-C	JBX180007	RWYP180105-A		E-00-1015	SIN-S2 CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180105-B	XHHW2	3#12, 1#12G	DS180105	JBX180105	RWYP180105-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 5	CC30B
CBLV180105-A	VENDOR	Special	JBX180105	M180105	RWYM180105-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 5	CC30B
CBLC180106-A	XHHW2	10#14, 1#14G	MCC169101B	CS180106	RWYC160003-E	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180106-A	XHHW2	10#14, 1#14G	MCC169101B	CS180106	HH180004	RWYC180008-A	HH180008	RWYC180008-L	JBX180008	E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180106-A	XHHW2	10#14, 1#14G	MCC169101B	CS180106	RWYC180106-A					E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180106-B	XHHW2	2#14, 1#14G	CS180106	JBX180106	RWYC180106-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 6	CC30B
CBLP180106-A	XHHW2	3#12, 1#12G	MCC169101B	DS180106	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP180106-A	XHHW2	3#12, 1#12G	MCC169101B	DS180106	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180106-A	XHHW2	3#12, 1#12G	MCC169101B	DS180106	RWYP180106-A					E-00-1015	SIN-S2 CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180106-B	XHHW2	3#12, 1#12G	DS180106	JBX180106	RWYP180106-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 6	CC30B
CBLV180106-A	VENDOR	Special	JBX180106	M180106	RWYM180106-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 6	CC30B
CBLC180107-A	XHHW2	10#14, 1#14G	MCC169101A	CS180107	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180008-B	E-00-1015	SIN-S2 CHANNEL MIXER 7. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180107-A	XHHW2	10#14, 1#14G	MCC169101A	CS180107	HH180008	RWYC180008-K	JBX180008	RWYC180107-A		E-00-1015	SIN-S2 CHANNEL MIXER 7. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180107-B	XHHW2	2#14, 1#14G	CS180107	JBX180107	RWYC180107-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 7	CC30B
CBLP180107-A	XHHW2	3#12, 1#12G	MCC169101A	DS180107	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180007-A	E-00-1015	SIN-S2 CHANNEL MIXER 7. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180107-A	XHHW2	3#12, 1#12G	MCC169101A	DS180107	HH180007	RWYP180007-C	JBX180007	RWYP180107-A		E-00-1015	SIN-S2 CHANNEL MIXER 7. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180107-B	XHHW2	3#12, 1#12G	DS180107	JBX180107	RWYP180107-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 7	CC30B
CBLV180107-A	VENDOR	Special	JBX180107	M180107	RWYM180107-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 7	CC30B
CBLC180108-A	XHHW2	10#14, 1#14G	MCC169101B	CS180108	RWYC160003-A	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180108-A	XHHW2	10#14, 1#14G	MCC169101B	CS180108	HH180004	RWYC180008-A	HH180008	RWYC180008-L	JBX180008	E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180108-A	XHHW2	10#14, 1#14G	MCC169101B	CS180108	RWYC180108-A					E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180108-A	XHHW2	10#14, 1#14G	MCC169101B	CS180108	RWYP180110-A					E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180108-B	XHHW2	2#14, 1#14G	JBX180108	CS180108	RWYC180108-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 8	CC30B
CBLP180108-A	XHHW2	3#12, 1#12G	MCC169101B	DS180108	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180108-A	XHHW2	3#12, 1#12G	MCC169101B	DS180108	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180108-A	XHHW2	3#12, 1#12G	MCC169101B	DS180108	RWYP180108-A					E-00-1015	SIN-S2 CHANNEL MIXER 8. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180108-B	XHHW2	3#12, 1#12G	DS180108	JBX180108	RWYP180108-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 8	CC30B
CBLV180108-A	VENDOR	Special	JBX180108	M180108	RWYM180108-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 8	CC30B
CBLC180109-A	XHHW2	10#14, 1#14G	MCC169101A	CS180109	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180008-B	E-00-1015	SIN-S2 CHANNEL MIXER 9. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180109-A	XHHW2	10#14, 1#14G	MCC169101A	CS180109	HH180008	RWYC180008-K	JBX180008	RWYC180109-A		E-00-1015	SIN-S2 CHANNEL MIXER 9. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180109-B	XHHW2	2#14, 1#14G	CS180109	JBX180109	RWYC180109-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 9	CC30B
CBLP180109-A	XHHW2	3#12, 1#12G	MCC169101A	DS180109	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180007-A	E-00-1015	SIN-S2 CHANNEL MIXER 9. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180109-A	XHHW2	3#12, 1#12G	MCC169101A	DS180109	HH180007	RWYP180007-C	JBX180007	RWYP180109-A		E-00-1015	SIN-S2 CHANNEL MIXER 9. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180109-B	XHHW2	3#12, 1#12G	DS180109	JBX180109	RWYP180109-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 9	CC30B
CBLV180109-A	VENDOR	Special	JBX180109	M180109	RWYM180109-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 9	CC30B
CBLC180110-A	XHHW2	10#14, 1#14G	MCC169101B	CS180110	RWYC160003-A	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC180110-A	XHHW2	10#14, 1#14G	MCC169101B	CS180110	HH180004	RWYC180008-A	HH180008	RWYC180008-L	JBX180008	E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180110-A	XHHW2	10#14, 1#14G	MCC169101B	CS180110	RWYC180110-A					E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180110-B	XHHW2	2#14, 1#14G	CS180110	JBX180110	RWYC180110-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 10	CC30B
CBLP180110-A	XHHW2	3#12, 1#12G	MCC169101B	DS180110	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180110-A	XHHW2	3#12, 1#12G	MCC169101B	DS180110	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	SIN-S2 CHANNEL MIXER 10. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180110-B	XHHW2	3#12, 1#12G	DS180110	JBX180110	RWYP180110-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 10	CC30B
CBLV180110-A	VENDOR	Special	JBX180110	M180110	RWYM180110-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 10	CC30B
CBLC180111-A	XHHW2	10#14, 1#14G	MCC169101A	CS180111	RWYC160006-D	HH160006	RWYC180004-G	HH180004	RWYC180008-B	E-00-1015	SIN-S2 CHANNEL MIXER 11. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC180111-A	XHHW2	10#14, 1#14G	MCC169101A	CS180111	HH180008	RWYC180008-K	JBX180008	RWYC180111-A		E-00-1015	SIN-S2 CHANNEL MIXER 11. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC180111-B	XHHW2	2#14, 1#14G	CS180111	JBX180111	RWYC180111-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 11	CC30B
CBLP180111-A	XHHW2	3#12, 1#12G	MCC169101A	DS180111	RWYP160005-E	HH160005	RWYP180003-D	HH180003	RWYP180007-A	E-00-1015	SIN-S2 CHANNEL MIXER 11. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP180111-A	XHHW2	3#12, 1#12G	MCC169101A	DS180111	HH180007	RWYP180007-C	JBX180007	RWYP180111-A		E-00-1015	SIN-S2 CHANNEL MIXER 11. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP180111-B	XHHW2	3#12, 1#12G	DS180111	JBX180111	RWYP180111-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 11	CC30B
CBLV180111-A	VENDOR	Special	JBX180111	M180111	RWYM180111-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. SIN-S2 CHANNEL MIXER 11	CC30B
CBLC181001-A	XHHW2	10#14, 1#14G	MCC169101A	CS181001	RWYC160006-K	HH160006	RWYC180004-G	HH180004	RWYC180008-E	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181001-A	XHHW2	10#14, 1#14G	MCC169101A	CS181001	HH180008	RWYC180008-K	JBX180008	RWYC181001-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181001-B	XHHW2	2#14, 1#14G	CS181001	JBX181001	RWYC181001-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 1	CC30B
CBLP181001-A	XHHW2	3#12, 1#12G	MCC169101A	DS181001	RWYP160005-B	HH160005	RWYP180003-B	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181001-A	XHHW2	3#12, 1#12G	MCC169101A	DS181001	HH180007	RWYP180007-C	JBX180007	RWYP181001-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181001-B	XHHW2	3#12, 1#12G	DS181001	JBX181001	RWYP181001-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 1	CC30B
CBLV181001-A	VENDOR	Special	JBX181001	M181001	RWYM181001-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 1	CC30B
CBLC181002-A	XHHW2	10#14, 1#14G	MCC169101B	CS181002	RWYC160003-A	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181002-A	XHHW2	10#14, 1#14G	MCC169101B	CS181002	HH180004	RWYC180008-M	HH180008	RWYC180008-J	JBX180008	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181002-A	XHHW2	10#14, 1#14G	MCC169101B	CS181002	RWYC181002-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181002-B	XHHW2	2#14, 1#14G	CS181002	JBX181002	RWYC181002-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 2	CC30B
CBLP181002-A	XHHW2	3#12, 1#12G	MCC169101B	DS181002	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181002-A	XHHW2	3#12, 1#12G	MCC169101B	DS181002	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181002-A	XHHW2	3#12, 1#12G	MCC169101B	DS181002	RWYP181002-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP181002-B	XHHW2	3#12, 1#12G	DS181002	JBX181002	RWYP181002-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 2	CC30B
CBLV181002-A	VENDOR	Special	JBX181002	M181002	RWYM181002-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 2	CC30B
CBLC181003-A	XHHW2	10#14, 1#14G	MCC169101A	CS181003	RWYC160006-L	HH160006	RWYC180004-G	HH180004	RWYC180008-E	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181003-A	XHHW2	10#14, 1#14G	MCC169101A	CS181003	HH180008	RWYC180008-K	JBX180008	RWYC181003-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181003-B	XHHW2	2#14, 1#14G	CS181003	JBX181003	RWYC181003-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 3	CC30B
CBLP181003-A	XHHW2	3#12, 1#12G	MCC169101A	DS181003	RWYP160005-B	HH160005	RWYP180003-B	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181003-A	XHHW2	3#12, 1#12G	MCC169101A	DS181003	HH180007	RWYP180007-C	JBX180007	RWYP181003-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181003-B	XHHW2	3#12, 1#12G	DS181003	JBX181003	RWYP181003-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 3	CC30B
CBLV181003-A	VENDOR	Special	JBX181003	M181003	RWYM181003-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 3	CC30B
CBLC181004-A	XHHW2	10#14, 1#14G	MCC169101B	CS181004	RWYC160003-A	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181004-A	XHHW2	10#14, 1#14G	MCC169101B	CS181004	HH180004	RWYC180008-M	HH180008	RWYC180008-J	JBX180008	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181004-A	XHHW2	10#14, 1#14G	MCC169101B	CS181004	RWYC181004-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181004-B	XHHW2	2#14, 1#14G	CS181004	JBX181004	RWYC181004-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 4	CC30B
CBLP181004-A	XHHW2	3#12, 1#12G	MCC169101B	DS181004	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181004-A	XHHW2	3#12, 1#12G	MCC169101B	DS181004	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181004-A	XHHW2	3#12, 1#12G	MCC169101B	DS181004	RWYP181004-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181004-B	XHHW2	3#12, 1#12G	DS181004	JBX181004	RWYP181004-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 4	CC30B
CBLV181004-A	VENDOR	Special	JBX181004	M181004	RWYM181004-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 4	CC30B
CBLC181005-A	XHHW2	10#14, 1#14G	MCC169101A	CS181005	RWYC160006-M	HH160006	RWYC180004-G	HH180004	RWYC180008-E	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181005-A	XHHW2	10#14, 1#14G	MCC169101A	CS181005	HH180008	RWYC180008-K	JBX180008	RWYC181005-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181005-B	XHHW2	2#14, 1#14G	CS181005	JBX181005	RWYC181005-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 5	CC30B
CBLP181005-A	XHHW2	3#12, 1#12G	MCC169101A	DS181005	RWYP160005-B	HH160005	RWYP180003-B	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181005-A	XHHW2	3#12, 1#12G	MCC169101A	DS181005	HH180007	RWYP180007-C	JBX180007	RWYP181005-A		E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 5. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181005-B	XHHW2	3#12, 1#12G	DS181005	JBX181005	RWYP181005-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 5	CC30B
CBLV181005-A	VENDOR	Special	JBX181005	M181005	RWYM181005-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 5	CC30B
CBLC181006-A	XHHW2	10#14, 1#14G	MCC169101B	CS181006	RWYC160003-A	HH160003	RWYC180001-A	HH180001	RWYC180004-D	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181006-A	XHHW2	10#14, 1#14G	MCC169101B	CS181006	HH180004	RWYC180008-M	HH180008	RWYC180008-J	JBX180008	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181006-A	XHHW2	10#14, 1#14G	MCC169101B	CS181006	RWYC181006-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181006-B	XHHW2	2#14, 1#14G	CS181006	JBX181006	RWYC181006-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 6	CC30B
CBLP181006-A	XHHW2	3#12, 1#12G	MCC169101B	DS181006	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP181006-A	XHHW2	3#12, 1#12G	MCC169101B	DS181006	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181006-A	XHHW2	3#12, 1#12G	MCC169101B	DS181006	RWYP181006-A					E-00-1015	AERATION ZONE 1 DIST. CHANNEL MIXER 6. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181006-B	XHHW2	3#12, 1#12G	DS181006	JBX181006	RWYP181006-B					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 6	CC30B
CBLV181006-A	VENDOR	Special	JBX181006	M181006	RWYM181006-A					E-00-1015	CABLE ALSO APPEARS ON AREA 18 SCHEDULE. AERATION ZONE 1 DIST. CHANNEL MIXER 6	CC30B
CBLC181111-A	XHHW2	8#14, 1#14G	MCC169101A	CS181111	RWYC160006-F	HH160006	RWYC180004-A	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181111-A	XHHW2	8#14, 1#14G	MCC169101A	CS181111	HH180008	RWYC180008-K	JBX180008	RWYC181111-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181111-A	XHHW2	3#12, 1#12G	MCC169101A	DS181111	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181111-A	XHHW2	3#12, 1#12G	MCC169101A	DS181111	HH180007	RWYP180007-C	JBX180007	RWYP181111-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181111-B	XHHW2	3#12, 1#12G	DS181111	M181111	RWYP181111-B					E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1	CC30B
CBLP181111-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181111	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181111-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181111	HH180007	RWYP180007-C	JBX180007	RWYP181111-C		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181112-A	XHHW2	8#14, 1#14G	MCC169101A	CS181112	RWYC160006-F	HH160006	RWYC180004-A	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181112-A	XHHW2	8#14, 1#14G	MCC169101A	CS181112	HH180008	RWYC180008-K	JBX180008	RWYC181112-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181112-A	XHHW2	3#10, 1#10G	MCC169101A	DS181112	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181112-A	XHHW2	3#10, 1#10G	MCC169101A	DS181112	HH180007	RWYP180007-C	JBX180007	RWYP181112-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181112-B	XHHW2	3#10, 1#10G	DS181112	M181112	RWYP181112-B					E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2	CC30B
CBLP181112-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181112	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181112-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181112	HH180007	RWYP180007-C	JBX180007	RWYP181112-C		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181113-A	XHHW2	8#14, 1#14G	MCC169101A	CS181113	RWYC160006-F	HH160006	RWYC180004-A	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181113-A	XHHW2	8#14, 1#14G	MCC169101A	CS181113	HH180008	RWYC180008-K	JBX180008	RWYC181113-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181113-A	XHHW2	3#10, 1#10G	MCC169101A	DS181113	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181113-A	XHHW2	3#10, 1#10G	MCC169101A	DS181113	HH180007	RWYP180007-C	JBX180007	RWYP181113-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181113-B	XHHW2	3#10, 1#10G	DS181113	M181113	RWYP181113-B					E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3	CC30B
CBLP181113-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181113	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181113-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181113	HH180007	RWYP180007-C	JBX180007	RWYP181113-C		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181114-A	XHHW2	8#14, 1#14G	MCC169101A	CS181114	RWYC160006-F	HH160006	RWYC180004-A	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181114-A	XHHW2	8#14, 1#14G	MCC169101A	CS181114	HH180008	RWYC180008-K	JBX180008	RWYC181114-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181114-A	XHHW2	3#12, 1#12G	MCC169101A	DS181114	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP181114-A	XHHW2	3#12, 1#12G	MCC169101A	DS181114	HH180007	RWYP180007-C	JBX180007	RWYP181114-A		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181114-B	XHHW2	3#12, 1#12G	DS181114	M181114	RWYP181114-B					E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4	CC30B
CBLP181114-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181114	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181114-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181114	HH180007	RWYP180007-C	JBX180007	RWYP181114-C		E-00-1015	AERATION ZONE 1 TRAIN 1 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181121-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181121	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181121-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181121	JBX180006	RWYC181121-A	TBX181121	RWYC181121-B		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181121-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181121	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181121-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181121	JBX180006	RWYC181121-A	TBX181121	RWYC181121-C		E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181121-A	XHHW2	3#12, 1#12G	PNL169203	FCV181121	RWYP160005-F	HH160005	RWYP180003-A	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW.CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181121-A	XHHW2	3#12, 1#12G	PNL169203	FCV181121	JBX180005	RWYP181121-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE.CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181121-C	INSM	24PR #18SH	PLC169101A	TBX181121	RWYS160006-B	HH160006	RWYS180004-B	HH180004	RWYS180006-A	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW.CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181121-C	INSM	24PR #18SH	PLC169101A	TBX181121	JBX180006	RWYS181121-C				E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE.CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181122-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181122	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181122-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181122	JBX180006	RWYC181122-A	TBX181122	RWYC181122-B		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181122-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181122	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181122-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181122	JBX180006	RWYC181122-A	TBX181122	RWYC181122-C		E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181122-A	XHHW2	3#12, 1#12G	PNL169203	DS181122	RWYP160005-F	HH160005	RWYP180003-A	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181122-A	XHHW2	3#12, 1#12G	PNL169203	DS181122	JBX180005	RWYP181122-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181122-B	XHHW2	3#12, 1#12G	DS181122	FCV181122	RWYP181122-B					E-00-1015	FLOW VALVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181123-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181123	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180004-E	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181123-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181123	JBX180004	RWYC181123-B	TBX181123	RWYC181123-C		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181123-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181123	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180004-E	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181123-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181123	JBX180004	RWYC181123-B	TBX181123	RWYC181123-D		E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181123-A	XHHW2	3#12, 1#12G	PNL169203	FCV181123	RWYP160005-F	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181123-A	XHHW2	3#12, 1#12G	PNL169203	FCV181123	JBX180003	RWYP181123-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181123-C	INSM	24PR #18SH	PLC169101A	TBX181123	RWYS160006-B	HH160006	RWYS180004-B	HH180004	RWYS180002-B	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181123-C	INSM	24PR #18SH	PLC169101A	TBX181123	JBX180002	RWYS181123-C				E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181131-A	XHHW2	10#14, 1#14G	VFD181131	CS181131	RWYC160006-A	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181131-A	XHHW2	10#14, 1#14G	VFD181131	CS181131	JBX180002	RWYC181131-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181131-B	XHHW2	2#14, 1#14G	CS181131	JBX181131	RWYC181131-B					E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1	CC30B
CBLP181131-A	VFD2	3#1, 3#6G	VFD181131	JBX181131	RWYP160005-P	HH160005	RWYP180003-A	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181131-A	VFD2	3#1, 3#6G	VFD181131	JBX181131	JBX180001	RWYP181131-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181131-A	INS	1TR #18SH	VFD181131	CS181131	RWYS160006-A	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS181131-A	INS	1TR #18SH	VFD181131	CS181131	JBX180002	RWYS181131-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181131-B	INS	1PR #18SH	VFD181131	CS181131	RWYS160006-A	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181131-B	INS	1PR #18SH	VFD181131	CS181131	JBX180002	RWYS181131-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181131-A	VENDOR	Special	JBX181131	M181131	RWYP181131-B					E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1	CC30B
CBLC181132-A	XHHW2	10#14, 1#14G	VFD181132	CS181132	RWYC160006-B	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181132-A	XHHW2	10#14, 1#14G	VFD181132	CS181132	JBX180002	RWYC181132-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181132-B	XHHW2	2#14, 1#14G	CS181132	JBX181132	RWYC181132-B					E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2	CC30B
CBLP181132-A	VFD2	3#1, 3#6G	VFD181132	JBX181132	RWYP160005-C	HH160005	RWYP180003-A	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181132-A	VFD2	3#1, 3#6G	VFD181132	JBX181132	JBX180001	RWYP181132-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181132-A	INS	1TR #18SH	VFD181132	CS181132	RWYS160006-C	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181132-A	INS	1TR #18SH	VFD181132	CS181132	JBX180002	RWYS181132-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181132-B	INS	1PR #18SH	VFD181132	CS181132	RWYS160006-C	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181132-B	INS	1PR #18SH	VFD181132	CS181132	JBX180002	RWYS181132-A				E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181132-A	VENDOR	Special	JBX181132	M181132	RWYP181132-B					E-00-1015	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2	CC30B
CBLP181141-A	XHHW2	2#10, 1#10G	PNL169403	AIT181141	RWYP160005-T	HH160005	RWYP180003-A	HH180003	RWYP180007-G	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE	CC30B
CBLP181141-A	XHHW2	2#10, 1#10G	PNL169403	AIT181141	JBX180007	RWYP181141-A				E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE	CC30B
CBLC181211-A	XHHW2	8#14, 1#14G	MCC169101B	CS181211	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181211-A	XHHW2	8#14, 1#14G	MCC169101B	CS181211	HH180004	RWYC180008-F	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181211-A	XHHW2	8#14, 1#14G	MCC169101B	CS181211	RWYC181211-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181211-A	XHHW2	3#12, 1#12G	MCC169101B	DS181211	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181211-A	XHHW2	3#12, 1#12G	MCC169101B	DS181211	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181211-A	XHHW2	3#12, 1#12G	MCC169101B	DS181211	RWYP181211-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181211-B	XHHW2	3#12, 1#12G	DS181211	M181211	RWYP181211-B					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1	CC30B
CBLP181211-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181211	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181211-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181211	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181211-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181211	RWYP181211-C					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181212-A	XHHW2	8#14, 1#14G	MCC169101B	CS181212	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181212-A	XHHW2	8#14, 1#14G	MCC169101B	CS181212	HH180004	RWYC180008-F	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC181212-A	XHHW2	8#14, 1#14G	MCC169101B	CS181212	RWYC181212-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181212-A	XHHW2	3#10, 1#10G	MCC169101B	DS181212	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181212-A	XHHW2	3#10, 1#10G	MCC169101B	DS181212	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181212-A	XHHW2	3#10, 1#10G	MCC169101B	DS181212	RWYP181212-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181212-B	XHHW2	3#10, 1#10G	DS181212	M181212	RWYP181212-B					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2	CC30B
CBLP181212-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181212	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181212-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181212	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181212-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181212	RWYP181212-C					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181213-A	XHHW2	8#14, 1#14G	MCC169101B	CS181213	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181213-A	XHHW2	8#14, 1#14G	MCC169101B	CS181213	HH180004	RWYC180008-F	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181213-A	XHHW2	8#14, 1#14G	MCC169101B	CS181213	RWYC181213-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181213-A	XHHW2	3#10, 1#10G	MCC169101B	DS181213	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181213-A	XHHW2	3#10, 1#10G	MCC169101B	DS181213	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181213-A	XHHW2	3#10, 1#10G	MCC169101B	DS181213	RWYP181213-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181213-B	XHHW2	3#10, 1#10G	DS181213	M181213	RWYP181213-B					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3	CC30B
CBLP181213-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181213	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181213-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181213	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181213-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181213	RWYP181213-C					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181214-A	XHHW2	8#14, 1#14G	MCC169101B	CS181214	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181214-A	XHHW2	8#14, 1#14G	MCC169101B	CS181214	HH180004	RWYC180008-F	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181214-A	XHHW2	8#14, 1#14G	MCC169101B	CS181214	RWYC181214-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181214-A	XHHW2	3#12, 1#12G	MCC169101B	DS181214	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181214-A	XHHW2	3#12, 1#12G	MCC169101B	DS181214	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181214-A	XHHW2	3#12, 1#12G	MCC169101B	DS181214	RWYP181214-A					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181214-B	XHHW2	3#12, 1#12G	DS181214	M181214	RWYP181214-B					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4	CC30B
CBLP181214-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181214	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181214-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181214	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181214-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181214	RWYP181214-C					E-00-1015	AERATION ZONE 1 TRAIN 2 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC181221-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181221	RWY160003-A	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181221-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181221	HH180004	RWYC180006-A	JBX180006	RWYC181221-B	TBX181221	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181221-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181221	RWYC181221-C					E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181221-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181221	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181221-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181221	HH180004	RWYC180006-A	JBX180006	RWYC181221-B	TBX181221	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181221-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181221	RWYC181221-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181221-A	XHHW2	3#12, 1#12G	PNL169204	FCV181221	RWYP160005-G	HH160005	RWYP180003-A	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181221-A	XHHW2	3#12, 1#12G	PNL169204	FCV181221	JBX180005	RWYP181221-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181221-C	INSM	24PR #18SH	PLC169101B	TBX181221	RWYS160003-A	HH160003	RWYS180001-A	HH180001	RWYS180004-C	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181221-C	INSM	24PR #18SH	PLC169101B	TBX181221	HH180004	RWYS180002-D	JBX180006	RWYS181221-C		E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181222	RWY160003-A	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181222	HH180004	RWYC180006-A	JBX180006	RWYC181222-B	TBX181222	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181222	RWYC181222-A					E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181222	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181222	HH180004	RWYC180006-A	JBX180006	RWYC181222-B	TBX181222	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181222-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181222	RWYC181222-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181222-A	XHHW2	3#12, 1#12G	PNL169204	DS181222	RWYP160005-G	HH160005	RWYP180003-A	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181222-A	XHHW2	3#12, 1#12G	PNL169204	DS181222	JBX180005	RWYP181222-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181222-B	XHHW2	3#12, 1#12G	DS181222	FCV181222	RWYP181222-B					E-00-1015	FLOW VALVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181223	RWY160003-A	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181223	HH180004	RWYC180004-E	JBX180004	RWYC181223-B	TBX181223	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181223	RWYC181223-C					E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181223	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181223	HH180004	RWYC180004-E	JBX180004	RWYC181223-B	TBX181223	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181223-B	XHHW2	2#14, 1#14G	PLC169101B	FIT181223	RWYC181223-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181223-A	XHHW2	3#12, 1#12G	PNL169204	FCV181223	RWYP160005-G	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181223-A	XHHW2	3#12, 1#12G	PNL169204	FCV181223	JBX180003	RWYP181223-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181223-C	INSM	24PR #18SH	PLC169101B	TBX181223	RWYS160003-A	HH160003	RWYS180001-A	HH180001	RWYS180004-C	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181223-C	INSM	24PR #18SH	PLC169101A	TBX181223	HH180004	RWYS180002-C	JBX180002	RWYS181223-C		E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181231-A	XHHW2	10#14, 1#14G	VFD181231	CS181231	RWYC160006-C	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181231-A	XHHW2	10#14, 1#14G	VFD181231	CS181231	JBX180002	RWYC181231-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181231-B	XHHW2	2#14, 1#14G	CS181231	JBX181231	RWYC181231-B					E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1	CC30B
CBLP181231-A	VFD2	3#1, 3#6G	VFD181231	JBX181231	RWYP160005-H	HH160005	RWYP180003-A	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181231-A	VFD2	3#1, 3#6G	VFD181231	JBX181231	JBX180001	RWYP181231-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS181231-A	INS	1TR #18SH	VFD181231	CS181231	RWYS160006-D	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181231-A	INS	1TR #18SH	VFD181231	CS181231	JBX180002	RWYS181231-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181231-B	INS	1PR #18SH	VFD181231	CS181231	RWYS160006-D	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181231-B	INS	1PR #18SH	VFD181231	CS181231	JBX180002	RWYS181231-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181231-A	VENDOR	Special	JBX181231	M181231	RWYP181231-B					E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1	CC30B
CBLC181232-A	XHHW2	10#14, 1#14G	VFD181232	CS181232	RWYC160006-N	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181232-A	XHHW2	10#14, 1#14G	VFD181232	CS181232	JBX180002	RWYC181232-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181232-B	XHHW2	2#14, 1#14G	CS181232	JBX181232	RWYC181232-B					E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2	CC30B
CBLP181232-A	VFD2	3#1, 3#6G	VFD181232	JBX181232	RWYP160005-J	HH160005	RWYP180003-A	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181232-A	VFD2	3#1, 3#6G	VFD181232	JBX181232	JBX180001	RWYP181232-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181232-A	INS	1TR #18SH	VFD181232	CS181232	RWYS160006-E	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181232-A	INS	1TR #18SH	VFD181232	CS181232	JBX180002	RWYS181232-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181232-B	INS	1PR #18SH	VFD181232	CS181232	RWYS160006-E	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181232-B	INS	1PR #18SH	VFD181232	CS181232	JBX180002	RWYS181232-A				E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181232-A	VENDOR	Special	JBX181232	M181232	RWYP181232-B					E-00-1015	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2	CC30B
CBLP181241-A	XHHW2	2#10, 1#10G	PNL169403	AIT181241	RWYP160005-T	HH160005	RWYP180003-A	HH180003	RWYP180007-G	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181241-A	XHHW2	2#10, 1#10G	PNL169403	AIT181241	JBX180007	RWYP181241-A				E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181311-A	XHHW2	8#14, 1#14G	MCC169101A	CS181311	RWYC160006-Q	HH160006	RWYC180004-G	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181311-A	XHHW2	8#14, 1#14G	MCC169101A	CS181311	HH180008	RWYC180008-K	JBX180008	RWYC181311-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181311-A	XHHW2	3#12, 1#12G	MCC169101A	DS181311	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181311-A	XHHW2	3#12, 1#12G	MCC169101A	DS181311	HH180007	RWYP180007-C	JBX180007	RWYP181311-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181311-B	XHHW2	3#12, 1#12G	DS181311	M181311	RWYP181311-B					E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1	CC30B
CBLP181311-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181311	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181311-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181311	HH180007	RWYP180007-C	JBX180007	RWYP181311-C		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181312-A	XHHW2	8#14, 1#14G	MCC169101A	CS181312	RWYC160006-Q	HH160006	RWYC180004-G	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181312-A	XHHW2	8#14, 1#14G	MCC169101A	CS181312	HH180008	RWYC180008-K	JBX180008	RWYC181312-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181312-A	XHHW2	3#10, 1#10G	MCC169101A	DS181312	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181312-A	XHHW2	3#10, 1#10G	MCC169101A	DS181312	HH180007	RWYP180007-C	JBX180007	RWYP181312-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181312-B	XHHW2	3#10, 1#10G	DS181312	M181312	RWYP181312-B					E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP181312-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181312	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181312-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181312	HH180007	RWYP180007-C	JBX180007	RWYP181312-C		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181313-A	XHHW2	8#14, 1#14G	MCC169101A	CS181313	RWYC160006-Q	HH160006	RWYC180004-G	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181313-A	XHHW2	8#14, 1#14G	MCC169101A	CS181313	HH180008	RWYC180008-K	JBX180008	RWYC181313-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181313-A	XHHW2	3#10, 1#10G	MCC169101A	DS181313	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181313-A	XHHW2	3#10, 1#10G	MCC169101A	DS181313	HH180007	RWYP180007-C	JBX180007	RWYP181313-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181313-B	XHHW2	3#10, 1#10G	DS181313	M181313	RWYP181313-B					E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3	CC30B
CBLP181313-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181313	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181313-C	XHHW2	3#10, 1#10G	MCC169101A	HTR181313	HH180007	RWYP180007-C	JBX180007	RWYP181313-C		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181314-A	XHHW2	8#14, 1#14G	MCC169101A	CS181314	RWYC160006-Q	HH160006	RWYC180004-G	HH180004	RWYC180008-H	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181314-A	XHHW2	8#14, 1#14G	MCC169101A	CS181314	HH180008	RWYC180008-K	JBX180008	RWYC181314-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181314-A	XHHW2	3#12, 1#12G	MCC169101A	DS181314	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181314-A	XHHW2	3#12, 1#12G	MCC169101A	DS181314	HH180007	RWYP180007-C	JBX180007	RWYP181314-A		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181314-B	XHHW2	3#12, 1#12G	DS181314	M181314	RWYP181314-B					E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4	CC30B
CBLP181314-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181314	RWYP160005-A	HH160005	RWYP180003-E	HH180003	RWYP180007-A	E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181314-C	XHHW2	3#12, 1#12G	MCC169101A	HTR181314	HH180007	RWYP180007-C	JBX180007	RWYP181314-C		E-00-1015	AERATION ZONE 1 TRAIN 3 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181321-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181321	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181321-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181321	JBX180006	RWYC181321-A	TBX181321	RWYC181321-B		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181321-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181321	RWYC160003-D	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181321-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181321	HH180004	RWYC180006-A	JBX180006	RWYC181321-C	TBX181321	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181321-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181321	RWYC181321-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181321-A	XHHW2	3#12, 1#12G	PNL169203	FCV181321	RWYP160005-F	HH160005	RWYP180003-B	HH180003	RWYP180007-D	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181321-A	XHHW2	3#12, 1#12G	PNL169203	FCV181321	HH180007	RWYP180005-E	JBX180005	RWYP181321-A		E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181322-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181322	RWYC160006-G	HH160006	RWYC180004-C	HH180004	RWYC180006-A	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181322-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181322	JBX180006	RWYC181322-A	TBX181322	RWYC181322-C		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181322-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181322	RWYC160003-D	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181322-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181322	HH180004	RWYC180006-A	JBX180006	RWYC181322-B	TBX181322	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181322-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181322	RWYC181322-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181322-A	XHHW2	3#12, 1#12G	PNL169203	FCV181322	RWYP160005-F	HH160005	RWYP180003-B	HH180003	RWYP180007-D	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181322-A	XHHW2	3#12, 1#12G	PNL169203	FCV181322	HH180007	RWYP180005-E	JBX180005	RWYP181322-A		E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181323-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181323	RWYC160006-G	HH160006	RWYC180003-B	HH180003	RWYC180002-B	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181323-A	XHHW2	10#14, 1#14G	PLC169101A	FCV181323	JBX180002	RWYC181123-A	TBX181123	RWYC181323-A		E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181323-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181323	RWYC160003-D	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC181323-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181323	HH180004	RWYC180004-E	JBX180004	RWYC181323-B	TBX181323	E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181323-B	XHHW2	2#14, 1#14G	PLC169101A	FIT181323	RWYC181323-D					E-00-1015	24VDC POWER TO FIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181331-A	XHHW2	10#14, 1#14G	VFD181331	CS181331	RWYC160006-P	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181331-A	XHHW2	10#14, 1#14G	VFD181331	CS181331	JBX180002	RWYC181331-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181331-B	XHHW2	2#14, 1#14G	CS181331	JBX181331	RWYC181331-B					E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1	CC30B
CBLP181331-A	VFD2	3#1, 3#6G	VFD181331	JBX181331	RWYP160005-K	HH160005	RWYP180003-B	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181331-A	VFD2	3#1, 3#6G	VFD181331	JBX181331	JBX180001	RWYP181331-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181331-A	INS	1TR #18SH	VFD181331	CS181331	RWYS160006-F	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181331-A	INS	1TR #18SH	VFD181331	CS181331	JBX180002	RWYS181331-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181331-B	INS	1PR #18SH	VFD181331	CS181331	RWYS160006-F	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181331-B	INS	1PR #18SH	VFD181331	CS181331	JBX180002	RWYS181331-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181331-A	VENDOR	Special	JBX181331	M181331	RWYP181331-B					E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1	CC30B
CBLC181332-A	XHHW2	10#14, 1#14G	VFD181332	CS181332	RWYC160006-R	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181332-A	XHHW2	10#14, 1#14G	VFD181332	CS181332	JBX180002	RWYC181332-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181332-B	XHHW2	2#14, 1#14G	CS181332	JBX181332	RWYC181332-B					E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2	CC30B
CBLP181332-A	VFD2	3#1, 3#6G	VFD181332	JBX181332	RWYP160005-L	HH160005	RWYP180003-B	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181332-A	VFD2	3#1, 3#6G	VFD181332	JBX181332	JBX180001	RWYP181332-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181332-A	INS	1TR #18SH	VFD181332	CS181332	RWYS160006-G	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181332-A	INS	1TR #18SH	VFD181332	CS181332	JBX180002	RWYS181332-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181332-B	INS	1PR #18SH	VFD181332	CS181332	RWYS160006-G	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181332-B	INS	1PR #18SH	VFD181332	CS181332	JBX180002	RWYS181332-A				E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181332-A	VENDOR	Special	JBX181332	M181332	RWYP181332-B					E-00-1015	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2	CC30B
CBLP181341-A	XHHW2	2#10, 1#10G	PNL169403	AIT181441	RWYP160005-T	HH160005	RWYP180003-A	HH180003	RWYP180007-G	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181341-A	XHHW2	2#10, 1#10G	PNL169403	AIT181441	JBX180007	RWYP181341-A				E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181411-A	XHHW2	8#14, 1#14G	MCC169101B	CS181411	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181411-A	XHHW2	8#14, 1#14G	MCC169101B	CS181411	HH180004	RWYC180008-G	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181411-A	XHHW2	8#14, 1#14G	MCC169101B	CS181411	RWYC181411-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181411-A	XHHW2	3#12, 1#12G	MCC169101B	DS181411	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP181411-A	XHHW2	3#12, 1#12G	MCC169101B	DS181411	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181411-A	XHHW2	3#12, 1#12G	MCC169101B	DS181411	RWYP181411-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181411-B	XHHW2	3#12, 1#12G	DS181411	M181411	RWYP181411-B					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1	CC30B
CBLP181411-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181411	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181411-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181411	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181411-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181411	RWYP181411-C					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181412-A	XHHW2	8#14, 1#14G	MCC169101B	CS181412	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181412-A	XHHW2	8#14, 1#14G	MCC169101B	CS181412	HH180004	RWYC180008-G	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181412-A	XHHW2	8#14, 1#14G	MCC169101B	CS181412	RWYC181412-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181412-A	XHHW2	3#10, 1#10G	MCC169101B	DS181412	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181412-A	XHHW2	3#10, 1#10G	MCC169101B	DS181412	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181412-A	XHHW2	3#10, 1#10G	MCC169101B	DS181412	RWYP181412-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181412-B	XHHW2	3#10, 1#10G	DS181412	M181412	RWYP181412-B					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2	CC30B
CBLP181412-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181412	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181412-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181412	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181412-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181412	RWYP181412-C					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181413-A	XHHW2	8#14, 1#14G	MCC169101B	CS181413	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181413-A	XHHW2	8#14, 1#14G	MCC169101B	CS181413	HH180004	RWYC180008-G	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181413-A	XHHW2	8#14, 1#14G	MCC169101B	CS181413	RWYC181413-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181413-A	XHHW2	3#10, 1#10G	MCC169101B	DS181413	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181413-A	XHHW2	3#10, 1#10G	MCC169101B	DS181413	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181413-A	XHHW2	3#10, 1#10G	MCC169101B	DS181413	RWYP181413-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181413-B	XHHW2	3#10, 1#10G	DS181413	M181413	RWYP181413-B					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3	CC30B
CBLP181413-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181413	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181413-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181413	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181413-C	XHHW2	3#10, 1#10G	MCC169101B	HTR181413	RWYP181413-C					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 3. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181414-A	XHHW2	8#14, 1#14G	MCC169101B	CS181414	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181414-A	XHHW2	8#14, 1#14G	MCC169101B	CS181414	HH180004	RWYC180008-G	HH180008	RWYC180008-N	JBX180008	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC181414-A	XHHW2	8#14, 1#14G	MCC169101B	CS181414	RWYC181414-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181414-A	XHHW2	3#12, 1#12G	MCC169101B	DS181414	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181414-A	XHHW2	3#12, 1#12G	MCC169101B	DS181414	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181414-A	XHHW2	3#12, 1#12G	MCC169101B	DS181414	RWYP181414-A					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181414-B	XHHW2	3#12, 1#12G	DS181414	M181414	RWYP181414-B					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4	CC30B
CBLP181414-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181414	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181414-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181414	HH180003	RWYP180007-D	HH180007	RWYP180007-B	JBX180007	E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181414-C	XHHW2	3#12, 1#12G	MCC169101B	HTR181414	RWYP181414-C					E-00-1015	AERATION ZONE 1 TRAIN 4 MIXER 4. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181421-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181421	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181421-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181421	HH180004	RWYC180008-C	HH180008	RWYC180008-D	JBX180008	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181421-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181421	RWYC181221-A	TBX181221	RWYC181421-A			E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181421-A	XHHW2	3#12, 1#12G	PNL169204	FCV181421	RWYP160005-G	HH160005	RWYP180003-B	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181421-A	XHHW2	3#12, 1#12G	PNL169204	FCV181421	JBX180005	RWYP181421-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181422-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181422	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181422-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181422	HH180004	RWYC180006-A	JBX180006	RWYC181221-B	TBX181221	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181422-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181422	RWYC181422-A					E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181422-A	XHHW2	3#12, 1#12G	PNL169204	FCV181422	RWYP160005-G	HH160005	RWYP180003-B	HH180003	RWYP180005-A	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181422-A	XHHW2	3#12, 1#12G	PNL169204	FCV181422	JBX180005	RWYP181422-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181423-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181423	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-D	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181423-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181423	HH180004	RWYC180002-C	JBX180002	RWYC181223-A	TBX181223	E-00-1015	PLC TO FCV. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181423-A	XHHW2	10#14, 1#14G	PLC169101B	FCV181423	RWYC181423-A					E-00-1015	PLC TO FCV. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181423-A	XHHW2	3#12, 1#12G	PNL169204	FCV181423	RWYP160005-G	HH160005	RWYP180003-B	HH180003	RWYP180001-B	E-00-1015	FLOW VALVE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181423-A	XHHW2	3#12, 1#12G	PNL169204	FCV181423	JBX180001	RWYP181423-A				E-00-1015	FLOW VALVE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181431-A	XHHW2	10#14, 1#14G	VFD181431	CS181431	RWYC160006-S	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181431-A	XHHW2	10#14, 1#14G	VFD181431	CS181431	JBX180002	RWYC181431-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181431-B	XHHW2	2#14, 1#14G	CS181431	JBX181431	RWYC181431-B					E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1	CC30B
CBLP181431-A	VFD2	3#1, 3#6G	VFD181431	JBX181431	RWYP160005-M	HH160005	RWYP180003-B	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181431-A	VFD2	3#1, 3#6G	VFD181431	JBX181431	JBX180001	RWYP181431-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181431-A	INS	1TR #18SH	VFD181431	CS181431	RWYS160006-H	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181431-A	INS	1TR #18SH	VFD181431	CS181431	JBX180002	RWYS181431-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181431-B	INS	1PR #18SH	VFD181431	CS181431	RWYS160006-H	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLS181431-B	INS	1PR #18SH	VFD181431	CS181431	JBX180002	RWYS181431-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181431-A	VENDOR	Special	JBX181431	M181431	RWYP181431-B					E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1	CC30B
CBLC181432-A	XHHW2	10#14, 1#14G	VFD181432	CS181432	RWYC160006-H	HH160006	RWYC180004-A	HH180004	RWYC180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181432-A	XHHW2	10#14, 1#14G	VFD181432	CS181432	JBX180002	RWYC181432-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181432-B	XHHW2	2#14, 1#14G	CS181432	JBX181432	RWYC181432-B					E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2	CC30B
CBLP181432-A	VFD2	3#1, 3#6G	VFD181432	JBX181432	RWYP160005-N	HH160005	RWYP180003-B	HH180003	RWYP180001-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLP181432-A	VFD2	3#1, 3#6G	VFD181432	JBX181432	JBX180001	RWYP181432-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE. (CCF 002 CHANGE ORDER PENDING)	CC30B
CBLS181432-A	INS	1TR #18SH	VFD181432	CS181432	RWYS160006-J	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181432-A	INS	1TR #18SH	VFD181432	CS181432	JBX180002	RWYS181432-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLS181432-B	INS	1PR #18SH	VFD181432	CS181432	RWYS160006-J	HH160006	RWYS180004-A	HH180004	RWYS180002-A	E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLS181432-B	INS	1PR #18SH	VFD181432	CS181432	JBX180002	RWYS181432-A				E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLV181432-A	VENDOR	Special	JBX181432	M181432	RWYP181432-B					E-00-1015	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2	CC30B
CBLP181441-A	XHHW2	2#10, 1#10G	PNL169403	AIT181341	RWYP160005-T	HH160005	RWYP180003-A	HH180003	RWYP180007-G	E-00-1015	PNL TO AIT. CABLE CONTINUED BELOW.	CC30B
CBLP181441-A	XHHW2	2#10, 1#10G	PNL169403	AIT181341	JBX180007	RWYP181441-A				E-00-1015	PNL TO AIT. CABLE CONTINUED ABOVE.	CC30B
CBLC181511-A	XHHW2	10#14, 1#14G	MCC169101A	CS181511	RWYC160006-E	HH160006	RWYC180004-G	HH180004	RWYC180004-B	E-00-1015	TANK DRAIN PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181511-A	XHHW2	10#14, 1#14G	MCC169101A	CS181511	JBX180004	RWYC181511-A				E-00-1015	TANK DRAIN PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181511-B	XHHW2	2#14, 1#14G	CS181511	JBX181511	RWYC181511-B					E-00-1015	TANK DRAIN PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181511-A	XHHW2	3#6, 1#8G	MCC169101A	DS181511	RWYP160004-E	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	TANK DRAIN PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181511-A	XHHW2	3#6, 1#8G	MCC169101A	DS181511	HH180003	RWYP180003-F	JBX180003	RWYP181511-A		E-00-1015	TANK DRAIN PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181511-B	XHHW2	3#6, 1#8G	DS181511	JBX181511	RWYP181511-B					E-00-1015	TANK DRAIN PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLV181511-A	VENDOR	Special	JBX181511	M181511	RWYM181511-A					E-00-1015	TANK DRAIN PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181512-A	XHHW2	10#14, 1#14G	MCC169101B	CS181512	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-H	E-00-1015	TANK DRAIN PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181512-A	XHHW2	10#14, 1#14G	MCC169101B	CS181512	HH180004	RWYC180004-B	JBX180004	RWYC181512-A		E-00-1015	TANK DRAIN PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181512-B	XHHW2	2#14, 1#14G	CS181512	JBX181512	RWYC181512-B					E-00-1015	TANK DRAIN PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181512-A	XHHW2	3#6, 1#8G	MCC169101B	DS181512	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180003-G	E-00-1015	TANK DRAIN PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181512-A	XHHW2	3#6, 1#8G	MCC169101B	DS181512	HH180003	RWYP180003-F	JBX180003	RWYP181512-A		E-00-1015	TANK DRAIN PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181512-B	XHHW2	3#6, 1#8G	DS181512	JBX181512	RWYP181512-B					E-00-1015	TANK DRAIN PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLV181512-A	VENDOR	Special	JBX181512	M181512	RWYM181512-A					E-00-1015	TANK DRAIN PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181521-A	XHHW2	10#14, 1#14G	MCC169101A	CS181521	RWYC160006-E	HH160006	RWYC180004-G	HH180004	RWYC180004-F	E-00-1015	FOAM WASTE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLC181521-A	XHHW2	10#14, 1#14G	MCC169101A	CS181521	JBX180004	RWYC181521-A				E-00-1015	FOAM WASTE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181521-B	XHHW2	2#14, 1#14G	CS181521	JBX181521	RWYC181521-B					E-00-1015	FOAM WASTE PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181521-A	XHHW2	3#6, 1#8G	MCC169101A	DS181521	RWYP160005-B	HH160005	RWYP180003-C	HH180003	RWYP180003-H	E-00-1015	FOAM WASTE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181521-A	XHHW2	3#6, 1#8G	MCC169101A	DS181521	JBX180003	RWYP181521-A				E-00-1015	FOAM WASTE PUMP 1. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181521-B	XHHW2	3#6, 1#8G	DS181521	JBX181521	RWYP181521-B					E-00-1015	FOAM WASTE PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLV181521-A	VENDOR	Special	JBX181521	M181521	RWYM181521-A					E-00-1015	FOAM WASTE PUMP 1 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181522-A	XHHW2	10#14, 1#14G	MCC169101B	CS181522	RWYC160003-C	HH160003	RWYC180001-A	HH180001	RWYC180004-J	E-00-1015	FOAM WASTE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC181522-A	XHHW2	10#14, 1#14G	MCC169101B	CS181522	HH180004	RWYC180004-F	JBX180004	RWYC181522-A		E-00-1015	FOAM WASTE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLC181522-B	XHHW2	2#14, 1#14G	CS181522	JBX181522	RWYC181522-B					E-00-1015	FOAM WASTE PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181522-A	XHHW2	3#6, 1#8G	MCC169101B	DS181522	RWYP160005-D	HH160005	RWYP180003-C	HH180003	RWYP180003-H	E-00-1015	FOAM WASTE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED BELOW.	CC30B
CBLP181522-A	XHHW2	3#6, 1#8G	MCC169101B	DS181522	JBX180003	RWYP181522-A				E-00-1015	FOAM WASTE PUMP 2. CABLE ALSO APPEARS ON AREA 18 SCHEDULE. CABLE CONTINUED ABOVE.	CC30B
CBLP181522-B	XHHW2	3#6, 1#8G	DS181522	JBX181522	RWYP181522-B					E-00-1015	FOAM WASTE PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLV181522-A	VENDOR	Special	JBX181522	M181522	RWYM181522-A					E-00-1015	FOAM WASTE PUMP 2 CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181550-A	XHHW2	2#10, 1#10G	PNL169402	DS181550	RWYP160005-S	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	HEAT TRACE POWER. CABLE CONTINUED BELOW. CABLE ALSO APPEARS IN AREA 18 CABLE SCHEDULE.	CC30B
CBLP181550-A	XHHW2	2#10, 1#10G	PNL169402	DS181550	JBX180003	RWYP181550-A				E-00-1015	HEAT TRACE POWER. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS IN AREA 18 CABLE SCHEDULE.	CC30B
CBLP181550-B	XHHW2	2#12, 1#12G	DS181550	CS181550	RWYP181550-B					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181550-C	XHHW2	2#12, 1#12G	CS181550	HTT181550	RWYP181550-C					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181550-C	XHHW2	2#10, 1#10G	PNL169403	HTT181550	RWYP160005-U	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	PNL TO HEAT TRACE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181550-C	XHHW2	2#10, 1#10G	PNL169403	HTT181550	JBX180003	RWYP18550-C				E-00-1015	PNL TO HEAT TRACE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181611-A	XHHW2	10#14, 1#14G	PLC169101A	SGTE181611	RWYC160006-T	HH160006	RWYC180004-C	HH180004	RWYC180002-C	E-00-1015	PLC TO GATE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181611-A	XHHW2	10#14, 1#14G	PLC169101A	SGTE181611	JBX180002	RWYC181611-A				E-00-1015	PLC TO GATE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181611-B	INSM	24PR #18SH	PLC169101A	TBX181611	RWYS160006-B	HH160006	RWYS180004-B	HH180004	RWYS180002-B	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181611-B	INSM	24PR #18SH	PLC169101A	TBX181611	JBX180002	RWYS181611-B				E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181621-A	XHHW2	10#14, 1#14G	PLC169101B	SGTE181621	RWYC160003-B	HH160003	RWYC180001-B	HH180001	RWYC180004-K	E-00-1015	PLC TO GATE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLC181621-A	XHHW2	10#14, 1#14G	PLC169101B	SGTE181621	HH180004	RWYC180002-C	JBX180002	RWYC181621-A		E-00-1015	PLC TO GATE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181621-A	XHHW2	3#10, 1#10G	PNL169204	DS181621	RWYP160004-H	HH160004	RWYP180002-E	HH180002	RWYP180002-F	E-00-1015	SLIDE GATE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181621-A	XHHW2	3#10, 1#10G	DS181621	SGTE181621	JBX180002	RWYP181621-A				E-00-1015	SLIDE GATE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181621-A	INSM	4PR #18SH	TBX181621	SGTE181621	RWYS181621-A					E-00-1015	INSTRUMENTATION CABLE THROUGH TERMINAL BOX. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181621-B	INSM	24PR #18SH	PLC169101B	TBX181621	RWYS160003-A	HH160003	RWYS180001-A	HH180001	RWYS180004-C	E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181621-B	INSM	24PR #18SH	PLC169101A	TBX181621	HH180004	RWYS180002-C	JBX180002	RWYS181621-B		E-00-1015	PLC TO TERMINAL BOX. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLS181622A-A	INS	1PR #18SH	TBX181621	LI181622A	RWYS181622A-A					E-00-1015	INSTRUMENTATION CABLE THROUGH TERMINAL BOX. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181651-A	XHHW2	2#10, 1#10G	PNL169402	DS181651	RWYP160005-S	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	HEAT TRACE POWER. CABLE CONTINUED BELOW.. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181651-A	XHHW2	2#10, 1#10G	PNL169402	DS181651	JBX180003	RWYP181651-A				E-00-1015	HEAT TRACE POWER. CABLE CONTINUED ABOVE.. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181651-B	XHHW2	2#10, 1#10G	DS181651	CS181651	RWYP181651-B					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181651-C	XHHW2	2#10, 1#10G	CS181651	HTT181651	RWYP181651-C					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181652-A	XHHW2	2#10, 1#10G	PNL169402	DS181652	RWYP160005-S	HH160005	RWYP180003-A	HH180003	RWYP180003-F	E-00-1015	HEAT TRACE POWER. CABLE CONTINUED BELOW.. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181652-A	XHHW2	2#10, 1#10G	PNL169402	DS181652	JBX180003	RWYP181652-A				E-00-1015	HEAT TRACE POWER. CABLE CONTINUED ABOVE.. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181652-B	XHHW2	2#12, 1#12G	DS181652	CS181652	RWYP181652-B					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP181652-C	XHHW2	2#12, 1#12G	CS181652	HTT181652	RWYP181652-C					E-00-1015	HEAT TRACE POWER. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP186001-A	XHHW2	3#1, 1#6G	PNL169203	WRCP186001	RWYP160005-F	HH160005	RWYP180003-B	HH180003	RWYP180001-B	E-00-1015	WELDING RECEPTACLE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP186001-A	XHHW2	3#1, 1#6G	PNL169203	WRCP186001	JBX180001	RWYP186001-A				E-00-1015	WELDING RECEPTACLE. CABLE CONTINUED ABOVE. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP186002-A	XHHW2	3#1, 1#6G	PNL169203	WRCP186002	RWYP160005-F	HH160005	RWYP180003-B	HH180003	RWYP180007-D	E-00-1015	WELDING RECEPTACLE. CABLE CONTINUED BELOW. CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLP186002-A	XHHW2	3#1, 1#6G	PNL169203	WRCP186002	HH180007	RWYP180007-B	JBX180007			E-00-1015	WELDING RECEPTACLE. CABLE CONTINUED ABOVE.CABLE ALSO APPEARS ON AREA 18 SCHEDULE.	CC30B
CBLX190001-A	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-A					E-00-1009	SPARE POWER RACEWAY	CC30B
CBLX190001-B	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-B					E-00-1009	SPARE POWER RACEWAY	CC30B
CBLX190001-C	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-C					E-00-1009	SPARE CONTROL RACEWAY	CC30B
CBLX190001-D	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-D					E-00-1009	SPARE CONTROL RACEWAY	CC30B
CBLX190002-A	PULLROPE	PULLROPE	AREA 22 BLDG	HH190002	RWYX190002-A					E-00-1009	SPARE SIGNAL RACEWAY	CC30B
CBLX190002-B	PULLROPE	PULLROPE	AREA 22 BLDG	HH190002	RWYX190002-B					E-00-1009	SPARE SIGNAL RACEWAY	CC30B
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC191011-AA	RIO 33C	TRAY 1033C	RWYC33010D-A	HH33010D	E-19-1101	CABLE ALSO APPEARS ON AREA 33 CABLE SCHEDULE.	CC30B
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC1920-A	TB1920	RWYC191011-AB			E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLC191011-B	TCER	11#14, 1#14G	CS191011	PCV191011	RWYC191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 33 CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TRAY 1033C	TRAY 480 VOLTS	RWYP33010D-A	HH33010D	RWYP1920-A	E-19-1101	CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TB1920	RWYP191011-A				E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLP191011-B	TCER	3#12, 1#12G	DS1910011	PCV191011	RWYP191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 33 CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 33 CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS1921-A	TB1921	RWYS191011-A			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLS191011-B	INSM	4PR #18SH	CS191011	PCV191011	RWYS191011-B					E-19-1201	CABLE ALSO APPEARS ON AREA 33 CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS1921-A	TB1921	RWYS191012-B			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND 19 CABLE SCHEDULE.	CC30B
CBLD192701-A	NC2	1#U/FTP CAT6A	CAB220001	AIT192701	RWYS192701-AA	HH190002	RWYS192701-AB			E-00-1009		CC30B
CBLP192701-A	XHHW2	2#12, 1#12G	PNL229301	AIT192701	RWYP192701-AA	HH190001	RWYP192701-AB			E-00-1009		CC30B
CBLH210000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SCBT330001A	CTH340013A	RWYH21006A-A	HH21006B			E-00-1010	TERMINATE CABLES ON EXISTING VAULT TOP SECTIONALIZING CABINET SPARE JUNCTION WITH MV ELBOW. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH210000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SCBT330001B	CTH340012B	CTH340014B	RWYH21006B-A	HH21006B		E-00-1010	TERMINATE CABLES ON EXISTING VAULT TOP SECTIONALIZING CABINET SPARE JUNCTION WITH MV ELBOW. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX210000A-A	PULLROPE	PULLROPE	CTH340014A	HH21006B	RWYX21006A-A					E-00-1006	SPARE RACEWAY BETWEEN BASEMENT AND HH21006B (CCF 008)	**CC30A/REV 1**
CBLX210000B-A	PULLROPE	PULLROPE	CTH340012B	HH21006B	RWYX21006B-A					E-00-1006	SPARE RACEWAY BETWEEN BASEMENT AND HH21006B (CCF 008)	**CC30A/REV 1**
CBLP210001A-E	TCER	2#12, 1#12G	JP24	LV21A	RWYP210011-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210001A-E	E-21-1101	PQM219001A POWER. ALSO APPEARS ON AREA 24 AND SITE CABLE SCHEDULES.	CC30B
CBLP210001B-C	TCER	2#12, 1#12G	JP24	LV21B	RWYP210011-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210001B-C	E-21-1101	PQM219001B POWER. ALSO APPEARS ON AREA 24 AND SITE CABLE SCHEDULES.	CC30B
CBLX210001A	PULLROPE	PULLROPE	CTS24	PBX210001S-A	RWYX210001					E-00-1005		CC5F
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-00-1006	CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	RWYF020011-B	HH020001	RWYF24225-B	HH24225	RWYF24225-D	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULE	CC5F
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	HH24224	RWYF240000-C	CTS24	RWYF210001B-B	PBX210001S-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULE	CC5F
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	RWYF210000-A					E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND 21 CABLE SCHEDULE	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-00-1006	CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF341002-B	MH341002	RWYF001002-F	HH001002	RWYF23613-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	MH23613	RWYF230001A-B	JBX230001-A	RWYF230001B-B	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF230001B-C	HH020001	RWYF24225-B	HH24225	RWYF24224-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	HH24224	RWYF240000-B	CTS24	RWYF210001B-A	PBX210001S-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF210011-B					E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF210011DA-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE210011	**RWYF240011-A**	CTS24	RWYF210001-C	PBX210001S-A	RWYF210011-C	E-21-1201	PLANT FIRE ALARM. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLP210011A-A	TCER	2#12, 1#12G	JP24	MCC 21A	RWYP219101-A	CTP24	RWYP210001P-A	PBX210001P	RWYP210011A-A	E-21-1101	PMM219101A POWER	CC30B
CBLP210011B-A	TCER	2#12, 1#12G	JP24	MCC 21B	RWYP219101-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210011B-A	E-21-1101	PMM219101B POWER	CC30B
CBLP210011-B	TCER	2#12, 1#12G	JP24	TBX210011	RWYP210011-C	CTP24	RWYP210001P-A	PBX210001P	RWYP210011-D	E-21-1101	NCE210011 POWER. ALSO ON AREA 24 AND SITE CABLE SCHEDULES.	CC5F
CBLP219101-A	TCER	2#12, 1#12G	JP24	MCC 21A	RWYP219101-A	CTP24	RWYP210001P-A	PBX210001P	RWYP210011A-A	E-21-1101	NET219101AA POWER	CC30B
CBLP219101-B	TCER	2#12, 1#12G	JP24	MCC 21B	RWYP219101-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210011B-A	E-21-1101	NET219101BA POWER	CC30B
CBLX220001-A	PULLROPE	PULLROPE	HH220002	PLC220001	RWYX220001-C					E-00-1014		CC30B
CBLX220001-B	PULLROPE	PULLROPE	HH220001	ELEC RM SOUTH WALL	RWYX220001-D					E-00-1014	STUB UP AND CAP CONDUIT IN A FEASIBLE LOCATION ON THE SOUTH WALL OF THE ELECTRICAL ROOM	CC30B
CBLX220001-C	PULLROPE	PULLROPE	HH220001	ELEC RM SOUTH WALL	RWYX220001-E					E-00-1014	STUB UP AND CAP CONDUIT IN A FEASIBLE LOCATION ON THE SOUTH WALL OF THE ELECTRICAL ROOM	CC30B
CBLX220003-A	PULLROPE	PULLROPE	HH220001	HH220003	RWYX220003-A					E-00-1014		CC30B
CBLX220003-B	PULLROPE	PULLROPE	HH220001	HH220003	RWYX220003-B					E-00-1014		CC30B
CBLX220003-C	PULLROPE	PULLROPE	HH220001	HH220003	RWYX220003-C					E-00-1014		CC30B
CBLX220003-D	PULLROPE	PULLROPE	HH220001	HH220003	RWYX220003-D					E-00-1014		CC30B
CBLX220004-A	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-A					E-00-1014		CC30B
CBLX220004-B	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-B					E-00-1014		CC30B
CBLX220004-C	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-C					E-00-1014		CC30B
CBLX220004-D	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-D					E-00-1014		CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B		CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340001A	RWYF33010D-B	HH33010D	RWYF17001A-B	HH17001A	E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	RWYF160003-B	HH160003	RWYF180001-B	HH180001	RWYF180006-B	E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	HH180006	RWYF220002-B	HH220002	RWYF220011A-A		E-00-1014	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF33010D-AA		CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF33010D-A	HH33010D	RWYF17001A-C	HH17001A	RWYF160003-A		CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	HH160003	RWYF180001-A	HH180001	RWYF180006-A	HH180006		CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF220002-A	HH220002	RWYF220011A-B				CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011BA-A	**FOTSM**	**12 FiberSM**	NCE160011	NCE220011	RWYF160003-C	HH160003	RWYF180001-A	HH180001	RWYF180006-A	E-00-1015	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF220011BA-A	**FOTSM**	**12 FiberSM**	NCE160011	NCE220011	HH180006	RWYF220002-B	HH220002	RWYF220011A-A		E-00-1014	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLX220011-A	PULLROPE	PULLROPE	HH220002	NCE220011	RWYX220011-A					E-00-1014		CC30B
CBLX220011-B	PULLROPE	PULLROPE	HH220002	NCE220011	RWYX220011-B					E-00-1014		CC30B
CBLP229101A-A	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	RWYP160004-F	HH160004	RWYP180002-A	HH180002	RWYP180005-F	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101A-A	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	HH180005	RWYP220001-A	HH220001	RWYP229101A-A		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101A-B	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	RWYP160004-B	HH160004	RWYP180002-B	HH180002	RWYP180005-B	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLP229101A-B	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	HH180005	RWYP220001-B	HH220001	RWYP229101A-B		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101B-A	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	RWYP160004-C	HH160004	RWYP180002-C	HH180002	RWYP180005-C	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101B-A	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	HH180005	RWYP220001-C	HH220001	RWYP229101B-A		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101B-B	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	RWYP160004-D	HH160004	RWYP180002-D	HH180002	RWYP180005-D	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLP229101B-B	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	HH180005	RWYP220001-D	HH220001	RWYP229101B-B		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 22 CABLE SCHEDULE	CC30B
CBLX229101A-A	PULLROPE	PULLROPE	SWGR169001A	MCC229101A	RWYX160004-A	HH160004	RWYX180002-A	HH180002	RWYX180005-A	E-00-1014	SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101A-A	PULLROPE	PULLROPE	SWGR169001A	MCC229101A	HH180005	RWYX220001-A	HH220001	RWYX229101A-C		E-00-1014	CONTINUED FROM LINE ABOVE. SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101A-B	PULLROPE	PULLROPE	HH220001	MCC229101A	RWYX229101A-D					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101A-C	PULLROPE	PULLROPE	HH220002	MCC229101A	RWYX229101A-E					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101B-A	PULLROPE	PULLROPE	SWGR169001B	MCC229101B	RWYX160004-B	HH160004	RWYX180002-B	HH180002	RWYX180005-B	E-00-1014	SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101B-A	PULLROPE	PULLROPE	SWGR169001B	MCC229101B	HH180005	RWYX220001-B	HH220001	RWYX229101B-C		E-00-1014	CONTINUED FROM LINE ABOVE. SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101B-B	PULLROPE	PULLROPE	HH220001	MCC229101B	RWYX229101B-D					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101B-C	PULLROPE	PULLROPE	HH220002	MCC229101B	RWYX229101B-E					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLP229301-I	XHHW2	1#12, 1#12N, 1#12G	PNL229301	HH220001	RWYP229301-I					E-00-1014	HH220001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 22 CABLE SCHEDULE	CC30B
CBLP229301-J	XHHW2	1#12, 1#12N, 1#12G	PNL229301	HH180005	RWYP229301-I	HH220001	RWYP180005-G			E-00-1014	HH180005 SUMP PUMP. CABLE ALSO APPEARS IN AREA 22 CABLE SCHEDULE	CC30B
CBLX229301-A	PULLROPE	PULLROPE	HH220001	PNL229301	RWYX229301-A					E-00-1014		CC30B
CBLX229301-B	PULLROPE	PULLROPE	HH220001	PNL229301	RWYX229301-B					E-00-1014		CC30B
CBLF230005A-A	FOTMM	12 FiberMM	NCE020011	CAB230005	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF23005-A	E-23-1102	FIBER OPTIC BACK TO AREA 02 AREA PLC. CABLE ASLO SHOWS UP IN AREA 02 AND SITE SCHEDULES	CC5F
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	**RWYF240011-B**	CTS24	RWYF24224-D	HH24224	RWYF24225-D	E-00-1005	CABLE ALSO APPEARS IN AREA 21 CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	HH24225	RWYF020001-C	HH020001	RWYF230001B-C	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	RWYF230011-B					E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-C	FOTSM	24 FiberSM	NCE020011	NCE230011	RWYF020011-B	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B	E-00-1005		CC5F
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-00-1006	CABLE ALSO APPEARS IN AREA 23, 33 AND 34 CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23 AND 34 CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33 AND 34 CABLE SCHEDULES	CC30A
CBLF230011AB-A	**FOTSM**	**48 FiberSM**	NCE330001	NCE230011	MH23613	RWYF230001A-A	JBX230001-A	RWYF230011-A		E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33 AND 34 CABLE SCHEDULES	CC30A
CBLF230011BA-A	FOTSM	12 FiberSM	NCE020011	NCE230011	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF230011-D	E-00-1005	PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)	CC5F
CBLP230390-A	XHHW2	3#10, 1#10G	MCC21A	DS230390	RWYP21002C-A	HH21002C	RWYP21001C-A	HH21001C	RWYP230390-A	E-00-1005	CP230390 POWER. CABLE ALSO APPEARS ON SITE AND AREA 23 CABLE SCHEDULES.	CC5F
CBLX23614A-A	PULLROPE	PULLROPE	MH23613	JBX230001-A	RWYX23614A-C					E-00-1006		CC30A
CBLX23614A-B	PULLROPE	PULLROPE	MH23613	JBX230001-A	RWYX23614A-D					E-00-1006		CC30A
CBLP240011A-A	XHHW2	1#12, 1#12N, 1#12G	JP21	NCE240011	RWYP240011A-B	PBX210001P	RWYP210001P-A	CTP24	RWYP240011A-A	E-24-1211	POWER FEED TO RACK-MOUNTED UPS IN NCE	CC30B
CBLF249101A-A	FOTSM	48 FiberSM	NCE210011	NCE240011	RWYF210011-B	PBX210001S-B	RWYF210001B-B	CTS24	RWYF240011-B	E-00-1005	TO FOP IN AREA 24. CABLE ALSO APPEARS IN AREA 21 CABLE SCHEDULE	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**CTS340202**	**CTS340201**	**RWYF340013A-A**	**CTS340013A**	**RWYF341002-D**	**E-24-1211**	**CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND 24 SCHEDULE (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**MH341002**	**RWYF001002-D**	**HH001002**	**RWYF23613-D**	**MH23613**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF230001A-A**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-A**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**HH020001**	**RWYF24225-A**	**HH24225**	**RWYF24224-A**	**HH24224**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF240000-A**	**CTS24**	**RWYF240011-A**			**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF340003A-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-24-1211**	**FIRE FIBER OPTIC RING (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYF341002-C**	**MH341002**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF001002-G**	**HH001002**	**RWYF23613-C**	**MH23613**	**RWYF230001A-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-B**	**HH020001**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF24225-A**	**HH24225**	**RWYF24224-C**	**HH24224**	**RWYF240000-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS24**	**RWYF240011-B**				**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF260011A-A	FOTSM	48 FiberSM	NCR340001	NCE260011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B	E-00-1010	CABLE ALSO APPEARS IN AREA 26 AND 34 CABLE SCHEDULES	CC30D
CBLF260011A-A	FOTSM	48 FiberSM	NCE330001	NCE260011	CTS340001A	RWYF000001A-B	CTS000001A	RWYF260011A-A		E-00-1010	CONTINUED FROM LINE ABOVE	CC30D
CBLF260011A-B	FOTSM	48 FiberSM	NCE330001	NCE260011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 26 AND 33 CABLE SCHEDULES	CC30D
CBLF260011A-B	FOTSM	48 FiberSM	NCE330001	NCE260011	CTS000002B	RWYF260011A-B				E-00-1010	CONTINUED FROM LINE ABOVE	CC30D
CBLF260011BA-A	FOTMM	12 FiberMM	NCE290011	NCE260011	RWYF290011A-A	JBX000010	RWYF000010-A	CTS000002B	RWYF260011BA-A	E-00-1016	PLANT FIRE ALARM	CC30D
CBLH269000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB269000A	CTH340005A	CTH340001A	RWYH000001A-A	CTH000001A	CTH20133A	E-00-1011	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30D
CBLH269000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB269000A	RWYH269000A-A					E-00-1011	CONTINUED FROM LINE ABOVE	CC30D
CBLH269000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB269000B	CTH340006B	CTH340002B	RWYH000002B-A	CTH000002B	CTH20133B	E-00-1011	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30D
CBLH269000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB269000B	RWYH269000B-A					E-00-1011	CONTINUED FROM LINE ABOVE	CC30D
CBLX269000A-A	PULLROPE	PULLROPE	TUNNEL	SUB269000A	RWYX269000A-A					E-00-1011		CC30D
CBLX269000B-A	PULLROPE	PULLROPE	TUNNEL	SUB269000B	RWYX269000B-A					E-00-1011		CC30D
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-00-1010	CABLE ALSO APPEARS IN 34 AREA AND 28/29 CABLE SCHEDULE	CC30A
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340001A	RWYF000001A-C	CTS000001A	RWYF280011A-A		E-00-1010	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 34 AND 28/29 CABLE SCHEDULES	CC30A
CBLF280011B-A	FOTSM	96 FiberSM	NCE290011	NCE280011	RWYF290011A-A	JBX000010	RWYF280011B-A			E-00-1011	CABLE ALSO APPEARS IN 28/29 AREA CABLE SCHEDULE	CC30A
CBLH290000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB29A	CTH340005A	CTH340003A	CTH10133A	CTH30133A	RWYH290000A-A	E-00-1012	REPLACES EXISTING CABLE H29001A AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH290000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB29B	CTH340006B	CTH340004B	CTH10133B	CTH30133B	RWYH290000B-A	E-00-1012	REPLACES EXISITNG CABLE H29001B AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-00-1010	CABLE ALSO APPEARS IN 29 AND 33 AREA CABLE SCHEDULE	CC30A
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A		E-00-1010	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 29 AND 33 AREA CABLE SCHEDULES	CC30A
CBLF290011BA-A	FOTMM	12 FiberMM	NCE130011	NCE290011	RWYF130011A-B	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A	E-00-1012	PLANT FIRE ALARM. ALSO APPEARS IN AREA 13 CABLE SCHEDULE	CC30A
CBLF300011A-A	FOTSM	48 FiberSM	NCR340001	NCE300011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B		FIBER OPTICE TO AREA 30. CABLE ALSO APPEARS IN AREA 30, AND 34 CABLE SCHEDULES	CC30A
CBLF300011A-A	FOTSM	48 FiberSM	NCR340001	NCE300011	CTS340001A	RWYF000001A-B	CTS000001A	RWYF300011A-A			CONTINUED FROM LINE ABOVE	CC30A
CBLF300011A-B	FOTSM	48 FiberSM	NCE330001	NCE300011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C		FIBER OPTICE TO AREA 30. CABLE ALSO APPEARS IN AREA 30, AND 33 CABLE SCHEDULES	CC30A
CBLF300011A-B	FOTSM	48 FiberSM	NCE330001	NCE300011	CTS000002B	RWYF300011A-B					CONTINUED FROM LINE ABOVE	CC30A
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000002B	RWYF330103-A	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-D	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000002B	RWYF330103-B	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-E	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000002B	RWYF330103-A	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-D	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000002B	RWYF330103-B	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-E	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000002B	RWYF330103-A	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-D	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000002B	RWYF330103-B	CTS330103	CTS330105	E-00-1020	CABLE ALSO APPEARS IN AREA 05 AND AREA 33 CABLE SCHEDULES	CC30A
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF330201-E	CTS330201					CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 05 AND AREA 33 SCHEDULE	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF230011-C	JBX230001-A	RWYF230001A-C	MH23613	RWYF23613-C	E-00-1006	CABLE ALSO APPEARS IN AREA 23 AND 34 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	HH001002	RWYF001002-G	MH341002	RWYF341002-C	CTS340013A	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23 AND, 33, 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340017A	CTS340021A	CTS340023A	CTS340025A	CTS340005A	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23 AND, 33, 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340003A	CTS340001A	RWYF330104-E	CTS330104	CTS330105	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23 AND, 33, 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF330105-B	CTS330201				E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23 AND, 33, 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF220011A-B	HH220002	RWYF220002-A	HH180006	RWYF180006-A		PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	HH180001	RWYF180001-A	HH160003	RWYF160003-A	HH17001A		CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF17001A-C	HH33010D	RWYF33010D-A	RWYF33010D-AA	CTS330104		CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	CTS330105	RWYF330105-B	CTS330201				CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	RWYF050004B-A	CTS000006B	CTS000004B	CTS000002B	RWYF000002B-E	E-05-4002	CABLE ALSO APPEARS IN AREA 05 AND 33 CABIE SCHEDULES. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	**CC30A / REV 1**
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	CTS330103	CTS330105	RWYF330105-A	CTS330201		E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND 33 CALBE SCHEDULES. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	**CC30A / REV 1**
CBLX340001-A	PULLROPE	PULLROPE	MH341002	HH001002	RWYX001002-A					E-00-1006		CC30A
CBLX340001-B	PULLROPE	PULLROPE	MH341002	HH001002	RWYX001002-B					E-00-1006		CC30A
CBLX340001-C	PULLROPE	PULLROPE	MH341002	HH001002	RWYX001002-C					E-00-1006		CC30A
CBLX340002-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-A					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340002-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-B					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340002-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-C					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-A					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-B					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-C					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-D					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-E					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340003-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-F					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340006-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-A					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340006-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-B					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340006-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-C					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340006-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-D					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340006-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-E					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLX340006-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-F					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340007-A	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-D					E-00-1006		CC30A
CBLX340007-B	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-E					E-00-1006		CC30A
CBLX340007-C	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-F					E-00-1006		CC30A
CBLX340007-D	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-G					E-00-1006		CC30A
CBLX340007-E	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-H					E-00-1006		CC30A
CBLX340007-F	PULLROPE	PULLROPE	HH341001	HH001001	RWYX001001-I					E-00-1006		CC30A
CBLX340008-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-A					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340008-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-B					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340008-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-C					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340008-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-D					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340008-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-E					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-A					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-B					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-C					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-D					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-E					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-F					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340009-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-G					E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLF340102-A	FOTMM	12 FiberMM	DG340133A	NCE340102	RWYF001002-A	HH001002	RWYF001002-E	MH341002	RWYF340002-A	E-00-4002	12-FIBER MULTIMODE FROM RLY340133A TO MV SWGR A FOS340133AA. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLF340102-A	FOTMM	12 FiberMM	DG340133A	NCE340102	CTS340013A	RWYF340102-A				E-00-4002	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF160011A-A**	**HH160002**	**RWYF160002-A**	**CTS000003A**	**CTS000001A**	E-34-1212	12-FIBER MULTIMODE FROM RLY169000A TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF000001A-A**	CTS340001A	CTS340003A	CTS340005A	CTS340025A	E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	CTS340023A	CTS340021A	CTS340017A	CTS340013A	RWYF340102-A	E-34-1212	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	RWYF269000A	CTS000001A	RWYF000001A-B	CTS340001A	CTS340003A	E-34-1212	12-FIBER MULTIMODE FROM RLY269000A TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE.	CC30D
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	CTS340005A	CTS340025A	CTS340023A	CTS340021A	CTS340017A	E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	CTS340013A	RWYF340102-A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLF340102-F	FOTMM	12 FiberMM	DG340133B	NCE340102	RWYF001002-B	HH001002	RWYF001002-E	MH341002	RWYF340002-B	E-00-4002	12-FIBER MULTIMODE FROM RLY340133B TO NCE340102, FOP340102B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLF340102-F	FOTMM	12 FiberMM	DG340133B	NCE340102	CTS340014B	CTS340016B	RWYF340102-B			E-00-4002	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-H	FOTMM	12 FiberMM	DG340133C	NCE340102	RWYF001002-C	HH001002	RWYF001002-E	MH341002	RWYF340002-A	E-00-4002	12-FIBER MULTIMODE FROM RLY340133C TO MV SWGR C FOS340133CA. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLF340102-H	FOTMM	12 FiberMM	DG340133C	NCE340102	CTS340013A	RWYF340102-A				E-00-4002	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF160011A-B**	**HH160002**	**RWYF160002-B**	**CTS000004B**	**CTS000002B**	E-34-1212	12-FIBER MULTIMODE FROM RLY169000B TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF340002B-E**	CTS340002B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	RWYF340102-B					E-34-1212	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	
CBLF340102-K	FOTMM	12 FiberMM	CAB269000B	NCE340102	RWYF269000B	CTS000002B	RWYF340002B-E	CTS340002B	CTS340004B	E-34-1212	12-FIBER MULTIMODE FROM RLY269000B TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE.	CC30D
CBLF340102-K	FOTMM	12 FiberMM	CAB269000B	NCE340102	CTS340010B	CTS340016B	RWYF340102-B			E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLC340133A-D	TCER	36#14, 1#14G	DG340133A	SWGR340133A	RWYC001001-A	HH001001	RWYC341001-A	MH341001	RWYC340008-A	E-00-4002	CONTROL FEED FROM DIESEL GEN DG340133A TO SWGR340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLC340133A-D	TCER	36#14, 1#14G	DG340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-00-4002	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133B-D	TCER	36#14, 1#14G	DG340133B	SWGR340133B	RWYC001001-B	HH001001	RWYC341001-A	MH341001	RWYC340008-B	E-00-4002	CONTROL FEED FROM DIESEL GEN DG340133B TO SWGR340133B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLC340133B-D	TCER	36#14, 1#14G	DG340133B	SWGR340133B	CTC340014B	CTC340016B	CTC340012B			E-00-4002	CONTINUED FROM LINE ABOVE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLC340133C-B	TCER	36#14, 1#14G	DG340133C	SWGR340133C	RWYC001001-C	HH001001	RWYC341001-A	MH341001	RWYC340008-A	E-34-1112	CONTROL FEED FROM DIESEL GEN DG340133C TO SWGR340133C. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE.	CC30A
CBLC340133C-B	TCER	36#14, 1#14G	DG340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLH340133A-A	MV105	3#500, 1#4/0G	DG340133A	SWGR340133A	RWYH001001-A	MH001001	RWYH340001-A	MH340001	RWYH340133A-A	E-00-1006	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED ON LINE BELOW, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH340133A-A	MV105	3#500, 1#4/0G	DG340133A	SWGR340133A	CTH340013A					E-00-1006	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED FROM LINE ABOVE, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH340133B-A	MV105	3#500, 1#4/0G	DG340133B	SWGR340133B	RWYH001001-B	MH001001	RWYH340001-B	MH340001	RWYH340133B-A	E-00-1006	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED ON LINE BELOW, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH340133B-A	MV105	3#500, 1#4/0G	DG340133B	SWGR340133B	CTH340014B	CTH340012B	CTH340010B			E-00-1006	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED FROM LINE ABOVE, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH340133C-A	MV105	3#500, 1#4/0G	DG340133C	SWGR340133C	RWYH001001-C	MH001001	RWYH340001-C	MH340001	RWYH340133C-A	E-00-4002	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED ON LINE BELOW, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH340133C-A	MV105	3#500, 1#4/0G	DG340133C	SWGR340133C	CTH340014B	CTH340012B				E-00-4002	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CONTINUED FROM LINE ABOVE, CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLP340133A-AD	TCER	2#10, 1#10G	PNL349406	DG340133A	RWYP341001-E	HH341001	RWYP001001-E	HH001001	RWYP340133A-AD	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133A-AQ	XHHW2	2#8, 1#10G	SWGR340133AA	NGR340133A	RWYP340133A-AQ					E-00-4002	CABLE ALSO APPEARS IN AREA 34 SCHEDULE	CC30A
CBLP340133A-Q	TCER	2#12, 1#12G	PNL349402	DG340133A	RWYP340133A-QA	CTPR340017A	CTPR340013A	RWYP341001-D	HH341001	E-00-4002	120V UPS FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133A-Q	TCER	2#12, 1#12G	PNL349402	DG340133A	RWYP001001-D	HH001001	RWYP340133A-QB			E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133AA-C	TCER	3#1, 1#6G	MCC349101A	PNL340133AA	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-00-4002	480V FEED TO GENERATOR A 480V PANEL. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLP340133AA-C	TCER	3#1, 1#6G	MCC349101A	PNL340133AA	RWYP341001-A	HH341001	RWYP001001-A	HH001001	RWYP340133AA-C	E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLP340133B-AE	TCER	2#10, 1#10G	PNL349407	DG340133B	RWYP341001-G	HH341001	RWYP001001-G	HH001001	RWYP340133B-AE	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133B-AR	XHHW2	2#8, 1#10G	SWGR340133BA	NGR340133B	RWYP340133B-AR					E-00-4002	CABLE ALSO APPEARS IN AREA 34 SCHEDULE	CC30A
CBLP340133B-Q	TCER	2#12, 1#12G	PNL349302A	DG340133B	RWYP340133B-QA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP341001-F	E-00-4002	120V UPS FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133B-Q	TCER	2#12, 1#12G	PNL349302A	DG340133B	HH341001	RWYP001001-F	HH001001	RWYP340133B-QB		E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-1006	480V FEED TO GENERATOR B 480V PANEL. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	CTPR340014B	RWYP341001-B	HH341001	RWYP001001-B	HH001001	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	RWYP340133BA-C					E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133C-H	TCER	2#12, 1#12G	PNL349301B	DG340133C	RWYP340133C-HA	CTPR340017A	CTPR340013A	RWYP341001-H	HH341001	E-00-4002	120V UPS FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133C-H	TCER	2#12, 1#12G	PNL349301B	DG340133C	RWYP001001-H	HH001001	RWYP340133C-HB			E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133C-O	TCER	2#10, 1#10G	PNL349405	DG340133C	RWYP341001-I	HH341001	RWYP001001-I	HH001001	RWYP340133C-O	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133C-V	XHHW2	2#8, 1#10G	SWGR340133CA	NGR340133C	RWYP340133C-V					E-00-4002	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLP340133CA-C	TCER	3#1, 1#6G	MCC349201	PNL340133CA	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-00-4002	480V FEED TO GENERATOR C 480V PANEL. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP340133CA-C	TCER	3#1, 1#6G	MCC349201	PNL340133CA	RWYP341001-C	HH341001	RWYP001001-C	HH001001	RWYP340133CA-C	E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX340133A-A	PULLROPE	PULLROPE	DG340133A	34 BLDG NORTH WALL	RWYX001001-A	MH001001	RWYX340001-D	MH340001	RWYX340133A-A	E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340133A-C	PULLROPE	PULLROPE	PNL349406	DG340133A	RWYX341001-F	MH341001	RWYX001001-J	HH001001	RWYX340133A-C	E-00-4002	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX340133B-A	PULLROPE	PULLROPE	DG340133B	34 BLDG NORTH WALL	RWYX001001-B	MH001001	RWYX340001-E	MH340001	RWYX340133B-A	E-00-1006	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACTS/ REV
CBLX340133B-C	PULLROPE	PULLROPE	PNL349407	DG340133B	RWYX341001-G	HH341001	RWYX001001-K	HH001001	RWYX340133B-C	E-00-1006	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX340133C-A	PULLROPE	PULLROPE	DG340133C	34 BLDG NORTH WALL	RWYX001001-C	MH001001	RWYX340001-F	MH340001	RWYX340133C-A	E-00-4002	CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLX340133C-B	PULLROPE	PULLROPE	PNL349405	DG340133C	RWYX341001-H	HH341001	RWYX001001-L	HH001001	RWYX340133C-B	E-00-4002	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP341001-A	TCER	2#12, 1#12G	PNL349305	HH341001	CTPR340014B	RWYP341001-L	HH341001				HANDHOLE SUMP PUMP. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP341011-B	TCER	2#12, 1#12G	PNL349305	HH341011	CTPR340014B	RWYP341011-B	HH341011				HANDHOLE SUMP PUMP. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-1006	480V ROADWAY LIGHTING. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340014B	RWYP341001-J	HH341001	RWYP001001-J	HH001001	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	RWYP349201-F					E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP349201-G	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-1006	480V ROADWAY LIGHTING. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLP349201-G	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340014B	RWYP341001-J	HH341001	RWYP349201-G		E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLH500000A-A	MV105	3#4/0, 1#4/0G	SWGR340133A	SUB50	CTH340005A	CTH340003A	CTH10133A	CTH20133A	RWYH500000A-A	E-00-1020	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH500000B-A	MV105	3#4/0, 1#4/0G	SWGR340133B	SUB50	CTH340006B	CTH340004B	CTH10133B	CTH20133B	RWYH500000B-A	E-00-1020	AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A

Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP001001-A	TCER	2#12, 1#12G	PNL349304	HH001001	CTPR340013A	RWYP341001-K	HH341001	RWYP001001-K	HH001001		HANDHOLE HH001001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULE	CC30A
CBLC009100-A	XHHW2	18#14, 1#14G	CAB340134A	SWGR009100	RWYC007002-A	HH007002	RWYC007001-A	HH007001	RWYC009100-A	E-00-1006	CONTROL FEED TO SWGR0091000 FOR VFI009100-1 AND VFI009100-3. USE EXISTING RACEWAY SPARE RWYC004001-A. CABLE ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30A
CBLC009100-B	XHHW2	18#14, 1#14G	CAB340134B	SWGR009100	RWYC007002-B	HH007002	RWYC007001-A	HH007001	RWYC009100-A	E-00-1006	CONTROL FEED TO SWGR0091000 FOR VFI009100-2 AND VFI009100-4. USE EXISTING RACEWAY SPARE RWYC004001-A. CABLE ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	RWYP009100-AA	CTPR340019A	CTPR340021A	CTPR340023A	CTPR340025A	E-00-1006	120V UPS FEED TO SWGR0091000. USE EXISTING RACEWAY SPARE RWYX004001-E. CABLE ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	CTPR340005A	CTPR340003A	RWYP006002-A	HH006002	RWYP006001-A	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP009100-A	TCER	2#12, 1#12G	PNL349301A	SWGR009100	HH006001	RWYP009100-AB				E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	MH23613	RWYF230001A-A	JBX230001-A	RWYF020011-A	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF230001B-C	HH020001	RWYF020011-B			E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES	CC30A
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-05-4002	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340001A	RWYF000001A-C	CTS000001A	CTS000003A	CTS000005A	E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	RWYF050004A-A					E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-05-4002	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS000002B	CTS000004B	CTS000006B	RWYF050004B-A		E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-00-1010	CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340001A	RWYF000001A-A	CTS000001A	CTS000003A	CTS000005A	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	RWYF100011A-A	INSTR1010	CTS100105	CTS100103	CTS100101	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	INSTR1010					E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS000002B	CTS000004B	CTS000006B	RWYF100011A-B	INSTR1010	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS100105	CTS100103	CTS100101	INSTR1010		E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV. 1

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLH109001A-A	MV105	3#500, 1#4/0G	SWGR340133A	ATS109001A	CTH340005A	CTH340003A	CTH3310133A	CTH3320133A	RWYH109001A-A	E-00-1016	5 KV "A" SIDE FEED TO AREA 10 SUBSTATION EPLACES EXISTING CABLE H10001A.AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH109001B-A	MV105	3#500, 1#4/0G	SWGR340133B	ATS109001B	CTH340006B	CTH340004B	CTH3310133B	CTH3320133B	RWYH109001B-A	E-00-1016	5 KV "B" SIDE FEED TO AREA 10 SUBSTATION REPLACES EXISTING CABLE H10001B. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-13-1201	CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340001A	RWYF000001A-A	CTS000001A	RWYF130011A-A		E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-13-1201	CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS000002B	RWYF130011A-B				E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES	CC30A
CBLF130011BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE130011	CTS330201	RWYF330105-A	CTS330105	CTS330103	RWYF000002B-E	E-13-1201	PLANT FIRE ALARM. CABLE ALSO APEARS IN 13 AND SITE CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF130011BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE130011	CTS000002B	RWYF130011A-B				E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-16EB-1201	CABLE ALSO APPEARS IN AREA 16 AND SITE CABLE SCHEDULES	CC30B / REV. A
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	CTS340001A	RWYF000001A-A	CTS000001A	CTS000003A	RWYF160002-A	E-16EB-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 AND SITE CABLE SCHEDULES	CC30B / REV. A
CBLF160011A-A	FOTSM	48 FiberSM	NCR340001	NCE160011	HH160002	RWYF160011A-A					CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 16 AND SITE CABLE SCHEDULES	CC30B / REV. A
CBLF160011A-B	FOTSM	48 FiberSM	NCE330001	NCE160011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-16EB-1201	FIBER TO AREA 16. CABLE APPEARS IN AREA 16 AND SITE SCHEDULE	CC30B / REV. A
CBLF160011A-B	FOTSM	48 FiberSM	NCE330001	NCE160011	CTS000002B	CTS000004B	RWYF160002-B	HH160002	RWYF160011A-B	E-16EB-1201	CONTINUED FROM LINE ABOVE. CABLE APPEARS IN AREA 16 AND SITE SCHEDULE	CC30B / REV. A
CBLH169000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB169000A	CTH340005A	CTH340001A	RWYH33010CA-A	HH33010C	RWYH17001BA-A	E-00-1015	5 KV "A" SIDE FEED TO AREA 16 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE. (CCF 014)	CC30B / CCF 014
CBLH169000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB169000A	HH17001B	RWYH169000A-A					5 KV "A" SIDE FEED TO AREA 16 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE. (CCF 014)	CC30B / CCF 014
CBLH169000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB169000B	CTH340006B	CTH340002B	RWYH33010CB-A	HH33010C	RWYH17001BB-A	E-00-1015	5 KV "B" SIDE FEED TO AREA 16 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE. (CCF 014)	CC30B / CCF 014
CBLH169000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB169000B	HH17001B	RWYH169000B-A					5 KV "B" SIDE FEED TO AREA 16 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE. (CCF 014)	CC30B / CCF 014
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC191011-AA	RIO 33C	TRAY 1033C	RWYC33010D-A	HH33010D	E-19-1101	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC1920-A	TB1920	RWYC191011-AB			E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLC191011-B	TCER	11#14, 1#14G	CS191011	PCV191011	RWYC191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TRAY 1033C	TRAY 480 VOLTS	RWYP33010D-A	HH33010D	RWYP1920-A	E-19-1101	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TB1920	RWYP191011-A				E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-B	TCER	3#12, 1#12G	DS1910011	PCV191011	RWYP191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS1921-A	TB1921	RWYS191011-A			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLS191011-B	INSM	4PR #18SH	CS191011	PCV191011	RWYS191011-B					E-19-1201	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS1921-A	TB1921	RWYS191012-B			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 19 AND SITE CABLE SCHEDULE.	CC30B
CBLH210000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SCBT330001A	CTH340013A	RWYH21006A-A	HH21006B			E-00-1006	TERMINATE CABLES ON EXISTING VAULT TOP SECTIONALIZING CABINET SPARE JUNCTION WITH MV ELBOW. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH210000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SCBT330001B	CTH340012B	CTH340014B	RWYH21006B-A	HH21006B		E-00-1006	TERMINATE CABLES ON EXISTING VAULT TOP SECTIONALIZING CABINET SPARE JUNCTION WITH MV ELBOW. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX210000A-A	PULLROPE	PULLROPE	CTH340013A	HH21006B	RWYX21006A-A					E-00-1006	SPARE RACEWAY BETWEEN BASEMENT AND HH21006B (CCF 008)	CC30A/REV 1
CBLX210000B-A	PULLROPE	PULLROPE	CTH340012B	HH21006B	RWYX21006B-A					E-00-1006	SPARE RACEWAY BETWEEN BASEMENT AND HH21006B (CCF 008)	CC30A/REV 1
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 21 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-00-1006	CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF341002-B	MH341002	RWYF001002-F	HH001002	RWYF23613-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	MH23613	RWYF230001A-B	JBX230001-A	RWYF230001B-B	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF230001B-C	HH020001	RWYF24225-B	HH24225	RWYF24224-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	HH24224	RWYF240000-B	CTS24	RWYF210001B-A	PBX210001S-B	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF210011-B					E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 23, 33 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B		CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340001A	RWYF33010D-B	HH33010D	RWYF17001A-B	HH17001A	E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	RWYF160003-B	HH160003	RWYF180001-B	HH180001	RWYF180006-B	E-00-1015	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	HH180006	RWYF220002-B	HH220002	RWYF220011A-A		E-00-1014	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF33010D-AA	E-22-3002	CABLE ALSO APPEARS IN AREA 22 AND 33 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF33010D-A	HH33010D	RWYF17001A-C	HH17001A	RWYF160003-A	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	HH160003	RWYF180001-A	HH180001	RWYF180006-A	HH180006	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF220002-A	HH220002	RWYF220011A-B			E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND 34 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-23-1102	CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	MH23613	RWYF230001A-A	JBX230001-A	RWYF230011-A		E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**CTS340202**	**CTS340201**	**RWYF340013A-A**	**CTS340013A**	**RWYF341002-D**	**E-24-1211**	**CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULE (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**MH341002**	**RWYF001002-D**	**HH001002**	**RWYF23613-D**	**MH23613**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF230001A-A**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-A**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**HH020001**	**RWYF24225-A**	**HH24225**	**RWYF24224-A**	**HH24224**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF240000-A**	**CTS24**	**RWYF240011-A**			**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF340003A-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-24-1211**	**FIRE FIBER OPTIC RING (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYF341002-C**	**MH341002**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF001002-G**	**HH001002**	**RWYF23613-C**	**MH23613**	**RWYF230001A-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-B**	**HH020001**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF24225-A**	**HH24225**	**RWYF24224-C**	**HH24224**	**RWYF240000-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS24**	**RWYF240011-B**				**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF260011A-A	FOTSM	48 FiberSM	NCR340001	NCE260011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B	E-00-1010	CABLE ALSO APPEARS IN AREA 26 AND SITE CABLE SCHEDULES	CC30D
CBLF260011A-A	FOTSM	48 FiberSM	NCR340001	NCE260011	CTS340001A	RWYF000001A-B	CTS000001A	RWYF260011A-A		E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 26 AND SITE CABLE SCHEDULES.	CC30D
CBLF260011A-B	FOTSM	48 FiberSM	NCE330001	NCE260011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 26 AND 33 CABLE SCHEDULES	CC30D
CBLF260011A-B	FOTSM	48 FiberSM	NCE330001	NCE260011	CTS000002B	RWYF260011A-B					CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 26 AND SITE CABLE SCHEDULES.	CC30D
CBLH269000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB269000A	CTH340005A	CTH340001A	RWYH000001A-A	CTH000001A	CTH3320133A	E-00-1011	TO BE INSTALLED UNDER CONTRACT CC 30D BY OTHERS. 5 KV "A" SIDE FEED TO AREA 26 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30D
CBLH269000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB269000A	RWYH269000A-A					E-00-1011	TO BE INSTALLED UNDER CONTRACT CC 30D BY OTHERS. 5 KV "A" SIDE FEED TO AREA 26 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30D
CBLH269000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB269000B	CTH340006B	CTH340002B	RWYH000002B-A	CTH000002B	CTH3320133B	E-00-1011	TO BE INSTALLED UNDER CONTRACT CC 30D BY OTHERS. 5 KV "B" SIDE FEED TO AREA 26 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30D
CBLH269000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB269000B	RWYH269000B-A					E-00-1011	TO BE INSTALLED UNDER CONTRACT CC 30D BY OTHERS. 5 KV "B" SIDE FEED TO AREA 26 SUB. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30D
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-00-1010	CABLE ALSO APPEARS IN 34 AREA CABLE SCHEDULE	CC30A
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340001A	RWYF000001A-C	CTS000001A	RWYF280011A-A		E-00-1010	CABLE ALSO APPEARS IN 34 AREA CABLE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLH290000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB29A	CTH340005A	CTH340003A	CTH3310133A	CTH3330133A	RWYH290000A-A	E-00-1012	5 KV "A" SIDE FEED TO AREA 29 SUB. REPLACES EXISTING CABLE H29001A AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLH290000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB29B	CTH340006B	CTH340004B	CTH3310133B	CTH3330133B	RWYH290000B-A	E-00-1012	5 KV "B" SIDE FEED TO AREA 29 SUB. REPLACES EXISTING CABLE H29001A AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-00-1010	FIBER TO AREA 29. CABLE ALSO APPEARS IN AREA 29 AND SITE CABLE SCHEDULES	CC30A
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A		E-00-1010	CONTINUED FROM LINE ABOVE	CC30A
CBLF300011A-A	FOTSM	48 FiberSM	NCR340001	NCE300011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B		FBIER OPTIC CABLE TO FOP300011A. CABLE ALSO APPEARS IN AREA 30 AND SITE CABLE SCHEDULES.	CC30A
CBLF300011A-A	FOTSM	48 FiberSM	NCR340001	NCE300011	CTS340001A	RWYF000001A-B	CTS000001A	RWYF300011A-A			CONTINUED FROM LINE ABOVE.	CC30A
CBLF300011A-B	FOTSM	48 FiberSM	NCE330001	NCE300011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C		FBIER OPTIC CABLE TO FOP300011A. CABLE ALSO APPEARS IN AREA 30 AND SITE CABLE SCHEDULES.	CC30A
CBLF300011A-B	FOTSM	48 FiberSM	NCE330001	NCE300011	CTS000002B	RWYF300011A-B					CONTINUED FROM LINE ABOVE.	CC30A
CBLH330000A-A1	MV105	3#500, 1#4/0G	SWGR340133A	T33A	CTH340015A	CTH340011A	RWYH330000A-A1			E-34-1111	5KV FEED FROM NEW SWRG TO EXISTING T33A. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. WHERE PARALLEL SETS ARE SPECIFIED CONTRACTOR MAY COMBINE GROUNDING CONDUCTORS WHERE ALLOWED BY, AND IN ACCORDANCE WITH NEC 250.122.F(1) WITH CONFIRMING RFI.	CC30A
CBLH330000A-A2	MV105	3#500, 1#4/0G	SWGR340133A	T33A	CTH340015A	CTH340011A	RWYH330000A-A2			E-34-1111	5KV FEED FROM NEW SWRG TO EXISTING T33A. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. WHERE PARALLEL SETS ARE SPECIFIED CONTRACTOR MAY COMBINE GROUNDING CONDUCTORS WHERE ALLOWED BY, AND IN ACCORDANCE WITH NEC 250.122.F(1) WITH CONFIRMING RFI.	CC30A
CBLH330000B-A1	MV105	3#500, 1#4/0G	SWGR340133B	T33B	CTH340018B	CTH340016B	RWYH330000B-A1			E-34-1111	5KV FEED FROM NEW SWRG TO EXISTING T33B. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. WHERE PARALLEL SETS ARE SPECIFIED CONTRACTOR MAY COMBINE GROUNDING CONDUCTORS WHERE ALLOWED BY, AND IN ACCORDANCE WITH NEC 250.122.F(1) WITH CONFIRMING RFI.	CC30A
CBLH330000B-A2	MV105	3#500, 1#4/0G	SWGR340133B	T33B	CTH340018B	CTH340016B	RWYH330000B-A2			E-34-1111	5KV FEED FROM NEW SWRG TO EXISTING T33B. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. WHERE PARALLEL SETS ARE SPECIFIED CONTRACTOR MAY COMBINE GROUNDING CONDUCTORS WHERE ALLOWED BY, AND IN ACCORDANCE WITH NEC 250.122.F(1) WITH CONFIRMING RFI.	CC30A
CBLC330001A-A	XHHW2	2#14, 1#14G	RIO33A	MCC 33A	RWYC330001A-A					E-33-1111	CONTROL FEED FOR MCC 33A PMM330001A	CC 30A
CBLC330001A-B	XHHW2	2#14, 1#14G	RIO33A	MCC 33A	RWYC330001A-A					E-33-1111	CONTROL FEED FOR MCC 33A SPD330001A	CC 30A
CBLC330001B-A	XHHW2	2#14, 1#14G	CAB339102	MCC 33B	RWYC330001B-A					E-33-1111	CONTROL FEED FOR MCC 33B PMM330001B	CC 30A
CBLC330001B-B	XHHW2	2#14, 1#14G	CAB339102	MCC 33B	RWYC330001B-A					E-33-1111	CONTROL FEED FOR MCC 33B SPD330001B	CC 30A
CBLC330001C-A	XHHW2	2#14, 1#14G	RIO33C	MCC 33C	RWYC330001C-A					E-33-1111	CONTROL FEED FOR MCC 33C PMM330001C	CC 30A
CBLC330001C-B	XHHW2	2#14, 1#14G	RIO33C	MCC 33C	RWYC330001C-A					E-33-1111	CONTROL FEED FOR MCC 33C SPD330001C	CC 30A
CBLC330001D-A	XHHW2	2#14, 1#14G	RIO33D	MCC 33D	RWYC330001D-A					E-33-1111	CONTROL FEED FOR MCC 33D PMM330001D	CC 30A
CBLC330001D-B	XHHW2	2#14, 1#14G	RIO33D	MCC 33D	RWYC330001D-A					E-33-1111	CONTROL FEED FOR MCC 33D SPD330001D	CC 30A
CBLC330001E-A	XHHW2	2#14, 1#14G	CAB339105	MCC 33E	RWYC330001E-A					E-33-1111	CONTROL FEED FOR MCC 33E PMM330001E	CC 30A
CBLC330001E-B	XHHW2	2#14, 1#14G	CAB339105	MCC 33E	RWYC330001E-A					E-33-1111	CONTROL FEED FOR MCC 33E SPD330001E	CC 30A
CBLC330001F-A	XHHW2	2#14, 1#14G	CAB339105	MCC 33F	RWYC330001F-A					E-33-1111	CONTROL FEED FOR MCC 33F PMM330001F	CC 30A
CBLC330001F-B	XHHW2	2#14, 1#14G	CAB339105	MCC 33F	RWYC330001F-A					E-33-1111	CONTROL FEED FOR MCC 33F SPD330001F	CC 30A
CBLD330001A-A	NC4	1#600V CAT6A	NCE331011	MCC 33A	RWYD330001A-A					E-33-1111	ETHERNET FOR PMM330001A	CC 30A
CBLD330001B-A	NC4	1#600V CAT6A	NCE331011	MCC 33B	RWYD330001B-A					E-33-1111	ETHERNET FOR PMM330001B	CC 30A
CBLD330001C-A	NC4	1#600V CAT6A	NCE331011	MCC 33C	RWYD330001C-A					E-33-1111	ETHERNET FOR PMM330001C	CC 30A
CBLD330001D-A	NC4	1#600V CAT6A	NCE331011	MCC 33D	RWYD330001D-A					E-33-1111	ETHERNET FOR PMM330001D	CC 30A
CBLD330001E-A	NC4	1#600V CAT6A	NCE331011	MCC 33E	RWYD330001E-A					E-33-1111	ETHERNET FOR PMM330001E	CC 30A
CBLD330001F-A	NC4	1#600V CAT6A	NCE331011	MCC 33F	RWYD330001F-A					E-33-1111	ETHERNET FOR PMM330001F	CC 30A
CBLF330001BA-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-A	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BA. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BA-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-A	CTS330104	CTS330105	RWYF330201-A	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BA-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BB-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-A	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BB. ALSO APPEARS IN SITE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLF330001BB-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-A	CTS330104	CTS330105	RWYF330201-A	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BB-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BC-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-A	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BC. ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLF330001BC-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-A	CTS330104	CTS330105	RWYF330201-A	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BC-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BD-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-B	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BD. ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLF330001BD-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-B	CTS330104	CTS330105	RWYF330201-B	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BD-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BE-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-B	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BE. ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLF330001BE-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-B	CTS330104	CTS330105	RWYF330201-B	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BE-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BF-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-B	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BF. ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLF330001BF-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-B	CTS330104	CTS330105	RWYF330201-B	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BF-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BG-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340002B-C	E-33-1221	FIBER TO AREA 33 NETWORK CABINET FOP330001BG. ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLF330001BG-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS340002B	RWYF330104-C	CTS330104	CTS330105	RWYF330201-C	E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001BG-A	FOTSM	144 FiberSM	NCR340001	NCE330001	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN 33 SCHEDULE	CC30A
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-33-1221	CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / REV 1
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-33-1221	CONTINUED FROM LINE ABOVE. ALSO APPEARS IN AREA 5 AND SITE SCHEDULE (CCF 007)	CC30A / REV 1
CBLP330001A-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33A	RWYP330001A-A					E-33-1111	120V UPS FEED TO PMM330001A	CC30A
CBLP330001B-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33B	RWYP330001B-A					E-33-1111	120V UPS FEED TO PMM330001B	CC30A
CBLP330001C-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33C	RWYP330001C-A					E-33-1111	120V UPS FEED TO PMM330001C	CC30A
CBLP330001D-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33D	RWYP330001D-A					E-33-1111	120V UPS FEED TO PMM330001D	CC30A
CBLP330001E-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33E	RWYP330001E-A					E-33-1111	120V UPS FEED TO PMM330001E	CC30A
CBLP330001F-A	XHHW2	2#12, 1#12G	PNL330200F	MCC 33F	RWYP330001F-A					E-33-1111	120V UPS FEED TO PMM330001F	CC30A
CBLP330001-A	XHHW2	2#10, 1#10G	JP33A	NCE330001	RWYP330001-A					E-33-1321	120V UPS "A" FEED TO DEDICATED RECEPTACLE FOR NCE330001. CIRCUIT NUMBER 36	CC30A
CBLP330001-B	XHHW2	2#10, 1#10G	PNL330200F	NCE330001	RWYP330001-B					E-33-1321	120V UPS "B" FEED TO DEDICATED RECEPTACLE FOR NCE330001. CIRCUIT NUMBER 7	CC30A
CBLF330002-A	**FOTSM**	**6 FiberSM**	**FIRE ALARM WORKSTATION**	**NCE330002**	**RWYF330002-A**					**E-33-1221**	**FIRE ALARM FIBER OPTIC CABLE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF330010-A	**FOTSM**	**6 FiberSM**	**NCE330002**	**FACP330010**	**RWYF330010-A**					**E-33-1221**	**FIRE ALARM FIBER OPTIC CABLE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF330010-B	**FOTSM**	**6 FiberSM**	**FIRE ALARM WORKSTATION**	**FACP330010**	**RWYF330010-B**					**E-33-1221**	**FIRE ALARM FIBER OPTIC CABLE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLS330010A-A	INS	1PR #16SH	CAB331001	TIT3310A	RWYS331001-D	CTS330101	RWYS330010A-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #1 TEMPERATURE TRANSMITTER 3310A	CC30B
CBLS330010A-B	INS	1TR #16SH	TIT3310A	TE3310A	RWYS330010A-B					E-33-1212	SIGNAL FEED TO AGITATION BLOWER #1 TEMPERATURE ELEMENT 3310A	CC30B
CBLS330010B-A	INS	1PR #16SH	CAB331001	TIT3310B	RWYS331001-D	CTS330101	RWYS330010B-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #1 TEMPERATURE TRANSMITTER 3310B	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLS330010B-B	INS	1TR #16SH	TIT3310B	TE3310B	RWYS330010B-B					E-33-1212	SIGNAL FEED TO AGITATION BLOWER #1 TEMPERATURE ELEMENT 3310B	CC30B
CBLF330011A-A	FOTSM	48 FiberSM	NCR340001	NCE330002	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B	E-33-1221	FIBER TO EXISTING AREA 33 NETWORK CABINET FOP330011A. CABLE ALSO APPEARS IN AREA 33 SCHEDULE	CC30A
CBLF330011A-A	FOTSM	48 FiberSM	NCR340001	NCE330002	CTS340001A	RWYF330104-E	CTS330104	CTS330105	RWYF330105-B	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 SCHEDULE	CC30A
CBLF330011A-A	FOTSM	48 FiberSM	NCR340001	NCE330002	CTS330201					E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 SCHEDULE	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF230011-C	JBX230001-A	RWYF230001A-C	MH23613	RWYF23613-C	E-33-1221	PLANT FIRE ALARM FIBER. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	HH001002	RWYF001002-G	MH341002	RWYF341002-C	CTS340013A	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340017A	CTS340021A	CTS340023A	CTS340025A	CTS340005A	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340003A	CTS340001A	RWYF330104-E	CTS330104	CTS330105	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF330105-B	CTS330201				E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF220011A-B	HH220002	RWYF220002-A	HH180006	RWYF180006-A	E-22-3002	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	HH180001	RWYF180001-A	HH160003	RWYF160003-A	HH17001A	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF17001A-C	HH33010D	RWYF33010D-A	RWYF33010D-AA	CTS330104	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	CTS330105	RWYF330105-B	CTS330201			E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 22 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	RWYF050004B-A	CTS000006B	CTS000004B	CTS000002B	RWYF000002B-E	E-05-4002	CABLE ALSO APPEARS IN AREA 05 AND SITE CALBE SCHEDULES. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / REV 1
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	CTS330103	CTS330105	RWYF330105-A	CTS330201		E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 05 AND SITE CABLE SCHEDULES. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / REV 1
CBLS330011A-A	INS	1PR #16SH	CAB331001	TIT3311A	RWYS331001-E	CTS330101	RWYC330011A-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #2 TEMPERATURE TRANSMITTER 3311A	CC30B
CBLS330011A-B	INS	1TR #16SH	TIT3310A	TE3311A	RWYS330011A-B					E-33-1212	SIGNAL FEED TO AGITATION BLOWER #2 TEMPERATURE ELEMENT 3311A	CC30B
CBLS330011B-A	INS	1PR #16SH	CAB331001	TIT3311B	RWYS331001-E	CTS330101	RWYC330011B-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #2 TEMPERATURE TRANSMITTER 3311B	CC30B
CBLS330011B-B	INS	1TR #16SH	TIT3310B	TE3311B	RWYS330011B-B					E-33-1212	SIGNAL FEED TO AGITATION BLOWER #2 TEMPERATURE ELEMENT 3311B	CC30B
CBLS330013A-A	INS	1TR #16SH	MVM 117A	TE3313A	RWYS330117A-A	CTS330101	RWYS330013A-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE TRANSMITTER 3315A	CC30B
CBLS330013B-A	INS	1TR #16SH	MVM 117A	TE3313A	RWYS330117A-A	CTS330101	RWYS330013B-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE TRANSMITTER 3315B	CC30B
CBLS330014A-A	INS	1PR #16SH	CAB331001	TIT3314A	RWYS331001-A	CTS330101	RWYS330014A-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 TEMPERATURE TRANSMITTER 3314A	CC30B
CBLS330014A-B	INS	1TR #16SH	TIT3314A	TE3314A	RWYS3314A-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 TEMPERATURE ELEMENT 3314A	CC30B
CBLS330014B-A	INS	1PR #16SH	CAB331001	TIT3314B	RWYS331001-A	CTS330101	RWYS330014B-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 TEMPERATURE TRANSMITTER 3314B	CC30B
CBLS330014B-B	INS	1TR #16SH	TIT3314B	TE3314B	RWYS3314B-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 TEMPERATURE ELEMENT 3314B	CC30B
CBLS330015A-A	INS	1PR #16SH	CAB331001	TIT3315A	RWYS331001-B	CTS330101	RWYS330015A-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE TRANSMITTER 3315A	CC30B
CBLS330015A-B	INS	1TR #16SH	TIT3315A	TE3315A	RWYS330015A-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE ELEMENT 3315A	CC30B
CBLS330015B-A	INS	1PR #16SH	CAB331001	TIT3315B	RWYS331001-B	CTS330101	RWYS330015B-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE TRANSMITTER 3315B	CC30B
CBLS330015B-B	INS	1TR #16SH	TIT3315B	TE3315B	RWYS330015B-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 TEMPERATURE ELEMENT 3315B	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC330117A-A	XHHW2	6#14, 1#14G	CAB331001	MVM 117A	RWYC330117A-A					E-33-1111	CONTROL FEED TO AERATION BLOWER # 2 MV RVSS STARTER B33202	CC30B
CBLC330117A-B	XHHW2	6#14, 1#14G	CAB331001	MVM 117A	RWYC330117A-A					E-33-1111	CONTROL FEED TO AERATION BLOWER # 4 MV RVSS STARTER B33204	CC30B
CBLC330117A-C	XHHW2	6#14, 1#14G	CAB331001	MVM 117A	RWYC330117A-A					E-33-1111	CONTROL FEED TO AGITATION BLOWER # 1 MV RVSS STARTER B33641	CC30B
CBLC330117B-A	XHHW2	6#14, 1#14G	CAB331001	MVM 117B	RWYC330117B-A					E-33-1111	CONTROL FEED TO AERATION BLOWER # 3 MV RVSS STARTER B33203	CC30B
CBLC330117B-B	XHHW2	6#14, 1#14G	CAB331001	MVM 117B	RWYC330117B-A					E-33-1111	CONTROL FEED TO AGITATION BLOWER # 2 MV RVSS STARTER B33642	CC30B
CBLC330117B-C	XHHW2	6#14, 1#14G	CAB331001	MVM 117B	RWYC330117B-A					E-33-1111	CONTROL FEED TO AGITATION BLOWER # 3 MV RVSS STARTER B33643	CC30B
CBLD330117B-A	NC4	1#600V CAT6A	CAB331001	MVM 117B	RWYD330117B-A					E-33-1111	DATA FROM AREA PLC TO AGITATION BLOWER #3 MV RVSS STARTER	CC30B
CBLC330202A-A	TCER	6#14, 1#14G	CAB331001	CV33202A	RWYC331001-D	CTC330101	RWYC330202AA-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #2 CONTROL VALVE HAND STATION	CC30B
CBLC330202A-B	TCER	2#14, 1#14G	MVM 117A	TSH33202A	RWYC330117A-B	CTC330101	RWYC330202A-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 BLOWER TEMPERATURE SWITCH 33204	CC30B
CBLC330202-A	TCER	6#14, 1#14G	CAB331001	CS33202	RWYC331001-D	CTC330101	RWYC330202A-B			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 BLOWER HANDSTATION 33204A	CC30B
CBLH33202-B	MV105	3#4/0, 1#4/0G	LAR33202	M33202	CBLH330202-B					E-33-1112	5KV FEED TO AERATION BLOWER #2. CONTRACTOR VERIFY EXISTING 5KV FEED AND MATCH EXISTING CONDUCTOR SIZE.	CC30B
CBLP330202A-A	XHHW2	3#12, 1#12G	MCC 33A	CV33202A	CTPR331033A	RWYP33202A-A				E-33-1112	480V POWER FEED TO AERATION BLOWER #2 CONTROL VALVE. USE EXISTING POWER RACEWAY IN EXISTING POWER DUCTBANK	CC30B
CBLS330202A-A	INSM	2PR #16SH	CAB331001	CV33202A	RWYS331001-C	CTS330101	RWYS330202AA-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #2 CONTROL VALVE HAND STATION	CC30B
CBLC330203A-A	TCER	6#14, 1#14G	CAB331001	CV33203A	RWYC331001-B	CTC330101	RWYC330203A-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #3 CONTROL VALVE HAND STATION	CC30B
CBLC330203-A	TCER	6#14, 1#14G	CAB331001	CS33203	RWYC331001-B	CTC330101	RWYC330203-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #3 HANDSTATION 33203A	CC30B
CBLC330203-B	TCER	2#14, 1#14G	CAB331001	TSH33203	RWYC331001-B	CTC330101	RWYC330203-B			E-33-1112	CONTROL FEED TO AERATION BLOWER #3 TEMPERATURE SWITCH 33203	CC30B
CBLP330203A-A	XHHW2	3#12, 1#12G	MCC 33B	CV33203A	CTPR331033B	RWYP33203A-A				E-33-1112	480V POWER FEED TO AERATION BLOWER #3 CONTROL VALVE. USE EXISTING POWER RACEWAY IN EXISTING POWER DUCTBANK	CC30B
CBLS330203A-A	INSM	2PR #16SH	CAB331001	CV33203A	RWYS331001-A	CTS330101	RWYS330203A-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 CONTROL VALVE HAND STATION	CC30B
CBLC330204A-A	TCER	6#14, 1#14G	CAB331001	CV33204A	RWYC331001-C	CTC330101	RWYC330204A-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 CONTROL VALVE HAND STATION	CC30B
CBLC330204-A	TCER	6#14, 1#14G	CAB331001	CS33204	RWYC331001-C	CTC330101	RWYC330204-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 BLOWER HANDSTATION 33204A	CC30B
CBLC330204-B	TCER	2#14, 1#14G	CAB331001	TSH33204	RWYC331001-C	CTC330101	RWYC330204-B			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 BLOWER TEMPERATURE SWITCH 33204	CC30B
CBLP330204A-A	XHHW2	3#12, 1#12G	MCC 33B	CV33204A	CTPR331033B	RWYP33204A-A				E-33-1112	480V POWER FEED TO AERATION BLOWER #4 CONTROL VALVE. USE EXISTING POWER RACEWAY IN EXISTING POWER DUCTBANK	CC30B
CBLS330204A-A	INSM	2PR #16SH	CAB331001	CV33204A	RWYS331001-B	CTS330101	RWYS330204A-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 CONTROL VALVE HAND STATION	CC30B
CBLC330550A-A	TCER	2#14, 1#14G	CAB331001	PDSH330550A	RWYC331001-A	CTC330101	RWYC330550A-A			E-33-1112	CONTROL FEED TO FILTER PRESSURE SWITCHES	CC30B
CBLC330550B-A	TCER	2#14, 1#14G	CAB331001	PDSH330550B	RWYC331001-A	CTC330101	RWYC330550B-A			E-33-1112	CONTROL FEED TO FILTER PRESSURE SWITCHES	CC30B
CBLC330641-A	TCER	6#14, 1#14G	CAB331001	CS33641	RWYC331001-E	CTC330101	RWYC330641-A			E-33-1112	CONTROL FEED TO START/STOP HANDSTATION	CC30B
CBLC330641-B	TCER	6#14, 1#14G	CAB331001	TSH33641	RWYC331001-E	CTC330101	RWYC330641-B			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 33641A	CC30B
CBLH330641-A	MV105	3#1/0, 1#1/0G	MVM 117A	LAR330641	~~CTH3310133A~~	RWYH330641-A				E-33-1112	5KV FEED TO RELOCATED AGITATION BLOWER #1 POWER FACTOR CORRECTION UNIT. (CCF 009 CHANGE PENDING)	CC30B
CBLH330641-B	MV105	3#1/0, 1#1/0G	LAR330641	M33641	RWYH330641-B					E-33-1112	5KV FEED TO AGITATION BLOWER #1	CC30B
CBLC330642-A	TCER	6#14, 1#14G	CAB331001	CS33642	RWYC331001-F	CTC330101	RWYC330642-A			E-33-1112	CONTROL FEED TO START/STOP HANDSTATION	CC30B
CBLC330642-B	TCER	6#14, 1#14G	CAB331001	TSH33642	RWYC331001-F	CTC330101	RWYC330642-B			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 33642A	CC30B
CBLH330642-A	MV105	3#1/0, 1#1/0G	MVM 117B	LAR33642	~~CTH3310133B~~	RWYH330642-A				E-33-1112	5KV FEED TO RELOCATED AGITATION BLOWER #2 POWER FACTOR CORRECTION UNIT. (CCF 009 CHANGE PENDING)	CC30B
CBLH330642-B	MV105	3#1/0, 1#1/0G	LAR33642	M33642	RWYH330642-B					E-33-1112	5KV FEED TO AGITATION BLOWER #2	CC30B
CBLC330643-A	TCER	6#14, 1#14G	CAB331001	CS33643	RWYC331001-G	CTC330101	RWYC330643-A			E-33-1112	CONTROL FEED TO START/STOP HANDSTATION	CC30B
CBLC330643-B	TCER	6#14, 1#14G	MVM 117B	TSH33643	RWYC330117B-B	CTC330101	RWYC330643-B			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 33643A	CC30B
CBLH330643-A	MV105	3#1/0, 1#1/0G	MVM 117B	LAR33643	~~CTH3310133B~~	RWYH330643-A				E-33-1112	5KV FEED TO RELOCATED AGITATION BLOWER #3 POWER FACTOR CORRECTION UNIT. (CCF 009 CHANGE PENDING)	CC30B
CBLH330643-B	MV105	3#1/0, 1#1/0G	LAR33643	M33643	RWYH330643-B					E-33-1112	5KV FEED TO AGITATION BLOWER #3	CC30B
CBLS330643A-A	INS	1PR #16SH	MVM 117B	TE33643A	RWYS330117B-A	CTS330101	RWYS330643A-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #3 TEMPERATURE ELEMENT 33643A	CC30B
CBLS330643B-A	INS	1PR #16SH	MVM 117B	TE33643B	RWYS330117B-A	CTS330101	RWYS330643B-A			E-33-1212	SIGNAL FEED TO AGITATION BLOWER #3 TEMPERATURE ELEMENT 33643B	CC30B
CBLF331011-A	FOTSM	24 FiberSM	NCE330002	NCE331011	CTS330201	RWYF330105-A	CTS330105	CTS330103	RWYF331011-A	E-33-1111	FIBER OPTIC TO FOP331011B	CC 30A
CBLC332021-A	TCER	2#14, 1#14G	CAB331001	FIT332021	RWYC331001-D	CTC330101	RWYC332021-A			E-33-1112	24V DC POWER TO AERATION BLOWER #2 FLOW TRANSMITTER	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLS332021-A	INS	1PR #16SH	CAB331001	FIT332021	RWYS331001-C	CTS330101	RWYS332021-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #2 FLOW TRANSMITTER	CC30B
CBLS332021-B	INS	1PR #16SH	FIT332021	FE332021	RWYS332021-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #2 FLOW ELEMENT FROM TRANSMITTER	CC30B
CBLC332025-A	TCER	2#14, 1#14G	CAB331001	TSH332025	RWYC331001-D	CTC330101	RWYC332025-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #2 TEMPERATURE SWITCH	CC30B
CBLC332031-A	TCER	2#14, 1#14G	CAB331001	FIT332031	RWYC331001-B	CTC330101	RWYC332031-A			E-33-1112	24V DC POWER TO AERATION BLOWER #3 FLOW TRANSMITTER	CC30B
CBLS332031-A	INS	1PR #16SH	CAB331001	FIT332031	RWYS331001-A	CTS330101	RWYS332031-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 FLOW TRANSMITTER	CC30B
CBLS332031-B	INS	1PR #16SH	FIT332031	FE332031	RWYS332031-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #3 FLOW ELEMENT FROM TRANSMITTER	CC30B
CBLC332035-A	TCER	2#14, 1#14G	CAB331001	TSH332035	RWYC331001-B	CTC330101	RWYC332035-A			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 332035	CC30B
CBLC332041-A	TCER	2#14, 1#14G	CAB331001	FIT332041	RWYC331001-C	CTC330101	RWYC332041-A			E-33-1112	24V DC POWER TO AERATION BLOWER #4 FLOW TRANSMITTER	CC30B
CBLS332041-A	INS	1PR #16SH	CAB331001	FIT332041	RWYS331001-B	CTS330101	RWYS332041-A			E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 FLOW TRANSMITTER	CC30B
CBLS332041-B	INS	1PR #16SH	FIT332041	FE332041	RWYS332041-B					E-33-1212	SIGNAL FEED TO AERATION BLOWER #4 FLOW ELEMENT FROM TRANSMITTER	CC30B
CBLC332045-A	TCER	2#14, 1#14G	CAB331001	TSH332045	RWYC331001-C	CTC330101	RWYC332045-A			E-33-1112	CONTROL FEED TO AERATION BLOWER #4 TEMPERATURE SWITCH	CC30B
CBLC336411-A	TCER	11#14, 1#14G	CAB331001	CV336411	RWYC331001-E	CTC330101	RWYC336411-A			E-33-1112	CONTROL FEED TO AGITATION BLOWER #1 CONTROL VALVE HANDSTATION	CC30B
CBLP336411-A	TCER	3#12, 1#12G	MCC 33B	CV336411	RWYP336411-AA	CTPR330101	RWYP336411-AB			E-33-1112	480V FEED TO AGITATION BLOWER #1 CONTROL VALVE	CC30B
CBLC336412-A	TCER	2#14, 1#14G	CAB331001	TSH336412	RWYC331001-E	CTC330101	RWYC336412-A			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 336412 (ADDENDUM 5)	CC30B / REV. A
CBLC336421-A	TCER	11#14, 1#14G	CAB331001	CV336421	RWYC331001-F	CTC330101	RWYC336421-A			E-33-1112	CONTROL FEED TO AGITATION BLOWER #2 CONTROL VALVE HANDSTATION	CC30B
CBLP336421-A	TCER	3#12, 1#12G	MCC 33C	CV336421	RWYP336421-AA	CTPR330101	RWYP336421-AB			E-33-1112	480V FEED TO AGITATION BLOWER #2 CONTROL VALVE	CC30B
CBLC336422-A	TCER	2#14, 1#14G	CAB331001	TSH336422	RWYC331001-F	CTC330101	RWYC336422-A			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 336422 (ADDENDUM 5)	CC30B / REV. A
CBLC336431-A	TCER	11#14, 1#14G	CAB331001	CV336431	RWYC331001-G	CTC330101	RWYC336431A-A			E-33-1112	CONTROL FEED TO AGITATION BLOWER #3 CONTROL VALVE HANDSTATION	CC30B
CBLP336431-A	TCER	3#12, 1#12G	MCC 33C	CV336431	RWYP336431-AA	CTPR330101	RWYP336431-AB			E-33-1112	480V FEED TO AGITATION BLOWER #3 CONTROL VALVE	CC30B
CBLC336432-A	TCER	2#14, 1#14G	CAB331001	TSH336432	RWYC331001-G	CTC330101	RWYC336432-A			E-33-1112	CONTROL FEED TO TEMPERATURE SWITCH 336432 (ADDENDUM 5)	CC30B / REV. A
CBLC336436-A	TCER	2#14, 1#14G	CAB331001	FIT336436	RWYC331001-G	CTC330101	RWYC336436-A			E-33-1112	24VDC POWER TO FLOW TRANSMITTER 336436	CC30B
CBLS336436-A	INS	1PR #16SH	CAB331001	FIT336436	RWYS331001-E	CTS330101	RWYS336436-A			E-33-1212	SIGNAL FEED TO FLOW TRANSMITTER 336436	CC30B
CBLS336436-B	INS	1PR #16SH	FIT336436	FE336436	RWYS336436-B					E-33-1212	SIGNAL FEED TO FLOW ELEMENT 336436	CC30B
CBLD337202A-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337202A	RWYD330001-A	PBX330001	RWYD337202A-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202A-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337202A	RWYD330001-C	PBX330001	RWYD337202A-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202B-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337202B	RWYD330001-A	PBX330001	RWYD337202B-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202B-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337202B	RWYD330001-C	PBX330001	RWYD337202B-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202C-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337202C	RWYD330001-A	PBX330001	RWYD337202C-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202C-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337202C	RWYD330001-C	PBX330001	RWYD337202C-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202D-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337202D	RWYD330001-A	PBX330001	RWYD337202D-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337202D-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337202D	RWYD330001-C	PBX330001	RWYD337202D-A			E-33-1221	ETHERNET TO ENGINEER OFFICE 202	CC 30A
CBLD337203A-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337203A	RWYD330001-B	PBX330001	RWYD337203A-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD337203A-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337203A	RWYD330001-D	PBX330001	RWYD337203A-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203B-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337203B	RWYD330001-B	PBX330001	RWYD337203B-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203B-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337203B	RWYD330001-D	PBX330001	RWYD337203B-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203C-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337203C	RWYD330001-B	PBX330001	RWYD337203C-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203C-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337203C	RWYD330001-D	PBX330001	RWYD337203C-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203D-A	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CORNER CABINET)	DRCP337203D	RWYD330001-B	PBX330001	RWYD337203D-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLD337203D-B	NC1	1#U/UTP CAT6A	CONTROL ROOM HORSESHOE (CENTRAL CABINET)	DRCP337203D	RWYD330001-D	PBX330001	RWYD337203D-A			E-33-1221	ETHERNET TO PRINTER ROOM 203	CC 30A
CBLP338410-A	XHHW2	2#12, 1#12G	PNL330102A	DS338410	RWYP338410-A					E-33-1221	120V POWER TO BREAK ROOM EXHAUST FAN DISCONNECT	CC30A
CBLP338410-B	XHHW2	2#12, 1#12G	DS338410	EF338410	RWYP338410-B					E-33-1221	120V POWER TO BREAK ROOM EXHAUST FAN	CC30A
CBLD340001-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1212	ETHERNET TO CAB PLC340001 ~~**PROCESSOR "A"**~~ ~~**ECNM**~~ **NETWORK SWITCH (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340001-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	CTS340021A	CTS340017A	CTS340013A	RWYD340001-A		E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD340001-B	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1212	ETHERNET TO CAB PLC340001 PROCESSOR "A" ECM-1	CC30A
CBLD340001-B	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	CTS340021A	CTS340017A	CTS340013A	RWYD340001-A		E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
~~**CBLD340001-C**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE340101**~~	~~**CAB340001**~~	~~**RWYD340101-A**~~	~~**CTS340003A**~~	~~**CTS340005A**~~	~~**CTS340025A**~~	~~**CTS340023A**~~	~~**E-34-1212**~~	~~**ETHERNET TO CAB PLC340001 PROCESSOR "A"ECM-2**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30A**~~
~~**CBLD340001-C**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE340101**~~	~~**CAB340001**~~	~~**CTS340021A**~~	~~**CTS340017A**~~	~~**CTS340013A**~~	~~**RWYD340001-A**~~		~~**E-34-1212**~~	~~**CONTINUED FROM LINE ABOVE**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30A**~~
CBLD340001-D	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	ETHERNET TO CAB PLC340001 ~~**PROCESSOR "B"**~~ ~~**ECNM**~~ **NETWORK SWITCH (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340001-D	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	CTS340014B	RWYD340001-B				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD340001-E	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	ETHERNET TO CAB PLC340001 PROCESSOR "B" ECM-1	CC30A
CBLD340001-E	NC2	1#U/FTP CAT6A	NCE340101	CAB340001	CTS340014B	RWYD340001-B				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
~~**CBLD340001-F**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE340101**~~	~~**CAB340001**~~	~~**RWYD340101-B**~~	~~**CTS340020B**~~	~~**CTS340004B**~~	~~**CTS340010B**~~	~~**CTS340016B**~~	~~**E-34-1212**~~	~~**ETHERNET TO CAB PLC340001 PROCESSOR "B"ECM-2**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30A**~~
~~**CBLD340001-F**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE340101**~~	~~**CAB340001**~~	~~**CTS340014B**~~	~~**RWYD340001-B**~~				~~**E-34-1212**~~	~~**CONTINUED FROM LINE ABOVE**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30A**~~
CBLD340001-G	NC2	1#U/FTP CAT6A	CAB349101A	CAB340001	RWYD340001-GA	CTS340009A	CTS340023A	CTS340021A	CTS340017A	E-34-1212	ETHERNET RING TO AREA PLC	CC30A
CBLD340001-G	NC2	1#U/FTP CAT6A	CAB349101A	CAB340001	CTS340013A	RWYD340001-GB				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLP340001-A	TCER	2#12, 1#12G	PNL349301B	CAB340001	RWYP340001-AA	CTPR340013A	CTPR340017A	CTPR340019A	RWYP340001-AB	E-34-1112	120V UPS "A" FEED TO AREA PLC CAB340001	CC30A
CBLP340001-B	TCER	2#12, 1#12G	PNL349302A	CAB340001	RWYP340001-BA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340001-BB	E-34-1112	120V UPS "B" FEED TO AREA PLC CAB340001	CC30A
CBLP340001-C	TCER	2#12, 1#12G	PNL349408	CAB340001	RWYP340001-CA	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	120V FEED TO AREA PLC CAB340001	CC30A
CBLP340001-C	TCER	2#12, 1#12G	PNL349408	CAB340001	RWYP340001-CB					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP340001-D	TCER	2#10, 1#10G	PNL349301A	NCR340001	RWYP340001-D	PBX340002	RWYP340001-E			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340001. CIRCUIT NUMBER 36	CC30A
CBLP340001-E	TCER	2#10, 1#10G	PNL349301A	NCR340001	RWYP340001-D	PBX340002	RWYP340001-E			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340001. CIRCUIT NUMBER 38	CC30A
CBLP340001-F	TCER	2#10, 1#10G	PNL349302A	NCR340001	RWYP340001-F	PBX340003	RWYP340001-G			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340001. CIRCUIT NUMBER 31	CC30A
CBLP340001-G	TCER	2#10, 1#10G	PNL349302A	NCR340001	RWYP340001-F	PBX340003	RWYP340001-G			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340001. CIRCUIT NUMBER 33	CC30A
CBLX340001A-A	PULLROPE	PULLROPE	CTS340205	CTS340001A	RWYX340001A-A					E-34-1211	SPARE FIBER RACEWAY	CC30A
CBLX340002B-A	PULLROPE	PULLROPE	CTS340205	CTS340002B	RWYF340002B-A					E-34-1211	SPARE FIBER RACEWAY	CC30A
CBLX340001-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-G					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-H					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX340001-I	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-I					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-J	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-J					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-K	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-K					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-L	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-L					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-M	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-M					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340001-N	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340001	RWYX340001-N					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340001	CC30A / REV A
CBLX340002-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-A					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340002-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-B					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340002-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH341002	RWYX341002-C					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340002-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340002	RWYX340002-D					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340002	CC30A / REV A
CBLX340002-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340002	RWYX340002-E					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340002	CC30A / REV A
CBLX340002-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340002	RWYX340002-F					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340002	CC30A / REV A
CBLX340003-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-A					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-B					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-C					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-D					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-E					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341012	RWYX341012-F					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340003-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340003	RWYX340003-G					E-34-1213	SPARE RACEWAY TO JUNCTION BOX JBX340003	CC30A / REV A
CBLX340003-H	**PULLROPE**	**PULLROPE**	**34 BLDG NORTH WALL**	**JBX340003**	**RWYD340003-B**					**E-34-1213**	**SPARE RACEWAY TO JUNCTION BOX JBX340003 (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLX340004-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340004	RWYX340004-A					E-34-1213	SPARE RACEWAY TO JUNCTION BOX JBX340004	CC30A / REV A
CBLX340004-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340004	RWYX340004-B					E-34-1213	SPARE RACEWAY TO JUNCTION BOX JBX340004	CC30A / REV A
CBLX340004-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340004	RWYX340004-C					E-34-1213	SPARE RACEWAY TO JUNCTION BOX JBX340004	CC30A / REV A
CBLX340005-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-A					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-B					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-C					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-D					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-E					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-F					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-G					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340005-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340005	RWYX340005-H					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340005	CC30A / REV A
CBLX340006-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-A					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-B					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-C					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-D					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-E					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	MH340011	RWYX340011-F					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340006-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-G					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-H					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX340006-I	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-I					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-J	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-J					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-K	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-K					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-L	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-L					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-M	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-M					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340006-N	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340006	RWYX340006-N					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340006	CC30A / REV A
CBLX340007-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340007	RWYX340007-A					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340007	CC30A / REV A
CBLX340007-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340007	RWYX340007-B					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340007	CC30A / REV A
CBLX340007-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340007	RWYX340007-C					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340007	CC30A / REV A
CBLX340007-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340007	RWYX340007-D					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340007	CC30A / REV A
CBLX340008-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-A					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340008-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-B					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340008-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-C					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340008-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-D					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340008-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341001	RWYX341001-E					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340008-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340008	RWYX340008-F					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340008	CC30A / REV A
CBLX340008-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340008	RWYX340008-G					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340008	CC30A / REV A
CBLX340008-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340008	RWYX340008-H					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340008	CC30A / REV A
CBLX340008-I	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340008	RWYX340008-I					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340008	CC30A / REV A
CBLX340009-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-A					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-B					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-C					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-D					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-E					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-F					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-G					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340009-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340009	RWYX340009-H					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340009	CC30A / REV A
CBLX340009-I	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340009	RWYX340009-I					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340009	CC30A / REV A
CBLX340009-J	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340009	RWYX340009-J					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340009	CC30A / REV A
CBLX340009-K	PULLROPE	PULLROPE	34 BLDG NORTH WALL	JBX340009	RWYX340009-K					E-34-1113	SPARE RACEWAY TO JUNCTION BOX JBX340009	CC30A / REV A
CBLX340009-L	PULLROPE	PULLROPE	34 BLDG NORTH WALL	HH341011	RWYX341011-H					E-00-1006	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE (CCF 008)	CC30A/REV 1
CBLF340010-A	**FOTSM**	**6 FiberSM**	NCE340101	FACP340010	RWYF340010-A					E-34-1212	FIBER TO FACP340010 **(CCF 020 CHANGE ORDER PENDING)**	CC30A
~~**CBLF340010-B**~~	~~**FOTMM**~~	~~**2 FiberMM**~~	~~**NCE340101**~~	~~**FACP340010**~~	~~**RWYF340010-A**~~					~~**E-34-1212**~~	~~**FIBER TO FACP340010 (CCF 020 CHANGE ORDER PENDING)**~~	~~**CC30A**~~
CBLP340010-A	TCER	2#12, 1#12G	PNL349408	FACP340010	RWYP340010-AA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP340010-AB	E-34-1112	120V FEED TO FIRE ALARM CONTROL PANEL	CC30A
CBLP340011-A	TCER	2#10, 1#10G	PNL349301B	NCR340011	RWYP340011-A	PBX340002	RWYP340011-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340013. CIRCUIT NUMBER 7	CC30A
CBLP340011-B	TCER	2#10, 1#10G	PNL349301B	NCR340011	RWYP340011-A	PBX340002	RWYP340011-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340011. CIRCUIT NUMBER 9	CC30A
CBLP340011-C	TCER	2#10, 1#10G	PNL349302B	NCR340011	RWYP340011-C	PBX340003	RWYP340011-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340011. CIRCUIT NUMBER 13	CC30A
CBLP340011-D	TCER	2#10, 1#10G	PNL349302B	NCR340011	RWYP340011-C	PBX340003	RWYP340011-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340011. CIRCUIT NUMBER 15	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340012-A	TCER	2#10, 1#10G	PNL349301A	NCE340012	RWYP340012-A	PBX340002	RWYP340012-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340012. CIRCUIT NUMBER 32	CC30A
CBLP340012-B	TCER	2#10, 1#10G	PNL349301A	NCE340012	RWYP340012-A	PBX340002	RWYP340012-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340012. CIRCUIT NUMBER 34	CC30A
CBLP340012-C	TCER	2#10, 1#10G	PNL349302A	NCE340012	RWYP340012-C	PBX340003	RWYP340012-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340012. CIRCUIT NUMBER 24	CC30A
CBLP340012-D	TCER	2#10, 1#10G	PNL349302A	NCE340012	RWYP340012-C	PBX340003	RWYP340012-D			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340012. CIRCUIT NUMBER 26	CC30A
CBLP340013-A	TCER	2#10, 1#10G	PNL349301B	NCE340013	RWYP340013-A	PBX340002	RWYP340013-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340013. CIRCUIT NUMBER 11	CC30A
CBLP340013-B	TCER	2#10, 1#10G	PNL349301B	NCE340013	RWYP340013-A	PBX340002	RWYP340013-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340013. CIRCUIT NUMBER 13	CC30A
CBLP340013-C	TCER	2#10, 1#10G	PNL349302B	NCE340013	RWYP340013-C	PBX340003	RWYP340013-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340013. CIRCUIT NUMBER 17	CC30A
CBLP340013-D	TCER	2#10, 1#10G	PNL349302B	NCE340013	RWYP340013-C	PBX340003	RWYP340013-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340013. CIRCUIT NUMBER 19	CC30A
CBLX340013A-B	PULLROPE	PULLROPE	CTS340201	CTS340013A	RWYX340013A-B					E-34-1213	SPARE FIBER RACEWAY	CC30A
CBLX340013B-A	PULLROPE	PULLROPE	CTS340201	CTS340014B	RWYX340014B-A					E-34-1213	SPARE FIBER RACEWAY	CC30A
CBLP340021-A	TCER	2#10, 1#10G	PNL349301B	NCR340021	RWYP340021-A	PBX340002	RWYP340021-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340021. CIRCUIT NUMBER 6	CC30A
CBLP340021-B	TCER	2#10, 1#10G	PNL349301B	NCR340021	RWYP340021-A	PBX340002	RWYP340021-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340021. CIRCUIT NUMBER 8	CC30A
CBLP340021-C	TCER	2#10, 1#10G	PNL349302B	NCR340021	RWYP340021-C	PBX340003	RWYP340021-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340021. CIRCUIT NUMBER 18	CC30A
CBLP340021-D	TCER	2#10, 1#10G	PNL349302B	NCR340021	RWYP340021-C	PBX340003	RWYP340021-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340021. CIRCUIT NUMBER 20	CC30A
CBLP340022-A	TCER	2#10, 1#10G	PNL349301A	NCE340022	RWYP340022-A	PBX340002	RWYP340022-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340022. CIRCUIT NUMBER 31	CC30A
CBLP340022-B	TCER	2#10, 1#10G	PNL349301A	NCE340022	RWYP340022-A	PBX340002	RWYP340022-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340022. CIRCUIT NUMBER 33	CC30A
CBLP340022-C	TCER	2#10, 1#10G	PNL349302A	NCE340022	RWYP340022-C	PBX340003	RWYP340022-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340022. CIRCUIT NUMBER 23	CC30A
CBLP340022-D	TCER	2#10, 1#10G	PNL349302A	NCE340022	RWYP340022-C	PBX340003	RWYP340022-D			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340022. CIRCUIT NUMBER 25	CC30A
CBLP340023-A	TCER	2#10, 1#10G	PNL349301A	NCE340023	RWYP340023-A	PBX340002	RWYP340023-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340023. CIRCUIT NUMBER 35	CC30A
CBLP340023-B	TCER	2#10, 1#10G	PNL349301A	NCE340023	RWYP340023-A	PBX340002	RWYP340023-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340023. CIRCUIT NUMBER 37	CC30A
CBLP340023-C	TCER	2#10, 1#10G	PNL349302A	NCE340023	RWYP340023-C	PBX340003	RWYP340023-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340023. CIRCUIT NUMBER 27	CC30A
CBLP340023-D	TCER	2#10, 1#10G	PNL349302A	NCE340023	RWYP340023-C	PBX340003	RWYP340023-D			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340023. CIRCUIT NUMBER 29	CC30A
CBLS340030-A	INS	1PR #16SH	CAB340001	LIT340030	RWYS340030-AA	CTS340014B	CTS340016B	CTS340010B	CTS340018B	E-34-1202	SIGNAL TO LEVEL TRANSMITTER FOR PUMPS	CC30A
CBLS340030-A	INS	1PR #16SH	CAB340001	LIT340030	RWYS340030-AB					E-34-1202	SIGNAL TO LEVEL TRANSMITTER FOR PUMPS	CC30A
CBLC340031-A	TCER	6#14, 1#14G	MCC349101A	CS340031	CTC340009A	RWYC340031-A				E-34-1102	CONTROL FEED FROM MCC TO PUMP #1 CONTROL STATION	CC30A
CBLC340031-B	XHHW2	6#14, 1#14G	CS340031	M340031	RWYC340031-B					E-34-1102	CONTROL FEED FROM PUMP #1	CC30A
CBLP340031-A	TCER	3#10, 1#10G	MCC349101A	DS340031	CTPR340009A	RWYP340031-A				E-34-1102	480V FEED TO PUMP #1 DISCONNECT SWITCH	CC30A
CBLP340031-B	XHHW2	3#10, 1#10G	DS340031	M340031	RWYP340031-B					E-34-1102	480V FEED TO PUMP #1	CC30A
CBLC340032-A	TCER	6#14, 1#14G	MCC349101B	CS340032	CTC340008B	CTC340020B	CTC340004B	CTC340018B	RWYPC340032-A	E-34-1102	CONTROL FEED FROM MCC TO SUMP #2 CONTROL STATION	CC30A
CBLC340032-B	XHHW2	6#14, 1#14G	CS340032	M340032	RWYC340032-B					E-34-1102	CONTROL FEED TO PUMP #2	CC30A
CBLP340032-A	TCER	3#10, 1#10G	MCC349101B	DS340032	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340018B	RWYP340032-A	E-34-1102	480V FEED TO PUMP #2 DISCONNECT SWITCH	CC30A
CBLP340032-B	XHHW2	3#10, 1#10G	DS340032	M340032	RWYP340032-B					E-34-1102	480V FEED TO PUMP #2	CC30A
CBLP340051-A	TCER	2#10, 1#10G	PNL349301B	NCR340051	RWYP340051-A	PBX340002	RWYP340051-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340051. CIRCUIT NUMBER 10	CC30A
CBLP340051-B	TCER	2#10, 1#10G	PNL349301B	NCR340051	RWYP340051-A	PBX340002	RWYP340051-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340051. CIRCUIT NUMBER 12	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340051-C	TCER	2#10, 1#10G	PNL349302B	NCR340051	RWYP340051-C	PBX340003	RWYP340051-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340051. CIRCUIT NUMBER 10	CC30A
CBLP340051-D	TCER	2#10, 1#10G	PNL349302B	NCR340051	RWYP340051-C	PBX340003	RWYP340051-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCR340051. CIRCUIT NUMBER 12	CC30A
CBLP340052-A	TCER	2#10, 1#10G	PNL349301B	NCE340052	RWYP340052-A	PBX340002	RWYP340052-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340052. CIRCUIT NUMBER 2	CC30A
CBLP340052-B	TCER	2#10, 1#10G	PNL349301B	NCE340052	RWYP340052-A	PBX340002	RWYP340052-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340052. CIRCUIT NUMBER 4	CC30A
CBLP340052-C	TCER	2#10, 1#10G	PNL349302B	NCE340052	RWYP340052-C	PBX340003	RWYP340052-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340052. CIRCUIT NUMBER 14	CC30A
CBLP340052-D	TCER	2#10, 1#10G	PNL349302B	NCE340052	RWYP340052-C	PBX340003	RWYP340052-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NCE340052. CIRCUIT NUMBER 16	CC30A
CBLP340053-A	TCER	2#10, 1#10G	PNL349301B	FUTURE NCR	RWYP340053-A	PBX340002	RWYP340053-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR FUTURE NETWORK RACK. CIRCUIT NUMBER 31	CC30A
CBLP340053-B	TCER	2#10, 1#10G	PNL349301B	FUTURE NCR	RWYP340053-A	PBX340002	RWYP340053-B			E-34-4001	120V UPS "A" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR FUTURE NETWORK RACK. CIRCUIT NUMBER 33	CC30A
CBLP340053-C	TCER	2#10, 1#10G	PNL349302B	FUTURE NCR	RWYP340053-C	PBX340003	RWYP340053-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NETWORK RACK. CIRCUIT NUMBER 29	CC30A
CBLP340053-D	TCER	2#10, 1#10G	PNL349302B	FUTURE NCR	RWYP340053-C	PBX340003	RWYP340053-D			E-34-4001	120V UPS "B" FEED TO DEDICATED RECEPTACLE IN RAISED FLOOR FOR NETWORK RACK. CIRCUIT NUMBER 31	CC30A
CBLC340080-A	XHHW2	4#14, 1#14G	DOOR340080	CS340080	RWYC340080-A					E-34-1111	CONTROL FEED TO ROLLUP DOOR CONTROL STATION (ADDENDUM 3)	CC30A / REV. A
CBLP340080-A	TCER	2#12, 1#12G	PNL349409	DS340080	RWYP340080-AA	CTPR340018B	CTPR340004B	CTPR340002B	RWYP340080-AB	E-34-1111	120V FEED TO SOUTH ROLLUP DOOR DISCONNECT IN ELECTRICAL ROOM	CC30A
CBLP340080-B	TCER	2#12, 1#12G	DS340080	DOOR340080	RWYP340080-B					E-34-1112	120V FEED TO SOUTH ROLLUP DOOR IN ELECTRICAL ROOM	CC30A
CBLC340081-A	XHHW2	4#14, 1#14G	DOOR340081	CS340081	RWYC340081-A					E-34-1112	CONTROL FEED TO ROLLUP DOOR CONTROL STATION (ADDENDUM 3)	CC30A / REV. A
CBLP340081-A	TCER	2#12, 1#12G	PNL349409	DS340081	RWYP340081-AA	CTPR340018B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V FEED TO EAST ROLLUP DOOR DISCONNECT IN ELECTRICAL ROOM	CC30A
CBLP340081-A	TCER	2#12, 1#12G	PNL349409	DS340081	CTPR340024B	RWYP340081-AB				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP340081-B	TCER	2#12, 1#12G	DS340081	DOOR340081	RWYP340081-B					E-34-1112	120V FEED TO EAST ROLLUP DOOR IN ELECTRICAL ROOM	CC30A
CBLC340082-A	XHHW2	4#14, 1#14G	DOOR340082	CS340082	RWYC340082-A					E-34-1112	CONTROL FEED TO ROLLUP DOOR CONTROL STATION (ADDENDUM 3)	CC30A / REV. A
CBLP340082-A	TCER	2#12, 1#12G	PNL349409	DS340082	RWYP340082-AA	CTPR340018B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V FEED TO EAST ROLLUP DOOR DISCONNECT IN ELECTRICAL ROOM	CC30A
CBLP340082-A	TCER	2#12, 1#12G	PNL349409	DS340082	CTPR340024B	RWYP340082-AB				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP340082-B	TCER	2#12, 1#12G	DS340082	DOOR340082	RWYP340082-B					E-34-1112	120V FEED TO EAST ROLLUP DOOR IN ELECTRICAL ROOM	CC30A
CBLC340083-A	XHHW2	4#14, 1#14G	DOOR340083	CS340083	RWYC340083-A					E-34-1114	CONTROL FEED TO ROLLUP DOOR CONTROL STATION (ADDENDUM 3)	CC30A / REV. A
CBLP340083-A	TCER	2#12, 1#12G	PNL349409	DS340083	RWYP340083-AA	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1114	120V FEED TO EAST ROLLUP DOOR DISCONNECT IN PARTS WAREHOUSE	CC30A
CBLP340083-A	TCER	2#12, 1#12G	PNL349409	DS340083	RWYP340002-D	JBX340002	RWYP340083-AB			E-34-1114	CONTINUED FROM LINE ABOVE	CC30A
CBLP340083-B	TCER	2#12, 1#12G	DS340083	DOOR340083	RWYP340083-B					E-34-1114	120V FEED TO EAST ROLLUP DOOR IN ELECTRICAL PARTS WAREHOUSE	CC30A
CBLC340084-A	XHHW2	4#14, 1#14G	DOOR340084	CS340084	RWYC340084-A					E-34-1114	CONTROL FEED TO ROLLUP DOOR CONTROL STATION (ADDENDUM 3)	CC30A / REV. A
CBLP340084-A	TCER	2#12, 1#12G	PNL349409	DS340084	RWYP340084-AA	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1114	120V FEED TO NORTH ROLLUP DOOR DISCONNECT IN BLOWER ROOM	CC30A
CBLP340084-A	TCER	2#12, 1#12G	PNL349409	DS340084	RWYP340002-E	JBX340002	RWYP340084-AB			E-34-1114	CONTINUED FROM LINE ABOVE	CC30A
CBLP340084-B	TCER	2#12, 1#12G	DS340084	DOOR340084	RWYP340084-B					E-34-1114	120V FEED TO NORTH ROLLUP DOOR IN BLOWER ROOM	CC30A
CBLC340085-A	XHHW2	4#14, 1#14G	DOOR340085	CS340085	RWYC340085-A					E-34-1113	CONTROL FEED TO LOBBY COUNTER ROLLUP DOOR CONTROL STATION (CCF 002)	CC30A / REV 1
CBLP340085-A	XHHW2	2#12, 1#12G	PNL349304	DS340085	RWYP340002-F	JBX340002	RWYP340085-A			E-34-1113	120V FEED TO LOBBY COUNTER ROLLUP DOOR DISCONNECT (CCF 002)	CC30A / REV 1
CBLP340085-B	XHHW2	2#12, 1#12G	DS340085	DOOR340085	RWYP340085-B					E-34-1113	120V FEED TO LOBBY COUNTER ROLLUP DOOR (CCF 002)	CC30A / REV 1
CBLP340090-A	TCER	3#10, 1#10G	MCC349101B	DS340090	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-1114	480V FEED TO BLOWER ROOM OVERHEAD CRANE DISCONNECT	CC30A
CBLP340090-A	TCER	3#10, 1#10G	MCC349101B	DS340090	RWYP340090-A					E-34-1114	480V FEED TO BLOWER ROOM OVERHEAD CRANE DISCONNECT	CC30A
CBLP340090-B	XHHW2	3#10, 1#10G	DS340090	CRN340090	RWYP340090-B					E-34-1114	480V FEED TO BLOWER ROOM OVERHEAD CRANE	CC30A
CBLX340090-A	PULLROPE	PULLROPE	CTPR340016B	DS340090	RWYX340090-A					E-34-1114	SPARE FEED FROM BASEMENT TO OVERHEAD CRANE DISCONNECT (CCF 008)	CC30A/REV 1
CBLP340091-A	TCER	3#12, 1#12G	MCC349101A	DS340091	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-1114	480V FEED TO PARTS WAREHOUSE HOIST DISCONNECT SWITCH	CC30A
CBLP340091-A	TCER	3#12, 1#12G	MCC349101A	DS340091	RWYP340091-A					E-34-1114	CONTINUED FROM LINE ABOVE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340091-B	XHHW2	3#12, 1#12G	DS340091	HST340091	RWYP340091-B					E-34-1114	480V FEED TO PARTS WAREHOUSE HOIST	CC30A
CBLX340091-A	PULLROPE	PULLROPE	CTPR340013A	DS340091	RWYX340091-A					E-34-1114	SPARE FEED FROM BASEMENT TO OVERHEAD CRANE DISCONNECT (CCF 008)	CC30A/REV 1
CBLP340092-A	XHHW2	3#12, 1#12G	MCC349101B	DS340092	RWYP340092-A					E-34-1112	480V FEED TO ELECTRICAL ROOM HOIST DISCONNECT SWITCH	CC30A
CBLP340092-B	XHHW2	3#12, 1#12G	DS340092	HST340092	RWYP340092-B					E-34-1112	480V FEED TO ELECTRICAL ROOM HOIST	CC30A
CBLC340095-A	TCER	2#14, 1#14G	CAB340001	FSH340095	RWYC340001-C	CTC340013A	RWYC340095-A			E-34-4002	CONTROL TO EYEWASH FLOW SWITCH	CC30A
CBLP340099A-A	TCER	3#2, 1#6G	PNL349203	ELEV340099A	RWYP340099A-AA	CTPR340017A	CTPR340013A	RWYP340099A-AB		E-34-1112	480V FEED TO ELEVATOR MOTOR DISCONNECT	CC30A
CBLP340099B-A	TCER	3#12, 1#12G	PNL349301A	ELEV340099B	RWYP340099B-AA	CTPR340017A	CTPR340013A	RWYP340099B-AB		E-34-1112	120V FEED TO ELEVATOR CONTROLS	CC30A
CBLP340100-A	TCER	2#12, 1#12G	PNL349304	CAB340100	RWYP340100-AA	CTPR340013A	RWYP340100-AB			E-34-4003	120V FED TO BLOWER 1 STAGE 1 FILTER CONTROL CABINET FLT340100	CC30A
CBLP340100-B	XHHW2	2#12, 1#12G	CAB340100	M340100	RWYP340100-B					E-34-4003	120V FED TO BLOWER 1 STAGE 1 FILTER FLT340100	CC30A
CBLX340100-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340100	RWYX340100-A					E-34-4003	SPARE RACEWAY TO BLOWER 1 FLT CONTROL CABINET CAB340100	CC30A
CBLF340101A-A	FOTSM	48 FiberSM	NCR340001	NCE340101	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	CTS340017A	E-34-1212	48 SINGLE-MODE FIBER TO NCE340101	CC30A
CBLF340101A-A	FOTSM	48 FiberSM	NCR340001	NCE340101	CTS340021A	CTS340023A	CTS340025A	CTS340005A	CTS340003A	E-34-1212	CONTINUED FROM LINE ABOVE.	CC30A
CBLF340101A-A	FOTSM	48 FiberSM	NCR340001	NCE340101	RWYF340101-A					E-34-1212	CONTINUED FROM LINE ABOVE.	CC30A
CBLF340101A-B	FOTSM	48 FiberSM	NCE330001	NCE340101	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-34-1212	48 SINGLE-MODE FIBER TO NCE340101. ALSO SHOWN IN AREA 33 SCHEDULE	CC30A
CBLF340101A-B	FOTSM	48 FiberSM	NCE330001	NCE340101	CTS340002B	CTS340020B	CTS340022B	RWYF340101-B		E-34-1212	CONTINUED FROM LINE ABOVE. ALSO SHOWN IN AREA 33 SCHEDULE	CC30A
CBLF340101BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE340101	CTS330201	RWYF330105-B	CTS330105	CTS330104	RWYF330104-E	E-34-1212	12-FIBER MULTI-MODE TO FOP340101C. ALSO SHOWN IN AREA 34 SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF340101BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE340101	CTS340001A	CTS340003A	RWYF340101-A			E-34-1212	CONTINUED FROM LINE ABOVE. ALSO SHOWN IN AREA 33 SCHEDULE **(CHANGE ORDER PENDING)**	CC30A
CBLP340101-A	XHHW2	2#14, 1#14G	CAB340111	PDISH340101	RWYP340101-A					E-34-4003	24V POWER TO BLOWER #1 PRESSURE DIFFERENTIAL SWITCH HIGH PDIS340101	CC30A
CBLP340101-B	TCER	2#12, 1#12G	PNL349301B	NCE340101	RWYP340101-BA	CTPR340019A	CTPR340021A	CTPR340023A	CTPR340025A	E-34-1112	120V UPS "A" FEED TO AREA NETWORK CABINET	CC30A
CBLP340101-B	TCER	2#12, 1#12G	PNL349301B	NCE340101	CTPR340005A	CTPR340003A	RWYP340101-BB			E-34-1112	CONTINUED FROM LINE ABOVE	CC30A / REV. A
CBLP340101-C	TCER	2#12, 1#12G	PNL349302B	NCE340101	RWYP340101-CA	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V UPS "B" FEED TO AREA NETWORK CABINET	CC30A
CBLP340101-C	TCER	2#12, 1#12G	PNL349302B	NCE340101	RWYP340101-CB					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLS340101-A	INS	1PR #16SH	CAB340111	PDISH340101	RWYS340101-A					E-34-4003	SIGNAL CABLE TO BLOWER #1 PRESSURE DIFFERENTIAL SWITCH HIGH PDIS340101	CC30A
CBLF340102-A	FOTMM	12 FiberMM	DG340133A	NCE340102	RWYF001002-A	HH001002	RWYF001002-E	MH341002	RWYF340002-A	E-34-1212	12-FIBER MULTIMODE FROM RLY340133A TO NCE340102, FOP340102A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLF340102-A	FOTMM	12 FiberMM	DG340133A	NCE340102	CTS340013A	RWYF340102-A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-B	FOTMM	12 FiberMM	CAB340134A	NCE340102	RWYF340134A-A	CTS340001A	CTS340003A	CTS340005A	CTS340025A	E-34-1212	12-FIBER MULTIMODE FROM RLY340134A TO FOP340102A.	CC30A
CBLF340102-B	FOTMM	12 FiberMM	CAB340134A	NCE340102	CTS340023A	CTS340021A	CTS340017A	CTS340013A	RWYF340102-A	E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF160011A-A**	**HH160002**	**RWYF160002-A**	**CTS000003A**	**CTS000001A**	E-34-1212	12-FIBER MULTIMODE FROM RLY169000A TO FOP340102A. CABLE ALSO APPEARS IN SITE SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF000001A-A**	CTS340001A	CTS340003A	CTS340005A	CTS340025A	E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-C	FOTMM	12 FiberMM	**NCE160011**	NCE340102	CTS340023A	CTS340021A	CTS340017A	CTS340013A	RWYF340102-A	E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	RWYF269000A	CTS000001A	RWYF000001A-B	CTS340001A	CTS340003A	E-34-1212	12-FIBER MULTIMODE FROM RLY269000A TO FOP340102A. CABLE ALSO APPEARS IN SITE SCHEDULE.	CC30D
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	CTS340005A	CTS340025A	CTS340023A	CTS340021A	CTS340017A	E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLF340102-D	FOTMM	12 FiberMM	CAB269000A	NCE340102	CTS340013A	RWYF340102-A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLF340102-E	FOTMM	12 FiberMM	CAB349000A	NCE340102	RWYF349000A-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1212	12-FIBER MULTIMODE FROM RLY9000A TO FOP340102A.	CC30A
CBLF340102-E	FOTMM	12 FiberMM	CAB349000A	NCE340102	CTS340021A	CTS340017A	CTS340013A	RWYF340102-A		E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-F	FOTMM	12 FiberMM	DG340133B	NCE340102	RWYF001002-B	HH001002	RWYF001002-E	MH341002	RWYF340002-B	E-34-1212	12-FIBER MULTIMODE FROM RLY340133B TO NCE340102, FOP340102B. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLF340102-F	FOTMM	12 FiberMM	DG340133B	NCE340102	CTS340014B	CTS340016B	RWYF340102-B			E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-G	FOTMM	12 FiberMM	CAB340134B	NCE340102	RWYF340134B-A	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	12-FIBER MULTIMODE FROM RLY340134B TO FOP340102B	CC30A
CBLF340102-G	FOTMM	12 FiberMM	CAB340134B	NCE340102	RWYF340102-B					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-H	FOTMM	12 FiberMM	DG340133C	NCE340102	RWYF001002-C	HH001002	RWYF001002-E	MH341002	RWYF340002-A	E-34-1212	12-FIBER MULTIMODE FROM RLY340133C TO NCE340102, FOP340102A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLF340102-H	FOTMM	12 FiberMM	DG340133C	NCE340102	CTS340013A	RWYF340102-A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF160011A-B**	**HH160002**	**RWYF160002-B**	**CTS000004B**	**CTS000002B**	E-34-1212	12-FIBER MULTIMODE FROM RLY169000B TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	**RWYF340002B-E**	CTS340002B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-J	FOTMM	12 FiberMM	**NCE160011**	NCE340102	RWYF340102-B					E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF340102-K	FOTMM	12 FiberMM	CAB269000B	NCE340102	RWYF269000B	CTS000002B	RWYF340002B-E	CTS340002B	CTS340004B	E-34-1212	12-FIBER MULTIMODE FROM RLY269000B TO FOP340102A. CABLE ALSO APPEARS IN AREA 34 SCHEDULE.	CC30D

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLF340102-K	FOTMM	12 FiberMM	CAB269000B	NCE340102	CTS340010B	CTS340016B	RWYF340102-B			E-34-1212	CONTINUED FROM LINE ABOVE	CC30D
CBLF340102-L	FOTMM	12 FiberMM	CAB349000B	NCE340102	RWYF349000B-A	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	12-FIBER MULTIMODE FROM RLY349000B TO FOP340102B	CC30A
CBLF340102-L	FOTMM	12 FiberMM	CAB349000B	NCE340102	RWYF340102-B					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340102-M	**FOTMM**	**12 FiberMM**	**NCR340001**	**NCE340102**	**CTS340202**	**CTS340201**	**RWYF340013A-A**	**CTS340013A**	**RWYF340102-A**	**E-34-1212**	**12-FIBER MULTIMODE TO SERVER ROOM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
~~CBLP340102-A~~	~~XHHW2~~	~~2#14, 1#14G~~	~~CAB340111~~	~~PDISH340102~~	~~RWYP340102-A~~					~~E-34-4003~~	~~24V POWER TO BLOWER #1 PRESSURE DIFFERENTIAL SWITCH HIGH PDIS340102 (ADDENDUM 3)~~	~~CC30A~~
CBLP340102-B	TCER	2#12, 1#12G	PNL349301B	NCE340102	RWYP340102-BA	CTPR340019A	CTPR340017A	CTPR340013A	RWYP340102-BB	E-34-1112	120V UPS "A" FEED TO ARC FLASH ROOM NETWORK CABINET	CC30A
CBLP340102-C	TCER	2#12, 1#12G	PNL349302A	NCE340102	RWYP340102-CA	CTPR340010B	CTPR340016B	RWYP340102-CB		E-34-1112	120V UPS "B" FEED TO ARC FLASH ROOM NETWORK CABINET	CC30A
~~CBLS340102-A~~	~~INS~~	~~1PR #16SH~~	~~CAB340111~~	~~PDISH340102~~	~~RWYS340102-A~~					~~E-34-4003~~	~~SIGNAL CABLE TO BLOWER #1 PRESSURE DIFFERENTIAL SWITCH HIGH PDIS340102 (ADDENDUM 3)~~	~~CC30A~~
CBLC340111-A	TCER	18#14, 1#14G	SWGR340133A	CAB340111	CTC340011A	CTC340021A	CTC340017A	CTC340013A	RWYC340111-A	E-34-4003	120V CONTROL FROM BLOWER # 1 MOTOR STARTER TO BLOWER #1 CONTROL CABINET CAB340111	CC30A
CBLC340111-B	TCER	18#14, 1#14G	MCC349101A	CAB340111	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM AUX OIL PUMP M340123B STARTER TO BLOWER #1 CONTROL CABINET CAB340111	CC30A
CBLC340111-B	TCER	18#14, 1#14G	MCC349101A	CAB340111	RWYC340111-B					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340111-C	TCER	18#14, 1#14G	MCC349101A	CAB340111	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340126 STARTER TO BLOWER #1 CONTROL CABINET CAB340111	CC30A
CBLC340111-C	TCER	18#14, 1#14G	MCC349101A	CAB340111	RWYC340111-C					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340111-D	TCER	18#14, 1#14G	MCC349101A	CAB340111	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM HEATER HTR340123 STARTER TO BLOWER #1 CONTROL CABINET CAB340111 - (ADDENDUM 3)	CC30A/REV A
CBLC340111-D	TCER	18#14, 1#14G	MCC349101A	CAB340111	RWYC340111-D					E-34-4003	CONTINUED FROM LINE ABOVE - (ADDENDUM 3)	CC30A/REV A
CBLC340111-E	TCER	2#14, 1#14G	SWGR340133A	CAB340111	CTC340011A	CTC340021A	CTC340017A	CTC340013A	RWYC340111-D	E-34-4003	120V E-STOP CONTROL FROM BLOWER # 1 MOTOR STARTER TO BLOWER #1 CONTROL CABINET CAB340111 - (ADDENDUM 3)	CC30A/REV A
CBLD340111-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340111	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO BLOWER 1 PLC NETWORK SWTICH FROM NETWORK CABINET (CCF 020 CHANGE ORDER PENDING)	CC30A
CBLD340111-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340111	CTS340021A	CTS340017A	CTS340013A	RWYD340111-A		E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD340111-B	NC2	1#U/FTP CAT6A	CAB340211	CAB340111	RWYD340111-B					E-34-1213	ETHERNET RING TO BLOWER 1 PLC	CC30A
CBLD340111-C	NC4	1#600V CAT6A	SWGR340133A	CAB340111	CTS340011A	CTS340021A	CTS340017A	CTS340013A	RWYD340111-A	E-34-4003	ETHERNET FROM RVSS340111 TO NET340111	CC30A
CBLH340111-A	MV105	3#2/0, 1#2/0G	SWGR340133A	M340111	CTH340005A	CTH340013A	RWYH340111-A			E-34-4003	5 KV FEED TO AERATION BLOWER #1	CC30A
CBLP340111-A	TCER	2#10, 1#10G	PNL349304	CAB340111	RWYP340111-AA	CTPR340013A	RWYP340111-AB			E-34-4003	120V FEED TO AERATION BLOWER #1 CONTROL CABINET CAB340111 (CCF 015)	CC30A/REV A
CBLP340111-B	XHHW2	3#12, 1#12G	DS340123	TBXP340111	RWYP340111-B					E-34-4003	480V FEED TO BLOWER #1 POWER TERMINAL BOX TBXP340123 FOR RESERVOIR HEATER HTR340123	CC30A
CBLP340111-C	XHHW2	3#12, 1#12G	DS340123B	TBXP340111	RWYP340111-C					E-34-4003	480V FEED TO BLOWER #1 POWER TERMINAL BOX TBXP340111 FOR AUX OIL PUMP P340123B	CC30A
CBLP340111-D	XHHW2	3#12, 1#12G	DS340126	TBXP340111	RWYP340111-D					E-34-3004	480V FEED TO BLOWER #1 POWER TERMINAL BOX TBXP340111 FOR OIL-AIR COOLER CHR340126	CC30A
CBLV340111-A	VENDOR	Special	CAB340111	TBXP340111	RWYV340111-A					E-34-4003	VENDOR CABLE FROM BLOWER #1 CONTROL CABINET TO POWER TERMINAL BOX ON BLOWER SKID TBXP340111 - (ADDENDUM 3)	CC30A/REV A
CBLV340111-B	VENDOR	Special	CAB340111	TBXS340111	RWYV340111-B					E-34-4003	VENDOR CABLE FROM BLOWER #1 CONTROL CABINET TO SIGNAL TERMINAL BOX ON BLOWER SKID TBXS340111	CC30A
CBLX340111-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	M340111	RWYX340111-A					E-34-4003	SPARE RACEWAY TO AERATION BLOWER #1	CC30A
CBLX340111-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340111	RWYX340111-B					E-34-4003	SPARE RACEWAY TO BLOWER 1 CAB340111	CC30A
CBLX340111-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340111	RWYX340111-C					E-34-4003	SPARE RACEWAY TO BLOWER 1 CAB340111	CC30A
CBLX340111-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340111	RWYX340111-D					E-34-4003	SPARE RACEWAY TO BLOWER 1 CAB340111	CC30A
~~CBLX340111-E~~	~~PULLROPE~~	~~PULLROPE~~	~~34 BLDG NORTH WALL~~	~~CAB340111~~	~~RWYX340111-E~~					~~E-34-4003~~	~~SPARE RACEWAY TO BLOWER 1 CAB340111 (ADDENDUM 3)~~	~~CC30A~~
CBLP340123B-A	TCER	3#12, 1#12G	MCC349101A	DS340123B	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #1 AUX OIL PUMP DISCONNECT SWITCH DS340123B	CC30A
CBLP340123B-A	TCER	3#12, 1#12G	MCC349101A	DS340123B	RWYP340123B-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLP340123-A	TCER	3#12, 1#12G	MCC349101A	DS340123	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #1 RESERVOIR HEATER DISCONNECT SWITCH DS340123	CC30A
CBLP340123-A	TCER	3#12, 1#12G	MCC349101A	DS340123	RWYP340123-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340123B-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340123B	RWYX340123B-A					E-34-4003	SPARE RACEWAY TO DISCONNECT SWITCH DS340123B	CC30A
CBLX340123-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340123	RWYX340123-A					E-34-4003	SPARE RACEWAY TO DISCONNECT SWITCH DS340123	CC30A
CBLP340126-A	TCER	3#12, 1#12G	MCC349101A	DS340126	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #1 OIL-AIR COOLER DISCONNECT SWITCH DS340126	CC30A
CBLP340126-A	TCER	3#12, 1#12G	MCC349101A	DS340126	RWYP340126-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340126-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340126	RWYX340126-A					E-34-4003	SPARE RACEWAY TO DISCONNECT SWITCH DS340126	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLV340131-A	VENDOR	Special	CAB340111	PIT340131	RWYV340131-A					E-34-4003	VENDOR CABLE FOR BLOWER #1 PRESSURE TRANSMITTER PIT340131	CC30A
CBLV340131-B	VENDOR	Special	CAB340111	TIT340131	RWYV340131-B					E-34-4003	VENDOR CABLE FOR BLOWER #1 TEMPERATURE TRANSMITTER TIT340131	CC30A
CBLB340133A-A	CABLEBUS	2000AMP	SUB340134A	SWGR340133A						E-34-1112	CABLE BUS FROM "A" SUB TO SWGR340133A	CC30A
CBLB340133B-A	CABLEBUS	2000AMP	SUB340134B	SWGR340133B						E-34-1112	CABLE BUS FROM "B" SUB TO SWGR340133B	CC30A
CBLC340133A-A	TCER	36#14, 1#14G	CAB340133	SWGR340133A	RWYC340133A-A	CTC340013A	CTC340017A	CTC340021A	CTC340011A	E-34-4004	CONTROL FROM SWGR MASTER CONTROL PANEL TO SWGR340133A	CC30A
CBLC340133A-B	TCER	2#10, 1#10G	SWGR340133A	CAP340133A	CTC340011A	CTC340023A	CTC340025A	CTC340005A	CTC340003A	E-34-1111	CONTROL FEED FOR POWER FACTOR CONTROLLER ALARM RLY340133A-14	CC30A
CBLC340133A-B	TCER	2#10, 1#10G	SWGR340133A	CAP340133A	RWYC340133A-B					E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133A-C	TCER	2#14, 1#14G	CAB340001	CAP340133A	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1111	PLC CONTROL CABLE TO CAP BANK "A" CAP340133A	CC30A
CBLC340133A-C	TCER	2#14, 1#14G	CAB340001	CAP340133A	CTC340025A	CTC340005A	CTC340003A	RWYC340133A-C		E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133A-D	TCER	36#14, 1#14G	DG340133A	SWGR340133A	RWYC001001-A	HH001001	RWYC341001-A	MH341001	RWYC340008-A	E-34-4004	CONTROL FEED FROM DIESEL GEN DG340133A TO SWGR340133A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLC340133A-D	TCER	36#14, 1#14G	DG340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-4004	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133A-E	TCER	2#14, 1#14G	CAB340134A	SWGR340133A	RWYC340133A-E	CTC340003A	CTC340005A	CTC340025A	CTC340023A	E-34-4004	CONTROL FEED FROM RLY340134A TO MVCB340133A-1	CC30A
CBLC340133A-E	TCER	2#14, 1#14G	CAB340134A	SWGR340133A	CTC340011A					E-34-4004	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133A-F	XHHW2	36#14, 1#14G	CAB340133	CAB340133AA	RWYC340133AA-A					E-34-1112	CONTROL TO "A" SWGR CONTROL CABINET CAB340133A	CC30A
CBLC340133A-G	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AA NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-H	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AB NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-J	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AC NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-K	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AD NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-L	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AE NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-M	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AF NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-N	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AG NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133A-P	TCER	2#14, 1#14G	CAB340133A	SWGR340133A	CTC340013A	CTC340017A	CTC340021A	CTC340011A		E-34-1112	FAULT AND CONDITON CONTROL TO NET340133AH NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133A.	CC30A
CBLC340133B-A	TCER	36#14, 1#14G	CAB340133	SWGR340133B	RWYC340133B-A	CTC340016B	CTC340012B			E-34-1112	CONTROL FROM SWGR MASTER CONTROL PANEL TO SWGR340133B	CC30A
CBLC340133B-B	TCER	2#10, 1#10G	SWGR340133B	CAP340133B	CTC340012B	CTC340010B	CTC340004B	CTC340020B	RWYC340133B-B	E-34-1111	CONTROL FEED FROM POWER FACTOR CONTROLLER ALARM RLY340133B-5	CC30A
CBLC340133B-C	TCER	2#14, 1#14G	CAB340001	CAP340133B	RWYC340001-B	CTC340014B	CTC340016B	CTC340010B	CTC340004B	E-34-1111	PLC CONTROL CABLE TO CAP BANK "B"	CC30A
CBLC340133B-C	TCER	2#14, 1#14G	CAB340001	CAP340133B	CTC340020B	RWYC340133B-C				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133B-D	TCER	36#14, 1#14G	DG340133B	SWGR340133B	RWYC001001-B	HH001001	RWYC341001-A	MH341001	RWYC340008-B	E-34-4004	CONTROL FEED FROM DIESEL GEN DG340133B TO SWGR340133B. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLC340133B-D	TCER	36#14, 1#14G	DG340133B	SWGR340133B	CTC340014B	CTC340016B	CTC340012B			E-34-4004	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133B-E	TCER	2#14, 1#14G	CAB340134B	SWGR340133B	RWYC340133B-E	CTC340020B	CTC340004B	CTC340010B	CTC340012B	E-34-4004	CONTROL FEED FROM RLY340134B TO MVCB340133B-1	CC30A
CBLC340133B-F	XHHW2	36#14, 1#14G	CAB340133	CAB340133BA	RWYC340133BA-A					E-34-1112	CONTROL TO "B" SWGR CONTROL CABINET CAB340133BA	CC30A
CBLC340133B-G	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BA NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-H	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BB NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-J	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BC NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-K	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BD NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-L	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BE NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-M	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BF NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC340133B-N	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BG NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133B-P	TCER	2#14, 1#14G	CAB340133B	SWGR340133B	CTC340016B	CTC340012B				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133BH NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133B.	CC30A
CBLC340133C-A	TCER	36#14, 1#14G	CAB340133	SWGR340133C	RWYC340133C-A	CTC340013A	CTC340015A			E-34-1112	CONTROL FROM SWGR MASTER CONTROL PANEL TO SWGR340133C	CC30A
CBLC340133C-B	TCER	36#14, 1#14G	DG340133C	SWGR340133C	RWYC001001-C	HH001001	RWYC341001-A	MH341001	RWYC340008-A	E-34-1112	CONTROL FEED FROM DIESEL GEN DG340133C TO SWGR340133C. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE.	CC30A
CBLC340133C-B	TCER	36#14, 1#14G	DG340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLC340133C-C	XHHW2	36#14, 1#14G	CAB340133	CAB340133CA	RWYC340133CA-A					E-34-1112	CONTROL TO "C" SWGR CONTROL CABINET CAB340133CA	CC30A
CBLC340133C-D	TCER	2#14, 1#14G	CAB340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133CA NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133C.	CC30A
CBLC340133C-E	TCER	2#14, 1#14G	CAB340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133CB NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133C.	CC30A
CBLC340133C-F	TCER	2#14, 1#14G	CAB340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133CC NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133C.	CC30A
CBLC340133C-G	TCER	2#14, 1#14G	CAB340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133CD NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133C.	CC30A
CBLC340133C-H	TCER	2#14, 1#14G	CAB340133C	SWGR340133C	CTC340013A	CTC340015A				E-34-1112	FAULT AND CONDITON CONTROL TO NET340133CE NETWORK POWER SUPPLY WITHIN MV SWITCHGEAR 340133C.	CC30A
CBLD340133-A	NC2	1#U/FTP CAT6A	NCE340102	CAB340133	RWYD340133-A					E-34-1212	ETHERNET TO SWGR MASTER CONTROL PANEL PLC340133 "PROCESSOR A" CPU	CC30A
CBLD340133-B	NC2	1#U/FTP CAT6A	NCE340102	CAB340133	RWYD340133-A					E-34-1212	ETHERNET TO SWGR MASTER CONTROL PANEL PLC340133 "PROCESSOR A" ECNM	CC30A
CBLD340133-C	NC2	1#U/FTP CAT6A	NCE340102	CAB340133	RWYD340133-A					E-34-1212	ETHERNET TO SWGR MASTER CONTROL PANEL PLC340133 "PROCESSOR A" ECM	CC30A
CBLD340133-D	NC2	1#U/FTP CAT6A	NCE340102	CAB340133	RWYD340133-D					E-34-1212	ETHERNET TO SWGR MASTER CONTROL PANEL PLC340133 "PROCESSOR B" CPU	CC30A
CBLD340133-E	NC2	1#U/FTP CAT6A	NCE340102	CAB340133	RWYD340133-D					E-34-1212	ETHERNET TO SWGR MASTER CONTROL PANEL PLC340133 "PROCESSOR B" ECNM	CC30A
CBLD340133A-A	NC2	1#U/FTP CAT6A	NCE340102	CAB340133A	RWYD340133A-A					E-34-1212	ETHERNET TO PLC340133A CPU	CC30A
CBLD340133A-B	NC2	1#U/FTP CAT6A	NCE340102	CAB340133A	RWYD340133A-A					E-34-1212	ETHERNET TO PLC340133A ECNM	CC30A
CBLD340133A-C	NC2	1#U/FTP CAT6A	CAB340133	CAB340133A	RWYD340133A-C					E-34-1212	ETHERNET TO PLC340133A ECNM	CC30A
CBLD340133A-D	NC2	1#U/FTP CAT6A	CAB340133	CAB340133A	RWYD340133A-C					E-34-1212	ETHERNET TO PLC340133A ECM	CC30A
CBLD340133A-F	NC4	1#600V CAT6A	SWGR340133A	CAP340133A	CTS340011A	CTS340023A	CTS340025A	CTS340005A	CTS340003A	E-34-1211	ETHERNET TO CAP BANK A (CCF 008)	CC30A/REV 1
CBLD340133A-F	NC4	1#600V CAT6A	SWGR340133A	CAP340133A	RWYD340133A-F					E-34-1211	CONTINUED FROM LINE ABOVE (CCF 008)	CC30A/REV 1
CBLD340133B-A	NC2	1#U/FTP CAT6A	NCE340102	CAB340133B	RWYD340133B-A					E-34-1212	ETHERNET TO PLC340133B CPU	CC30A
CBLD340133B-B	NC2	1#U/FTP CAT6A	NCE340102	CAB340133B	RWYD340133B-A					E-34-1212	ETHERNET TO PLC340133B ECNM	CC30A
CBLD340133B-C	NC2	1#U/FTP CAT6A	CAB340133A	CAB340133B	RWYD340133B-C					E-34-1212	ETHERNET TO PLC340133B ECNM	CC30A
CBLD340133B-D	NC2	1#U/FTP CAT6A	CAB340133A	CAB340133B	RWYD340133B-C					E-34-1212	ETHERNET TO PLC340133B ECM	CC30A
CBLD340133B-F	NC4	1#600V CAT6A	SWGR340133B	CAP340133B	CTS340012B	CTS340010B	CTS3400047B	CTS340020B	RWYD340133B-F	E-34-1211	ETHERNET TO CAP BANK B (CCF 008)	CC30A/REV 1
CBLD340133C-A	NC2	1#U/FTP CAT6A	NCE340102	CAB340133C	RWYD340133C-A					E-34-1212	ETHERNET TO PLC340133C CPU	CC30A
CBLD340133C-B	NC2	1#U/FTP CAT6A	NCE340102	CAB340133C	RWYD340133C-A					E-34-1212	ETHERNET TO PLC340133C ECNM	CC30A
CBLD340133C-C	NC2	1#U/FTP CAT6A	NCE340102	CAB340133C	RWYD340133C-A					E-34-1212	ETHERNET TO PLC340133C ECM	CC30A
CBLD340133C-D	NC2	1#U/FTP CAT6A	CAB340133	CAB340133C	RWYD340133C-D					E-34-1212	ETHERNET TO PLC340133C ECNM	CC30A
CBLD340133C-E	NC2	1#U/FTP CAT6A	CAB340133B	CAB340133C	RWYD340133C-E					E-34-1212	ETHERNET TO "C" SWGR CONTROL CABINET CAB340133CA	CC30A
CBLD340133C-F	NC2	1#U/FTP CAT6A	CAB340133B	CAB340133C	RWYD340133C-E					E-34-1212	ETHERNET TO "C" SWGR CONTROL CABINET CAB340133CA	CC30A
CBLF340133A-A	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133A-B	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133A-C	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE	CC30B
CBLF340133A-D	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE	CC30D
CBLF340133A-E	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133A-F	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE TO NET340133AE	CC30A
CBLF340133A-G	FOTMM	12 FiberMM	NCE340102	SWGR340133A	RWYF340133A-A	CTS340013A	CTS340017A	CTS340021A	CTS340011A	E-34-1212	12-FIBER MULTIMODE TO NET340133AG	CC30A
CBLF340133A-H	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340012B	CTS340016B	CTS340014B	CTS340013A	CTS340017A	E-34-1212	12-FIBER MULTIMODE FROM NET340133BF TO NET340133AA	CC30A
CBLF340133A-H	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340021A	CTS340011A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340133A-J	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340012B	CTS340016B	CTS340014B	CTS340013A	CTS340017A	E-34-1212	12-FIBER MULTIMODE FROM NET340133BG TO NET340133AB	CC30A
CBLF340133A-J	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340021A	CTS340011A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340133A-K	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340012B	CTS340016B	CTS340014B	CTS340013A	CTS340017A	E-34-1212	12-FIBER MULTIMODE FROM NET340133BH TO NET340133AC	CC30A
CBLF340133A-K	FOTMM	12 FiberMM	SWGR340133B	SWGR340133A	CTS340021A	CTS340011A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLF340133A-L	FOTMM	12 FiberMM	SWGR340133C	SWGR340133A	CTS340015A	CTS340017A	CTS340021A	CTS340011A		E-34-1212	12-FIBER MULTIMODE FROM NET340133CA TO NET340133AF	CC30A
CBLF340133A-M	FOTMM	12 FiberMM	SWGR340133C	SWGR340133A	CTS340015A	CTS340017A	CTS340021A	CTS340011A		E-34-1212	12-FIBER MULTIMODE FROM NET340133CB TO NET340133AG	CC30A
CBLF340133A-N	FOTMM	12 FiberMM	SWGR340133C	SWGR340133A	CTS340015A	CTS340017A	CTS340021A	CTS340011A		E-34-1212	12-FIBER MULTIMODE FROM NET340133CC TO NET340133AH	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLF340133B-A	FOTMM	12 FiberMM	NCE340102	SWGR340133B	RWYF340133B-A	CTS340016B	CTS340012B			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133B-B	FOTMM	12 FiberMM	NCE340102	SWGR340133B	RWYF340133B-A	CTS340016B	CTS340012B			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133B-C	FOTMM	12 FiberMM	NCE340102	SWGR340133B	RWYF340133B-A	CTS340016B	CTS340012B			E-34-1212	12-FIBER MULTIMODE TO NET340133BE	CC30A
CBLF340133B-D	FOTMM	12 FiberMM	NCE340102	SWGR340133B	RWYF340133B-A	CTS340016B	CTS340012B			E-34-1212	12-FIBER MULTIMODE TO NET340133BF	CC30A
CBLF340133B-E	FOTMM	12 FiberMM	NCE340102	SWGR340133B	RWYF340133B-A	CTS340016B	CTS340012B			E-34-1212	12-FIBER MULTIMODE TO NET340133BG	CC30A
CBLF340133B-F	FOTMM	12 FiberMM	SWGR340133C	SWGR340133B	CTS340015A	CTS340013A	CTS340014B	CTS340016B	CTS340012B	E-34-1212	12-MULTIMODE FIBER FROM NET340133CA TO NET340133BA	CC30A
CBLF340133B-G	FOTMM	12 FiberMM	SWGR340133C	SWGR340133B	CTS340015A	CTS340013A	CTS340014B	CTS340016B	CTS340012B	E-34-1212	12-MULTIMODE FIBER FROM NET340133CD TO NET340133BB	CC30A
CBLF340133B-H	FOTMM	12 FiberMM	SWGR340133C	SWGR340133B	CTS340015A	CTS340013A	CTS340014B	CTS340016B	CTS340012B	E-34-1212	12-MULTIMODE FIBER FROM NET340133CE TO NET340133BC	CC30A
CBLF340133C-A	FOTMM	12 FiberMM	NCE340102	SWGR340133C	RWYF340133C-A	CTS340013A	CTS340015A			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133C-B	FOTMM	12 FiberMM	NCE340102	SWGR340133C	RWYF340133C-A	CTS340013A	CTS340015A			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133C-C	FOTMM	12 FiberMM	NCE340102	SWGR340133C	RWYF340133C-A	CTS340013A	CTS340015A			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLF340133C-D	FOTMM	12 FiberMM	NCE340102	SWGR340133C	RWYF340133C-A	CTS340013A	CTS340015A			E-34-1212	12-FIBER MULTIMODE TO NET340133CA	CC30A
CBLF340133C-E	FOTMM	12 FiberMM	NCE340102	SWGR340133C	RWYF340133C-A	CTS340013A	CTS340015A			E-34-1212	12-FIBER MULTIMODE	CC30A
CBLH340133A-A	MV105	3#500, 1#4/0G	DG340133A	SWGR340133A	RWYH001001-A	MH001001	RWYH340001-A	MH340001	RWYH340133A-A	E-34-1112	5 KV FEED FROM DIESEL GENERATOR TO 'A" SWITCHGEAR 340133A. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH340133A-A	MV105	3#500, 1#4/0G	DG340133A	SWGR340133A	CTH340013A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLH340133A-B1	MV105	3#500, 1#4/0G	MV340134A	SWGR340133A	CTH340007A	CTH340009A				E-34-4004	4 PARRALLEL SETS 5 KV FEED FROM CO-GEN MV340134A	CC30A
CBLH340133A-B2	MV105	3#500, 1#4/0G	MV340134A	SWGR340133A	CTH340007A	CTH340009A				E-34-4004	4 PARRALLEL SETS 5 KV FEED FROM CO-GEN MV340134A	CC30A
CBLH340133A-B3	MV105	3#500, 1#4/0G	MV340134A	SWGR340133A	CTH340007A	CTH340009A				E-34-4004	4 PARRALLEL SETS 5 KV FEED FROM CO-GEN MV340134A	CC30A
CBLH340133A-B4	MV105	3#500, 1#4/0G	MV340134A	SWGR340133A	CTH340007A	CTH340009A				E-34-4004	4 PARRALLEL SETS 5 KV FEED FROM CO-GEN MV340134A	CC30A
CBLH340133A-C	MV105	3#4/0, 1#4/0G	SWGR340133A	CAP340133A	CTH340015A	CTH340011A	RWYH340133A-C			E-34-1111	5KV FEED FROM SWGR TO CAPACITOR BANK A	CC30A
CBLH340133B-A	MV105	3#500, 1#4/0G	DG340133B	SWGR340133B	RWYH001001-B	MH001001	RWYH340001-B	MH340001	RWYH340133B-A	E-34-1112	5 KV FEED FROM DIESEL GENERATOR TO "B" SWITCHGEAR 340133B. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS ON SITE SCHEDULE	CC30A
CBLH340133B-A	MV105	3#500, 1#4/0G	DG340133B	SWGR340133B	CTH340014B	CTH340012B	CTH340018B			E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLH340133B-B1	MV105	3#500, 1#4/0G	MV340134B	SWGR340133B	CTP3404	CTH340010B				E-34-4004	4 PARALLEL SETS 5 KV FEED FROM CO-GEN MV340134B	CC30A
CBLH340133B-B2	MV105	3#500, 1#4/0G	MV340134B	SWGR340133B	CTP3404	CTH340010B				E-34-4004	4 PARALLEL SETS 5 KV FEED FROM CO-GEN MV340134B	CC30A
CBLH340133B-B3	MV105	3#500, 1#4/0G	MV340134B	SWGR340133B	CTP3404	CTH340010B				E-34-4004	4 PARALLEL SETS 5 KV FEED FROM CO-GEN MV340134B	CC30A
CBLH340133B-B4	MV105	3#500, 1#4/0G	MV340134B	SWGR340133B	CTP3404	CTH340010B				E-34-4004	4 PARALLEL SETS 5 KV FEED FROM CO-GEN MV340134B	CC30A
CBLH340133B-C	MV105	3#4/0, 1#4/0G	SWGR340133B	CAP340133B	CTH340018B	CTH340016B	RWYH340133B-C			E-34-1111	5KV FEED FROM SWGR TO CAPACITOR BANK B	CC30A
CBLH340133C-A	MV105	3#500, 1#4/0G	DG340133C	SWGR340133C	RWYH001001-C	MH001001	RWYH340001-C	MH340001	RWYH340133C-A	E-34-1112	5 KV FEED FROM DIESEL GENERATOR TO "C" SWITCHGEAR 340133C. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO IN SITE CABLE SCHEDULE	CC30A
CBLH340133C-A	MV105	3#500, 1#4/0G	DG340133C	SWGR340133C	CTH340014B	CTH340012B				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP340133A-A	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-A	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-2	CC30A
CBLP340133A-AA	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-AA	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 11	CC30A
CBLP340133A-AB	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-AB	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 12	CC30A
CBLP340133A-AC	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-AC	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 13	CC30A
CBLP340133A-AD	TCER	2#10, 1#10G	PNL349406	DG340133A	RWYP341001-E	MH341001	RWYP001001-E	HH001001	RWYP340133A-AD	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133A-AE	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AE	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 1 NON-UPS POWER.	CC30A
CBLP340133A-AF	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AF	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 2 NON-UPS POWER.	CC30A
CBLP340133A-AG	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AG	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 4 NON-UPS POWER.	CC30A
CBLP340133A-AH	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AH	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 5 NON-UPS POWER.	CC30A
CBLP340133A-AI	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AI	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 6 NON-UPS POWER.	CC30A
CBLP340133A-AJ	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AJ	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 7 NON-UPS POWER.	CC30A
CBLP340133A-AK	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AK	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 8 NON-UPS POWER.	CC30A
CBLP340133A-AL	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AL	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 9 NON-UPS POWER.	CC30A
CBLP340133A-AM	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AM	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 10 NON-UPS POWER.	CC30A
CBLP340133A-AN	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AN	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 11 NON-UPS POWER.	CC30A
CBLP340133A-AO	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AO	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 12 NON-UPS POWER.	CC30A
CBLP340133A-AP	TCER	3#12, 1#12G	PNL349304	SWGR340133A	RWYP340133A-AP	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	SECTION 13 NON-UPS POWER.	CC30A
CBLP340133A-AQ	XHHW2	2#8, 1#10G	SWGR340133AA	NGR340133A	RWYP340133A-AQ					E-00-4002	CABLE ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLP340133A-AR	TCER	2#12, 1#12G	PNL349301B	CAB340133A	RWYP340133AA-AA	CTPR340017A	CTPR340013A	RWYP340133AA-AB		E-34-1112	120V "A" UPS FEED TO CAB340133A	CC30A
CBLP340133A-AS	TCER	2#10, 1#10G	PNL349406	CAB340133A	RWYP340133AA-BA	CTPR340016B	RWYP340133AA-BB			E-34-1112	125VDC FEED TO CAB340133A	CC30A
CBLP340133A-B	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-B	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340111	CC30A
CBLP340133A-C	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-C	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340311	CC30A
CBLP340133A-D	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-D	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-1	CC30A
CBLP340133A-E	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-E	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-3	CC30A
CBLP340133A-F	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-F	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-4	CC30A
CBLP340133A-G	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-G	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-5	CC30A
CBLP340133A-H	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-H	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-6	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340133A-I	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-I	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-7	CC30A
CBLP340133A-J	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-J	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-8	CC30A
CBLP340133A-K	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-K	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-9	CC30A
CBLP340133A-L	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-L	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED RLY340133A-10	CC30A
CBLP340133A-M	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-M	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-11	CC30A
CBLP340133A-N	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-N	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-12	CC30A
CBLP340133A-O	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-O	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-13	CC30A
CBLP340133A-P	TCER	2#12, 1#12G	PNL349301A	SWGR340133A	RWYP340133A-P	CTPR340021A	CTPR340011A			E-34-4004	120V UPS FEED TO RLY340133A-14	CC30A
CBLP340133A-Q	TCER	2#12, 1#12G	PNL349301A	DG340133A	RWYP340133A-QA	CTPR340017A	CTPR340013A	RWYP341001-D	HH341001	E-00-1006	120V UPS FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133A-Q	TCER	2#12, 1#12G	PNL349301A	DG340133A	RWYP001001-D	HH001001	RWYP340133A-QB			E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133A-R	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-R	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 1	CC30A
CBLP340133A-S	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-S	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 2	CC30A
CBLP340133A-T	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-T	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 4	CC30A
CBLP340133A-U	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-U	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 5	CC30A
CBLP340133A-V	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-V	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 6	CC30A
CBLP340133A-W	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-W	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 7	CC30A
CBLP340133A-X	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-X	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 8	CC30A
CBLP340133A-Y	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-Y	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 9	CC30A
CBLP340133A-Z	TCER	2#10, 1#10G	PNL349406	SWGR340133A	RWYP340133A-Z	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340011A	E-34-4004	125VDC FEED TO MV SWGR340133A SECTION 10	CC30A
CBLP340133AA-C	TCER	3#1, 1#6G	MCC349101A	PNL340133AA	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-00-4002	480V FEED TO GENERATOR A 480V PANEL. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133AA-C	TCER	3#1, 1#6G	MCC349101A	PNL340133AA	RWYP341001-A	HH341001	RWYP001001-A	HH001001	RWYP340133AA-C	E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133B-A	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-A	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO C-BUS RLY340133B-3	CC30A
CBLP340133B-AA	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-AA	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 10	CC30A
CBLP340133B-AB	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-AB	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 11	CC30A
CBLP340133B-AC	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-AC	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 12	CC30A
CBLP340133B-AD	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-AD	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 13	CC30A
CBLP340133B-AE	TCER	2#10, 1#10G	PNL349407	DG340133B	RWYP341001-G	HH341001	RWYP001001-G	HH001001	RWYP340133B-AE	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133B-AF	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AF	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 1 NON-UPS POWER,	CC30A
CBLP340133B-AG	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AG	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 2 NON-UPS POWER,	CC30A
CBLP340133B-AH	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AH	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 4 NON-UPS POWER,	CC30A
CBLP340133B-AI	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AI	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 5 NON-UPS POWER,	CC30A
CBLP340133B-AJ	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AJ	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 6 NON-UPS POWER,	CC30A
CBLP340133B-AK	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AK	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 7 NON-UPS POWER,	CC30A
CBLP340133B-AL	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AL	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 8 NON-UPS POWER,	CC30A
CBLP340133B-AM	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AM	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 9 NON-UPS POWER,	CC30A
CBLP340133B-AN	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AN	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 10 NON-UPS POWER,	CC30A
CBLP340133B-AO	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AO	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 11 NON-UPS POWER,	CC30A
CBLP340133B-AP	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AP	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 12 NON-UPS POWER,	CC30A
CBLP340133B-AQ	TCER	3#12, 1#12G	PNL349305	SWGR340133B	RWYP340133B-AQ	CTPR340014B	CTPR340016B	CTPR340012B		E-34-4004	SECTION 13 NON-UPS POWER,	CC30A
CBLP340133B-AR	XHHW2	2#8, 1#10G	SWGR340133BA	NGR340133B	RWYP340133B-AR					E-00-4002	CABLE ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLP340133B-AS	TCER	2#12, 1#12G	PNL349302A	CAB340133BA	RWYP340133BA-AA	CTPR340010B	CTPR340016B	RWYP340133BA-AB		E-34-1112	120V "B" UPS FEED TO CAB340133BA	CC30A
CBLP340133B-AT	TCER	2#10, 1#10G	PNL349407	CAB340133BA	RWYP340133BA-BA	CTPR340016B	RWYP340133BA-BB			E-34-1112	125VDC FEED TO CAB340133BA	CC30A
CBLP340133B-B	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-B	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340211	CC30A
CBLP340133B-C	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-C	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340411	CC30A
CBLP340133B-D	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-D	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-1	CC30A
CBLP340133B-E	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-E	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-8	CC30A
CBLP340133B-F	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-F	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-2	CC30A
CBLP340133B-G	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-G	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-4	CC30A
CBLP340133B-H	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-H	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-5	CC30A
CBLP340133B-I	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-I	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-7	CC30A
CBLP340133B-J	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-J	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-6	CC30A
CBLP340133B-K	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-K	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-9	CC30A
CBLP340133B-L	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-L	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-10	CC30A
CBLP340133B-M	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-M	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-11	CC30A
CBLP340133B-N	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-N	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-12	CC30A
CBLP340133B-O	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-O	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-13	CC30A
CBLP340133B-P	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-P	CTPR340010B	CTPR340012B			E-34-4004	120V UPS FEED TO RLY340133B-14	CC30A
CBLP340133B-Q	TCER	2#12, 1#12G	PNL349302A	DG340133B	RWYP340133B-QA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP341001-F	E-00-4002	120V UPS FEED TO DIESEL GENERATOR RLY340133B. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133B-Q	TCER	2#12, 1#12G	PNL349302A	DG340133B	HH341001	RWYP001001-F	HH001001	RWYP340133B-QB		E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133B-R	TCER	2#12, 1#12G	PNL349302A	SWGR340133B	RWYP340133B-R	CTPR340010B	CTPR340012B			E-34-1112	120V UPS FEED TO SPARE RLY340133B-15	CC30A
CBLP340133B-S	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-S	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 1	CC30A
CBLP340133B-T	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-T	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 2	CC30A
CBLP340133B-U	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-U	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 4	CC30A
CBLP340133B-V	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-V	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 5	CC30A
CBLP340133B-W	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-W	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 6	CC30A
CBLP340133B-X	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-X	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 7	CC30A
CBLP340133B-Y	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-Y	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 8	CC30A
CBLP340133B-Z	TCER	2#10, 1#10G	PNL349407	SWGR340133B	RWYP340133B-Z	CTPR340016B	CTPR340012B			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 9	CC30A
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-4002	480V FEED TO GENERATOR B 480V PANEL. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	CTPR340014B	RWYP341001-B	HH341001	RWYP001001-B	HH001001	E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340133BA-C	TCER	3#1, 1#6G	MCC349101B	PNL340133BA	RWYP340133BA-C					E-00-4002	CONTINUED FROM LINE ABOVE.	CC30A
CBLP340133C-A	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-A	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340511	CC30A
CBLP340133C-B	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-B	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-4	CC30A
CBLP340133C-C	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-C	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-3	CC30A
CBLP340133C-D	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-D	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-2	CC30A
CBLP340133C-E	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-E	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-1	CC30A
CBLP340133C-F	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-F	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-5	CC30A
CBLP340133C-G	TCER	2#12, 1#12G	PNL349301B	SWGR340133C	RWYP340133C-G	CTPR340017A	CTPR340015A			E-34-1112	120V UPS "A" FEED TO RLY340133C-6	CC30A
CBLP340133C-H	TCER	2#12, 1#12G	PNL349301B	DG340133C	RWYP340133C-HA	CTPR340017A	CTPR340013A	RWYP341001-H	HH341001	E-00-4002	120V UPS FEED TO DIESEL GENERATOR RLY340133C. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133C-H	TCER	2#12, 1#12G	PNL349301B	DG340133C	RWYP001001-H	HH001001	RWYP340133C-HB			E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133C-I	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-I	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133C SECTION 1	CC30A
CBLP340133C-J	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-J	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133C SECTION 3	CC30A
CBLP340133C-K	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-K	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133C SECTION 4	CC30A
CBLP340133C-L	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-L	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133C SECTION 5	CC30A
CBLP340133C-M	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-M	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133C SECTION 6	CC30A
CBLP340133C-N	TCER	2#10, 1#10G	PNL349405	SWGR340133C	RWYP340133C-N	CTPR340013A	CTPR340015A			E-34-4004	125VDC FEED TO MV SWGR340133B SECTION 7	CC30A
CBLP340133C-O	TCER	2#10, 1#10G	PNL349405	DG340133C	RWYP341001-I	HH341001	RWYP001001-I	HH001001	RWYP340133C-O	E-00-4002	125VDC FEED TO DIESEL GENERATOR RLY340133C. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133C-P	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-P	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 1 NON-UPS POWER	CC30A
CBLP340133C-Q	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-Q	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 3 NON-UPS POWER	CC30A
CBLP340133C-R	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-R	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 4 NON-UPS POWER	CC30A
CBLP340133C-S	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-S	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 5 NON-UPS POWER	CC30A
CBLP340133C-T	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-T	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 6 NON-UPS POWER	CC30A
CBLP340133C-U	TCER	3#12, 1#12G	PNL349408	SWGR340133C	RWYP340133C-U	CTPR340018B	CTPR340010B	CTPR340016B	CTPR340014B	E-34-1112	SECTION 7 NON-UPS POWER	CC30A
CBLP340133C-V	XHHW2	2#8, 1#10G	SWGR340133CA	NGR340133C	RWYP340133C-V					E-00-4002	CABLE ALSO APPEARS IN SITE SCHEDULE	CC30A
CBLP340133C-W	TCER	2#12, 1#12G	PNL349301B	CAB340133CA	RWYP340133CA-AA	CTPR340017A	CTPR340013A	RWYP340133CA-AB		E-34-1112	120V "A" UPS FEED TO CAB340133CA	CC30A
CBLP340133C-X	TCER	2#10, 1#10G	PNL349405	CAB340133CA	RWYP340133CA-BA	CTPR340016B	RWYP340133CA-BB			E-34-1112	125VDC FEED TO CAB340133CA	CC30A
CBLP340133CA-C	TCER	3#1, 1#6G	MCC349201	PNL340133CA	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-00-4002	480V FEED TO GENERATOR C 480V PANEL. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133CA-C	TCER	3#1, 1#6G	MCC349201	PNL340133CA	RWYP341001-C	HH341001	RWYP001001-C	HH001001	RWYP340133CA-C	E-00-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP340133-A	TCER	2#12, 1#12G	PNL349301B	CAB340133	RWYP340133-AA	CTPR340017A	CTPR340013A	RWYP340133-AB		E-34-1112	120V "A" UPS FEED TO CAB340133	CC30A
CBLP340133-B	TCER	2#12, 1#12G	PNL349302A	CAB340133	RWYP340133-BA	CTPR340010B	CTPR340016B	RWYP340133-BB		E-34-1112	120V "B" UPS FEED TO CAB340133	CC30A
CBLP340133-C	TCER	2#10, 1#10G	PNL349406	CAB340133	RWYP340133-CA	CTPR340016B	RWYP340133-CB			E-34-1112	125V FEED FOR CAB340133	CC30A
CBLP340133-D	TCER	2#10, 1#10G	PNL349407	CAB340133	RWYP340133-DA	CTPR340016B	RWYP340133-DB			E-34-1112	125V FEED FOR CAB340133	CC30A
CBLX340133A-A	PULLROPE	PULLROPE	DG340133A	34 BLDG NORTH WALL	RWYX001001-A	MH001001	RWYX340001-D	MH340001	RWYX340133A-A		SPARE CONDUIT IN DB340001. ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340133A-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAP340133A	RWYX340133A-B					E-34-1111	SPARE RACEWAY TO CAP340133A	CC30A
CBLX340133A-C	PULLROPE	PULLROPE	PNL349406	DG340133A	RWYX341001-F	MH341001	RWYX001001-J	HH001001	RWYX340133A-C	E-00-4002	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN AREA 34 CABLE SCHEDULE	CC30A
CBLX340133A-D	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAP340133A	RWYX340133A-D					E-34-1211	SPARE DATA RACEWAY TO CAP340133A	CC30A
CBLX340133A-D	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAP340133B	RWYX340133B-D					E-34-1211	SPARE DATA RACEWAY TO CAP340133B	CC30A
CBLX340133B-A	PULLROPE	PULLROPE	DG340133B	34 BLDG NORTH WALL	RWYX001001-B	MH001001	RWYX340001-E	MH340001	RWYX340133B-A	E-34-1006	SPARE RACEWAY TO DISEL GENERATOR "B"	CC30A
CBLX340133B-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAP340133B	RWYX340133B-B					E-34-1111	SPARE RACEWAY TO CAP340133B	CC30A
CBLX340133B-C	PULLROPE	PULLROPE	PNL349407	DG340133B	RWYX341001-G	HH341001	RWYX001001-K	HH001001	RWYX340133B-C	E-00-4002	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLX340133C-A	PULLROPE	PULLROPE	DG340133C	34 BLDG NORTH WALL	RWYX001001-C	MH001001	RWYX340001-F	MH340001	RWYX340133C-A	E-00-4002	MV SPARE CONDUIT IN DB340001	CC30A
CBLX340133C-B	PULLROPE	PULLROPE	PNL349405	DG340133C	RWYX341001-H	HH341001	RWYX001001-L	HH001001	RWYX340133C-B	E-00-4002	SPARE 125VDC FEED TO DIESEL GENERATOR RLY340133A. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLC340134A-A	TCER	18#14, 1#14G	CAB340001	SUB340134A	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1111	FEED FROM AREA 34 PLC TO SUB340134A	CC30A
CBLC340134A-A	TCER	18#14, 1#14G	CAB340001	SUB340134A	CTC340025A	CTC340005A	CTC340003A	RWYC340134A-A		E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC340134A-B	XHHW2	2#10, 1#10G	CAB340134A	NGR340134A	RWYC340134A-B					E-34-1111	CONTROL FEED TO SUBSTATION "A" NGR340134A	CC30A
CBLC340134B-A	TCER	18#14, 1#14G	CAB340001	SUB340134B	RWYC340001-B	CTC340014B	CTC340016B	CTC340010B	CTC340004B	E-34-1111	FEED FROM AREA 34 PLC TO SUB340134B	CC30A
CBLC340134B-A	TCER	18#14, 1#14G	CAB340001	SUB340134B	CTC340020B	RWYC340134B-A				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC340134B-B	XHHW2	2#10, 1#10G	CAB340134B	NGR340134B	RWYC340134B-B					E-34-1111	CONTROL FEED TO SUBSTATION "B" NGR340134B	CC30A
CBLP340134A-A	TCER	2#12, 1#12G	PNL349301A	CAB340134A	RWYP340134A-AA	CTPR340021A	CTPR340023A	CTPR340025A	CTPR340005A	E-34-1111	120V "A" UPS FEED TO BLOWER BLDG SUB-A CAB RLY340134A-1	CC30A
CBLP340134A-A	TCER	2#12, 1#12G	PNL349301A	CAB340134A	CTPR340003A	RWYP340134A-AB				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLP340134A-B	TCER	2#12, 1#12G	PNL349302A	CAB340134A	RWYP340134A-BA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP340134A-BB	E-34-1111	120V "B" UPS FEED TO BLOWER BLDG SUB-A CAB RLY340134A-1	CC30A
CBLP340134A-C	TCER	2#12, 1#12G	PNL349306	SUB340134A	RWYP340134A-CA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP340134A-CB	E-34-1111	FEED TO MV "A" SIDE SUBSTATION PIRMARY INTERRUPTER SWITCH HEATER	CC30A
CBLP340134A-D	TCER	2#12, 1#12G	PNL349306	SUB340134A	RWYP340134A-DA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP340134A-DB	E-34-1111	FEED TO MV "A" SIDE SUBSTATION SECONDARY TERMINAL CHAMBER HEATER	CC30A
CBLP340134A-E	TCER	2#12, 1#12G	PNL349301B	CAB340134A	RWYP340134A-EA	CTPR340021A	CTPR340023A	CTPR340025A	CTPR340005A	E-34-1111	120V "A" UPS FEED TO BLOWER BLDG SUB-A CAB RLY340134A-2	CC30A
CBLP340134A-E	TCER	2#12, 1#12G	PNL349301B	CAB340134A	CTPR340003A	RWYP340134A-EB				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP340134A-F	MV105	1#2/0G	SUB340134A	NGR340134A	RWYP340134A-F					E-34-1111	GROUNDING CONDUCTOR TO NGR340134A - (ADDENDUM 3)	CC30A/REV A
CBLP340134B-A	TCER	2#12, 1#12G	PNL349301A	CAB340134B	RWYP340134B-AA	CTPR340021A	CTPR340023A	CTPR340025A	CTPR340005A	E-34-1111	120V UPS "A" FEED TO BLOWER BLDG SUB-B CAB RLY340134B-1	CC30A
CBLP340134B-A	TCER	2#12, 1#12G	PNL349301A	CAB340134B	CTPR340003A	RWYP340134B-AB				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLP340134B-B	TCER	2#12, 1#12G	PNL349302A	CAB340134B	RWYP340134B-BA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP340134B-BB	E-34-1111	120V "B" UPS FEED TO BLOWER BLDG SUB-B CAB RLY340134B-1	CC30A
CBLP340134B-C	TCER	2#12, 1#12G	PNL349306	SUB340134B	RWYP340134B-CA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP340134B-CB	E-34-1111	FEED TO MV "B" SIDE SUBSTATION PIRMARY INTERRUPTER SWITCH HEATER	CC30A
CBLP340134B-D	TCER	2#12, 1#12G	PNL349306	SUB340134B	RWYP340134B-DA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP340134B-DB	E-34-1111	FEED TO MV "B" SIDE SUBSTATION SECONDARY TERMINAL CHAMBER HEATER	CC30A
CBLP340134B-E	TCER	2#12, 1#12G	PNL349302B	CAB340134B	RWYP340134B-EA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP340134B-EB	E-34-1111	120V "B" UPS FEED TO BLOWER BLDG SUB-A CAB RLY340134B-2	CC30A
CBLP340134B-F	MV105	1#2/0G	SUB340134B	NGR340134B	RWYP340134B-F					E-34-1111	GROUNDING CONDUCTOR TO NGR340134B - (ADDENDUM 3)	CC30A/REV A
CBLX340134A-A	PULLROPE	PULLROPE	SUB340134A	NGR340134A	RWYX340134A-A					E-34-1111	SPARE POWER RACEWAY TO NGR340134A - (ADDENDUM 3)	CC30A/REV A
CBLX340134A-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	NGR340134A	RWYX340134A-B					E-34-1111	SPARE CONTROL RACEWAY TO NGR340134A - (ADDENDUM 3)	CC30A/REV A
CBLX340134A-C	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB340134A	RWYX340134A-C					E-34-1211	SPARE RACEWAY TO CAB340134A. (CCF 008)	CC30A/REV 1
CBLX340134B-A	PULLROPE	PULLROPE	SUB340134B	NGR340134B	RWYX340134B-A					E-34-1111	SPARE POWER RACEWAY TO NGR340134B - (ADDENDUM 3)	CC30A/REV A
CBLX340134B-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	NGR340134B	RWYX340134B-B					E-34-1111	SPARE CONTROL RACEWAY TO NGR340134B - (ADDENDUM 3)	CC30A/REV A
CBLX340134B-C	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB340134A	RWYX340134B-C					E-34-1211	SPARE RACEWAY TO CAB340134A. (CCF 008)	CC30A/REV 1
CBLC340141-A	XHHW2	10#14, 1#14G	CAB340111	CS340141	RWYC340141-A					E-34-4003	CONTROL CABLE FROM BLOWER #1 CONTROL CABINET TO ACTUATOR CS340141 - (ADDENDUM 3)	CC30A/REV A
CBLP340141-A	TCER	3#12, 1#12G	PNL349203	DS340141	RWYP340141-AA	CTPR340013A	RWYP340141-AB			E-34-4003	480V FEED TO AERATION BLOWER #1 FLOW VALVE DISCONNECT DS340141	CC30A
CBLP340141-B	TCER	3#12, 1#12G	DS340141	FV340141	RWYP340141-B					E-34-4003	480V FEED TO AERATION BLOWER #1 FLOW VALVE FV340141	CC30A
CBLS340141-A	INSM	4PR #16SH	CS340141	FV340141	RWYS340141-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340141 - (ADDENDUM 3)	CC30A/REV A
CBLX340141-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340141	RWYX340141					E-34-4003	SPARE RACEWAY TO DS340141	CC30A
CBLC340151-A	XHHW2	10#14, 1#14G	CAB340111	CS340151	RWYC340151-A					E-34-4003	CONTROL CABLE FROM BLOWER #1 CONTROL CABINET TO ACTUATOR CS340151 - (ADDENDUM 3)	CC30A/REV A
CBLP340151-A	TCER	3#12, 1#12G	PNL349203	DS340151	RWYP340151-AA	CTPR340013A	RWYP340151-AB			E-34-4003	480V FEED TO AERATION BLOWER #1 FLOW VALVE DISCONNECT DS340151	CC30A
CBLP340151-B	TCER	3#12, 1#12G	DS340151	FV340151	RWYP340151-B					E-34-4003	480V FEED TO AERATION BLOWER #1 FLOW VALVE FV340151	CC30A
CBLS340151-A	INSM	4PR #16SH	CS340151	FV340151	RWYS340151-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340151 - (ADDENDUM 3)	CC30A/REV A
CBLX340151-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340151	RWYX340151-A					E-34-4003	SPARE RACEWAY TO DS340151	CC30A
CBLP340200-A	TCER	2#12, 1#12G	PNL349305	CAB340200	RWYP340200-AA	CTPR340014B	RWYP340200-AB			E-34-4003	120V FED TO BLOWER 2 STAGE 1 FILTER CONTROL CABINET	CC30A
CBLP340200-B	XHHW2	2#12, 1#12G	CAB340200	M340200	RWYP340200-B					E-34-4003	120V FED TO BLOWER 2 STAGE 1 FILTER	CC30A
CBLX340200-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340200	RWYX340200-A					E-34-4003	SPARE RACEWAY TO BLOWER 2 FLT CONTROL CABINER CAB340200	CC30A
CBLP340201-A	XHHW2	2#14, 1#14G	CAB340211	PDISH340201	RWYP340201-A					E-34-4003	24V POWER TO BLOWER #2 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340201	CC30A
CBLS340201-A	INS	1PR #16SH	CAB340211	PDISH340201	RWYS340201-A					E-34-4003	SIGNAL CABLE TO BLOWER #2 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340201	CC30A
~~CBLP340202-A~~	~~XHHW2~~	~~2#14, 1#14G~~	~~CAB340211~~	~~PDISH340202~~	~~RWYP340202-A~~					~~E-34-4003~~	~~24V POWER TO BLOWER #2 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340202 (ADDENDUM 3)~~	~~CC30A~~
~~CBLS340202-A~~	~~INS~~	~~1PR #16SH~~	~~CAB340211~~	~~PDISH340202~~	~~RWYS340202-A~~					~~E-34-4003~~	~~SIGNAL CABLE TO BLOWER #2 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340202 (ADDENDUM 3)~~	~~CC30A~~
CBLC340211-A	TCER	18#14, 1#14G	SWGR340133B	CAB340211	CTC340012B	CTC340016B	CTC340014B	RWYC340211-A		E-34-4003	120V CONTROL FROM BLOWER # 2 MOTOR STARTER TO BLOWER #2 CONTROL CABINET CAB340211	CC30A
CBLC340211-B	TCER	18#14, 1#14G	MCC349101B	CAB340211	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM AUX OIL PUMP M340223B STARTER TO BLOWER #2 CONTROL CABINET CAB340211	CC30A
CBLC340211-B	TCER	18#14, 1#14G	MCC349101B	CAB340211	RWYC340211-B					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340211-C	TCER	18#14, 1#14G	MCC349101B	CAB340211	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340226 STARTER TO BLOWER #2 CONTROL CABINET CAB340211	CC30A
CBLC340211-C	TCER	18#14, 1#14G	MCC349101B	CAB340211	RWYC340211-C					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340211-D	TCER	18#14, 1#14G	MCC349101B	CAB340211	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM RESERVOIR HEATER HTR340223 STARTER TO BLOWER #2 CONTROL CABINET CAB340211 - (ADDENDUM 3)	CC30A/REV A
CBLC340211-D	TCER	18#14, 1#14G	MCC349101B	CAB340211	CTC340014B	RWYC340211-D				E-34-4003	CONTINUED FROM LINE ABOVE - (ADDENDUM 3)	CC30A/REV A
CBLC340211-E	TCER	2#14, 1#14G	SWGR340133B	CAB340211	CTC340012B	CTC340016B	CTC340014B	RWYC340211-D		E-34-4003	120V E-STOP CONTROL FROM BLOWER # 2 MOTOR STARTER TO BLOWER #2 CONTROL CABINET CAB340211 - (ADDENDUM 3)	CC30A/REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD340211-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340211	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1213	ETHERNET TO BLOWER 2 PLC **NETWORK SWTICH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340211-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340211	CTS340014B	RWYD340211-A				E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD340211-B	NC2	1#U/FTP CAT6A	CAB340311	CAB340211	RWYD340211-B					E-34-1213	ETHERNET RING TO BLOWER 2 PLC	CC30A
CBLD340211-C	NC4	1#600V CAT6A	SWGR340133B	CAB340211	CTS340012B	CTS340016B	CTS340014B	RWYD340211-A		E-34-4003	ETHERNET FROM RVSS340211 TO NET340211	CC30A
CBLH340211-A	MV105	3#2/0, 1#2/0G	SWGR340133B	M340211	CTH340018B	CTH340012B	CTH340014B	RWYH340211-A		E-34-4003	5 KV FEED TO AERATION BLOWER #2	CC30A
CBLP340211-A	TCER	2#10, 1#10G	PNL349305	CAB340211	RWYP340211-AA	CTPR340014B	RWYP340211-AB			E-34-4003	120V FEED TO AERATION BLOWER #2 CONTROL CABINET (CCF 015)	CC30A/REV A
CBLP340211-B	XHHW2	3#12, 1#12G	DS340223	TBXP340211	RWYP340211-B					E-34-4003	480V FEED TO BLOWER #2 POWER TERMINAL BOX TBXP340211 FOR RESERVOIR HEATER	CC30A
CBLP340211-C	XHHW2	3#12, 1#12G	DS340223B	TBXP340211	RWYP340211-C					E-34-4003	480V FEED TO BLOWER #2 POWER TERMINAL BOX TBXP340211 FOR AUX OIL PUMP	CC30A
CBLP340211-D	XHHW2	3#12, 1#12G	DS340226	TBXP340211	RWYP340211-D					E-34-4003	480V FEED TO BLOWER #2 POWER TERMINAL BOX TBXP340211 FOR OIL-AIR COOLER	CC30A
CBLV340211-A	VENDOR	Special	CAB340211	TBXP340211	RWYV340211-A					E-34-4003	VENDOR CABLE FROM BLOWER #2 CONTROL CABINET TO POWER TERMINAL BOX ON BLOWER SKID TBXP340211 - (ADDENDUM 3)	CC30A/REV A
CBLV340211-B	VENDOR	Special	CAB340211	TBXS340211	RWYV340211-B					E-34-4003	VENDOR CABLE FROM BLOWER #2 CONTROL CABINET TO SIGNAL TERMINAL BOX ON BLOWER SKID TBXS340211	CC30A
CBLX340211-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	M340211	RWYX340211-A					E-34-4003	SPARE RACEWAY TO AERATION BLOWER #2	CC30A
CBLX340211-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340211	RWYX340211-B					E-34-4003	SPARE RACEWAY TO BLOWER 2 CAB340211	CC30A
CBLX340211-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340211	RWYX340211-C					E-34-4003	SPARE RACEWAY TO BLOWER 2 CAB340211	CC30A
CBLX340211-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340211	RWYX340211-D					E-34-4003	SPARE RACEWAY TO BLOWER 2 CAB340211	CC30A
~~CBLX340211-E~~	~~PULLROPE~~	~~PULLROPE~~	~~34 BLDG NORTH WALL~~	~~CAB340211~~	~~RWYX340211-E~~					~~E-34-4003~~	~~SPARE RACEWAY TO BLOWER 2 CAB340211 - (ADDENDUM 3)~~	~~CC30A~~
CBLP340223B-A	TCER	3#12, 1#12G	MCC349101B	DS340223B	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #2 AUX OIL PUMP DISCONNECT SWITCH	CC30A
CBLP340223B-A	TCER	3#12, 1#12G	MCC349101B	DS340223B	CTPR340014B	RWYP340223B-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLP340223-A	TCER	3#12, 1#12G	MCC349101B	DS340223	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #2 RESERVOIR HEATER DISCONNECT SWITCH	CC30A
CBLP340223-A	TCER	3#12, 1#12G	MCC349101B	DS340223	CTPR340014B	RWYP340223-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340223B-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340223B	RWYX340223B-A					E-34-4003	SPARE RACEWAY TO BLOWER #2 AUX OIL PUMP DS340223B	CC30A
CBLX340223-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340223	RWYX340223-A					E-34-4003	SPARE RACEWAY TO HEATER DISCONNECT SWITCH DS340223	CC30A
CBLP340226-A	TCER	3#12, 1#12G	MCC349101B	DS340226	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #2 OIL-AIR COOLER DISCONNECT SWITCH	CC30A
CBLP340226-A	TCER	3#12, 1#12G	MCC349101B	DS340226	CTPR340014B	RWYP340226-A				E-34-4003	480V FEED TO BLOWER #2 OIL-AIR COOLER DISCONNECT SWITCH	CC30A
CBLX340226-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340226	RWYX340226-A					E-34-4003	SPARE RACEWAY TO OIL AIR COOLER DISCONNECT SWITCH DS340226	CC30A
CBLV340231-A	VENDOR	Special	CAB340211	PIT340231	RWYV340231-A					E-34-4003	VENDOR CABLE FOR BLOWER #2 PRESSURE TRANSMITTER PIT340231	CC30A
CBLV340231-B	VENDOR	Special	CAB340211	TIT340231	RWYV340231-B					E-34-4003	VENDOR CABLE FOR BLOWER #2 TEMPERATURE TRANSMITTER TIT340231	CC30A
CBLC340241-A	XHHW2	10#14, 1#14G	CAB340211	CS340241	RWYC340241-A					E-34-4003	CONTROL CABLE FROM BLOWER #2 CONTROL CABINET TO ACTUATOR CS340241 - (ADDENDUM 3)	CC30A/REV A
CBLP340241-A	TCER	3#12, 1#12G	PNL349204	DS340241	RWYP340241-AA	CTPR340014B	RWYP340241-AB			E-34-4003	480V FEED TO AERATION BLOWER #2 FLOW VALVE DISCONNECT DS340241	CC30A
CBLP340241-B	XHHW2	3#12, 1#12G	DS340241	FV340241	RWYP340241-B					E-34-4003	480V FEED TO AERATION BLOWER #2 FLOW VALVE FV340241	CC30A
CBLS340241-A	INSM	4PR #16SH	CS340241	FV340241	RWYS340241-A					E-34-4003	SIGNAL CABLE TO FLOW VALVE ACTUATOR FV340241 - (ADDENDUM 3)	CC30A/REV A
CBLX340241-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340241	RWYX340241-A					E-34-4003	SPARE RACEWAY TO DS340241	CC30A
CBLC340251-A	XHHW2	10#14, 1#14G	CAB340211	CS340251	RWYC340251-A					E-34-4003	CONTROL CABLE FROM BLOWER #2 CONTROL CABINET TO ACTUATOR CS340251 - (ADDENDUM 3)	CC30A/REV A
CBLP340251-A	TCER	3#12, 1#12G	PNL349204	DS340251	RWYP340251-AA	CTPR340014B	RWYP340251-AB			E-34-4003	480V FEED TO AERATION BLOWER #2 FLOW VALVE DISCONNECT DS340251	CC30A
CBLP340251-B	XHHW2	3#12, 1#12G	DS340251	FV340251	RWYP340251-B					E-34-4003	480V FEED TO AERATION BLOWER #2 FLOW VALVE FV340251	CC30A
CBLS340251-A	INSM	4PR #16SH	CS340251	FV340251	RWYS340251-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340251 - (ADDENDUM 3)	CC30A/REV A
CBLX340251-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340251	RWYX340251-A					E-34-4003	SPARE RACEWAY TO DS340251	CC30A
CBLP340300-A	TCER	2#12, 1#12G	PNL349304	CAB340300	RWYP340300-AA	CTPR340013A	RWYP340300-AB			E-34-4003	120V FED TO BLOWER 3 STAGE 1 FILTER CONTROL CABINET	CC30A
CBLP340300-B	XHHW2	2#12, 1#12G	CAB340300	M340300	RWYP340300-B					E-34-4003	120V FED TO BLOWER 3 STAGE 1 FILTER	CC30A
CBLX340300-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340300	RWYX340300-A					E-34-4003	SPARE RACEWAY TO BLOWER 3 FLT CONTROL CABINER CAB340300	CC30A
CBLP340301-A	XHHW2	2#14, 1#14G	CAB340311	PDISH340301	RWYP340301-A					E-34-4003	24V POWER TO BLOWER #3 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340301	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLS340301-A	INS	1PR #16SH	CAB340311	PDISH340301	RWYS340301-A					E-34-4003	SIGNAL CABLE TO BLOWER #3 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340301	CC30A
~~CBLP340302-A~~	~~XHHW2~~	~~2#14, 1#14G~~	~~CAB340311~~	~~PDISH340302~~	~~RWYP340302-A~~					~~E-34-4003~~	~~24V POWER TO BLOWER #3 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340302 (ADDENDUM 3)~~	CC30A
~~CBLS340302-A~~	~~INS~~	~~1PR #16SH~~	~~CAB340311~~	~~PDISH340302~~	~~RWYS340302-A~~					~~E-34-4003~~	~~SIGNAL CABLE TO BLOWER #3 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340302 (ADDENDUM 3)~~	CC30A
CBLC340311-A	TCER	18#14, 1#14G	SWGR340133A	CAB340311	CTC340011A	CTC340021A	CTC340017A	CTC340013A	RWYC340311-A	E-34-4003	120V CONTROL FROM BLOWER # 3 MOTOR STARTER TO BLOWER #3 CONTROL CABINET CAB340311	CC30A
CBLC340311-B	TCER	18#14, 1#14G	MCC349101A	CAB340311	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM AUX OIL PUMP M340323B STARTER TO BLOWER #3 CONTROL CABINET CAB340311	CC30A
CBLC340311-B	TCER	18#14, 1#14G	MCC349101A	CAB340311	RWYC340311-B					E-34-4003	120V CONTROL FROM AUX OIL PUMP M340323B STARTER TO BLOWER #3 CONTROL CABINET CAB340311	CC30A
CBLC340311-C	TCER	18#14, 1#14G	MCC349101A	CAB340311	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340326 STARTER TO BLOWER #3 CONTROL CABINET CAB340311	CC30A
CBLC340311-C	TCER	18#14, 1#14G	MCC349101A	CAB340311	RWYC340311-C					E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340326 STARTER TO BLOWER #3 CONTROL CABINET CAB340311	CC30A
CBLC340311-D	TCER	18#14, 1#14G	MCC349101A	CAB340311	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM RESERVOIR HEATER HTR340323 STARTER TO BLOWER #3 CONTROL CABINET CAB340311 - (ADDENDUM 3)	CC30A/REV A
CBLC340311-D	TCER	18#14, 1#14G	MCC349101A	CAB340311	RWYC340311-D					E-34-4003	CONTINUED FROM LINE ABOVE - (ADDENDUM 3)	CC30A/REV A
CBLC340311-E	TCER	2#14, 1#14G	SWGR340133A	CAB340311	CTC340011A	CTC340021A	CTC340017A	CTC340013A	RWYC340311-D	E-34-4003	120V E-STOP CONTROL FROM BLOWER # 3 MOTOR STARTER TO BLOWER #3 CONTROL CABINET CAB340311 - (ADDENDUM 3)	CC30A/REV A
CBLD340311-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340311	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1214	ETHERNET TO BLOWER 3 PLC **NETWORK SWITCH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340311-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340311	CTS340021A	CTS340017A	CTS340013A	RWYD340311-A		E-34-1214	ETHERNET TO BLOWER 3 PLC FROM NETWORK CABINET	CC30A
CBLD340311-B	NC2	1#U/FTP CAT6A	CAB340411	CAB340311	RWYD340311-B					E-34-1214	ETHERNET RING TO BLOWER 3 PLC	CC30A
CBLD340311-C	NC4	1#600V CAT6A	SWGR340133A	CAB340311	CTS340011A	CTS340021A	CTS340017A	CTS340013A	RWYD340311-A	E-34-4003	ETHERNET FROM RVSS340311 TO NET340311	CC30A
CBLH340311-A	MV105	3#2/0, 1#2/0G	SWGR340133A	M340311	CTH340005A	CTH340013A	RWYH340311-A			E-34-4003	5 KV FEED TO AERATION BLOWER #3	CC30A
CBLP340311-A	TCER	2#10, 1#10G	PNL349304	CAB340311	RWYP340311-AA	CTPR340013A	RWYP340311-AB			E-34-4003	120V FEED TO AERATION BLOWER #3 CONTROL CABINET (CCF 015)	CC30A/REV A
CBLP340311-B	XHHW2	3#12, 1#12G	DS340323	TBXP340311	RWYP340311-B					E-34-4003	480V FEED TO BLOWER #3 POWER TERMINAL BOX TBXP340311 FOR RESERVOIR HEATER	CC30A
CBLP340311-C	XHHW2	3#12, 1#12G	DS340323B	TBXP340311	RWYP340311-C					E-34-4003	480V FEED TO BLOWER #3 POWER TERMINAL BOX TBXP340311 FOR AUX OIL PUMP	CC30A
CBLP340311-D	XHHW2	3#12, 1#12G	DS340326	TBXP340311	RWYP340311-D					E-34-4003	480V FEED TO BLOWER #3 POWER TERMINAL BOX TBXP340311 FOR OIL-AIR COOLER	CC30A
CBLV340311-A	VENDOR	Special	CAB340311	TBXP340311	RWYV340311-A					E-34-4003	VENDOR CABLE FROM BLOWER #3 CONTROL CABINET TO POWER TERMINAL BOX ON BLOWER SKID TBXP340311 - (ADDENDUM 3)	CC30A/REV A
CBLV340311-B	VENDOR	Special	CAB340311	TBXS340311	RWYV340311-B					E-34-4003	VENDOR CABLE FROM BLOWER #3 CONTROL CABINET TO SIGNAL TERMINAL BOX ON BLOWER SKID TBXS340311	CC30A
CBLX340311-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	M340311	RWYX340311-A					E-34-4003	SPARE RACEWAY TO AERATION BLOWER #3	CC30A
CBLX340311-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340311	RWYX340311-B					E-34-4003	SPARE RACEWAY TO BLOWER 3 CAB340311	CC30A
CBLX340311-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340311	RWYX340311-C					E-34-4003	SPARE RACEWAY TO BLOWER 3 CAB340311	CC30A
CBLX340311-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340311	RWYX340311-D					E-34-4003	SPARE RACEWAY TO BLOWER 3 CAB340311	CC30A
~~CBLX340311-E~~	~~PULLROPE~~	~~PULLROPE~~	~~34 BLDG NORTH WALL~~	~~CAB340311~~	~~RWYX340311-E~~					~~E-34-4003~~	~~SPARE RACEWAY TO BLOWER 3 CAB340311 – (ADDENDUM 3)~~	~~CC30A~~
CBLP340323B-A	TCER	3#12, 1#12G	MCC349101A	DS340323B	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #3 AUX OIL PUMP DISCONNECT SWITCH	CC30A
CBLP340323B-A	TCER	3#12, 1#12G	MCC349101A	DS340323B	RWYP340323B-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLP340323-A	TCER	3#12, 1#12G	MCC349101A	DS340323	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #3 RESERVOIR HEATER DISCONNECT SWITCH	CC30A
CBLP340323-A	TCER	3#12, 1#12G	MCC349101A	DS340323	RWYP340323-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340323B-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340323B	RWYX340323B-A					E-34-4003	SPARE RACEWAY TO BLOWER #3 AUX OIL PUMP DS340323B	CC30A
CBLX340323-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340323	RWYX340323-A					E-34-4003	SPARE RACEWAY TO HEATER DISCONNECT SWITCH DS340323	CC30A
CBLP340326-A	TCER	3#12, 1#12G	MCC349101A	DS340326	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-4003	480V FEED TO BLOWER #3 OIL-AIR COOLER DISCONNECT SWITCH	CC30A
CBLP340326-A	TCER	3#12, 1#12G	MCC349101A	DS340326	RWYP340326-A					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340326-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340326	RWYX340326-A					E-34-4003	SPARE RACEWAY TO OIL AIR COOLER DISCONNECT SWITCH DS340326	CC30A
CBLV340331-A	VENDOR	Special	CAB340311	PIT340331	RWYV340331-A					E-34-4003	VENDOR CABLE FOR BLOWER #3 PRESSURE TRANSMITTER PIT340331	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLV340331-B	VENDOR	Special	CAB340311	TIT340331	RWYV340331-B					E-34-4003	VENDOR CABLE FOR BLOWER #3 TEMPERATURE TRANSMITTER TIT340331	CC30A
CBLC340341-A	XHHW2	10#14, 1#14G	CAB340311	CS340341	RWYC340341-A					E-34-4003	CONTROL CABLE FROM BLOWER #3 CONTROL CABINET TO ACTUATOR CS340341 - (ADDENDUM 3)	CC30A/REV A
CBLP340341-A	TCER	3#12, 1#12G	PNL349203	DS340341	RWYP340341-AA	CTPR340013A	RWYP340341-AB			E-34-4003	480V FEED TO AERATION BLOWER #3 FLOW VALVE DISCONNECT DS340341	CC30A
CBLP340341-B	XHHW2	3#12, 1#12G	DS340341	FV340341	RWYP340341-B					E-34-4003	480V FEED TO AERATION BLOWER #3 FLOW VALVE FV340341	CC30A
CBLS340341-B	INSM	4PR #16SH	CS340341	FV340341	RWYS340341-A					E-34-4003	SIGNAL CABLE TO FLOW VALVE ACTUATOR FV340341 - (ADDENDUM 3)	CC30A/REV A
CBLX340341-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340341	RWYX340341-A					E-34-4003	SPARE RACEWAY TO DS340341	CC30A
CBLC340351-A	XHHW2	10#14, 1#14G	CAB340311	CS340351	RWYC340351-A					E-34-4003	CONTROL CABLE FROM BLOWER #3 CONTROL CABINET TO ACTUATOR CS340351 - (ADDENDUM 3)	CC30A/REV A
CBLP340351-A	TCER	3#12, 1#12G	PNL349203	DS340351	RWYP340351-AA	CTPR340013A	RWYP340351-AB			E-34-4003	480V FEED TO AERATION BLOWER #3 FLOW VALVE DISCONNECT DS340351	CC30A
CBLP340351-B	XHHW2	3#12, 1#12G	DS340351	FV340351	RWYP340351-B					E-34-4003	480V FEED TO AERATION BLOWER #3 FLOW VALVE FV340351	CC30A
CBLS340351-A	INSM	4PR #16SH	CS340351	FV340351	RWYS340351-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340351 - (ADDENDUM 3)	CC30A/REV A
CBLX340351-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340351	RWYX340351-A					E-34-4003	SPARE RACEWAY TO DS340351	CC30A
CBLP340400-A	TCER	2#12, 1#12G	PNL349305	CAB340400	RWYP340400-AA	CTPR340014B	RWYP340400-AB			E-34-4003	120V FED TO BLOWER 4 STAGE 1 FILTER CONTROL CABINET	CC30A
CBLP340400-B	XHHW2	2#12, 1#12G	CAB340400	M340400	RWYP340400-B					E-34-4003	120V FED TO BLOWER 4 STAGE 1 FILTER	CC30A
CBLX340400-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340400	RWYX340400-A					E-34-4003	SPARE RACEWAY TO BLOWER 4 FLT CONTROL CABINER CAB340400	CC30A
CBLP340401-A	XHHW2	2#14, 1#14G	CAB340411	PDISH340401	RWYP340401-A					E-34-4003	24V POWER TO BLOWER #4 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340401	CC30A
CBLS340401-A	INS	1PR #16SH	CAB340411	PDISH340401	RWYS340401-A					E-34-4003	SIGNAL CABLE TO BLOWER #4 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340401	CC30A
~~CBLP340402-A~~	~~XHHW2~~	~~2#14, 1#14G~~	~~CAB340411~~	~~PDISH340402~~	~~RWYP340402-A~~					~~E-34-4003~~	~~24V POWER TO BLOWER #4 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340402 (ADDENDUM 3)~~	~~CC30A~~
~~CBLS340402-A~~	~~INS~~	~~1PR #16SH~~	~~CAB340411~~	~~PDISH340402~~	~~RWYS340402-A~~					~~E-34-4003~~	~~SIGNAL CABLE TO BLOWER #4 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340402 (ADDENDUM 3)~~	~~CC30A~~
CBLC340411-A	TCER	18#14, 1#14G	SWGR340133B	CAB340411	CTC340012B	CTC340016B	CTC340014B	RWYC340411-A		E-34-4003	120V CONTROL FROM BLOWER #4 MOTOR STARTER TO BLOWER #4 CONTROL CABINET CAB340411	CC30A
CBLC340411-B	TCER	18#14, 1#14G	MCC349101B	CAB340411	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM AUX OIL PUMP M340423B STARTER TO BLOWER #4 CONTROL CABINET CAB340411	CC30A
CBLC340411-B	TCER	18#14, 1#14G	MCC349101B	CAB340411	RWYC340411-B					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340411-C	TCER	18#14, 1#14G	MCC349101B	CAB340411	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340426 STARTER TO BLOWER #4 CONTROL CABINET CAB340411	CC30A
CBLC340411-C	TCER	18#14, 1#14G	MCC349101B	CAB340411	RWYC340411-C					E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340411-D	TCER	18#14, 1#14G	MCC349101B	CAB340411	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM RESERVOIR HEATER HTR340423 STARTER TO BLOWER #4 CONTROL CABINET CAB340411 - (ADDENDUM 3)	CC30A/REV A
CBLC340411-D	TCER	18#14, 1#14G	MCC349101B	CAB340411	CTC340014B	RWYC340411-D				E-34-4003	CONTINUED FROM LINE ABOVE - (ADDENDUM 3)	CC30A/REV A
CBLC340411-E	TCER	2#14, 1#14G	SWGR340133B	CAB340411	CTC340012B	CTC340016B	CTC340014B	RWYC340411-D		E-34-4003	120V E-STOP CONTROL FROM BLOWER # 4 MOTOR STARTER TO BLOWER #4 CONTROL CABINET CAB340411 - (ADDENDUM 3)	CC30A/REV A
CBLD340411-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340411	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1214	ETHERNET TO BLOWER 4 PLC **NETWORK SWTICH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340411-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340411	CTS340014B	RWYD340411-A				E-34-1214	CONTINUED FROM LINE ABOVE	CC30A
CBLD340411-B	NC2	1#U/FTP CAT6A	CAB340511	CAB340411	RWYD340411-B					E-34-1214	ETHERNET RING TO BLOWER 4 PLC	CC30A
CBLD340411-C	NC4	1#600V CAT6A	SWGR340133B	CAB340411	CTS340012B	CTS340016B	CTS340014B	RWYD340411-A		E-34-4003	ETHERNET FROM RVSS340411 TO NET340411	CC30A
CBLH340411-A	MV105	3#2/0, 1#2/0G	SWGR340133B	M340411	CTH340018B	CTH340012B	CTH340014B	RWYH340411-A		E-34-4003	5 KV FEED TO AERATION BLOWER #4	CC30A
CBLP340411-A	TCER	2#10, 1#10G	PNL349305	CAB340411	RWYP340411-AA	CTPR340014B	RWYP340411-AB			E-34-4003	120V FEED TO AERATION BLOWER #4 CONTROL CABINET (CCF 015)	CC30A/REV A
CBLP340411-B	XHHW2	3#12, 1#12G	DS340423	TBXP340411	RWYP340411-B					E-34-4003	480V FEED TO BLOWER #4 POWER TERMINAL BOX TBXP340411 FOR RESERVOIR HEATER	CC30A
CBLP340411-C	XHHW2	3#12, 1#12G	DS340423B	TBXP340411	RWYP340411-C					E-34-4003	480V FEED TO BLOWER #4 POWER TERMINAL BOX TBXP340411 FOR AUX OIL PUMP	CC30A
CBLP340411-D	XHHW2	3#12, 1#12G	DS340426	TBXP340411	RWYP340411-D					E-34-4003	480V FEED TO BLOWER #4 POWER TERMINAL BOX TBXP340411 FOR OIL-AIR COOLER	CC30A
CBLV340411-A	VENDOR	Special	CAB340411	TBXP340411	RWYV340411-A					E-34-4003	VENDOR CABLE FROM BLOWER #4 CONTROL CABINET TO POWER TERMINAL BOX ON BLOWER SKID TBXP340411 - (ADDENDUM 3)	CC30A/REV A
CBLV340411-B	VENDOR	Special	CAB340411	TBXS340411	RWYV340411-B					E-34-4003	VENDOR CABLE FROM BLOWER #4 CONTROL CABINET TO SIGNAL TERMINAL BOX ON BLOWER SKID TBXS340411	CC30A
CBLX340411-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	M340411	RWYX340411-A					E-34-4003	SPARE RACEWAY TO AERATION BLOWER #4	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX340411-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340411	RWYX340411-B					E-34-4003	SPARE RACEWAY TO BLOWER 4 CAB340411	CC30A
CBLX340411-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340411	RWYX340411-C					E-34-4003	SPARE RACEWAY TO BLOWER 4 CAB340411	CC30A
CBLX340411-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340411	RWYX340411-D					E-34-4003	SPARE RACEWAY TO BLOWER 4 CAB340411	CC30A
~~CBLX340411-E~~	~~PULLROPE~~	~~PULLROPE~~	~~34 BLDG NORTH WALL~~	~~CAB340411~~	~~RWYX340411-E~~					~~E-34-4003~~	~~SPARE RACEWAY TO BLOWER 4 CAB340411 - (ADDENDUM 3)~~	~~CC30A~~
CBLP340423B-A	TCER	3#12, 1#12G	MCC349101B	DS340423B	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #4 AUX OIL PUMP DISCONNECT SWITCH	CC30A
CBLP340423B-A	TCER	3#12, 1#12G	MCC349101B	DS340423B	CTPR340014B	RWYP340423B-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLP340423-A	TCER	3#12, 1#12G	MCC349101B	DS340423	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #4 RESERVOIR HEATER DISCONNECT SWITCH	CC30A
CBLP340423-A	TCER	3#12, 1#12G	MCC349101B	DS340423	CTPR340014B	RWYP340423-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340423B-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340423B	RWYX340423B-A					E-34-4003	SPARE RACEWAY TO BLOWER #3 AUX OIL PUMP DS340423B	CC30A
CBLX340423-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340423B	RWYX340423-A					E-34-4003	SPARE RACEWAY TO HEATER DISCONNECT SWITCH DS340423	CC30A
CBLP340426-A	TCER	3#12, 1#12G	MCC349101B	DS340426	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #4 OIL-AIR COOLER DISCONNECT SWITCH	CC30A
CBLP340426-A	TCER	3#12, 1#12G	MCC349101B	DS340426	CTPR340014B	RWYP340426-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340426-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340426	RWYX340426-A					E-34-4003	SPARE RACEWAY TO OIL AIR COOLER DISCONNECT SWITCH DS340426	CC30A
CBLV340431-A	VENDOR	Special	CAB340411	PIT340431	RWYV340431-A					E-34-4003	VENDOR CABLE FOR BLOWER #4 PRESSURE TRANSMITTER PIT340431	CC30A
CBLV340431-B	VENDOR	Special	CAB340411	TIT340431	RWYV340431-B					E-34-4003	VENDOR CABLE FOR BLOWER #4 TEMPERATURE TRANSMITTER TIT340431	CC30A
CBLC340441-A	XHHW2	10#14, 1#14G	CAB340411	CS340441	RWYC340441-A					E-34-4003	CONTROL CABLE FROM BLOWER #4 CONTROL CABINET TO ACTUATOR CS340441 (ADDENDUM 3)	CC30A/REV A
CBLP340441-A	TCER	3#12, 1#12G	PNL349204	DS340441	RWYP340441-AA	CTPR340014B	RWYP340441-AB			E-34-4003	480V FEED TO AERATION BLOWER #4 FLOW VALVE DISCONNECT DS340441	CC30A
CBLP340441-B	XHHW2	3#12, 1#12G	DS340441	FV340441	RWYP340441-B					E-34-4003	480V FEED TO AERATION BLOWER #4 FLOW VALVE FV340441	CC30A
CBLS340441-A	INSM	4PR #16SH	CS340441	FV340441	RWYS340441-A					E-34-4003	SIGNAL CABLE TO FLOW VALVE ACTUATOR FV340441 - (ADDENDUM 3)	CC30A/REV A
CBLX340441-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340441	RWYX340441-A					E-34-4003	SPARE RACEWAY TO DS340441	CC30A
CBLC340451-A	XHHW2	10#14, 1#14G	CAB340411	CS340451	RWYC340451-A					E-34-4003	CONTROL CABLE FROM BLOWER #4 CONTROL CABINET TO ACTUATOR CS340451 - (ADDENDUM 3)	CC30A/REV A
CBLP340451-A	TCER	3#12, 1#12G	PNL349204	DS340451	RWYP340451-AA	CTPR340014B	RWYP340451-AB			E-34-4003	480V FEED TO AERATION BLOWER #4 FLOW VALVE DISCONNECT DS340451	CC30A
CBLP340451-B	XHHW2	3#12, 1#12G	DS340451	FV340451	RWYP340451-B					E-34-4003	480V FEED TO AERATION BLOWER #4 FLOW VALVE FV340451	CC30A
CBLS340451-A	INSM	4PR #16SH	CS340451	FV340451	RWYS340451-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340451 - (ADDENDUM 3)	CC30A/REV A
CBLX340451-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340451	RWYX340451-A					E-34-4003	SPARE RACEWAY TO DS340451	CC30A
CBLP340500-A	TCER	2#12, 1#12G	PNL349408	CAB340500	RWYP340500-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340500-AB	E-34-4003	120V FED TO BLOWER 5 STAGE 1 FILTER CONTROL CABINET	CC30A
CBLP340500-B	XHHW2	2#12, 1#12G	CAB340500	M340500	RWYP340500-B					E-34-4003	120V FED TO BLOWER 5 STAGE 1 FILTER	CC30A
CBLX340500-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340500	RWYX340500-A					E-34-4003	SPARE RACEWAY TO BLOWER 5 FLT CONTROL CABINER CAB340500	CC30A
CBLP340501-A	XHHW2	2#14, 1#14G	CAB340511	PDISH340501	RWYP340501-A					E-34-4003	24V POWER TO BLOWER #5 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340501	CC30A
CBLS340501-A	INS	1PR #16SH	CAB340511	PDISH340501	RWYS340501-A					E-34-4003	SIGNAL CABLE TO BLOWER #5 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340501	CC30A
~~CBLP340502-A~~	~~XHHW2~~	~~2#14, 1#14G~~	~~CAB340511~~	~~PDISH340502~~	~~RWYP340502-A~~					~~E-34-4003~~	~~24V POWER TO BLOWER #5 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340502 (ADDENDUM 3)~~	~~CC30A~~
~~CBLS340502-A~~	~~INS~~	~~1PR #16SH~~	~~CAB340511~~	~~PDISH340502~~	~~RWYS340502-A~~					~~E-34-4003~~	~~SIGNAL CABLE TO BLOWER #5 PRESSURE DIFFERENTIAL SWITCH HIGH PDISH340502 (ADDENDUM 3)~~	~~CC30A~~
CBLC340511-A	TCER	18#14, 1#14G	SWGR340133C	CAB340511	CTC340015A	CTC340013A	RWYC340511-A			E-34-4003	120V CONTROL FROM BLOWER #5 MOTOR STARTER TO BLOWER #5 CONTROL CABINET CAB340511	CC30A
CBLC340511-B	TCER	18#14, 1#14G	MCC349201	CAB340511	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM AUX OIL PUMP M340523B STARTER TO BLOWER #5 CONTROL CABINET CAB340511	CC30A
CBLC340511-B	TCER	18#14, 1#14G	MCC349201	CAB340511	CTC340014B	RWYC340511-B				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340511-C	TCER	18#14, 1#14G	MCC349201	CAB340511	CTC340008B	CTC340020B	CTC340004B	CTC340010B	CTC340016B	E-34-4003	120V CONTROL FROM OIL-AIR COOLER CHR340526 STARTER TO BLOWER #5 CONTROL CABINET CAB340511	CC30A
CBLC340511-C	TCER	18#14, 1#14G	MCC349201	CAB340511	CTC340014B	RWYC340511-C				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLC340511-D	TCER	18#14, 1#14G	MCC349201	CAB340511	CTC340009A	CTC340023A	CTC340021A	CTC340017A	CTC340013A	E-34-4003	120V CONTROL FROM RESERVOIR HEATER HTR340523 STARTER TO BLOWER #5 CONTROL CABINET CAB340511 - (ADDENDUM 3)	CC30A/REV A
CBLC340511-D	TCER	18#14, 1#14G	MCC349201	CAB340511	RWYC340511-D					E-34-4003	CONTINUED FROM LINE ABOVE - (ADDENDUM 3)	CC30A/REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC340511-E	TCER	2#14, 1#14G	SWGR340133C	CAB340511	CTC340015A	CTC340013A	RWYC340511-D			E-34-4003	120V E-STOP CONTROL FROM BLOWER # 5 MOTOR STARTER TO BLOWER #5 CONTROL CABINET CAB340511 - (ADDENDUM 3)	CC30A/REV A
CBLD340511-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340511	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1214	ETHERNET TO BLOWER 5 PLC **NETWORK SWTICH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD340511-A	NC2	1#U/FTP CAT6A	NCE340101	CAB340511	CTS340021A	CTS340017A	CTS340013A	RWYD340511-A		E-34-1214	CONTINUED FROM LINE ABOVE	CC30A
CBLD340511-B	NC2	1#U/FTP CAT6A	CAB340001	CAB340511	RWYD340001-A	CTS340013A	RWYD340511-B			E-34-1214	ETHERNET RING TO BLOWER 5 PLC	CC30A
CBLD340511-C	NC4	1#600V CAT6A	SWGR340133C	CAB340511	CTS340015A	CTS340013A	RWYD340511-A			E-34-4003	ETHERNET FROM RVSS340511 TO NET340511	CC30A
CBLH340511-A	MV105	3#2/0, 1#2/0G	SWGR340133C	M340511	CTH340014B	RWYH340511-A				E-34-4003	5 KV FEED TO AERATION BLOWER #5	CC30A
CBLP340511-A	TCER	2#10, 1#10G	PNL349408	CAB340511	RWYP340511-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340511-AB	E-34-4003	120V FEED TO AERATION BLOWER #5 CONTROL CABINET (CCF 015)	CC30A/REV A
CBLP340511-B	XHHW2	3#12, 1#12G	DS340523	TBXP340511	RYWP340511-B					E-34-4003	480V FEED TO BLOWER #5 POWER TERMINAL BOX TBXP340511 FOR RESERVOIR HEATER	CC30A
CBLP340511-C	XHHW2	3#12, 1#12G	DS340523B	TBXP340511	RYWP340511-C					E-34-4003	480V FEED TO BLOWER #5 POWER TERMINAL BOX TBXP340511 FOR AUX OIL PUMP	CC30A
CBLP340511-D	XHHW2	3#12, 1#12G	DS340526	TBXP340511	RYWP340511-D					E-34-4003	480V FEED TO BLOWER #5 POWER TERMINAL BOX TBXP340511 FOR OIL-AIR COOLER	CC30A
CBLV340511-A	VENDOR	Special	CAB340511	TBXP340511	RWYV340511-A					E-34-4003	VENDOR CABLE FROM BLOWER #5 CONTROL CABINET TO POWER TERMINAL BOX ON BLOWER SKID TBXP340511 - (ADDENDUM 3)	CC30A/REV A
CBLV340511-B	VENDOR	Special	CAB340511	TBXS340511	RWYV340511-B					E-34-4003	VENDOR CABLE FROM BLOWER #5 CONTROL CABINET TO SIGNAL TERMINAL BOX ON BLOWER SKID TBXS340511	CC30A
CBLX340511-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	M340511	RWYX340511-A					E-34-4003	SPARE RACEWAY TO AERATION BLOWER #5	CC30A
CBLX340511-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340511	RWYX340511-B					E-34-4003	SPARE RACEWAY TO BLOWER 5 CAB340511	CC30A
CBLX340511-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340511	RWYX340511-C					E-34-4003	SPARE RACEWAY TO BLOWER 5 CAB340511	CC30A
CBLX340511-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB340511	RWYX340511-D					E-34-4003	SPARE RACEWAY TO BLOWER 5 CAB340511	CC30A
~~CBLX340511-E~~	~~PULLROPE~~	~~PULLROPE~~	~~34 BLDG NORTH WALL~~	~~CAB340511~~	~~RWYX340511-E~~					~~E-34-4003~~	~~SPARE RACEWAY TO BLOWER 5 CAB340511 (ADDENDUM 3)~~	~~CC30A~~
CBLP340523B-A	TCER	3#12, 1#12G	MCC349201	DS340523B	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #5 AUX OIL PUMP DISCONNECT SWITCH DS340523B	CC30A
CBLP340523B-A	TCER	3#12, 1#12G	MCC349201	DS340523B	CTPR340014B	RWYP340523B-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLP340523-A	TCER	3#12, 1#12G	MCC349201	DS340523	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #5 RESERVOIR HEATER DISCONNECT SWITCH DS340523	CC30A
CBLP340523-A	TCER	3#12, 1#12G	MCC349201	DS340523	CTPR340014B	RWYP340523-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340523B-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340523B	RWYX340523B-A					E-34-4003	SPARE RACEWAY TO BLOWER #3 AUX OIL PUMP DS340523B -	CC30A
CBLX340523-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340523B	RWYX340523-A					E-34-4003	SPARE RACEWAY TO HEATER DISCONNECT SWITCH DS340523 -	CC30A
CBLP340526-A	TCER	3#12, 1#12G	MCC349201	DS340526	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO BLOWER #5 OIL-AIR COOLER DISCONNECT SWITCH DS340526	CC30A
CBLP340526-A	TCER	3#12, 1#12G	MCC349201	DS340526	CTPR340014B	RWYP340526-A				E-34-4003	CONTINUED FROM LINE ABOVE	CC30A
CBLX340526-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340526	RWYX340526-A					E-34-4003	SPARE RACEWAY TO OIL AIR COOLER DISCONNECT SWITCH DS340526	CC30A
CBLV340531-A	VENDOR	Special	CAB340511	PIT340531	RWYV340531-A					E-34-4003	VENDOR CABLE FOR BLOWER #5 PRESSURE TRANSMITTER PIT340531	CC30A
CBLV340531-B	VENDOR	Special	CAB340511	TIT340531	RWYV340531-B					E-34-4003	VENDOR CABLE FOR BLOWER #5 TEMPERATURE TRANSMITTER TIT340531	CC30A
CBLC340541-A	XHHW2	10#14, 1#14G	CAB340511	CS340541	RWYC340541-A					E-34-4003	CONTROL CABLE FROM BLOWER #5 CONTROL CABINET TO ACTUATOR CS340541 - (ADDENDUM 3)	CC30A/REV A
CBLP340541-A	TCER	3#12, 1#12G	MCC349201	DS340541	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO AERATION BLOWER #5 FLOW VALVE DISCONNECT DS340541	CC30A
CBLP340541-A	TCER	3#12, 1#12G	MCC349201	DS340541	CTPR340014B	RWYP340541-A				E-34-4003	CONTINUED FROM LINE ABOVE. FEED TO BLOWER #5 FV DISCONNECT DS340541	CC30A
CBLP340541-B	XHHW2	3#12, 1#12G	DS340541	FV340541	RWYP340541-B					E-34-4003	480V FEED TO AERATION BLOWER #5 FLOW VALVE FV340541	CC30A
CBLS340541-A	INSM	4PR #16SH	CS340541	FV340541	RWYS340541-A					E-34-4003	SIGNAL CABLE TO FLOW VALVE ACTUATOR FV340541 - (ADDENDUM 3)	CC30A/REV A
CBLX340541-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340541	RWYX340541-A					E-34-4003	SPARE RACEWAY TO DS340541	CC30A
CBLC340551-A	XHHW2	10#14, 1#14G	CAB340511	CS340551	RWYC340551-A					E-34-4003	CONTROL CABLE FROM BLOWER #5 CONTROL CABINET TO ACTUATOR CS340551 - (ADDENDUM 3)	CC30A/REV A
CBLP340551-A	TCER	3#12, 1#12G	MCC349201	DS340551	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-4003	480V FEED TO AERATION BLOWER #5 FLOW VALVE DISCONNECT DS340551	CC30A
CBLP340551-A	TCER	3#12, 1#12G	MCC349201	DS340551	CTPR340014B	RWYP340551-A				E-34-4003	CONTINUED FROM LINE ABOVE. FEED TO BLOWER #5 FV DISCONNECT DS340551	CC30A
CBLP340551-B	XHHW2	3#12, 1#12G	DS340551	FV340551	RWYP340551-B					E-34-4003	480V FEED TO AERATION BLOWER #5 FLOW VALVE FV340551	CC30A
CBLS340551-A	INSM	4PR #16SH	CS340551	FV340551	RWYS340551-A					E-34-4003	SIGNAL CABLE TO ACTUATOR FV340551 - (ADDENDUM 3)	CC30A/REV A
CBLX340551-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	DS340551	RWYX340551-A					E-34-4003	SPARE RACEWAY TO DS340551	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP341001-A	TCER	2#12, 1#12G	PNL349305	HH341001	CTPR340014B	RWYP341001-L	HH341001				HANDHOLE HH341001 SUMP PUMP RECEPTACLE. CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULE	CC30A
CBLS341001-A	INS	1PR #16SH	CAB340001	PIT341001	RWYS340001-A	CTS340013A	RWYS341001-AA			E-34-1223	SIGNAL TO AERATION ZONE 1 PRESSURE TRANSMITTER	CC30A
CBLC341011-A	TCER	8#14, 1#14G	CAB340001	CAB341011	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1102	CONTROL TO COMPRESSOR #1 CONTROL CABINET CAB341011	CC30A
CBLC341011-A	TCER	8#14, 1#14G	CAB340001	CAB341011	CTC340025A	CTC340005A	RWYC341011-A			E-34-1102	CONTINUED FROM LINE ABOVE	CC30A
CBLD341011-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341011	RWYD340001-C	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1202	ETHERNET TO COMPRESSOR #1 CONTROL CABINET CAB341011	CC30A
CBLD341011-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341011	CTS340025A	CTS340005A	RWYD341011-A			E-34-1202	CONTINUED FROM LINE ABOVE	CC30A
CBLD341011-B	NC1	1#U/UTP CAT6A	CAB341011	CAB341012	RWYD341011-B					E-34-1202	ETHERNET BETWEEN COMPRESSOR #1 AND #2 CONTROL CABINET	CC30A
CBLP341011-A	TCER	3#4/0, 1#4G	MCC349101A	CAB341011	RWYP341011-A					E-34-1102	480V FEED TO COMPRESSOR #1 CONTROL CABINET CAB341011	CC30A
CBLP341011-B	TCER	2#12, 1#12G	PNL349305	HH341011	CTPR340014B	RWYP341011-B	HH341011				HANDHOLE HH341011 SUMP PUMP RECEPTACLE. CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULE	CC30A
CBLC341012-A	TCER	8#14, 1#14G	CAB340001	CAB341012	RWYC340001-B	CTC340014B	CTC340016B	CTC340010B	CTC340004B	E-34-1102	CONTROL TO COMPRESSOR #2 CONTROL CABINET CAB341012	CC30A
CBLC341012-A	TCER	8#14, 1#14G	CAB340001	CAB341012	CTC340020B	CTC340022B	CTC340024B	RWYC341012-A		E-34-1102	CONTINUED FROM LINE ABOVE	CC30A
CBLD341012-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341012	RWYD340001-B	CTS340014B	CTS340016B	CTS340010B	CTS340004B	E-34-1202	ETHERNET TO COMPRESSOR #2 CONTROL CABINET CAB341012	CC30A
CBLD341012-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341012	CTS340020B	CTS340022B	CTS340024B	RWYD341012-A		E-34-1202	CONTINUED FROM LINE ABOVE	CC30A
CBLD341012-B	NC1	1#U/UTP CAT6A	CAB341012	CAB341013	RWYD341012-B					E-34-1202	ETHERNET BETWEEN COMPRESSOR #2 AND #3 CONTROL CABINET	CC30A
CBLP341012-A	TCER	3#4/0, 1#4G	MCC349101B	CAB341012	RWYP341012-A					E-34-1102	480V FEED TO COMPRESSOR #2 CONTROL CABINET CAB341012	CC30A
CBLC341013-A	TCER	8#14, 1#14G	CAB340001	CAB341013	RWYC340001-C	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1102	CONTROL TO COMPRESSOR #3 CONTROL CABINET CAB341013	CC30A
CBLC341013-A	TCER	8#14, 1#14G	CAB340001	CAB341013	CTC340025A	CTC340005A	RWYC341013-A			E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLD341013-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341013	RWYD340001-C	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1202	ETHERNET TO COMPRESSOR #3 CONTROL CABINET CAB341013	CC30A
CBLD341013-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341013	CTS340025A	CTS340005A	RWYD341013-A			E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLP341013-A	TCER	3#4/0, 1#4G	MCC349101A	CAB341013	RWYP341013-A					E-34-1102	480V FEED TO COMPRESSOR #3 CONTROL CABINET CAB341013	CC30A
CBLX341014-A	PULLROPE	PULLROPE	MCC349101B	CAB341014	RWYX341014-A					E-34-1102	FUTURE 480V FEED TO RELOCATED COMPRESSOR	CC30A
CBLP341022-A	TCER	2#12, 1#12G	PNL349304	MME341022	RWYP341022-AA	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340023A	E-34-1102	120V POWER TO DRIP TRAP MME341022	CC30A
CBLP341022-A	TCER	2#12, 1#12G	PNL349304	MME341022	CTPR340025A	CTPR340005A	CTPR340003A	RWYP341022-AB		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLS341030-A	INS	1PR #16SH	CAB340001	PIT341030	RWYS340001-A	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1202	SIGNAL FROM PLC TO PIT FOR WET AIR RECEIVERS	CC30A
CBLS341030-A	INS	1PR #16SH	CAB340001	PIT341030	CTS340025A	CTS340005A	CTS340003A	RWYS341030-A		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLP341031-A	TCER	2#12, 1#12G	PNL349304	MME341031	RWYP341031-AA	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340023A	E-34-1102	120V POWER TO DRIP TRAP #1 MME341031	CC30A
CBLP341031-A	TCER	2#12, 1#12G	PNL349304	MME341031	CTPR340025A	CTPR340005A	CTPR340003A	RWYP341031-AB		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLP341032-A	TCER	2#12, 1#12G	PNL349305	MME341032	RWYP341032-AA	CTPR340014B	CTPR340016B	CTPR340010B	CTPR340004B	E-34-1102	120V POWER TO DRIP TRAP #2 MME341032	CC30A
CBLP341032-A	TCER	2#12, 1#12G	PNL349305	MME341032	RWYP341032-AB					E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLC341050-A	TCER	2#14, 1#14G	CAB340001	CAB341050	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1102	CONTROL CABLE FROM PLC TO SERVICE AIR DRYER CONTROL CABINET CAB341050	CC30A
CBLC341050-A	TCER	2#14, 1#14G	CAB340001	CAB341050	CTC340025A	CTC340005A	CTC340003A	RWYC341050-A		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLD341050-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341050	RWYD340001-C	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1102	DATA TO SERVICE AIR DRYER CAB341050	CC30A
CBLD341050-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341050	CTS340025A	CTS340005A	CTS340003A	RWYD341050-A		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLP341050-A	TCER	3#8, 1#10G	MCC349201	CAB341050	CTPR340009A	CTPR340025A	CTPR340005A	CTPR340003A	RWYP341050-A	E-34-1102	480V FEED TO SERVICE AIR DRYER VENDOR CONTROL CABINET CAB341050	CC30A
CBLC341060-A	TCER	2#14, 1#14G	CAB340001	CAB341060	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1102	CONTROL CABLE FROM PLC TO SERVICE AIR DRYER CONTROL CABINET CAB341060	CC30A
CBLC341060-A	TCER	2#14, 1#14G	CAB340001	CAB341060	CTC340025A	CTC340005A	CTC340003A	RWYC341060-A		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLD341060-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341060	RWYD340001-C	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1102	DATA TO SERVICE AIR DRYER CAB341060	CC30A
CBLD341060-A	NC2	1#U/FTP CAT6A	CAB340001	CAB341060	CTS340025A	CTS340005A	CTS340003A	RWYD341060-A		E-34-1102	CONTINUED FROM LINE ABOVE (ADDENDUM 3)	CC30A / REV. A
CBLP341060-A	TCER	3#8, 1#10G	MCC349201	CAB341060	CTPR340009A	CTPR340025A	CTPR340005A	CTPR340003A	RWYP34100-A	E-34-1102	480V FEED TO SERVICE AIR DRYER VENDOR CONTROL CABINET CAB341060	CC30A
CBLS341071-A	INS	1PR #16SH	CAB340001	FIT341071	RWYS340001-A	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1202		CC30A
CBLS341071-A	INS	1PR #16SH	CAB340001	FIT341071	CTS340025A	CTS340005A	CTS340003A	RWYS341071-A		E-34-1202	CONTINUED FROM LINE ABOVE.	CC30A
CBLS341071-B	INS	1PR #16SH	FIT341071	FE341071	RWYS341071-B					E-34-1202		CC30A
CBLP346001-A	TCER	3#4, 1#8G	PNL349204	WRCP346001	RWYP346001-AA	CTPR340014B	RWYP346001-AB			E-34-1113	480V FEED TO BLOWER ROOM WELDING RECEPTACLE	CC30A
CBLX346001-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	WRCP346001	RWYX346001-A					E-34-1113	SPARE RACEWAY TO BLOWER ROOM WELDING RECEPTACLE	CC30A
CBLD347103A-A	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103A	RWYD347103A-A					E-34-1212	ETHERNET TO ARC FLASH ROOM SCADA WORKSTATION	CC30A
CBLD347103A-B	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103A	RWYD347103A-A					E-34-1212	ETHERNET TO ARC FLASH ROOM SCADA WORKSTATION	CC30A
CBLD347103B-A	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103B	RWYD347103B-A					E-34-1212	ETHERNET TO ARC FLASH ROOM EMS WORKSTATION	CC30A
CBLD347103B-B	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103B	RWYD347103B-A					E-34-1212	ETHERNET TO ARC FLASH ROOM EMS WORKSTATION	CC30A
CBLD347103C-A	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103C	RWYD347103C-A					E-34-1212	ETHERNET TO ARC FLASH ROOM NORTH	CC30A
CBLD347103C-B	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103C	RWYD347103C-A					E-34-1212	ETHERNET TO ARC FLASH ROOM NORTH	CC30A
CBLD347103D-A	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103D	RWYD347103D-A					E-34-1212	ETHERNET TO ARC FLASH ROOM SOUTH	CC30A
CBLD347103D-B	NC2	1#U/FTP CAT6A	NCE340102	DRCP347103D	RWYD347103D-A					E-34-1212	ETHERNET TO ARC FLASH ROOM SOUTH	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD347113A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	RWYD347113A-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113A	RWYD347113A-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	RWYD347113B-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113B	RWYD347113B-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	RWYD347113C-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113C	RWYD347113C-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	RWYD347113D-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO FRONT DESK IN ROOM BB113	CC30A
CBLD347113D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347113D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347113D	RWYD347113D-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	RWYD347114A-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114A-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114A	RWYD347114A-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114B-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	RWYD347114B-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114B-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114B	RWYD347114B-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114C-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	RWYD347114C-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114C-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114C	RWYD347114C-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114D-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	RWYD347114D-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	RWYD340101-C	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ETHERNET TO OFFICE BB114	CC30A
CBLD347114D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347114D-B	NC2	1#U/FTP CAT6A	NCE340101	DRCP347114D	RWYD347114D-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347201A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347201A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201A-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347201A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201A-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347201B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201B-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347201B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201B-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347201C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201C-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347201C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201C-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347201D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201D-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347201D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347201D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347201D-A	E-34-1221	ETHERNET TO OFFICE 201	CC30A
CBLD347202A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347202A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202A-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347202A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202A-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347202B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202B-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347202B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202B-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347202C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202C-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347202C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202C-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347202D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202D-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347202D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347202D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347202D-A	E-34-1221	ETHERNET TO OFFICE 202	CC30A
CBLD347203A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347203A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203A-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347203A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203A-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347203B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203B-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347203B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203B-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347203C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203C-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347203C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203C-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347203D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203D-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347203D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347203D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347203D-A	E-34-1221	ETHERNET TO OFFICE 203	CC30A
CBLD347204A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347204A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204A-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347204A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204A-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347204B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204B-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347204B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204B-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347204C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204C-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347204C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204C-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347204D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204D-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347204D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347204D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347204D-A	E-34-1221	ETHERNET TO OFFICE 204	CC30A
CBLD347205A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347205A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205A-A	E-34-1222	ETHERNET TO OFFICE 205	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD347205A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347205A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205A-A	E-34-1222	ETHERNET TO OFFICE 205	CC30A
CBLD347205B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347205B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205B-A	E-34-1221	ETHERNET TO OFFICE 205	CC30A
CBLD347205B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347205B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205B-A	E-34-1221	ETHERNET TO OFFICE 205	CC30A
CBLD347205C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347205C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205C-A	E-34-1222	ETHERNET TO OFFICE 205	CC30A
CBLD347205C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347205C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205C-A	E-34-1222	ETHERNET TO OFFICE 205	CC30A
CBLD347205D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347205D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205D-A	E-34-1221	ETHERNET TO OFFICE 205	CC30A
CBLD347205D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347205D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347205D-A	E-34-1221	ETHERNET TO OFFICE 205	CC30A
CBLD347207A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347207A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347207A-A	E-34-1221	ETHERNET TO SAFETY EQUIPMENT ROOM 207	CC30A
CBLD347207A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347207A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347207A-A	E-34-1221	ETHERNET TO SAFETY EQUIPMENT ROOM 207	CC30A
CBLD347207B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347207B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347207B-A	E-34-1221	ETHERNET TO SAFETY EQUIPMENT ROOM 207	CC30A
CBLD347207B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347207B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347207B-A	E-34-1221	ETHERNET TO SAFETY EQUIPMENT ROOM 207	CC30A
CBLD347208A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347208A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208A-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347208A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208A-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347208B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208B-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347208B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208B-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347208C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208C-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347208C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208C-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347208D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208D-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347208D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347208D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347208D-A	E-34-1221	ETHERNET TO SAFETY OFFICE 208	CC30A
CBLD347209A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347209A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209A-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347209A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209A-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347209B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209B-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347209B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209B-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347209C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209C-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347209C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209C-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347209D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209D-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347209D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347209D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347209D-A	E-34-1221	ETHERNET TO OFFICE 209	CC30A
CBLD347210A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347210A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210A-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347210A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210A-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347210B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210B-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347210B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210B-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347210C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210C-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347210C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210C-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347210D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210D-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347210D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347210D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347210D-A	E-34-1221	ETHERNET TO OFFICE 210	CC30A
CBLD347211A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347211A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211A-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347211A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211A-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347211B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211B-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347211B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211B-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347211C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211C-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347211C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211C-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347211D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211D-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347211D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347211D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347211D-A	E-34-1221	ETHERNET TO OFFICE 211	CC30A
CBLD347212A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347212A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212A-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347212A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212A-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347212B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212B-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347212B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212B-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347212C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212C-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347212C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212C-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347212D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212D-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347212D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347212D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347212D-A	E-34-1221	ETHERNET TO OFFICE 212	CC30A
CBLD347213A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347213A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213A-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347213A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213A-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213A-C	NC1	1#U/UTP CAT6A	NCR340021	DRCP347213A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213A-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213A-D	NC1	1#U/UTP CAT6A	NCR340021	DRCP347213A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213A-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347213B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213B-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213 CEILING JACK	CC30A
CBLD347213C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347213C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213C-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347213C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213C-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213	CC30A
CBLD347213D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347213D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347213D-A	E-34-1222	ETHERNET TO CONFERENCE ROOM 213 CEILING JACK	CC30A
CBLD347214A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347214A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214A-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347214A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214A-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347214B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214B-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347214B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214B-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347214C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214C-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347214C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214C-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347214D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214D-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347214D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347214D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347214D-A	E-34-1222	ETHERNET TO OFFICE 214	CC30A
CBLD347215A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347215A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215A-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347215A	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215A-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347215B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215B-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347215B	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215B-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347215C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215C-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347215C	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215C-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347215D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215D-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347215D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347215D	CTS340202	CTS340206	CTS340203	CTS340204	RWYD347215D-A	E-34-1222	ETHERNET TO OFFICE 215	CC30A
CBLD347217A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217A-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217A-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217A-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347217A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217A-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217A-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347217A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217A-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD347217B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217B-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217B-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217B-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347217B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217B-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217B-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347217B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217B-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217C-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217C-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217C-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217C-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217D-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217D-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347217D-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347217D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347217D-A	E-34-1222	ETHERNET TO IT OFFICE 217	CC30A
CBLD347218A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218A-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218A-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218A-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347218A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218A-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218A-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347218A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218A-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218B-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218B-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218B-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347218B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218B-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218B-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347218B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218B-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218C-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218C-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218C-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218C-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218D-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218D-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347218D-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347218D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347218D-A	E-34-1222	ETHERNET TO IT OFFICE 218	CC30A
CBLD347219A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219A-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219A-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219A-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347219A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219A-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219A-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347219A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219A-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219B-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219B-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219B-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347219B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219B-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219B-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347219B	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219B-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219C-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219C-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219C-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219C	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219C-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219D-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219D-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347219D-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347219D	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347219D-A	E-34-1222	ETHERNET TO IT OFFICE 219	CC30A
CBLD347220A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347220A	CTS340202	CTS340206	CTS340203	RWYD347220A-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347220A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347220A	CTS340202	CTS340206	CTS340203	RWYD347220A-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347220A-C	NC1	1#U/UTP CAT6A	NCR340021	DRCP347220A	CTS340202	CTS340206	CTS340203	RWYD347220A-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347220A-D	NC1	1#U/UTP CAT6A	NCR340021	DRCP347220A	CTS340202	CTS340206	CTS340203	RWYD347220A-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347220B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347220B	CTS340202	CTS340206	CTS340203	RWYD347220B-A		E-34-1222	ETHERNET TO TRAINING ROOM 2 CEILING JACK	CC30A
CBLD347220C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347220C	CTS340202	CTS340206	CTS340203	RWYD347220C-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347220C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347220C	CTS340202	CTS340206	CTS340203	RWYD347220C-A		E-34-1222	ETHERNET TO TRAINING ROOM 2	CC30A
CBLD347221A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347221A	CTS340202	CTS340206	CTS340203	RWYD347221A-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347221A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347221A	CTS340202	CTS340206	CTS340203	RWYD347221A-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347221A-C	NC1	1#U/UTP CAT6A	NCR340021	DRCP347221A	CTS340202	CTS340206	CTS340203	RWYD347221A-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347221A-D	NC1	1#U/UTP CAT6A	NCR340021	DRCP347221A	CTS340202	CTS340206	CTS340203	RWYD347221A-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347221B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347221B	CTS340202	CTS340206	CTS340203	RWYD347221B-A		E-34-1222	ETHERNET TO TRAINING ROOM 1 CEILING JACK	CC30A
CBLD347221C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347221C	CTS340202	CTS340206	CTS340203	RWYD347221C-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347221C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347221C	CTS340202	CTS340206	CTS340203	RWYD347221C-A		E-34-1222	ETHERNET TO TRAINING ROOM 1	CC30A
CBLD347222A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222A	CTS340202	CTS340206	CTS340203	RWYD347222A-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222A	CTS340202	CTS340206	CTS340203	RWYD347222A-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222B	CTS340202	CTS340206	CTS340203	RWYD347222B-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222B	CTS340202	CTS340206	CTS340203	RWYD347222B-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222C-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222C	CTS340202	CTS340206	CTS340203	RWYD347222C-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222C-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222C	CTS340202	CTS340206	CTS340203	RWYD347222C-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222D-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222D	CTS340202	CTS340206	CTS340203	RWYD347222D-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347222D-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347222D	CTS340202	CTS340206	CTS340203	RWYD347222D-A		E-34-1222	ETHERNET TO STORAGE ROOM 222	CC30A
CBLD347225A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347225A	CTS340202	CTS340206	CTS340203	RWYD347225A-A		E-34-1222	ETHERNET TO 2ND FLOOR PRINTER AREA	CC30A
CBLD347225A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347225A	CTS340202	CTS340206	CTS340203	RWYD347225A-A		E-34-1222	ETHERNET TO 2ND FLOOR PRINTER AREA	CC30A
CBLD347225B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347225B	CTS340202	CTS340206	CTS340203	RWYD347225B-A		E-34-1222	ETHERNET TO 2ND FLOOR PRINTER AREA	CC30A
CBLD347225B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347225B	CTS340202	CTS340206	CTS340203	RWYD347225B-A		E-34-1222	ETHERNET TO 2ND FLOOR PRINTER AREA	CC30A
CBLD347226A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226A	CTS340202	CTS340206	CTS340207	RWYD347226A-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226A	CTS340202	CTS340206	CTS340207	RWYD347226A-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226A-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226A	CTS340202	CTS340206	CTS340207	RWYD347226A-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226A-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226A	CTS340202	CTS340206	CTS340207	RWYD347226A-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226B	CTS340202	CTS340206	CTS340207	RWYD347226B-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226B	CTS340202	CTS340206	CTS340207	RWYD347226B-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226B-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226B	CTS340202	CTS340206	CTS340207	RWYD347226B-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226B-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226B	CTS340202	CTS340206	CTS340207	RWYD347226B-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226C-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226C	CTS340202	CTS340206	CTS340207	RWYD347226C-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226C-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226C	CTS340202	CTS340206	CTS340207	RWYD347226C-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226C-C	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226C	CTS340202	CTS340206	CTS340207	RWYD347226C-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226C-D	NC1	1#U/UTP CAT6A	NCR340011	DRCP347226C	CTS340202	CTS340206	CTS340207	RWYD347226C-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226D-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226D	CTS340202	CTS340206	CTS340207	RWYD347226D-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226D-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226D	CTS340202	CTS340206	CTS340207	RWYD347226D-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226E-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226E	CTS340202	CTS340206	CTS340207	RWYD347226E-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226E-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226E	CTS340202	CTS340206	CTS340207	RWYD347226E-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226F-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226F	CTS340202	CTS340206	CTS340207	RWYD347226F-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347226F-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347226F	CTS340202	CTS340206	CTS340207	RWYD347226F-A		E-34-1223	ETHERNET TO IT OFFICE/WORKSHOP	CC30A
CBLD347231A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347231A	CTS340202	CTS340201	RWYD347231A-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347231A	CTS340202	CTS340201	RWYD347231A-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347231B	CTS340202	CTS340201	RWYD347231B-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347231B	CTS340202	CTS340201	RWYD347231B-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347231C	CTS340202	CTS340201	RWYD347231C-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD347231C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347231C	CTS340202	CTS340201	RWYD347231C-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347231D	CTS340202	CTS340201	RWYD347231D-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347231D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347231D	CTS340202	CTS340201	RWYD347231D-A			E-34-1223	ETHERNET TO OFFICE 231	CC30A
CBLD347232A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347232A	CTS340202	CTS340201	RWYD347232A-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232A-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347232A	CTS340202	CTS340201	RWYD347232A-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232B-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347232B	CTS340202	CTS340201	RWYD347232B-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232B-B	NC1	1#U/UTP CAT6A	NCR340021	DRCP347232B	CTS340202	CTS340201	RWYD347232B-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232C-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347232C	CTS340202	CTS340201	RWYD347232C-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232C-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347232C	CTS340202	CTS340201	RWYD347232C-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232D-A	NC1	1#U/UTP CAT6A	NCR340011	DRCP347232D	CTS340202	CTS340201	RWYD347232D-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347232D-B	NC1	1#U/UTP CAT6A	NCR340011	DRCP347232D	CTS340202	CTS340201	RWYD347232D-A			E-34-1223	ETHERNET TO OFFICE 232	CC30A
CBLD347801-A	VENDOR	Special	DRCP347801A	WAP347801	RWYP347801-A					E-34-1202	VENDOR CABLE TO BASEMENT WAP	CC30A
CBLD347801A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347801A	RWYD340101-D	CTS340020B	CTS340004B	CTS340010B	RWYD347801A-A	E-34-1202	BASEMENT WIRELESS ACESS POINT DATA JACK	CC30A
CBLD347802-A	VENDOR	Special	DRCP347802A	WAP347802	RWYD347802-A					E-34-1212	VENDOR CABLE TO ELECTRICAL RM WAP	CC30A
CBLD347802A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347802A	RWYD340101-D	CTS340020B	CTS340004B	CTS340010B	RWYD347802A-A	E-34-1212	ELECTRICAL ROOM WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347803-A	VENDOR	Special	DRCP347803A	WAP347803	RWYD347803-A					E-34-1213	VENDOR CABLE TO WAREHOUSE SOUTH-END WAP	CC30A
CBLD347803A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347803A	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	PARTS WAREHOUSE SOUTH-END WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347803A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347803A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347803A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347803A	RWYD347803A-A					E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347804-A	VENDOR	Special	DRCP347804A	WAP347804	RWYD347804-A					E-34-1214	VENDOR CABLE TO WAREHOUSE NORTH WAP	CC30A
CBLD347804A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347804A	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1214	PARTS WAREHOUSE NORTH-END WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347804A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347804A	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A	JBX340003	E-34-1214	CONTINUED FROM LINE ABOVE	CC30A
CBLD347804A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347804A	RWYD347804A-A					E-34-1214	CONTINUED FROM LINE ABOVE	CC30A
CBLD347805-A	VENDOR	Special	DRCP347805A	WAP347805	RWYD347805-A					E-34-1214	VENDOR CABLE TO BLOWER ROOM WAP	CC30A
CBLD347805A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347805A	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1214	BLOWER ROOM WIRELESS ACESS POINT DATA JACK	CC30A
CBLD347805A-A	NC2	1#U/FTP CAT6A	NCE340101	DRCP347805A	CTS340021A	CTS340017A	CTS340013A	RWYD347805A-A		E-34-1214	CONTINUED FROM LINE ABOVE	CC30A
CBLD347806-A	VENDOR	Special	DRCP347806A	WAP347806	RWYD347806-A					E-34-1221	VENDOR CABLE TO 2ND LEVEL SOUTH HALL WAP	CC30A
CBLD347806A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347806A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347806A-A	E-34-1221	SECOND LEVEL SOUTH HALLWAY WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347807-A	VENDOR	Special	DRCP347807A	WAP347807	RWYD347807-A					E-34-1222	VENDOR CABLE TO TRAINING ROOM WAP	CC30A
CBLD347807A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347807A	CTS340202	CTS340206	CTS340203	CTS340205	RWYD347807A-A	E-34-1222	SECOND LEVEL TRAINING ROOM 2 WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347808-A	VENDOR	Special	DRCP347808A	WAP347808	RWYD347808-A					E-34-1222	VENDOR CABLE TO 2ND LEVEL NORTHEAST HALL WAP	CC30A
CBLD347808A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347808A	CTS340202	CTS340206	CTS340203	RWYD347808A-A		E-34-1222	SECOND LEVEL NORTHEAST HALLWAY WIRELESS ACCESS POINT DATA JACK	CC30A
CBLD347809-A	VENDOR	Special	DRCP347809A	WAP347809	RWYD347809-A					E-34-1222	VENDOR CABLE 2ND LEVEL NORTHWEST HALL WAP	CC30A
CBLD347809A-A	NC1	1#U/UTP CAT6A	NCR340021	DRCP347809A	CTS340202	CTS340206	CTS340203	RWYD347809A-A		E-34-1222	SECOND LEVEL NORTHWEST HALLWAY WIRELESS ACCESS POINT DATA JACK	CC30A
CBLP347850-A	TCER	2#12, 1#12G	PNL349306	PAC347850	RWYP347850-AA	CTPR340018B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V POWER FEED TO PAC FOR PA SYSTEM	CC30A
CBLP347850-A	TCER	2#12, 1#12G	PNL349306	PAC347850	CTPR340024B	RWYP347850-AB				E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLD347901-A	NC2	1#U/FTP CAT6A	NCE340101	CAB347901	RWYD347901-A					E-34-1212	ACCESS CONTROL PANEL ELECTRICAL ROOM	CC30A
CBLD347901-B	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347901-C	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347901-D	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347901-E	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347901-F	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347901-G	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347901**	**RWYD347901-A**					**E-34-1212**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLP347901-A	TCER	2#12, 1#12G	PNL349302B	CAB347901	RWYP347901-AA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP347901-AB	E-34-1112	POWER TO ACCESS CONTROL PANEL ELECTRICAL ROOM (CCF 015)	CC30A/REV A
CBLD347902-A	NC2	1#U/FTP CAT6A	NCE340101	CAB347902	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	ACCESS CONTROL PANEL PARTS WAREHOUSE	CC30A
CBLD347902-A	NC2	1#U/FTP CAT6A	NCE340101	CAB347902	CTS340021A	CTS340017A	CTS340013A	RWYD347902-A		E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLD347902-B	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-34-1213**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347902-B	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYD347902-A**		**E-34-1213**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD347902-C	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-34-1213**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347902-C	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYD347902-A**		**E-34-1213**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD347902-D	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-34-1213**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347902-D	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYD347902-A**		**E-34-1213**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD347902-E	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-34-1213**	**ETHERNET FOR OUTDOOR CAMERAS (CCF 020 CHANGE ORDER PENDING**	**CC30A**
CBLD347902-E	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB347902**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYD347902-A**		**E-34-1213**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP347902-A	TCER	2#12, 1#12G	PNL349302B	CAB347902	RWYP347902-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP347902-AB	E-34-1113	POWER TO ACCESS CONTROL PANEL PARTS WAREHOUSE (CCF 015)	CC30A/REV A
CBLX347902-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-A					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLX347902-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-B					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLX347902-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-C					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLX347902-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-D					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLX347902-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-E					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLX347902-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	CAB347902	RWYX347902-F					E-34-1213	SPARE CONDUIT FROM BASEMENT TO PARTS WAREHOUSE (CCF 008)	CC30A/REV 1
CBLD347903-A	NC1	1#U/UTP CAT6A	NCR340021	CAB347903	CTS340202	CTS340206	RWYD347903-A			E-34-1223	SECOND LEVEL ACCESS CONTROL PANEL	CC30A
CBLD347903-B	**NC1**	**1#U/UTP CAT6A**	**NCR340021**	**CAB347903**	**CTS340202**	**CTS340206**	**RWYD347903-A**			**E-34-1223**	**SECOND LEVEL ACCESS CONTROL PANEL. OUTDOOR CAMERA (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLP347903-A	TCER	2#12, 1#12G	PNL349302B	CAB347903	RWYP347903-AA	CTPR340010B	CTPR340004B	CTPR340002B	RWYP347903-AB	E-34-1123	POWER TO SECOND LEVEL ACCESS CONTROL PANEL ELECTRICAL ROOM (CCF 015)	CC30A/REV A
CBLP347903-A	TCER	2#12, 1#12G	PNL349302B	CAB347903	CTPR340201	RWYP347903-AC				E-34-1123	POWER TO SECOND LEVEL ACCESS CONTROL PANEL ELECTRICAL ROOM (CCF 015)	CC30A/REV A
CBLX347950A-A	PULLROPE	PULLROPE	NCE340101	PBX347950A	RWYD340101-A	CTS340003A	CTS340001A	RWYX347950A-A		E-34-1211	SPARE RACEWAY TO CAMERA PULLBOX NEAR MV SWITCHGEAR MV134A AND MV134B	CC30A
CBLX347950B-A	PULLROPE	PULLROPE	NCE340101	PBX347950B	RWYD340101-A	CTS340003A	CTS340001A	RWYX347950B-A		E-34-1211	SPARE RACEWAY TO CAMERA PULLBOX NEAR MV SWITCHGEAR MV134A AND MV134B	CC30A
CBLX347950C-A	PULLROPE	PULLROPE	NCE340101	PBX347950C	RWYD340101-A	CTS340003A	CTS340001A	RWYX347950C-A		E-34-1211	SPARE RACEWAY TO CAMERA PULLBOX NEAR MV SWITCHGEAR MV134A AND MV134B	CC30A
CBLX347956-A	PULLROPE	PULLROPE	NCR340021	PBX347956	CTS340202	CTS340206	RWYX347956-A			E-34-1223	SPARE RACEWAY TO CAMERA PULLBOX IN IT EQUIPMENT/STORAGE ROOM	CC30A
CBLX347957-A	PULLROPE	PULLROPE	**CAB347901**	PBX347957	**RWYD347901-B**	CTS340003A	CTS340001A	RWYX347957-A		E-34-1231	SPARE RACEWAY TO CAMERA PULLBOX - SOUTHEAST CORNER **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347958-A	PULLROPE	PULLROPE	**CAB347901**	PBX347958	**RWYD347901-C**	CTS340020B	CTS340004B	CTS340002B	RWYX347958-A	E-34-1231	SPARE RACEWAY TO CAMERA PULLBOX - SOUTHWEST CORNER **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347959-A	PULLROPE	PULLROPE	**CAB347903**	PBX347959	**RWYD347903-B**	CTS340203	CTS340205	RWYX347959-A		E-34-1222	SPARE RACEWAY TO CAMERA PULLBOX ON PATIO CORNER **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347960-A	PULLROPE	PULLROPE	**CAB347902**	PBX347960	**RWYX347960-A**					E-34-1213	SPARE RACEWAY TO CAMERA DATA JACK - NORTHEAST CORNER **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347961-A	PULLROPE	PULLROPE	**CAB347902**	PBX347961	**RWYX347961-A**					E-34-1213	SPARE RACEWAY TO CAMERA PULLBOX - NORTHWEST CORNER **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347962-A	PULLROPE	PULLROPE	**CAB347901**	PBX347962	**RWYD347901-C**	CTS340020B	CTS340004B	CTS340010B	RWYX347962-A	E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX WEST WALL **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347963-A	PULLROPE	PULLROPE	**CAB347902**	PBX347963	**RWYX347963-A**					E-34-1213	SPARE RACEWAY TO CAMERA PULLBOX NORTHEAST WALL **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347964-A	PULLROPE	PULLROPE	**CAB347901**	PBX347964	**RWYD347901-B**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX EAST WALL **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347964-A	PULLROPE	PULLROPE	**CAB347901**	PBX347964	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYX347964-A**		E-34-1212	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347965-A	PULLROPE	PULLROPE	**CAB347901**	PBX347965	**RWYD347901-B**	CTS340003A	RWYX347965-A			E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX SOUTHEAST WALL **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347970-A	PULLROPE	PULLROPE	NCE340101	PBX347970	RWYD340101-B	CTS340020B	CTS340004B	CTS340002B	RWYX347970-A	E-34-1211	SPARE RACEWAY TO CAMERA PULLBOX IN SOUTH WEST STAIRWAY ENTRANCE	CC30A
CBLX347972-A	PULLROPE	PULLROPE	**CAB347902**	PBX347972	**RWYX347972-A**					E-34-1213	SPARE RACEWAY TO CAMERA PULLBOX ON WEST WALL **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347973A-A	PULLROPE	PULLROPE	NCE340101	PBX347973A	RWYX347973A-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133A	CC30A
CBLX347973B-A	PULLROPE	PULLROPE	NCE340101	PBX347973B	RWYX347973B-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133A	CC30A
CBLX347974A-A	PULLROPE	PULLROPE	NCE340101	PBX347974A	RWYX347974A-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133B	CC30A
CBLX347974B-A	PULLROPE	PULLROPE	NCE340101	PBX347974B	RWYX347974B-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133B	CC30A
CBLX347975-A	PULLROPE	PULLROPE	NCE340101	PBX347975	RWYX347975-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX CAMERA DATA JACK SOUTH WEST ENTRANCE	CC30A
CBLX347976-A	PULLROPE	PULLROPE	**CAB347901**	PBX347976	RWYX347976-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX CAMERA DATA JACK SOUTH ENTRANCE. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLX347977A-A	PULLROPE	PULLROPE	NCE340101	PBX347977A	RWYX347977A-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133C	CC30A
CBLX347977B-A	PULLROPE	PULLROPE	NCE340101	PBX347977B	RWYX347977B-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR340133C	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX347978-A	PULLROPE	PULLROPE	NCE340101	PBX347978	RWYX347978-A					E-34-1212	SPARE RACEWAY TO CAMERA PULLBOX FOR SWGR349001	CC30A
CBLX347982-A	PULLROPE	PULLROPE	NCE340101	PBX347982	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1213	SPARE RACEWAY TO CAMERA PULLBOX EAST ENTRANCE	CC30A
CBLX347982-A	PULLROPE	PULLROPE	NCE340101	PBX347982	CTS340021A	CTS340017A	CTS340013A	RWYD340003-A		E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLX347982-A	PULLROPE	PULLROPE	NCE340101	PBX347982	JBX340003	RWYX347982-A				E-34-1213	CONTINUED FROM LINE ABOVE	CC30A
CBLX347984-A	PULLROPE	PULLROPE	NCR340021	PBX347984	CTS340202	CTS340206	CTS340203	RWYX347984-A		E-34-1222	CAMERA DATA JACK IN SECOND LVL OFFICE NORTH ENTRANCE	CC30A
CBLX347985-A	PULLROPE	PULLROPE	NCR340021	PBX347985	CTS340202	CTS340201	RWYX347985-A			E-34-1223	SPARE RACEWAY TO CAMERA PULLBOX IN SERVER ROOM	CC30A
CBLX347986-A	PULLROPE	PULLROPE	NCR340021	PBX347986	CTS340202	CTS340206	RWYX347986-A			E-34-1223	SPARE RACEWAY TO CAMERA PULLBOX IN IT EQUIPMENT/STORAGE ROOM	CC30A
CBLX347988A-A	PULLROPE	PULLROPE	NCR340021	PBX347988A	RWYX347988A-A					E-34-1223	SPARE RACEWAY TO CAMERAPULLBOX IN SECOND LVL PARTS WAREHOUSE	CC30A
CBLX347988B-A	PULLROPE	PULLROPE	NCR340021	PBX347988B	RWYX347988B-A					E-34-1223	SPARE RACEWAY TO CAMERAPULLBOX IN SECOND LVL PARTS WAREHOUSE	CC30A
CBLP348001A-A	TCER	2#12, 1#12G	PNL349404	ECU348001A	RWYP348001A-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348001A-AB	E-34-1134	120V FEED TO EVAPORATOR COOLER #1 FAN	CC30A
CBLP348001B-A	TCER	2#12, 1#12G	PNL349404	ECU348001B	RWYP348001B-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348001B-AB	E-34-1134	120V FEED TO EVAPORATOR COOLER #1 PUMP	CC30A
CBLP348002A-A	TCER	2#12, 1#12G	PNL349404	ECU348002A	RWYP348002A-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348002A-AB	E-34-1134	120V FEED TO EVAPORATOR COOLER #2 FAN	CC30A
CBLP348002B-A	TCER	2#12, 1#12G	PNL349404	ECU348002B	RWYP348002B-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348002B-AB	E-34-1134	120V FEED TO EVAPORATOR COOLER #2 PUMP	CC30A
CBLP348011-A	VFD1	3#12, 1#12G	MCC349303	M348011	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-1102	480V FEED TO HOT WATER LOOP PUMP #1 P348011 (CCF 002)	CC30A/REV 1
CBLP348011-A	VFD1	3#12, 1#12G	MCC349303	M348011	RWYP348011-A					E-34-1102	CONTINUED FROM LINE ABOVE (CCF 002)	CC30A/REV 1
CBLP348012-A	VFD1	3#12, 1#12G	MCC349303	M348012	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-1102	480V FEED TO HOT WATER LOOP PUMP #2 P348012 (CCF 002)	CC30A/REV 1
CBLP348012-A	VFD1	3#12, 1#12G	MCC349303	M348012	RWYP348012-A					E-34-1102	CONTINUED FROM LINE ABOVE (CCF 002)	CC30A/REV 1
CBLP348021-A	VFD1	3#12, 1#12G	MCC349303	M348021	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-1102	480V FEED TO CHILLED WATER LOOP PUMP #1 P348021 (CCF 002)	CC30A/REV 1
CBLP348021-A	VFD1	3#12, 1#12G	MCC349303	M348021	RWYP348021-A					E-34-1102	CONTINUED FROM LINE ABOVE (CCF 002)	CC30A/REV 1
CBLP348022-A	VFD1	3#12, 1#12G	MCC349303	M348022	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	CTPR340013A	E-34-1102	480V FEED TO CHILLED WATER LOOP PUMP #2 P348022 (CCF 002)	CC30A/REV 1
CBLP348022-A	VFD1	3#12, 1#12G	MCC349303	M348022	RWYP348022-A					E-34-1102	CONTINUED FROM LINE ABOVE (CCF 002)	CC30A/REV 1
CBLP348031-A	TCER	2#12, 1#12G	PNL349404	DS348031	RWYP348031-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340002-A	E-34-1114	120V FEED TO UNIT HEATER #1 DISCONNECT SWITCH	CC30A
CBLP348031-A	TCER	2#12, 1#12G	PNL349404	DS348031	JBX340002	RWYP348031-AB				E-34-1114	CONTINUED FROM LINE ABOVE. FEED TO UNIT HEATER #1 DISCONNECT SWITCH	CC30A
CBLP348031-B	XHHW2	2#12, 1#12G	DS348031	UH348031	RWYP348031-B					E-34-1114	120V FEED TO UNIT HEATER #1	CC30A
CBLP348032-A	TCER	2#12, 1#12G	PNL349404	DS348032	RWYP348032-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340002-B	E-34-1114	120V FEED TO UNIT HEATER #2 DISCONNECT SWITCH	CC30A
CBLP348032-A	TCER	2#12, 1#12G	PNL349404	DS348032	JBX340002	RWYP348032-AB				E-34-1114	CONTINUED FROM LINE ABOVE. FEED TO UNIT HEATER #2 DISCONNECT SWITCH	CC30A
CBLP348032-B	XHHW2	2#12, 1#12G	DS348032	UH348032	RWYP348032-B					E-34-1114	120V FEED TO UNIT HEATER #2	CC30A
CBLP348033-A	TCER	2#12, 1#12G	PNL349404	DS348033	RWYP348033-A	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348033-AB	E-34-1123	120V FEED TO UNIT HEATER #3 DISCONNECT SWITCH	CC30A
CBLP348033-B	XHHW2	2#12, 1#12G	DS348033	UH348033	RWYP348033-B					E-34-1123	120V FEED TO UNIT HEATER #3	CC30A
CBLP348041-A	TCER	2#12, 1#12G	PNL349404	M348041	RWYP348041-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348041-AB	E-34-1102	120V FEED TO CIRCULATING PUMP	CC30A
CBLP348100-A	TCER	2#12, 1#12G	PNL349404	AHU348100	RWYP348100-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348100-AB	E-34-1102	120V FEED TO AHU-1 LIGHTS AND RECEPTACLES	CC30A
CBLP348100-B	TCER	3#12, 1#12G	PNL349412	AHU348100	RWYP348100-BA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348100-BB	E-34-1102	480V FEED TO ELECTRICAL ROOM AHU-1 FAN VFD 1	CC30A
CBLP348100-C	TCER	3#12, 1#12G	PNL349412	AHU348100	RWYP348100-CA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348100-CB	E-34-1102	480V FEED TO ELECTRICAL ROOM AHU-1 FAN VFD 2	CC30A
CBLP348100-D	TCER	3#12, 1#12G	PNL349412	AHU348100	RWYP348100-DA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348100-DB	E-34-1102	480V FEED TO ELECTRICAL ROOM AHU-1 FAN VFD 3	CC30A
CBLP348100-E	TCER	3#12, 1#12G	PNL349412	AHU348100	RWYP348100-EA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348100-EB	E-34-1102	480V FEED TO ELECTRICAL ROOM AHU-1 FAN VFD 4	CC30A
CBLP348152-A	TCER	2#12, 1#12G	PNL349404	DS348152	RWYP348152-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348152-AB	E-34-1102	120V FEED TO AHU-1 CHW DISCONNECT SWITCH	CC30A
CBLP348152-B	XHHW2	2#12, 1#12G	DS348152	M348152	RWYP348152-B					E-34-1102	120V FEED TO AHU-1 CHW	CC30A
CBLP348154-A	TCER	2#12, 1#12G	PNL349404	DS348154	RWYP348154-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348154-AB	E-34-1102	120V FEED TO AHU-1 HHW DISCONNECT SWITCH	CC30A
CBLP348154-B	XHHW2	2#12, 1#12G	DS348154	M348154	RWYP348154-B					E-34-1102	120V FEED TO AHU-1HHW	CC30A
CBLP348200-A	TCER	2#12, 1#12G	PNL349404	AHU348200	RWYP348200-AA	CTPR340010B	CTPR340012B	RWYP348200-AB		E-34-1102	120V FEED TO AHU-2 LIGHTS AND RECEPTACLES	CC30A
CBLP348200-B	TCER	3#12, 1#12G	PNL349411	AHU348200	RWYP348200-BA	CTPR340010B	CTPR340012B	RWYP348200-BB		E-34-1102	480V FEED TO BLOWER ROOM AHU-2 FAN VFD 1	CC30A
CBLP348200-C	TCER	3#12, 1#12G	PNL349411	AHU348200	RWYP348200-CA	CTPR340010B	CTPR340012B	RWYP348200-CB		E-34-1102	480V FEED TO BLOWER ROOM AHU-2 FAN VFD 2	CC30A
CBLP348200-D	TCER	3#12, 1#12G	PNL349411	AHU348200	RWYP348200-DA	CTPR340010B	CTPR340012B	RWYP348200-DB		E-34-1102	480V FEED TO BLOWER ROOM AHU-2 FAN VFD 3	CC30A
CBLP348200-E	TCER	3#12, 1#12G	PNL349411	AHU348200	RWYP348200-EA	CTPR340010B	CTPR340012B	RWYP348200-EB		E-34-1102	480V FEED TO BLOWER ROOM AHU-2 FAN VFD 4	CC30A
CBLP348252-A	TCER	2#12, 1#12G	PNL349404	DS348252	RWYP348252-AA	CTPR340010B	CTPR340012B	RWYP348252-AB		E-34-1102	120V FEED TO AHU-2 HHW DISCONNECT	CC30A
CBLP348252-B	XHHW2	2#12, 1#12G	DS348252	M348252	RWYP348252-B					E-34-1102	120V FEED TO AHU-2 HHW	CC30A
CBLP348254-A	TCER	3#12, 1#12G	MCC349303	DS348254	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340012B	E-34-1102	480V FEED TO AHU-2 CHW DISCONNECT SWITCH	CC30A
CBLP348254-A	TCER	3#12, 1#12G	MCC349303	DS348254	RWYP348254-A					E-34-1102	CONTINUED FROM LINE ABOVE	CC30A
CBLP348254-B	XHHW2	3#12, 1#12G	DS348254	M348254	RWYP348254-B					E-34-1102	480V FEED TO AHU-2 CHW	CC30A
CBLP348300-A	TCER	2#12, 1#12G	PNL349404	AHU348300	RWYP348300-AA	CTPR340010B	CTPR340012B	RWYP348300-AB		E-34-1102	120V FEED TO AHU-3 LIGHTS AND RECEPTACLES	CC30A
CBLP348300-B	TCER	3#12, 1#12G	PNL349412	AHU348300	RWYP348300-BA	CTPR340010B	CTPR340012B	RWYP348300-BB		E-34-1102	480V FEED TO OFFICES AHU-3 FAN VFD 1	CC30A
CBLP348300-C	TCER	3#12, 1#12G	PNL349412	AHU348300	RWYP348300-CA	CTPR340010B	CTPR340012B	RWYP348300-CB		E-34-1102	480V FEED TO OFFICES AHU-3 FAN VFD 2	CC30A
CBLP348300-D	TCER	3#12, 1#12G	PNL349412	AHU348300	RWYP348300-DA	CTPR340010B	CTPR340012B	RWYP348300-DB		E-34-1102	480V FEED TO OFFICES AHU-3 FAN VFD 3	CC30A
CBLP348300-E	TCER	3#12, 1#12G	PNL349412	AHU348300	RWYP348300-EA	CTPR340010B	CTPR340012B	RWYP348300-EB		E-34-1102	480V FEED TO OFFICES AHU-3 FAN VFD 4	CC30A
CBLP348352-A	TCER	3#12, 1#12G	MCC349303	DS348352	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340012B	E-34-1102	480V FEED TO AHU-3 HHW DISCONNECT	CC30A
CBLP348352-A	TCER	3#12, 1#12G	MCC349303	DS348352	RWYP348352-A					E-34-1102	CONTINUED FROM LINE ABOVE	CC30A
CBLP348352-B	XHHW2	3#12, 1#12G	DS348352	M348352	RWYP348352-B					E-34-1102	480V FEED TO AHU-3 HHW	CC30A
CBLP348354-A	TCER	3#12, 1#12G	MCC349303	DS348354	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340012B	E-34-1102	480V FEED TO AHU-3 CHW DISCONNECT	CC30A
CBLP348354-A	TCER	3#12, 1#12G	MCC349303	DS348354	RWYP348354-A					E-34-1102	CONTINUED FROM LINE ABOVE	CC30A
CBLP348354-B	XHHW2	3#12, 1#12G	DS348354	M348354	RWYP348354-B					E-34-1102	480V FEED TO AHU-3 CHW	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP348401A-A	TCER	3#6, 1#8G	PNL349411	CDR348401A	RWYP348401A-AA	CTPR340010B	CTPR340004B	CTPR340002B	RWYP348401A-AB	E-34-1123	480V FEED TO CONDENSING UNIT #1 IN SERVER ROOM	CC30A
CBLP348401A-A	TCER	3#6, 1#8G	PNL349411	CDR348401A	CTPR340201	RWYP348401A-AC				E-34-1123	CONTINUED FROM LINE ABOVE. FEED TO CONDENSING UNIT #1 IN SERVER ROOM	CC30A
CBLP348401B-A	TCER	3#12, 1#12G	PNL349411	DS348401B	RWYP348401B-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348401B-AB	E-34-1133	480V FEED TO CONDENSING UNIT #1 - OUTDOOR UNIT DISCONNECT SWITCH DS348401B	CC30A
CBLP348401B-B	XHHW2	3#12, 1#12G	DS348401B	CDR348401B	RWYP348401B-B					E-34-1133	480V FEED TO CONDENSING UNIT #1 - OUTDOOR UNIT	CC30A
CBLP348402A-A	TCER	3#6, 1#8G	PNL349411	CDR348402A	RWYP348402A-AA	CTPR340010B	CTPR340004B	CTPR340002B	RWYP348402A-AB	E-34-1123	480V FEED TO CONDENSING UNIT #2 IN SERVER ROOM.	CC30A
CBLP348402A-A	TCER	3#6, 1#8G	PNL349411	CDR348402A	CTPR340201	RWYP348402A-AC				E-34-1123	CONTINUED FROM LINE ABOVE. FEED TO CONDENSING UNIT #2 IN SERVER ROOM	CC30A
CBLP348402B-A	TCER	3#12, 1#12G	PNL349411	DS348402B	RWYP348402B-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348402B-AB	E-34-1133	480V FEED TO CONDENSING UNIT #1 - OUTDOOR UNIT DISCONNECT SWITCH DS348402B	CC30A
CBLP348402B-B	XHHW2	3#12, 1#12G	DS348402B	CDR348402B	RWYP348402B-B					E-34-1133	480V FEED TO CONDENSING UNIT #2 - OUTDOOR UNIT	CC30A
CBLP348410-A	TCER	2#12, 1#12G	PNL349404	DS348410	RWYP348410-AA	CTPR340010B	CTPR340016B	RWYP348410-AB		E-34-4002	120V FEED TO BATTERY ROOM EXHAUST FAN DISCONNECT	CC30A
CBLP348410-B	XHHW2	2#12, 1#12G	DS348410	EF348410	RWYP348410-B					E-34-4002	120V FEED TO BATTERY ROOM EXHAUST FAN	CC30A
CBLX348410-A	PULLROPE	PULLROPE	CTPR340016B	DS348410	RWYX348410-A					E-34-4002	SPARE CONDUIT FROM BASEMENT TO BATTERY ROOM EXHAUST FAN DISCONNECT (CCF 008)	CC30A/REV 1
CBLP348420-A	TCER	2#12, 1#12G	PNL349404	DS348420	RWYP348420-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP340002-C	E-34-1114	120V FEED TO PAINT STORAGE EXHAUST FAN DISCONNECT DS348420	CC30A
CBLP348420-A	TCER	2#12, 1#12G	PNL349404	DS348420	JBX340002	RWYP348420-AB				E-34-1114	CONTINUED FROM LINE ABOVE. FEED TO PAINT STORAGE EXHAUST DISCONNECT DS348420	CC30A
CBLP348420-B	XHHW2	2#12, 1#12G	DS348420	EF348420	RWYP348420-B					E-34-1114	120V FEED TO EXHAUST FAN	CC30A
CBLP348430-A	VFD1	3#12, 1#12G	MCC349303	EF348430	RWYP348430-A					E-34-1132	480V FEED TO ELECTRICAL AREA RELIEF/EXHAUST FAN (CCF 002)	CC30A/REV 1
CBLP348440-A	VFD1	3#12, 1#12G	MCC349303	EF348440	RWYP348440-A					E-34-1132	480V FEED TO OFFICE AREA RELIEF FAN (CCF 002)	CC30A/REV 1
CBLP348450-A	TCER	2#12, 1#12G	PNL349404	EF348450	RWYP348450-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348450-AB	E-34-1133	120V FEED TO RESTROOM EXHAUST FAN DISCONNECT	CC30A
CBLP348460-A	VFD1	3#12, 1#12G	MCC349303	EF348460	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-34-1134	480V FEED TO BLOWER ROOM RELIEF FAN DISCONNECT (CCF 002)	CC30A/REV 1
CBLP348460-A	VFD1	3#12, 1#12G	MCC349303	EF348460	RWYP348460-A					E-34-1134	CONTINUED FROM LINE ABOVE (CCF 002)	CC30A/REV 1
CBLP348470-A	TCER	2#12, 1#12G	PNL349404	DS348470	RWYP348470-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348470-AB	E-34-1113	120V FEED TO LAUNDRY ROOM DRYER BOOSTER FAN DISCONNECT DS348470	CC30A
CBLP348470-B	XHHW2	2#12, 1#12G	DS348470	EF348470	RWYP348470-B					E-34-1113	120V FEED TO LAUNDRY ROOM DRYER BOOSTER FAN EF348470	CC30A
CBLP348480-A	TCER	2#12, 1#12G	PNL349404	DS348480	RWYP348480-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348480-AB	E-34-1113	120V FEED TO LAUNDRY ROOM DRYER BOOSTER FAN DISCONNECT DS348480	CC30A
CBLP348480-B	XHHW2	2#12, 1#12G	DS348480	EF348480	RWYP348480-B					E-34-1113	120V FEED TO LAUNDRY ROOM DRYER BOOSTER FAN EF348480	CC30A
CBLP348601-A	TCER	2#12, 1#12G	PNL349404	WH348601	RWYP348601-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348601-AB	E-34-1102	120V FEED TO WATER HEATER	CC30A
CBLD348901-A	NC2	1#U/FTP CAT6A	NCE340101	CAB348901	RWYD340101-B	CTS340020B	CTS340008B	RWYD348901-A		E-34-1212	ETHERNET TO HVAC CONTROL PANEL CAB348901	CC30A
CBLP348901-A	TCER	2#12, 1#12G	PNL349404	CAB348901	RWYP348901-AA	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-1112	120V FEED TO HVAC CONTROL PANEL CAB348901	CC30A
CBLP348951-A	TCER	2#12, 1#12G	PNL349404	CAB348951	RWYP348951-AA	CTPR340010B	CTPR340014B	CTPR340016B	RWYP348951-AB	E-34-1102	120V FEED TO ATC PANEL FOR AHU 1	CC30A
CBLP348952-A	TCER	2#12, 1#12G	PNL349404	CAB348952	RWYP348952-AA	CTPR340010B	CTPR340012B	RWYP348952-AB		E-34-1102	120V FEED TO ATC PANEL FOR AHU 2	CC30A
CBLP348953-A	TCER	2#12, 1#12G	PNL349404	CAB348953	RWYP348953-AA	CTPR340010B	RWYP348953-AB			E-34-1102	120V FEED TO ATC PANEL FOR AHU 3	CC30A
CBLP348954-A	TCER	2#12, 1#12G	PNL349404	CAB348954	RWYP348954-AA	CTPR340010B	CTPR340016B	CTPR340014B	RWYP348954-AB	E-34-1102	120V FEED TO ATC PANEL IN BASEMENT	CC30A
CBLP348955-A	TCER	2#12, 1#12G	PNL349404	CAB348955	RWYP348955-AA	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V FEED TO ATC PANEL IN GROUND FLOOR ELECTRICAL ROOM	CC30A
CBLP348955-A	TCER	2#12, 1#12G	PNL349404	CAB348955	CTPR340024B	RWYP348955-AB				E-34-1112	120V FEED TO ATC PANEL IN GROUND FLOOR ELECTRICAL ROOM	CC30A
CBLP348956-A	TCER	2#10, 1#10G	PNL349404	CAB348956	RWYP348956-AA	CTPR340010B	CTPR340004B	CTPR340002B	RWYP348956-AB	E-34-1122	120V FEED TO ATC PANEL IN 2ND FLOOR STORAGE ROOM	CC30A
CBLP348956-A	TCER	2#10, 1#10G	PNL349404	CAB348956	CTPR340201	RWYP348956-AC				E-34-1122	CONTINUED FROM LINE ABOVE. FEED TO ATC PANEL ON 2ND FLOOR STORAGE ROOM	CC30A
CBLC349000A-A	TCER	18#14, 1#14G	CAB340001	SUB349000A	RWYC340001-A	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1111	CONTROL FEED FROM AREA 34 PLC TO SUB "A"	CC30A
CBLC349000A-A	TCER	18#14, 1#14G	CAB340001	SUB349000A	CTC340025A	CTC340005A	CTC340003A	RWYC349000A-A		E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLC349000B-A	TCER	18#14, 1#14G	CAB340001	SUB349000B	RWYC340001-B	CTC340014B	CTC340016B	CTC340010B	CTC340004B	E-34-1111	CONTROL FEED FROM AREA 34 PLC TO SUB "B"	CC30A
CBLC349000B-A	TCER	18#14, 1#14G	CAB340001	SUB349000B	CTC340020B	RWYC349000B-A				E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLH349000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB349000A	CTH340015A	CTH340011A	RWYH349000A-A			E-34-1111	5 KV FEED FROM MV SWGR340133A TO AREA 34 "A" SUBSTATION	CC30A
CBLH349000A-B	MV105	3#500, 1#4/0G	SUB349000B	SUB349000A	RWYH349000A-B					E-34-1111	5 KV FEED FROM AREA 34 "A" SUBSTATION TO "B" SUBSTATION	CC30A
CBLH349000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB349000B	CTH340018B	CTH340016B	RWYH349000B-A			E-34-1111	5 KV FEED FROM MV SWGR340133B TO AREA 34 "B" SUBSTATION	CC30A
CBLH349000B-B	MV105	3#500, 1#4/0G	SUB349000A	SUB349000B	RWYH349000B-B					E-34-1111	5 KV FEED FROM AREA 34 "B" SUBSTATION TO "A" SUBSTATION	CC30A
CBLP349000A-A	TCER	2#12, 1#12G	PNL349306	SUB349000A	RWYP349000A-AA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP349000A-AB	E-34-1111	FEED TO "A" SIDE SUBSTATION PRIMARY INTERRUPTER SWITCH HEATER	CC30A
CBLP349000A-B	TCER	2#12, 1#12G	PNL349306	SUB349000A	RWYP349000A-BA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP349000A-BB	E-34-1111	FEED TO "A" SIDE SUBSTATION SECONDARY TERMINAL CHAMBER HEATER	CC30A
CBLP349000A-C	TCER	2#12, 1#12G	PNL349301A	CAB349000A	RWYP349000A-CA	CTPR340017A	CTPR340021A	CTPR340023A	CTPR340025A	E-34-1111	120V UPS "A" FEED TO BLOWER BLDG SUB-A CAB RLY349000A	CC30A
CBLP349000A-C	TCER	2#12, 1#12G	PNL349301A	CAB349000A	CTPR340005A	CTPR340003A	RWYP349000A-CB			E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLP349000A-D	TCER	2#12, 1#12G	PNL349302B	CAB349000A	RWYP349000A-DA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP349000A-DB	E-34-1111	120V UPS "B" FEED TO BLOWER BLDG SUB-A CAB RLY349000A	CC30A
CBLP349000B-A	TCER	2#12, 1#12G	PNL349306	SUB349000B	RWYP349000B-AA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP349000B-AB	E-34-1111	FEED TO "B" SIDE SUBSTATION PIRMARY INTERRUPTER SWITCH HEATER	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP349000B-B	TCER	2#12, 1#12G	PNL349306	SUB349000B	RWYP349000B-BA	CTPR340018B	CTPR340004B	CTPR340020B	RWYP349000B-BB	E-34-1111	FEED TO "B" SIDE SUBSTATION SECONDARY TERMINAL CHAMBER HEATER	CC30A
CBLP349000B-C	TCER	2#12, 1#12G	PNL349301A	CAB349000B	RWYP349000B-CA	CTPR340017A	CTPR340021A	CTPR340023A	CTPR340025A	E-34-1111	120V UPS "A" FEED TO BLOWER BLDG SUB-B CAB RLY349000B	CC30A
CBLP349000B-C	TCER	2#12, 1#12G	PNL349301A	CAB349000B	CTPR340005A	CTPR340003A	RWYP349000B-CB			E-34-1111	CONTINUED FROM LINE ABOVE	CC30A
CBLP349000B-D	TCER	2#12, 1#12G	PNL349302B	CAB349000B	RWYP349000B-DA	CTPR340010B	CTPR340004B	CTPR340020B	RWYP349000B-DB	E-34-1111	120V UPS "B" FEED TO BLOWER BLDG SUB-B CAB RLY349000B	CC30A
CBLX349000A-A	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	SUB349000A	RWYX349000A-A					E-34-1102	SPARE RACEWAY TO SUBSTATION A	CC30A
CBLX349000A-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000A	RWYX349000A-B					E-34-1111	SPARE RACEWAY TO SUBSTATION A (CCF 008)	CC30A/REV 1
CBLX349000A-C	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000A	RWYX349000A-C					E-34-1111	SPARE RACEWAY TO SUBSTATION A (CCF 008)	CC30A/REV 1
CBLX349000A-D	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000A	RWYX349000A-D					E-34-1111	SPARE RACEWAY TO SUBSTATION A (CCF 008)	CC30A/REV 1
CBLX349000A-E	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	SUB349000A	RWYX349000A-E					E-34-1211	SPARE RACEWAY TO SUBSTATION A (CCF 008)	CC30A/REV 1
CBLX349000B-A	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	SUB349000B	RWYX349000B-A					E-34-1102	SPARE RACEWAY TO SUBSTATION B	CC30A
CBLX349000B-B	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000B	RWYX349000B-B					E-34-1111	SPARE RACEWAY TO SUBSTATION B (CCF 008)	CC30A/REV 1
CBLX349000B-C	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000B	RWYX349000B-C					E-34-1111	SPARE RACEWAY TO SUBSTATION B (CCF 008)	CC30A/REV 1
CBLX349000B-D	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	CAB349000B	RWYX349000B-D					E-34-1111	SPARE RACEWAY TO SUBSTATION B (CCF 008)	CC30A/REV 1
CBLX349000B-E	PULLROPE	PULLROPE	34 BLDG SOUTH WALL	SUB349000B	RWYX349000B-E					E-34-1211	SPARE RACEWAY TO SUBSTATION B (CCF 008)	CC30A/REV 1
CBLB349001A-A	CABLEBUS	2000AMP	SUB349000A	SWGR349001A						E-34-1112	CABLE BUS FROM 34 "A" SUB TO LV SWGR349001A	CC30A
CBLB349001B-A	CABLEBUS	2000AMP	SUB34900B	SWGR349001B						E-34-1112	CABLE BUS FROM 34 "B" SUB TO LV SWGR349001B	CC30A
CBLD349001-A	NC4	1#600V CAT6A	NCE340101	SWGR349001A/B	RWYD340101-A	CTS340003A	CTS340005A	CTS340007A		E-34-1212	ETHERNET TO LV SWGR PLC349001 ~~PROCESSOR A~~ **NETWORK SWTICH (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD349001-B	NC4	1#600V CAT6A	NCE340101	SWGR349001A/B	RWYD340101-E	CTS340022B	CTS340006B			E-34-1212	ETHERNET TO LV SWGR PLC349001 ~~PROCESSOR B~~ **NETWORK SWTICH (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD349001-C	NC4	1#600V CAT6A	CAB340111	SWGR349001A/B	RWYD349001-C	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1212	ETHERNET RING TO LV SWGR PLC349001 "B"	CC30A
CBLD349001-C	NC4	1#600V CAT6A	CAB340111	SWGR349001A/B	CTS340025A	CTS340007A				E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD349001-D	NC4	1#600V CAT6A	SWGR349001A/B	SWGR349001A/B						E-34-1212	ETHERNET RING BETWEEN PLC349001 PROCESSOR A AND PROCESSOR B	CC30A
CBLD349001A-A	NC4	1#600V CAT6A	NCE340101	SWGR349001A	RWYD340101-A	CTS340003A	CTS340005A	CTS340007A		E-34-1212	ETHERNET TO "A" LV SWGR PQM349001A	CC30A
CBLD349001B-A	NC4	1#600V CAT6A	NCE340101	SWGR349001B	RWYD340101-E	CTS340022B	CTS340006B			E-34-1212	ETHERNET TO "B" LV SWGR PQM349001B	CC30A
CBLP349001A-A	TCER	2#12, 1#12G	PNL349301B	SWGR349001A	RWYP349001A-A	CTPR340017A	CTPR340021A	CTPR340023A	CTPR340025A	E-34-1112	120V "A" UPS FEED TO LV SWGR9001A	CC30A
CBLP349001A-A	TCER	2#12, 1#12G	PNL349301B	SWGR349001A	CTPR340007A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP349001A-B	TCER	2#12, 1#12G	PNL349301B	SWGR349001A	RWYP349001A-B	CTPR340017A	CTPR340021A	CTPR340023A	CTPR340025A	E-34-1112	120V "B" UPS FEED TO LV SWGR9001A	CC30A
CBLP349001A-B	TCER	2#12, 1#12G	PNL349301B	SWGR349001A	CTPR340007A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP349001B-A	TCER	2#12, 1#12G	PNL349302B	SWGR349001B	RWYP349001B-A	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V "A" UPS FEED TO LV SWGR9001B	CC30A
CBLP349001B-A	TCER	2#12, 1#12G	PNL349302B	SWGR349001B	CTPR340006B					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP349001B-B	TCER	2#12, 1#12G	PNL349302B	SWGR349001B	RWYP349001B-B	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340022B	E-34-1112	120V "B" UPS FEED TO LV SWGR9001B	CC30A
CBLP349001B-B	TCER	2#12, 1#12G	PNL349302B	SWGR349001B	CTPR340006B					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLC349101A-A	XHHW2	2#14, 1#14G	CAB349101A	MCC349101A						E-34-4005	CONTROL FEED TO PMM349101A	CC30A
CBLC349101A-B	XHHW2	2#14, 1#14G	CAB349101A	MCC349101A						E-34-4005	CONTROL FEED TO SPD349101A	CC30A
CBLC349101A-C	XHHW2	4#14, 1#14G	CAB349101A	MCC349101A						E-34-4005	CONTROL FEED TO NET349101AB	CC30A
CBLC349101A-D	XHHW2	4#14, 1#14G	CAB349101A	MCC349101A						E-34-4005	CONTROL FEED TO NET349101AC	CC30A
CBLC349101B-A	XHHW2	2#14, 1#14G	CAB349101B	MCC349101B						E-34-1112	CONTROL FEED TO PMM349101B	CC30A
CBLC349101B-B	XHHW2	2#14, 1#14G	CAB349101B	MCC349101B						E-34-1112	CONTROL FEED TO SPD349101B	CC30A
CBLC349101B-C	XHHW2	4#14, 1#14G	CAB349101B	MCC349101B						E-34-1112	CONTROL FEED TO NET349101BB	CC30A
CBLC349101B-D	XHHW2	4#14, 1#14G	CAB349101B	MCC349101B						E-34-1112	CONTROL FEED TO NET349101BC	CC30A
CBLD349101A-A	NC4	1#600V CAT6A	NCE340101	MCC349101A	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340009A	E-34-1212	ETHERNET TO PMM349101A FROM NETWORK CABINET	CC30A
CBLD349101A-B	NC2	1#U/FTP CAT6A	NCE340101	CAB349101A	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340009A	E-34-1212	ETHERNET TO MCC "A" PLC **NETWORK SWTICH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD349101A-C	NC2	1#U/FTP CAT6A	CAB349101B	CAB349101A	RWYD349101A-C					E-34-1212	ETHERNET RING TO MCC "A" PLC	CC30A
CBLD349101A-D	NC4	1#600V CAT6A	MCC349101A	CAB349101A						E-34-1212	DATA FROM MCC PLC TO MCC NETWORK SWITCH 349101AB	CC30A
CBLD349101A-E	NC4	1#600V CAT6A	MCC349101A	CAB349101A						E-34-1212	DATA FROM MCC PLC TO MCC NETWORK SWITCH 349101AC	CC30A
CBLD349101A-F	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB349101A**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340009A**	**E-34-1212**	**ETHERNET TO MCC "A" PLC FROM NETWORK CABINET (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD349101B-A	NC4	1#600V CAT6A	NCE340101	MCC349101B	RWYD340101-B	CTS340020B	CTS340008B			E-34-1212	ETHERNET TO PMM349101B FROM NETWORK CABINET	CC30A
CBLD349101B-B	NC2	1#U/FTP CAT6A	NCE340101	CAB349101B	RWYD340101-B	CTS340020B	CTS340008B			E-34-1212	ETHERNET TO MCC "B" PLC **NETWORK SWITCH** FROM NETWORK CABINET **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD349101B-C	NC2	1#U/FTP CAT6A	CAB349201	CAB349101B	CTS340009A					E-34-1212	ETHERNET RING TO MCC "B" PLC	CC30A
CBLD349101B-D	NC4	1#600V CAT6A	MCC349101B	CAB349101B						E-34-1212	ETHERNET FROM MCC PLC TO MCC NETWORK SWITCH 349101BB	CC30A
CBLD349101B-E	NC4	1#600V CAT6A	MCC349101B	CAB349101B						E-34-1212	ETHERNET FROM MCC PLC TO MCC NETWORK SWITCH 349101BC	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD349101B-F	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB349101B**	**RWYD340101-B**	**CTS340020B**	**CTS340008B**			**E-34-1212**	**ETHERNET TO MCC "B" PLC FROM NETWORK CABINET (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLP349101A-A1	TCER	3#350, 1#350G, 1#3G	SWGR349001A	MCC349101A	CTPL340103A					E-34-4005	480V FEED TO "A" SIDE MCC349101A	CC30A
CBLP349101A-A2	TCER	3#350, 1#350G, 1#3G	SWGR349001A	MCC349101A	CTPL340103A					E-34-4005	480V FEED TO "A" SIDE MCC349101A	CC30A
CBLP349101A-A3	TCER	3#350, 1#350G, 1#3G	SWGR349001A	MCC349101A	CTPL340103A					E-34-4005	480V FEED TO "A" SIDE MCC349101A	CC30A
CBLP349101A-A4	TCER	3#350, 1#350G, 1#3G	SWGR349001A	MCC349101A	CTPL340103A					E-34-4005	480V FEED TO "A" SIDE MCC349101A	CC30A
CBLP349101A-B	TCER	2#12, 1#12G	PNL349301B	MCC349101A	RWYP349101A-B	CTPR340021A	CTPR340023A	CTPR340009A		E-34-4005	120V UPS "A" FEED TO PMM349101A	CC30A
CBLP349101A-C	TCER	2#12, 1#12G	PNL349301B	MCC349101A	RWYP349101A-C	CTPR340021A	CTPR340023A	CTPR340009A		E-34-4005	120V UPS "A" FEED TO MCC349101A NETWORK SWITCH POWER SUPPLY	CC30A
CBLP349101A-D	TCER	2#12, 1#12G	PNL349301B	CAB349101A	RWYP349101A-D	CTPR340021A	CTPR340023A	CTPR340009A		E-34-4005	120V UPS "A" FEED TO CAB349101A	CC30A
CBLP349101A-E	TCER	2#12, 1#12G	PNL349304	CAB349101A	RWYP349101A-E	CTPR340013A	CTPR340017A	CTPR340021A	CTPR340023A	E-34-4005	120V FEED TO CAB349101A	CC30A
CBLP349101A-E	TCER	2#12, 1#12G	PNL349304	CAB349101A	CTPR340009A					E-34-4005	CONTINUED FROM LINE ABOVE	CC30A
CBLP349101B-A1	TCER	3#350, 1#350G, 1#3G	SWGR349001B	MCC349101B	CTPL340104B					E-34-4005	480V FEED TO "B" SIDE MCC349101A	CC30A
CBLP349101B-A2	TCER	3#350, 1#350G, 1#3G	SWGR349001B	MCC349101B	CTPL340104B					E-34-4005	480V FEED TO "B" SIDE MCC349101A	CC30A
CBLP349101B-A3	TCER	3#350, 1#350G, 1#3G	SWGR349001B	MCC349101B	CTPL340104B					E-34-4005	480V FEED TO "B" SIDE MCC349101A	CC30A
CBLP349101B-A4	TCER	3#350, 1#350G, 1#3G	SWGR349001B	MCC349101B	CTPL340104B					E-34-4005	480V FEED TO "B" SIDE MCC349101A	CC30A
CBLP349101B-B	TCER	2#12, 1#12G	PNL349302B	MCC349101B	RWYP349101B-B	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED TO PMM349101B	CC30A
CBLP349101B-C	TCER	2#12, 1#12G	PNL349302B	MCC349101B	RWYP349101B-C	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED TO MCC349101B NETWORK SWITCH POWER SUPPLY	CC30A
CBLP349101B-D	TCER	2#12, 1#12G	PNL349302B	CAB349101B	RWYP349101B-D	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED TO CAB349101B	CC30A
CBLP349101B-E	TCER	2#12, 1#12G	PNL349305	CAB349101B	RWYP349101B-E	CTPR340014B	CTPR340016B	CTPR340010B	CTPR340004B	E-34-4005	120V FEED TO CAB349101B	CC30A
CBLP349101B-E	TCER	2#12, 1#12G	PNL349305	CAB349101B	CTPR340020B	CTPR340008B				E-34-4005	CONTINUED FROM LINE ABOVE	CC30A
CBLC349102-A	TCER	11#14, 1#14G	CAB340001	ATS349102	RWYC340001-D	CTC340014B	CTC340016B	CTC340010B	RWYC349102-A	E-34-1112	CONTROL FEED TO "A" SIDE ATS349102	CC30A
CBLD349102-A	NC4	1#600V CAT6A	NCE340101	ATS349102	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	RWYD349102-A	E-34-1212	ETHERNET TO "A" SIDE ATS349102	CC30A
CBLP349102-A1	TCER	3#350, 1#350G, 1#3G	SWGR349001A	ATS349102	CTPL340103A	CTPL340101A	RWYP349102-A1			E-34-1112	480V NORMAL FEED TO ATS349102	CC30A
CBLP349102-A2	TCER	3#350, 1#350G, 1#3G	SWGR349001A	ATS349102	CTPL340103A	CTPL340101A	RWYP349102-A2			E-34-1112	480V NORMAL FEED TO ATS349102	CC30A
CBLP349102-B1	TCER	3#350, 1#350G, 1#3G	SWGR349001B	ATS349102	CTPL340104B	CTPL340102B	RWYP349102-B1			E-34-1112	480V ALTERNATE FEED TO ATS349102	CC30A
CBLP349102-B2	TCER	3#350, 1#350G, 1#3G	SWGR349001B	ATS349102	CTPL340104B	CTPL340102B	RWYP349102-B2			E-34-1112	480V ALTERNATE FEED TO ATS349102	CC30A
CBLC349201-A	XHHW2	2#14, 1#14G	CAB349201	MCC349201						E-34-1112	CONTROL FEED TO PMM349201	CC30A
CBLC349201-B	XHHW2	2#14, 1#14G	CAB349201	MCC349201						E-34-1112	CONTROL FEED TO SPD349201	CC30A
CBLC349201-C	XHHW2	4#14, 1#14G	CAB349201	MCC349201						E-34-1112	CONTROL FEED TO NET349201B	CC30A
CBLC349201-D	XHHW2	4#14, 1#14G	CAB349201	MCC349201						E-34-1112	CONTROL FEED TO NET349201C	CC30A
CBLD349201-A	NC4	1#600V CAT6A	NCE340101	MCC349201	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340009A	E-34-1212	ETHERNET TO PMM349201	CC30A
CBLD349201-A	NC4	1#600V CAT6A	NCE340101	MCC349201	RWYD349201-A					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD349201-B	NC2	1#U/FTP CAT6A	NCE340101	CAB349201	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340009A	E-34-1212	ETHERNET TO MCC "C" PLC **NETWORK SWITCH (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD349201-B	NC2	1#U/FTP CAT6A	NCE340101	CAB349201	RWYD349201-B					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD349201-C	NC4	1#600V CAT6A	SWGR349001A/B	CAB349201	CTS340007A	CTS340025A	CTS340009A	RWYD349201-C		E-34-1212	ETHERNET RING TO MCC "C" PLC	CC30A
CBLD349201-D	NC4	1#600V CAT6A	MCC349201	CAB349201						E-34-1212	ETHERNET FROM MCC PLC CAB349201 TO MCC NETWORK SWITCH 349201B	CC30A
CBLD349201-E	NC4	1#600V CAT6A	MCC349201	CAB349201						E-34-1212	ETHERNET FROM MCC PLC CAB349201 TO MCC NETWORK SWITCH 349201C	CC30A
CBLD349201-F	NC2	1#U/FTP CAT6A	CAB340001	CAB349201	RWYD340001-A	CTS340013A	CTS340017A	CTS340021A	CTS340023A	E-34-1212	ETHERNET FROM AREA PLC CAB340001 TO MCC PLC CAB349201	CC30A
CBLD349201-F	NC2	1#U/FTP CAT6A	CAB340001	CAB349201	CTS340009A					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLD349201-G	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB349201**	**RWYD340101-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340009A**	**E-34-1212**	**ETHERNET TO MCC "C" PLC NETWORK SWITCH (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD349201-G	**NC2**	**1#U/FTP CAT6A**	**NCE340101**	**CAB349201**	**RWYD349201-B**					**E-34-1212**	**CONTINUED FROM LINE ABOVE**	**CC30A**
CBLP349201-A1	TCER	3#350, 1#350G, 1#3G	ATS349102	MCC349201	RWYP349201-A1	CTPL340102B				E-34-1112	480V FEED TO MCC349201	CC30A
CBLP349201-A2	TCER	3#350, 1#350G, 1#3G	ATS349102	MCC349201	RWYP349201-A2	CTPL340102B				E-34-1112	480V FEED TO MCC349201	CC30A
CBLP349201-A3	TCER	3#350, 1#350G, 1#3G	ATS349102	MCC349201	RWYP349201-A3	CTPL340102B				E-34-1112	480V FEED TO MCC349201	CC30A
CBLP349201-B	TCER	2#12, 1#12G	PNL349302B	MCC349201	RWYP349201-B	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED TO MCC PMM349201	CC30A
CBLP349201-C	TCER	2#12, 1#12G	PNL349302B	MCC349201	RWYP349201-C	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED FOR MCC349201 NETWORK SWITCHES	CC30A
CBLP349201-D	TCER	2#12, 1#12G	PNL349302B	CAB349201	RWYP349201-D	CTPR340010B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V UPS "B" FEED TO MCC PLC CAB349201	CC30A
CBLP349201-E	TCER	2#12, 1#12G	PNL349408	CAB349201	RWYP34201-E	CTPR340018B	CTPR340004B	CTPR340020B	CTPR340008B	E-34-4005	120V FEED TO CAB349201	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-1006	480V ROADWAY LIGHTING. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340014B	RWYP341001-J	HH341001	RWYP001001-J	HH001001	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP349201-F	TCER	2#12, 1#12G	MCC349201	RDWY LTG	RWYP349201-F					E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP349201-G	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	CTPR340016B	E-00-1006	480V ROADWAY LIGHTING. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLP349201-G	TCER	2#12, 1#12G	MCC349201	RDWY LTG	CTPR340014B	RWYP341001-J	HH341001	RWYP349201-G		E-00-1006	480V ROADWAY LIGHTING. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLC349202-A	TCER	11#14, 1#14G	CAB340001	ATS349202	RWYC340001-D	CTC340014B	CTC340016B	RWYC349202-A		E-34-3001	CONTROL TO "B" SIDE ATS	CC30A
CBLD349202-A	NC4	1#600V CAT6A	NCE340101	ATS349202	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	ETHERNET TO "B" SIDE ATS349202	CC30A
CBLD349202-A	NC4	1#600V CAT6A	NCE340101	ATS349202	RWYD349202-A					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLP349202-A	TCER	3#4, 1#8G	MCC349101B	ATS349202	CTPL340102B	RWYP349202-A				E-34-3001	NORMAL "B BUS" 480V FEED TO UPS ATS349202	CC30A
CBLP349202-B	TCER	3#4, 1#8G	MCC349101A	ATS349202	CTPL340101A	RWYP349202-B				E-34-3001	ALTERNATE "A BUS" 480V FEED TO UPS ATS349202	CC30A
CBLP349203-A	TCER	3#250, 1#4G	MCC349101A	PNL349203	RWYP349203-A					E-34-1112	480V FEED TO BLOWER 3/3 PNL349203	CC30A
CBLP349204-A	TCER	3#250, 1#4G	MCC349101B	PNL349204	RWYP349204-A					E-34-1112	480V FEED TO BLOWER 2/4 PNL349204	CC30A
CBLC349301-A	TCER	18#14, 1#14G	CAB340001	UPS349301	RWYC340001-C	CTC340013A	CTC340017A	CTC340019A		E-34-3001	CONTROL TO "A" SIDE UPS - (ADDENDUM 3)	CC30A/REV A
CBLC349301-B	TCER	6#14, 1#14G	CAB340001	MBS349301	RWYC340001-C	CTC340013A	CTC340017A	CTC340019A	RWYC349301-B	E-34-3001	CONTROL TO "A" SIDE MBS (UPS SYSTEM) - (ADDENDUM 3)	CC30A/REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLD349301-A	NC2	1#U/FTP CAT6A	NCE340101	UPS349301	RWYD340101-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-34-1212	ETHERNET TO "A" SIDE UPS349301	CC30A
CBLD349301-A	NC2	1#U/FTP CAT6A	NCE340101	UPS349301	CTS340021A	CTS340019A	RWYD349301-A			E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLP349301-A	TCER	3#4, 1#8G	MCC349201	XFMR349301	CTPR340009A	CTPR340023A	CTPR340021A	CTPR340017A	RWYP349301-A	E-34-3001	480V FEED TO UPS TRANSFORMER XFMR349301	CC30A
CBLP349301-B	XHHW2	3#1, 1#1N, 1#6G	XFMR349301	CB349301	RWYP349301-B					E-34-3001	120/208V FEED TO UPS A ENCLOSED CIRCUIT BRKR CB349301	CC30A
CBLP349301-C	XHHW2	3#1, 1#6G	CB349301	MBS349301	RWYP349301-C					E-34-3001	120/208V FEED TO A UPS MAINTENANCE BYPASS SW. MBS349301	CC30A
CBLP349301-E	XHHW2	3#1, 1#6G	MBS349301	UPS349301	RWYP349301-E					E-34-3001	120/208V FEED TO "A BUS" UPS349301	CC30A
CBLP349301-F	XHHW2	3#1, 1#6G	UPS349301	MBS349301	RWYP349301-E					E-34-3001	120/208V FEED TO UPS A MAINTENANCE BYPASS SW. MBS349301	CC30A
CBLP349301-G	XHHW2	3#1, 1#6G	UPS349301	BAT349301	RWYP349301-G					E-34-3001	120/208V FEED TO UPS A BATTERY CABINET BAT349301	CC30A
CBLP349301A-A	XHHW2	3#1, 1#6G	MBS349301	PNL349301A	RWYP349301A-A					E-34-3001	120/208V FEED TO UPS "A" POWER PANEL A - PNL349301A	CC30A
CBLP349301B-A	XHHW2	3#1, 1#6G	MBS349301	PNL349301B	RWYP349301B-A					E-34-3001	120/208V FEED TO UPS "A" POWER PANEL B - PNL349301B	CC30A
CBLC349302-A	TCER	18#14, 1#14G	CAB340001	UPS349302	RWYC340001-D	CTC340014B	CTC340016B	RWYC349302-A		E-34-3001	CONTROL TO "B" SIDE UPS - (ADDENDUM 3)	CC30A/REV A
CBLC349302-B	TCER	6#14, 1#14G	CAB340001	MBS349302	RWYC340001-D	CTC340014B	CTC340016B	RWYC349302-B		E-34-3001	CONTROL TO "B" SIDE MBS (UPS SYSTEM) - (ADDENDUM 3)	CC30A/REV A
CBLD349302-A	NC2	1#U/FTP CAT6A	NCE340101	UPS349302	RWYD340101-B	CTS340020B	CTS340004B	CTS340010B	CTS340016B	E-34-1212	ETHERNET TO "B"SIDE UPS349302	CC30A
CBLD349302-A	NC2	1#U/FTP CAT6A	NCE340101	UPS349302	RWYD349302-A					E-34-1212	CONTINUED FROM LINE ABOVE	CC30A
CBLP349302-A	XHHW2	3#4, 1#8G	ATS349202	XFMR349302	RWYP349302-A					E-34-3001	480V FEED TO UPS TRANSFORMER XFMR349302	CC30A
CBLP349302-B	XHHW2	3#1, 1#1N, 1#6G	XFMR349302	CB349302	RWYP349302-B					E-34-3001	120/208V FEED TO UPS ENCLOSED CIRCUIT BRKR CB349302	CC30A
CBLP349302-C	XHHW2	3#1, 1#6G	CB349302	MBS349302	RWYP349302-C					E-34-3001	120/208V FEED TO UPS MAINTENANCE BYPASS SW. MBS349302	CC30A
CBLP349302-E	XHHW2	3#1, 1#6G	MBS349302	UPS349302	RWYP349302-E					E-34-3001	120/208V FEED TO "B BUS" UPS349302	CC30A
CBLP349302-F	XHHW2	3#1, 1#6G	UPS349302	MBS349302	RWYP349302-E					E-34-3001	120/208V FEED TO UPS MAINTENANCE BYPASS SW. MBS349302	CC30A
CBLP349302-G	XHHW2	3#1, 1#6G	UPS349302	BAT349302	RWYP349302-G					E-34-3001	120/208V FEED TO UPS FROM BATTERY CABINET BTRY349302	CC30A
CBLP349302A-A	XHHW2	3#1, 1#6G	MBS349302	PNL349302A	RWYP349302A-A					E-34-3001	120/208V FEED TO "B BUS" UPS POWER PANEL PNL349302A	CC30A
CBLP349302B-A	XHHW2	3#1, 1#6G	MBS349302	PNL349302B	RWYP349302B-A					E-34-3001	120/208V FEED TO "B BUS" UPS POWER PANEL PNL349302B	CC30A
CBLC349303-A	XHHW2	2#14, 1#14G	CAB340001	MCC349303	RWYC340001-C	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1112	CONTROL FEED TO PMM349303	CC30A
CBLC349303-A	XHHW2	2#14, 1#14G	CAB340001	MCC349303	CTC340009A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLC349303-B	XHHW2	2#14, 1#14G	CAB340001	MCC349303	RWYC340001-C	CTC340013A	CTC340017A	CTC340021A	CTC340023A	E-34-1112	CONTROL FEED TO SPD349303	CC30A
CBLC349303-B	XHHW2	2#14, 1#14G	CAB340001	MCC349303	CTC340009A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLD349303-A	NC4	1#600V CAT6A	NCE340101	MCC349303	RWYD340101-F	CTS340008B				E-34-1212	ETHERNET TO HVAC MCC PMM349303	CC30A
CBLP349303-A1	XHHW2	3#350, 1#1/0G	MCC349201	MCC349303	RWYP349303-A1					E-34-1112	480V PARALLEL FEED TO HVAC MCC349303	CC30A
CBLP349303-A2	XHHW2	3#350, 1#1/0G	MCC349201	MCC349303	RWYP349303-A2					E-34-1112	480V PARALLEL FEED TO HVAC MCC349303	CC30A
CBLP349303-B	TCER	2#12, 1#12G	PNL349301B	MCC349303	RWYP349303-B	CTPR340021A	CTPR340023A	CTPR340009A		E-34-1112	120V UPS "A" FEED TO MCC PMM349303	CC30A
CBLP349304-A	XHHW2	3#4, 1#8G	PNL349203	XFMR349304	RWYP349304-A					E-34-1112	480V FEED TO XFRM349303	CC30A
CBLP349304-B	XHHW2	3#1, 1#1N, 1#6G	XFMR349304	PNL349304	RWYP349304-B					E-34-1112	208V FEED TO BLOWER 1/3 PNL349303	CC30A
CBLP349305-A	XHHW2	3#4, 1#8G	PNL349204	XFMR349305	RWYP349305-A					E-34-1112	480V FEED TO XFRM349305	CC30A
CBLP349305-B	XHHW2	3#1, 1#1N, 1#6G	XFMR349305	PNL349305	RWYP349305-B					E-34-1112	208V FEED TO BLOWER 2/4 PNL349305	CC30A
CBLP349306-A	TCER	3#4/0, 1#4G	MCC349201	XFMR349306	CTPL340102B	RWYP349306-A				E-34-1112	480V FEED TO XFRM349306	CC30A
CBLP349306-B	XHHW2	3#350, 1#350N, 1#2G	XFMR349306	PNL349306	RWYP349306-B					E-34-1112	208V FEED TO DISTRIUBUTION PNL349306	CC30A
CBLP349307-A	XHHW2	3#4/0, 1#6G	MCC349201	XFMR349307	RWYP349307-A					E-34-1211	208V FEED TO 240/120V TRANSFORMER XFMR349307	CC30A
CBLP349307-B	XHHW2	3#350, 1#350N, 1#2G	XFMR349307	PNL349307	RWYP349307-B					E-34-1211	240V FEED TO KITCHEN APPLICANCES PANEL PNL349307	CC30A
CBLP349308-A	XHHW2	3#4/0, 1#4G	MCC349201	XFMR349308	RWYP349308-A					E-34-1121	480V FEED TO 2ND FLOOR DISTRIBUTION TRANSFORMER XFMR349308	CC30A
CBLP349308-B	XHHW2	3#500, 1#500N, 1#1/0G	XFMR349308	CB349308	RWYP349308-B					E-34-1121	208 FEED TO 2ND FLOOR DISTRIBUTION PANEL PNL349308	CC30A
CBLP349308-C	XHHW2	3#500, 1#500N, 1#1/0G	CB349308	PNL349308	RWYP349308-C					E-34-1121	208 FEED TO 2ND FLOOR DISTRIBUTION PANEL PNL349308	CC30A
CBLP349401-A	XHHW2	3#4/0, 1#4G	PNL349308	PNL349401	RWYP349401-A					E-34-1121	208V FEED TO 2ND FLOOR RECEPTACLE PANEL PNL349401	CC30A
CBLP349402-A	XHHW2	3#1, 1#6G	PNL349308	PNL349402	RWYP349402-A					E-34-1121	208V FEED TO 2ND FLOOR LIGHTING PNL349402	CC30A
CBLP349403-A	XHHW2	3#1, 1#6G	PNL349308	PNL349403	RWYP349403-A					E-34-1112	208V FEED TO 2ND FLR LIGHTING PNL349403	CC30A
CBLP349404-A	TCER	3#1, 1#6G	MCC349303	XFMR349404	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340016B	CTPR340010B	E-34-1112	480V FEED TO HVAC TRANSFORMER XFMR349404	CC30A
CBLP349404-A	TCER	3#1, 1#6G	MCC349303	XFMR349404	RWYP349404-A					E-34-1112	CONTINUED FROM LINE ABOVE	CC30A
CBLP349404-B	XHHW2	3#2/0, 1#2/0N, 1#4G	XFMR349404	PNL349404	RWYP349404-B					E-34-1112	208V FEED TO HVAC PANEL PNL349404	CC30A
CBLP349405A-A	XHHW2	2#500, 1#3G	TBX349405	MTS349405A	RWYP349405A-A					E-34-4002	125VDC FEED TO 125VDC PNL C MANUAL TRANSFER SWTICH 1 MTS349405A	CC30A
CBLP349405A-B	XHHW2	2#500, 1#3G	TBX349406	MTS349405A	RWYP349405A-B					E-34-4002	125VDC FEED TO 125VDC PNL C MANUAL TRANSFER SWTICH 1 MTS349405A	CC30A
CBLP349405B-A	XHHW2	2#500, 1#3G	MTS349405A	MTS349405B	RWYP349405B-A					E-34-4002	125VDC FEED TO 125VDC PNL C MANUAL TRANSFER SWTICH 2 MTS349405B	CC30A
CBLP349405-A	TCER	3#8, 1#10G	PNL349306	DS349405	RWYP349405-AA	CTPR340018B	CTPR340010B	CTPR340016B	RWYP349405-AB	E-34-4002	208V FEED TO SWGR BYC2 DISCONNECT SWITCH DS349405	CC30A
CBLP349405-B	XHHW2	3#8, 1#10G	DS349405	BYC349405	RWYP349405-B					E-34-4002	208V FEED TO SWGR BATTERY CHARGER 2 BYC349405	CC30A
CBLP349405-C	XHHW2	2#4, 1#8G	BYC349405	TBX349405	RWYP349405-C					E-34-4002	125VDC FEED TO SWGR BYC 2 TERMINAL BOX TBX349405	CC30A
CBLP349405-D	XHHW2	2#500, 1#3G	CB349405	TBX349405	RWYP349405-D					E-34-4002	125VDC FEED TO SWGR BYC 2 TERMINAL BOX TBX349405	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP349405-E	XHHW2	2#500, 1#3G	MTS349405B	PNL349405	RWYP349405-E					E-34-4002	125VDC FEED TO PANEL C PNL349405	CC30A
CBLP349405-F	PULLROPE	PULLROPE	MTS349405B	34 BLDG NORTH WALL	RWYP349405-F					E-34-4002	SPARE RACEWAY FOR FUTURE 125VDC FEED TO LOAD BANK LBNK349405 (ADDENDUM 3)	CC30A / REV A
CBLX349405-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-A					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-B					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-C					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-D					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-E					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-F					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-G					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-H	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-H					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-I	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-I					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-J	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-J					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-K	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-K					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-L	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-L					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-M	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-M					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349405-N	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349405	RWYX349405-N					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLP349406A-A	XHHW2	2#500, 1#3G	TBX349406	MTS349406A	RWYP349406A-A					E-34-4002	125VDC FEED TO 125VDC PNL A MANUAL TRANSFER SWTICH 1 MTS349406A	CC30A
CBLP349406A-B	XHHW2	2#500, 1#3G	TBX349407	MTS349406A	RWYP349406A-B					E-34-4002	125VDC FEED TO 125VDC PNL A MANUAL TRANSFER SWTICH 1 MTS349406A	CC30A
CBLP349406B-A	XHHW2	2#500, 1#3G	MTS349406A	MTS349406B	RWYP349406B-A					E-34-4002	125VDC FEED TO 125VDC PNL A MANUAL TRANSFER SWTICH 2 MTS349406B	CC30A
CBLP349406-A	TCER	3#8, 1#10G	PNL349304	DS349406	RWYP349406-AA	CTPR340013A	RWYP349406-AB			E-34-4002	208V FEED TO SWGR BYC1 SAFETY DISCONNECT SWITCH DS349406	CC30A
CBLP349406-B	XHHW2	3#8, 1#10G	DS349406	BYC349406	RWYP349406-B					E-34-4002	208V FEED TO SWGR BATTERY CHARGER 1 BYC349406	CC30A
CBLP349406-C	XHHW2	2#4, 1#8G	BYC349406	TBX349406	RWYP349406-C					E-34-4002	125VDC FEED TO SWGR BYC 1 TERMINAL BOX TBX349406	CC30A
CBLP349406-D	XHHW2	2#500, 1#3G	CB349406	TBX349406	RWYP349406-D					E-34-4002	125VDC FEED TO SWGR BYC 1 TERMINAL BOX TBX349406	CC30A
CBLP349406-E	XHHW2	2#500, 1#3G	MTS349406B	PNL349406	RWYP349406-E					E-34-4002	125VDC FEED TO PANEL A PNL349406	CC30A
CBLP349406-F	PULLROPE	PULLROPE	MTS349406B	34 BLDG NORTH WALL	RWYP349406-F					E-34-4002	SPARE RACEWAY FOR FUTURE 125VDC FEED TO LOAD BANK LBNK349406 (ADDENDUM 3)	CC30A / REV A
CBLX349406-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-A					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-B					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-C					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-D					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-E					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-F	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-F					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349406-G	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349406	RWYX349406-G					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLP349407A-A	XHHW2	2#500, 1#3G	TBX349407	MTS349407A	RWYP349407A-A					E-34-4002	125VDC FEED TO 125VDC PNL B MANUAL TRANSFER SWTICH 1 MTS349407A	CC30A
CBLP349407A-B	XHHW2	2#500, 1#3G	TBX349405	MTS349407A	RWYP349407A-B					E-34-4002	125VDC FEED TO 125VDC PNL B MANUAL TRANSFER SWTICH 1 MTS349407A	CC30A
CBLP349407B-A	XHHW2	2#500, 1#3G	MTS349407A	MTS349407B	RWYP349407B-A					E-34-4002	125VDC FEED TO 125VDC PNL B MANUAL TRANSFER SWTICH 2 MTS349407B	CC30A
CBLP349407-A	TCER	3#8, 1#10G	PNL349305	DS349407	RWYP349407-AA	CTPR340014B	CTPR340016B	RWYP349407-AB		E-34-4002	208V FEED TO SWGR BYC3 SAFETY DISCONNECT SWITCH DS349407	CC30A
CBLP349407-B	XHHW2	3#8, 1#10G	DS349407	BYC349407	RWYP349407-B					E-34-4002	208V FEED TO SWGR BATTERY CHARGER 3 BYC349407	CC30A
CBLP349407-C	XHHW2	2#4, 1#8G	BYC349407	TBX349407	RWYP349407-C					E-34-4002	125VDC FEED TO SWGR BYC 3 TERMINAL BOX TBX349407	CC30A
CBLP349407-D	XHHW2	2#500, 1#3G	CB349407	TBX349407	RWYP349407-D					E-34-4002	125VDC FEED TO SWGR BYC 3 TERMINAL BOX TBX349407	CC30A
CBLP349407-E	XHHW2	2#500, 1#3G	MTS349407B	PNL349407	RWYP349407-E					E-34-4002	125VDC FEED TO PANEL B PNL349407	CC30A
CBLP349407-F	PULLROPE	PULLROPE	MTS349407B	34 BLDG NORTH WALL	RWYP349407-F					E-34-4002	SPARE RACEWAY FOR FUTURE 125VDC FEED TO LOAD BANK LBNK349407 (ADDENDUM 3)	CC30A / REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX349407-A	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349407	RWYX349407-A					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349407-B	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349407	RWYX349407-B					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349407-C	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349407	RWYX349407-C					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT	CC30A / REV A
CBLX349407-D	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349407	RWYX349407-D					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT (CCF 008)	CC30A / REV 1
CBLX349407-E	PULLROPE	PULLROPE	34 BLDG NORTH WALL	PNL349407	RWYX349407-E					E-34-1113	SPARE RACEWAY TO BLOWER BUILDING BASEMENT (CCF 008)	CC30A / REV 1
CBLP349408-A	XHHW2	3#1/0, 1#6G	PNL349306	PNL349408	RWYP349408-A					E-34-1112	208V FEED TO GROUND/1ST FLR RECPTACLE PNL349408	CC30A
CBLP349409-A	XHHW2	3#1, 1#6G	PNL349306	PNL349409	RWYP349409-A					E-34-1112	208V FEED TO GROUND/1ST FLR LIGHTING PNL349409	CC30A
CBLP349410-A	XHHW2	3#1, 1#6G	PNL349306	PNL349410	RWYP349410-A					E-34-1112	208V FEED TO LIGHTING PNL349410	CC30A
CBLP349411-A	TCER	3#1, 1#6G	MCC349303	PNL349411	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	RWYP349411-A	E-34-1112	480V FEED TO HVAC PANEL PNL349411	CC30A
CBLP349412-A	TCER	3#1, 1#6G	MCC349303	PNL349412	CTPR340008B	CTPR340020B	CTPR340004B	CTPR340010B	RWYP349412-A	E-34-1112	480V FEED TO HVAC PANEL PNL349412	CC30A
CBLH500000A-A	MV105	3#4/0, 1#4/0G	SWGR340133A	SUB50	CTH340005A	CTH340003A	CTH3310133A	CTH3320133A	RWYH500000A-A	E-05-4001	5 KV "A" SIDE FEED TO ADMIN SUB 50. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH500000B-A	MV105	3#4/0, 1#4/0G	SWGR340133B	SUB50	CTH340006B	CTH340004B	CTH3310133B	CTH3320133B	RWYH500000B-A	E-05-4001	5 KV "B" SIDE FEED TO ADMIN SUB 50. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH117000A-A	MV105	3#500, 1#4/0G	SWGR340133A	MVM117A	CTH340005A	CTH340001A	4160V TRAY	CTH3310133A		E-34-1112	5KV FEED FROM NEW SWRG TO EXISTING MVM117A. CABLE ALSO APPEARS IN AREA 33 CABLE SCHEDULE	CC30A
CBLH117000B-A	MV105	3#500, 1#4/0G	SWGR340133B	MVM117B	CTH340006B	CTH340002B	4160V TRAY	CTH3310133B		E-34-1112	5KV FEED FROM NEW SWRG TO EXISTING MVM117B. CABLE ALSO APPEARS IN AREA 33 CABLE SCHEDULE	CC30A

CVWRF
3W/REUSE FILTER PROJECT

Engineer: JRP
January 2021 - CCF 020

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC000020-A	PULLROPE	PULLROPE	CAB020001	HH020003	CTC020104	CTC020103	RWYC000020-C			E-00-1301	FOR FUTURE STORM DRAIN LIFT STATION 2. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE. RACEWAY/ HH ONLY	CC5F/REV A
CBLC000021-A	PULLROPE	PULLROPE	MCC029001A	HH020003	CTC020102	CTC020103	RWYC000021-C			E-00-1301	FOR FUTURE STORM DRAIN LIFT STATION 2. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE. RACEWAY/ HH ONLY	CC5F/REV A
CBLP000021-A	PULLROPE	PULLROPE	MCC029001A	HH020002	CTPR020102A	CTPR020103A	RWYP000021-C			E-00-1301	FOR FUTURE STORM DRAIN LIFT STATION 2. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE. RACEWAY/ HH ONLY	CC5F/REV A
CBLC000022-A	PULLROPE	PULLROPE	MCC029001B	HH020003	CTC020102	CTC020103	RWYC000022-C			E-00-1301	FOR FUTURE STORM DRAIN LIFT STATION 2. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE. RACEWAY/ HH ONLY	CC5F/REV A
CBLP000022-A	PULLROPE	PULLROPE	MCC029001B	HH020002	CTPR020102B	CTPR020103B	RWYP000022-C			E-00-1301	FOR FUTURE STORM DRAIN LIFT STATION 2. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE. RACEWAY/ HH ONLY	CC5F/REV A
CBLD020001-A	NC2	1#U/FTP CAT6A	CAB020001	NCE020011	RWYD020001-A					E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD020001-B	NC2	1#U/FTP CAT6A	CAB020001	NCE020011	RWYD020001-A					E-02-1203	NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)	CC5F
~~**CBLD020001-C**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB020001**~~	~~**NCE020011**~~	~~**RWYD020001-A**~~					~~**E-02-1203**~~	~~**NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**~~	CC5F
CBLD020001-D	NC2	1#U/FTP CAT6A	CAB020001	NCE020011	RWYD020001-B					E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
~~**CBLD020001-E**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB020001**~~	~~**NCE020011**~~	~~**RWYD020001-B**~~					~~**E-02-1203**~~	~~**NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**~~	CC5F
~~**CBLD020001-F**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB020001**~~	~~**NCE020011**~~	~~**RWYD020001-B**~~					~~**E-02-1203**~~	~~**NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**~~	CC5F
CBLD020001-G	NC2	1#U/FTP CAT6A	CAB020001	NCE020011	RWYD020001-A					E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLP020001-A	XHHW2	1#12, 1#12N, 1#12G	PNL029202	CAB020001	RWYP020001-A					E-02-1103		CC5F
CBLP020001-B	XHHW2	1#12, 1#12N, 1#12G	PNL029302	CAB020001	RWYP020001-B					E-02-1103		CC5F
CBLP020001-C	TCER	2#12, 1#12G	PNL029303	CAB020001	CTPR020102A	CTPR020104A	RWYP020001-C			E-02-1103	PLC CABINET NORMAL POWER	CC5F/REV A
CBLX020001A	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001A					E-00-1301	SPARE POWER CONDUIT FROM 3W ELECT ROOM	CC5F
CBLX020001B	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001B					E-00-1301	SPARE POWER CONDUIT FROM 3W ELECT ROOM	CC5F
CBLX020001C	PULLROPE	PULLROPE	3W ELEC ROOM	MH24225	RWYPX020001C					E-00-1301	SPARE POWER CONDUIT FROM 3W ELECT ROOM	CC5F
CBLX020002A	PULLROPE	PULLROPE	HH020001	HH24225	RWYSX020001A					E-00-1301	SPARE SIGNAL CONDUIT	CC5F
CBLX020002B	PULLROPE	PULLROPE	HH020001	HH24225	RWYF020002-C					E-00-1301	RESERVED FOR FUTURE NETWORK CABLE FROM AREA 21 TO AREA 23	CC5F
CBLX020003A	PULLROPE	PULLROPE	3W ELEC ROOM	HH020001	RWYSX020003A					E-00-1301	SPARE SIGNAL CONDUIT FROM 3W ELECT ROOM	CC5F
CBLX020003B	PULLROPE	PULLROPE	3W ELEC ROOM	HH020001	RWYSX020003B					E-00-1301	SPARE SIGNAL CONDUIT FROM 3W ELECT ROOM	CC5F
CBLX020005A	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-A					E-00-1301/1005	SPARE SIGNAL CONDUIT TO AREA 23	CC5F
CBLX020005B	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-B					E-00-1301/1005	SPARE SIGNAL CONDUIT TO AREA 23	CC5F
CBLX020005C	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYSX020005-C					E-00-1301/1005	SPARE SIGNAL CONDUIT TO AREA 23	CC5F
CBLX020005D	PULLROPE	PULLROPE	HH020001	JBX230001-B	RWYF020005-B					E-00-1301/1005	SPARE CONDUIT TO AREA 23	CC5F
CBLX020006A	PULLROPE	PULLROPE	PBX210001S-A	AREA 24 CABLE ROOM	PBX210001S-A	RWYF210001-A	CTS24			E-00-1304	SPARE SIGNAL CONDUIT	CC5F
CBLX020006B	PULLROPE	PULLROPE	PBX210001S-A	AREA 24 CABLE ROOM	PBX210001S-A	RWYFX210001	CTS24			E-00-1304	SPARE SIGNAL CONDUIT	CC5F
CBLD020008-A	NC2	1#U/FTP CAT6A	DRCP020008	NCE020011	RWYD020008-A					E-02-1203	SCADA WORKSTATION CAB020008 DATA JACK	CC5F
CBLF020010-A	**FOTSM**	**6 FiberSM**	NCE020011	FACP020010	RWYF020010-A					E-02-1203	**6-FIBER PATCH CORDS FOR FA. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
~~**CBLF020010-B**~~			~~**NCE020011**~~	~~**FACP020010**~~	~~**RWYF020010-A**~~					~~**E-02-1103**~~	**CCF 020 CHANGE ORDER PENDING**	CC5F
CBLP020010-A	XHHW2	1#12, 1#12N, 1#12G	PNL029302	FACP020010	RWYP020010-A					E-02-1103		CC5F
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**RWYF240011-A**	**CTS24**	**RWYF24224-E**	**HH24224**	**RWYF24225-E**	E-02-1203	**CABLE FROM NEW NETWORK CABINET IN AREA 24 ELECT ROOM. (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**HH24225**	**RWYF24225-B**	**HH020001**	**RWYF020011-B**		E-02-1203	**CONTINUED FROM ROUTING ABOVE. (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011D-A	**FOTSM**	**6 FiberSM**	**CAB020001**	**NCE020011**	**RWYF020011D-A**	**CTS020100**				**E-02-1203**	**6-STRAND FIBER CABLE TO NETWORK CABINET (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-02-1203	CABLE FROM NEW NETWORK CABINET IN AREA 33 CONTROL ROOM.	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	MH23613	RWYF230001A-A	JBX230001-A	RWYF020011-A	JBX230001-B	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF230001B-C	HH020001	RWYF020011-B			E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	**RWYF240011-B**	**CTS24**	**RWYF240000-C**	**HH24224**	**RWYF24224-C**	E-21-1201	**PLANT FA. CABLE FROM NEW NETWORK CABINET IN AREA 24 ELECT ROOM. RUN IN SEPARATE RACEWAYS AND PULLBOXES FROM OTHER WIRING. RUN IN SEPARATE RGS CONDUIT IN HANDHOLES OR IN TRAY CONTAINING OTHER WIRING (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	**HH24225**	**RWYF24225-A**	**HH020001**	**RWYF020011-C**		E-02-1203	**PLANT FA. CABLE FROM NEW NETWORK CABINET IN AREA 24 ELECT ROOM. CONT. FROM ROUTING ABOVE. (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLP020011-A	XHHW2	1#12, 1#12N, 1#12G	PNL029202	NCE020011	RWYP020011-A					E-02-1103		CC5F
CBLP020011-B	XHHW2	1#12, 1#12N, 1#12G	PNL029302	NCE020011	RWYP020011-B					E-02-1103		CC5F
CBLP020105-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS020105	RWYP020105-A					E-02-1104		CC5F
CBLP020105-B	XHHW2	1#12, 1#12N, 1#12G	DS020105	DOOR M020105	RWYP020105-B					E-02-1104		CC5F/REV A
CBLP020108-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS020108	RWYP020108-A					E-02-1102		CC5F
CBLP020108-B	XHHW2	1#12, 1#12N, 1#12G	DS020108	DOOR M020108	RWYP020108-B					E-02-1102		CC5F/REV A
CBLC020110-A	TCER	11#14, 1#14G	MCC029001A	CS020110	CTC020102	CTC020103	RWYC020110-A			E-02-1102		CC5F ADD2/ADD3
CBLC020110-B	XHHW2	4#14, 1#14G	CS020110	JB020110	RWYC020110-B					E-02-1102		CC5F ADD2
CBLM020110-A	VENDOR	Special	JB020110	M020110	RWYM020110					E-02-1102		CC5F
CBLP020110-A	VFD1	3#2, 1#2G	MCC029001A	JB020110	CTPR020102A	CTPR020103A	RWYP020110-A			E-02-1102		CC5F
CBLS020110-A	INS	1TR #16SH	MCC029001A	CS020110	CTS020102	CTS020103	RWYS020110-A			E-02-1202		CC5F ADD2
CBLS020110-B	INS	1PR #16SH	MCC029001A	CS020110	CTS020102	CTS020103	RWYS020110-A			E-02-1202		CC5F ADD2
CBLC020120-A	TCER	11#14, 1#14G	MCC029001B	CS020120	CTC020101	CTC020102	CTC020103	RWYC020120-A		E-02-1102		CC5F ADD2/ADD3
CBLC020120-B	XHHW2	4#14, 1#14G	CS020120	JB020120	RWYC020120-B					E-02-1102		CC5F
CBLM020120-A	VENDOR	Special	JB020120	M020120	RWYM020120-A					E-02-1102		CC5F ADD2
CBLP020120-A	VFD1	3#2, 1#2G	MCC029001B	JB020120	CTPR020101B	CTPR020102B	CTPR020103B	RWYP020120-A		E-02-1102		CC5F
CBLS020120-A	INS	1TR #16SH	MCC029001B	CS020120	CTS020101	CTS020102	CTS020103	RWYS020120-A		E-02-1202		CC5F ADD2
CBLS020120-B	INS	1PR #18SH	MCC029001B	CS020120	CTS020101	CTS020102	CTS020103	RWYS020120-A		E-02-1202		CC5F ADD2
CBLS020123-A	INSM	2PR #16SH	AIT020123	CAB020001	RWYS020123-A	CTC020103	CTC020104			E-02-1301	EXISTING INSTRUMENT	CC5F
CBLP020123-A	TCER	2#12, 1#12G	PNL029202	AIT020123	CTPR020104A	CTPR020102A	CTPR020103A	RWYP020123-A		E-02-1301	EXISTING INSTRUMENT	CC5F ADD2
CBLC020130-A	TCER	11#14, 1#14G	MCC029001A	CS020130A	CTC020102	CTC020103	RWYC020130-A			E-02-1102		CC5F ADD2/ADD3
CBLC020130-B	XHHW2	4#14, 1#14G	CS020130	JB020130	RWYC020130-B					E-02-1102		CC5F ADD2
CBLM020130-A	VENDOR	Special	JB020130	M020130	RWYM020130-A					E-02-1102		CC5F
CBLP020130-A	VFD1	3#2, 1#2G	MCC029001A	JB020130	CTPR020102A	CTPR020103A	RWYP020130-A			E-02-1102		CC5F
CBLS020130-A	INS	1TR #16SH	MCC029001A	CS020130	CTS020102	CTS020103	RWYS020130-A			E-02-1202		CC5F ADD2
CBLS020130-B	INS	1PR #16SH	MCC029001A	CS020130	CTS020102	CTS020103	RWYS020130-A			E-02-1202		CC5F ADD2
CBLC020135-A	TCER	2#14, 1#14G	CAB020001	FSH020135	CTC020104	RWYC020135-A				E-02-1102		CC5F
CBLC020136-A	TCER	2#14, 1#14G	CAB020001	FSH020136	CTC020104	CTC020105	RWYC020136-A			E-02-1103		CC5F
CBLC020137-A	TCER	2#14, 1#14G	CAB020001	FSH020137	CTC020104	CTC020103	RWYC020137-A			E-02-1102		CC5F
CBLC020138-A	TCER	2#14, 1#14G	CAB020001	FSH020138	CTC020104	CTC020103	RWYC020138-A			E-02-1102		CC5F
CBLC020210-A	TCER	6#14, 1#14G	CAB020001	CAB020210	CTC020104	CTC020103	RWYC020210-A			E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020210-B	XHHW2	24#14, 1#14G	CAB020210	TBX020210	RWYC020210-B					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020210-C	XHHW2	24#14, 1#14G	CAB020210	TBX020210	RWYC020210-C					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLD020210-A	NC2	1#U/FTP CAT6A	CAB020210	NCE020011	RWYD020210-A1	CTS020103	CTS020102	CTS020104	CTS020100	E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD020210-B	NC2	1#U/FTP CAT6A	CAB020210	CAB020220	RWYD020210-B1					E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD020210-C	NC4	1#600V CAT6A	CAB020210	CAB020610B	RWYD020210-C1	CTS020103	RWYD020210-C2			E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLP020210A-A	VENDOR	Special	TBX020210	M020210A	RWYP020210A-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020210B-A	VENDOR	Special	TBX020210	M020210B	RWYP020210B-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020210-A	TCER	3#10, 1#10G	PNL029201	CAB020210	RWYP020210-A1	CTPR020104A	CTPR020103A	RWYP020210-A2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020210-B	TCER	2#12, 1#12G	PNL029302	CAB020210	RWYP020210-B1	CTPR020104A	CTPR020103A	RWYP020210-B2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020210-C	XHHW2	11#14, 1#14G	CAB020210	TBX020210	RWYP020210-C1					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F ADD3
CBLS020210-A	INS	1PR #16SH	CAB020210	LIT020210	RWYS020210-A					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020210-B	INS	1PR #16SH	CAB020210	LSHH020210	RWYS020210-B					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020210-C	INS	1PR #16SH	CAB020210	TBX020210	RWYS020210-C					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020210-D	INS	1PR #16SH	CAB020210	TBX020210	RWYS020210-D					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC020220-A	TCER	6#14, 1#14G	CAB020001	CAB020220	CTC020104	CTC020103	RWYC020220-A			E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020220-B	XHHW2	24#14, 1#14G	CAB020220	TBX020220	RWYC020220-B					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020220-C	XHHW2	24#14, 1#14G	CAB020220	TBX020220	RWYC020220-C					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLD020220-A	NC2	1#U/FTP CAT6A	CAB020220	NCE020011	RWYD020220-A1	CTS020103	CTS020102	CTS020104	CTS020100	E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD020220-B	NC2	1#U/FTP CAT6A	CAB020220	CAB020230	RWYD020220-B1					E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLP020220A-A	VENDOR	Special	TBX020220	M020220A	RWYP020220A-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020220B-A	VENDOR	Special	TBX020220	M020220B	RWYP020220B-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020220-A	TCER	3#10, 1#10G	PNL029201	CAB020220	RWYP020220-A1	CTPR020104B	CTPR020103B	RWYP020220-A2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020220-B	TCER	2#12, 1#12G	PNL029202	CAB020220	RWYP020220-B1	CTPR020104B	CTPR020103B	RWYP020220-B2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020220-C	XHHW2	11#14, 1#14G	CAB020220	TBX020220	RWYP020220-C1					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F ADD3
CBLS020220-A	INS	1PR #16SH	CAB020220	LIT020220	RWYS020220-A					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020220-B	INS	1PR #16SH	CAB020220	LSHH020220	RWYS020220-B					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020220-C	INS	1PR #16SH	CAB020220	TBX020220	RWYS020220-C					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020220-D	INS	1PR #16SH	CAB020220	TBX020220	RWYS020220-D					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020230-A	TCER	6#14, 1#14G	CAB020001	CAB020230	CTC020104	CTC020103	RWYC020230-A			E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020230-B	XHHW2	24#14, 1#14G	CAB020230	TBX020230	RWYC020230-B					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLC020230-C	XHHW2	24#14, 1#14G	CAB020230	TBX020230	RWYC020230-C					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLD020230-A	NC2	1#U/FTP CAT6A	CAB020230	NCE020011	RWYD020230-A1	CTS020103	CTS020102	CTS020104	CTS020100	E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD020230-B	NC2	1#U/FTP CAT6A	CAB020230	CAB029001B	RWYD020230-B1					E-02-1202	NETWORK CABLE. SEE I-02-6101	CC5F
CBLP020230A-A	VENDOR	Special	TBX020230	M020230A	RWYP020230A-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020230B-A	VENDOR	Special	TBX020230	M020230B	RWYP020230B-A					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE. TERMINATE VENDOR WIRING AT MOTOR. PROVIDE LFS CONDUIT FROM VENDOR CONDUIT SYSTEM TO MOTOR	CC5F ADD3
CBLP020230-A	TCER	3#10, 1#10G	PNL029201	CAB020230	RWYP020230-A1	CTPR020104A	CTPR020103A	RWYP020230-A2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020230-B	TCER	2#12, 1#12G	PNL029302	CAB020230	RWYP020230-B1	CTPR020104A	CTPR020103A	RWYP020230-B2		E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020230-C	XHHW2	11#14, 1#14G	CAB020230	TBX020230	RWYP020230-C1					E-02-1102	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F ADD3
CBLS020230-A	INS	1PR #16SH	CAB020230	LIT020230	RWYS020230-A					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020230-B	INS	1PR #16SH	CAB020230	LSHH020230	RWYS020230-B					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020230-C	INS	1PR #16SH	CAB020230	TBX020230	RWYS020230-C					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLS020230-D	INS	1PR #16SH	CAB020230	TBX020230	RWYS020230-D					E-02-1202	COORDINATE WIRING WITH DISK FILTER VENDOR PACKAGE	CC5F
CBLP020301-A	TCER	2#12, 1#12G	PNL029302	LIT PNL020301	RWYP020301-A	CTPR020104A	CTPR020102A	CTPR020107A	CTPR020109A	E-02-1104	LIT PANEL PNL020301 POWER	CC5F
CBLP020301-A	TCER	2#12, 1#12G	PNL029302	LIT PNL020301	CTPR020110A	RWYP020301-B				E-02-1104	CONTINUED FROM ABOVE LIT PANEL POWER	CC5F
CBLS020301-A	INS	1PR #16SH	CAB029001A	LIT PNL020301	RWYS020301-A	CTS020101	CTS020107	CTS020109	CTS020110	E-02-1204	LIT020301 SIGNAL FROM PNL020301	CC5F
CBLS020301-A	INS	1PR #16SH	CAB029001A	LIT PNL020301	RWYS020301-B					E-02-1204	CONTINUED FROM ABOVE LIT020301 SIGNAL	CC5F
CBLV020301-A	VENDOR	Special	LIT PNL020301	LIT020301	RWYS020301-C					E-02-1204	VENDOR CABLE	CC5F
CBLS020302A-A	INSM	2PR #16SH	CAB029001B	FIT020302	CTS020101	CTS020107	CTS020109	RWYS020302A-A		E-02-1204		CC5F
CBLS020302-A	INS	1PR #16SH	CAB029001B	LIT PNL020301	RWYS020302-A	CTS020101	CTS020107	CTS020109	CTS020110	E-02-1204	LIT020302 SIGNAL FROM PNL020301	CC5F
CBLS020302-A	INS	1PR #16SH	CAB029001B	LIT PNL020301	RWYS020302-B					E-02-1204	CONTINUED FROM ABOVE LIT020302 SIGNAL	CC5F
CBLV020302-A	VENDOR	Special	LIT PNL020301	LIT020302	RWYS020302-C					E-02-1204	VENDOR CABLE	CC5F
CBLS020303A-A	INS	1PR #16SH	CAB029001A	PIT020303A	CTS020101	CTS020107	CTS020109	RWYS020303A-A		E-02-1204		CC5F
CBLS020303B-A	INS	1PR #16SH	CAB029001B	PIT020303B	CTS020101	CTS020107	CTS020109	RWYS020303B-A		E-02-1204		CC5F
CBLC020305-A	TCER	2#14, 1#14G	CAB020001	FSL020305	CTC020104	CTC020102	CTC020101	CTC020106	CTC020108	E-02-1104		CC5F
CBLC020305-A	TCER	2#14, 1#14G	CAB020001	FSL020305	RWYC020300-A					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLP020305-A	TCER	2#12, 1#12G	PNL029302	AIT020305	CTPR020104A	CTPR020105A	CTPR020101A	CTPR020106A	CTPR020108A	E-02-1104	PROVIDE RECEPT FOR METER AND SAMPLE PUMP	CC5F
CBLP020305-A	TCER	2#12, 1#12G	PNL029302	AIT020305	RWYP020305-A					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020305-A	INS	1PR #16SH	CAB020001	AIT020305	CTS020104	CTS020102	CTS020101	CTS020106	CTS020108	E-02-1204		CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLS020305-A	INS	1PR #16SH	CAB020001	AIT020305	RWYS020300-A					E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020310-A	TCER	8#14, 1#14G	MCC029001A	CS020310	CTC020101	CTC020106	CTC020108	CTC020111		E-02-1104		CC5F
CBLC020310-B	XHHW2	2#14, 1#14G	TSH020310	CS020310	RWYC020310-B					E-02-1104		CC5F
CBLP020310-A	VFD1	3#4, 1#4G	MCC029001A	M020310	CTPR020101A	CTPR020106A	CTPR020108A	CTPR020111A		E-02-1104		CC5F
CBLS020310-A	INS	1TR #16SH	MCC029001A	CS020310	CTS020101	CTS020106	CTS020108	CTS020111		E-02-1204		CC5F
CBLS020310-B	INS	1PR #16SH	MCC029001A	CS020310	CTS020101	CTS020106	CTS020108	CTS020111		E-02-1204		CC5F
CBLC020320-A	TCER	8#14, 1#14G	MCC029001B	CS020320	CTC020101	CTC020106	CTC020108	CTC020112		E-02-1104		CC5F
CBLC020320-B	XHHW2	2#14, 1#14G	TSH020320	CS020320	RWYC020320-B					E-02-1104		CC5F
CBLP020320-A	VFD1	3#4, 1#4G	MCC029001B	M020320	CTPR020101B	CTPR020106B	CTPR020108B	CTPR020112B		E-02-1104		CC5F
CBLS020320-A	INS	1TR #16SH	MCC029001B	CS020320	CTS020101	CTS020106	CTS020108	CTS020112		E-02-1204		CC5F
CBLS020320-B	INS	1PR #16SH	MCC029001B	CS020320	CTS020101	CTS020106	CTS020108	CTS020112		E-02-1204		CC5F
CBLC020330-A	TCER	8#14, 1#14G	MCC029001A	CS020330	CTC020101	CTC020106	CTC020108	CTC020113		E-02-1104		CC5F
CBLC020330-B	XHHW2	2#14, 1#14G	TSH020330	CS020330	RWYC020330-B					E-02-1104		CC5F
CBLP020330-A	VFD1	3#4, 1#4G	MCC029001A	M020330	CTPR020101A	CTPR020106A	CTPR020108A	CTPR020113A		E-02-1104		CC5F
CBLS020330-A	INS	1TR #16SH	MCC029001A	CS020330	CTS020101	CTS020106	CTS020108	CTS020113		E-02-1204		CC5F
CBLS020330-B	INS	1PR #16SH	MCC029001A	CS020330	CTS020101	CTS020106	CTS020108	CTS020113		E-02-1204		CC5F
CBLC020340-A	TCER	8#14, 1#14G	MCC029001B	CS020340	CTC020102	CTC020107	CTC020109	CTC020114		E-02-1104		CC5F
CBLC020340-B	XHHW2	2#14, 1#14G	TSH020340	CS020340	RWYC020340-B					E-02-1104		CC5F
CBLP020340-A	VFD1	3#4, 1#4G	MCC029001B	M020340	CTPR020102B	CTPR020107B	CTPR020109B	CTPR020114B		E-02-1104		CC5F
CBLS020340-A	INS	1TR #16SH	MCC029001B	CS020340	CTS020102	CTS020107	CTS020109	CTS020114		E-02-1204		CC5F
CBLS020340-B	INS	1PR #16SH	MCC029001B	CS020340	CTS020102	CTS020107	CTS020109	CTS020114		E-02-1204		CC5F
CBLC020350-A	TCER	8#14, 1#14G	MCC029001A	CS020350	CTC020102	CTC020107	CTC020109	CTC020115		E-02-1104		CC5F
CBLC020350-B	XHHW2	2#14, 1#14G	TSH020350	CS020350	RWYC020350-B					E-02-1104		CC5F
CBLP020350-A	VFD1	3#4, 1#4G	MCC029001A	M020350	CTPR020102A	CTPR020107A	CTPR020109A	CTPR020115A		E-02-1104		CC5F
CBLS020350-A	INS	1TR #16SH	MCC029001A	CS020350	CTS020102	CTS020107	CTS020109	CTS020115		E-02-1204		CC5F
CBLS020350-B	INS	1PR #16SH	MCC029001A	CS020350	CTS020102	CTS020107	CTS020109	CTS020115		E-02-1204		CC5F
CBLS020401-A	INSM	2PR #16SH	CAB020001	FIT020401	CTS020104	CTS020102	CTS020107	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020402-A	INS	1PR #16SH	CAB020001	PIT020402	CTS020104	CTS020102	CTS020107	CTS020109	CTS020110	E-02-1204		CC5F
CBLC020410-A	TCER	8#14, 1#14G	VFD020410	CS020410	CTC020107	CTC020109	CTC020110	CTC020116		E-02-1104		CC5F
CBLC020410-B	XHHW2	2#14, 1#14G	CS020410	TSH020410	RWYC020410-B					E-02-1104		CC5F
CBLD020410-A	NC4	1#600V CAT6A	CAB029001A	VFD020410	CTS020101	CTS020107	RWYD020410-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020410-A	VFD2	3#1/0, 3#10G	MCC029001A	VFD020410	CTPR020102A	CTPR020101A	CTPR020107A			E-02-1103		CC5F
CBLP020410-B	VFD2	3#1/0, 3#10G	VFD020410	M020410	CTPR020107A	CTPR020109A	CTPR020110A	CTPR020116A		E-02-1104		CC5F
CBLS020410-A	INS	1TR #16SH	VFD020410	CS020410	CTS020107	CTS020109	CTS020110	CTS020116		E-02-1204		CC5F
CBLS020410-B	INS	1PR #16SH	VFD020410	CS020410	CTS020107	CTS020109	CTS020110	CTS020116		E-02-1204		CC5F
CBLC020420-A	TCER	8#14, 1#14G	VFD020420	CS020420	CTC020107	CTC020109	CTC020110	CTC020117		E-02-1104		CC5F
CBLC020420-B	XHHW2	2#14, 1#14G	CS020420	TSH020420	RWYC020420-B					E-02-1104		CC5F
CBLD020420-A	NC4	1#600V CAT6A	CAB029001B	VFD020420	CTS020101	CTS020107	RWYD020420-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020420-A	VFD2	3#1/0, 3#10G	MCC029001B	VFD020420	CTPR020102B	CTPR020101B	CTPR020107B			E-02-1103		CC5F
CBLP020420-B	VFD2	3#1/0, 3#10G	VFD020420	M020420	CTPR020107B	CTPR020109B	CTPR020110B	CTPR020117B		E-02-1104		CC5F
CBLS020420-A	INS	1TR #16SH	VFD020420	CS020420	CTS020107	CTS020109	CTS020110	CTS020117		E-02-1204		CC5F
CBLS020420-B	INS	1PR #16SH	VFD020420	CS020420	CTS020107	CTS020109	CTS020110	CTS020117		E-02-1204		CC5F
CBLC020430-A	TCER	8#14, 1#14G	VFD020430	CS020430	CTC020101	CTC020107	CTC020109	CTC020110	CTC020118	E-02-1104		CC5F
CBLC020430-B	XHHW2	2#14, 1#14G	CS020430	TSH020430	RWYC020430-B					E-02-1104		CC5F
CBLD020430-A	NC4	1#600V CAT6A	CAB029001A	VFD020430	CTS020101	CTS020107	RWYD020430-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020430-A	VFD2	3#1/0, 3#10G	MCC029001A	VFD020430	CTPR020102A	CTPR020101A				E-02-1103		CC5F
CBLP020430-B	VFD2	3#1/0, 3#10G	VFD020430	M020430	CTPR020101A	CTPR020107A	CTPR020109A	CTPR020110A	CTPR020118A	E-02-1104		CC5F
CBLS020430-A	INS	1TR #16SH	VFD020430	CS020430	CTS020101	CTS020107	CTS020109	CTS020110	CTS020118	E-02-1204		CC5F
CBLS020430-B	INS	1PR #16SH	VFD020430	CS020430	CTS020101	CTS020107	CTS020109	CTS020110	CTS020118	E-02-1204		CC5F
CBLC020440-A	TCER	8#14, 1#14G	VFD020440	CS020440	CTC020107	CTC020109	CTC020110	CTC020119		E-02-1104		CC5F
CBLC020440-B	XHHW2	2#14, 1#14G	CS020440	TSH020440	RWYC020440-B					E-02-1104		CC5F
CBLD020440-A	NC4	1#600V CAT6A	CAB029001B	VFD020440	CTS020101	CTS020107	RWYD020440-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020440-A	VFD2	3#1/0, 3#10G	MCC029001B	VFD020440	CTPR020101B					E-02-1103		CC5F
CBLP020440-B	VFD2	3#1/0, 3#10G	VFD020440	M020440	CTPR020107B	CTPR020109B	CTPR020110B	CTPR020119B		E-02-1104		CC5F
CBLS020440-A	INS	1TR #16SH	VFD020440	CS020440	CTS020107	CTS020109	CTS020110	CTS020119		E-02-1204		CC5F
CBLS020440-B	INS	1PR #16SH	VFD020440	CS020440	CTS020107	CTS020109	CTS020110	CTS020119		E-02-1204		CC5F
CBLS020501-A	INSM	2PR #16SH	CAB020001	FIT020501	CTS020104	CTS020102	CTS020107	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020502-A	INS	1PR #16SH	CAB020001	PIT020502	CTS020104	CTS020102	CTS020107	CTS020109	CTS020110	E-02-1204		CC5F
CBLC020509-A	XHHW2	6#14, 1#14G	PNL020509	SV020509	RWYC020509-A					E-02-1104		CC5F
CBLP020509-A	TCER	3#12, 1#12G	PNL029201	PNL020509	CTPR020102A	CTPR020107A	CTPR020109A	CTPR020110A	RWYP020509A-B	E-02-1104		CC5F
CBLS020509-A	INS	1PR #16SH	CAB020001	PIT020509	CTS020104	CTS020102	CTS020107	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020509-A	INS	1PR #16SH	CAB020001	PIT020509	CTS020120	RWYS020509-A				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020510-A	TCER	8#14, 1#14G	VFD020510	CS020510	RWYC020510-A1	CTC020106	CTC020108	CTC020109	CTC020110	E-02-1104		CC5F
CBLC020510-A	TCER	8#14, 1#14G	VFD020510	CS020510	CTC020120	RWYC020510-A2				E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLC020510-B	XHHW2	2#14, 1#14G	CS020510	TSH020510	RWYC020510-B					E-02-1104		CC5F
CBLD020510-A	NC4	1#600V CAT6A	CAB029001A	VFD020510	CTS020101	RWYD020510-A				E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020510-A	VFD2	3#1, 3#10G	MCC029001A	VFD020510	CTPR020102A	CTPR020101A	RWYP020510-A			E-02-1103		CC5F
CBLP020510-B	VFD2	3#1, 3#10G	VFD020510	M020510	RWYP020510-B	CTPR020106A	CTPR020108A	CTPR020109A	CTPR020110A	E-02-1104		CC5F
CBLP020510-B	VFD2	3#1, 3#10G	VFD020510	M020510	CTPR020120A					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020510-A	INS	1TR #16SH	VFD020510	CS020510	RWYS020510-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020510-A	INS	1TR #16SH	VFD020510	CS020510	CTS020120	RWYS020510-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020510-B	INS	1PR #16SH	VFD020510	CS020510	RWYS020510-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020510-B	INS	1PR #16SH	VFD020510	CS020510	CTS020120	RWYS020510-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020520-A	TCER	8#14, 1#14G	VFD020520	CS020520	RWYC020520-A1	CTC020106	CTC20108	CTC020109	CTC020110	E-02-1104		CC5F
CBLC020520-A	TCER	8#14, 1#14G	VFD020520	CS020520	CTC020121	RWYC020520-A2				E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLC020520-B	XHHW2	2#14, 1#14G	CS020520	TSH020520	RWYC020520-B					E-02-1104		CC5F
CBLD020520-A	NC4	1#600V CAT6A	CAB029001B	VFD020520	CTS020101	RWYD020520-A				E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020520-A	VFD2	3#1, 3#10G	MCC029001B	VFD020520	CTPR020102B	CTPR020101B	RWYP020520-A			E-02-1103		CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP020520-B	VFD2	3#1, 3#10G	VFD020520	M020520	RWYP020520-B	CTPR020106B	CTPR020108B	CTPR020109B	CTPR020110B	E-02-1104		CC5F
CBLP020520-B	VFD2	3#1, 3#10G	VFD020520	M020520	CTPR020121B					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020520-A	INS	1TR #16SH	VFD020520	CS020520	RWYS020520-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020520-A	INS	1TR #16SH	VFD020520	CS020520	CTS020121	RWYS020520-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020520-B	INS	1PR #16SH	VFD020520	CS020520	RWYS020520-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020520-B	INS	1PR #16SH	VFD020520	CS020520	CTS020121	RWYS020520-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020530-A	TCER	8#14, 1#14G	VFD020530	CS020530	RWYC020530-A1	CTC020106	CTC20108	CTC020109	CTC020110	E-02-1104		CC5F
CBLC020530-A	TCER	8#14, 1#14G	VFD020530	CS020530	CTC020122	RWYC020530-A2				E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLC020530-B	XHHW2	2#14, 1#14G	CS020530	TSH020530	RWYC020530-B					E-02-1104		CC5F
CBLD020530-A	NC4	1#600V CAT6A	CAB029001A	VFD020530	CTS020101	RWYD020530-A				E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020530-A	VFD2	3#1, 3#10G	MCC029001A	VFD020530	CTPR020102A	CTPR020101A	RWYP020530-A			E-02-1103		CC5F
CBLP020530-B	VFD2	3#1, 3#10G	VFD020530	M020530	RWYP020530-B	CTPR020106A	CTPR020108A	CTPR020109A	CTPR020110A	E-02-1104		CC5F
CBLP020530-B	VFD2	3#1, 3#10G	VFD020530	M020530	CTPR020122A					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020530-A	INS	1TR #16SH	VFD020530	CS020530	RWYS020530-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020530-A	INS	1TR #16SH	VFD020530	CS020530	CTS020122	RWYS020530-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020530-B	INS	1PR #16SH	VFD020530	CS020530	RWYS020530-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020530-B	INS	1PR #16SH	VFD020530	CS020530	CTS020122	RWYS020530-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020540-A	TCER	8#14, 1#14G	VFD020540	CS020540	RWYC020540-A1	CTC020106	CTC20108	CTC020109	CTC020110	E-02-1104		CC5F
CBLC020540-A	TCER	8#14, 1#14G	VFD020540	CS020540	CTC020123	RWYC020540-A2				E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLC020540-B	XHHW2	2#14, 1#14G	CS020540	TSH020540	RWYC020540-B					E-02-1104		CC5F
CBLD020540-A	NC4	1#600V CAT6A	CAB029001B	VFD020540	CTS020101	RWYD020540-A				E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020540-A	VFD2	3#1, 3#10G	MCC029001B	VFD020540	CTPR020102B	CTPR020101B	RWYP020540-A			E-02-1103		CC5F
CBLP020540-A	VFD2	3#1, 3#10G	MCC029001A	VFD020550	CTPR020102A	CTPR020101A	RWYP020550-A			E-02-1103		CC5F
CBLP020540-B	VFD2	3#1, 3#10G	VFD020540	M020540	RWYP020540-B	CTPR020106B	CTPR020108B	CTPR020109B	CTPR020110B	E-02-1104		CC5F
CBLP020540-B	VFD2	3#1, 3#10G	VFD020540	M020540	CTPR020123B					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020540-A	INS	1TR #16SH	VFD020540	CS020540	RWYS020540-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020540-A	INS	1TR #16SH	VFD020540	CS020540	CTS020123	RWYS020540-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020540-B	INS	1PR #16SH	VFD020540	CS020540	RWYS020540-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020540-B	INS	1PR #16SH	VFD020540	CS020540	CTS020123	RWYS020540-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLC020550-A	TCER	8#14, 1#14G	VFD020550	CS020550	RWYC020550-A1	CTC020106	CTC20108	CTC020109	CTC020110	E-02-1104		CC5F
CBLC020550-A	TCER	8#14, 1#14G	VFD020550	CS020550	CTC020124	RWYC020550-A2				E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLC020550-B	XHHW2	2#14, 1#14G	CS020550	TSH020550	RWYC020550-B					E-02-1104		CC5F
CBLD020550-A	NC4	1#600V CAT6A	CAB029001A	VFD020550	CTS020101	RWYD020550-A				E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020550-B	VFD2	3#1, 3#10G	VFD020550	M020550	RWYP020550-B	CTPR020106A	CTPR020108A	CTPR020109A	CTPR020110A	E-02-1104		CC5F
CBLP020550-B	VFD2	3#1, 3#10G	VFD020550	M020550	CTPR020124A					E-02-1104	CONTINUED FROM ABOVE	CC5F
CBLS020550-A	INS	1TR #16SH	VFD020550	CS020550	RWYS020550-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020550-A	INS	1TR #16SH	VFD020550	CS020550	CTS020124	RWYS020550-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020550-B	INS	1PR #16SH	VFD020550	CS020550	RWYS020550-A	CTS020106	CTS020108	CTS020109	CTS020110	E-02-1204		CC5F
CBLS020550-B	INS	1PR #16SH	VFD020550	CS020550	CTS020124	RWYS020550-B				E-02-1204	CONTINUED FROM ABOVE	CC5F
CBLS020600-A	INSM	2PR #16SH	CAB029001A	FIT020600	CTS020104	RWYS020600-A				E-02-1202	RUN CABLE IN LFMC IN VALVE VAULT. PROVIDE PBX020600 TO TRANSITION TO GRS	CC5F
CBLC020601-A	TCER	8#14, 1#14G	CAB029001A	CS020601	CTC020102	CTC020103	RWYC020601-A			E-02-1102		CC5F ADD2
CBLC020601-B	XHHW2	8#14, 1#14G	CS020601	FV020601	RWYC020601-B					E-02-1102	RUN CABLE IN LFMC IN VALVE VAULT. PROVIDE PBX020601 TO TRANSITION TO GRS	CC5F ADD2
CBLP020601-A	TCER	3#12, 1#12G	MCC029001A	DS020601	CTPR020102A	CTPR020103A	RWYP020601-A			E-02-1102		CC5F
CBLP020601-B	XHHW2	3#12, 1#12G	DS020601	FV020601	RWYP020601-B					E-02-1102	RUN CABLE IN LFMC IN VALVE VAULT. PROVIDE PBX020601 TO TRANSITION TO GRS	CC5F ADD2
CBLS020601-A	INSM	2PR #16SH	CAB029001A	CS020601	CTS020102	CTS020103	RWYS020601-A			E-02-1202		CC5F ADD2
CBLS020601-B	INSM	2PR #16SH	CS020601	FV020601	RWYS020601-B					E-02-1202	RUN CABLE IN LFMC IN VALVE VAULT. PROVIDE PBX020601 TO TRANSITION TO GRS	CC5F ADD2
CBLC020610B-A	TCER	11#14, 1#14G	CAB020001	CAB020610B	RWYC020610B-A	CTC020104	RWYC020610B-B			E-02-1102		CC5F
CBLD020610A-A	NC4	1#600V CAT6A	CAB020610A	CAB020610B	RWYD020610A					E-02-1203		CC5F
CBLD020610A-B	NC4	1#600V CAT6A	CAB020610A	CAB020610B	RWYD020610A					E-02-1202		CC5F
CBLD020610B-A	NC4	1#600V CAT6A	CAB020610B	NCE020011	RWYD020610B	CTS020104	CTS020100			E-02-1202	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLD020610B-B	NC4	1#600V CAT6A	CAB020610B	NCE020011	RWYD020610B	CTS020104	CTS020100			E-02-1202	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP020610A-A	XHHW2	3#1/0, 1#1/0N, 1#6G	XFMR020610	CAB020610A	RWYP020610A-A					E-02-1103	COORDINATE TRANSFORMER RATING WITH CABINET POWER REQUIREMENTS	CC5F
CBLP020610B-A	TCER	2#12, 1#12G	PNL029302	CAB020610B	RWYP020610B-A	CTPR020104A	RWYP020610B-B			E-02-1102	COORDINATE WITH CABINET POWER REQUIREMENTS	CC5F
CBLP020610Z-A	XHHW2	3#12, 1#12G	PNL029201	DS020610Z	CTPR020102A	CTPR020103A	RWYP020610Z-A			E-02-1102	COORDINATE POWER WIRING WITH JIB CRANE VENDOR	CC5F
CBLP020610Z-B	XHHW2	3#12, 1#12G	DS020610Z	CRN020610 ENCL	RWYP020610Z-B					E-02-1102	COORDINATE POWER WIRING WITH JIB CRANE VENDOR	CC5F
CBLP020610-A	TCER	3#4, 1#8G	MCC029001A	XFMR020610	CTPR020101A	CTPR020102A	CTPR020104A			E-02-3002		CC5F
CBLS020610B-A	INS	1PR #16SH	CAB020610B	CAB029001A	RWYS020610B-A					E-02-1202		CC5F
CBLS020610-A	INSM	2PR #16SH	CAB020001	LIT020610	RWYS020610-A	CTS020104				E-02-1202		CC5F ADD2
CBLS020610-B	INS	1PR #16SH	CAB020610A	LSH020610	RWYS020610-B					E-02-1202		CC5F
CBLV020610AA1	VENDOR	Special	CAB020610B	UV BANK 1 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AA2	VENDOR	Special	CAB020610B	UV BANK 1 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AA3	VENDOR	Special	CAB020610B	UV BANK 1 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AA4	VENDOR	Special	CAB020610B	UV BANK 1 DATA							COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AA5	VENDOR	Special	CAB020610B	UV BANK 1 MODULE POWER							COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLV020610AB1	VENDOR	Special	CAB020610B	UV BANK 2 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AB2	VENDOR	Special	CAB020610B	UV BANK 2 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AB3	VENDOR	Special	CAB020610B	UV BANK 2 POWER	CTPR020125						COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AB4	VENDOR	Special	CAB020610B	UV BANK 2DATA							COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLV020610AB5	VENDOR	Special	CAB020610B	UV BANK 2 MODULE POWER							COORDINATE WITH UV VENDOR. INSTALLATION BY CONTRACTOR	CC5F
CBLP020800-A	TCER	2#12, 1#12G	PNL029302	PNL020800	RWYP020800-A	CTPR020103A	CTPR020102A	RWYP020800-B		E-02-1102		CC5F
CBLS020800-A	INS	1PR #16SH	CAB029001A	PNL020800	CTS020101	CTS020102	CTS020103			E-02-1202		CC5F
CBLS020800-B	INS	1PR #16SH	CAB029001B	PNL020800	CTS020101	CTS020102	CTS020103			E-02-1202		CC5F
CBLC020801-A	TCER	2#14, 1#14G	CAB020001	LSH020801	RWYC020801-A	CTC020103	CTC020102	CTC020104		E-02-1102		CC5F
CBLS020810-A	INS	1PR #16SH	LIT020810	CAB029001A	CTS020103	CTS020102	CTS020101			E-02-1202		CC5F
CBLS020815A-A	INSM	2PR #16SH	AIT020815	XA020815A	RWYS020815A-A					E-02-1202		CC5F
CBLS020815B-A	INSM	2PR #16SH	AIT020815	XA020815B	RWYS020815B-A					E-02-1202		CC5F
CBLS020815-A	INSM	2PR #16SH	CAB020001	AIT020815	CTS020104	CTS020102	CTS020103	RWYS020815-A		E-02-1202		CC5F
CBLS020815-B	INS	1PR #16SH	AIT020815	AE020815	RWYS020815-B					E-02-1202		CC5F
CBLS020820-A	INS	1PR #16SH	LIT020820	CAB029001B	CTS020103	CTS020102	CTS020101			E-02-1202		CC5F
CBLC020831-A	TCER	11#14, 1#14G	CAB029001A	CS020831	CTC020101	CTC020102	CTC020103	RWYC02831-A		E-02-1102		CC5F
CBLC020831-B	TCER	2#14, 1#14G	CAB029001A	PSH020831	CTC020101	CTC020102	CTC020103	RWYC02831-B		E-02-1102		CC5F
CBLP020831-A	TCER	2#12, 1#12G	PNL029302	M020831	RWYP02831-A	CTPR020104A	CTPR020102A	CTPR020103A	RWYP02831-B	E-02-1102		CC5F
CBLS020831-A	INSM	2PR #16SH	CAB029001A	CS020831	CTS020101	CTS020102	CTS020103	RWYS02831-A		E-02-1202		CC5F
CBLC020832-A	TCER	11#14, 1#14G	CAB029001B	CS020832	CTC020101	CTC020102	CTC020103	RWYC02832-A		E-02-1102		CC5F
CBLC020832-B	TCER	2#14, 1#14G	CAB029001B	PSH020832	CTC020101	CTC020102	CTC020103	RWYC02832-B		E-02-1102		CC5F
CBLP020832-A	TCER	2#12, 1#12G	PNL029202	M020832	RWYP02832-A	CTPR020104B	CTPR020102B	CTPR020103B	RWYP02832-B	E-02-1102		CC5F
CBLS020832-A	INSM	2PR #16SH	CAB029001B	CS020832	CTS020101	CTS020102	CTS020103	RWYS02832-A		E-02-1202		CC5F
CBLC020910-A	TCER	6#14, 1#14G	MCC029001A	CS020910	CTC020101	CTC020102	CTC020103	RWYC020910-A		E-02-4001		CC5F ADD2
CBLC020910-B	TCER	2#14, 1#14G	CAB029001A	DS020910	CTC020101	CTC020102	CTC020103	RWYC020910-B		E-02-4001		CC5F ADD2
CBLP020910-A	TCER	3#1, 1#6G	MCC029001A	DS020910	CTPR020101A	CTPR020102A	CTPR020103A	RWYP020910-A		E-02-4001		CC5F
CBLP020910-B	TCER	3#1, 1#6G	DS020910	M020910	RWYP020910-B					E-02-4001		CC5F
CBLS020910A-A	INS	1TR #16SH	CAB029001A	TIT020910A	CTS020101	CTS020102	CTS020103	RWYS020910A-A		E-02-1202		CC5F ADD2
CBLS020910B-A	INS	1TR #16SH	CAB029001A	TIT020910B	CTS020101	CTS020102	CTS020103	RWYS020910B-A		E-02-1202		CC5F ADD2
CBLC020911-A	TCER	8#14, 1#14G	CAB029001A	CS020911	CTC020102	CTC020103	RWYC020911-A			E-02-4001		CC5F
CBLC020911-B	XHHW2	8#14, 1#14G	CS020911	FV020911	RWYC020911-B					E-02-4001		CC5F
CBLP020911-A	TCER	3#12, 1#12G	MCC029001A	DS020911	CTPR020102A	CTPR020103A	RWYP020911-A			E-02-4001		CC5F
CBLP020911-B	XHHW2	3#12, 1#12G	DS020911	FV020911	RWYP020911-B					E-02-4001		CC5F
CBLS020911-A	INSM	2PR #16SH	CAB029001A	CS020911	CTS020102	CTS020103	RWYS020911-A			E-02-1202		CC5F
CBLS020911-B	INSM	2PR #16SH	CS020911	FV020911	RWYS020911-B					E-02-1202		CC5F
CBLC020912-A	TCER	8#14, 1#14G	CAB029001A	CS020912	CTC020102	CTC020103	RWYC020912-A			E-02-4001		CC5F
CBLC020912-B	XHHW2	8#14, 1#14G	CS020912	FV020912	RWYC020912-B					E-02-4001		CC5F
CBLP020912-A	TCER	3#12, 1#12G	MCC029001A	DS020912	CTPR020102A	CTPR020103A	RWYP020912-A			E-02-4001		CC5F
CBLP020912-B	XHHW2	3#12, 1#12G	DS020912	FV020912	RWYP020912-B					E-02-4001		CC5F
CBLS020912-A	INSM	2PR #16SH	CAB029001A	CS020912	CTS020102	CTS020103	RWYS020912-A			E-02-1202		CC5F
CBLS020912-B	INSM	2PR #16SH	CS020912	FV020912	RWYS020912-B					E-02-1202		CC5F
CBLC020913-A	TCER	8#14, 1#14G	CAB029001A	CS020913	CTC020102	CTC020103	RWYC020913-A			E-02-4001		CC5F
CBLC020913-B	XHHW2	8#14, 1#14G	CS020913	FV020913	RWYC020913-B					E-02-4001		CC5F
CBLP020913-A	TCER	3#12, 1#12G	MCC029001A	DS020913	CTPR020102A	CTPR020103A	RWYP020913-A			E-02-4001		CC5F
CBLP020913-B	XHHW2	3#12, 1#12G	DS020913	FV020913	RWYP020913-B					E-02-4001		CC5F
CBLS020913-A	INSM	2PR #16SH	CAB029001A	CS020913	CTS020102	CTS020103	RWYS020913-A			E-02-1202		CC5F
CBLS020913-B	INSM	2PR #16SH	CS020913	FV020913	RWYS020913-B					E-02-1202		CC5F
CBLS020919-A	INS	1PR #16SH	FIT020919	CAB020001	RWYS020919-A	CTC020103	CTC020104			E-02-1301	EXISTING INSTRUMENT	CC5F
CBLP020919-A	TCER	2#12, 1#12G	PNL029202	FIT020919	CTPR020104A	CTPR020102A	CTPR020103A	RWYP020919-A		E-02-1301	EXISTING INSTRUMENT	CC5F ADD2
CBLC020920-A	TCER	6#14, 1#14G	MCC029001B	CS020920	CTC020101	CTC020102	CTPC020103	RWYC020920-A		E-02-4001		CC5F ADD2
CBLC020920-B	TCER	2#14, 1#14G	CAB029001B	DS020920	CTC020101	CTC020102	CTC020103	RWYC020920-B		E-02-4001		CC5F ADD2
CBLP020920-A	TCER	3#1, 1#6G	MCC029001B	DS020920	CTPR020101B	CTPR020102B	CTPR020103B	RWYP020920-A		E-02-4001		CC5F
CBLP020920-B	TCER	3#1, 1#6G	DS020920	M020920	RWYP020920-B					E-02-4001		CC5F
CBLS020920A-A	INS	1TR #16SH	CAB029001B	TIT020920A	CTS020101	CTS020102	CTS020103	RWYS020920A-A		E-02-1202		CC5F ADD2
CBLS020920B-A	INS	1TR #16SH	CAB029001B	TIT020920B	CTS020101	CTS020102	CTS020103	RWYS020920B-A		E-02-1202		CC5F ADD2
CBLC020921-A	TCER	8#14, 1#14G	CAB029001B	CS020921	CTC020102	CTC020103	RWYC020921-A			E-02-4001		CC5F
CBLC020921-B	XHHW2	8#14, 1#14G	CS020921	FV020921	RWYC020921-B					E-02-4001		CC5F
CBLP020921-A	TCER	3#12, 1#12G	MCC029001B	DS020921	CTPR020102B	CTPR020103B	RWYP020921-A			E-02-4001		CC5F
CBLP020921-B	XHHW2	3#12, 1#12G	DS020921	FV020921	RWYP020921-B					E-02-4001		CC5F
CBLS020921-A	INSM	2PR #16SH	CAB029001B	CS020921	CTS020102	CTS020103	RWYS020921-A			E-02-1202		CC5F
CBLS020921-B	INSM	2PR #16SH	CS020921	FV020921	RWYS020921-B					E-02-1202		CC5F
CBLC020922-A	TCER	8#14, 1#14G	CAB029001B	CS020922	CTC020102	CTC020103	RWYC020922-A			E-02-4001		CC5F
CBLC020922-B	XHHW2	8#14, 1#14G	CS020922	FV020922	RWYC020922-B					E-02-4001		CC5F
CBLP020922-A	TCER	3#12, 1#12G	MCC029001B	DS020922	CTPR020102B	CTPR020103B	RWYP020922-A			E-02-4001		CC5F
CBLP020922-B	XHHW2	3#12, 1#12G	DS020922	FV020922	RWYP020922-B					E-02-4001		CC5F
CBLS020922-A	INSM	2PR #16SH	CAB029001B	CS020922	CTS020102	CTS020103	RWYS020922-A			E-02-1202		CC5F
CBLS020922-B	INSM	2PR #16SH	CS020922	FV020922	RWYS020922-B					E-02-1202		CC5F
CBLC020923-A	TCER	8#14, 1#14G	CAB029001B	CS020923	CTC020102	CTC020103	RWYC020923-A			E-02-4001		CC5F
CBLC020923-B	XHHW2	8#14, 1#14G	CS020923	FV020923	RWYC020923-B					E-02-4001		CC5F
CBLP020923-A	TCER	3#12, 1#12G	MCC029001B	DS020923	CTPR020102B	CTPR020103B	RWYP020923-A			E-02-4001		CC5F
CBLP020923-B	XHHW2	3#12, 1#12G	DS020923	FV020923	RWYP020923-B					E-02-4001		CC5F
CBLS020923-A	INSM	2PR #16SH	CAB029001B	CS020923	CTS020102	CTS020103	RWYS020923-A			E-02-1202		CC5F
CBLS020923-B	INSM	2PR #16SH	CS020923	FV020923	RWYS020923-B					E-02-1202		CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP022100-A	XHHW2	3#12, 1#12G	PNL029201	DS020100	CTPR020102A	CTPR020103A	RWYP02100-A			E-02-1102	COORDINATE POWER WIRING WITH MONORAIL VENDOR	CC5F
CBLP022100-B	XHHW2	3#12, 1#12G	DS020100	MME 020100 ENCL	RWYP02100-B					E-02-1102	COORDINATE POWER WIRING WITH MONORAIL VENDOR	CC5F
CBLD027801A-A	NC2	1#U/FTP CAT6A	DRCP027801A	NCE020011	RWYD027801A-A	CTS020102	CTS020104	CTS020100		E-02-1203	ELECTRICAL ROOM WIRELESS ACCESS POINT DATA JACK	CC5F
CBLV027801-A	VENDOR	Special	WAP027801	DRCP027801A	RWYD027801-A					E-02-1203	VENDOR CABLE TO ELECTRICAL ROOM WAP	CC5F
CBLM027850-A	VENDOR	Special	PAC027850	HS027850	RWYM027850-A					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027850-B	VENDOR	Special	HS027850	PA027850	RWYM027850-B					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLP027850-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	CAB PAC027850	CTPR020102A	CTPR020104A	CTPR020105A	RWYP027850-A		E-02-1103	PAGING CABINET POWER	CC5F/REV A
CBLM027851-A	VENDOR	Special	HS027850	AMP027851	RWYM027851-A					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027851-B	VENDOR	Special	AMP027851	PA027851	RWYM027851-B					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027852-A	VENDOR	Special	AMP027851	AMP027852	RWYM027852-A					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027852-B	VENDOR	Special	AMP027852	PA027852	RWYM027852-B					E-02-1203	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027853-A	VENDOR	Special	PAC027850	HS027853	RWYM027853-A					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027853-B	VENDOR	Special	HS027853	PA027853	RWYM027853-B					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027854-A	VENDOR	Special	HS027853	AMP027854	RWYM027854-A					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027854-B	VENDOR	Special	AMP027854	PA027854	RWYM027854-B					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027855-A	VENDOR	Special	AMP027854	AMP027855	RWYM027855-A					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027855-B	VENDOR	Special	AMP027855	PA027855	RWYM027855-B					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027856-A	VENDOR	Special	AMP027855	AMP027856	RWYM027856-A					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027856-B	VENDOR	Special	AMP027856	PA027856	RWYM027856-B					E-02-1202	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027857-A	VENDOR	Special	PAC027850	HS027857	RWYM027857-A					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027857-B	VENDOR	Special	HS027857	PA027857	RWYM027857-B					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027858-A	VENDOR	Special	HS027857	AMP027858	RWYM027858-A					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027858-B	VENDOR	Special	AMP027858	PA027858	RWYM027858-B					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027859-A	VENDOR	Special	AMP027858	AMP027859	RWYM027859-A					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027859-B	VENDOR	Special	AMP027859	PA027859	RWYM027859-B					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027860-A	VENDOR	Special	AMP027859	AMP027860	RWYM027860-A					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLM027860-B	VENDOR	Special	AMP027860	PA027860	RWYM027860-B					E-02-1204	CONTRACTOR TO COORDINATE CABLE WITH SPEC 28 31 12 FOR MANUFACTURER'S RECOMMENDATION	CC5F
CBLD027901-A	NC2	1#U/FTP CAT6A	NCE020011	CAB027901	CTS020100	CTS020104	CTS020102	RWYD027901-A		E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLD027901-B	**NC2**	**1#U/FTP CAT6A**	**NCE020011**	**CAB027901**	**CTS020100**	**CTS020104**	**CTS020102**	**RWYD027901-B**		**E-02-1203**	**NETWORK CABLE FOR OUTDOOR CAMERA - SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLD027901-C	**NC2**	**1#U/FTP CAT6A**	**NCE020011**	**CAB027901**	**CTS020100**	**CTS020104**	**CTS020102**	**RWYD027901-A**		**E-02-1203**	**NETWORK CABLE FOR OUTDOOR CAMERA - SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD027901-D	**NC2**	**1#U/FTP CAT6A**	**NCE020011**	**CAB027901**	**CTS020100**	**CTS020104**	**CTS020102**	**RWYD027901-B**		**E-02-1203**	**NETWORK CABLE FOR OUTDOOR CAMERA - SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD027901-E	**NC2**	**1#U/FTP CAT6A**	**NCE020011**	**CAB027901**	**CTS020100**	**CTS020104**	**CTS020102**	**RWYD027901-A**		**E-02-1203**	**NETWORK CABLE FOR OUTDOOR CAMERA - SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD027901-F	**NC2**	**1#U/FTP CAT6A**	**NCE020011**	**CAB027901**	**CTS020100**	**CTS020104**	**CTS020102**	**RWYD027901-B**		**E-02-1203**	**NETWORK CABLE FOR OUTDOOR CAMERA - SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLP027901-A	TCER	2#12, 1#12G	PNL029302	CAB027901	RWYP027901-A	CTPR020104A	CTPR020102A	RWYP027901-B		E-02-1103	ACCESS CONTROL PANEL POWER	CC5F
CBLX027950-A	PULLROPE	PULLROPE	PBX027950	**CAB027901**	RWYD027950-A					E-02-1111	CAMERA CAM027950 PATHWAY. CAMERA ON ROOF POLE **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLX027953-A	PULLROPE	PULLROPE	PBX027953	**CAB027901**	RWYD027953-A					E-02-1204	CAMERA CAM027953 PATHWAY **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLX027955-A	PULLROPE	PULLROPE	PBX027955	**CAB027901**	RWYD027955-A					E-02-1202	CAMERA CAM027955 PATHWAY **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLX027956-A	PULLROPE	PULLROPE	PBX027956	**CAB027901**	RWYD027956-A					E-02-1204	CAMERA CAM027956 PATHWAY **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLX027957-A	PULLROPE	PULLROPE	PBX027957	**CAB027901**	RWYD027957-A					E-02-1202	CAMERA CAM027957 PATHWAY **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLP028001-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028001	RWYP028001-A					E-02-1111	ECU028001 (EC-1) POWER	CC5F/REVA
CBLP028002-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028002	RWYP028002-A					E-02-1111	ECU028002 (EC-2) POWER	CC5F/REVA
CBLP028003-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028003	RWYP028003-A					E-02-1111	ECU028003 (EC-3) POWER	CC5F/REVA
CBLP028031-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028031	RWYP028031-A					E-02-1102	UH028031 (UH-1) POWER	CC5F/REVA
CBLP028032-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028032	RWYP028032-A					E-02-1102	UH028032 (UH-2) POWER	CC5F/REVA
CBLP028033-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028033	RWYP028033-A					E-02-1103	UH028033 (UH-3) POWER	CC5F/REVA
CBLP028100-A	XHHW2	3#6, 1#8G	PNL029201	DS028100	RWYP028100-A					E-02-1111	AHU028100 (RT-1) POWER	CC5F/REVA
CBLP028410-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028410	RWYP028410-A					E-02-1111	EF028410 (EF-1) POWER	CC5F/REVA
CBLP028420-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	DS028420	RWYP028420-A					E-02-1111	EF028420 (EF-2) POWER	CC5F/REVA
CBLP028601-A	XHHW2	1#12, 1#12N, 1#12G	PNL029303	WH028610	RWYP028610-A					E-02-1103	WH028610 (WH-1) POWER	CC5F/REVA
CBLD028901-A	NC2	1#U/FTP CAT6A	NCE020011	CAB028901	CTS020100	CTS020104	CTS020102	RWYD028901-A		E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP028901-A	TCER	2#12, 1#12G	PNL029202	CAB028901	RWYP028901-A	CTPR020104B	CTPR020102B	RWYP028901-B		E-02-1103	HVAC ATC PANEL POWER	CC5F
CBLC029001A-A	XHHW2	24#14, 1#14G	MCC029001A	CAB029001A						E-02-8001/8002	CABLE FOR MCC ALARMS . SEE I-02-6091 RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F ADD2
CBLC029001B-A	XHHW2	24#14, 1#14G	MCC029001B	CAB029001B						E-02-8001/8002	CABLE FOR MCC ALARMS . SEE I-02-6091 RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F ADD2
CBLD029001A-A	NC4	1#600V CAT6A	MCC029001A	NCE020011	RWYD029001A-A	CTS020101	CTS020102	CTS020104	CTS020100	E-02-1203	NETWORK CABLE FOR MCC PWR MONITOR. SEE I-02-6091	CC5F
CBLD029001A-B	NC4	1#600V CAT6A	MCC029001A	CAB29001A						E-02-8001/8002	NETWORK CABLE FOR MCC NETWORK SWITCH . SEE I-02-6101. RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F
CBLD029001A-C	NC4	1#600V CAT6A	MCC029001A	CAB29001A						E-02-8001/8002	NETWORK CABLE FOR MCC NETWORK SWITCH . SEE I-02-6101. RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F
CBLD029001AA-A	NC2	1#U/FTP CAT6A	CAB029001A	NCE020011	RWYD029001AA-A	CTS020101	CTS020102	CTS020104	CTS020100	E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD029001AA-B	**NC2**	**1#U/FTP CAT6A**	**CAB029001A**	**NCE020011**	**RWYD029001AA-A**	**CTS020101**	**CTS020102**	**CTS020104**	**CTS020100**	**E-02-1203**	**NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD029001B-A	NC4	1#600V CAT6A	MCC029001B	NCE020011	RWYD029001B-A	CTS020101	CTS020102	CTS020104	CTS020100	E-02-1203	NETWORK CABLE FOR MCC PWR MONITOR. SEE I-02-6091	CC5F
CBLD029001B-B	NC4	1#600V CAT6A	MCC029001B	CAB29001B						E-02-8001/8002	NETWORK CABLE FOR MCC NETWORK SWITCH . SEE I-02-6101. RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F
CBLD029001B-C	NC4	1#600V CAT6A	MCC029001B	CAB29001B						E-02-8001/8002	NETWORK CABLE FOR MCC NETWORK SWITCH . SEE I-02-6101. RUN INTERNALLY BETWEEN CABINET AND MCC	CC5F
CBLD029001BA-A	NC2	1#U/FTP CAT6A	CAB029001B	CAB029001A	RWYD029001BA-A					E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD029001BB-A	NC2	1#U/FTP CAT6A	CAB029001B	NCE020011	RWYD029001BB-A	CTS020101	CTS020102	CTS020104	CTS020100	E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLD029001BB-B	**NC2**	**1#U/FTP CAT6A**	**CAB029001B**	**NCE020011**	**RWYD029001BB-A**	**CTS020101**	**CTS020102**	**CTS020104**	**CTS020100**	**E-02-1203**	**NETWORK CABLE. SEE I-02-6101 (CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD029001-H	NC2	1#U/FTP CAT6A	CAB020001	CAB029001A	RWYD029001-H					E-02-1203	NETWORK CABLE. SEE I-02-6101	CC5F
CBLP029001A-A	XHHW2	1#12, 1#12N, 1#12G	PNL029302	CAB029001A	RWYP029001A-A					E-02-1103		CC5F
CBLP029001A-A1	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A1	PBX210001P	RWYP029001A-B1	RWYP029001A-C1	RWYP029001A-D1	E-02-1103	MAIN POWER FEEDER TO MCC029001A	CC5F
CBLP029001A-A1	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E1	MH24225	RWYP029001A-F1		E-02-1103	MAIN POWER FEEDER TO MCC029001A. CONTINUED FROM ABOVE	CC5F
CBLP029001A-A2	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A2	PBX210001P	RWYP029001A-B2	RWYP029001A-C2	RWYP029001A-D2	E-02-1103	MAIN POWER FEEDER TO MCC029001A	CC5F
CBLP029001A-A2	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E2	MH24225	RWYP029001A-F2		E-02-1103	MAIN POWER FEEDER TO MCC029001A. CONTINUED FROM ABOVE	CC5F
CBLP029001A-A3	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	RWYP029001A-A3	PBX210001P	RWYP029001A-B3	RWYP029001A-C3	RWYP029001A-D3	E-02-1103	MAIN POWER FEEDER TO MCC029001A	CC5F
CBLP029001A-A3	XHHW2	3#750, 1#250G	LVSWGR21A	MCC029001A	MH24224	RWYP029001A-E3	MH24225	RWYP029001A-F3		E-02-1103	MAIN POWER FEEDER TO MCC029001A. CONTINUED FROM ABOVE	CC5F
CBLP029001A-A4	PULLROPE	PULLROPE	PBX210001P	MCC029001A	RWYP029001A-A4	PBX210001P	RWYP029001A-B4	RWYP029001A-C4	RWYP029001A-D4	E-00-1301/1304	SPARE MAIN FEEDER TO MCC029001A	CC5F
CBLP029001A-A4	PULLROPE	PULLROPE	PBX210001P	MCC029001A	MH24224	RWYP029001A-E4	MH24225	RWYP029001A-F4		E-00-1301/1304	SPARE MAIN FEEDER TO MCC029001A CONTINUED FROM ABOVE	CC5F
CBLP029001A-B	TCER	2#12, 1#12G	PNL029303	CAB029001A	CTPR020102A	CTPR020101A	RWYP029001A-B			E-02-1103	PLC CABINET NORMAL POWER	CC5F/REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP029001A-C	TCER	2#12, 1#12G	PNL029302	MCC029001A	CTPR020104A	CTPR020102A	CTPR020101A	RWYP029001A-C		E-02-1103	POWER FOR MCC PMM	CC5F/REV A
CBLP029001B-A	XHHW2	1#12, 1#12N, 1#12G	PNL029202	CAB029001B	RWYP029001B-A					E-02-1103		CC5F
CBLP029001B-A1	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A1	PBX210001P	RWYP029001B-B1	RWYP029001B-C1	RWYP029001B-D1	E-02-1103	MAIN POWER FEEDER TO MCC029001B	CC5F
CBLP029001B-A1	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E1	MH24225	RWYP029001B-F1		E-02-1103	MAIN POWER FEEDER TO MCC029001B. CONTINUED FROM ABOVE	CC5F
CBLP029001B-A2	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A2	PBX210001P	RWYP029001B-B2	RWYP029001B-C2	RWYP029001B-D2	E-02-1103	MAIN POWER FEEDER TO MCC029001B	CC5F
CBLP029001B-A2	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E2	MH24225	RWYP029001B-F2		E-02-1103	MAIN POWER FEEDER TO MCC029001B. CONTINUED FROM ABOVE	CC5F
CBLP029001B-A3	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	RWYP029001B-A3	PBX210001P	RWYP029001B-B3	RWYP029001B-C3	RWYP029001B-D3	E-02-1103	MAIN POWER FEEDER TO MCC029001B	CC5F
CBLP029001B-A3	XHHW2	3#750, 1#250G	LVSWGR21B	MCC029001B	MH24224	RWYP029001B-E3	MH24225	RWYP029001B-F3		E-02-1103	MAIN POWER FEEDER TO MCC029001B. CONTINUED FROM ABOVE	CC5F
CBLP029001B-A4	PULLROPE	PULLROPE	PBX210001P	MCC029001B	RWYP029001B-A4	PBX210001P	RWYP029001B-B4	RWYP029001B-C4	RWYP029001B-D4	E-00-1301/1304	SPARE MAIN FEEDER TO MCC029001B.	CC5F
CBLP029001B-A4	PULLROPE	PULLROPE	PBX210001P	MCC029001B	MH24224	RWYP029001B-E4	MH24225	RWYP029001B-F4		E-00-1301/1304	SPARE MAIN FEEDER TO MCC029001B. CONTINUED FROM ABOVE	CC5F
CBLP029001B-B	TCER	2#12, 1#12G	PNL029303	CAB029001B	CTPR020102B	CTPR020101B	RWYP029001B-B			E-02-1103	PLC CABINET NORMAL POWER	CC5F/REV A
CBLP029001B-C	TCER	2#12, 1#12G	PNL029202	MCC029001B	CTPR020104B	CTPR020102B	CTPR020101B	RWYP029001B-C		E-02-1103	POWER FOR MCC PMM	CC5F/REV A
CBLC029101-A	TCER	2#14, 1#14G	CAB020001	ATS029101	CTC020104	CTC020102	RWYC029101-A			E-02-1103	ATS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLD029101-A	NC4	1#600V CAT6A	NCE020011	ATS029101	CTS020100	CTS020104	CTS020102	RWYD029101-A		E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP029101-A	XHHW2	3#4/0, 1#4G	MCC029001A	ATS029101	RWYP029101-A					E-02-3002		CC5F
CBLP029101-B	XHHW2	3#4/0, 1#4G	MCC029001B	ATS029101	RWYP029101-B					E-02-3002		CC5F
CBLC029102-A	TCER	2#14, 1#14G	CAB020001	ATS029102	CTC020104	RWYC029102-A				E-02-1103	ATS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLD029102-A	NC4	1#600V CAT6A	NCE020011	ATS029102	CTS020100	CTS020104	RWYD029102-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP029102A-A	TCER	3#6, 1#8G	MCC029001A	ATS029102	CTPR020101A	CTPR020105A	CTPR020104A			E-02-3002		CC5F
CBLP029102B-A	TCER	3#6, 1#8G	MCC029001B	ATS029102	CTPR020101B	CTPR020105B	CTPR020104B			E-02-3002		CC5F
CBLP029201A-A	TCER	2#10, 1#10G	PNL029201	RDWY LTG	RWYP029201A-A						VIA LIGHTING CONTACTOR LC029201	CC5F
CBLP029201-A	XHHW2	3#4/0, 1#4G	ATS029201	PNL029201	RWYP029201-A					E-02-3002		CC5F
CBLC029202-A	TCER	18#14, 1#14G	CAB020001	UPS029202	CTC020104	RWYC029202-A				E-02-1103	UPS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLC029202-B	TCER	2#14, 1#14G	CAB020001	MBS029202	CTC020104	RWYC029202-B				E-02-1103	MBS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLD029202-A	NC2	1#U/FTP CAT6A	NCE020011	UPS029202	CTS020100	CTS020104	RWYD029202-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP029202-A	XHHW2	3#6, 1#8G	ATS029102	XFMR029202	RWYP029202-A					E-02-3002		CC5F
CBLP029202-B	XHHW2	3#1, 1#1N, 1#6G	XFMR029202	CB029202	RWYP029202-B					E-02-3002		CC5F
CBLP029202-C	XHHW2	3#1, 1#1N, 1#6G	CB029202	MBS029202	RWYP029202-C					E-02-3002		CC5F
CBLP029202-E	XHHW2	3#1, 1#1N, 1#6G	UPS029202	MBS029202	RWYP029202-E					E-02-3002		CC5F
CBLP029202-F	XHHW2	3#1, 1#1N, 1#6G	MBS029202	UPS029202	RWYP029202-E					E-02-3002		CC5F
CBLP029202-G	XHHW2	3#1, 1#1N, 1#6G	MBS029202	PNL029202	RWYP029202-G					E-02-3002		CC5F
CBLP029301-A	XHHW2	3#6, 1#8G	PNL029201	XFMR029301	RWYP029301-A					E-02-3002		CC5F
CBLP029301-B	XHHW2	3#1, 1#1N, 1#6G	XFMR029301	PNL029301	RWYP029301-B					E-02-3002		CC5F
CBLC029302-A	TCER	18#14, 1#14G	CAB020001	UPS029302	CTC020104	RWYC029302-A				E-02-1103	UPS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLC029302-B	TCER	2#14, 1#14G	CAB020001	MBS029302	CTC020104	RWYC029302-B				E-02-1103	MBS ALARMS CABLE - SEE 1-02-6091	CC5F/CCF01
CBLD029302-A	NC2	1#U/FTP CAT6A	NCE020011	UPS029302	CTS020100	CTS020104	RWYD029302-A			E-02-1203	NETWORK CABLE - SEE 1-02-6101	CC5F
CBLP029302-A	XHHW2	3#6, 1#8G	PNL029201	XFMR029302	RWYP029302-A					E-02-3002		CC5F
CBLP029302-B	XHHW2	3#1, 1#1N, 1#6G	XFMR029302	CB029302	RWYP029302-B					E-02-3002		CC5F
CBLP029302-D	XHHW2	3#1, 1#1N, 1#6G	MBS029302	UPS029302	RWYP029302-D					E-02-3002		CC5F
CBLP029302-E	XHHW2	3#1, 1#1N, 1#6G	CB029302	MBS029302	RWYP029302-E					E-02-3002		CC5F
CBLP029302-F	XHHW2	3#1, 1#1N, 1#6G	UPS029302	MBS029302	RWYP029302-D					E-02-3002		CC5F
CBLP029302-G	XHHW2	3#1, 1#1N, 1#6G	MBS029302	PNL029302	RWYP029302-G					E-02-3002		CC5F
CBLP029303-A	XHHW2	3#6, 1#8G	PNL029201	XFMR029303	RWYP029303-A					E-02-1103		CC5F
CBLP029303-B	XHHW2	3#1, 1#1N, 1#6G	XFMR029303	PNL029303	RWYP029303-B					E-02-1103		CC5F/REV A
CBLP029303-C	XHHW2	1#12, 1#12N, 1#12G	PNL029303	HH020001	RWYP020001-D					E-00-1301	CIRCUIT FOR HH020001 SUMP PUMP. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC5F/REV A
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NCE210011	RWYF020011-B	HH020001	RWYF24225-B	HH24225	RWYF24225-D	E-02-1203	TEMP FO TO AREA 21 NETWORK CABINET	CC5F
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NCE210011	HH24224	RWYF240000-C	CTS24	RWYF210001B-B	PBX210001S-B	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC5F
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NCE210011	RWYF210011-B					E-02-1203	CONTINUED FROM ROUTING ABOVE	CC5F
CBLF210011DA-A	**FOTSM**	**12 FiberSM**	**NCE240011**	**NCE210011**	**RWYF240011-A**	**CTS24**	**RWYF210001-C**	**PBX210001S-A**	**RWYF210011-C**	**E-21-1201**	**PLANT FIRE ALARM. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF230005A-A	FOTMM	12 FiberMM	NCE020011	CAB230005	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF230005-A	E-23-1102		CC5F
CBLP230005-A	XHHW2	1#12, 1#12N, 1#12G	PBD23661	CAB230005	RWYP230005-A					E-23-1102	UPS-FEED	CC5F
CBLP230005-B	XHHW2	1#12, 1#12N, 1#12G	PBD23662	CAB230005	RWYP230005-B					E-23-1102	NORMAL-FEED	CC5F
CBLD230011-A	NC2	1#U/FTP CAT6A	CAB230001	NCE230011	RWYD230011-A					E-23-1102		CC5F/REV.A
CBLD230011-B	NC2	1#U/FTP CAT6A	WAP	NCE230011	RWYD230011-B					E-23-1102		CC5F/REV.A
CBLD230011-C	NC2	1#U/FTP CAT6A	UVPC	NCE230011	RWYD230011-C					E-23-1102		CC5F/REV.A
CBLD230011-D	NC2	1#U/FTP CAT6A	UVPC	NCE230011	RWYD230011-C					E-23-1102		CC5F/REV.A
CBLD230011-E	NC2	1#U/FTP CAT6A	UPS A	NCE230011	RWYD230011-E					E-23-1101		CC5F/REV.A
CBLD230011-F	NC2	1#U/FTP CAT6A	UPS B	NCE230011	RWYD230011-E					E-23-1101		CC5F/REV.A
CBLF230011A-C	FOTSM	24 FiberSM	NCE020011	NCE230011	RWYF020011-B	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B	E-23-1102	CABLE TO NEW NETWORK CABINET IN AREA 23 ELECT ROOM	CC5F
CBLF230011BA-A	**FOTSM**	**12 FiberSM**	NCE020011	NCE230011	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF230011-D	E-23-1102	PLANT FA. CABLE TO NEW NETWORK CABINET IN AREA 23 ELECT ROOM. RUN IN SEPARATE RACEWAYS AND PULLBOXES FROM OTHER WIRING. RUN IN SEPARATE RGS CONDUIT IN HANDHOLES OR IN TRAY CONTAINING OTHER WIRING **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLP230011-A	XHHW2	1#12, 1#12N, 1#12G	PBD23661	TBX230011	RWYP230011-A					E-23-1102	UPS-FEED	CC5F
CBLP230011-B	XHHW2	1#12, 1#12N, 1#12G	PBD23662	NCE230011	RWYP230011-B					E-23-1102	NORMAL FEED TO RACK-MOUNTED UPS IN NCE	CC5F
CBLC230390-A	XHHW2	6#14, 1#14G	CAB230005	CAB230390	RWYC230390-A					E-23-1102	COMPRESSOR RUN, FAIL, AND LOW OIL.	CC5F
CBLP230390-A	XHHW2	3#10, 1#10G	MCC21A	DS230390	RWYP21002C-A	HH21002C	RWYP21001C-A	HH21001C	RWYP230390-A	E-23-1102	CONTINUED ON SITE CABLE SCHEDULE	CC5F
CBLP230390-B	XHHW2	3#10, 1#10G	DS230390	CAB230390	RWYP230390-B					E-23-1102		CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC230391-A	XHHW2	8#14, 1#14G	CAB230005	CAB230391	RWYC230391-A					E-23-1102	3W COOLING SURGE TANK AUTO, LOW LEVEL, HIGH LEVEL	CC5F ADD2
CBLP230391-A	XHHW2	2#12, 1#12G	PBD23661	CAB230391	RWYP230391-A					E-23-1102	UPS-FEED	CC5F
CBLP230391-B	XHHW2	2#12, 1#12G	PBD23662	CAB230391	RWYP230391-B					E-23-1102	NORMAL-FEED	CC5F
CBLS230391-A	INS	1PR #16SH	CAB230005	CAB230391	RWYS230391-A					E-23-1102		CC5F ADD2
CBLS230391-B	INS	1PR #16SH	CAB230391	LIT230391	RWYS230391-B					E-23-1102		CC5F ADD2
CBLC230491-A	XHHW2	8#14, 1#14G	CAB230005	CAB230491	RWYC230491-A					E-23-1102	3W COOLING SURGE TANK AUTO, LOW LEVEL, HIGH LEVEL	CC5F ADD2
CBLP230491-A	XHHW2	2#12, 1#12G	PBD23661	CAB230491	RWYP230491-A					E-23-1102	UPS-FEED	CC5F
CBLP230491-B	XHHW2	2#12, 1#12G	PBD23662	CAB230491	RWYP230491-B					E-23-1102	NORMAL-FEED	CC5F
CBLS230491-A	INS	1PR #16SH	CAB230005	CAB230491	RWYS230491-A					E-23-1102		CC5F ADD2
CBLS230491-B	INS	1PR #16SH	CAB230491	LIT230491	RWYS230491-B					E-23-1102		CC5F ADD2
CBLC230591-A	XHHW2	8#14, 1#14G	CAB230005	CAB230591	RWYC230591-A					E-23-1102	3W COOLING SURGE TANK AUTO, LOW LEVEL, HIGH LEVEL	CC5F ADD2
CBLP230591-A	XHHW2	2#12, 1#12G	PBD23661	CAB230591	RWYP230591-A					E-23-1102	UPS-FEED	CC5F
CBLP230591-B	XHHW2	2#12, 1#12G	PBD23662	CAB230591	RWYP230591-B					E-23-1102	NORMAL-FEED	CC5F
CBLS230591-A	INS	1PR #16SH	CAB230005	CAB230591	RWYS230591-A					E-23-1102		CC5F ADD2
CBLS230591-B	INS	1PR #16SH	CAB230591	LIT230591	RWYS230591-B					E-23-1102		CC5F ADD2
CBLD230611-A	NC2	1#U/FTP CAT6A	NCE230011	PDC 23611	RWYD230611-A					E-23-1101		CC5F/REV.A
CBLD230611-B	NC2	1#U/FTP CAT6A	NCE230011	PDC 23611	RWYD230611-A					E-23-1101		CC5F/REV.A
CBLD230611-C	NC2	1#U/FTP CAT6A	NCE230011	PDC 23611	RWYD230611-A					E-23-1101		CC5F/REV.A
CBLD230611-D	**NC2**	**1#U/FTP CAT6A**	**NCE230011**	**PDC 23611**	**RWYD230611-A**					**E-23-1101**	**CCF 020 CHANGE ORDER PENDING**	CC5F/REV.A
CBLD230619-A	NC2	1#U/FTP CAT6A	NCE230011	PDC 23619	RWYD230619-A					E-23-1101		CC5F/REV.A
CBLD230619-B	NC2	1#U/FTP CAT6A	NCE230011	PDC 23619	RWYD230619-A					E-23-1101		CC5F/REV.A
CBLD230619-C	NC2	1#U/FTP CAT6A	NCE230011	PDC 23619	RWYD230619-A					E-23-1101		CC5F/REV.A
CBLD230619-D	**NC2**	**1#U/FTP CAT6A**	**NCE230011**	**PDC 23619**	**RWYD230619-A**					**E-23-1101**	**CCF 020 CHANGE ORDER PENDING**	CC5F/REV.A
CBLD230631-A	NC2	1#U/FTP CAT6A	NCE230011	PDC 23631	RWYD230631-A					E-23-1101		CC5F/REV.A
CBLD230631-B	NC2	1#U/FTP CAT6A	NCE230011	PDC 23631	RWYD230631-A					E-23-1101		CC5F/REV.A
CBLD230631-C	NC2	1#U/FTP CAT6A	NCE230011	PDC 23631	RWYD230631-A					E-23-1101		CC5F/REV.A
CBLD230631-D	**NC2**	**1#U/FTP CAT6A**	**NCE230011**	**PDC 23631**	**RWYD230631-A**					**E-23-1101**	**CCF 020 CHANGE ORDER PENDING**	CC5F/REV.A
CBLD230639-A	NC2	1#U/FTP CAT6A	NCE230011	PDC 23639	RWYD230639-A					E-23-1101		CC5F/REV.A
CBLD230639-B	NC2	1#U/FTP CAT6A	NCE230011	PDC 23639	RWYD230639-A					E-23-1101		CC5F/REV.A
CBLD230639-C	NC2	1#U/FTP CAT6A	NCE230011	PDC 23639	RWYD230639-A					E-23-1101		CC5F/REV.A
CBLD230639-D	**NC2**	**1#U/FTP CAT6A**	**NCE230011**	**PDC 23639**	**RWYD230639-A**					**E-23-1101**	**CCF 020 CHANGE ORDER PENDING**	CC5F/REV.A
CBLX210001P-A	PULLROPE	PULLROPE	CTPS24	PBX210001P	RWYX210001P-A							CC5F
CBLF230010-A	**FOTSM**	**6 FiberSM**	**NCE230011**	**FACP230010**	**RWYF230010-A**					**E-23-1101**	**FIRE ALARM FIBER OPTIC. (CCF 020 CHANGE ORDER PENDING)**	**CC5F**

Engineer: JDC
January 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLD050001A-A	NC2	1#U/FTP CAT6A	NCR050002	SWGR LV-50	RWYD050001A-A					E-05-4002	ETHERNET TO PQM050001	CC30A
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-05-4002	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 34 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	CTS340001A	RWYF000001A-C	CTS000001A	CTS000003A	CTS000005A	E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF050001A-A	FOTSM	144 FiberSM	NCR340001	NCE050004	RWYF050004A-A					E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-05-4002	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF050001B-A	FOTSM	144 FiberSM	NCE330001	NCE050004	CTS000002B	CTS000004B	CTS000006B	RWYF050004B-A		E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF050001CA-A	**FOTSM**	**12 FiberSM**	NCE100011	NCE050004	INSTR1010	CTS100101	CTS100103	CTS100105	INSTR1010	E-00-1021	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULE (CO 010) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / REV A
CBLF050001CA-A	**FOTSM**	**12 FiberSM**	NCE100011	NCE050004	RWYF100011A-A	CTS000005A	RWYF050004CA-A			E-05-4002	PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 10 CABLE SCHEDULE. (CO 010) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / REV A
CBLP050001A-A	XHHW2	1#12, 1#12N, 1#12G	PBD	SWGR LV-50	RWYP050001A-A					E-05-4001	PQM 120VAC UPS POWER	CC30A
CBLD050002A-A	NC2	1#U/FTP CAT6A	NCE050004	NCR050002	RWYD050002A-A					E-05-4002	ETHERNET BETWEEN NETWORK CABINETS	CC30A
CBLF050010-A	**FOTSM**	**6 FiberSM**	**NCE050004**	**FACP050010**	**RWYF050010-A**					**E-05-4002**	**FIRE ALARM FIBER. (CCF 020 CHANGE PENDING)**	CCA30A
CBLF160011BA-A	FOTSM	**12 FiberSM**	**NCE050004**	NCE160011	RWYF050004CA-A	CTS000005A	CTS000003A	RWYF160002-A	HH160002	E-05-4002	PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 16 CABLE SCHEDULE. **(CCF 020 CHANGE PENDING)**	CC30B / REV A
CBLF160011BA-A	FOTSM	**12 FiberSM**	**NCE050004**	NCE160011	RWYF160011A-A					E-05-4002	PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 16 CABLE SCHEDULE. **(CCF 020 CHANGE PENDING)**	CC30B / REV A
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF330001CA-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF330001CB-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF330001CC-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF330001CD-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-A	CTS000006B	CTS000004B	CTS000002B	RWYF330103-A	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF330001CE-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-D	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	RWYF000002B-B	CTS000006B	CTS000004B	CTS000002B	RWYF330103-B	E-00-1020	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010)	CC30A / REV A
CBLF330001CF-A	FOTSM	144 FiberSM	NCE050004	NCE330001	CTS330103	CTS330105	RWYF330201-E	CTS330201		E-00-1020	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010)	CC30A / REV A
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	RWYF050004B-A	CTS000006B	CTS000004B	CTS000002B	RWYF000002B-E	E-05-4002	CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 33 CABLE SCHEDULE. (CO 010) **(CCF 020 CHANGE PENDING)**	CC30A / REV A
CBLF330011CC-A	**FOTSM**	**12 FiberSM**	NCE050004	NCE330002	CTS330103	CTS330105	RWYF330105-A	CTS330201		E-05-4002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES. (CO 010) **(CCF 020 CHANGE PENDING)**	CC30A / REV A
CBLH500000A-A	MV105	3#4/0, 1#4/0G	SWGR340133A	SUB50	CTH340005A	CTH340003A	CTH10133A	CTH20133A	RWYH500000A-A	E-05-4001	5 KV "A" SIDE FEED TO ADMIN SUB 50. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE CONTINUES ON SITE CABLE SCHEDULE.	CC30A
CBLH500000B-A	MV105	3#4/0, 1#4/0G	SWGR340133B	SUB50	CTH340006B	CTH340004B	CTH10133B	CTH20133B	RWYH500000B-A	E-05-4001	5 KV "B" SIDE FEED TO ADMIN SUB 50. AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE CONTINUES ON SITE CABLE SCHEDULE.	CC30A

Engineer: JDC
January 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF000011BA-A	**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**INSTR1010**	**CTS100101**	**CTS100103**	**CTS100105**	**INSTR1010**	**E-00-1016**	**PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF000011BA-A	**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**RWYF100011A-B**	**CTS000006B**	**RWYF000011BA-A**			**E-00-1016**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF050001CA-A	FOTSM	**12 FiberSM**	NCE100011	NCE050004	INSTR1010	CTS100101	CTS100103	CTS100105	INSTR1010	E-05-4002	PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. ALSO APPEARS ON AREA 10 CABLE SCHEDULE. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / CCF 007
CBLF050001CA-A	FOTSM	**12 FiberSM**	NCE100011	NCE050004	RWYF100011A-A	CTS000005A	RWYF050004CA-A			E-05-4002	CONTINUED FROM LINE ABOVE (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	CC30A / CCF 007
CBLF100010-A	**FOTSM**	**6 FiberSM**	**NCE100011**	**FACP100010**	**RWYF100010-A**					**E-10-1231**	**6-STRAND FIRE ALARM CONTROL PANEL. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-00-1010	CABLE ALSO APPEARS IN AREA 10, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	CTS340001A	RWYF000001A-A	CTS000001A	CTS000003A	CTS000005A	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	RWYF100011A-A	INSTR1010	CTS100105	CTS100103	CTS100101	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-A	FOTSM	48 FiberSM	NCR340001	NCE100011	INSTR1010						CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10, 33 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-00-1010	CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS000002B	CTS000004B	CTS000006B	RWYF100011A-B	INSTR1010	E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
CBLF100011A-B	FOTSM	48 FiberSM	NCE330001	NCE100011	CTS100105	CTS100103	CTS100101	INSTR1010		E-00-1010	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 10 AND SITE CABLE SCHEDULES (CCF 007)	CC30A / CCF 007
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**RWYF130011A-B**~~	~~**CTS000002B**~~	~~**CTS000004B**~~	~~**CTS000006B**~~	~~**RWYF100011A-B**~~	~~**E-10-1231**~~	~~**TEMP PLANT FIRE ALARM. CABLE ALSO APPEARS IN SITE AND 13 CABLE SCHEDULES. (CCF 007)**~~	**CC30A / CCF 007**
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**INSTR1010**~~	~~**CTS100105**~~	~~**CTS100103**~~	~~**CTS100101**~~	~~**INSTR1010**~~	~~**E-10-1231**~~	~~**CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN SITE AND 13 CABLE SCHEDULES (CCF 007)**~~	**CC30A / CCF 007**
CBLD109101-D	NC4	1#600V CAT6A	NCE100011	MCC109101	RWYD109101-D					E-10-1221	ETHERNET FROM NETWORK SWITCH TO PMM109101	CC30B
CBLD100001-H	**NC2**	**1#U/FTP CAT6A**	**CAB109105B**	**CAB100001**	**RWYD100001-H**					**E-10-1231**	**ETHERNET RING TO PLC100001 PROCESSOR B (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLC109101-A	XHHW2	2#14, 1#14G	CAB109101	MCC109101	RWYC109101-A					E-10-1121	CONTROL FEED TO SPD109101	CC30B
CBLC109101-B	XHHW2	2#14, 1#14G	CAB109101	MCC109101	RWYC109101-A					E-10-1121	CONTROL FEED TO PMM109101	CC30B
CBLP109101-C	XHHW2	2#12, 1#12G	JP10	MCC109101	RWYP109101-A					E-10-1121	120V UPS POWER TO PMM109101	CC30B
CBLP109101-D	XHHW2	2#12, 1#12G	JP10	CAB109101	RWYP109101-B					E-10-1121	120V UPS POWER TO CAB109101	CC30B
CBLD109102-D	NC4	1#600V CAT6A	NCE100011	MCC109102	RWYD109102-D					E-10-1221	ETHERNET FROM NETWORK SWITCH TO PMM109102	CC30B
CBLC109102-A	XHHW2	2#14, 1#14G	CAB109102	MCC109102	RWYC109102-A					E-10-1121	CONTROL FEED TO SPD109102	CC30B
CBLC109102-B	XHHW2	2#14, 1#14G	CAB109102	MCC109102	RWYC109102-A					E-10-1121	CONTROL FEED TO PMM109102	CC30B
CBLP109102-C	XHHW2	2#12, 1#12G	PNL109302	MCC109102	RWYP109102-A					E-10-1121	120V UPS POWER TO PMM109102	CC30B
CBLD109103-D	NC4	1#600V CAT6A	NCE100011	MCC109103	RWYD109103-D					E-10-1221	ETHERNET FROM NETWORK SWITCH TO PMM109103	CC30B
CBLC109103-A	XHHW2	2#14, 1#14G	CAB109101	MCC109103	RWYC109103-A					E-10-1121	CONTROL FEED TO SPD109103	CC30B
CBLC109103-B	XHHW2	2#14, 1#14G	CAB109101	MCC109103	RWYC109103-A					E-10-1121	CONTROL FEED TO PMM109103	CC30B
CBLP109103-C	XHHW2	2#12, 1#12G	JP10	MCC109103	RWYP109103-A					E-10-1121	120V UPS POWER TO PMM109103	CC30B
CBLP109103-D	XHHW2	2#12, 1#12G	JP10	CAB109103	RWYP109103-B					E-10-1121	120V UPS POWER TO CAB109103	CC30B
CBLD109104-D	NC4	1#600V CAT6A	NCE100011	MCC109104	RWYD109104-D					E-10-1221	ETHERNET FROM NETWORK SWITCH TO PMM109104	CC30B
CBLC109104-A	XHHW2	2#14, 1#14G	CAB109102	MCC109104	RWYC109104-A					E-10-1121	CONTROL FEED TO SPD109104	CC30B
CBLC109104-B	XHHW2	2#14, 1#14G	CAB109102	MCC109104	RWYC109104-A					E-10-1121	CONTROL FEED TO PMM109104	CC30B
CBLP109104-C	XHHW2	2#12, 1#12G	PNL109302	MCC109104	RWYP109104-A					E-10-1121	120V UPS POWER TO PMM109104	CC30B
CBLC109105A-A	XHHW2	4#14, 1#14G	CAB109105A	MCC109105A						E-10-1131	CONTROL FEED TO NET109105AB	CC30B
CBLC109105A-B	XHHW2	4#14, 1#14G	CAB109105A	MCC109105A						E-10-1131	CONTROL FEED TO NET109105AC	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC109105A-C	XHHW2	2#14, 1#14G	CAB109105A	MCC109105A						E-10-1131	CONTROL FEED TO SPD109105A	CC30B
CBLC109105A-D	XHHW2	2#14, 1#14G	CAB109105A	MCC109105A						E-10-1131	CONTROL FEED TO PMM109105A	CC30B
CBLP109105A-A1	TCER	3#350, 1#350G, 1#3G	LV10A	MCC109105A	CTP10C	RWYP109105A-A1				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105A	CC30B
CBLP109105A-A2	TCER	3#350, 1#350G, 1#3G	LV10A	MCC109105A	CTP10C	RWYP109105A-A2				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105A	CC30B
CBLP109105A-A3	TCER	3#350, 1#350G, 1#3G	LV10A	MCC109105A	CTP10C	RWYP109105A-A3				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105A	CC30B
CBLP109105A-B	XHHW2	2#12, 1#12G	PNL109302	MCC109105A	RWYP109105A-B					E-10-1131	120V UPS FEED TO PMM109105A	CC30B
CBLP109105A-C	XHHW2	2#12, 1#12G	JP10	MCC109105A	RWYP109105A-C					E-10-1131	120V UPS FEED TO MCC109105A NETWORK SWITCHES POWER SUPPLY	CC30B
CBLP109105A-D	XHHW2	2#12, 1#12G	JP10	CAB109105A	RWYP109105A-D					E-10-1131	120V UPS FEED TO CAB109105A	CC30B
CBLP109105A-E	TCER	2#12, 1#12G	LLP10A	CAB109105A	RWYP109105A-EA	CTP 10E	CTP 10A	RWYP109105A-EB		E-10-1131	120V FEED TO CAB109105A	CC30B
CBLP109105A-F	XHHW2	2#12, 1#12G	JP10	PMM109105A	RWYP109105A-F					E-10-1131	120V UPS FEED TO PMM109105A	CC30B
CBLC109105B-A	XHHW2	4#14, 1#14G	CAB109105B	MCC109105B						E-10-1131	CONTROL FEED TO NET109105BB	CC30B
CBLC109105B-B	XHHW2	4#14, 1#14G	CAB109105B	MCC109105B						E-10-1131	CONTROL FEED TO NET109105BC	CC30B
CBLC109105B-C	XHHW2	2#14, 1#14G	CAB109105B	MCC109105B						E-10-1131	CONTROL FEED TO SPD109105B	CC30B
CBLC109105B-D	XHHW2	2#14, 1#14G	CAB109105B	MCC109105B						E-10-1131	CONTROL FEED TO PMM109105B	CC30B
CBLP109105B-A1	TCER	3#350, 1#350G, 1#3G	LV10B	MCC109105B	CTP10C	RWYP109105B-A1				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105B	CC30B
CBLP109105B-A2	TCER	3#350, 1#350G, 1#3G	LV10B	MCC109105B	CTP10C	RWYP109105B-A2				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105B	CC30B
CBLP109105B-A3	TCER	3#350, 1#350G, 1#3G	LV10B	MCC109105B	CTP10C	RWYP109105B-A3				E-10-7002	FEEDER CABLE FROM SWGR TO MCC109105B	CC30B
CBLP109105B-B	XHHW2	2#12, 1#12G	PNL109302	MCC109105B	RWYP109105B-B					E-10-1131	120V UPS FEED TO PMM109105B	CC30B
CBLP109105B-C	XHHW2	2#12, 1#12G	PNL109302	MCC109105B	RWYP109105B-C					E-10-1131	120V UPS FEED TO MCC109105B NETWORK SWITCHES POWER SUPPLY	CC30B
CBLP109105B-D	XHHW2	2#12, 1#12G	PNL109302	CAB109105B	RWYP109105B-D					E-10-1131	120V UPS FEED TO CAB109105B	CC30B
CBLP109105B-E	XHHW2	2#12, 1#12G	PNL109203	CAB109105B	RWYP109105B-E					E-10-1131	120V FEED TO CAB109105B	CC30B
CBLD109105A-A	NC4	1#600V CAT6A	MCC109105A	CAB109105A	RWYD109105A-A					E-10-1231	DATA FROM MCC PLC TO MCC NETWORK SWITCH NET109105AA	CC30B
CBLD109105A-B	NC4	1#600V CAT6A	MCC109105A	CAB109105A	RWYD109105A-B					E-10-1231	DATA FROM MCC PLC TO MCC NETWORK SWITCH NET109105AB	CC30B
CBLD109105A-D	NC2	1#U/FTP CAT6A	NCE100011	CAB109105A	RWYD109105A-D					E-10-1231	**ETHERNET TO NET109105A FROM NETWORK CABINET (CCF 020 CHANGE PENDING)**	CC30B
CBLD109105A-C	NC2	1#U/FTP CAT6A	NCE100011	MCC109105A	RWYD109105A-C					E-10-1231	ETHERNET TO PMM109105A FROM NETWORK CABINET	CC30B
CBLD109105A-E	NC2	1#U/FTP CAT6A	CAB100001	CAB109105A	RWYD109105A-E					E-10-1231	ETHERNET RING TO MCC109105A PLC	CC30B
CBLD109105A-F	**NC2**	**1#U/FTP CAT6A**	**NCE100011**	**CAB109105A**	**RWYD109105A-D**					**E-10-1231**	**ETHERNET TO NET109105A FROM NETWORK CABINET (CCF 020 CHANGE PENDING)**	**CC30B**
CBLD109105B-A	NC4	1#600V CAT6A	MCC109105B	CAB109105B	RWYD109105B-A					E-10-1231	DATA FROM MCC PLC TO MCC NETWORK SWITCH NET109105BB	CC30B
CBLD109105B-B	NC4	1#600V CAT6A	MCC109105B	CAB109105B	RWYD109105B-B					E-10-1231	DATA FROM MCC PLC TO MCC NETWORK SWITCH NET109105BA	CC30B
CBLD109105B-D	NC4	1#600V CAT6A	NCE100011	CAB109105B	RWYD109105B-D					E-10-1231	**ETHERNET TO NET109105B FROM NETWORK CABINET (CCF 020 CHANGE PENDING)**	CC30B
CBLD109105B-C	NC4	1#600V CAT6A	NCE100011	MCC109105B	RWYD109105B-C					E-10-1231	ETHERNET TO PMM109105B FROM NETWORK CABINET	CC30B
CBLD109105B-E	NC2	1#U/FTP CAT6A	CAB109105A	CAB109105B	RWYD109105B-E					E-10-1231	ETHERNET RING TO MCC PLC	CC30B
CBLD109105B-F	**NC2**	**1#U/FTP CAT6A**	**NCE100011**	**CAB109105B**	**RWYD109105B-D**					**E-10-1231**	**ETHERNET TO NET109105A FROM NETWORK CABINET (CCF 020 CHANGE PENDING)**	**CC30B**
CBLP109205-A	XHHW2	3#350, 1#2G	MCC109105A	MCC109205	RWYP109205-A					E-10-1131	480V POWER TO HVAC MCC.	CC30B
CBLX150001-A	PULLROPE	PULLROPE	TUNNEL	HH151001	RWYX150001-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150001-B	PULLROPE	PULLROPE	TUNNEL	HH151001	RWYX150001-B					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150002-A	PULLROPE	PULLROPE	TUNNEL	HH151002	RWYX150002-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150002-B	PULLROPE	PULLROPE	TUNNEL	HH151002	RWYX150002-B					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150003-A	PULLROPE	PULLROPE	HH151001	HH151003	RWYX150003-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150003-B	PULLROPE	PULLROPE	HH151001	HH151003	RWYX150003-B					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150004-A	PULLROPE	PULLROPE	HH151002	HH151004	RWYX150004-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150004-B	PULLROPE	PULLROPE	HH151002	HH151004	RWYX150004-B					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150005-A	PULLROPE	PULLROPE	HH151003	HH151005	RWYX150005-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150006-A	PULLROPE	PULLROPE	HH151004	HH151006	RWYX150006-A					E-00-1020	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150007-C	PULLROPE	PULLROPE	TUNNEL	HH1007	RWYX150007-A					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150007-D	PULLROPE	PULLROPE	TUNNEL	HH1007	RWYX150007-B					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150008-C	PULLROPE	PULLROPE	TUNNEL	HH1008	RWYX150008-A					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150008-D	PULLROPE	PULLROPE	TUNNEL	HH1008	RWYX150008-B					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150009-C	PULLROPE	PULLROPE	HH1007	HH1009	RWYX150009-A					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLX150009-D	PULLROPE	PULLROPE	HH1007	HH1009	RWYX150009-B					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150010-C	PULLROPE	PULLROPE	HH1008	HH1010	RWYX150010-A					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLX150010-D	PULLROPE	PULLROPE	HH1008	HH1010	RWYX150010-B					E-00-1021	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150101-A	TCER	11#14, 1#14G	MCC109101A	CS150101	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150101-A	TCER	11#14, 1#14G	MCC109101A	CS150101	CTS150002	RWYC150101-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150101-B	XHHW2	2#14, 1#14G	CS150101	TBX150101	RWYC150101-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150101-A	TCER	3#12, 1#12G	MCC109101A	DS150101	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150101-A	TCER	3#12, 1#12G	MCC109101A	DS150101	CTPR150001	RWYP150101-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150101-B	XHHW2	3#12, 1#12G	DS150101	TBX150101	RWYP150101-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150101	VENDOR	Special	TBX150101	MX150101						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150102-A	TCER	11#14, 1#14G	MCC109101B	CS150102	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150102-A	TCER	11#14, 1#14G	MCC109101B	CS150102	CTS150002	RWYC150102-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150102-B	XHHW2	2#14, 1#14G	CS150102	TBX150102	RWYC150102-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150102-A	TCER	3#12, 1#12G	MCC109101B	DS150102	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150102-A	TCER	3#12, 1#12G	MCC109101B	DS150102	CTPR150001	RWYP150102-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150102-B	XHHW2	3#12, 1#12G	DS150102	TBX150102	RWYP150102-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150102	VENDOR	Special	TBX150102	MX150102						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150103-A	TCER	11#14, 1#14G	MCC109101A	CS150103	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150103-A	TCER	11#14, 1#14G	MCC109101A	CS150103	CTS150002	RWYS151002-A	HH151002	RWYC150103-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150103-B	XHHW2	2#14, 1#14G	CS150103	TBX150103	RWYC150103-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150103-A	TCER	3#12, 1#12G	MCC109101A	DS150103	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150103-A	TCER	3#12, 1#12G	MCC109101A	DS150103	CTPR150001	RWYP151001-A	HH151001	RWYP150103-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150103-B	XHHW2	3#12, 1#12G	DS150103	TBX150103	RWYP150103-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150103	VENDOR	Special	TBX150103	MX150103						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150104-A	TCER	11#14, 1#14G	MCC109101B	CS150104	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150104-A	TCER	11#14, 1#14G	MCC109101B	CS150104	CTS150002	RWYS151002-A	HH151002	RWYC150104-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150104-B	XHHW2	2#14, 1#14G	CS150104	TBX150104	RWYC150104-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150104-A	TCER	3#12, 1#12G	MCC109101B	DS150104	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150104-A	TCER	3#12, 1#12G	MCC109101B	DS150104	CTPR150001	RWYP151001-A	HH151001	RWYP150104-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150104-B	XHHW2	3#12, 1#12G	DS150104	TBX150104	RWYP150104-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150104	VENDOR	Special	TBX150104	MX150104						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	CTS150002	RWYS151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150105-A	TCER	11#14, 1#14G	MCC109101A	CS150105	RWYC150105-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150105-B	XHHW2	2#14, 1#14G	CS150105	TBX150105	RWYC150105-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150105-A	TCER	3#12, 1#12G	MCC109101A	DS150105	RWYP150105-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150105-B	XHHW2	3#12, 1#12G	DS150105	TBX150105	RWYP150105-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150105	VENDOR	Special	TBX150105	MX150105						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	CTS150002	RWYS151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150106-A	TCER	11#14, 1#14G	MCC109101B	CS150106	RWYC150106-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150106-B	XHHW2	2#14, 1#14G	CS150106	TBX150106	RWYC150106-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150106-A	TCER	3#12, 1#12G	MCC109101B	DS150106	RWYP150106-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150106-B	XHHW2	3#12, 1#12G	DS150106	TBX150106	RWYP150106-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150106	VENDOR	Special	TBX150106	MX150106						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150107-A	TCER	11#14, 1#14G	MCC109101A	CS150107	RWYC150107-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150107-B	XHHW2	2#14, 1#14G	CS150107	TBX150107	RWYC150107-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150107-A	TCER	3#12, 1#12G	MCC109101A	DS150107	RWYP150107-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150107-B	XHHW2	3#12, 1#12G	DS150107	TBX150107	RWYP150107-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150107	VENDOR	Special	TBX150107	MX150107						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150108-A	TCER	11#14, 1#14G	MCC109101B	CS150108	RWYC150108-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150108-B	XHHW2	2#14, 1#14G	CS150108	TBX150108	RWYC150108-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150108-A	TCER	3#12, 1#12G	MCC109101B	DS150108	RWYP150108-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150108-B	XHHW2	3#12, 1#12G	DS150108	TBX150108	RWYP150108-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150108	VENDOR	Special	TBX150108	MX150108						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150109-A	TCER	11#14, 1#14G	MCC109101A	CS150109	RWYC150109-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150109-B	XHHW2	2#14, 1#14G	CS150109	TBX150109	RWYC150109-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150109-A	TCER	3#12, 1#12G	MCC109101A	DS150109	RWYP150109-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150109-B	XHHW2	3#12, 1#12G	DS150109	TBX150109	RWYP150109-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150109	VENDOR	Special	TBX150109	MX150109						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150110-A	TCER	11#14, 1#14G	MCC109101B	CS150110	RWYC150110-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150110-B	XHHW2	2#14, 1#14G	CS150110	TBX150110	RWYC150110-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150110-A	TCER	3#12, 1#12G	MCC109101B	DS150110	RWYP150110-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150110-B	XHHW2	3#12, 1#12G	DS150110	TBX150110	RWYP150110-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150110	VENDOR	Special	TBX150110	MX150110						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	INSTR1010	CTC100101	CTC100102	CTC100104	INSTR1010	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	CTS150002	RWYC151002-A	HH151002	RWYC151004-A	HH151004	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150111-A	TCER	11#14, 1#14G	MCC109101A	CS150111	RWYC150111-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	
CBLC150111-B	XHHW2	2#14, 1#14G	CS150111	TBX150111	RWYC150111-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10A	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	CTPR150001	RWYP151001-A	HH151001	RWYP151003-A	HH151003	E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150111-A	TCER	3#12, 1#12G	MCC109101A	DS150111	RWYP150111-A					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150111-B	XHHW2	3#12, 1#12G	DS150111	TBX150111	RWYP150111-B					E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150111	VENDOR	Special	TBX150111	MX150111						E-00-4003	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150112-A	TCER	11#14, 1#14G	MCC109101B	CS150112	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC150112-A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150112-B	XHHW2	2#14, 1#14G	CS150112	TBX150112	RWYC150112-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150112-A	TCER	3#12, 1#12G	MCC109101B	DS150112	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150112-A	TCER	3#12, 1#12G	MCC109101B	DS150112	CTP150003	RWYP150112-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150112-B	XHHW2	3#12, 1#12G	DS150112	TBX150112	RWYP150112-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150112	VENDOR	Special	TBX150112	MX150112						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150113-A	TCER	11#14, 1#14G	MCC109101A	CS150113	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC150113-A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150113-B	XHHW2	2#14, 1#14G	CS150113	TBX150113	RWYC150113-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150113-A	TCER	3#12, 1#12G	MCC109101A	DS150113	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150113-A	TCER	3#12, 1#12G	MCC109101A	DS150113	CTP150003	RWYP150113-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150113-B	XHHW2	3#12, 1#12G	DS150113	TBX150113	RWYP150113-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150113	VENDOR	Special	TBX150113	MX150113						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150114-A	TCER	11#14, 1#14G	MCC109101B	CS150114	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150114-A	TCER	11#14, 1#14G	MCC109101B	CS150114	HH151008	RWYC150114-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150114-B	XHHW2	2#14, 1#14G	CS150114	TBX150114	RWYC150114-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150114-A	TCER	3#12, 1#12G	MCC109101B	DS150114	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150114-A	TCER	3#12, 1#12G	MCC109101B	DS150114	CTP150003	RWYP151007-A	HH151007	RWYP150114-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150114-B	XHHW2	3#12, 1#12G	DS150114	TBX150114	RWYP150114-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150114	VENDOR	Special	TBX150114	MX150114						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150115-A	TCER	11#14, 1#14G	MCC109101A	CS150115	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150115-A	TCER	11#14, 1#14G	MCC109101A	CS150115	HH151008	RWYC150115-A				E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150115-B	XHHW2	2#14, 1#14G	CS150115	TBX150115	RWYC150115-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150115-A	TCER	3#12, 1#12G	MCC109101A	DS150115	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150115-A	TCER	3#12, 1#12G	MCC109101A	DS150115	CTP150003	RWYP151007-A	HH151007	RWYP150115-A		E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150115-B	XHHW2	3#12, 1#12G	DS150115	TBX150115	RWYP150115-B					E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150115	VENDOR	Special	TBX150115	MX150115						E-00-4004	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLC150116-A	TCER	11#14, 1#14G	MCC109101B	CS150116	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150116-A	TCER	11#14, 1#14G	MCC109101B	CS150116	HH151008	RWYC151010-A	HH151010	RWYC150116-A		E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150116-B	XHHW2	2#14, 1#14G	CS150116	TBX150116	RWYC150116-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150116-A	TCER	3#12, 1#12G	MCC109101B	DS150116	RWYP150116-A					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150116-B	XHHW2	3#12, 1#12G	DS150116	TBX150116	RWYP150116-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150116	VENDOR	Special	TBX150116	MX150116						E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150117-A	TCER	11#14, 1#14G	MCC109101A	CS150117	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150117-A	TCER	11#14, 1#14G	MCC109101A	CS150117	HH151008	RWYC151010-A	HH151010	RWYC150117-A		E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150117-B	XHHW2	2#14, 1#14G	CS150117	TBX150117	RWYC150117-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150117-A	TCER	3#12, 1#12G	MCC109101A	DS150117	RWYP150117-A					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150117-B	XHHW2	3#12, 1#12G	DS150117	TBX150117	RWYP150117-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150117	VENDOR	Special	TBX150117	MX150117						E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150118-A	TCER	11#14, 1#14G	MCC109101B	CS150118	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150118-A	TCER	11#14, 1#14G	MCC109101B	CS150118	HH151008	RWYC151010-A	HH151010	RWYC150118-A		E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150118-B	XHHW2	2#14, 1#14G	CS150118	TBX150118	RWYC150118-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150118-A	TCER	3#12, 1#12G	MCC109101B	DS150118	RWYP150118-A					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150118-B	XHHW2	3#12, 1#12G	DS150118	TBX150118	RWYP150118-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150118	VENDOR	Special	TBX150118	MX150118						E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLC150119-A	TCER	11#14, 1#14G	MCC109101A	CS150119	INSTR1010	CTC100101	CTC100102	CTS150004	RWYC151008-A	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLC150119-A	TCER	11#14, 1#14G	MCC109101A	CS150119	HH151008	RWYC151010-A	HH151010	RWYC150119-A		E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLC150119-B	XHHW2	2#14, 1#14G	CS150119	TBX150119	RWYC150119-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	CTPR10C	CTPR10F	CTPR100101	CTPR100102	CTP10B	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED BELOW.	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	CTP150003	RWYP151007-A	HH151007	RWYP151009-A	HH151009	E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150119-A	TCER	3#12, 1#12G	MCC109101A	DS150119	RWYP150119-A					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES. CABLE CONTINUED ABOVE.	CC30B
CBLP150119-B	XHHW2	3#12, 1#12G	DS150119	TBX150119	RWYP150119-B					E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
CBLV150119	VENDOR	Special	TBX150119	MX150119						E-00-4005	CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULES	CC30B
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Cable Schedule

Engineer: JDC
February 2021

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC000010-A	XHHW2	6#14, 1#14G	TBX000010	CAB139001	RWYC000010-A					E-00-4001	CONTROL CABLE TO TBX FOR LEVEL SWITCHES. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000011-A	XHHW2	11#14, 1#14G	CS000011	MCC 13A	RWYC000011-A					E-00-4001	CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000011-C	XHHW2	18#14, 1#14G	RIO 13A	MCC 13A	RWYC000011-C					E-13-1111	CONTROL CABLE TO MCC BUCKET FOR STORM DRAIN LIFT PUMP STATION EQUIPMENT.	CC30B
CBLP000011-A	XHHW2	3#10, 1#10G	DS000011	MCC 13A	RWYP000011-A					E-00-4001	CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000012-A	XHHW2	11#14, 1#14G	CS000012	MCC 13B	RWYC000012-A					E-00-4001	CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000012-C	XHHW2	18#14, 1#14G	CAB139001	MCC 13A	RWYC000012-C					E-13-1111	CONTROL CABLE TO MCC BUCKET FOR STORM DRAIN LIFT PUMP STATION EQUIPMENT.	CC30B
CBLP000012-A	XHHW2	3#10, 1#10G	DS000012	MCC 13B	RWYP000012-A					E-00-4001	CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLF130010-A	**FOTSM**	**6 FiberSM**	**NCE130011**	**FACP130010**	**RWYF130010-A**					**E-13-1211**	**FIRE ALARM CONTROL PANEL (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**RWYF130011A-B**~~	~~**CTS000002B**~~	~~**CTS000004B**~~	~~**CTS000006B**~~	~~**RWYF100011A-B**~~	~~**E-10-1231**~~	~~**TEMP PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 10 AND 13 CABLE SCHEDULES (CO 010)**~~	~~**CC30A / REV A**~~
~~**CBLF100011BA-B**~~	~~**FOTMM**~~	~~**12 FiberMM**~~	~~**NCE130011**~~	~~**NCE100011**~~	~~**INSTR1010**~~	~~**CTS100105**~~	~~**CTS100103**~~	~~**CTS100101**~~	~~**INSTR1010**~~	~~**E-10-1231**~~	~~**TEMP PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 10 AND 13 CABLE SCHEDULES (CO 010)**~~	~~**CC30A / REV A**~~
CBLD130011-A	NC2	1#U/FTP CAT6A	NCR-MTN-1	NCE130011	RWYD130011-A					E-13-1201	ETHERNET TO TPP130011B	CC30A
CBLD130011-B	NC2	1#U/FTP CAT6A	CAB139001	NCE130011	RWYD130011-B					E-13-1211	ETHERNET FROM **SWTICH NET139001 TO TPP130011A (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD130011-C	NC2	1#U/FTP CAT6A	CAB139001	NCE130011	RWYD130011-B					E-13-1211	ETHERNET FROM **SWTICH NET139001 TO TPP130011B (CCF 020 CHANGE ORDER PENDING)**	CC30A
~~**CBLD130011-D**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB139001**~~	~~**NCE130011**~~	~~**RWYD130011-B**~~					~~**E-13-1211**~~	~~**ETHERNET TO TPP130011A (CCF 020 CHANGE ORDER PENDING)**~~	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-A	E-13-1201	CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-A	FOTSM	48 FiberSM	NCR340001	NCE130011	CTS340001A	RWYF000001A-A	CTS000001A	RWYF130011A-A		E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS330201	RWYF330105-C	CTS330105	CTS330103	RWYF000002B-C	E-13-1201	CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30A
CBLF130011A-B	FOTSM	48 FiberSM	NCE330001	NCE130011	CTS000002B	RWYF130011A-B				E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30A
CBLF130011BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE130011	CTS330201	RWYF330105-A	CTS330105	CTS330103	RWYF000002B-E	E-13-1201	PLANT FIRE ALARM. CABLE ALSO APEARS IN 13 AND SITE CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF130011BA-A	**FOTSM**	**12 FiberSM**	NCE330002	NCE130011	CTS000002B	RWYF130011A-B				E-13-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 13 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLP130011-A	XHHW2	2#12, 1#12G	LP13S	NCE130011	RWYP130011-A					E-13-1111	NCE130011 POWER (TO RACK-MOUNTED UPS IN NCE)	CC30A
CBLC139001A-A	XHHW2	2#14, 1#14G	RIO 13A	MCC 13A	RWYC139001A-A					E-13-1111	CONTROL CABLE TO PMM139001A (ADDENDUM 3)	CC30A / REV A
CBLC139001A-B	XHHW2	2#14, 1#14G	RIO 13A	MCC 13A	RWYC139001A-B					E-13-1111	CONTROL CABLE TO SPD139001A (ADDENDUM 3)	CC30A / REV A
CBLC139001B-A	XHHW2	2#14, 1#14G	CAB139001	MCC 13B	RWYC139001B-A					E-13-1111	CONTROL CABLE TO PMM139001B (ADDENDUM 3)	CC30A / REV A

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC139001B-B	XHHW2	2#14, 1#14G	CAB139001	MCC 13B	RWYC139001B-B					E-13-1111	CONTROL CABLE TO SPD139001B (ADDENDUM 3)	CC30A / REV A
CBLD139001A-A	NC2	1#U/FTP CAT6A	NCE130011	MCC 13A	RWYD139001A-A					E-13-1211	ETHERNET TO PMM139001A	CC30A
CBLD139001B-A	NC2	1#U/FTP CAT6A	NCE130011	MCC 13B	RWYD139001B-A					E-13-1211	ETHERNET TO PMM139001B	CC30A
CBLD139001-A	NC2	1#U/FTP CAT6A	MCC 13A	CAB139001	RWYD139001-A					E-13-1211	**ETHERNET FROM RIO13A TO PLC139001 (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLD139001-B	**NC2**	**1#U/FTP CAT6A**	**MCC 13A**	**CAB139001**	**RWYD139001-A**					**E-13-1211**	**ETHERNET FROM RIO13A TO PLC139001 (CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLP139001A-A	XHHW2	2#12, 1#12G	LP13S	MCC 13A	RWYP139001A-A					E-13-1111	POWER TO PMM139001A. (ADDENDUM 3)	CC30A / REV A
CBLP139001B-A	XHHW2	2#12, 1#12G	LP13S	MCC 13B	RWYP139001B-A					E-13-1111	POWER TO PMM139001B (ADDENDUM 3)	CC30A / REV A
CBLF290011BA-A	**FOTSM**	**12 FiberSM**	NCE130011	NCE290011	RWYF130011A-B	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A	E-13-1201	12-STRAND. ALSO APPEARS IN SITE AND 29 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC160001	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169302-B				
CTC160002	12	Tray		CBLC169403-A			ADDENDUM 5	CC30B/REV A
				CBLC169403-B				
CTC160003	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-B				
				CBLC169403-B				
CTC160004	12	Tray		CBLC169302-B			ADDENDUM 2 (CABLE) / ADDENDUM 5 (TRAY SIZE)	CC30B/REV A
				CBLC169403-B				
CTC160005	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169403-A				
CTC160006	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169403-A				
CTC160007	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169302-B				
				CBLC169403-A				
				CBLC169403-B				
				CBLD160101-A				
CTC160008	12	Tray		CBLC169302-B			ADDENDUM 2 (CABLE) / ADDENDUM 5 (TRAY SIZE)	CC30B/REV A
				CBLC169403-B				
CTPL160001	6	Tray		CBLP160001-S				CC30B
				CBLP169101BB-B				
				CBLP169101BC-B				
				CBLP169101BD-B				
				CBLP169102BB-B				
				CBLP169102BC-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPL160002	18	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BC-A				
				CBLP169101BD-A				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BC-A				
				CBLP169402-F				
				CBLP169402-G				
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-J				
				CBLP169502-K				
				CBLP169502-L				
				CBLP169502-M				
CTPL160003	24	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BB-B				
				CBLP169101BC-A				
				CBLP169101BC-B				
				CBLP169101BD-A				
				CBLP169101BD-B				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-F				
				CBLP169402-G				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-J				
				CBLP169502-K				
				CBLP169502-L				
				CBLP169502-M				
CTPL160004	18	Tray		CBLP160001-S				CC30B
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BB-B				
				CBLP169101BC-A				
				CBLP169101BC-B				
				CBLP169101BD-A				
				CBLP169101BD-B				
				CBLP169203-A				
				CBLP169204-A				
				CBLP169402-F				
				CBLP169402-G				
				CBLP169502-J				
				CBLP169502-K				
CTPL160005	12	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-L				
				CBLP169502-M				
CTPL160006	12	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-H				
				CBLP169402-R				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP169502-L				
				CBLP169502-M				
CTPR160007	6	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
CTPR160008	9	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
				CBLP169203-A				
				CBLP169204-A				
CTS160001	12	Tray		CBLD169201-A			ADDENDUM 5	CC30B/REV A
				CBLD169202-A				
				CBLD169302-A				
CTS160002	12	Tray		CBLD169403-A			ADDENDUM 5	CC30B/REV A
CTS160003	12	Tray		CBLD169201-A			ADDENDUM 5	CC30B/REV A
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160005	12	Tray		CBLD169001A-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160006	12	Tray		CBLD169001A-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160007	12	Tray		CBLD160102-A			ADDENDUM 5	CC30B/REV A
				CBLD160103-A				
				CBLD160104-A				
				CBLD160105-A				
				CBLD160106-A				
				CBLD168901-A				
				CBLD169001A-A				
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160008	12	Tray		CBLD168901-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-A				
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
RWYC160001-A	1	Raceway		CBLC170222-A	PLC160001	HH160001		CC30B
RWYC160002-A	1-1/4	Raceway		CBLC170201-A	MCC169102A	HH160002		CC30B
RWYC160002-B	1	Raceway	DB160004	CBLC170112-A	VFD170112	HH160002		CC30B
RWYC160002-C	1	Raceway	DB160004	CBLC170113-A	VFD170113	HH160002		CC30B
RWYC160002-D	1	Raceway	DB160004	CBLC170121-A	VFD170121	HH160002		CC30B
RWYC160002-E	1	Raceway	DB160004	CBLC170122-A	VFD170122	HH160002		CC30B
RWYC160002-F	1	Raceway	DB160004	CBLC170123-A	VFD170123	HH160002		CC30B
RWYC160002-G	1	Raceway	DB160004	CBLC170131-A	VFD170131	HH160002		CC30B
RWYC160002-H	1	Raceway	DB160004	CBLC170132-A	VFD170132	HH160002		CC30B
RWYC160002-J	1	Raceway	DB160004	CBLC170133-A	VFD170133	HH160002		CC30B
RWYC160002-K	1	Raceway	DB160004	CBLC170141-A	VFD170141	HH160002		CC30B
RWYC160002-L	1	Raceway	DB160004	CBLC170142-A	VFD170142	HH160002		CC30B
RWYC160002-M	1	Raceway	DB160004	CBLC170143-A	VFD170143	HH160002		CC30B
RWYC160002-N	1	Raceway	DB160004	CBLC170211-A	VFD170211	HH160002		CC30B
RWYC160002-P	1	Raceway	DB160004	CBLC170212-A	VFD170212	HH160002		CC30B
RWYC160002-Q	1	Raceway	DB160004	CBLS170211-A	VFD170211	HH160002		CC30B
RWYC160002-R	1	Raceway	DB160004	CBLS170212-A	VFD170212	HH160002		CC30B
RWYC160002-S	1	Raceway	DB160004	CBLS170211-B	VFD170211	HH160002		CC30B
RWYC160002-T	1	Raceway	DB160004	CBLS170212-B	VFD170212	HH160002		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160002-U	2	Raceway		CBLC170101-A	MCC169102A	HH160002		CC30B
				CBLC170103-A				
				CBLC170105-A				
				CBLC170203-A				
RWYC160002-V	2	Raceway	DB160004	CBLC170102-A	MCC169102B	HH160002		CC30B
				CBLC170104-A				
				CBLC170106-A				
				CBLC170202-A				
				CBLC170204-A				
RWYC160002-X	1	Raceway		CBLC170111-A	VFD170111	HH160002		CC30B
RWYC160003-A	2	Raceway	DB160014	CBLC180108-A	MCC169101B	HH160003		CC30B
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
RWYC160003-B	3	Raceway	DB160014	CBLC181221-A	PLC169101B	HH160003		CC30B
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC160003-C	3	Raceway	DB160014	CBLC181211-A	MCC169101B	HH160003		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC160003-D	1	Raceway	DB160014	CBLC181321-B	PLC169101A	HH160003		CC30B
				CBLC181322-B				
				CBLC181323-B				
RWYC160003-E	1-1/2	Raceway	DB160014	CBLC180102-A	MCC169101B	HH160003		CC30B
				CBLC180104-A				
				CBLC180106-A				
RWYC160006-A	1-1/2	Raceway	DB160010	CBLC181131-A	VFD181131	HH160006		CC30B
RWYC160006-B	1-1/2	Raceway	DB160010	CBLC181132-A	VFD181132	HH160006		CC30B
RWYC160006-C	1	Raceway	DB160010	CBLC181231-A	VFD181231	HH160006		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160006-D	2-1/2	Raceway	DB160010	CBLC180101-A	MCC169101A	HH160006		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC160006-E	1-1/2	Raceway	DB160010	CBLC181511-A	MCC169101A	HH160006		CC30B
				CBLC181521-A				
RWYC160006-F	2	Raceway	DB160010	CBLC181111-A	MCC169101A	HH160006		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
RWYC160006-G	3	Raceway	DB160010	CBLC181121-A	PLC169101A	HH160006		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181323-A				
RWYC160006-H	1	Raceway	DB160010	CBLC181432-A	VFD181432	HH160006		CC30B
RWYC160006-K	1	Raceway	DB160010	CBLC181001-A	MCC169101A	HH160006		CC30B
RWYC160006-L	1	Raceway	DB160010	CBLC181003-A	MCC169101A	HH160006		CC30B
RWYC160006-M	1	Raceway	DB160010	CBLC181005-A	MCC169101A	HH160006		CC30B
RWYC160006-N	1	Raceway	DB160010	CBLC181232-A	VFD181232	HH160006		CC30B
RWYC160006-P	1	Raceway	DB160010	CBLC181331-A	VFD181331	HH160006		CC30B
RWYC160006-Q	2	Raceway	DB160010	CBLC181311-A	MCC169101A	HH160006		CC30B
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC160006-R	1	Raceway	DB160010	CBLC181332-A	VFD181332	HH160006		CC30B
RWYC160006-S	1	Raceway	DB160010	CBLC181431-A	VFD181431	HH160006		CC30B
RWYC160006-T	1	Raceway	DB160010	CBLC181611-A	PLC169101A	HH160006		CC30B
RWYC160006-U	1	Raceway		CBLC160006-A	HH160008	SV160006		CC30B
RWYC160008-A	1-1/4	Raceway	DB160008	CBLC160101-A	VFD160101	HH160008		CC30B
RWYC160008-B	1-1/4	Raceway	DB160008	CBLC160102-A	VFD160102	HH160008		CC30B
RWYC160008-C	1-1/4	Raceway	DB160008	CBLC160103-A	VFD160103	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160008-D	1-1/4	Raceway	DB160008	CBLC160104-A	VFD160104	HH160008		CC30B
RWYC160008-E	1-1/4	Raceway	DB160008	CBLC160105-A	VFD160105	HH160008		CC30B
RWYC160008-F	1-1/4	Raceway	DB160008	CBLC160106-A	VFD160106	HH160008		CC30B
RWYC160008-G	1	Raceway		CBLC160006-A	CAB160001	HH160008		CC30B
RWYC160009-A	3	Raceway	DB160006	CBLC170201-A	HH160002	HH160009		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC160009-B	1-1/2	Raceway	DB160006	CBLS170211-A	HH160002	HH160009		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYC160009-C	2-1/2	Raceway	DB160006	CBLC170101-A	HH160002	HH160009		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
RWYC160009-D	3	Raceway	DB160006	CBLC170111-A	HH160002	HH160009		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC160009-E	1	Raceway		CBLC170222-A	HH160001	HH160009		CC30B
RWYC160080-A	1	Raceway		CBLC160080-A	CS160080	M160080		CC30B
RWYC160081-A	1	Raceway		CBLC160081-A	CS160081	M160081		CC30B
RWYC160095-A	1	Raceway		CBLC160095-A	CAB160001	FSH160095		CC30B
RWYC160101-A	1-1/4	Raceway		CBLC160101-A	HH160008	CS160101		CC30B
RWYC160101-B	1	Raceway		CBLC160101-B	CS160101	M160101		CC30B
RWYC160102-A	1-1/4	Raceway		CBLC160102-A	HH160008	CS160102		CC30B
RWYC160102-B	1	Raceway		CBLC160102-B	CS160102	M160102		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160103-A	1-1/4	Raceway		CBLC160103-A	HH160008	CS160103		CC30B
RWYC160103-B	1	Raceway		CBLC160103-B	CS160103	M160103		CC30B
RWYC160104-A	1-1/4	Raceway		CBLC160104-A	HH160008	CS160104		CC30B
RWYC160104-B	1	Raceway		CBLC160104-B	CS160104	M160104		CC30B
RWYC160105-A	1-1/4	Raceway		CBLC160105-A	HH160008	CS160105		CC30B
RWYC160105-B	1	Raceway		CBLC160105-B	CS160105	M160105		CC30B
RWYC160106-A	1-1/4	Raceway		CBLC160106-A	HH160008	CS160106		CC30B
RWYC160106-B	1	Raceway		CBLC160106-B	CS160106	M160106		CC30B
RWYC169101A-C	3/4	Raceway		CBLC169101A-C	PLC169101A	MCC169101A		CC30B
RWYC169101A-E	3/4	Raceway		CBLC169101A-E	PLC169101A	NET169101AA		CC30B
RWYC169101B-C	3/4	Raceway		CBLC169101B-C	PLC169101B	MCC169101B		CC30B
RWYC169101B-E	3/4	Raceway		CBLC169101B-E	PLC169101B	NET169101BA		CC30B
RWYC169102A-C	3/4	Raceway		CBLC169102A-C	PLC169102A	MCC169102A		CC30B
RWYC169102A-D	3/4	Raceway		CBLC169102A-D	PLC169102A	NET169102AA		CC30B
RWYC169102B-D	3/4	Raceway		CBLC169102B-D	PLC169102B	NET169102BA		CC30B
RWYC170001-B	3	Raceway	DB170003	CBLC170111-A	HH170002	JBX170001		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
RWYC170002-A	3	Raceway	DB170001	CBLC170111-A	HH160009	HH170002		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC170002-E	1-1/2	Raceway	DB170001	CBLC170211-A	HH160009	HH170002		CC30B
				CBLC170212-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170004-A	3	Raceway	DB170001	CBLC170101-A	HH160009	HH170002		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170201-A				
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
RWYC170004-B	3	Raceway	DB170003	CBLC170101-A	HH170002	JBX170004		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
				CBLC170204-A				
RWYC170004-F	1	Raceway		CBLC170222-A	HH160009	HH170001		CC30B
RWYC170005-A	1	Raceway		CBLC170222-A	HH170001	JBX170005		CC30B
RWYC170006-A	3	Raceway		CBLC170201-A	HH170002	JBX170006		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC170101-A	1	Raceway		CBLC170101-A	JBX170004	CS170101		CC30B
RWYC170101-B	1	Raceway		CBLC170101-B	CS170101	JBX170101		CC30B
RWYC170102-A	1	Raceway		CBLC170102-A	JBX170004	CS170102		CC30B
RWYC170102-B	1	Raceway		CBLC170102-B	CS170102	JBX170102		CC30B
RWYC170103-A	1	Raceway		CBLC170103-A	JBX170004	CS170103		CC30B
RWYC170103-B	1	Raceway		CBLC170103-B	CS170103	JBX170103		CC30B
RWYC170104-A	1	Raceway		CBLC170104-A	JBX170004	CS170104		CC30B
RWYC170104-B	1	Raceway		CBLC170104-B	CS170104	JBX170104		CC30B
RWYC170105-A	1	Raceway		CBLC170105-A	JBX170004	CS170105		CC30B
RWYC170105-B	1	Raceway		CBLC170105-B	CS170105	JBX170105		CC30B
RWYC170106-A	1	Raceway		CBLC170106-A	JBX170004	CS170106		CC30B
RWYC170106-B	1	Raceway		CBLC170106-B	CS170106	JBX170106		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170111-A	1	Raceway		CBLC170111-A	JBX170001	CS170111		CC30B
RWYC170111-B	1	Raceway		CBLC170111-B	CS170111	TSH170111		CC30B
RWYC170112-A	1	Raceway		CBLC170112-A	JBX170001	CS170112		CC30B
RWYC170112-B	1	Raceway		CBLC170112-B	CS170112	TSH170112		CC30B
RWYC170113-A	1	Raceway		CBLC170113-A	JBX170001	CS170113		CC30B
RWYC170113-B	1	Raceway		CBLC170113-B	CS170113	TSH170113		CC30B
RWYC170121-A	1	Raceway		CBLC170121-A	JBX170001	CS170121		CC30B
RWYC170121-B	1	Raceway		CBLC170121-B	CS170121	TSH170121		CC30B
RWYC170122-A	1	Raceway		CBLC170122-A	JBX170001	CS170122		CC30B
RWYC170122-B	1	Raceway		CBLC170122-B	CS170122	TSH170122		CC30B
RWYC170123-A	1	Raceway		CBLC170123-A	JBX170001	CS170123		CC30B
RWYC170123-B	1	Raceway		CBLC170123-B	CS170123	TSH170123		CC30B
RWYC170131-A	1	Raceway		CBLC170131-A	JBX170001	CS170131		CC30B
RWYC170131-B	1	Raceway		CBLC170131-B	CS170131	TSH170131		CC30B
RWYC170132-A	1	Raceway		CBLC170132-A	JBX170001	CS170132		CC30B
RWYC170132-B	1	Raceway		CBLC170132-B	CS170132	TSH170132		CC30B
RWYC170133-A	1	Raceway		CBLC170133-A	JBX170001	CS170133		CC30B
RWYC170133-B	1	Raceway		CBLC170133-B	CS170133	TSH170133		CC30B
RWYC170141-A	1	Raceway		CBLC170141-A	JBX170004	CS170141		CC30B
RWYC170141-B	1	Raceway		CBLC170141-B	CS170141	TSH170141		CC30B
RWYC170142-A	1	Raceway		CBLC170142-A	JBX170004	CS170142		CC30B
RWYC170142-B	1	Raceway		CBLC170142-B	CS170142	TSH170142		CC30B
RWYC170143-A	1	Raceway		CBLC170143-A	JBX170004	CS170143		CC30B
RWYC170143-B	1	Raceway		CBLC170143-B	CS170143	TSH170143		CC30B
RWYC170201-A	1	Raceway		CBLC170201-A	JBX170006	CS170201		CC30B
RWYC170201-B	1	Raceway		CBLC170201-B	CS170201	JBX170201		CC30B
RWYC170202-A	1	Raceway		CBLC170202-A	JBX170006	CS170202		CC30B
RWYC170202-B	1	Raceway		CBLC170202-B	CS170202	JBX170202		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170203-A	1	Raceway		CBLC170203-A	JBX170006	CS170203		CC30B
RWYC170203-B	1	Raceway		CBLC170203-B	CS170203	JBX170203		CC30B
RWYC170204-B	1	Raceway		CBLC170204-B	CS170204	JBX170204		CC30B
RWYC170211-A	1	Raceway		CBLC170211-A	JBX170006	CS170211		CC30B
RWYC170211-B	1	Raceway		CBLC170211-B	CS170211	JBX170211		CC30B
RWYC170212-A	1	Raceway		CBLC170212-A	JBX170006	CS170212		CC30B
RWYC170212-B	1	Raceway		CBLC170212-B	CS170212	JBX170212		CC30B
RWYC170222-A	1	Raceway		CBLC170222-A	JBX170005	SV170222		CC30B
RWYC180001-A	4	Raceway	DB160016	CBLC180102-A	HH160003	HH180001		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
				CBLC181211-A				
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC180001-B	3	Raceway	DB160016	CBLC181221-A	HH160003	HH180001		CC30B
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC180002-A	3	Raceway	DB180003	CBLC181131-A	HH180004	JBX180002	ADDENDUM 5	CC30B/REV A
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181432-A				
RWYC180002-B	1	Raceway	DB180003	CBLC181323-A	HH180003	JBX180002	ADDENDUM 5	CC30B/REV A
RWYC180002-C	1-1/2	Raceway	DB180003	CBLC181423-A	HH180004	JBX180002	ADDENDUM 5	CC30B/REV A
				CBLC181611-A				
				CBLC181621-A				
RWYC180003-B	1	Raceway	DB160012	CBLC181323-A	HH160006	HH180003		CC30B
RWYC180004-A	3	Raceway	DB160012	CBLC181111-A	HH160006	HH180004		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181131-A				
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				
				CBLC181432-A				
RWYC180004-B	1-1/2	Raceway	DB180006	CBLC181511-A	HH180004	JBX180004		CC30B
				CBLC181512-A				
RWYC180004-C	2-1/2	Raceway	DB160012	CBLC181121-A	HH160006	HH180004		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181611-A				
RWYC180004-D	3-1/2	Raceway	DB180010	CBLC180102-A	HH180001	HH180004		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180004-E	1-1/2	Raceway	DB180006	CBLC181123-A	HH180004	JBX180004		CC30B
				CBLC181123-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181323-B				
RWYC180004-F	1-1/2	Raceway	DB180006	CBLC181521-A	HH180004	JBX180004		CC30B
				CBLC181522-A				
RWYC180004-G	4	Raceway	DB160012	CBLC180101-A	HH160006	HH180004		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
				CBLC181511-A				
				CBLC181521-A				
RWYC180004-H	3	Raceway	DB180010	CBLC181211-A	HH180001	HH180004		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
RWYC180004-J	1	Raceway	DB180010	CBLC181522-A	HH180001	HH180004		CC30B
RWYC180004-K	1	Raceway	DB180010	CBLC181621-A	HH180001	HH180004		CC30B
RWYC180006-A	3	Raceway	DB180006	CBLC180101-A	HH180004	JBX180006		CC30B
				CBLC180103-A				
				CBLC181121-A				
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181321-A				
				CBLC181321-B				
				CBLC181322-A				
				CBLC181322-B				
				CBLC181422-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180008-A	2-1/2	Raceway	DB180006	CBLC180102-A	HH180004	HH180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-B	2	Raceway	DB180006	CBLC180105-A	HH180004	HH180008		CC30B
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC180008-C	1	Raceway	DB180006	CBLC181421-A	HH180004	HH180008		CC30B
RWYC180008-D	1	Raceway	DB180008	CBLC181421-A	HH180008	JBX180008		CC30B
RWYC180008-E	2	Raceway	DB180006	CBLC181001-A	HH180004	HH180008		CC30B
				CBLC181003-A				
				CBLC181005-A				
RWYC180008-F	2	Raceway	DB180006	CBLC181211-A	HH180004	HH180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
RWYC180008-G	2	Raceway	DB180006	CBLC181411-A	HH180004	HH180008		CC30B
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180008-H	3	Raceway	DB180006	CBLC181111-A	HH180004	HH180008		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC180008-J	2	Raceway	DB180008	CBLC181002-A	HH180008	JBX180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-K	4	Raceway	DB180008	CBLC180105-A	HH180008	JBX180008		CC30B
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181111-A				
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181314-A				
RWYC180008-L	2-1/2	Raceway	DB180008	CBLC180102-A	HH180008	JBX180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-M	2	Raceway	DB180006	CBLC181002-A	HH180004	HH180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-N	3	Raceway	DB180008	CBLC181211-A	HH180008	JBX180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180101-A	1	Raceway		CBLC180101-A	JBX180006	CS180101		CC30B
RWYC180101-B	1	Raceway		CBLC180101-B	CS180101	JBX180101		CC30B
RWYC180102-A	1	Raceway		CBLC180102-A	JBX180008	CS180102		CC30B
RWYC180102-B	1	Raceway		CBLC180102-B	CS180102	JBX180102		CC30B
RWYC180103-A	1	Raceway		CBLC180103-A	JBX180006	CS180103		CC30B
RWYC180103-B	1	Raceway		CBLC180103-B	CS180103	JBX180103		CC30B
RWYC180104-A	1	Raceway		CBLC180104-A	JBX180008	CS180104		CC30B
RWYC180104-B	1	Raceway		CBLC180104-B	CS180104	JBX180104		CC30B
RWYC180105-A	1	Raceway		CBLC180105-A	JBX180008	CS180105		CC30B
RWYC180105-B	1	Raceway		CBLC180105-B	CS180105	JBX180105		CC30B
RWYC180106-A	1	Raceway		CBLC180106-A	JBX180008	CS180106		CC30B
RWYC180106-B	1	Raceway		CBLC180106-B	CS180106	JBX180106		CC30B
RWYC180107-A	1	Raceway		CBLC180107-A	JBX180008	CS180107		CC30B
RWYC180107-B	1	Raceway		CBLC180107-B	CS180107	JBX180107		CC30B
RWYC180108-A	1	Raceway		CBLC180108-A	JBX180008	CS180108		CC30B
RWYC180108-B	1	Raceway		CBLC180108-B	JBX180108	CS180108		CC30B
RWYC180109-A	1	Raceway		CBLC180109-A	JBX180008	CS180109		CC30B
RWYC180109-B	1	Raceway		CBLC180109-B	CS180109	JBX180109		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180110-A	1	Raceway		CBLC180110-A	JBX180008	CS180110		CC30B
RWYC180110-B	1	Raceway		CBLC180110-B	CS180110	JBX180110		CC30B
RWYC180111-A	1	Raceway		CBLC180111-A	JBX180008	CS180111		CC30B
RWYC180111-B	1	Raceway		CBLC180111-B	CS180111	JBX180111		CC30B
RWYC181001-A	1	Raceway		CBLC181001-A	JBX180008	CS181001		CC30B
RWYC181001-B	1	Raceway		CBLC181001-B	CS181001	JBX181001		CC30B
RWYC181002-A	1	Raceway		CBLC181002-A	JBX180008	CS181002		CC30B
RWYC181002-B	1	Raceway		CBLC181002-B	CS181002	JBX181002		CC30B
RWYC181003-A	1	Raceway		CBLC181003-A	JBX180008	CS181003		CC30B
RWYC181003-B	1	Raceway		CBLC181003-B	CS181003	JBX181003		CC30B
RWYC181004-A	1	Raceway		CBLC181004-A	JBX180008	CS181004		CC30B
RWYC181004-B	1	Raceway		CBLC181004-B	CS181004	JBX181004		CC30B
RWYC181005-A	1	Raceway		CBLC181005-A	JBX180008	CS181005		CC30B
RWYC181005-B	1	Raceway		CBLC181005-B	CS181005	JBX181005		CC30B
RWYC181006-A	1	Raceway		CBLC181006-A	JBX180008	CS181006		CC30B
RWYC181006-B	1	Raceway		CBLC181006-B	CS181006	JBX181006		CC30B
RWYC181111-A	1-1/2	Raceway		CBLC181111-A	JBX180008	CS181111		CC30B
RWYC181111-B	1-1/2	Raceway		CBLC181112-A	JBX180008	CS181112		CC30B
RWYC181111-C	1-1/2	Raceway		CBLC181113-A	JBX180008	CS181113		CC30B
RWYC181111-D	1-1/2	Raceway		CBLC181114-A	JBX180008	CS181114		CC30B
RWYC181121-A	2	Raceway		CBLC181121-A	JBX180006	TBX181121		CC30B
				CBLC181121-B				
RWYC181121-B	1	Raceway		CBLC181121-A	TBX181121	FCV181121		CC30B
RWYC181121-C	1	Raceway		CBLC181121-B	TBX181121	FIT181121		CC30B
RWYC181122-A	1	Raceway		CBLC181122-A	JBX180006	TBX181122		CC30B
				CBLC181122-B				
RWYC181122-B	1	Raceway		CBLC181122-A	TBX181122	FCV181122		CC30B
RWYC181122-C	1	Raceway		CBLC181122-B	TBX181122	FIT181122		CC30B
RWYC181123-A	1	Raceway		CBLC181323-A	JBX180002	TBX181123		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181123-B	1	Raceway		CBLC181123-A	JBX180004	TBX181123		CC30B
				CBLC181123-B				
RWYC181123-C	1	Raceway		CBLC181123-A	TBX181123	FCV181123		CC30B
RWYC181123-D	1	Raceway		CBLC181123-B	TBX181123	FIT181123		CC30B
RWYC181131-A	1	Raceway		CBLC181131-A	JBX180002	CS181131		CC30B
RWYC181131-B	1	Raceway		CBLC181131-B	CS181131	JBX181131		CC30B
RWYC181132-A	1	Raceway		CBLC181132-A	JBX180002	CS181132		CC30B
RWYC181132-B	1	Raceway		CBLC181132-B	CS181132	JBX181132		CC30B
RWYC181211-A	1	Raceway		CBLC181211-A	JBX180008	CS181211		CC30B
RWYC181212-A	1	Raceway		CBLC181212-A	JBX180008	CS181212		CC30B
RWYC181213-A	1	Raceway		CBLC181213-A	JBX180008	CS181213		CC30B
RWYC181214-A	1	Raceway		CBLC181214-A	JBX180008	CS181214		CC30B
RWYC181221-A	1	Raceway		CBLC181421-A	JBX180008	TBX181221		CC30B
RWYC181221-B	1-1/2	Raceway		CBLC181221-A	JBX180006	TBX181221		CC30B
				CBLC181221-B				
				CBLC181422-A				
RWYC181221-C	1	Raceway		CBLC181221-A	TBX181221	FCV181221		CC30B
RWYC181221-D	1	Raceway		CBLC181221-B	TBX181221	FIT181221		CC30B
RWYC181222-A	1	Raceway		CBLC181222-A	TBX181222	FCV181222		CC30B
RWYC181222-B	1	Raceway		CBLC181222-A	JBX180006	TBX181222		CC30B
				CBLC181222-B				
RWYC181222-D	1	Raceway		CBLC181222-B	TBX181222	FIT181222		CC30B
RWYC181223-A	1	Raceway		CBLC181423-A	JBX180002	TBX181223		CC30B
RWYC181223-B	1	Raceway		CBLC181223-A	JBX180004	TBX181223		CC30B
				CBLC181223-B				
RWYC181223-C	1	Raceway		CBLC181223-A	TBX181223	FCV181223		CC30B
RWYC181223-D	1	Raceway		CBLC181223-B	TBX181223	FIT181223		CC30B
RWYC181231-A	1	Raceway		CBLC181231-A	JBX180002	CS181231		CC30B
RWYC181231-B	1	Raceway		CBLC181231-B	CS181231	JBX181231		CC30B
RWYC181232-A	1	Raceway		CBLC181232-A	JBX180002	CS181232		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181232-B	1	Raceway		CBLC181232-B	CS181232	JBX181232		CC30B
RWYC181314-A	1	Raceway		CBLC181311-A	JBX180008	CS181311		CC30B
RWYC181314-B	1	Raceway		CBLC181312-A	JBX180008	CS181312		CC30B
RWYC181314-C	1	Raceway		CBLC181313-A	JBX180008	CS181313		CC30B
RWYC181314-D	1	Raceway		CBLC181314-A	JBX180008	CS181314		CC30B
RWYC181321-A	1	Raceway		CBLC181321-A	JBX180006	TBX181321		CC30B
RWYC181321-B	1	Raceway		CBLC181321-A	TBX181321	FCV181321		CC30B
RWYC181321-C	1	Raceway		CBLC181321-B	JBX180006	TBX181321		CC30B
RWYC181321-D	1	Raceway		CBLC181321-B	TBX181321	FIT181321		CC30B
RWYC181322-A	1	Raceway		CBLC181322-A	JBX180006	TBX181322		CC30B
RWYC181322-B	1	Raceway		CBLC181322-B	JBX180006	TBX181322		CC30B
RWYC181322-C	1	Raceway		CBLC181322-A	TBX181322	FCV181322		CC30B
RWYC181322-D	1	Raceway		CBLC181322-B	TBX181322	FIT181322		CC30B
RWYC181323-A	1	Raceway		CBLC181323-A	TBX181123	FCV181323		CC30B
RWYC181323-B	1	Raceway		CBLC181323-B	JBX180004	TBX181323		CC30B
RWYC181323-D	1	Raceway		CBLC181323-B	TBX181323	FIT181323		CC30B
RWYC181331-A	1	Raceway		CBLC181331-A	JBX180002	CS181331		CC30B
RWYC181331-B	1	Raceway		CBLC181331-B	CS181331	JBX181331		CC30B
RWYC181332-A	1	Raceway		CBLC181332-A	JBX180002	CS181332		CC30B
RWYC181332-B	1	Raceway		CBLC181332-B	CS181332	JBX181332		CC30B
RWYC181411-A	1	Raceway		CBLC181411-A	JBX180008	CS181411		CC30B
RWYC181412-A	1	Raceway		CBLC181412-A	JBX180008	CS181412		CC30B
RWYC181413-A	1	Raceway		CBLC181413-A	JBX180008	CS181413		CC30B
RWYC181414-A	1	Raceway		CBLC181414-A	JBX180008	CS181414		CC30B
RWYC181421-A	1	Raceway		CBLC181421-A	TBX181221	FCV181421		CC30B
RWYC181422-A	1	Raceway		CBLC181422-A	TBX181221	FCV181422		CC30B
RWYC181423-A	1	Raceway		CBLC181423-A	TBX181223	FCV181423		CC30B
RWYC181431-A	1	Raceway		CBLC181431-A	JBX180002	CS181431		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181431-B	1	Raceway		CBLC181431-B	CS181431	JBX181431		CC30B
RWYC181432-A	1	Raceway		CBLC181432-A	JBX180002	CS181432		CC30B
RWYC181432-B	1	Raceway		CBLC181432-B	CS181432	JBX181432		CC30B
RWYC181511-A	1	Raceway		CBLC181511-A	JBX180004	CS181511		CC30B
RWYC181511-B	1	Raceway		CBLC181511-B	CS181511	JBX181511		CC30B
RWYC181512-A	1	Raceway		CBLC181512-A	JBX180004	CS181512		CC30B
RWYC181512-B	1	Raceway		CBLC181512-B	CS181512	JBX181512		CC30B
RWYC181521-A	1	Raceway		CBLC181521-A	JBX180004	CS181521		CC30B
RWYC181521-B	1	Raceway		CBLC181521-B	CS181521	JBX181521		CC30B
RWYC181522-A	1	Raceway		CBLC181522-A	JBX180004	CS181522		CC30B
RWYC181522-B	1	Raceway		CBLC181522-B	CS181522	JBX181522		CC30B
RWYC181611-A	1	Raceway		CBLC181611-A	JBX180002	SGTE181611		CC30B
RWYC181621-A	1	Raceway		CBLC181621-A	JBX180002	SGTE181621		CC30B
RWYD160001-A	1	Raceway		CBLD160001-A	NCE160011	CAB160001		CC30B
				CBLD160001-B				
				CBLD160001-C				
RWYD160001-B	1	Raceway		CBLD160001-D	NCE160011	CAB160001		CC30B
				CBLD160001-E				
				CBLD160001-F				
RWYD160001-K	3/4	Raceway		CBLD169101-K	CAB169101A	CAB160001		CC30B
RWYD167801-A	3/4	Raceway		CBLD167801-A	NCE160011	DRCP167801		CC30B
RWYD167802-A	3/4	Raceway		CBLD167802-A	NCE160011	DRCP167802		CC30B
RWYD167901-A	**1**	Raceway		CBLD167901-A	NCE160011	CAB167901	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD167901-C				
				CBLD167901-E				
RWYD167901-B	**1**	**Raceway**		**CBLD167901-B**	**NCE160011**	**CAB167901**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD167901-D				
RWYD169001-A	3/4	Raceway		CBLD169001-A	CAB160001	SWGR169001A/B		CC30B
RWYD169001A-D	3/4	Raceway		CBLD169001A-D	SWGR169001A	PLC169001		CC30B
RWYD169001B-D	3/4	Raceway		CBLD169001B-D	SWGR169001B	PLC169001		CC30B
RWYD169101A-AA	1	Raceway		CBLD181331-A	VFD181331	MCC169101A		CC30B
RWYD169101A-AB	1	Raceway		CBLD181332-A	VFD181332	MCC169101A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD169101A-AC	1	Raceway		CBLD181431-A	VFD181431	PLC169101B		CC30B
RWYD169101A-AD	1	Raceway		CBLD181432-A	VFD181432	PLC169101B		CC30B
RWYD169101A-AE	3/4	Raceway		CBLD169101AB-A	MCC169101A	CAB169101A		CC30B
RWYD169101A-AF	3/4	Raceway		CBLD169101AD-A	MCC169101A	CAB169101A		CC30B
RWYD169101A-AG	3/4	Raceway		CBLD169101A-A	NCE160011	MCC169101A		CC30B
RWYD169101A-AH	3/4	Raceway		CBLD169101B-A	NCE160011	CAB169101B		CC30B
RWYD169101A-B	3/4	Raceway		CBLD169101A-B	CAB169101B	CAB169101A		CC30B
~~**RWYD169101A-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-C**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-D**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-E**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-E**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-F**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-F**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-G**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-G**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-H**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-H**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-J**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-J**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-K**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-K**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-L**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-L**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-M**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-M**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-N**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-N**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-P**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-P**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-Q**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-Q**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-R**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-R**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-S**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-S**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-T**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-T**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-U**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-U**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169101A-V	**1**	**Raceway**		**CBLD169101A-V**	**NCE160011**	**CAB169101A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD169101A-W				
RWYD169101A-W	1	Raceway		CBLD181131-A	VFD181131	MCC169101A		CC30B
RWYD169101A-X	1	Raceway		CBLD181132-A	VFD181132	MCC169101A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD169101A-Y	1	Raceway		CBLD181231-A	VFD181231	PLC169101B		CC30B
RWYD169101A-Z	1	Raceway		CBLD181232-A	VFD181232	PLC169101B		CC30B
~~RWYD169101AB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169101AB-A~~	~~PLC169101A~~	~~RWYD169101A-AE~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101AD-A~~	~~3/4~~	~~Raceway~~		~~CBLD169101AD-A~~	~~PLC169101A~~	~~RWYD169101A-AF~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-A~~	~~1~~	~~Raceway~~		~~CBLD169101B-A~~	~~MCC169101B~~	~~RWYD169101A-AH~~	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYD169101B-B	3/4	Raceway		CBLD169101B-B	CAB169102A	CAB169101B		CC30B
~~RWYD169101B-C~~	~~1~~	~~Raceway~~		~~CBLD169101B-C~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-D~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-D~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-E~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-E~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-F~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-F~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-G~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-G~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-H~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-H~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-J~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-J~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-K~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-K~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-L~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-L~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-M~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-M~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-N~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-N~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-P~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-P~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-Q~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-Q~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-R~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-R~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-S~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-S~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169101B-T	3/4	Raceway		CBLD169101BB-A	MCC169101B	CAB169101B		CC30B
RWYD169101B-U	3/4	Raceway		CBLD169101BC-A	MCC169101B	CAB169101B		CC30B
RWYD169101B-V	3/4	Raceway		CBLD169102B-C	RWYD169102B-C	NET169001A		CC30B
RWYD169101B-W	**1**	**Raceway**		**CBLD169101B-V**	**NCE160011**	**CAB169101B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD169101B-W				
RWYD169102A-A	3/4	Raceway		CBLD169102A-A	NCE160011	MCC169102A		CC30B
~~RWYD169102A-B~~	~~1~~	~~Raceway~~		~~CBLD169102A-B~~	~~CAB169102A~~	~~NET169101BA~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169102A-C	1	Raceway		CBLD169102A-C	CAB169102B	CAB169102A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
~~RWYD169102A-D~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-D~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-E~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-E~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-F~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-F~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-G~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-G~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102A-H	3/4	Raceway		CBLD169102AB-A	MCC169102A	CAB169102A		CC30B
RWYD169102A-J	3/4	Raceway		CBLD169102AC-A	MCC169102A	CAB169102A		CC30B
RWYD169102A-K	1	Raceway		CBLD169102-A-K	NCE160011	CAB169102A	CCF 020 CHANGE ORDER PENDING	CC30B
				CBLD169102-A-L				
~~RWYD169102AB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102AB-A~~	~~CAB169102A~~	~~MCC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102AC-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102AC-A~~	~~CAB169102A~~	~~RWYD169102A-J~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102B-A	3/4	Raceway		CBLD169102B-A	NCE160011	MCC169102B		CC30B
~~RWYD169102B-B~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-B~~	~~CAB169102B~~	~~NET169102AA~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-C~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-C~~	~~CAB169102B~~	~~RWYD169101B-V~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-D~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-D~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-E~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-E~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-F~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-F~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102B-G	3/4	Raceway		CBLD169102BB-A	MCC169102B	CAB169102B		CC30B
RWYD169102B-H	3/4	Raceway		CBLD169102BC-A	MCC169102B	CAB169102B		CC30B
RWYD169102B-J	1	Raceway		CBLD169102-B-J	NCE160011	CAB169102B	CCF 020 CHANGE ORDER PENDING	CC30B
				CBLD169102-B-K				
~~RWYD169102BB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102BB-A~~	~~CAB169102B~~	~~RWYD169102B-G~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102BC-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102BC-A~~	~~CAB169102B~~	~~RWYD169102B-H~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169402-A	3/4	Raceway		CBLD169402-A	NCE160011	UPS169402		CC30B
RWYD170111-A	1	Raceway		CBLD170111-A	MCC169102A	VFD170111		CC30B
RWYD170112-A	1	Raceway		CBLD170112-A	MCC169102A	VFD170112		CC30B
RWYD170113-A	1	Raceway		CBLD170113-A	MCC169102A	VFD170113		CC30B
RWYD170121-A	1	Raceway		CBLD170121-A	MCC169102B	VFD170121		CC30B
RWYD170122-A	1	Raceway		CBLD170122-A	MCC169102B	VFD170122		CC30B
RWYD170123-A	1	Raceway		CBLD170123-A	MCC169102B	VFD170123		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD170131-A	1	Raceway		CBLD170131-A	MCC169102A	VFD170131		CC30B
RWYD170132-A	1	Raceway		CBLD170132-A	MCC169102A	VFD170132		CC30B
RWYD170133-A	1	Raceway		CBLD170133-A	MCC169102A	VFD170133		CC30B
RWYD170141-A	1	Raceway		CBLD170141-A	MCC169102B	VFD170141		CC30B
RWYD170142-A	1	Raceway		CBLD170142-A	MCC169102B	VFD170142		CC30B
RWYD170143-A	1	Raceway		CBLD170143-A	MCC169102B	VFD170143		CC30B
RWYD170211-A	1	Raceway		CBLD170211-A	MCC169102A	VFD170211		CC30B
RWYD170212-A	1	Raceway		CBLD170212-A	MCC169102B	VFD170212		CC30B
RWYD181141-A	1	Raceway		CBLD181141-A	CAB180150	AIT181141		CC30B
RWYD181241-A	1	Raceway		CBLD181241-A	CAB180150	AIT181241		CC30B
RWYD181341-A	1	Raceway		CBLD181341-A	CAB180150	AIT181341		CC30B
RWYD181441-A	1	Raceway		CBLD181441-A	CAB180150	AIT181441		CC30B
RWYF160002-A	4	Raceway	DB160002	CBLF160011A-A	CTS000003A	HH160002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160002-B	4	Raceway	DB160002	CBLF160011A-B	CTS000004B	HH160002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF340102-J				
RWYF160003-C	2	Raceway	DB160014	CBLF220011BA-A	NCE160011	HH160003	IDFM - 2" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF160010-A	1-1/4	Raceway		CBLF160010-A	NCE160011	FACP160010	IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	CC30B
				~~**CBLF160010-B**~~				
RWYF160011-A	**1-1/2**	**Raceway**		**CBLF160011-A**	**CAB169000A**	**NCE160011**	**IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
RWYF160011-B	**1-1/2**	**Raceway**		**CBLF160011-B**	**CAB169000B**	**NCE160011**	**IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	CC30B
RWYF160011A-A	4	Raceway	DB160004	CBLF160011A-A	HH160002	NCE160011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160011A-B	4	Raceway	DB160004	CBLF160011A-B	HH160002	NCE160011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF340102-J				
RWYF169101B-A	1	Raceway		CBLF169101B-A	CAB180250	MCC169101B		CC30B
RWYF180001-A	4	Raceway	DB160016	CBLF169101A-A	HH160003	HH180001	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF180006-A	4	Raceway	DB180002	CBLF220011BA-A	HH180001	HH180006	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYM180101-A	1	Raceway		CBLV180101-A	JBX180101	M180101		CC30B
RWYM180102-A	1	Raceway		CBLV180102-A	JBX180102	M180102		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYM180103-A	1	Raceway		CBLV180103-A	JBX180103	M180103		CC30B
RWYM180104-A	1	Raceway		CBLV180104-A	JBX180104	M180104		CC30B
RWYM180105-A	1	Raceway		CBLV180105-A	JBX180105	M180105		CC30B
RWYM180106-A	1	Raceway		CBLV180106-A	JBX180106	M180106		CC30B
RWYM180107-A	1	Raceway		CBLV180107-A	JBX180107	M180107		CC30B
RWYM180108-A	1	Raceway		CBLV180108-A	JBX180108	M180108		CC30B
RWYM180109-A	1	Raceway		CBLV180109-A	JBX180109	M180109		CC30B
RWYM180110-A	1	Raceway		CBLV180110-A	JBX180110	M180110		CC30B
RWYM180111-A	1	Raceway		CBLV180111-A	JBX180111	M180111		CC30B
RWYM181001-A	1	Raceway		CBLV181001-A	JBX181001	M181001		CC30B
RWYM181002-A	1	Raceway		CBLV181002-A	JBX181002	M181002		CC30B
RWYM181003-A	1	Raceway		CBLV181003-A	JBX181003	M181003		CC30B
RWYM181004-A	1	Raceway		CBLV181004-A	JBX181004	M181004		CC30B
RWYM181005-A	1	Raceway		CBLV181005-A	JBX181005	M181005		CC30B
RWYM181006-A	1	Raceway		CBLV181006-A	JBX181006	M181006		CC30B
RWYM181511-A	1	Raceway		CBLV181511-A	JBX181511	M181511		CC30B
RWYM181512-A	1	Raceway		CBLV181512-A	JBX181512	M181512		CC30B
RWYM181521-A	1	Raceway		CBLV181521-A	JBX181521	M181521		CC30B
RWYM181522-A	1	Raceway		CBLV181522-A	JBX181522	M181522		CC30B
RWYP160001-A	1	Raceway		CBLP170250-A	PNL169402	HH160001		CC30B
RWYP160001-AA	1	Raceway		CBLP170111-B	VFD170111	HH160001		CC30B
RWYP160001-AB	1	Raceway		CBLP170112-B	VFD170112	HH160001		CC30B
RWYP160001-AC	1	Raceway		CBLP170113-B	VFD170113	HH160001		CC30B
RWYP160001-AD	1	Raceway		CBLP170121-B	VFD170121	HH160001		CC30B
RWYP160001-AE	1	Raceway		CBLP170122-B	VFD170122	HH160001		CC30B
RWYP160001-AF	1	Raceway		CBLP170123-B	VFD170123	HH160001		CC30B
RWYP160001-AG	1	Raceway		CBLP170131-B	VFD170131	HH160001		CC30B
RWYP160001-AH	1	Raceway		CBLP170132-B	VFD170132	HH160001		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160001-AJ	1	Raceway		CBLP170133-B	VFD170133	HH160001		CC30B
RWYP160001-AK	1	Raceway		CBLP170141-B	VFD170141	HH160001		CC30B
RWYP160001-AL	1	Raceway		CBLP170142-B	VFD170142	HH160001		CC30B
RWYP160001-AM	1	Raceway		CBLP170143-B	VFD170143	HH160001		CC30B
RWYP160001-B	1-1/2	Raceway	DB160003	CBLP170102-A	MCC169102B	HH160001		CC30B
				CBLP170104-A				
				CBLP170106-A				
				CBLP170202-A				
				CBLP170204-A				
RWYP160001-C	1-1/2	Raceway	DB160003	CBLP170111-A	VFD170111	HH160001		CC30B
RWYP160001-D	1-1/2	Raceway	DB160003	CBLP170112-A	VFD170112	HH160001		CC30B
RWYP160001-E	1-1/2	Raceway	DB160003	CBLP170113-A	VFD170113	HH160001		CC30B
RWYP160001-F	1-1/2	Raceway	DB160003	CBLP170121-A	VFD170121	HH160001		CC30B
RWYP160001-G	1-1/2	Raceway	DB160003	CBLP170122-A	VFD170122	HH160001		CC30B
RWYP160001-H	1-1/2	Raceway	DB160003	CBLP170123-A	VFD170123	HH160001		CC30B
RWYP160001-J	1-1/2	Raceway	DB160003	CBLP170131-A	VFD170131	HH160001		CC30B
RWYP160001-K	1-1/2	Raceway	DB160003	CBLP170132-A	VFD170132	HH160001		CC30B
RWYP160001-L	1-1/2	Raceway	DB160003	CBLP170133-A	VFD170133	HH160001		CC30B
RWYP160001-M	1-1/2	Raceway	DB160003	CBLP170141-A	VFD170141	HH160001		CC30B
RWYP160001-N	1-1/2	Raceway	DB160003	CBLP170142-A	VFD170142	HH160001		CC30B
RWYP160001-P	1-1/2	Raceway	DB160003	CBLP170143-A	VFD170143	HH160001		CC30B
RWYP160001-Q	1-1/4	Raceway	DB160003	CBLP170212-A	VFD170212	HH160001		CC30B
RWYP160001-R	1-1/4	Raceway	DB160003	CBLP170211-A	VFD170211	HH160001		CC30B
RWYP160001-TA	3/4	Raceway		CBLP160001-T	PNL169402	CTPL160002		CC30B
RWYP160001-TB	3/4	Raceway		CBLP160001-T	CTPR160007	CAB160001		CC30B
RWYP160001-U	1-1/2	Raceway	DB160003	CBLP170101-A	MCC169102A	HH160001		CC30B
				CBLP170103-A				
				CBLP170105-A				
				CBLP170201-A				
				CBLP170203-A				
RWYP160001-V	2	Raceway		CBLP170220-A	PNL169203	HH160001		CC30B
				CBLP176001-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160001-W	1-1/2	Raceway		CBLP169402-I	PNL169402	HH160001		CC30B
				CBLP169402-M				
				CBLP169402-N				
RWYP160001-X	4	Raceway	DB160003	CBLX160001-X	MCC169102A	HH160001		CC30B
RWYP160001-Y	4	Raceway	DB160003	CBLX160001-Y	MCC169102B	HH160001		CC30B
RWYP160001-Z	1-1/2	Raceway	DB160003	CBLP170115-L	PNL169402	HH160001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
RWYP160002-W	2	Raceway	DB160004	CBLX160002-W	MCC169102A	HH160002		CC30B
RWYP160002-X	2	Raceway	DB160004	CBLX160002-X	MCC169102B	HH160002		CC30B
RWYP160004-A	4	Raceway	DB160013	CBLP180102-A	MCC169101B	HH160004		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181512-A				
RWYP160004-B	4	Raceway	DB160013	CBLP229101A-B	SWGR169101A	HH160004		CC30B
RWYP160004-C	4	Raceway	DB160013	CBLP229101B-A	SWGR169101B	HH160004		CC30B
RWYP160004-D	4	Raceway	DB160013	CBLP229101B-B	SWGR169101B	HH160004		CC30B
RWYP160004-E	1	Raceway	DB160013	CBLP181511-A	MCC169101A	HH160004		CC30B
RWYP160004-F	4	Raceway	DB160013	CBLP229101A-A	SWGR169101A	HH160004		CC30B
RWYP160004-G	1	Raceway		CBLP169402-J	PNL169402	HH160004		CC30B
				CBLP169402-O				
RWYP160004-H	1	Raceway		CBLP181621-A	PNL169204	HH160004		CC30B
RWYP160005-A	3	Raceway	DB160009	CBLP181111-A	MCC169101A	HH160005		CC30B
				CBLP181111-C				
				CBLP181112-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP160005-B	2	Raceway	DB160009	CBLP181001-A	MCC169101A	HH160005		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181521-A				
RWYP160005-C	2-1/2	Raceway	DB160009	CBLP181132-A	VFD181132	HH160005		CC30B
RWYP160005-D	1-1/2	Raceway	DB160009	CBLP181522-A	MCC169101B	HH160005		CC30B
RWYP160005-E	2	Raceway	DB160009	CBLP180101-A	MCC169101A	HH160005		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP160005-F	3	Raceway	DB160009	CBLP181121-A	PNL169203	HH160005		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP160005-G	2	Raceway	DB160009	CBLP181221-A	PNL169204	HH160005		CC30B
				CBLP181222-A				
				CBLP181223-A				
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
RWYP160005-H	2-1/2	Raceway	DB160009	CBLP181231-A	VFD181231	HH160005		CC30B
RWYP160005-J	2-1/2	Raceway	DB160009	CBLP181232-A	VFD181232	HH160005		CC30B
RWYP160005-K	2-1/2	Raceway	DB160009	CBLP181331-A	VFD181331	HH160005		CC30B
RWYP160005-L	2-1/2	Raceway	DB160009	CBLP181332-A	VFD181332	HH160005		CC30B
RWYP160005-M	2-1/2	Raceway	DB160009	CBLP181431-A	VFD181431	HH160005		CC30B
RWYP160005-N	2-1/2	Raceway	DB160009	CBLP181432-A	VFD181432	HH160005		CC30B
RWYP160005-P	2-1/2	Raceway	DB160009	CBLP181131-A	VFD181131	HH160005		CC30B
RWYP160005-Q	1	Raceway	DB160009	CBLP169402-P	PNL169402	HH160005		CC30B
				CBLP169402-Q				
RWYP160005-R	1	Raceway		CBLP169402-K	RWYP169402-K	DRINKING FOUNTAIN		CC30B
RWYP160005-S	1	Raceway	DB160009	CBLP181550-A	PNL169402	HH160005		CC30B
				CBLP181651-A				
				CBLP181652-A				
RWYP160005-T	1-1/2	Raceway		CBLP181141-A	PNL169403	HH160005		CC30B
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
RWYP160005-U	1	Raceway		CBLP181550-C	RWYP181550-C	HH160005		CC30B
RWYP160007-A	5	Raceway	DB160007	CBLP160101-B	VFD160101	HH160007		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160007-B	5	Raceway	DB160007	CBLP160102-B	VFD160102	HH160007		CC30B
RWYP160007-C	3	Raceway	DB160007	CBLP160103-B	VFD160103	HH160007		CC30B
RWYP160007-D	1	Raceway		CBLP169402-L	PNL169402	HH160007		CC30B
RWYP160007-E	3	Raceway	DB160007	CBLP160104-B	VFD160104	HH160007		CC30B
RWYP160007-F	3	Raceway	DB160007	CBLP160105-B	VFD160105	HH160007		CC30B
RWYP160007-G	3	Raceway	DB160007	CBLP160106-B	VFD160106	HH160007		CC30B
RWYP160007-H	1-1/2	Raceway		CBLP166001-A	PNL169204	HH160007		CC30B
RWYP160007-J	1	Raceway		CBLP160250-A	PNL169402	HH160007		CC30B
RWYP160007-K	1	Raceway		CBLP160101-C	PNL169403	HH160007		CC30B
				CBLP160103-C				
				CBLP160105-C				
RWYP160007-L	1	Raceway		CBLP160102-C	PNL169302	HH160007		CC30B
				CBLP160104-C				
				CBLP160106-C				
RWYP160010-A	4	Raceway	DB160005	CBLP170111-A	HH160001	HH160010		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170220-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP160010-B	4	Raceway	DB160005	CBLP170121-A	HH160001	HH160010		CC30B
				CBLP170122-A				
				CBLP170123-A				
RWYP160010-C	4	Raceway	DB160005	CBLP170131-A	HH160001	HH160010		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP160010-D	4	Raceway	DB160005	CBLP170141-A	HH160001	HH160010		CC30B
				CBLP170142-A				
				CBLP170143-A				
RWYP160010-E	1-1/2	Raceway	DB160005	CBLP170201-A	HH160001	HH160010		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP160010-F	4	Raceway	DB160005	CBLP170101-A	HH160001	HH160010		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
RWYP160010-G	2	Raceway	DB160005	CBLP170211-A	HH160001	HH160010		CC30B
RWYP160010-H	2	Raceway	DB160005	CBLP170212-A	HH160001	HH160010		CC30B
RWYP160010-N	3/4	Raceway		CBLP160010-A	PNL169403	FACP160010		CC30B
RWYP160010-O	1	Raceway		CBLP169402-M	HH160001	HH160010		CC30B
				CBLP169402-N				
RWYP160010-P	2	Raceway	DB160005	CBLP170111-B	HH160001	HH160010		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP160011-A	3/4	Raceway		CBLP160011 -A	PNL169302	NCE160011		CC30B
RWYP160011-B	3/4	Raceway		CBLP160011 -B	PNL169403	NCE160011		CC30B
RWYP160080-A	3/4	Raceway		CBLP160080 -A	PNL169402	DS160080		CC30B
RWYP160080-B	3/4	Raceway		CBLP160080-B	DS160080	M160080		CC30B
RWYP160081-A	3/4	Raceway		CBLP160081-A	PNL169402	DS160081		CC30B
RWYP160081-B	3/4	Raceway		CBLP160081-B	DS160081	M160081		CC30B
RWYP160101-A	2-1/2	Raceway		CBLP160101-A	SWGR169001A	VFD160101		CC30B
RWYP160101-B	2-1/2	Raceway		CBLP160101-B	HH160007	JBX160101		CC30B
RWYP160101-C	1	Raceway		CBLP160101-C	HH160007	CS160101		CC30B
RWYP160101-D	4	Raceway		CBLV160101-C	JBX160101	M160101	VENDOR CABLE	CC30B
RWYP160102-A	2-1/2	Raceway		CBLP160102-A	SWGR169001B	VFD160102		CC30B
RWYP160102-B	2-1/2	Raceway		CBLP160102-B	HH160007	JBX160102		CC30B
RWYP160102-C	1	Raceway		CBLP160102-C	HH160007	CS160102		CC30B
RWYP160102-D	4	Raceway		CBLV160102-C	JBX160102	M160102	VENDOR CABLE	CC30B
RWYP160103-A	2-1/2	Raceway		CBLP160103-A	SWGR169001A	VFD160103		CC30B
RWYP160103-B	2-1/2	Raceway		CBLP160103-B	HH160007	JBX160103		CC30B
RWYP160103-C	1	Raceway		CBLP160103-C	HH160007	CS160103		CC30B
RWYP160103-D	4	Raceway		CBLV160103-C	JBX160103	M160103	VENDOR CABLE	CC30B
RWYP160104-A	2-1/2	Raceway		CBLP160104-A	SWGR169001B	VFD160104		CC30B
RWYP160104-B	2-1/2	Raceway		CBLP160104-B	HH160007	JBX160104		CC30B
RWYP160104-C	1	Raceway		CBLP160104-C	HH160007	CS160104		CC30B
RWYP160104-D	4	Raceway		CBLV160104-C	JBX160104	M160104	VENDOR CABLE	CC30B
RWYP160105-A	2-1/2	Raceway		CBLP160105-A	SWGR169001A	VFD160105		CC30B
RWYP160105-B	2-1/2	Raceway		CBLP160105-B	HH160007	JBX160105		CC30B
RWYP160105-C	1	Raceway		CBLP160105-C	HH160007	CS160105		CC30B
RWYP160105-D	4	Raceway		CBLV160105-C	JBX160105	M160105	VENDOR CABLE	CC30B
RWYP160106-A	2-1/2	Raceway		CBLP160106-A	SWGR169001B	VFD160106		CC30B
RWYP160106-B	2-1/2	Raceway		CBLP160106-B	HH160007	JBX160106		CC30B
RWYP160106-C	1	Raceway		CBLP160106-C	HH160007	CS160106		CC30B
RWYP160106-D	4	Raceway		CBLV160106-C	JBX160106	M160106	VENDOR CABLE	CC30B
RWYP160250-A	1	Raceway		CBLP160250-A	HH160007	DS160250		CC30B
RWYP160250-B	1	Raceway		CBLP160250-B	DS160250	CS160250		CC30B
RWYP160250-C	1	Raceway		CBLP160250-C	CS160250	HTT160250		CC30B
RWYP166001-A	2	Raceway		CBLP166001-A	HH160007	WRCP166001		CC30B
RWYP167850-A	3/4	Raceway		CBLP167850-A	PNL169402	PAC167850		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP168001-A	1	Raceway		CBLP168001-A	PNL169402	DS168001		CC30B
RWYP168001-B	1	Raceway		CBLP168001-B	DS168001	EF168001		CC30B
RWYP168002-A	3/4	Raceway		CBLP168002-A	PNL169402	EF168002		CC30B
RWYP168003-A	3/4	Raceway		CBLP168003-A	PNL169402	EF168003		CC30B
RWYP168011-A	3/4	Raceway		CBLP168011-A	PNL169402	P168011		CC30B
RWYP168031-A	3/4	Raceway		CBLP168031-A	PNL169402	DS168031		CC30B
RWYP168031-B	3/4	Raceway		CBLP168031-B	DS168031	UH168031		CC30B
RWYP168100-A	3/4	Raceway		CBLP168100-A	MCC169301	DS168100		CC30B
RWYP168100-B	3/4	Raceway		CBLP168100-B	DS168100	M168100		CC30B
RWYP168200-A	3/4	Raceway		CBLP168200-A	MCC169301	DS168200		CC30B
RWYP168200-B	3/4	Raceway		CBLP168200-B	DS168200	M168200		CC30B
RWYP168901-A	3/4	Raceway		CBLP168901-A	NCE160011	CAB168901		CC30B
RWYP168901-B	3/4	Raceway		CBLP168901 -B	PNL169402	CAB168901		CC30B
RWYP169000A-A	3/4	Raceway		CBLP169000A-A	PNL169403	RLY169000A		CC30B
RWYP169000A-B	3/4	Raceway		CBLP169000A-B	PNL169403	SUB169000A		CC30B
RWYP169000A-C	3/4	Raceway		CBLP169000A-C	PNL169302	RLY169000A		CC30B
RWYP169000B-A	3/4	Raceway		CBLP169000B-A	PNL169403	RLY169000B		CC30B
RWYP169000B-B	3/4	Raceway		CBLP169000B-B	PNL169302	RLY169000B		CC30B
RWYP169000B-C	3/4	Raceway		CBLP169000B-C	PNL169302	SUB169000B		CC30B
RWYP169001A-A	3/4	Raceway		CBLP169001A-A	PNL169403	SWGR169001A		CC30B
RWYP169001A-B	3/4	Raceway		CBLP169001A-B	PNL169403	SWGR169001A		CC30B
RWYP169001B-A	3/4	Raceway		CBLP169001B-A	PNL169302	SWGR169001B		CC30B
RWYP169001B-B	3/4	Raceway		CBLP169001B-B	PNL169302	SWGR169001B		CC30B
RWYP169101A-A	3-1/2	Raceway		CBLP169101A-A	SWGR169001A	MCC169101A		CC30B
RWYP169101A-B	3-1/2	Raceway		CBLP169101A-B	SWGR169001A	MCC169101A		CC30B
RWYP169101A-C	3-1/2	Raceway		CBLP169101A-C	SWGR169001A	MCC169101A		CC30B
RWYP169101A-D	3-1/2	Raceway		CBLP169101A-D	SWGR169001A	RWYP169101A-F		CC30B
RWYP169101A-E	3-1/2	Raceway		CBLP169101A-E	SWGR169001A	MCC169101A		CC30B
RWYP169101A-F	1	Raceway		CBLP169101A-D	RWYP169101A-D	MCC169101A		CC30B
RWYP169101A-H	3/4	Raceway		CBLP169101A-H	PNL169403	CAB169101A		CC30B
RWYP169101B-A	3-1/2	Raceway		CBLP169101B-A	SWGR169001B	MCC169101B		CC30B
RWYP169101B-B	3-1/2	Raceway		CBLP169101B-B	SWGR169001B	MCC169101B		CC30B
RWYP169101B-C	3-1/2	Raceway		CBLP169101B-C	SWGR169001B	MCC169101B		CC30B
RWYP169101B-D	3-1/2	Raceway		CBLP169101B-D	SWGR169001B	RWYP169101B-F		CC30B
RWYP169101B-E	3-1/2	Raceway		CBLP169101B-E	SWGR169001B	MCC169101B		CC30B
RWYP169101B-F	1	Raceway		CBLP169101B-D	RWYP169101B-D	MCC169101B		CC30B
RWYP169101B-J	3/4	Raceway		CBLP169101B-J	PNL169302	CAB169101B		CC30B
RWYP169102A-A	3	Raceway		CBLP169102A-A	SWGR169001A	MCC169102A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP169102A-B	3	Raceway		CBLP169102A-B	SWGR169001A	MCC169102A		CC30B
RWYP169102A-C	3	Raceway		CBLP169102A-C	SWGR169001A	MCC169102A		CC30B
RWYP169102A-D	3	Raceway		CBLP169102A-D	SWGR169001A	MCC169102A		CC30B
RWYP169102A-E	3/4	Raceway		CBLP169102A-E	PLC169102A	MCC169102A		CC30B
RWYP169102A-F	3/4	Raceway		CBLP169102A-F	PNL169403	CAB169102A		CC30B
RWYP169102B-A	3	Raceway		CBLP169102B-A	SWGR169001B	MCC169102B		CC30B
RWYP169102B-B	3	Raceway		CBLP169102B-B	SWGR169001B	MCC169102B		CC30B
RWYP169102B-C	3	Raceway		CBLP169102B-C	SWGR169001B	MCC169102B		CC30B
RWYP169102B-D	3	Raceway		CBLP169102B-D	SWGR169001B	MCC169102B		CC30B
RWYP169102B-E	3/4	Raceway		CBLP169102B-E	PNL169302	CAB169102B		CC30B
RWYP169102B-G	3/4	Raceway		CBLP169102B-G	PLC169102B	MCC169102B		CC30B
RWYP169201-A	4	Raceway		CBLP169201-A	MCC169101A	ATS169201		CC30B
RWYP169201-B	3-1/2	Raceway		CBLP169201-B	MCC169101B	ATS169201		CC30B
RWYP169201-C	3-1/2	Raceway		CBLP169201-C	ATS169201	XFMR169301		CC30B
RWYP169202-A	3-1/2	Raceway		CBLP169202-A	MCC169102A	ATS169202		CC30B
RWYP169202-B	3-1/2	Raceway		CBLP169202-B	MCC169102B	ATS169202		CC30B
RWYP169301-A	3	Raceway		CBLP169301-A	XFMR169301	PNL169301		CC30B
RWYP169301-B	3	Raceway		CBLP169301-B	XFMR169301	PNL169301		CC30B
RWYP169301-C	2	Raceway		CBLP169301-C	PNL169301	MCC169401		CC30B
RWYP169301-D	1	Raceway		CBLP169301-D	HH170001	JBX70003		CC30B
RWYP169302-A	1-1/4	Raceway		CBLP169302-A	ATS169202	XFMR169302		CC30B
RWYP169302-B	1-1/2	Raceway		CBLP169302-B	XFMR169302	CB169302		CC30B
RWYP169302-C	1-1/2	Raceway		CBLP169302-C	CB169302	MBS169302		CC30B
RWYP169302-E	2	Raceway		CBLP169302-E	MBS169302	UPS169302		CC30B
				CBLP169302-F				
RWYP169302-G	1	Raceway		CBLP169302-G	MBS169302	PNL169302		CC30B
RWYP169302-H	1-1/2	Raceway		CBLP169302-H	UPS169302	BAT169302		CC30B
RWYP169402-A	2	Raceway		CBLP169402-A	PNL169301	XFMR169402		CC30B
RWYP169402-B	3	Raceway		CBLP169402-B	XFMR169402	PNL169402		CC30B
RWYP169402-C	1-1/2	Raceway		CBLP169402-C	PNL169402	PNL169501		CC30B
RWYP169402-D	1-1/2	Raceway		CBLP169402-D	PNL169402	PNL169502		CC30B
RWYP169402-E	3/4	Raceway		CBLP169402-E	PNL169402	RECIRC PUMP		CC30B
RWYP169402-K	3/4	Raceway		CBLP169402-K	PNL169402	RWYP160005-R		CC30B
RWYP169403-A	1-1/2	Raceway		CBLP169403-A	PNL169301	XFMR169403		CC30B
RWYP169403-B	2	Raceway		CBLP169403-B	XFMR169403	CB169403		CC30B
RWYP169403-D	1-1/2	Raceway		CBLP169403-D	CB169403	MBS169403		CC30B
RWYP169403-E	1-1/2	Raceway		CBLP169403-E	MBS169403	PNL169403		CC30B
RWYP169403-F	2-1/2	Raceway		CBLP169403-F	MBS169403	UPS169403		CC30B
				CBLP169403-G				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP169403-H	1-1/2	Raceway		CBLP169403-H	UPS169403	BAT169403		CC30B
RWYP170001-A	3	Raceway		CBLP170111-A	HH160010	HH170001		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170220-A				
RWYP170001-B	3	Raceway		CBLP170211-A	HH160010	HH170001		CC30B
				CBLP170212-A				
RWYP170001-E	1	Raceway	DB170002	CBLP169402-N	HH160010	HH170001		CC30B
RWYP170001-F	2	Raceway	DB170002	CBLP170115-L	HH160010	HH170001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP170001-G	2	Raceway	DB170002	CBLP170111-B	HH160010	HH170001		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP170002-A	4	Raceway	DB170004	CBLP170111-A	HH170001	JBX170002		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
RWYP170002-B	4	Raceway	DB170004	CBLP170121-A	HH170001	JBX170002		CC30B
				CBLP170122-A				
				CBLP170123-A				
RWYP170002-C	4	Raceway	DB170004	CBLP170131-A	HH170001	JBX170002		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP170002-F	2	Raceway	DB170004	CBLP176001-A	HH170001	JBX170002		CC30B
RWYP170002-G	1-1/2	Raceway	DB170004	CBLP170111-B	HH170001	JBX170002		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
RWYP170003-A	5	Raceway	DB170002	CBLP170121-A	HH160010	HH170001		CC30B
				CBLP170122-A				
				CBLP170123-A				
				CBLP170131-A				
				CBLP170132-A				
				CBLP170133-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170201-A				
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP170003-B	4	Raceway	DB170002	CBLP170101-A	HH160010	HH170001		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP170105-A				
				CBLP170106-A				
RWYP170003-C	4	Raceway	DB170004	CBLP169301-E	HH170001	JBX170003		CC30B
				CBLP170101-A				
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
				CBLP170135-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170145-A				
RWYP170003-D	2	Raceway	DB170004	CBLP170141-B	HH170001	JBX170003		CC30B
				CBLP170142-B				
				CBLP170143-B				
RWYP170003-E	2	Raceway	DB170004	CBLP170204-A	HH170001	JBX170003		CC30B
RWYP170005-A	3	Raceway		CBLP170201-A	HH170001	JBX170005		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170211-A				
				CBLP170212-A				
				CBLP170220-A				
				CBLP170250-A				
RWYP170101-A	1	Raceway		CBLP170101-A	JBX170003	DS170101		CC30B
RWYP170101-B	1	Raceway		CBLP170101-B	DS170101	JBX170101		CC30B
RWYP170101-C	1	Raceway		CBLV170101-A	JBX170101	M170101		CC30B
RWYP170102-A	1	Raceway		CBLP170102-A	JBX170003	DS170102		CC30B
RWYP170102-B	1	Raceway		CBLP170102-B	DS170102	JBX170102		CC30B
RWYP170102-C	1	Raceway		CBLV170102-A	JBX170102	M170102		CC30B
RWYP170103-A	1	Raceway		CBLP170103-A	JBX170003	DS170103		CC30B
RWYP170103-B	1	Raceway		CBLP170103-B	DS170103	JBX170103		CC30B
RWYP170103-C	1	Raceway		CBLV170103-A	JBX170103	M170103		CC30B
RWYP170104-A	1	Raceway		CBLP170104-A	JBX170003	DS170104		CC30B
RWYP170104-B	1	Raceway		CBLP170104-B	DS170104	JBX170104		CC30B
RWYP170104-C	1	Raceway		CBLV170104-A	JBX170104	M170104		CC30B
RWYP170105-A	1	Raceway		CBLP170105-A	JBX170003	DS170105		CC30B
RWYP170105-B	1	Raceway		CBLP170105-B	DS170105	JBX170105		CC30B
RWYP170105-C	1	Raceway		CBLV170105-A	JBX170105	M170105		CC30B
RWYP170106-A	1	Raceway		CBLP170106-A	JBX170003	DS170106		CC30B
RWYP170106-B	1	Raceway		CBLP170106-B	DS170106	JBX170106		CC30B
RWYP170106-C	1	Raceway		CBLV170106-A	JBX170106	M170106		CC30B
RWYP170111-A	1	Raceway		CBLP170111-A	JBX170002	M170111		CC30B
RWYP170111-B	1	Raceway		CBLP170111-B	JBX170002	HTR170111		CC30B
RWYP170112-A	1	Raceway		CBLP170112-A	JBX170002	M170112		CC30B
RWYP170112-B	1	Raceway		CBLP170112-B	JBX170002	HTR170112		CC30B
RWYP170113-A	1	Raceway		CBLP170113-A	JBX170002	M170113		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170113-B	1	Raceway		CBLP170113-B	JBX170002	HTR170113		CC30B
RWYP170115-A	1	Raceway		CBLP170115-L	JBX170002	AIT170115		CC30B
RWYP170121-A	1	Raceway		CBLP170121-A	JBX170002	M170121		CC30B
RWYP170121-B	1	Raceway		CBLP170121-B	JBX170002	HTR170121		CC30B
RWYP170122-A	1	Raceway		CBLP170122-A	JBX170002	M170122		CC30B
RWYP170122-B	1	Raceway		CBLP170122-B	JBX170002	HTR170122		CC30B
RWYP170123-A	1	Raceway		CBLP170123-A	JBX170002	M170123		CC30B
RWYP170123-B	1	Raceway		CBLP170123-B	JBX170002	HTR170123		CC30B
RWYP170125-A	1	Raceway		CBLP170125-A	JBX170002	AIT170125		CC30B
RWYP170131-A	1	Raceway		CBLP170131-A	JBX170002	M170131		CC30B
RWYP170131-B	1	Raceway		CBLP170131-B	JBX170002	HTR170131		CC30B
RWYP170132-A	1	Raceway		CBLP170132-A	JBX170002	M170132		CC30B
RWYP170132-B	1	Raceway		CBLP170132-B	JBX170002	HTR170132		CC30B
RWYP170133-A	1	Raceway		CBLP170133-A	JBX170002	M170133		CC30B
RWYP170133-B	1	Raceway		CBLP170133-B	JBX170002	HTR170133		CC30B
RWYP170135-A	1	Raceway		CBLP170135-A	JBX170003	AIT170135		CC30B
RWYP170141-A	1	Raceway		CBLP170141-A	JBX170003	M170141		CC30B
RWYP170141-B	1	Raceway		CBLP170141-B	JBX170003	HTR170141		CC30B
RWYP170142-A	1	Raceway		CBLP170142-A	JBX170003	M170142		CC30B
RWYP170142-B	1	Raceway		CBLP170142-B	JBX170003	HTR170142		CC30B
RWYP170143-A	1	Raceway		CBLP170143-A	JBX170003	M170143		CC30B
RWYP170143-B	1	Raceway		CBLP170143-B	JBX170003	HTR170143		CC30B
RWYP170145-A	1	Raceway		CBLP170145-A	JBX170003	AIT170145		CC30B
RWYP170201-A	1	Raceway		CBLP170201-A	JBX170005	DS170201		CC30B
RWYP170201-B	1	Raceway		CBLP170201-B	DS170201	JBX170201		CC30B
RWYP170202-A	1	Raceway		CBLP170202-A	JBX170005	DS170202		CC30B
RWYP170202-B	1	Raceway		CBLP170202-B	DS170202	JBX170202		CC30B
RWYP170203-A	1	Raceway		CBLP170203-A	JBX170005	DS170203		CC30B
RWYP170203-B	1	Raceway		CBLP170203-B	DS170203	JBX170203		CC30B
RWYP170203-C	1	Raceway		CBLV170203-A	JBX170203	M170203		CC30B
RWYP170204-A	1	Raceway		CBLP170204-A	JBX170003	DS170204		CC30B
RWYP170204-B	1	Raceway		CBLP170204-B	DS170204	JBX170204		CC30B
RWYP170204-C	1	Raceway		CBLV170204-A	JBX170204	M170204		CC30B
RWYP170211-A	1-1/2	Raceway		CBLP170211-A	JBX170005	JBX170211		CC30B
RWYP170211-C	1	Raceway		CBLV170211-A	JBX170211	M170211		CC30B
RWYP170212-A	1-1/2	Raceway		CBLP170212-A	JBX170005	JBX170212		CC30B
RWYP170212-C	1	Raceway		CBLV170212-A	JBX170212	M170212		CC30B
RWYP170220-A	1	Raceway		CBLP170220-A	JBX170005	DS170220		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170220-B	1	Raceway		CBLP170220-B	HH170001	SGTE170220		CC30B
RWYP170250-A	1	Raceway		CBLP170250-A	JBX170005	DS170250		CC30B
RWYP170250-B	1	Raceway		CBLP170250-B	DS170250	CS170250		CC30B
RWYP170250-C	1	Raceway		CBLP170250-C	CS170250	HTT170250		CC30B
RWYP180001-A	6	Raceway	DB180004	CBLP181131-A	HH180003	JBX180001	ADDENDUM 5	CC30B/REV A
				CBLP181132-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181431-A				
				CBLP181432-A				
RWYP180001-B	2	Raceway	DB180004	CBLP181423-A	HH180003	JBX180001	ADDENDUM 5	CC30B/REV A
				CBLP186001-A				
RWYP180002-A	5	Raceway	DB160015	CBLP180102-A	HH160004	HH180002		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
				CBLP229101A-A				
RWYP180002-B	4	Raceway	DB160015	CBLP229101A-B	HH160004	HH180002		CC30B
RWYP180002-C	4	Raceway	DB160015	CBLP229101B-A	HH160004	HH180002		CC30B
RWYP180002-D	4	Raceway	DB160015	CBLP229101B-B	HH160004	HH180002		CC30B
RWYP180002-E	1	Raceway	DB160015	CBLP169402-O	HH160004	HH180002		CC30B
				CBLP181621-A				
RWYP180002-F	1	Raceway	DB180004	CBLP181621-A	HH180002	JBX180001	ADDENDUM 5	CC30B/REV A
RWYP180003-A	5	Raceway	DB160011	CBLP181121-A	HH160005	HH180003		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181131-A				
				CBLP181132-A				
				CBLP181141-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181223-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181652-A				
RWYP180003-B	6	Raceway	DB160011	CBLP181001-A	HH160005	HH180003		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
				CBLP181431-A				
				CBLP181432-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP180003-C	1-1/2	Raceway	DB160011	CBLP181521-A	HH160005	HH180003		CC30B
				CBLP181522-A				
RWYP180003-D	1-1/2	Raceway	DB160011	CBLP180101-A	HH160005	HH180003		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP180003-E	3	Raceway	DB160011	CBLP181111-A	HH160005	HH180003		CC30B
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180003-F	3	Raceway	DB180005	CBLP181123-A	HH180003	JBX180003		CC30B
				CBLP181223-A				
				CBLP181511-A				
				CBLP181512-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				
				CBLP181652-A				
RWYP180003-G	4	Raceway	DB180009	CBLP180102-A	HH180002	HH180003		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
RWYP180003-H	2	Raceway	DB180005	CBLP181521-A	HH180003	JBX180003		CC30B
				CBLP181522-A				
RWYP180003-I	1	Raceway	DB160011	CBLP169402-P	HH160005	HH180003		CC30B
RWYP180003-J	1	Raceway	DB160011	CBLP169402-Q	HH160005	HH180003		CC30B
RWYP180005-A	2	Raceway	DB180005	CBLP180101-A	HH180003	JBX180005		CC30B
				CBLP180103-A				
				CBLP181121-A				
				CBLP181122-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181421-A				
				CBLP181422-A				
RWYP180005-B	4	Raceway	DB180001	CBLP229101A-B	HH180002	HH180005		CC30B
RWYP180005-C	4	Raceway	DB180001	CBLP229101B-A	HH180002	HH180005		CC30B
RWYP180005-D	4	Raceway	DB180001	CBLP229101B-B	HH180002	HH180005		CC30B
RWYP180005-E	1-1/2	Raceway	DB180001	CBLP181321-A	HH180007	JBX180005		CC30B
				CBLP181322-A				
RWYP180005-F	4	Raceway	DB180001	CBLP229101A-A	HH180002	HH180005		CC30B
RWYP180007-A	4	Raceway	DB180005	CBLP180105-A	HH180003	HH180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-B	4	Raceway	DB180007	CBLP180102-A	HH180007	JBX180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
RWYP180007-C	4	Raceway	DB180007	CBLP180105-A	HH180007	JBX180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-D	4	Raceway	DB180005	CBLP180102-A	HH180003	HH180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP186002-A				
RWYP180007-F	1	Raceway	DB180005	CBLP169402-Q	HH180003	HH180007		CC30B
RWYP180007-G	1-1/2	Raceway	DB180007	CBLP181141-A	HH180003	JBX180007		CC30B
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
RWYP180007-H	1-1/2	Raceway	DB180007	CBLP186002-A	HH180007	JBX180007		CC30B
RWYP180101-A	1	Raceway		CBLP180101-A	JBX180005	DS180101		CC30B
RWYP180101-B	1	Raceway		CBLP180101-B	DS180101	JBX180101		CC30B
RWYP180102-B	1	Raceway		CBLP180102-A	JBX180007	DS180102		CC30B
RWYP180102-C	1	Raceway		CBLP180102-B	DS180102	JBX180102		CC30B
RWYP180103-A	1	Raceway		CBLP180103-A	JBX180005	DS180103		CC30B
RWYP180103-B	1	Raceway		CBLP180103-B	DS180103	JBX180103		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP180104-A	1	Raceway		CBLP180104-A	JBX180007	DS180104		CC30B
RWYP180104-B	1	Raceway		CBLP180104-B	DS180104	JBX180104		CC30B
RWYP180105-A	1	Raceway		CBLP180105-A	JBX180007	DS180105		CC30B
RWYP180105-B	1	Raceway		CBLP180105-B	DS180105	JBX180105		CC30B
RWYP180106-A	1	Raceway		CBLP180106-A	JBX180007	DS180106		CC30B
RWYP180106-B	1	Raceway		CBLP180106-B	DS180106	JBX180106		CC30B
RWYP180107-A	1	Raceway		CBLP180107-A	JBX180007	DS180107		CC30B
RWYP180107-B	1	Raceway		CBLP180107-B	DS180107	JBX180107		CC30B
RWYP180108-A	1	Raceway		CBLP180108-A	JBX180007	DS180108		CC30B
RWYP180108-B	1	Raceway		CBLP180108-B	DS180108	JBX180108		CC30B
RWYP180109-A	1	Raceway		CBLP180109-A	JBX180007	DS180109		CC30B
RWYP180109-B	1	Raceway		CBLP180109-B	DS180109	JBX180109		CC30B
RWYP180110-A	1	Raceway		CBLP180110-A	JBX180007	DS180110		CC30B
RWYP180110-B	1	Raceway		CBLP180110-B	DS180110	JBX180110		CC30B
RWYP180111-A	1	Raceway		CBLP180111-A	JBX180007	DS180111		CC30B
RWYP180111-B	1	Raceway		CBLP180111-B	DS180111	JBX180111		CC30B
RWYP181001-A	1	Raceway		CBLP181001-A	JBX180007	DS181001		CC30B
RWYP181001-B	1	Raceway		CBLP181001-B	DS181001	JBX181001		CC30B
RWYP181002-A	1	Raceway		CBLP181002-A	JBX180007	DS181002		CC30B
RWYP181002-B	1	Raceway		CBLP181002-B	DS181002	JBX181002		CC30B
RWYP181003-A	1	Raceway		CBLP181003-A	JBX180007	DS181003		CC30B
RWYP181003-B	1	Raceway		CBLP181003-B	DS181003	JBX181003		CC30B
RWYP181004-A	1	Raceway		CBLP181004-A	JBX180007	DS181004		CC30B
RWYP181004-B	1	Raceway		CBLP181004-B	DS181004	JBX181004		CC30B
RWYP181005-A	1	Raceway		CBLP181005-A	JBX180007	DS181005		CC30B
RWYP181005-B	1	Raceway		CBLP181005-B	DS181005	JBX181005		CC30B
RWYP181006-A	1	Raceway		CBLP181006-A	JBX180007	DS181006		CC30B
RWYP181006-B	1	Raceway		CBLP181006-B	DS181006	JBX181006		CC30B
RWYP181111-A	1	Raceway		CBLP181111-A	JBX180007	DS181111		CC30B
RWYP181111-B	1	Raceway		CBLP181111-B	DS181111	M181111		CC30B
RWYP181111-C	1	Raceway		CBLP181111-C	JBX180007	HTR181111		CC30B
RWYP181112-A	1	Raceway		CBLP181112-A	JBX180007	DS181112		CC30B
RWYP181112-B	1	Raceway		CBLP181112-B	DS181112	M181112		CC30B
RWYP181112-C	1	Raceway		CBLP181112-C	JBX180007	HTR181112		CC30B
RWYP181113-A	1	Raceway		CBLP181113-A	JBX180007	DS181113		CC30B
RWYP181113-B	1	Raceway		CBLP181113-B	DS181113	M181113		CC30B
RWYP181113-C	1	Raceway		CBLP181113-C	JBX180007	HTR181113		CC30B
RWYP181114-A	1	Raceway		CBLP181114-A	JBX180007	DS181114		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181114-B	1	Raceway		CBLP181114-B	DS181114	M181114		CC30B
RWYP181114-C	1	Raceway		CBLP181114-C	JBX180007	HTR181114		CC30B
RWYP181121-A	1	Raceway		CBLP181121-A	JBX180005	FCV181121		CC30B
RWYP181122-A	1	Raceway		CBLP181122-A	JBX180005	DS181122		CC30B
RWYP181122-B	1	Raceway		CBLP181122-B	DS181122	FCV181122		CC30B
RWYP181123-A	1	Raceway		CBLP181123-A	JBX180003	FCV181123		CC30B
RWYP181131-A	2	Raceway		CBLP181131-A	JBX180001	JBX181131		CC30B
RWYP181131-B	4	Raceway		CBLV181131-A	JBX181131	M181131	VENDOR CABLE	CC30B
RWYP181132-A	2	Raceway		CBLP181132-A	JBX180001	JBX181132		CC30B
RWYP181132-B	4	Raceway		CBLV181132-A	JBX181132	M181132	VENDOR CABLE	CC30B
RWYP181141-A	1	Raceway		CBLP181141-A	JBX180007	AIT181141		CC30B
RWYP181211-A	1	Raceway		CBLP181211-A	JBX180007	DS181211		CC30B
RWYP181211-B	1	Raceway		CBLP181211-B	DS181211	M181211		CC30B
RWYP181211-C	1	Raceway		CBLP181211-C	JBX180007	HTR181211		CC30B
RWYP181212-A	1	Raceway		CBLP181212-A	JBX180007	DS181212		CC30B
RWYP181212-B	1	Raceway		CBLP181212-B	DS181212	M181212		CC30B
RWYP181212-C	1	Raceway		CBLP181212-C	JBX180007	HTR181212		CC30B
RWYP181213-A	1	Raceway		CBLP181213-A	JBX180007	DS181213		CC30B
RWYP181213-B	1	Raceway		CBLP181213-B	DS181213	M181213		CC30B
RWYP181213-C	1	Raceway		CBLP181213-C	JBX180007	HTR181213		CC30B
RWYP181214-A	1	Raceway		CBLP181214-A	JBX180007	DS181214		CC30B
RWYP181214-B	1	Raceway		CBLP181214-B	DS181214	M181214		CC30B
RWYP181214-C	1	Raceway		CBLP181214-C	JBX180007	HTR181214		CC30B
RWYP181221-A	1	Raceway		CBLP181221-A	JBX180005	FCV181221		CC30B
RWYP181222-A	1	Raceway		CBLP181222-A	JBX180005	DS181222		CC30B
RWYP181222-B	1	Raceway		CBLP181222-B	DS181222	FCV181222		CC30B
RWYP181223-A	1	Raceway		CBLP181223-A	JBX180003	FCV181223		CC30B
RWYP181231-A	2	Raceway		CBLP181231-A	JBX180001	JBX181231		CC30B
RWYP181231-B	4	Raceway		CBLV181231-A	JBX181231	M181231	VENDOR CABLE	CC30B
RWYP181232-A	2	Raceway		CBLP181232-A	JBX180001	JBX181232		CC30B
RWYP181232-B	4	Raceway		CBLV181232-A	JBX181232	M181232	VENDOR CABLE	CC30B
RWYP181241-A	1	Raceway		CBLP181241-A	JBX180007	AIT181241		CC30B
RWYP181311-A	1	Raceway		CBLP181311-A	JBX180007	DS181311		CC30B
RWYP181311-B	1	Raceway		CBLP181311-B	DS181311	M181311		CC30B
RWYP181311-C	1	Raceway		CBLP181311-C	JBX180007	HTR181311		CC30B
RWYP181312-A	1	Raceway		CBLP181312-A	JBX180007	DS181312		CC30B
RWYP181312-B	1	Raceway		CBLP181312-B	DS181312	M181312		CC30B
RWYP181312-C	1	Raceway		CBLP181312-C	JBX180007	HTR181312		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181313-A	1	Raceway		CBLP181313-A	JBX180007	DS181313		CC30B
RWYP181313-B	1	Raceway		CBLP181313-B	DS181313	M181313		CC30B
RWYP181313-C	1	Raceway		CBLP181313-C	JBX180007	HTR181313		CC30B
RWYP181314-A	1	Raceway		CBLP181314-A	JBX180007	DS181314		CC30B
RWYP181314-B	1	Raceway		CBLP181314-B	DS181314	M181314		CC30B
RWYP181314-C	1	Raceway		CBLP181314-C	JBX180007	HTR181314		CC30B
RWYP181321-A	1	Raceway		CBLP181321-A	JBX180005	FCV181321		CC30B
RWYP181322-A	1	Raceway		CBLP181322-A	JBX180005	FCV181322		CC30B
RWYP181331-A	2	Raceway		CBLP181331-A	JBX180001	JBX181331		CC30B
RWYP181331-B	4	Raceway		CBLV181331-A	JBX181331	M181331	VENDOR CABLE	CC30B
RWYP181332-A	2	Raceway		CBLP181332-A	JBX180001	JBX181332		CC30B
RWYP181332-B	4	Raceway		CBLV181332-A	JBX181332	M181332	VENDOR CABLE	CC30B
RWYP181341-A	1	Raceway		CBLP181341-A	JBX180007	AIT181441		CC30B
RWYP181411-A	1	Raceway		CBLP181411-A	JBX180007	DS181411		CC30B
RWYP181411-B	1	Raceway		CBLP181411-B	DS181411	M181411		CC30B
RWYP181411-C	1	Raceway		CBLP181411-C	JBX180007	HTR181411		CC30B
RWYP181412-A	1	Raceway		CBLP181412-A	JBX180007	DS181412		CC30B
RWYP181412-B	1	Raceway		CBLP181412-B	DS181412	M181412		CC30B
RWYP181412-C	1	Raceway		CBLP181412-C	JBX180007	HTR181412		CC30B
RWYP181413-A	1	Raceway		CBLP181413-A	JBX180007	DS181413		CC30B
RWYP181413-B	1	Raceway		CBLP181413-B	DS181413	M181413		CC30B
RWYP181413-C	1	Raceway		CBLP181413-C	JBX180007	HTR181413		CC30B
RWYP181414-A	1	Raceway		CBLP181414-A	JBX180007	DS181414		CC30B
RWYP181414-B	1	Raceway		CBLP181414-B	DS181414	M181414		CC30B
RWYP181414-C	1	Raceway		CBLP181414-C	JBX180007	HTR181414		CC30B
RWYP181421-A	1	Raceway		CBLP181421-A	JBX180005	FCV181421		CC30B
RWYP181422-A	1	Raceway		CBLP181422-A	JBX180005	FCV181422		CC30B
RWYP181423-A	1	Raceway		CBLP181423-A	JBX180001	FCV181423		CC30B
RWYP181431-A	2	Raceway		CBLP181431-A	JBX180001	JBX181431		CC30B
RWYP181431-B	4	Raceway		CBLV181431-A	JBX181431	M181431	VENDOR CABLE	CC30B
RWYP181432-A	2	Raceway		CBLP181432-A	JBX180001	JBX181432		CC30B
RWYP181432-B	4	Raceway		CBLV181432-A	JBX181432	M181432	VENDOR CABLE	CC30B
RWYP181441-A	1	Raceway		CBLP181441-A	JBX180007	AIT181341		CC30B
RWYP181511-A	1	Raceway		CBLP181511-A	JBX180003	DS181511		CC30B
RWYP181511-B	1	Raceway		CBLP181511-B	DS181511	JBX181511		CC30B
RWYP181512-A	1	Raceway		CBLP181512-A	JBX180003	DS181512		CC30B
RWYP181512-B	1	Raceway		CBLP181512-B	DS181512	JBX181512		CC30B
RWYP181521-A	1	Raceway		CBLP181521-A	JBX180003	DS181521		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181521-B	1	Raceway		CBLP181521-B	DS181521	JBX181521		CC30B
RWYP181522-A	1	Raceway		CBLP181522-A	JBX180003	DS181522		CC30B
RWYP181522-B	1	Raceway		CBLP181522-B	DS181522	JBX181522		CC30B
RWYP181550-A	1	Raceway		CBLP181550-A	JBX180003	DS181550		CC30B
RWYP181550-B	1	Raceway		CBLP181550-B	DS181550	CS181550		CC30B
RWYP181550-C	1	Raceway		CBLP181550-C	CS181550	RWYP160005-U		CC30B
RWYP181621-A	1	Raceway		CBLP181621-A	JBX180001	DS181621	ADDENDUM 2	CC30B/REV A
RWYP181651-A	1	Raceway		CBLP181651-A	JBX180003	DS181651		CC30B
RWYP181651-B	1	Raceway		CBLP181651-B	DS181651	CS181651		CC30B
RWYP181651-C	1	Raceway		CBLP181651-C	CS181651	HTT181651		CC30B
RWYP181652-A	1	Raceway		CBLP181652-A	JBX180003	DS181652		CC30B
RWYP181652-B	1	Raceway		CBLP181652-B	DS181652	CS181652		CC30B
RWYP181652-C	1	Raceway		CBLP181652-C	CS181652	HTT181652		CC30B
RWYP18550-C	1	Raceway		CBLP181550-C	JBX180003	HTT181550		CC30B
RWYP186001-A	1-1/2	Raceway		CBLP186001-A	JBX180001	WRCP186001		CC30B
RWYS160000-A	1	Raceway		CBLS160101-C	HH160008	PLC160001		CC30B
				CBLS160101-D				
				CBLS160101-E				
RWYS160000-B	1	Raceway		CBLS160102-C	HH160008	PLC160001		CC30B
				CBLS160102-D				
				CBLS160102-E				
RWYS160000-C	1	Raceway		CBLS160103-C	HH160008	PLC160001		CC30B
				CBLS160103-D				
				CBLS160103-E				
RWYS160000-D	1	Raceway		CBLS160104-C	HH160008	PLC160001		CC30B
				CBLS160104-D				
				CBLS160104-E				
RWYS160000-E	1	Raceway		CBLS160105-C	HH160008	PLC160001		CC30B
				CBLS160105-D				
				CBLS160105-E				
RWYS160000-F	1	Raceway		CBLS160106-C	HH160008	PLC160001		CC30B
				CBLS160106-D				
				CBLS160106-E				
RWYS160002-A	1-1/2	Raceway	DB160004	CBLS170111-A	VFD170111	HH160002		CC30B
				CBLS170111-B				
RWYS160002-B	1-1/2	Raceway	DB160004	CBLS170112-A	VFD170112	HH160002		CC30B
				CBLS170112-B				
RWYS160002-C	1-1/2	Raceway	DB160004	CBLS170113-A	VFD170113	HH160002		CC30B
				CBLS170113-B				
RWYS160002-D	1-1/2	Raceway	DB160004	CBLS170121-A	VFD170121	HH160002		CC30B
				CBLS170121-B				
RWYS160002-E	1-1/2	Raceway	DB160004	CBLS170122-A	VFD170122	HH160002		CC30B
				CBLS170122-B				
RWYS160002-F	1-1/2	Raceway	DB160004	CBLS170123-A	VFD170123	HH160002		CC30B
				CBLS170123-B				
RWYS160002-G	1-1/2	Raceway	DB160004	CBLS170131-A	VFD170131	HH160002		CC30B
				CBLS170131-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160002-H	1-1/2	Raceway	DB160004	CBLS170132-A	VFD170132	HH160002		CC30B
				CBLS170132-B				
RWYS160002-J	1-1/2	Raceway	DB160004	CBLS170133-A	VFD170133	HH160002		CC30B
				CBLS170133-B				
RWYS160002-K	1-1/2	Raceway	DB160004	CBLS170141-A	VFD170141	HH160002		CC30B
				CBLS170141-B				
RWYS160002-L	1-1/2	Raceway	DB160004	CBLS170142-A	VFD170142	HH160002		CC30B
				CBLS170142-B				
RWYS160002-M	1-1/2	Raceway	DB160004	CBLS170143-A	VFD170143	HH160002		CC30B
				CBLS170143-B				
RWYS160003-A	4	Raceway	DB160014	CBLS181221-C	PLC169101B	HH160003		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS160006-A	1-1/2	Raceway	DB160010	CBLS181131-A	VFD181131	HH160006		CC30B
				CBLS181131-B				
RWYS160006-B	4	Raceway	DB160010	CBLS181121-C	PLC169101A	HH160006		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS160006-C	1-1/2	Raceway	DB160010	CBLS181132-A	VFD181132	HH160006		CC30B
				CBLS181132-B				
RWYS160006-D	1-1/2	Raceway	DB160010	CBLS181231-A	VFD181231	HH160006		CC30B
				CBLS181231-B				
RWYS160006-E	1-1/2	Raceway	DB160010	CBLS181232-A	VFD181232	HH160006		CC30B
				CBLS181232-B				
RWYS160006-F	1-1/2	Raceway	DB160010	CBLS181331-A	VFD181331	HH160006		CC30B
				CBLS181331-B				
RWYS160006-G	1-1/2	Raceway	DB160010	CBLS181332-A	VFD181332	HH160006		CC30B
				CBLS181332-B				
RWYS160006-H	1-1/2	Raceway	DB160010	CBLS181431-A	VFD181431	HH160006		CC30B
				CBLS181431-B				
RWYS160006-J	1-1/2	Raceway	DB160010	CBLS181432-A	VFD181432	HH160006		CC30B
				CBLS181432-B				
RWYS160008-A	1	Raceway	DB160008	CBLS160101-A	VFD160101	HH160008		CC30B
				CBLS160101-B				
RWYS160008-B	1	Raceway	DB160008	CBLS160102-A	VFD160102	HH160008		CC30B
				CBLS160102-B				
RWYS160008-C	1	Raceway	DB160008	CBLS160103-A	VFD160103	HH160008		CC30B
				CBLS160103-B				
RWYS160008-D	1	Raceway	DB160008	CBLS160104-A	VFD160104	HH160008		CC30B
				CBLS160104-B				
RWYS160008-E	1	Raceway	DB160008	CBLS160105-A	VFD160105	HH160008		CC30B
				CBLS160105-B				
RWYS160008-F	1	Raceway	DB160008	CBLS160106-A	VFD160106	HH160008		CC30B
				CBLS160106-B				
RWYS160008-H	1	Raceway		CBLS160100-A	CAB160001	HH160008		CC30B
RWYS160008-I	1	Raceway		CBLS160200-A	PLC160001	HH160008		CC30B
RWYS160009-A	4	Raceway	DB160006	CBLS170111-A	HH160002	HH160009		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
				CBLS170141-A				
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS160100-A	1	Raceway		CBLS160100-A	HH160008	LI160100		CC30B
RWYS160100-B	1	Raceway		CBLS160100-B	LI160100	LT160100		CC30B
RWYS160101-A	1	Raceway		CBLS160101-A	HH160008	CS160101		CC30B
RWYS160101-B	1	Raceway		CBLS160101-B	HH160008	CS160101		CC30B
RWYS160101-C	1	Raceway		CBLS160101-C	CS160101	HH160008		CC30B
RWYS160101-D	1	Raceway		CBLS160101-D	CS160101	HH160008		CC30B
RWYS160101-E	1	Raceway		CBLS160101-E	CS160101	HH160008		CC30B
RWYS160101-F	1	Raceway		CBLS160101-F	CS160101	TE160101		CC30B
RWYS160101-G	1	Raceway		CBLS160101-G	CS160101	TE160101B		CC30B
RWYS160101-H	1	Raceway		CBLS160101-H	CS160101	TE160101C		CC30B
RWYS160102-A	1	Raceway		CBLS160102-A	HH160008	CS160102		CC30B
RWYS160102-B	1	Raceway		CBLS160102-B	HH160008	CS160102		CC30B
RWYS160102-C	1	Raceway		CBLS160102-C	CS160102	HH160008		CC30B
RWYS160102-D	1	Raceway		CBLS160102-D	CS160102	HH160008		CC30B
RWYS160102-E	1	Raceway		CBLS160102-E	CS160102	HH160008		CC30B
RWYS160102-F	1	Raceway		CBLS160102-F	CS160102	TE160102		CC30B
RWYS160102-G	1	Raceway		CBLS160102-G	CS160102	TE160102B		CC30B
RWYS160102-H	1	Raceway		CBLS160102-H	CS160102	TE160102C		CC30B
RWYS160103-A	1	Raceway		CBLS160103-A	HH160008	CS160103		CC30B
RWYS160103-B	1	Raceway		CBLS160103-B	HH160008	CS160103		CC30B
RWYS160103-C	1	Raceway		CBLS160103-C	CS160103	HH160008		CC30B
RWYS160103-D	1	Raceway		CBLS160103-D	CS160103	HH160008		CC30B
RWYS160103-E	1	Raceway		CBLS160103-E	CS160103	HH160008		CC30B
RWYS160103-F	1	Raceway		CBLS160103-F	CS160103	TE160103		CC30B
RWYS160103-G	1	Raceway		CBLS160103-G	CS160103	TE160103B		CC30B
RWYS160103-H	1	Raceway		CBLS160103-H	CS160103	TE160103C		CC30B
RWYS160104-A	1	Raceway		CBLS160104-A	HH160008	CS160104		CC30B
RWYS160104-B	1	Raceway		CBLS160104-B	HH160008	CS160104		CC30B
RWYS160104-C	1	Raceway		CBLS160104-C	CS160104	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160104-D	1	Raceway		CBLS160104-D	CS160104	HH160008		CC30B
RWYS160104-E	1	Raceway		CBLS160104-E	CS160104	HH160008		CC30B
RWYS160104-F	1	Raceway		CBLS160104-F	CS160104	TE160104		CC30B
RWYS160104-G	1	Raceway		CBLS160104-G	CS160104	TE160104B		CC30B
RWYS160104-H	1	Raceway		CBLS160104-H	CS160104	TE160104C		CC30B
RWYS160105-A	1	Raceway		CBLS160105-A	HH160008	CS160105		CC30B
RWYS160105-B	1	Raceway		CBLS160105-B	HH160008	CS160105		CC30B
RWYS160105-C	1	Raceway		CBLS160105-C	CS160105	HH160008		CC30B
RWYS160105-D	1	Raceway		CBLS160105-D	CS160105	HH160008		CC30B
RWYS160105-E	1	Raceway		CBLS160105-E	CS160105	HH160008		CC30B
RWYS160105-F	1	Raceway		CBLS160105-F	CS160105	TE160105		CC30B
RWYS160105-G	1	Raceway		CBLS160105-G	CS160105	TE160105B		CC30B
RWYS160105-H	1	Raceway		CBLS160105-H	CS160105	TE160105C		CC30B
RWYS160106-A	1	Raceway		CBLS160106-A	HH160008	CS160106		CC30B
RWYS160106-B	1	Raceway		CBLS160106-B	HH160008	CS160106		CC30B
RWYS160106-C	1	Raceway		CBLS160106-C	CS160106	HH160008		CC30B
RWYS160106-D	1	Raceway		CBLS160106-D	CS160106	HH160008		CC30B
RWYS160106-E	1	Raceway		CBLS160106-E	CS160106	HH160008		CC30B
RWYS160106-F	1	Raceway		CBLS160106-F	CS160106	TE160106		CC30B
RWYS160106-G	1	Raceway		CBLS160106-G	CS160106	TE160106B		CC30B
RWYS160106-H	1	Raceway		CBLS160106-H	CS160106	TE160106C		CC30B
RWYS160200-A	1	Raceway		CBLS160200-A	HH160008	LI160200		CC30B
RWYS160200-B	1	Raceway		CBLS160200-B	LI160100	LT160200		CC30B
RWYS170001-A	4	Raceway	DB170003	CBLS170111-A	HH170002	JBX170001		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
RWYS170002-A	1-1/2	Raceway	DB170001	CBLS170211-A	HH160009	HH170002		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170002-F	2	Raceway	DB170001	CBLS170111-A	HH160009	HH170002		CC30B
				CBLS170112-A				
				CBLS170113-A				
				CBLS170121-A				
				CBLS170122-A				
				CBLS170123-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS170131-A				
				CBLS170132-A				
				CBLS170133-A				
				CBLS170141-A				
				CBLS170142-A				
				CBLS170143-A				
RWYS170002-G	2	Raceway	DB170001	CBLS170111-B	HH160009	HH170002		CC30B
				CBLS170112-B				
				CBLS170113-B				
				CBLS170121-B				
				CBLS170122-B				
				CBLS170123-B				
				CBLS170131-B				
				CBLS170132-B				
				CBLS170133-B				
				CBLS170141-B				
				CBLS170142-B				
				CBLS170143-B				
RWYS170004-C	2	Raceway	DB170003	CBLS170141-A	HH170002	JBX170004		CC30B
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS170006-A	1-1/2	Raceway		CBLS170211-A	HH170002	JBX170006		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170111-A	1	Raceway		CBLS170111-A	JBX170001	CS170111		CC30B
RWYS170111-B	1	Raceway		CBLS170111-B	JBX170001	CS170111		CC30B
RWYS170112-A	1	Raceway		CBLS170112-A	JBX170001	CS170112		CC30B
RWYS170112-B	1	Raceway		CBLS170112-B	JBX170001	CS170112		CC30B
RWYS170113-A	1	Raceway		CBLS170113-A	JBX170001	CS170113		CC30B
RWYS170113-B	1	Raceway		CBLS170113-B	JBX170001	CS170113		CC30B
RWYS170121-A	1	Raceway		CBLS170121-A	JBX170001	CS170121		CC30B
RWYS170121-B	1	Raceway		CBLS170121-B	JBX170001	CS170121		CC30B
RWYS170122-A	1	Raceway		CBLS170122-A	JBX170001	CS170122		CC30B
RWYS170122-B	1	Raceway		CBLS170122-B	JBX170001	CS170122		CC30B
RWYS170123-A	1	Raceway		CBLS170123-A	JBX170001	CS170123		CC30B
RWYS170123-B	1	Raceway		CBLS170123-B	JBX170001	CS170123		CC30B
RWYS170131-A	1	Raceway		CBLS170131-A	JBX170001	CS170131		CC30B
RWYS170131-B	1	Raceway		CBLS170131-B	JBX170001	CS170131		CC30B
RWYS170132-A	1	Raceway		CBLS170132-A	JBX170001	CS170132		CC30B
RWYS170132-B	1	Raceway		CBLS170132-B	JBX170001	CS170132		CC30B
RWYS170133-A	1	Raceway		CBLS170133-A	JBX170001	CS170133		CC30B
RWYS170133-B	1	Raceway		CBLS170133-B	JBX170001	CS170133		CC30B
RWYS170141-A	1	Raceway		CBLS170141-A	JBX170004	CS170141		CC30B
RWYS170141-B	1	Raceway		CBLS170141-B	JBX170004	CS170141		CC30B
RWYS170142-A	1	Raceway		CBLS170142-A	JBX170004	CS170142		CC30B
RWYS170142-B	1	Raceway		CBLS170142-B	JBX170004	CS170142		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS170143-A	1	Raceway		CBLS170143-A	JBX170004	CS170143		CC30B
RWYS170143-B	1	Raceway		CBLS170143-B	JBX170004	CS170143		CC30B
RWYS170211-A	1	Raceway		CBLS170211-A	JBX170006	CS170211		CC30B
RWYS170211-B	1	Raceway		CBLS170211-B	JBX170006	CS170211		CC30B
RWYS170212-A	1	Raceway		CBLS170212-A	JBX170006	CS170212		CC30B
RWYS170212-B	1	Raceway		CBLS170212-B	JBX170006	CS170212		CC30B
RWYS180001-A	4	Raceway	DB160016	CBLS181221-C	HH160003	HH180001		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180002-A	3	Raceway	DB180006	CBLS181131-A	HH180004	JBX180002		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180002-B	4	Raceway	DB180006	CBLS181123-C	HH180004	JBX180002		CC30B
				CBLS181611-B				
RWYS180002-C	4	Raceway	DB180006	CBLS181223-C	HH180004	JBX180002		CC30B
				CBLS181621-B				
RWYS180002-D	2	Raceway	DB180006	CBLS181221-C	HH180004	JBX180006		CC30B
RWYS180004-A	2-1/2	Raceway	DB160012	CBLS181131-A	HH160006	HH180004		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180004-B	4	Raceway	DB160012	CBLS181121-C	HH160006	HH180004		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS180004-C	4	Raceway	DB180010	CBLS181221-C	HH180001	HH180004		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180006-A	2-1/2	Raceway	DB180006	CBLS181121-C	HH180004	JBX180006		CC30B
RWYS181121-A	1	Raceway		CBLS181121-A	TBX181121	FCV181121		CC30B
RWYS181121-B	1	Raceway		CBLS181121-B	TBX181121	FIT181121		CC30B
RWYS181121-C	2	Raceway		CBLS181121-C	JBX180006	TBX181121		CC30B
RWYS181122-A	1	Raceway		CBLS181122-A	TBX181121	FCV181122		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS181122-B	1	Raceway		CBLS181122-B	TBX181121	FIT181122		CC30B
RWYS181123-A	1	Raceway		CBLS181123-A	TBX181123	FCV181123		CC30B
RWYS181123-B	1	Raceway		CBLS181123-B	TBX181123	FIT181123		CC30B
RWYS181123-C	2	Raceway		CBLS181123-C	JBX180002	TBX181123		CC30B
RWYS181131-A	1	Raceway		CBLS181131-A	JBX180002	CS181131		CC30B
				CBLS181131-B				
RWYS181132-A	1	Raceway		CBLS181132-A	JBX180002	CS181132		CC30B
				CBLS181132-B				
RWYS181141A-A	1	Raceway		CBLS181141A-A	AIT181141	AE181141A		CC30B
RWYS181141B-A	1	Raceway		CBLS181141B-A	AIT181141	AE181141B		CC30B
RWYS181141C-A	1	Raceway		CBLS181141C-A	AIT181141	AE181141C		CC30B
RWYS181141D-A	1	Raceway		CBLS181141D-A	AIT181141	AE181141D		CC30B
RWYS1811612A-A	1	Raceway		CBLS181612A-A	TBX181611	LI181612A		CC30B
RWYS181221-A	1	Raceway		CBLS181221-A	TBX181221	FCV181221		CC30B
RWYS181221-B	1	Raceway		CBLS181221-B	TBX181221	FIT181221		CC30B
RWYS181221-C	2	Raceway		CBLS181221-C	JBX180006	TBX181221		CC30B
RWYS181222-A	1	Raceway		CBLS181222-A	TBX181221	FCV181222		CC30B
RWYS181222-B	1	Raceway		CBLS181222-B	TBX181221	FIT181222		CC30B
RWYS181223-A	1	Raceway		CBLS181223-A	TBX181223	FCV181223		CC30B
RWYS181223-B	1	Raceway		CBLS181223-B	TBX181223	FIT181223		CC30B
RWYS181223-C	2	Raceway		CBLS181223-C	JBX180002	TBX181223		CC30B
RWYS181231-A	1	Raceway		CBLS181231-A	JBX180002	CS181231		CC30B
				CBLS181231-B				
RWYS181232-A	1	Raceway		CBLS181232-A	JBX180002	CS181232		CC30B
				CBLS181232-B				
RWYS181241A-A	1	Raceway		CBLS181241A-A	AIT181241	AE181241A		CC30B
RWYS181241B-A	1	Raceway		CBLS181241B-A	AIT181241	AE181241B		CC30B
RWYS181241C-A	1	Raceway		CBLS181241C-A	AIT181241	AE181241C		CC30B
RWYS181241D-A	1	Raceway		CBLS181241D-A	AIT181241	AE181241D		CC30B
RWYS181321-A	1	Raceway		CBLS181321-A	TBX181121	FCV181321		CC30B
RWYS181321-B	1	Raceway		CBLS181321-B	TBX181121	FIT181321		CC30B
RWYS181322-A	1	Raceway		CBLS181322-A	TBX181121	FCV181322		CC30B
RWYS181322-B	1	Raceway		CBLS181322-B	TBX181121	FIT181322		CC30B
RWYS181323-A	1	Raceway		CBLS181323-A	TBX181123	FCV181323		CC30B
RWYS181323-B	1	Raceway		CBLS181323-B	TBX181123	FIT181323		CC30B
RWYS181331-A	1	Raceway		CBLS181331-A	JBX180002	CS181331		CC30B
				CBLS181331-B				
RWYS181332-A	1	Raceway		CBLS181332-A	JBX180002	CS181332		CC30B
				CBLS181332-B				
RWYS181341A-A	1	Raceway		CBLS181341A-A	AIT181341	AE181341A		CC30B
RWYS181341B-A	1	Raceway		CBLS181341B-A	AIT181341	AE181341B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS181341C-A	1	Raceway		CBLS181341C-A	AIT181341	AE181341C		CC30B
RWYS181341D-A	1	Raceway		CBLS181341D-A	AIT181341	AE181341D		CC30B
RWYS181421-A	1	Raceway		CBLS181421-A	TBX181221	FCV181421		CC30B
RWYS181421-B	1	Raceway		CBLS181421-B	TBX181221	FIT181421		CC30B
RWYS181422-A	1	Raceway		CBLS181422-A	TBX181221	FCV181422		CC30B
RWYS181422-B	1	Raceway		CBLS181422-B	TBX181221	FIT181422		CC30B
RWYS181423-A	1	Raceway		CBLS181423-A	TBX181223	FCV181423		CC30B
RWYS181423-B	1	Raceway		CBLS181423-B	TBX181223	FIT181423		CC30B
RWYS181431-A	1	Raceway		CBLS181431-A	JBX180002	CS181431		CC30B
				CBLS181431-B				
RWYS181432-A	1	Raceway		CBLS181432-A	JBX180002	CS181432		CC30B
				CBLS181432-B				
RWYS181441A-A	1	Raceway		CBLS181441A-A	AIT181441	AE181441A		CC30B
RWYS181441B-A	1	Raceway		CBLS181441B-A	AIT181441	AE181441B		CC30B
RWYS181441C-A	1	Raceway		CBLS181441C-A	AIT181441	AE181441C		CC30B
RWYS181441D-A	1	Raceway		CBLS181441D-A	AIT181441	AE181441D		CC30B
RWYS181510A-A	1	Raceway		CBLS181510A-A	TBX181121	LI181510A		CC30B
RWYS181520A-A	1	Raceway		CBLS181520A-A	TBX181121	LI181520A		CC30B
RWYS181611-A	1	Raceway		CBLS181611-A	TBX181611	SGTE181611		CC30B
RWYS181611-B	2	Raceway		CBLS181611-B	JBX180002	TBX181611		CC30B
RWYS181621-A	1	Raceway		CBLS181621-A	TBX181621	SGTE181621		CC30B
RWYS181621-B	2	Raceway		CBLS181621-B	JBX180002	TBX181621		CC30B
RWYS181622A-A	1	Raceway		CBLS181622A-A	TBX181621	LI181622A		CC30B
RWYV170201-A	1	Raceway		CBLV170201-A	JBX170201	M170201		CC30B
RWYV170202-A	1	Raceway		CBLV170202-A	JBX170202	M170202		CC30B
RWYX160003-C	4	Raceway		CBLX160003-A	MCC169101B	HH160003		CC30B
RWYX160003-D	4	Raceway		CBLX160003-B	MCC169101B	HH160003		CC30B
RWYX160004-A	4	Raceway	DB160013	CBLX229101A-A	SWGR169001A	HH160004		CC30B
RWYX160004-B	4	Raceway	DB160013	CBLX229101B-A	SWGR169001B	HH160004		CC30B
RWYX160004-H	4	Raceway	DB160013	CBLX160004-A	MCC169101B	HH160004		CC30B
RWYX160004-J	4	Raceway	DB160013	CBLX160004-B	MCC169101B	HH160004		CC30B
RWYX160005-S	4	Raceway	DB160009	CBLX160005-A	MCC169101A	HH160005		CC30B
RWYX160005-T	4	Raceway	DB160009	CBLX160005-B	MCC169101A	HH160005		CC30B
RWYX160006-T	4	Raceway	DB160010	CBLX160006-B	MCC169101A	HH160006		CC30B
RWYX160006-U	4	Raceway	DB160010	CBLX160006-A	MCC169101A	HH160006		CC30B
RWYX160009-B	4	Raceway	DB160006	CBLX170004-A	HH160002	HH160009		CC30B
RWYX160010-J	4	Raceway	DB160005	CBLX170003-A	HH160001	HH160010		CC30B
RWYX160010-K	4	Raceway	DB160005	CBLX170003-B	HH160001	HH160010		CC30B
RWYX160010-L	4	Raceway	DB160005	CBLX170003-C	HH160001	HH160010		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX160010-M	4	Raceway	DB160005	CBLX170003-D	HH160001	HH160010		CC30B
RWYX167950-A	3/4	Raceway		CBLX167950-A	**CAB167901**	PBX167950	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167951-A	3/4	Raceway		CBLX167951-A	**CAB167901**	PBX167951	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167952-A	3/4	Raceway		CBLX167952-A	**CAB167901**	PBX167952	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167953-A	3/4	Raceway		CBLX167953-A	**CAB167901**	PBX167953	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX170001-A	2	Raceway	DB170002	CBLX170003-A	HH160010	HH170001		CC30B
RWYX170001-B	2	Raceway	DB170002	CBLX170003-B	HH160010	HH170001		CC30B
RWYX170001-C	2	Raceway	DB170002	CBLX170003-C	HH160010	HH170001		CC30B
RWYX170001-D	2	Raceway	DB170002	CBLX170003-D	HH160010	HH170001		CC30B
RWYX170002-A	2	Raceway	DB170001	CBLX170004-A	HH160009	HH170002		CC30B
RWYX170003-K	2	Raceway	DB170004	CBLX170003-A	HH170001	JBX170003		CC30B
RWYX170003-L	2	Raceway	DB170004	CBLX170003-B	HH170001	JBX170003		CC30B
RWYX170003-M	2	Raceway	DB170004	CBLX170003-C	HH170001	JBX170003		CC30B
RWYX170003-N	2	Raceway	DB170004	CBLX170003-D	HH170001	JBX170003		CC30B
RWYX170004-F	2	Raceway	DB170003	CBLX170004-A	HH170002	JBX170004		CC30B
RWYX180001-C	2	Raceway	DB160016	CBLX180004-A				CC30B
RWYX180001-D	2	Raceway	DB160016	CBLX180004-B				CC30B
RWYX180002-A	2	Raceway	DB160015	CBLX229101A-A	HH160004	HH180002		CC30B
RWYX180002-B	2	Raceway	DB160015	CBLX229101B-A	HH160004	HH180002		CC30B
RWYX180002-F	2	Raceway	DB160015	CBLX180002-A	HH160004	HH180002		CC30B
RWYX180002-G	2	Raceway	DB160015	CBLX180002-B	HH160004	HH180002		CC30B
RWYX180003-K	2	Raceway	DB160011	CBLX180003-A	HH160005	RWYX180003-M		CC30B
RWYX180003-L	2	Raceway	DB160011	CBLX180003-B	HH160005	RWYX180003-N		CC30B
RWYX180003-M	2	Raceway	DB180009	CBLX180003-A	RWYX180003-K	HH180003		CC30B
RWYX180003-N	2	Raceway	DB180009	CBLX180003-B	RWYX180003-L	HH180003		CC30B
RWYX180004-L	2	Raceway	DB160012	CBLX180004-A	HH160006	RWYX180001-C		CC30B
RWYX180004-M	2	Raceway	DB160012	CBLX180004-B	HH160006	RWYX180001-D		CC30B
RWYX180004-N	2	Raceway	DB180010	CBLX180004-A	RWYX180001-C	HH180004		CC30B
RWYX180004-P	2	Raceway	DB180010	CBLX180004-B	RWYX180001-D	HH180004		CC30B
RWYX180005-A	2	Raceway	DB180001	CBLX229101A-A	HH180002	HH180005		CC30B
RWYX180005-B	2	Raceway	DB180001	CBLX229101B-A	HH180002	HH180005		CC30B
RWYX180007-G	2	Raceway	DB180005	CBLX180007-A	HH180003	HH180007		CC30B
RWYX180007-H	2	Raceway	DB180005	CBLX180007-B	HH180003	HH180007		CC30B
RWYX180008-P	2	Raceway	DB180006	CBLX180008-A	HH180004	HH180008		CC30B
RWYX180008-Q	2	Raceway	DB180006	CBLX180008-B	HH180004	HH180008		CC30B

Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP000011-A	XHHW2	2#12, 1#12G	PNL229301	NCE220011	RWYP220011-A					E-22-3002	120V POWER FOR NCE	CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC000030-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	CONITNUED FROM LINE ABOVE	CC30B
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC220001-A					E-00-4001	CONITNUED FROM LINE ABOVE	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC000031-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	SUMP PUMP. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC229101A-C					E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP000031-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A	E-00-4001	SUMP PUMP. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001	E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP229101A-E					E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC000032-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	SUMP PUMP. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC229101B-C					E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP000032-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A	E-00-4001	SUMP PUMP. CABLE ALSO APPEARS IN 00 CABLE SCHEDULE	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001	E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP229101B-E					E-00-4001	SUMP PUMP. CONTINUED FROM LINE ABOVE	CC30B
CBLX000901A	PULLROPE	PULLROPE	HH003101	HH000901	RWYX000901-A					E-00-1031		CC30B
CBLX000902A	PULLROPE	PULLROPE	HH003102	HH000902	RWYX000902-A					E-00-1031		CC30B
CBLX001401A	PULLROPE	PULLROPE	HH001403	HH220001	RWYX001401-A					E-00-1014		CC30B
CBLX001402A	PULLROPE	PULLROPE	HH001404	HH220002	RWYX001402-A					E-00-1014		CC30B
CBLX001403A	PULLROPE	PULLROPE	HH001405	HH001403	RWYX001403-A					E-00-1014		CC30B
CBLX001404A	PULLROPE	PULLROPE	HH001406	HH001404	RWYX001404-A					E-00-1014		CC30B
CBLX001405A	PULLROPE	PULLROPE	HH000901	HH001405	RWYX001405-A					E-00-1009		CC30B
CBLX001406A	PULLROPE	PULLROPE	HH000902	HH001406	RWYX001406-A					E-00-1009		CC30B
CBLX180001-A	PULLROPE	PULLROPE	HH180002	HH180005	RWYX180001-A					E-00-1015		CC30B
CBLX180001-B	PULLROPE	PULLROPE	HH180002	HH180005	RWYX180001-B					E-00-1015		CC30B
CBLX180002-A	PULLROPE	PULLROPE	HH180001	HH180006	RWYX180002-C					E-00-1015		CC30B
CBLX180002-B	PULLROPE	PULLROPE	HH180001	HH180006	RWYX180002-D					E-00-1015		CC30B
CBLX190001-A	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-A					E-00-1009	SPARE POWER RACEWAY	CC30B
CBLX190001-B	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-B					E-00-1009	SPARE POWER RACEWAY	CC30B
CBLX190001-C	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-C					E-00-1009	SPARE CONTROL RACEWAY	CC30B
CBLX190001-D	PULLROPE	PULLROPE	AREA 22 BLDG	HH190001	RWYX190001-D					E-00-1009	SPARE CONTROL RACEWAY	CC30B
CBLX190002-A	PULLROPE	PULLROPE	AREA 22 BLDG	HH190002	RWYX190002-A					E-00-1009	SPARE SIGNAL RACEWAY	CC30B
CBLX190002-B	PULLROPE	PULLROPE	AREA 22 BLDG	HH190002	RWYX190002-B					E-00-1009	SPARE SIGNAL RACEWAY	CC30B
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC191011-AA	RIO 33C	TRAY 1033C	RWYC33010D-A	HH33010D	E-19-1101	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLC191011-A	TCER	11#14, 1#14G	CAB331001	CS191011	RWYC1920-A	TB1920	RWYC191011-AB			E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLC191011-B	TCER	11#14, 1#14G	CS191011	PCV191011	RWYC191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TRAY 1033C	TRAY 480 VOLTS	RWYP33010D-A	HH33010D	RWYP1920-A	E-19-1101	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-A	TCER	3#12, 1#12G	MCC33C	DS1910011	TB1920	RWYP191011-A				E-19-1101	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLP191011-B	TCER	3#12, 1#12G	DS1910011	PCV191011	RWYP191011-B					E-19-1101	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLS191011-A	INSM	4PR #18SH	CAB331001	CS191011	RWYS1921-A	TB1921	RWYS191011-A			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLS191011-B	INSM	4PR #18SH	CS191011	PCV191011	RWYS191011-B					E-19-1201	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS331001-F	RIO 33C	TRAY 3320	RWYS33010C-A	HH33010C	E-19-1201	CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B
CBLS191012-A	INS	1PR #16SH	CAB331001	PIT191012	RWYS1921-A	TB1921	RWYS191012-B			E-19-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS ON AREA 33 AND SITE CABLE SCHEDULE.	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX192001-A	PULLROPE	PULLROPE	MCC229101A	HH190002	RWYC220001-D	HH220002	RWYC190001-A	HH190002		E-19-1105	CONTROL FOR INTERMEDIATE MIXING BOX MIXER (FUTURE)	CC30B
CBLX192001-B	PULLROPE	PULLROPE	MCC229101A	HH190001	RWYP220001-H	HH220001	RWYP190001-A	HH190001		E-22-1102	POWER FOR INTERMEDIATE MIXING BOX MIXER (FUTURE)	CC30B
CBLD192701-A	NC3	1#OSP CAT6A	CAB220001	AIT192701	RWYD192701-AA	HH190002	RWYD192701-AB			E-19-1205	AIT. CABLE ALSO APPEARS ON 00 SITE SCHEDULE.	CC30B
CBLP192701-A	XHHW2	2#12, 1#12G	PNL229301	AIT192701	RWYP192701-AA	HH190001	RWYP192701-AB			E-19-1105	AIT. CABLE ALSO APPEARS ON 00 SITE SCHEDULE.	CC30B
CBLS192701A-A	INS	1PR #18SH	AIT192701	AE192701A	RWYS192701A-A					E-19-1205	CABLE TO TRANSMITTER	CC30B
CBLS192701B-A	INS	1PR #18SH	AIT192701	AE192701B	RWYS192701B-A					E-19-1205	CABLE TO TRANSMITTER	CC30B
CBLD220001-A	NC2	1#U/FTP CAT6A	NCE220011	CAB220001	RWYD220001-A					E-22-3002	PLC PROCESSOR A	CC30B
CBLD220001-B	NC2	1#U/FTP CAT6A	NCE220011	CAB220001	RWYD220001-B					E-22-3002	PLC PROCESSOR A DATA TO NET220001A (CCF 020 CHANGE ORDER PENDING)	CC30B
~~**CBLD220001-C**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE220011**~~	~~**CAB220001**~~	~~**RWYD220001-C**~~					~~**E-22-3002**~~	~~**PLC PROCESSOR A (CCF 020 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
CBLD220001-D	NC2	1#U/FTP CAT6A	NCE220011	CAB220001	RWYD220001-D					E-22-3002	PLC PROCESSOR B	CC30B
CBLD220001-E	NC2	1#U/FTP CAT6A	NCE220011	CAB220001	RWYD220001-E					E-22-3002	PLC PROCESSOR B DATA TO NET220001A (CCF 020 CHANGE ORDER PENDING)	CC30B
~~**CBLD220001-F**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**NCE220011**~~	~~**CAB220001**~~	~~**RWYD220001-F**~~					~~**E-22-3002**~~	~~**PLC PROCESSOR B (CCF 020 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
CBLP220001-A	XHHW2	2#12, 1#12G	PNL229301	CAB220001	RWYP220001-J						CABINET UPS POWER	CC30B
CBLD229101AB-A	NC4	1#600V CAT6A	CAB220001	MCC229101A	RWYD229101AB-B					E-22-1202	PLC PANEL ETHERNET TO MCCA NETWORK SWITCH NET229101AB	CC30B
CBLX220001-A	PULLROPE	PULLROPE	HH220002	PLC220001	RWYX220001-C					E-00-1014		CC30B
CBLX220004-A	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-A					E-00-1014		CC30B
CBLX220004-B	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-B					E-00-1014		CC30B
CBLX220004-C	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-C					E-00-1014		CC30B
CBLX220004-D	PULLROPE	PULLROPE	HH220002	HH180006	RWYX220004-D					E-00-1014		CC30B
CBLD220010-A	NC2	1#U/FTP CAT6A	NCE220011	FACP220010	RWYD220010-A						FACP DATA	CC30B
CBLF220010-A	**FOTSM**	**6 FiberSM**	NCE220011	FACP220010	RWYF220010-A					E-22-3002	NETWORK CABINET FIBER (CCF 020 CHANGE ORDER PENDING)	CC30B
~~**CBLF220010-B**~~	~~**FOTMM**~~	~~**2 FiberMM**~~	~~**NCE220011**~~	~~**FACP220010**~~	~~**RWYF220010-A**~~					~~**E-22-3002**~~	~~**NETWORK CABINET FIBER (CCF 020 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
CBLP220010-A	XHHW2	2#12, 1#12G	PNL229301	FACP220010	RWYP220010-A					E-22-3002	FACP POWER	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-B	E-22-3002	CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	CTS340001A	RWYF33010D-B	HH33010D	RWYF17001A-B	HH17001A	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	RWYF160003-B	HH160003	RWYF180001-B	HH180001	RWYF180006-B	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-A	FOTSM	48 FiberSM	NCR340001	NCE220011	HH180006	RWYF220002-B	HH220002	RWYF220011A-A		E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF33010D-AA	E-22-3002	CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF33010D-A	HH33010D	RWYF17001A-C	HH17001A	RWYF160003-A	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	HH160003	RWYF180001-A	HH180001	RWYF180006-A	HH180006	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30B
CBLF220011A-B	FOTSM	48 FiberSM	NCE330001	NCE220011	RWYF220002-A	HH220002	RWYF220011A-B			E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES	CC30B
CBLF220011BA-A	**FOTSM**	**12 FiberSM**	NCE160011	NCE220011	RWYF160003-C	HH160003	RWYF180001-A	HH180001	RWYF180006-A	E-22-3002	CABLE ALSO SHOWS IN AREA 16 AND SITE CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF220011BA-A	**FOTSM**	**12 FiberSM**	NCE160011	NCE220011	HH180006	RWYF220002-B	HH220002	RWYF220011A-A		E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO SHOWS IN AREA 16 AND SITE CABLE SCHEDULES (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLX220011-A	PULLROPE	PULLROPE	HH220002	NCE220011	RWYX220011-A					E-00-1014		CC30B
CBLX220011-B	PULLROPE	PULLROPE	HH220002	NCE220011	RWYX220011-B					E-00-1014		CC30B
CBLP220090-A	XHHW2	3#10, 1#10G	MCC229101B	DS220090	RWYP220090-A					E-22-1102	AREA 22 ELECTRICAL HOIST	CC30B
CBLP220090-B	XHHW2	3#10, 1#10G	DS220090	HST220090	RWYP220090-B					E-22-1102	AREA 22 ELECTRICAL HOIST	CC30B
CBLC223020-A	XHHW2	10#14, 1#14G	CAB220001	HS223020B	RWYC223020-A					E-22-1111	NORTH PROCESS AIR FCV	CC30B
CBLP223020-A	XHHW2	3#10, 1#10G	MCC229101B	DS223020	RWYP223020-A					E-22-1111	NORTH PROCESS AIR FCV	CC30B
CBLP223020-B	XHHW2	3#10, 1#10G	DS223020	FCV223020	RWYP223020-B					E-22-1111	NORTH PROCESS AIR FCV	CC30B
CBLS223020-A	INS	1PR #18SH	CAB220001	FIT223020	RWYS223020-A					E-22-1211	RAS AERATION DIFFUSER	CC30B
CBLS223020-B	INS	1PR #18SH	FIT223020	FE223020	RWYS223020-B					E-22-1211	RAS AERATION DIFFUSER	CC30B
CBLS223020-C	INSM	4PR #18SH	CAB220001	HS223020A	RWYS223020-C					E-22-1211	RAS AERATION DIFFUSER	CC30B
CBLC223020-B	XHHW2	2#14, 1#14G	CAB220001	FIT223020	RWYC223020-B					E-22-1111	24VDC POWER FOR FIT	CC30B
CBLS223030-A	INS	1PR #18SH	CAB220001	LI223030A	RWYS223030-A					E-22-1211	RAS DISTRIBUTION BOX	CC30B
CBLS223030-B	INS	1PR #18SH	LI223030A	LIT223030	RWYS223030-B					E-22-1211	RAS DISTRIBUTION BOX	CC30B
CBLC223101-A	XHHW2	6#14, 1#14G	MCC229101A	CS223101	RWYC223101-A					E-22-1111	RAS ANOXIC ZONE MIXER 1	CC30B
CBLP223101-A	XHHW2	3#12, 1#12G	MCC229101A	DS223101	RWYP223101-A					E-22-1111	RAS ANOXIC ZONE MIXER 1	CC30B
CBLP223101-B	XHHW2	3#12, 1#12G	DS223101	M223101	RWYP223101-B					E-22-1111	RAS ANOXIC ZONE MIXER 1	CC30B
CBLC223102-A	XHHW2	6#14, 1#14G	MCC229101B	CS223102	RWYC223102-A					E-22-1111	RAS ANOXIC ZONE MIXER 2	CC30B
CBLP223102-A	XHHW2	3#12, 1#12G	MCC229101B	DS223102	RWYP223102-A					E-22-1111	RAS ANOXIC ZONE MIXER 2	CC30B
CBLP223102-B	XHHW2	3#12, 1#12G	DS223102	M223102	RWYP223102-B					E-22-1111	RAS ANOXIC ZONE MIXER 2	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLS223105-A	INS	1PR #18SH	CAB220001	AIT223105	RWYS223105-A					E-22-1211	RAS ZONE MIXERS	CC30B
CBLS223105-B	INS	1PR #18SH	AIT223105	AE223105	RWYS223105-B					E-22-1211	RAS ZONE MIXERS	CC30B
CBLP223105-A	XHHW2	2#12, 1#12G	PNL229301	AIT223105	RWYP223105-A					E-22-1111	RAS ZONE MIXERS	CC30B
CBLC223111-A	XHHW2	8#14, 1#14G	MCC229101A	CS223111	RWYC223111-A					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 1	CC30B
CBLC223111-B	XHHW2	2#14, 1#14G	CS223111	TSH223111	RWYC223111-B					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 1	CC30B
CBLC223111-C	XHHW2	2#14, 1#14G	MCC229101A	FSL223111	RWYC223111-C					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 1	CC30B
CBLC223111-D	XHHW2	2#14, 1#14G	MCC229101A	SV223111	RWYC223111-D					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 1	CC30B
CBLC223111-E	XHHW2	2#14, 1#14G	MCC229101A	ZSC223111	RWYC223111-E					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 1	CC30B
CBLP223111-A	VFD2	3#1, 3#6G	MCC229101A	M223111	RWYP223111-A					E-22-1102	ANAEROBIC RAS TRANSFER PUMP 1 (E001)	CC30B / Rev. B
CBLS223111-A	INS	1TR #18SH	MCC229101A	CS223111	RWYS223111-A					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 1, SK	CC30B
CBLS223111-B	INS	1PR #18SH	MCC229101A	CS223111	RWYS223111-B					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 1, SI	CC30B
CBLC223112-A	XHHW2	8#14, 1#14G	MCC229101B	CS223112	RWYC223112-A					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2	CC30B
CBLC223112-B	XHHW2	2#14, 1#14G	CS223112	TSH223112	RWYC223112-B					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2	CC30B
CBLC223112-C	XHHW2	2#14, 1#14G	MCC229101B	FSL223112	RWYC223112-C					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2	CC30B
CBLC223112-D	XHHW2	2#14, 1#14G	MCC229101B	SV223112	RWYC223112-D					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2	CC30B
CBLC223112-E	XHHW2	2#14, 1#14G	MCC229101B	ZSC223112	RWYC223112-E					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2	CC30B
CBLP223112-A	VFD2	3#1, 3#6G	MCC229101B	M223112	RWYP223112-A					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 2 (E001)	CC30B / Rev. B
CBLS223112-A	INS	1TR #18SH	MCC229101B	CS223112	RWYS223112-A					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 2, SK	CC30B
CBLS223112-B	INS	1PR #18SH	MCC229101B	CS223112	RWYS223112-B					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 2, SI	CC30B
CBLC223113-A	XHHW2	8#14, 1#14G	MCC229101A	CS223113	RWYC223113-A					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3	CC30B
CBLC223113-B	XHHW2	2#14, 1#14G	CS223113	TSH223113	RWYC223113-B					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3	CC30B
CBLC223113-C	XHHW2	2#14, 1#14G	MCC229101A	FSL223113	RWYC223113-C					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3	CC30B
CBLC223113-D	XHHW2	2#14, 1#14G	MCC229101A	SV223113	RWYC223113-D					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3	CC30B
CBLC223113-E	XHHW2	2#14, 1#14G	MCC229101A	ZSC223113	RWYC223113-E					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3	CC30B
CBLP223113-A	VFD2	3#1, 3#6G	MCC229101A	M223113	RWYP223113-A					E-22-1101	ANAEROBIC RAS TRANSFER PUMP 3 (E001)	CC30B / Rev. B
CBLS223113-A	INS	1TR #18SH	MCC229101A	CS223113	RWYS223113-A					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 3, SK	CC30B
CBLS223113-B	INS	1PR #18SH	MCC229101A	CS223113	RWYS223113-B					E-22-1201	ANAEROBIC RAS TRANSFER PUMP 3, SI	CC30B
CBLS223120-A	INS	1PR #16SH	CAB220001	FE/FIT223120	RWYS223120-A					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLC223120-A	XHHW2	2#14, 1#14G	CAB220001	FIT223120	RWYC223120-A					E-22-1102	24VDC POWER FOR FIT	CC30B
CBLS223121-A	INS	1PR #16SH	CAB220001	PIT223121	RWYS223121-A					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLC223131-A	XHHW2	10#14, 1#14G	CAB220001	HS223131B	RWYC223131-A					E-22-1111	WAS FOAM WASTE GATE	CC30B
CBLP223131-A	XHHW2	3#12, 1#12G	MCC229101B	DS223131	RWYP223131-A					E-22-1111	WAS FOAM WASTE GATE	CC30B
CBLP223131-B	XHHW2	3#12, 1#12G	DS223131	SGTE223131	RWYP223131-B					E-22-1111	WAS FOAM WASTE GATE	CC30B
CBLS223131-A	INSM	4PR #18SH	CAB220001	HS223131A	RWYS223131-A					E-22-1211	WAS FOAM WASTE GATE	CC30B
CBLS223132-A	INS	1PR #16SH	CAB220001	PIT223132	RWYS223132-A					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLC223133-A	XHHW2	2#14, 1#14G	CAB220001	SV223133	RWYC223133-A					E-22-1102	SLUDGE WET WELL	CC30B
CBLC223141-A	XHHW2	8#14, 1#14G	MCC229101A	CS223141	RWYC223141-A					E-22-1102	WAS PUMP 1	CC30B
CBLC223141-B	XHHW2	2#14, 1#14G	CS223141	TSH223141	RWYC223141-B					E-22-1102	WAS PUMP 1	CC30B
CBLC223141-C	XHHW2	2#14, 1#14G	MCC229101A	FSL223141	RWYC223141-C					E-22-1102	WAS PUMP 1	CC30B
CBLC223141-D	XHHW2	2#14, 1#14G	MCC229101A	SV223141	RWYC223141-D					E-22-1102	WAS PUMP 1	CC30B
CBLC223141-E	XHHW2	2#14, 1#14G	MCC229101A	ZSC223141	RWYC223141-E					E-22-1102	WAS PUMP 1	CC30B
CBLP223141-A	VFD1	3#8, 1#8G	MCC229101A	M223141	RWYP223141-A					E-22-1102	WAS PUMP 1	CC30B
CBLS223141-A	INS	1TR #18SH	MCC229101A	CS223141	RWYS223141-A					E-22-1202	WAS PUMP 1, SK	CC30B
CBLS223141-B	INS	1PR #18SH	MCC229101A	CS223141	RWYS223141-B					E-22-1202	WAS PUMP 1, SI	CC30B
CBLC223142-A	XHHW2	8#14, 1#14G	MCC229101B	CS223142	RWYC223142-A					E-22-1102	WAS PUMP 2	CC30B
CBLC223142-B	XHHW2	2#14, 1#14G	CS223142	TSH223142	RWYC223142-B					E-22-1102	WAS PUMP 2	CC30B
CBLC223142-C	XHHW2	2#14, 1#14G	MCC229101B	FSL223142	RWYC223142-C					E-22-1102	WAS PUMP 2	CC30B
CBLC223142-D	XHHW2	2#14, 1#14G	MCC229101B	SV223142	RWYC223142-D					E-22-1102	WAS PUMP 2	CC30B
CBLC223142-E	XHHW2	2#14, 1#14G	MCC229101B	ZSC223142	RWYC223142-E					E-22-1102	WAS PUMP 2	CC30B
CBLP223142-A	VFD1	3#8, 1#8G	MCC229101B	M223142	RWYP223142-A					E-22-1102	WAS PUMP 2	CC30B
CBLS223142-A	INS	1TR #18SH	MCC229101B	CS223142	RWYS223142-A					E-22-1202	WAS PUMP 2, SK	CC30B
CBLS223142-B	INS	1PR #18SH	MCC229101B	CS223142	RWYS223142-B					E-22-1202	WAS PUMP 2, SI	CC30B
CBLC223150-A	XHHW2	18#14, 1#14G	CAB220001	CS223150	RWYC223150-A					E-22-1111	SLUDGE WET WELL HEAT TRACE	CC30B
CBLP223150-A	XHHW2	2#12, 1#12G	PNL229301	DS223150	RWYP223150-A					E-22-1111	HEAT TRACE POWER	CC30B
CBLP223150-B	XHHW2	2#12, 1#12G	DS223150	CS223150	RWYP223150-B					E-22-1111	HEAT TRACE POWER	CC30B
CBLP223150-C	XHHW2	2#12, 1#12G	CS223150	HTT223150	RWYP223150-C					E-22-1111	HEAT TRACE POWER	CC30B
CBLC223151-A	XHHW2	8#14, 1#14G	MCC229101A	CS223151	RWYC223151-A					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLC223151-B	XHHW2	2#14, 1#14G	CS223151	TSH223151	RWYC223151-B					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLC223151-C	XHHW2	2#14, 1#14G	MCC229101A	FSL223151	RWYC223151-C					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLC223151-D	XHHW2	2#14, 1#14G	MCC229101A	SV223151	RWYC223151-D					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLC223151-E	XHHW2	2#14, 1#14G	MCC229101A	ZSC223151	RWYC223151-E					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLP223151-A	VFD1	3#8, 1#8G	MCC229101A	M223151	RWYP223151-A					E-22-1102	WAS FOAM WASTE PUMP 1	CC30B
CBLS223151-A	INS	1TR #18SH	MCC229101A	CS223151	RWYS223151-A					E-22-1202	WAS FOAM WASTE PUMP 1, SK	CC30B
CBLS223151-B	INS	1PR #18SH	MCC229101A	CS223151	RWYS223151-B					E-22-1202	WAS FOAM WASTE PUMP 1, SI	CC30B
CBLC223152-A	XHHW2	8#14, 1#14G	MCC229101B	CS223152	RWYC223152-A					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLC223152-B	XHHW2	2#14, 1#14G	CS223152	TSH223152	RWYC223152-B					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLC223152-C	XHHW2	2#14, 1#14G	MCC229101B	FSL223152	RWYC223152-C					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLC223152-D	XHHW2	2#14, 1#14G	MCC229101B	SV223152	RWYC223152-D					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLC223152-E	XHHW2	2#14, 1#14G	MCC229101B	ZSC223152	RWYC223152-E					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLP223152-A	VFD1	3#8, 1#8G	MCC229101B	M223152	RWYP223152-A					E-22-1102	WAS FOAM WASTE PUMP 2	CC30B
CBLS223152-A	INS	1TR #18SH	MCC229101B	CS223152	RWYS223152-A					E-22-1202	WAS FOAM WASTE PUMP 2, SK	CC30B
CBLS223152-B	INS	1PR #18SH	MCC229101B	CS223152	RWYS223152-B					E-22-1202	WAS FOAM WASTE PUMP 2, SI	CC30B
CBLS223159-A	INS	1PR #16SH	CAB220001	FE/FIT223159	RWYS223159-A					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLC223159-A	XHHW2	2#14, 1#14G	CAB220001	FIT223159	RWYC223159-A					E-22-1102	24VDC POWER FOR FIT	CC30B
CBLP223160-A	XHHW2	2#12, 1#12G	PNL229301	AIT223160	RWYP223160-A					E-22-1102	BASIN INSTRUMENTATION	CC30B
CBLS223160-A	INS	1PR #16SH	CAB220001	AIT223160	RWYS223160-A					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLS223160-B	INS	1PR #16SH	AIT223160	AE223160	RWYS223160-B					E-22-1202	BASIN INSTRUMENTATION	CC30B
CBLS223190-A	INS	1PR #16SH	CAB220001	LIT223190	RWYS223190-A					E-22-1201	RAS-WAS STATION SUMP PUMPS LIT	CC30B
CBLC223191-A	XHHW2	11#14, 1#14G	MCC229101A	CS223191	RWYC223191-A					E-22-4001	RAS/WAS STATION SUMP PUMP 1 CONTROLS	CC30B
CBLC223191-B	XHHW2	10#14, 1#14G	CS223191	TBX223191	RWYC223191-B					E-22-4001	RAS/WAS STATION SUMP PUMP 1 CONTROLS	CC30B
CBLV223191-A	VENDOR	Special	TBX223191	M223191							EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLP223191-A	XHHW2	3#12, 1#12G	MCC229101A	DS223191	RWYP223191-A					E-22-4001	RAS/WAS STATION SUMP PUMP 1 POWER	CC30B
CBLP223191-B	XHHW2	3#12, 1#12G	DS223191	TBX223191	RWYP223191-B					E-22-4001	RAS/WAS STATION SUMP PUMP 1 POWER	CC30B
CBLC223192-A	XHHW2	11#14, 1#14G	MCC229101B	CS223192	RWYC223192-A					E-22-4001	RAS/WAS STATION SUMP PUMP 2 CONTROLS	CC30B
CBLC223192-B	XHHW2	10#14, 1#14G	CS223192	TBX223192	RWYC223192-B					E-22-4001	RAS/WAS STATION SUMP PUMP 2 CONTROLS	CC30B
CBLV223192-A	VENDOR	Special	TBX223192	M223192							EXPOSED CABLE RUN. REFERENCE DETAIL E5012	CC30B
CBLP223192-A	XHHW2	3#12, 1#12G	MCC229101B	DS223192	RWYP223192-A					E-22-4001	RAS/WAS STATION SUMP PUMP 2 POWER	CC30B
CBLP223192-B	XHHW2	3#12, 1#12G	DS223192	TBX223192	RWYP223192-B					E-22-4001	RAS/WAS STATION SUMP PUMP 2 POWER	CC30B
CBLD227801-A	NC2	1#U/FTP CAT6A	NCE220011	WAP227801	RWYD227801-A					E-22-1202	ELECTRICAL ROOM WIRELESS ACCESS POINT	CC30B
CBLD227802-A	NC2	1#U/FTP CAT6A	NCE220011	WAP227802	RWYD227802-A					E-22-1202	RAS/WAS PUMP ROOM WIRELESS ACCESS POINT	CC30B
CBLD227901-A	NC2	1#U/FTP CAT6A	NCE220011	CAB227901	RWYD227901-A					E-22-3001	AREA 22 ACCESS CONTROL PANEL	CC30B
CBLD227901-B	**NC2**	**1#U/FTP CAT6A**	**NCE220011**	**CAB227901**	**RWYD227901-A**					**E-22-3001**	**AREA 22 ACCESS CONTROL PANEL (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLD227901-C	**NC2**	**1#U/FTP CAT6A**	**NCE220011**	**CAB227901**	**RWYD227901-A**					**E-22-3001**	**AREA 22 ACCESS CONTROL PANEL (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLP228001-A	XHHW2	3#12, 1#12G	MCC229101A	DS228001	RWYP228001-A					E-22-1111	DRY WELL EXHAUST FAN	CC30B
CBLP228001-B	XHHW2	3#12, 1#12G	DS228001	EF228001	RWYP228001-B					E-22-1111	DRY WELL EXHAUST FAN	CC30B
CBLP228002-A	XHHW2	2#12, 1#12G	PNL229302	DS228002	RWYP228002-A					E-22-1102	EXHAUST FAN	CC30B/REV A
CBLP228002-B	XHHW2	2#12, 1#12G	DS228002	EF228002	RWYP228002-B					E-22-1102	EXHAUST FAN	CC30B
CBLP228012-A	XHHW2	3#12, 1#12G	PNL229302	DS228012	RWYP228012-A					E-22-1111	HVAC HEAT EXTRACTOR	CC30B/REV A
CBLP228012-B	XHHW2	3#12, 1#12G	DS228012	HXT228012	RWYP228012-B					E-22-1111	HVAC HEAT EXTRACTOR	CC30B
CBLP228031-A	XHHW2	2#12, 1#12G	PNL229302	DS228031	RWYP228031-A					E-22-1101	UNIT HEATER	CC30B/REV A
CBLP228031-B	XHHW2	2#12, 1#12G	DS228031	UH228031	RWYP228031-B					E-22-1101	UNIT HEATER	CC30B
CBLP228032-A	XHHW2	2#12, 1#12G	PNL229302	DS228032	RWYP228032-A					E-22-1102	UNIT HEATER	CC30B/REV A
CBLP228032-B	XHHW2	2#12, 1#12G	DS228032	UH228032	RWYP228032-B					E-22-1102	UNIT HEATER	CC30B
CBLP228033-A	XHHW2	2#12, 1#12G	PNL229302	DS228033	RWYP228033-A					E-22-1101	UNIT HEATER	CC30B/REV A
CBLP228033-B	XHHW2	2#12, 1#12G	DS228033	UH228033	RWYP228033-B					E-22-1101	UNIT HEATER	CC30B
CBLP228034-A	XHHW2	2#12, 1#12G	PNL229302	DS228034	RWYP228034-A					E-22-1102	UNIT HEATER	CC30B/REV A
CBLP228034-B	XHHW2	2#12, 1#12G	DS228034	UH228034	RWYP228034-B					E-22-1102	UNIT HEATER	CC30B
CBLP228901-A	XHHW2	2#12, 1#12G	PNL229301	CAB228901	RWYP228901-A					E-22-3002	HVAC CONTROL CABINET POWER	CC30B
CBLD228901-A	NC2	1#U/FTP CAT6A	NCE220011	CAB228901	RWYD220011-C					E-22-3002	NETWORK CABINETS	CC30B
CBLP228901-B	XHHW2	2#12, 1#12G	PNL229301	CAB228901	RWYP228901-B					E-22-3002	HVAC TEMP CONTROLS	CC30B
CBLC229101A-A	XHHW2	2#14, 1#14G	CAB220001	MCC229101A	RWYC229101A-A					E-22-3002	MCC POWER MONITOR PMM229101A CONTROLS	CC30B
CBLC229101A-B	XHHW2	6#14, 1#14G	CAB220001	MCC229101A	RWYC229101A-B					E-22-3002	PLC TO MCC NETWORK SWITCH NET229101AB AND POWER SUPPLY	CC30B
CBLC229101A-C	XHHW2	2#14, 1#14G	CAB220001	MCC229101A	RWYC229101A-D					E-22-3002	PLC CONTROLS TO MCC A SPD	CC30B
CBLC229101B-A	XHHW2	2#14, 1#14G	CAB220001	MCC229101B	RWYC229101B-A					I-22-3001	MCC POWER MONITOR PMM229101B CONTROLS	CC30B
CBLC229101B-B	XHHW2	6#14, 1#14G	CAB220001	MCC229101B	RWYC229101B-B					E-22-3001	PLC TO MCC NETWORK SWITCH NET229101BB AND POWER SUPPLY	CC30B
CBLD229101A-A	NC4	1#600V CAT6A	NCE220011	MCC229101A	RWYD229101A-A					E-22-3002	MCC POWER MONITOR PMM229101A	CC30B
CBLC229101B-C	XHHW2	2#14, 1#14G	CAB220001	MCC229101B	RWYC229101B-D					E-22-3001	PLC CONTROLS TO MCC B SPD	CC30B
CBLD229101B-A	NC4	1#600V CAT6A	NCE220011	MCC229101B	RWYD229101B-A					E-22-3001	MCC POWER MONITOR PMM229101B	CC30B
CBLD229101BB-A	NC2	1#U/FTP CAT6A	CAB220001	MCC229101B	RWYD229101BB-A					E-22-3001	NETWORK SWITCH RING - NET220001A TO NET229101BB	CC30B
CBLP229101A-A	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	RWYP160004-A	HH160004	RWYP180002-A	HH180002	RWYP180005-A	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101A-A	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	HH180005	RWYP220001-A	HH220001	RWYP229101A-A		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101A-B	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	RWYP160004-B	HH160004	RWYP180002-B	HH180002	RWYP180005-B	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101A-B	XHHW2	3#750, 1#250G	SWGR169101A	MCC229101A	HH180005	RWYP220001-B	HH220001	RWYP229101A-B		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101AB-A	XHHW2	2#12, 1#12G	PNL229301	MCC229101A	RWYP229101AB-A					E-22-3002	POWER TO MCC A NETWORK SWITCH NET229101AB	CC30B
CBLP229101B-A	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	RWYP160004-C	HH160004	RWYP180002-C	HH180002	RWYP180005-C	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101B-A	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	HH180005	RWYP220001-C	HH220001	RWYP229101B-A		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101B-B	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	RWYP160004-D	HH160004	RWYP180002-D	HH180002	RWYP180005-D	E-00-1014	2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101B-B	XHHW2	3#750, 1#250G	SWGR169101B	MCC229101B	HH180005	RWYP220001-D	HH220001	RWYP229101B-B		E-00-1014	CONTINUED FROM LINE ABOVE. 2 PARALLEL SETS OF CONDUCTORS - CABLE ALSO APPEARS IN AREA 16 AND 00 CABLE SCHEDULE	CC30B
CBLP229101BB-A	XHHW2	2#12, 1#12G	PNL229301	MCC229101B	RWYP229101BB-A					E-22-3001	POWER TO NETWORK SWTICH NET229101BB	CC30B
CBLD229101BB-B	NC4	1#600V CAT6A	MCC229101A	MCC229101B	RWYS229101BB-B					E-22-3001	NETWORK SWITCH RING - NET229101AB TO NET229101BB	CC30B
CBLX229101A-A	PULLROPE	PULLROPE	SWGR169001A	MCC229101A	RWYX160004-A	HH160004	RWYX180002-A	HH180002	RWYX180005-A	E-00-1014	SPARE - ALSO APPEARS IN 00. AND 16 CABLE SCHEDULE	CC30B
CBLX229101A-A	PULLROPE	PULLROPE	SWGR169001A	MCC229101A	HH180005	RWYX220001-A	HH220001	RWYX229101A-C		E-00-1014	CONTINUED FROM LINE ABOVE. SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101A-B	PULLROPE	PULLROPE	HH220001	MCC229101A	RWYX229101A-D					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101A-C	PULLROPE	PULLROPE	HH220002	MCC229101A	RWYX229101A-E					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101B-A	PULLROPE	PULLROPE	SWGR169001B	MCC229101B	RWYX160004-B	HH160004	RWYX180002-B	HH180002	RWYX180005-B	E-00-1014	SPARE - ALSO APPEARS IN 00. AND 16 CABLE SCHEDULE	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLX229101B-A	PULLROPE	PULLROPE	SWGR169001B	MCC229101B	HH180005	RWYX220001-B	HH220001	RWYX229101B-C		E-00-1014	CONTINUED FROM LINE ABOVE. SPARE - ALSO APPEARS IN 22. AND 16 CABLE SCHEDULE	CC30B
CBLX229101B-B	PULLROPE	PULLROPE	HH220001	MCC229101B	RWYX229101B-D					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLX229101B-C	PULLROPE	PULLROPE	HH220002	MCC229101B	RWYX229101B-E					E-00-1014	ALSO APPEARS IN 00 CABLE SCHEDULE.	CC30B
CBLC229201-A	XHHW2	8#14, 1#14G	CAB220001	ATS229201	RWYC229201-A					E-22-3001	RAS-WAS STATION ATS CONTROL	CC30B
CBLP229201-A	XHHW2	3#4, 1#8G	MCC229101A	ATS229201	RWYP229201-A					E-22-3001	480V FEED TO ATS, NORMAL FEED	CC30B
CBLP229201-B	XHHW2	3#4, 1#8G	MCC229101B	ATS229201	RWYP229201-B					E-22-3001	480V FEED TO ATS, ALTERNATE FEED	CC30B
CBLD229201-A	NC4	1#600V CAT6A	NCE220011	ATS229201	RWYD220011-E					E-22-3001	TRANSFER SWITCH TO NETWORK CAINET ETHERNET	CC30B
CBLP229201-C	XHHW2	3#4/0, 1#4G	ATS229201	PNL229201	RWYP229201-C					E-22-3001	ATS TO PNL229201	CC30B/REV A
CBLC229301-A	XHHW2	18#14, 1#14G	CAB220001	UPS229301	RWYC229301-A					E-22-3001	RAS-WAS STATION UPS CONTROL	CC30B/ REV A
CBLC229301-B	XHHW2	8#14, 1#14G	PLC220001	MBS229301	RWYC229301-B					E-22-3001	CONTROL CABLE FROM PLC TO MBS	CC30B/REV A
CBLD229301-A	NC2	1#U/FTP CAT6A	NCE220011	UPS229301	RWYD229301-A					E-22-3001	RAS-WAS STATION UPS NETWORK	CC30B
CBLP229301-A	XHHW2	3#1, 1#6G	MBS229301	PNL229301	RWYP229301-D					E-22-3001	120/208V FEED TO "A BUS" UPS POWER PANEL PNL229301	CC30B
CBLP229301-B	XHHW2	3#1, 1#6G	CB229301	MBS229301	RWYP229301-B					E-22-3001	120/208V FEE TO A UPS MAINTENANCE BYPASS SWITCH MBS229301	CC30B
CBLP229301-C	XHHW2	3#1, 1#1N, 1#6G	XFMR229301	CB229301	RWYP229301-C					E-22-3001	120/208V FEED TO UPS A ENCLOSED CIRCUIT BREAKER CB229301	CC30B
CBLP229301-D	XHHW2	3#4, 1#8G	PNL229201	XFMR229301	RWYP229301-A					E-22-3001	480V FEED TO UPS TRANSFORMER XFMR229301	CC30B/REV A
CBLP229301-E	XHHW2	3#4, 1#8G	MBS229301	UPS229301	RWYP229301-E					E-22-3001	120/208V FEE TO UPS SAFETY DISCONNECT SWITCH DS229301	CC30B/REV A
CBLP229301-F	XHHW2	3#1, 1#6G	UPS229301	MBS229301	RWYP229301-F					E-22-3001	120/208V FEED TO "A BUS" UNINTERRUPTIBLE POWER SUPPLY UPS229301	CC30B
CBLP229302-A	XHHW2	3#4, 1#8G	PNL229201	XFMR229302	RWYP229302-A					E-22-3002	480V FEED FROM PNL TO TRANSFORMER XFMR229302	CC30B/REV A
CBLP229302-B	XHHW2	3#1, 1#1N, 1#6G	XFMR229302	PNL229302	RWYP229302-B					E-22-3002	120/208V FEED TO PNL229302	CC30B/REV A
CBLP227850-A	XHHW2	2#12, 1#12G	PNL229301	PAC227850	RWYP227850-A					E-22-1102	120V POWER FEED TO PAC FOR PA SYSTEM	CC30B
CBLP229301-I	XHHW2	1#12, 1#12N, 1#12G	PNL229301	HH220001	RWYP229301-I					E-00-1014	HH220001 SUMP PUMP. CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULE	CC30B
CBLP229301-J	XHHW2	1#12, 1#12N, 1#12G	PNL229301	HH180005	RWYP229301-J	HH220001	RWYP180005-E			E-00-1014	HH180005 SUMP PUMP. CABLE ALSO APPEARS IN AREA 00 CABLE SCHEDULE	CC30B
CBLX229301-A	PULLROPE	PULLROPE	HH220001	PNL229301	RWYX229301-A					E-00-1014		CC30B
CBLX229301-B	PULLROPE	PULLROPE	HH220001	PNL229301	RWYX229301-A					E-00-1014		CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF220011A-B	HH220002	RWYF220002-A	HH180006	RWYF180006-A	E-22-3002	PLANT FIRE ALARM. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	HH180001	RWYF180001-A	HH160003	RWYF160003-A	HH17001A	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	RWYF17001A-C	HH33010D	RWYF33010D-A	RWYF33010D-AA	CTS330104	E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLF330011CB-A	**FOTSM**	**12 FiberSM**	NCE220011	NCE330002	CTS330105	RWYF330105-B	CTS330201			E-22-3002	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33 AND SITE CABLE SCHEDULES (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLP229101A-C	XHHW2	2#12, 1#12G	PNL229301	MCC229101A	RWYP229101A-C					E-22-3002	POWER TO MCC A PMM229101A	CC30B
CBLP229101B-C	XHHW2	2#12, 1#12G	PNL229301	MCC229101B	RWYP229101B-C					E-22-3001	POWER TO MCC A PMM229101B	CC30B
CBLX227952-A	PULLROPE	PULLROPE	NCE220011	PBX227952	RWYX227952-A					E-22-1202	RAS SELECTOR STAIRWAY CAMERA	CC30B
CBLX227950-A	PULLROPE	PULLROPE	**CAB227901**	PBX227950	RWYX227950-A					E-22-1211	RAS SELECTOR ELEC BUILDING ROOF SOUTHWEST CORNER CAMERA (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLX227951-A	PULLROPE	PULLROPE	**CAB227901**	PBX227951	RWYX227951-A					E-22-1211	RAS SELECTOR ELEC BUILDING ROOF SOUTHEAST CORNER CAMERA (CCF 020 CHANGE ORDER PENDING)	CC30B

Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**RWYF240011-A**	**CTS24**	**RWYF24224-E**	**HH24224**	**RWYF24225-E**	E-00-1005	CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE020011	**HH24225**	**RWYF24225-B**	**HH020001**	**RWYF020011-B**		E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULE **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	**RWYF240011-B**	CTS24	RWYF240000-C	HH24224	RWYF24224-C	E-00-1005	PLANT FIRE ALARM. CABLE ALSO APPEARS ON SITE AND AREA 02 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLF020011BB-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE020011	HH24225	RWYF24225-A	HH020001	RWYF020011-C		E-00-1005	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD210001A-A	NC2	1#U/FTP CAT6A	RIO21A	CAB210001	RWYD210001A-A					E-21-1201		CC30B
CBLD210001A-E	NC2	1#U/FTP CAT6A	NCE210011	LV21A	RWYD210001A-E					E-21-1201	PQM219001A NETWORK CABLE.	CC30B
CBLD210001B-C	NC2	1#U/FTP CAT6A	NCE210011	LV21B	RWYD210001B-C					E-21-1201	PQM219001B NETWORK CABLE.	CC30B
CBLF210001A-A	FOTSM	2 FiberSM	NCE210011	CAB210001	RWYF21001A-A					E-21-1201	TWO 2-FIBER, SINGLE MODE PATCH CABLES. SEE I-21-6101.	CC30B
CBLF210001A-B	FOTSM	2 FiberSM	NCE210011	CAB210001	RWYF21001A-A					E-21-1201	TWO 2-FIBER, SINGLE MODE PATCH CABLES. SEE I-21-6101.	CC30B
CBLP210001-A	XHHW2	2#12, 1#12G	JP21	CAB210001	RWYP210001-A					E-21-1101	PLC POWER.	CC30B
CBLP210001-B	XHHW2	2#12, 1#12G	JP24	CAB210001	RWYP210001-B					E-21-1101	PLC POWER. ALSO ON SITE CABLE SCHEDULE.	CC30B
CBLP210001A-E	TCER	2#12, 1#12G	JP24	LV21A	RWYP210011-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210001A-E	E-21-1101	PQM219001A POWER. ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30B
CBLP210001B-C	TCER	2#12, 1#12G	JP24	LV21B	RWYP210011-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210001B-C	E-21-1101	PQM219001B POWER. ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30B
CBLP210001-C	XHHW2	2#12, 1#12G	LP21L	CAB210001	RWYP210001-C					E-21-1101	PLC POWER.	CC30B
CBLD210011A-A	NC4	1#600V CAT6A	MCC 21A	NCE210011	RWYD210011A-A					E-21-1201	PMM219101A NETWORK CABLE.	CC30B
CBLD210011A-B	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201	ETHERNET FROM NET210001A TO TPP210011A. (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLD210011A-C	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201	ETHERNET FROM PLC210001 PROCESSOR A ECM TO TPP210011A	CC30B
~~**CBLD210011A-D**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB210001**~~	~~**NCE210011**~~	~~**RWYD210011A-B**~~					~~**E-21-1201**~~	~~**ETHERNET FROM PLC210001 PROCESSOR A ECM TO TPP210011A**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30B**~~
CBLD210011A-E	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201		CC30B
CBLD210011A-F	**NC4**	**1#600V CAT6A**	**MCC21A**	**NCE210011**	**RWYD210011A-A**					**E-21-1201**	**ETHERNET FROM NET219101AA TO TPP210011A (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLD210011A-G	**NC4**	**1#600V CAT6A**	**MCC21B**	**NCE210011**	**RWYD210011B-A**					**E-21-1201**	**ETHERNET FROM NET219101BA TO TPP210011A (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLD210011B-A	NC4	1#600V CAT6A	MCC 21B	NCE210011	RWYD210011B-A					E-21-1201	PMM219101B NETWORK CABLE.	CC30B
CBLD210011B-B	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201	ETHERNET FROM NET210001A TO TPP210011B (CCF 020 CHANGE ORDER PENDING)	CC30B
CBLD210011B-C	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201	ETHERNET FROM PLC210001 PROCESSOR B ECM TO TPP210011B	CC30B
~~**CBLD210011B-D**~~	~~**NC2**~~	~~**1#U/FTP CAT6A**~~	~~**CAB210001**~~	~~**NCE210011**~~	~~**RWYD210011A-B**~~					~~**E-21-1201**~~	~~**ETHERNET FROM PLC210001 PROCESSOR B ECM TO TPP210011B**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30B**~~
CBLD210011B-E	NC2	1#U/FTP CAT6A	CAB210001	NCE210011	RWYD210011A-B					E-21-1201		CC30B
CBLD210011B-F	**NC4**	**1#600V CAT6A**	**MCC21A**	**NCE210011**	**RWYD210011A-A**					**E-21-1201**	**ETHERNET FROM NET219101AA TO TPP210011B (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLD210011B-G	**NC4**	**1#600V CAT6A**	**MCC21B**	**NCE210011**	**RWYD210011B-A**					**E-21-1201**	**ETHERNET FROM NET219101BA TO TPP210011B (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLD210011C-A	NC2	1#U/FTP CAT6A	WAP	NCE210011	RWYD210011C-A					E-21-1201		CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	RWYF020011-B	HH020001	RWYF24225-B	HH24225	RWYF24225-D	E-21-1201	FIBER OPTIC CABLE TO EXISTING AREA 21 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULE	CC5F/REV.A
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	HH24224	RWYF240000-C	CTS24	RWYF210001B-B	PBX210001S-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULE	CC5F/REV.A
CBLF210011A-D	FOTMM	24 FiberMM	NCE020011	NTWRK	RWYF210000-A					E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULE	CC5F/REV.A
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITECABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF341002-B	MH341002	RWYF001002-F	HH001002	RWYF23613-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	MH23613	RWYF230001A-B	JBX230001-A	RWYF230001B-B	JBX230001-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF230001B-C	HH020001	RWYF24225-B	HH24225	RWYF24224-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	HH24224	RWYF240000-B	CTS24	RWYF210001B-A	PBX210001S-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF210011-B					E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 23, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011DA-A	**FOTSM**	**12 FiberSM**	**NCE240011**	NCE210011	**RWYF240011-A**	CTS24	RWYF210001-C	PBX210001S-A	RWYF210011-C	E-21-1201	PLANT FIRE ALARM. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLP210011A-A	TCER	2#12, 1#12G	JP24	MCC 21A	RWYP219101-A	CTP24	RWYP210001P-A	PBX210001P	RWYP210011A-A	E-21-1101	PMM219101A POWER	CC30B
CBLP210011B-A	TCER	2#12, 1#12G	JP24	MCC 21B	RWYP219101-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210011B-A	E-21-1101	PMM219101B POWER. ALSO APPEARS ON SITE CABLE SCHEDULE.	CC30B
CBLP210011-A	XHHW2	2#12, 1#12G	JP21	NCE210011	RWYP210011-A					E-21-1101	NCE210011 POWER (TO RACK-MOUNTED UPS IN NCE).	CC5F
CBLP210011-B	TCER	2#12, 1#12G	JP24	TBX210011	RWYP210011-C	CTP24	RWYP210001P-A	PBX210001P	RWYP210011-D	E-21-1101	NCE210011 POWER. ALSO ON SITE CABLE SCHEDULE.	CC5F
CBLC210021A-A	XHHW2	2#14, 1#14G	RIO21A	MCC 21A	RWYC210021A-A					E-21-1101	CONTROL CABLE TO SPD210001A	CC30B
CBLC210021A-B	XHHW2	2#14, 1#14G	RIO21A	MCC 21A	RWYC210021A-B					E-21-1101	CONTROL CABLE TO PMM210001A	CC30B
CBLC210021B-A	XHHW2	2#14, 1#14G	RIO21B	MCC 21B	RWYC210021B-A					E-21-1101	CONTROL CABLE TO SPD210001B	CC30B
CBLC210021B-B	XHHW2	2#14, 1#14G	RIO21B	MCC 21B	RWYC210021B-B					E-21-1101	CONTROL CABLE TO PMM210001B	CC30B
CBLC210101-A	XHHW2	8#14, 1#14G	VFD210101	CS210101	RWYC210101-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210101-B	XHHW2	2#14, 1#14G	CS210101	TSH210101	RWYC210101-B					E-21-1111	TSH210101	CC30B
CBLC210101-C	XHHW2	2#14, 1#14G	VFD210101	FSL210101	RWYC210101-C					E-21-1111	FSL210101	CC30B
CBLC210101-D	XHHW2	2#14, 1#14G	VFD210101	SV210101	RWYC210101-D					E-21-1111	SV210101	CC30B
CBLC210101-E	XHHW2	2#14, 1#14G	RIO21A	FIT210101	RWYC210101-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210101-A	NC4	1#600V CAT6A	RIO21A	VFD210101	RWYD210101-A					E-21-1201		CC30B
CBLP210101-A	VFD2	3#1, 3#10G	MCC21A	VFD210101	RWYP210101-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210101-B	VFD2	3#1, 3#10G	VFD210101	M210101	RWYP210101-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210101-A	INS	1TR #16SH	VFD210101	CS210101	RWYS210101-A					E-21-1211	SK210101	CC30B
CBLS210101-B	INS	1PR #16SH	VFD210101	CS210101	RWYS210101-A					E-21-1211	SI210101	CC30B
CBLS210101-C	INS	1PR #16SH	RIO21A	FIT210101	RWYS210101-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210101-A	VENDOR	Special	FIT210101	FE210101	RWYV210101					E-21-1211		CC30B
CBLC210102-A	XHHW2	8#14, 1#14G	VFD210102	CS210102	RWYC210102-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210102-B	XHHW2	2#14, 1#14G	CS210102	TSH210102	RWYC210102-B					E-21-1111	TSH210102	CC30B
CBLC210102-C	XHHW2	2#14, 1#14G	VFD210102	FSL210102	RWYC210102-C					E-21-1111	FSL210102	CC30B
CBLC210102-D	XHHW2	2#14, 1#14G	VFD210102	SV210102	RWYC210102-D					E-21-1111	SV210102	CC30B
CBLC210102-E	XHHW2	2#14, 1#14G	RIO21B	FIT210102	RWYC210102-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210102-A	NC4	1#600V CAT6A	RIO21B	VFD210102	RWYD210102-A					E-21-1201		CC30B
CBLP210102-A	VFD2	3#1, 3#10G	MCC21B	VFD210102	RWYP210102-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP210102-B	VFD2	3#1, 3#10G	VFD210102	M210102	RWYP210102-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210102-A	INS	1TR #16SH	VFD210102	CS210102	RWYS210102-A					E-21-1211	SK210102	CC30B
CBLS210102-B	INS	1PR #16SH	VFD210102	CS210102	RWYS210102-A					E-21-1211	SI210102	CC30B
CBLS210102-C	INS	1PR #16SH	RIO21B	FIT210102	RWYS210102-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210102-A	VENDOR	Special	FIT210102	FE210102	RWYV210102					E-21-1211		CC30B
CBLC210103-A	XHHW2	8#14, 1#14G	VFD210103	CS210103	RWYC210103-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210103-B	XHHW2	2#14, 1#14G	CS210103	TSH210103	RWYC210103-B					E-21-1111	TSH210103	CC30B
CBLC210103-C	XHHW2	2#14, 1#14G	VFD210103	FSL210103	RWYC210103-C					E-21-1111	FSL210103	CC30B
CBLC210103-D	XHHW2	2#14, 1#14G	VFD210103	SV210103	RWYC210103-D					E-21-1111	SV210103	CC30B
CBLC210103-E	XHHW2	2#14, 1#14G	RIO21A	FIT210103	RWYC210103-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210103-A	NC4	1#600V CAT6A	RIO21A	VFD210103	RWYD210103-A					E-21-1201		CC30B
CBLP210103-A	VFD2	3#1, 3#10G	MCC21A	VFD210103	RWYP210103-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210103-B	VFD2	3#1, 3#10G	VFD210103	M210103	RWYP210103-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210103-A	INS	1TR #16SH	VFD210103	CS210103	RWYS210103-A					E-21-1211	SK210103	CC30B
CBLS210103-B	INS	1PR #16SH	VFD210103	CS210103	RWYS210103-A					E-21-1211	SI210103	CC30B
CBLS210103-C	INS	1PR #16SH	RIO21A	FIT210103	RWYS210103-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210103-A	VENDOR	Special	FIT210103	FE210103	RWYV210103					E-21-1211		CC30B
CBLC210104-A	XHHW2	8#14, 1#14G	VFD210104	CS210104	RWYC210104-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210104-B	XHHW2	2#14, 1#14G	CS210104	TSH210104	RWYC210104-B					E-21-1111	TSH210104	CC30B
CBLC210104-C	XHHW2	2#14, 1#14G	VFD210104	FSL210104	RWYC210104-C					E-21-1111	FSL210104	CC30B
CBLC210104-D	XHHW2	2#14, 1#14G	VFD210104	SV210104	RWYC210104-D					E-21-1111	SV210104	CC30B
CBLC210104-E	XHHW2	2#14, 1#14G	RIO21B	FIT210104	RWYC210104-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210104-A	NC4	1#600V CAT6A	RIO21B	VFD210104	RWYD210104-A					E-21-1201		CC30B
CBLP210104-A	VFD2	3#1, 3#10G	MCC21B	VFD210104	RWYP210104-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210104-B	VFD2	3#1, 3#10G	VFD210104	M210104	RWYP210104-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210104-A	INS	1TR #16SH	VFD210104	CS210104	RWYS210104-A					E-21-1211	SK210104	CC30B
CBLS210104-B	INS	1PR #16SH	VFD210104	CS210104	RWYS210104-A					E-21-1211	SI210104	CC30B
CBLS210104-C	INS	1PR #16SH	RIO21B	FIT210104	RWYS210104-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210104-A	VENDOR	Special	FIT210104	FE210104	RWYV210104					E-21-1211		CC30B
CBLC210105-A	XHHW2	8#14, 1#14G	VFD210105	CS210105	RWYC210105-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210105-B	XHHW2	2#14, 1#14G	CS210105	TSH210105	RWYC210105-B					E-21-1111	TSH210105	CC30B
CBLC210105-C	XHHW2	2#14, 1#14G	VFD210105	FSL210105	RWYC210105-C					E-21-1111	FSL210105	CC30B
CBLC210105-D	XHHW2	2#14, 1#14G	VFD210105	SV210105	RWYC210105-D					E-21-1111	SV210105	CC30B
CBLC210105-E	XHHW2	2#14, 1#14G	RIO21A	FIT210105	RWYC210105-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210105-A	NC4	1#600V CAT6A	RIO21A	VFD210105	RWYD210105-A					E-21-1201		CC30B
CBLP210105-A	VFD2	3#1, 3#10G	MCC21A	VFD210105	RWYP210105-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210105-B	VFD2	3#1, 3#10G	VFD210105	M210105	RWYP210105-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210105-A	INS	1TR #16SH	VFD210105	CS210105	RWYS210105-A					E-21-1211	SK210105	CC30B
CBLS210105-B	INS	1PR #16SH	VFD210105	CS210105	RWYS210105-A					E-21-1211	SI210105	CC30B
CBLS210105-C	INS	1PR #16SH	RIO21A	FIT210105	RWYS210105-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210105-A	VENDOR	Special	FIT210105	FE210105	RWYV210105					E-21-1211		CC30B
CBLC210106-A	XHHW2	8#14, 1#14G	VFD210106	CS210106	RWYC210106-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210106-B	XHHW2	2#14, 1#14G	CS210106	TSH210106	RWYC210106-B					E-21-1111	TSH210106	CC30B
CBLC210106-C	XHHW2	2#14, 1#14G	VFD210106	FSL210106	RWYC210106-C					E-21-1111	FSL210106	CC30B
CBLC210106-D	XHHW2	2#14, 1#14G	VFD210106	SV210106	RWYC210106-D					E-21-1111	SV210106	CC30B
CBLC210106-E	XHHW2	2#14, 1#14G	RIO21B	FIT210106	RWYC210106-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210106-A	NC4	1#600V CAT6A	RIO21B	VFD210106	RWYD210106-A					E-21-1201		CC30B
CBLP210106-A	VFD2	3#1, 3#10G	MCC21B	VFD210106	RWYP210106-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210106-B	VFD2	3#1, 3#10G	VFD210106	M210106	RWYP210106-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210106-A	INS	1TR #16SH	VFD210106	CS210106	RWYS210106-A					E-21-1211	SK210106	CC30B
CBLS210106-B	INS	1PR #16SH	VFD210106	CS210106	RWYS210106-A					E-21-1211	SI210106	CC30B
CBLS210106-C	INS	1PR #16SH	RIO21B	FIT210106	RWYS210106-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210106-A	VENDOR	Special	FIT210106	FE210106	RWYV210106					E-21-1211		CC30B
CBLC210107-A	XHHW2	8#14, 1#14G	VFD210107	CS210107	RWYC210107-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210107-B	XHHW2	2#14, 1#14G	CS210107	TSH210107	RWYC210107-B					E-21-1111	TSH210107	CC30B
CBLC210107-C	XHHW2	2#14, 1#14G	VFD210107	FSL210107	RWYC210107-C					E-21-1111	FSL210107	CC30B
CBLC210107-D	XHHW2	2#14, 1#14G	VFD210107	SV210107	RWYC210107-D					E-21-1111	SV210107	CC30B
CBLC210107-E	XHHW2	2#14, 1#14G	RIO21A	FIT210107	RWYC210107-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210107-A	NC4	1#600V CAT6A	RIO21A	VFD210107	RWYD210107-A					E-21-1201		CC30B
CBLP210107-A	VFD2	3#1, 3#10G	MCC21A	VFD210107	RWYP210107-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B
CBLP210107-B	VFD2	3#1, 3#10G	VFD210107	M210107	RWYP210107-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210107-A	INS	1TR #16SH	VFD210107	CS210107	RWYS210107-A					E-21-1211	SK210107	CC30B
CBLS210107-B	INS	1PR #16SH	VFD210107	CS210107	RWYS210107-A					E-21-1211	SI210107	CC30B
CBLS210107-C	INS	1PR #16SH	RIO21A	FIT210107	RWYS210107-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210107-A	VENDOR	Special	FIT210107	FE210107	RWYV210107					E-21-1211		CC30B
CBLC210108-A	XHHW2	8#14, 1#14G	VFD210108	CS210108	RWYC210108-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT	CC30B
CBLC210108-B	XHHW2	2#14, 1#14G	CS210108	TSH210108	RWYC210108-B					E-21-1111	TSH210108	CC30B
CBLC210108-C	XHHW2	2#14, 1#14G	VFD210108	FSL210108	RWYC210108-C					E-21-1111	FSL210108	CC30B
CBLC210108-D	XHHW2	2#14, 1#14G	VFD210108	SV210108	RWYC210108-D					E-21-1111	SV210108	CC30B
CBLC210108-E	XHHW2	2#14, 1#14G	RIO21B	FIT210108	RWYC210108-E					E-21-1111	FIT 24VDC POWER.	CC30B
CBLD210108-A	NC4	1#600V CAT6A	RIO21B	VFD210108	RWYD210108-A					E-21-1201		CC30B
CBLP210108-A	VFD2	3#1, 3#10G	MCC21B	VFD210108	RWYP210108-A					E-21-1101	87A VFD RATED INPUT, 100A BREAKER IN MCC	CC30B

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLP210108-B	VFD2	3#1, 3#10G	VFD210108	M210108	RWYP210108-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE.	CC30B
CBLS210108-A	INS	1TR #16SH	VFD210108	CS210108	RWYS210108-A					E-21-1211	SK210108	CC30B
CBLS210108-B	INS	1PR #16SH	VFD210108	CS210108	RWYS210108-A					E-21-1211	SI210108	CC30B
CBLS210108-C	INS	1PR #16SH	RIO21B	FIT210108	RWYS210108-B					E-21-1211	FIT SIGNAL	CC30B
CBLV210108-A	VENDOR	Special	FIT210108	FE210108	RWYV210108					E-21-1211		CC30B
CBLD219101AA-A	NC4	1#600V CAT6A	**CAB210001A**	MCC 21A	RWYD219101AA-A					E-21-1201	**ETHERNET FROM NET210001A TO NET219101AA. (CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLD219101AA-B	NC4	1#600V CAT6A	RIO21B	MCC 21A	RWYD219101AA-B					E-21-1201	**ETHERNET CABLE BETWEEN RIO21B AND RIO21A (CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLD219101BA-A	NC4	1#600V CAT6A	CAB210001	MCC 21B	RWYD219101BA-A					E-21-1201	TO RIO21B. **(CCF 020 CHANGE ORDER PENDING).**	CC30B
~~**CBLD219101BA-B**~~	~~**NC4**~~	~~**1#600V CAT6A**~~	~~**RIO21B**~~	~~**MCC 21B**~~	~~**RWYD219101BA-B**~~					~~**E-21-1201**~~	~~**INTERNAL TO MCC 21. TO NET219101BA. (CCF 020 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
CBLP219101-A	TCER	2#12, 1#12G	JP24	MCC 21A	RWYP219101-A	CTP24	RWYP210001P-A	PBX210001P	RWYP210011A-A	E-21-1101	NET219101AA POWER	CC30B
CBLP219101-B	TCER	2#12, 1#12G	JP24	MCC 21B	RWYP219101-B	CTP24	RWYP210001P-A	PBX210001P	RWYP210011B-A	E-21-1101	NET219101BA POWER	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	**RWYF240011-B**	CTS24	RWYF24224-D	HH24224	RWYF24225-D	E-00-1005	CABLE ALSO APPEARS ON SITE AND AREA 23 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	HH24225	RWYF020001-C	HH020001	RWYF230001B-C	JBX230001-B	E-00-1005	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	RWYF230011-B					E-00-1005	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLP230390-A	XHHW2	3#10, 1#10G	MCC21A	DS230390	RWYP21002C-A	HH21002C	RWYP21001C-A	HH21001C	RWYP230390-A	E-21-1101	CP230390 POWER. CABLE ALSO APPEARS ON SITE AND AREA 23 CABLE SCHEDULES.	CC5F/REV.A
CBLF240010-A	**FOTSM**	**6 FiberSM**	**NCE240011**	**FACP240010**	**RWYF240010-A**					**E-24-1211**	**6-STRAND FIBER OPTIC CABLE FOR FIRE ALARM SYSTEM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLD240011-A	NC2	1#U/FTP CAT6A	NCE240011	UPS24	RWYD240011-A					E-24-1211		CC30B
CBLD240011-B	NC4	1#600V CAT6A	NCE240011	MCC24A	RWYD240011-B					E-24-1211	FOR POWER MONITOR.	CC30B
CBLD240011-C	NC2	1#U/FTP CAT6A	RIO24A	NCE240011	RWYD240011-C					E-24-1211		CC30B
CBLD240011-D	NC2	1#U/FTP CAT6A	NCE240011	RIO24B	RWYD240011-D					E-24-1211		CC30B
CBLD240011-E	NC4	1#600V CAT6A	NCE240011	MCC24B	RWYD240011-E					E-24-1211	FOR POWER MONITOR.	CC30B
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**CTS340202**	**CTS340201**	**RWYF340013A-A**	**CTS340013A**	**RWYF341002-D**	**E-24-1211**	**CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULE (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**MH341002**	**RWYF001002-D**	**HH001002**	**RWYF23613-D**	**MH23613**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF230001A-A**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-A**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**HH020001**	**RWYF24225-A**	**HH24225**	**RWYF24224-A**	**HH24224**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF240000-A**	**CTS24**	**RWYF240011-A**			**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF340003A-A**	**CTS340003A**	**CTS340005A**	**CTS340025A**	**CTS340023A**	**E-24-1211**	**FIRE FIBER OPTIC RING (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS340021A**	**CTS340017A**	**CTS340013A**	**RWYF341002-C**	**MH341002**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF001002-G**	**HH001002**	**RWYF23613-C**	**MH23613**	**RWYF230001A-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-B**	**HH020001**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**RWYF24225-A**	**HH24225**	**RWYF24224-C**	**HH24224**	**RWYF240000-C**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF240011CA-A	**FOTSM**	**12 FiberSM**	**NCE340101**	**NCE240011**	**CTS24**	**RWYF240011-B**				**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLP240011A-A	XHHW2	2#12, 1#12G	JP21	NCE240011	RWYP240011A-B	PBX210001P	RWYP210001P-A	CTP24	RWYP240011A-A	E-24-1211	NCE240011 POWER (TO RACK-MOUNTED UPS IN NCE).	CC30B
CBLP240011A-B	XHHW2	2#12, 1#12G	JP24	TBX240011	RWYP240011A-B					E-24-1211	UPS POWER FEED FOR NCE240011	CC30B
CBLP240011-B	XHHW2	2#12, 1#12G	JP24	MCC24A	RWYP240011-B					E-24-1211	PMM240001A POWER	CC30B
CBLP240011-E	XHHW2	2#12, 1#12G	JP24	MCC24B	RWYP240011-E					E-24-1211	PMM24B POWER	CC30B
CBLC240024A-A	XHHW2	2#14, 1#14G	RIO24A	MCC24A	RWYC240024A-A					E-24-1211	FOR POWER MONITOR. INTERNAL TO MCC24A.	CC30B
CBLC240024B-A	XHHW2	2#14, 1#14G	RIO24B	MCC24B	RWYC240024B-A					E-24-1211	FOR POWER MONITOR. INTERNAL TO MCC24B.	CC30B
CBLD240024A-A	NC2	1#U/FTP CAT6A	RIO24B	RIO24A	RWYD240024A-A					N/A	INTERNAL TO MCC24	CC30B
CBLF249101A-A	FOTSM	**48 FiberSM**	NCE210011	NCE240011	RWYF210011-B	PBX210001S-B	RWYF210001B-B	CTS24	RWYF240011-B	E-00-1005	CABLE ALSO APPEARS ON SITE CABLE SCHEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
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Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-02-1203	CABLE FROM NEW NETWORK CABINET IN AREA 33 CONTROL ROOM. CABLE ALSO APPEARS IN AREA 02, 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	MH23613	RWYF230001A-A	JBX230001-A	RWYF020011-A	JBX230001-B	E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF020011AB-A	FOTSM	48 FiberSM	NCE330001	NCE020011	RWYF230001B-C	HH020001	RWYF020011-B			E-02-1203	CONTINUED FROM ROUTING ABOVE	CC30A
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011A-A	FOTSM	**48 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-21-1201	CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF341002-B	MH341002	RWYF001002-F	HH001002	RWYF23613-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	MH23613	RWYF230001A-B	JBX230001-A	RWYF230001B-B	JBX230001-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF230001B-C	HH020001	RWYF24225-B	HH24225	RWYF24224-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	HH24224	RWYF240000-B	CTS24	RWYF210001B-A	PBX210001S-B	E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011B-A	FOTSM	**96 FiberSM**	NCE330001	NCE210011	RWYF210011-B					E-21-1201	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21, 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	RWYF340003A-A	CTS340003A	CTS340005A	CTS340025A	CTS340023A	E-21-1201	PLANT FIRE ALARM. CABLE ALSO APPEARS ON AREA 21, SITE AND AREA 34 CABLE SCHEDULES.	CC30A
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	CTS340021A	CTS340017A	CTS340013A	RWYF341002-C	MH341002	E-21-1201	CONTINUED FROM LINE ABOVE.	CC30A
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	RWYF001002-G	HH001002	RWYF23613-C	MH23613	RWYF230001A-C	E-21-1201	CONTINUED FROM LINE ABOVE.	CC30A
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-B	HH020001	E-21-1201	CONTINUED FROM LINE ABOVE.	CC30A
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	RWYF24225-A	HH24225	RWYF24224-C	HH24224	RWYF240000-C	E-21-1201	CONTINUED FROM LINE ABOVE.	CC30A
CBLF210011DA-A	FOTMM	12 FiberMM	NCE340101	NCE210011	CTS24	RWYF210001-C	PBX210001S-A	RWYF210011-C		E-21-1201	CONTINUED FROM LINE ABOVE.	CC30A
CBLF230005A-A	FOTMM	12 FiberMM	NCE020011	CAB230005	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF230005-A	E-23-1102	FIBER OPTIC BACK TO AREA 02 AREA PLC. CABLE ASLO SHOWS UP IN AREA 02 AND SITE SCHEDULES	CC5F
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	**RWYF240011-B**	CTS24	RWYF24224-D	HH24224	RWYF24225-D	E-23-1102	48-STRAND. CABLE ALSO APPEARS IN AREA 24 SHCEDULE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	HH24225	RWYF020001-C	HH020001	RWYF230001B-C	JBX230001-B	E-23-1102	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-B	FOTSM	48 FiberSM	**NCE240011**	NCE230011	RWYF230011-B					E-23-1102	CONTINUED FROM LINE ABOVE **(CCF 020 CHANGE ORDER PENDING)**	CC30B
CBLF230011A-C	FOTSM	24 FiberSM	NCE020011	NCE230011	RWYF020011-B	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B	E-23-1102	FIBER OPTIC CABLE TO FOP230011A. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES.	CC5F

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS330201	RWYF330105-D	CTS330105	CTS330104	RWYF330104-D	E-23-1102	CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	CTS340002B	CTS340004B	CTS340010B	CTS340016B	CTS340014B	E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	RWYF341002-A	MH341002	RWYF001002-E	HH001002	RWYF23613-A	E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011AB-A	FOTSM	48 FiberSM	NCE330001	NCE230011	MH23613	RWYF230001A-A	JBX230001-A	RWYF230011-A		E-23-1102	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES	CC30A
CBLF230011BA-A	**FOTSM**	**12 FiberSM**	NCE020011	NCE230011	RWYF020011-C	HH020001	RWYF020001-B	JBX230001-B	RWYF230011-D	E-23-1102	PLANT FIRE ALARM FIBER. CABLE ALSO APPEARS IN AREA 02 AND SITE CABLE SCHEDULES **(CCF 020 CHANGE ORDER PENDING)**	CC5F
CBLD236001A-A	NC4	1#600V CAT6A	NCE230011	MCC23600A	RWYD236001A-A						TO PMM236001A	CC30A / REV A
CBLD236001B-A	NC4	1#600V CAT6A	NCE230011	MCC23600B	RWYD236001B-A						TO PMM236001B	CC30A / REV A
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**CTS340202**	**CTS340201**	**RWYF340013A-A**	**CTS340013A**	**RWYF341002-D**	**E-24-1211**	**CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 , AREA 21 AND SITE CABLE SCHEDULE (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**MH341002**	**RWYF001002-D**	**HH001002**	**RWYF23613-D**	**MH23613**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF230001A-A**	**JBX230001-A**	**RWYF230001B-A**	**JBX230001-B**	**RWYF020001-A**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**HH020001**	**RWYF24225-A**	**HH24225**	**RWYF24224-A**	**HH24224**	**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF240011A-A	**FOTSM**	**144 FiberSM**	**NCR340001**	**NCE240011**	**RWYF240000-A**	**CTS24**	**RWYF240011-A**			**E-24-1211**	**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF230011-C	JBX230001-A	RWYF230001A-C	MH23613	RWYF23613-C	E-33-1221	PLANT FIRE ALARM FIBER. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	HH001002	RWYF001002-G	MH341002	RWYF341002-C	CTS340013A	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340017A	CTS340021A	CTS340023A	CTS340025A	CTS340005A	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	CTS340003A	CTS340001A	RWYF330104-E	CTS330104	CTS330105	E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLF330011CA-A	**FOTSM**	**12 FiberSM**	NCE230011	NCE330002	RWYF330105-B	CTS330201				E-33-1221	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 33, 34 AND SITE CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING)**	CC30A

Engineer: JDC
February 2021

Cable Schedule

CABLE TAG	TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLF000011BA-B	**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**RWYF290011A-A**	**JBX000010**	**RWYF000010-A**	**CTS000002B**	**CTS000004B**	**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF000011BA-B	**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**CTS000006B**	**RWYF000011BA-A**				**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340202	CTS340206	CTS340203	CTS340205	RWYF340001A-C	E-00-1010	CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULE	CC30A
CBLF280011A-A	FOTSM	96 FiberSM	NCR340001	NCE280011	CTS340001A	RWYF000001A-C	CTS000001A	RWYF280011A-A		E-00-1010	CABLE ALSO APPEARS IN 34 AREA CABLE SCHEDULE	CC30A
CBLF280011B-A	FOTSM	96 FiberSM	NCE290011	NCE280011	RWYF290011A-A	JBX000010	RWYF280011B-A			E-00-1011	CABLE ALSO APPEARS IN SITE CABLE SCHEDULE	CC30A
CBLH290000A-A	MV105	3#500, 1#4/0G	SWGR340133A	SUB29A	CTH340005A	CTH340003A	CTH10133A	CTH30133A	RWYH290000A-A	E-00-1012	REPLACES EXISTING CABLE H29001A AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLH290000B-A	MV105	3#500, 1#4/0G	SWGR340133B	SUB29B	CTH340006B	CTH340004B	CTH10133B	CTH30133B	RWYH290000B-A	E-00-1012	REPLACES EXISITNG CABLE H29001B AT CONTRACTORS OPTION GROUNDING CONDUCTOR MAY BE 600V TRAY RATED XHHW-2 OR RHW-2. CABLE ALSO APPEARS IN 34 CABLE SCHEDULE	CC30A
CBLC290001A-A	XHHW2	2#14, 1#14G	RIO29A	MCC 29A	RWYC290001A-A					E-29-1101	CONTROL FEED TO PMM290001A	CC30A
CBLC290001A-B	XHHW2	2#14, 1#14G	RIO29A	MCC 29A	RWYC290001A-A					E-29-1101	CONTROL FEED TO SPD290001A	CC30A
CBLC290001B-A	XHHW2	2#14, 1#14G	RIO29B	MCC 29B	RWYC290001B-A					E-29-1101	CONTROL FEED TO PMM290001B	CC30A
CBLC290001B-B	XHHW2	2#14, 1#14G	RIO29B	MCC 29B	RWYC290001B-A					E-29-1101	CONTROL FEED TO SPD290001B	CC30A
CBLC290001C-A	XHHW2	2#14, 1#14G	RIO29C	MCC 29C	RWYC290001C-A					E-29-1101	CONTROL FEED TO PMM290001C	CC30A
CBLC290001C-B	XHHW2	2#14, 1#14G	RIO29C	MCC 29C	RWYC290001C-A					E-29-1101	CONTROL FEED TO SPD290001C	CC30A
CBLD290001A-A	NC4	1#600V CAT6A	NCE290011	MCC 29A	RWYD290001A-A					E-29-1101	ETHERNET TO PMM290001A	CC30A
CBLD290001B-A	NC4	1#600V CAT6A	NCE290011	MCC 29B	RWYD290001B-A					E-29-1101	ETHERNET TO PMM290001B	CC30A
CBLD290001C-A	NC4	1#600V CAT6A	NCE290011	MCC 29C	RWYD290001C-A					E-29-1101	ETHERNET TO PMM290001C	CC30A
CBLP290001A-A	XHHW2	2#12, 1#12G	JP PANEL 29A	MCC 29A	RWYP290001A-A					E-29-1101	UPS POWER FOR PMM290001A	CC30A
CBLP290001B-A	XHHW2	2#12, 1#12G	JP PANEL 29A	MCC 29B	RWYP290001B-A					E-29-1101	UPS POWER FOR PMM290001B	CC30A
CBLP290001C-A	XHHW2	2#12, 1#12G	JP PANEL 29A	MCC 29C	RWYP290001C-A					E-29-1101	UPS POWER FOR PMM290001C	CC30A
CBLF290010-A	**FOTSM**	**6 FiberSM**	**NCE290011**	**FACP290010**	**RWYF290010-A**					**E-29-1101**	**PLANT FIRE ALARM. FACP290010-A IS LOCATED ON THE UPPER FLOOR IN THE HVAC ROOM DIRECTLY ABOVE THE ELECTRICAL ROOM. CONTRACTOR TO FIELD ROUTE THE CONDUIT AND COORDINATE ANY REQUIRED CONDUIT PENETRATIONS. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS330201	RWYF330105-E	CTS330105	CTS330103	RWYF000002B-D	E-00-1010	CABLE ALSO APPEARS IN 33 AREA CABLE SCHEDULE	CC30A
CBLF290011A-A	FOTSM	96 FiberSM	NCE330001	NCE290011	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A		E-00-1010		
CBLF290011BA-A	**FOTSM**	**12 FiberSM**	NCE130011	NCE290011	RWYF130011B-A	CTS000002B	RWYF000010-A	JBX000010	RWYF290011A-A	E-00-1012	PLANT FIRE ALARM **(CCF 020 CHANGE ORDER PENDING)**	CC30A
CBLP290011-A	XHHW2	2#12, 1#12G	JP PANEL 29	NCE290011	RWYP290011-A					E-29-1101	120V UPS FEED	CC30A
CBLP290011-B	XHHW2	2#12, 1#12G	LP 29B	NCE290011	RWYP290011-B					E-29-1101	120V FEED TO NCE	CC30A

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC100101	6	Tray		CBLC150101-A			EXISTING TRAY	EXISTING
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
				CBLC150112-A				
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
CTC100102	6	Tray		CBLC150101-A			EXISTING TRAY	EXISTING
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
				CBLC150112-A				
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
CTC100104	6	Tray		CBLC150101-A			EXISTING TRAY	EXISTING
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
CTC340011A	12	Tray		CBLC340133A-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTC340012B	12	Tray		CBLC340133B-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTC340013A	12	Tray		CBLC340133A-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLC340133C-B				
CTC340014B	12	Tray		CBLC340133B-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC340015A	12	Tray		CBLC340133C-B			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTC340016B	12	Tray		CBLC340133B-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTC340017A	12	Tray		CBLC340133A-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTC340021A	12	Tray		CBLC340133A-D			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTH000001A	6	Tray		CBLH269000A-A				CC30D
CTH000002B	6	Tray		CBLH269000B-A				CC30D
CTH10133A	36	Tray		CBLH109001A-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLH290000A-A				
				CBLH500000A-A				
CTH10133B	36	Tray		CBLH109001B-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLH290000B-A				
				CBLH500000B-A				
CTH20133A	36	Tray		CBLH109001A-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLH269000A-A				
				CBLH500000A-A				
CTH20133B	36	Tray		CBLH109001B-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLH269000B-A				
				CBLH500000B-A				
CTH30133A	24	Tray		CBLH290000A-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
CTH30133B	24	Tray		CBLH290000B-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
CTH340001A	24	Tray		CBLH169000A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH269000A-A				
CTH340002B	24	Tray		CBLH169000B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH269000B-A				
CTH340003A	24	Tray		CBLH109001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH290000A-A				
				CBLH500000A-A				
CTH340004B	24	Tray		CBLH109001B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH290000B-A				
				CBLH500000B-A				
CTH340005A	36	Tray		CBLH109001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH169000A-A				
				CBLH269000A-A				
				CBLH290000A-A				
				CBLH500000A-A				
CTH340006B	36	Tray		CBLH109001B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH169000B-A				
				CBLH269000B-A				
				CBLH290000B-A				
				CBLH500000B-A				
CTH340010B	12	Tray		CBLH340133B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTH340012B	36	Tray		CBLH210000B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH340133B-A				
				CBLH340133C-A				
CTH340013A	36	Tray		CBLH210000A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH340133A-A				
CTH340014B	36	Tray		CBLH210000B-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLH340133B-A				
				CBLH340133C-A				
CTPR100101	6	Tray		CBLP150101-A			EXISTING TRAY	EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR100102	6	Tray		CBLP150101-A			EXISTING TRAY	EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR10C	6	Tray		CBLP150101-A			EXISTING TRAY	EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR10F	6	Tray		CBLP150101-A			EXISTING TRAY	EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPR150001	6	Tray		CBLP150101-A				CC30B
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
CTPR340003A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTPR340004B	24	Tray		CBLP340133BA-C			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP349201-F				
				CBLP349201-G				
CTPR340005A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTPR340008B	24	Tray		CBLP340133BA-C			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP349201-F				
				CBLP349201-G				
CTPR340009A	24	Tray		CBLP340133AA-C			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133CA-C				
CTPR340010B	24	Tray		CBLP340133B-Q			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133BA-C				
				CBLP349201-F				
				CBLP349201-G				
CTPR340013A	24	Tray		CBLP001001-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133A-Q				
				CBLP340133AA-C				
				CBLP340133C-H				
				CBLP340133CA-C				
CTPR340014B	24	Tray		CBLP340133B-Q			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133BA-C				
				CBLP341001-A				
				CBLP341011-B				
				CBLP349201-F				
				CBLP349201-G				
CTPR340016B	24	Tray		CBLP340133B-Q			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133BA-C				
				CBLP349201-F				
				CBLP349201-G				
CTPR340017A	24	Tray		CBLP340133A-Q			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133AA-C				
				CBLP340133C-H				
				CBLP340133CA-C				
CTPR340019A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTPR340020B	24	Tray		CBLP340133BA-C			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP349201-F				
				CBLP349201-G				
CTPR340021A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133AA-C				
				CBLP340133CA-C				
CTPR340023A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLP340133AA-C				
				CBLP340133CA-C				
CTPR340025A	24	Tray		CBLP009100-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
CTS000001A	18	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000002B. (CCF 007)	CC30A / REV 1
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF340102-C				
				CBLF340102-D				
CTS000002B	18	Tray		CBLF000011BA-B			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000001A. (CCF 007)	CC30A / REV 1
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF100011BA-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF260011BA-A				
				CBLF290011A-A				
				CBLF290011BA-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
				CBLF340102-J				
				CBLF340102-K				
CTS000003A	18	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000004B. (CCF 007)	CC30A / REV 1
				CBLF100011A-A				
				CBLF160011A-A				
				CBLF160011BA-A				
				CBLF340102-C				
CTS000004B	18	Tray		CBLF000011BA-B			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000003A. (CCF 007)	CC30A / REV 1
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF100011BA-B				
				CBLF160011A-B				
				CBLF330011CC-A				
				CBLF340102-J				
CTS000005A	12	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 12" TRAY WITH CTS000006B. (CCF 007)	CC30A / REV 1
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF160011BA-A				
CTS000006B	12	Tray		CBLF000011BA-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 12" TRAY WITH CTS000005A. (CCF 007)	CC30A / REV 1
				CBLF000011BA-B				
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF100011BA-B				
				CBLF330011CC-A				
CTS100101	12	Tray		CBLF000011BA-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				
CTS100103	12	Tray		CBLF000011BA-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				
CTS100105	12	Tray		CBLF000011BA-A			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTS150002	6	Tray		CBLC150101-A				CC30B
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
CTS150004	6	Tray		CBLC150112-A				CC30B
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
CTS24	18	Tray		CBLF020011A-B			EXISTING CABLE TRAY - CONTRACTOR TO CONFIRM SIZE	EXISTING
				CBLF020011BB-A				
				CBLF210011A-A				
				CBLF210011A-D				
				CBLF210011B-A				
				CBLF210011DA-A				
				CBLF230011A-B				
				CBLF240011A-A				
				CBLF240011CA-A				
				CBLF249101A-A				
CTS330103	6	Tray		CBLF050001B-A			REFERENCE AREA 33 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
CTS330104	6	Tray		CBLF020011AB-A			REFERENCE AREA 33 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF330011CA-A				
				CBLF330011CB-A				
CTS330105	6	Tray		CBLF020011AB-A			REFERENCE AREA 33 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CA-A				
				CBLF330011CB-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF330011CC-A				
CTS330201	6	Tray		CBLF020011AB-A			REFERENCE AREA 33 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CA-A				
				CBLF330011CB-A				
				CBLF330011CC-A				
CTS340001A	12	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340002B	12	Tray		CBLF020011AB-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-J				
				CBLF340102-K				
CTS340003A	12	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340004B	12	Tray		CBLF020011AB-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-J				
				CBLF340102-K				
CTS340005A	12	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340010B	12	Tray		CBLF020011AB-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-J				
				CBLF340102-K				
CTS340013A	12	Tray		CBLF210011A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF240011A-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340102-A				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-H				
CTS340014B	12	Tray		CBLF020011AB-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF340102-F				
CTS340016B	18	Tray		CBLF020011AB-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-F				
				CBLF340102-J				
				CBLF340102-K				
CTS340017A	18	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340021A	18	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340023A	12	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340025A	12	Tray		CBLF240011CA-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF330011CA-A				
				CBLF340102-C				
				CBLF340102-D				
CTS340201	18	Tray		CBLF210011A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF240011A-A				
CTS340202	18	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF210011A-A				
				CBLF220011A-A				
				CBLF240011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
CTS340203	18	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
CTS340205	6	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
CTS340206	6	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
RWYC000010-A	1	Raceway		CBLC000010-A	TBX000010	PLC131001		CC30B
RWYC000011-A	1	Raceway		CBLC000011-A	CS000011	MCC 13A		CC30B
RWYC000011-B	3/4	Raceway		CBLC000011-B	TBX000011	CS000011		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC000012-A	1	Raceway		CBLC000012-A	CS000012	MCC 13B		CC30B
RWYC000012-B	3/4	Raceway		CBLC000012-B	TBX000012	CS000012		CC30B
RWYC000020-A	1	Raceway		CBLC000020-A	TBX000020	HH020003		CC30B
RWYC000020-B	1	Raceway		CBLC000020-A	HH020003	PLC020001		CC5F
RWYC000021-A	1	Raceway		CBLC000021-A	CS000021	HH020003		CC30B
RWYC000021-B	3/4	Raceway		CBLC000021-B	TBX000021	CS000021		CC30B
RWYC000021-C	1	Raceway		CBLC000021-A	HH020003	MCC029001A		CC5F
RWYC000022-A	1	Raceway		CBLC000022-A	CS000022	HH020003		CC30B
RWYC000022-B	3/4	Raceway		CBLC000022-B	TBX000022	CS000022		CC30B
RWYC000022-C	1	Raceway		CBLC000022-A	HH020003	MCC029001B		CC5F
RWYC000030-A	1	Raceway		CBLC000030-A	TBX000030	HH003102		CC30B
RWYC000031-A	1	Raceway		CBLC000031-A	CS000031	HH003102		CC30B
RWYC000031-B	3/4	Raceway		CBLC000031-B	TBX000031	CS000031		CC30B
RWYC000032-A	1	Raceway		CBLC000032-A	CS000032	HH003102		CC30B
RWYC000032-B	3/4	Raceway		CBLC000032-B	TBX000032	CS000032		CC30B
RWYC000902-A	2	Raceway	DB000902	CBLC000030-A	HH003102	HH000902		CC30B
				CBLC000031-A				
				CBLC000032-A				
RWYC001001-A	2	Raceway		CBLC340133A-D	DG340133A	HH001001		CC30A
RWYC001001-B	2	Raceway		CBLC340133B-D	DG340133B	HH001001		CC30A
RWYC001001-C	2	Raceway		CBLC340133C-B	DG340133C	HH001001		CC30A
RWYC001404-A	2	Raceway	DB001404	CBLC000030-A	HH001406	HH001404		CC30B
				CBLC000031-A				
				CBLC000032-A				
RWYC001406-A	2	Raceway	DB001406	CBLC000030-A	HH000902	HH001406		CC30B
				CBLC000031-A				
				CBLC000032-A				
RWYC007001-A	1-1/2	Raceway	DB005002	CBLC009100-A	HH007002	HH007001	EXISTING RACEWAY TO BE RETAGGED	CC30A
				CBLC009100-B				
RWYC007002-A	1	Raceway		CBLC009100-A	CAB340134A	HH007002		CC30A
RWYC007002-B	1	Raceway		CBLC009100-B	CAB340134B	HH007002		CC30A
RWYC009100-A	1-1/2	Raceway	DB005001	CBLC009100-A	HH007001	SWGR009100	EXISTING RACEWAY TO BE RETAGGED	CC30A
				CBLC009100-B				
RWYC150101-A	1-1/4	Raceway		CBLC150101-A	CTS150002	CS150101		CC30B
RWYC150101-B	1	Raceway		CBLC150101-B	CS150101	TBX150101		CC30B
RWYC150102-A	1-1/4	Raceway		CBLC150102-A	CTS150002	CS150102		CC30B
RWYC150102-B	1	Raceway		CBLC150102-B	CS150102	TBX150102		CC30B
RWYC150103-A	1-1/4	Raceway		CBLC150103-A	HH151002	CS150103		CC30B
RWYC150103-B	1	Raceway		CBLC150103-B	CS150103	TBX150103		CC30B
RWYC150104-A	1-1/4	Raceway		CBLC150104-A	HH151002	CS150104		CC30B
RWYC150104-B	1	Raceway		CBLC150104-B	CS150104	TBX150104		CC30B
RWYC150105-A	1-1/4	Raceway		CBLC150105-A	HH151004	CS150105		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC150105-B	1	Raceway		CBLC150105-B	CS150105	TBX150105		CC30B
RWYC150106-A	1-1/4	Raceway		CBLC150106-A	HH151004	CS150106		CC30B
RWYC150106-B	1	Raceway		CBLC150106-B	CS150106	TBX150106		CC30B
RWYC150107-A	1-1/4	Raceway		CBLC150107-A	HH151004	CS150107		CC30B
RWYC150107-B	1	Raceway		CBLC150107-B	CS150107	TBX150107		CC30B
RWYC150108-A	1-1/4	Raceway		CBLC150108-A	HH151004	CS150108		CC30B
RWYC150108-B	1	Raceway		CBLC150108-B	CS150108	TBX150108		CC30B
RWYC150109-A	1-1/4	Raceway		CBLC150109-A	HH151004	CS150109		CC30B
RWYC150109-B	1	Raceway		CBLC150109-B	CS150109	TBX150109		CC30B
RWYC150110-A	1-1/4	Raceway		CBLC150110-A	HH151004	CS150110		CC30B
RWYC150110-B	1	Raceway		CBLC150110-B	CS150110	TBX150110		CC30B
RWYC150111-A	1-1/4	Raceway		CBLC150111-A	HH151004	CS150111		CC30B
RWYC150111-B	1	Raceway		CBLC150111-B	CS150111	TBX150111		CC30B
RWYC150112-A	1-1/4	Raceway		CBLC150112-A	CTS150004	CS150112		CC30B
RWYC150112-B	1	Raceway		CBLC150112-B	CS150112	TBX150112		CC30B
RWYC150113-A	1-1/4	Raceway		CBLC150113-A	CTS150004	CS150113		CC30B
RWYC150113-B	1	Raceway		CBLC150113-B	CS150113	TBX150113		CC30B
RWYC150114-A	1-1/4	Raceway		CBLC150114-A	HH151008	CS150114		CC30B
RWYC150114-B	1	Raceway		CBLC150114-B	CS150114	TBX150114		CC30B
RWYC150115-A	1-1/4	Raceway		CBLC150115-A	HH151008	CS150115		CC30B
RWYC150115-B	1	Raceway		CBLC150115-B	CS150115	TBX150115		CC30B
RWYC150116-A	1-1/4	Raceway		CBLC150116-A	HH151010	CS150116		CC30B
RWYC150116-B	1	Raceway		CBLC150116-B	CS150116	TBX150116		CC30B
RWYC150117-A	1-1/4	Raceway		CBLC150117-A	HH151010	CS150117		CC30B
RWYC150117-B	1	Raceway		CBLC150117-B	CS150117	TBX150117		CC30B
RWYC150118-A	1-1/4	Raceway		CBLC150118-A	HH151010	CS150118		CC30B
RWYC150118-B	1	Raceway		CBLC150118-B	CS150118	TBX150118		CC30B
RWYC150119-A	1-1/4	Raceway		CBLC150119-A	HH151010	CS150119		CC30B
RWYC150119-B	1	Raceway		CBLC150119-B	CS150119	TBX150119		CC30B
RWYC151002-A	3-1/2	Raceway	DB150002	CBLC150107-A	CTS150002	HH151002		CC30B
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
RWYC151004-A	4	Raceway	DB150004	CBLC150105-A	HH151002	HH151004		CC30B
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
RWYC151008-A	4	Raceway	DB150008	CBLC150114-A	CTS150004	HH151008		CC30B
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC150118-A				
				CBLC150119-A				
RWYC151010-A	3-1/2	Raceway	DB150010	CBLC150116-A	HH151008	HH151010		CC30B
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
RWYC160001-A	1	Raceway		CBLC170222-A	PLC160001	HH160001		CC30B
RWYC160002-B	1	Raceway	DB160004	CBLC170112-A	VFD170112	HH160002		CC30B
RWYC160002-C	1	Raceway	DB160004	CBLC170113-A	VFD170113	HH160002		CC30B
RWYC160002-D	1	Raceway	DB160004	CBLC170121-A	VFD170121	HH160002		CC30B
RWYC160002-E	1	Raceway	DB160004	CBLC170122-A	VFD170122	HH160002		CC30B
RWYC160002-F	1	Raceway	DB160004	CBLC170123-A	VFD170123	HH160002		CC30B
RWYC160002-G	1	Raceway	DB160004	CBLC170131-A	VFD170131	HH160002		CC30B
RWYC160002-H	1	Raceway	DB160004	CBLC170132-A	VFD170132	HH160002		CC30B
RWYC160002-J	1	Raceway	DB160004	CBLC170133-A	VFD170133	HH160002		CC30B
RWYC160002-K	1	Raceway	DB160004	CBLC170141-A	VFD170141	HH160002		CC30B
RWYC160002-L	1	Raceway	DB160004	CBLC170142-A	VFD170142	HH160002		CC30B
RWYC160002-M	1	Raceway	DB160004	CBLC170143-A	VFD170143	HH160002		CC30B
RWYC160002-N	1	Raceway	DB160004	CBLC170211-A	VFD170211	HH160002		CC30B
RWYC160002-P	1	Raceway	DB160004	CBLC170212-A	VFD170212	HH160002		CC30B
RWYC160002-Q	1	Raceway	DB160004	CBLS170211-A	VFD170211	HH160002		CC30B
RWYC160002-R	1	Raceway	DB160004	CBLS170212-A	VFD170212	HH160002		CC30B
RWYC160002-S	1	Raceway	DB160004	CBLS170211-B	VFD170211	HH160002		CC30B
RWYC160002-T	1	Raceway	DB160004	CBLS170212-B	VFD170212	HH160002		CC30B
RWYC160002-U	2	Raceway		CBLC170101-A	MCC169102A	HH160002		CC30B
				CBLC170103-A				
				CBLC170105-A				
				CBLC170201-A				
				CBLC170203-A				
RWYC160002-V	2	Raceway		CBLC170102-A	MCC169102B	HH160002		CC30B
				CBLC170104-A				
				CBLC170106-A				
				CBLC170202-A				
				CBLC170204-A				
RWYC160002-X	1	Raceway		CBLC170111-A	VFD170111	HH160002		CC30B
RWYC160003-A	4	Raceway	DB160014	CBLC180108-A	MCC169101B	HH160003		CC30B
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
RWYC160003-B	3	Raceway	DB160014	CBLC181221-B	PLC169101B	HH160003		CC30B
				CBLC181222-B				
				CBLC181223-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC160003-C	3	Raceway	DB160014	CBLC181211-A	MCC169101B	HH160003		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC160003-D	1	Raceway	DB160014	CBLC181321-B	PLC169101A	HH160003		CC30B
				CBLC181322-B				
				CBLC181323-B				
RWYC160003-E	1-1/2	Raceway	DB160014	CBLC180102-A	MCC169101B	HH160003		CC30B
				CBLC180104-A				
				CBLC180106-A				
RWYC160006-A	1-1/2	Raceway	DB160010	CBLC181131-A	VFD181131	HH160006		CC30B
RWYC160006-B	1-1/2	Raceway	DB160010	CBLC181132-A	VFD181132	HH160006		CC30B
RWYC160006-C	1	Raceway	DB160010	CBLC181231-A	VFD181231	HH160006		CC30B
RWYC160006-D	2-1/2	Raceway	DB160010	CBLC180101-A	MCC169101A	HH160006		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC160006-E	1-1/2	Raceway	DB160010	CBLC181511-A	MCC169101A	HH160006		CC30B
				CBLC181521-A				
RWYC160006-F	2	Raceway	DB160010	CBLC181111-A	MCC169101A	HH160006		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
RWYC160006-G	3	Raceway	DB160010	CBLC181121-A	PLC169101A	HH160006		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181323-A				
RWYC160006-H	1	Raceway	DB160010	CBLC181432-A	VFD181432	HH160006		CC30B
RWYC160006-K	1	Raceway	DB160010	CBLC181001-A	MCC169101A	HH160006		CC30B
RWYC160006-L	1	Raceway	DB160010	CBLC181003-A	MCC169101A	HH160006		CC30B
RWYC160006-M	1	Raceway	DB160010	CBLC181005-A	MCC169101A	HH160006		CC30B
RWYC160006-N	1	Raceway	DB160010	CBLC181232-A	VFD181232	HH160006		CC30B
RWYC160006-P	1	Raceway	DB160010	CBLC181331-A	VFD181331	HH160006		CC30B
RWYC160006-Q	2	Raceway	DB160010	CBLC181311-A	MCC169101A	HH160006		CC30B
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC160006-R	1	Raceway	DB160010	CBLC181332-A	VFD181332	HH160006		CC30B
RWYC160006-S	1	Raceway	DB160010	CBLC181431-A	VFD181431	HH160006		CC30B
RWYC160006-T	1	Raceway	DB160010	CBLC181611-A	PLC169101A	HH160006		CC30B
RWYC160006-U	1	Raceway		CBLC160006-A	HH160008	SV160006		CC30B
RWYC160008-A	1-1/4	Raceway	DB160008	CBLC160101-A	VFD160101	HH160008		CC30B
RWYC160008-B	1-1/4	Raceway	DB160008	CBLC160102-A	VFD160102	HH160008		CC30B
RWYC160008-C	1-1/4	Raceway	DB160008	CBLC160103-A	VFD160103	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160008-D	1-1/4	Raceway	DB160008	CBLC160104-A	VFD160104	HH160008		CC30B
RWYC160008-E	1-1/4	Raceway	DB160008	CBLC160105-A	VFD160105	HH160008		CC30B
RWYC160008-F	1-1/4	Raceway	DB160008	CBLC160106-A	VFD160106	HH160008		CC30B
RWYC160008-G	1	Raceway		CBLC160006-A	CAB160001	HH160008		CC30B
RWYC160009-A	3	Raceway	DB160006	CBLC170201-A	HH160002	HH160009		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC160009-B	1-1/2	Raceway	DB160006	CBLS170211-A	HH160002	HH160009		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYC160009-C	2-1/2	Raceway	DB160006	CBLC170101-A	HH160002	HH160009		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
RWYC160009-D	3	Raceway	DB160006	CBLC170111-A	HH160002	HH160009		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC160009-E	1	Raceway		CBLC170222-A	HH160001	HH160009		CC30B
RWYC160101-A	1-1/4	Raceway		CBLC160101-A	HH160008	CS160101		CC30B
RWYC160101-B	1	Raceway		CBLC160101-B	CS160101	M160101		CC30B
RWYC160102-A	1-1/4	Raceway		CBLC160102-A	HH160008	CS160102		CC30B
RWYC160102-B	1	Raceway		CBLC160102-B	CS160102	M160102		CC30B
RWYC160103-A	1-1/4	Raceway		CBLC160103-A	HH160008	CS160103		CC30B
RWYC160103-B	1	Raceway		CBLC160103-B	CS160103	M160103		CC30B
RWYC160104-A	1-1/4	Raceway		CBLC160104-A	HH160008	CS160104		CC30B
RWYC160104-B	1	Raceway		CBLC160104-B	CS160104	M160104		CC30B
RWYC160105-A	1-1/4	Raceway		CBLC160105-A	HH160008	CS160105		CC30B
RWYC160105-B	1	Raceway		CBLC160105-B	CS160105	M160105		CC30B
RWYC160106-A	1-1/4	Raceway		CBLC160106-A	HH160008	CS160106		CC30B
RWYC160106-B	1	Raceway		CBLC160106-B	CS160106	M160106		CC30B
RWYC170001-B	3	Raceway	DB170003	CBLC170111-A	HH170002	JBX170001		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170002-A	3	Raceway	DB170001	CBLC170111-A	HH160009	HH170002		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC170002-E	1-1/2	Raceway	DB170001	CBLC170211-A	HH160009	HH170002		CC30B
				CBLC170212-A				
RWYC170004-A	3	Raceway	DB170001	CBLC170101-A	HH160009	HH170002		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170201-A				
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
RWYC170004-B	3	Raceway	DB170003	CBLC170101-A	HH170002	JBX170004		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
				CBLC170204-A				
RWYC170004-F	1	Raceway		CBLC170222-A	HH160009	HH170001		CC30B
RWYC170005-A	1	Raceway		CBLC170222-A	HH170001	JBX170005		CC30B
RWYC170006-A	3	Raceway		CBLC170201-A	HH170002	JBX170006		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC170101-A	1	Raceway		CBLC170101-A	JBX170004	CS170101		CC30B
RWYC170101-B	1	Raceway		CBLC170101-B	CS170101	JBX170101		CC30B
RWYC170102-A	1	Raceway		CBLC170102-A	JBX170004	CS170102		CC30B
RWYC170102-B	1	Raceway		CBLC170102-B	CS170102	JBX170102		CC30B
RWYC170103-A	1	Raceway		CBLC170103-A	JBX170004	CS170103		CC30B
RWYC170103-B	1	Raceway		CBLC170103-B	CS170103	JBX170103		CC30B
RWYC170104-A	1	Raceway		CBLC170104-A	JBX170004	CS170104		CC30B
RWYC170104-B	1	Raceway		CBLC170104-B	CS170104	JBX170104		CC30B
RWYC170105-A	1	Raceway		CBLC170105-A	JBX170004	CS170105		CC30B
RWYC170105-B	1	Raceway		CBLC170105-B	CS170105	JBX170105		CC30B
RWYC170106-A	1	Raceway		CBLC170106-A	JBX170004	CS170106		CC30B
RWYC170106-B	1	Raceway		CBLC170106-B	CS170106	JBX170106		CC30B
RWYC170111-A	1	Raceway		CBLC170111-A	JBX170001	CS170111		CC30B
RWYC170111-B	1	Raceway		CBLC170111-B	CS170111	TSH170111		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170112-A	1	Raceway		CBLC170112-A	JBX170001	CS170112		CC30B
RWYC170112-B	1	Raceway		CBLC170112-B	CS170112	TSH170112		CC30B
RWYC170113-A	1	Raceway		CBLC170113-A	JBX170001	CS170113		CC30B
RWYC170113-B	1	Raceway		CBLC170113-B	CS170113	TSH170113		CC30B
RWYC170121-A	1	Raceway		CBLC170121-A	JBX170001	CS170121		CC30B
RWYC170121-B	1	Raceway		CBLC170121-B	CS170121	TSH170121		CC30B
RWYC170122-A	1	Raceway		CBLC170122-A	JBX170001	CS170122		CC30B
RWYC170122-B	1	Raceway		CBLC170122-B	CS170122	TSH170122		CC30B
RWYC170123-A	1	Raceway		CBLC170123-A	JBX170001	CS170123		CC30B
RWYC170123-B	1	Raceway		CBLC170123-B	CS170123	TSH170123		CC30B
RWYC170131-A	1	Raceway		CBLC170131-A	JBX170001	CS170131		CC30B
RWYC170131-B	1	Raceway		CBLC170131-B	CS170131	TSH170131		CC30B
RWYC170132-A	1	Raceway		CBLC170132-A	JBX170001	CS170132		CC30B
RWYC170132-B	1	Raceway		CBLC170132-B	CS170132	TSH170132		CC30B
RWYC170133-A	1	Raceway		CBLC170133-A	JBX170001	CS170133		CC30B
RWYC170133-B	1	Raceway		CBLC170133-B	CS170133	TSH170133		CC30B
RWYC170141-A	1	Raceway		CBLC170141-A	JBX170004	CS170141		CC30B
RWYC170141-B	1	Raceway		CBLC170141-B	CS170141	TSH170141		CC30B
RWYC170142-A	1	Raceway		CBLC170142-A	JBX170004	CS170142		CC30B
RWYC170142-B	1	Raceway		CBLC170142-B	CS170142	TSH170142		CC30B
RWYC170143-A	1	Raceway		CBLC170143-A	JBX170004	CS170143		CC30B
RWYC170143-B	1	Raceway		CBLC170143-B	CS170143	TSH170143		CC30B
RWYC170201-A	1	Raceway		CBLC170201-A	JBX170006	CS170201		CC30B
RWYC170201-B	1	Raceway		CBLC170201-B	CS170201	JBX170201		CC30B
RWYC170202-A	1	Raceway		CBLC170202-A	JBX170006	CS170202		CC30B
RWYC170202-B	1	Raceway		CBLC170202-B	CS170202	JBX170202		CC30B
RWYC170203-A	1	Raceway		CBLC170203-A	JBX170006	CS170203		CC30B
RWYC170203-B	1	Raceway		CBLC170203-B	CS170203	JBX170203		CC30B
RWYC170204-B	1	Raceway		CBLC170204-B	CS170204	JBX170204		CC30B
RWYC170211-A	1	Raceway		CBLC170211-A	JBX170006	CS170211		CC30B
RWYC170211-B	1	Raceway		CBLC170211-B	CS170211	JBX170211		CC30B
RWYC170212-A	1	Raceway		CBLC170212-A	JBX170006	CS170212		CC30B
RWYC170212-B	1	Raceway		CBLC170212-B	CS170212	JBX170212		CC30B
RWYC170222-A	1	Raceway		CBLC170222-A	JBX170005	SV170222		CC30B
RWYC180001-A	4	Raceway	DB160016	CBLC180102-A	HH160003	HH180001		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181006-A				
				CBLC181211-A				
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC180001-B	3	Raceway	DB160016	CBLC181221-A	HH160003	HH180001		CC30B
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC180002-A	3	Raceway	DB180006	CBLC181131-A	HH180004	JBX180002		CC30B
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				
				CBLC181432-A				
RWYC180002-B	1	Raceway	DB180006	CBLC181323-A	HH180003	JBX180002		CC30B
RWYC180002-C	1-1/2	Raceway	DB180006	CBLC181423-A	HH180004	JBX180002		CC30B
				CBLC181611-A				
				CBLC181621-A				
RWYC180003-B	1	Raceway	DB160012	CBLC181323-A	HH160006	HH180003		CC30B
RWYC180004-A	3	Raceway	DB160012	CBLC181111-A	HH160006	HH180004		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181131-A				
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				
				CBLC181432-A				
RWYC180004-B	1-1/2	Raceway	DB180006	CBLC181511-A	HH180004	JBX180004		CC30B
				CBLC181512-A				
RWYC180004-C	2-1/2	Raceway	DB160012	CBLC181121-A	HH160006	HH180004		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181611-A				
RWYC180004-D	3-1/2	Raceway	DB180010	CBLC180102-A	HH180001	HH180004		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181006-A				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
RWYC180004-E	1-1/2	Raceway	DB180006	CBLC181123-A	HH180004	JBX180004		CC30B
				CBLC181123-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181323-B				
RWYC180004-F	1-1/2	Raceway	DB180006	CBLC181521-A	HH180004	JBX180004		CC30B
				CBLC181522-A				
RWYC180004-G	4	Raceway	DB160012	CBLC180101-A	HH160006	HH180004		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
				CBLC181511-A				
				CBLC181521-A				
RWYC180004-H	3	Raceway	DB180010	CBLC181211-A	HH180001	HH180004		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
RWYC180004-J	1	Raceway	DB180010	CBLC181522-A	HH180001	HH180004		CC30B
RWYC180004-K	1	Raceway	DB180010	CBLC181621-A	HH180001	HH180004		CC30B
RWYC180006-A	3	Raceway	DB180006	CBLC180101-A	HH180004	JBX180006		CC30B
				CBLC180103-A				
				CBLC181121-A				
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181321-A				
				CBLC181321-B				
				CBLC181322-A				
				CBLC181322-B				
				CBLC181422-A				
RWYC180008-A	2-1/2	Raceway	DB180006	CBLC180102-A	HH180004	HH180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-B	2	Raceway	DB180006	CBLC180105-A	HH180004	HH180008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC180008-C	1	Raceway	DB180006	CBLC181421-A	HH180004	HH180008		CC30B
RWYC180008-D	1	Raceway	DB180008	CBLC181421-A	HH180008	JBX180008		CC30B
RWYC180008-E	2	Raceway	DB180006	CBLC181001-A	HH180004	HH180008		CC30B
				CBLC181003-A				
				CBLC181005-A				
RWYC180008-F	2	Raceway	DB180006	CBLC181211-A	HH180004	HH180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
RWYC180008-G	2	Raceway	DB180006	CBLC181411-A	HH180004	HH180008		CC30B
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180008-H	3	Raceway	DB180006	CBLC181111-A	HH180004	HH180008		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC180008-J	2	Raceway	DB180008	CBLC181002-A	HH180008	JBX180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-K	4	Raceway	DB180008	CBLC180105-A	HH180008	JBX180008		CC30B
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181111-A				
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC180008-L	2-1/2	Raceway	DB180008	CBLC180102-A	HH180008	JBX180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-M	2	Raceway	DB180006	CBLC181002-A	HH180004	HH180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-N	3	Raceway	DB180008	CBLC181211-A	HH180008	JBX180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180101-A	1	Raceway		CBLC180101-A	JBX180006	CS180101		CC30B
RWYC180101-B	1	Raceway		CBLC180101-B	CS180101	JBX180101		CC30B
RWYC180102-A	1	Raceway		CBLC180102-A	JBX180008	CS180102		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180102-B	1	Raceway		CBLC180102-B	CS180102	JBX180102		CC30B
RWYC180103-A	1	Raceway		CBLC180103-A	JBX180006	CS180103		CC30B
RWYC180103-B	1	Raceway		CBLC180103-B	CS180103	JBX180103		CC30B
RWYC180104-A	1	Raceway		CBLC180104-A	JBX180008	CS180104		CC30B
RWYC180104-B	1	Raceway		CBLC180104-B	CS180104	JBX180104		CC30B
RWYC180105-A	1	Raceway		CBLC180105-A	JBX180008	CS180105		CC30B
RWYC180105-B	1	Raceway		CBLC180105-B	CS180105	JBX180105		CC30B
RWYC180106-A	1	Raceway		CBLC180106-A	JBX180008	CS180106		CC30B
RWYC180106-B	1	Raceway		CBLC180106-B	CS180106	JBX180106		CC30B
RWYC180107-A	1	Raceway		CBLC180107-A	JBX180008	CS180107		CC30B
RWYC180107-B	1	Raceway		CBLC180107-B	CS180107	JBX180107		CC30B
RWYC180108-A	1	Raceway		CBLC180108-A				CC30B
RWYC180108-B	1	Raceway		CBLC180108-B	JBX180108	CS180108		CC30B
RWYC180109-A	1	Raceway		CBLC180109-A	JBX180008	CS180109		CC30B
RWYC180109-B	1	Raceway		CBLC180109-B	CS180109	JBX180109		CC30B
RWYC180110-A	1	Raceway		CBLC180110-A	JBX180008	CS180110		CC30B
RWYC180110-B	1	Raceway		CBLC180110-B	CS180110	JBX180110		CC30B
RWYC180111-A	1	Raceway		CBLC180111-A	JBX180008	CS180111		CC30B
RWYC180111-B	1	Raceway		CBLC180111-B	CS180111	JBX180111		CC30B
RWYC181001-A	1	Raceway		CBLC181001-A	JBX180008	CS181001		CC30B
RWYC181001-B	1	Raceway		CBLC181001-B	CS181001	JBX181001		CC30B
RWYC181002-A	1	Raceway		CBLC181002-A	JBX180008	CS181002		CC30B
RWYC181002-B	1	Raceway		CBLC181002-B	CS181002	JBX181002		CC30B
RWYC181003-A	1	Raceway		CBLC181003-A	JBX180008	CS181003		CC30B
RWYC181003-B	1	Raceway		CBLC181003-B	CS181003	JBX181003		CC30B
RWYC181004-A	1	Raceway		CBLC181004-A	JBX180008	CS181004		CC30B
RWYC181004-B	1	Raceway		CBLC181004-B	CS181004	JBX181004		CC30B
RWYC181005-A	1	Raceway		CBLC181005-A	JBX180008	CS181005		CC30B
RWYC181005-B	1	Raceway		CBLC181005-B	CS181005	JBX181005		CC30B
RWYC181006-A	1	Raceway		CBLC181006-A	JBX180008	CS181006		CC30B
RWYC181006-B	1	Raceway		CBLC181006-B	CS181006	JBX181006		CC30B
RWYC181111-A	1-1/2	Raceway		CBLC181111-A	JBX180008	CS181111		CC30B
RWYC181112-A	1-1/2	Raceway		CBLC181112-A	JBX180008	CS181112		CC30B
RWYC181113-A	1-1/2	Raceway		CBLC181113-A	JBX180008	CS181113		CC30B
RWYC181114-A	1-1/2	Raceway		CBLC181114-A	JBX180008	CS181114		CC30B
RWYC181121-A	2	Raceway		CBLC181121-A	JBX180006	TBX181121		CC30B
				CBLC181121-B				
RWYC181121-B	1	Raceway		CBLC181121-A	TBX181121	FCV181121		CC30B
RWYC181121-C	1	Raceway		CBLC181121-B	TBX181121	FIT181121		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181122-A	1	Raceway		CBLC181122-A	JBX180006	TBX181122		CC30B
				CBLC181122-B				
RWYC181122-B	1	Raceway		CBLC181122-A	TBX181122	FCV181122		CC30B
RWYC181122-C	1	Raceway		CBLC181122-B	TBX181122	FIT181122		CC30B
RWYC181123-A	1	Raceway		CBLC181323-A	JBX180002	TBX181123		CC30B
RWYC181123-B	1	Raceway		CBLC181123-A	JBX180004	TBX181123		CC30B
				CBLC181123-B				
RWYC181123-C	1	Raceway		CBLC181123-A	TBX181123	FCV181123		CC30B
RWYC181123-D	1	Raceway		CBLC181123-B	TBX181123	FIT181123		CC30B
RWYC181131-A	1	Raceway		CBLC181131-A	JBX180002	CS181131		CC30B
RWYC181131-B	1	Raceway		CBLC181131-B	CS181131	JBX181131		CC30B
RWYC181132-A	1	Raceway		CBLC181132-A	JBX180002	CS181132		CC30B
RWYC181132-B	1	Raceway		CBLC181132-B	CS181132	JBX181132		CC30B
RWYC181211-A	1	Raceway		CBLC181211-A	JBX180008	CS181211		CC30B
RWYC181212-A	1	Raceway		CBLC181212-A	JBX180008	CS181212		CC30B
RWYC181213-A	1	Raceway		CBLC181213-A	JBX180008	CS181213		CC30B
RWYC181214-A	1	Raceway		CBLC181214-A	JBX180008	CS181214		CC30B
RWYC181221-A	1	Raceway		CBLC181421-A	JBX180008	TBX181221		CC30B
RWYC181221-B	1-1/2	Raceway		CBLC181221-A	JBX180006	TBX181221		CC30B
				CBLC181221-B				
				CBLC181422-A				
RWYC181221-C	1	Raceway		CBLC181221-A	TBX181221	FCV181221		CC30B
RWYC181221-D	1	Raceway		CBLC181221-B	TBX181221	FIT181221		CC30B
RWYC181222-A	1	Raceway		CBLC181222-A	TBX181222	FCV181222		CC30B
RWYC181222-B	1	Raceway		CBLC181222-A	JBX180006	TBX181222		CC30B
				CBLC181222-B				
RWYC181222-D	1	Raceway		CBLC181222-B	TBX181222	FIT181222		CC30B
RWYC181223-A	1	Raceway		CBLC181423-A	JBX180002	TBX181223		CC30B
RWYC181223-B	1	Raceway		CBLC181223-A	JBX180004	TBX181223		CC30B
				CBLC181223-B				
RWYC181223-C	1	Raceway		CBLC181223-A	TBX181223	FCV181223		CC30B
RWYC181223-D	1	Raceway		CBLC181223-B	TBX181223	FIT181223		CC30B
RWYC181231-A	1	Raceway		CBLC181231-A	JBX180002	CS181231		CC30B
RWYC181231-B	1	Raceway		CBLC181231-B	CS181231	JBX181231		CC30B
RWYC181232-A	1	Raceway		CBLC181232-A	JBX180002	CS181232		CC30B
RWYC181232-B	1	Raceway		CBLC181232-B	CS181232	JBX181232		CC30B
RWYC181311-A	1	Raceway		CBLC181311-A	JBX180008	CS181311		CC30B
RWYC181312-A	1	Raceway		CBLC181312-A	JBX180008	CS181312		CC30B
RWYC181313-A	1	Raceway		CBLC181313-A	JBX180008	CS181313		CC30B
RWYC181314-A	1	Raceway		CBLC181314-A	JBX180008	CS181314		CC30B
RWYC181321-A	1	Raceway		CBLC181321-A	JBX180006	TBX181321		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181321-B	1	Raceway		CBLC181321-A	TBX181321	FCV181321		CC30B
RWYC181321-C	1	Raceway		CBLC181321-B	JBX180006	TBX181321		CC30B
RWYC181321-D	1	Raceway		CBLC181321-B	TBX181321	FIT181321		CC30B
RWYC181322-A	1	Raceway		CBLC181322-A	JBX180006	TBX181322		CC30B
RWYC181322-B	1	Raceway		CBLC181322-B	JBX180006	TBX181322		CC30B
RWYC181322-C	1	Raceway		CBLC181322-A	TBX181322	FCV181322		CC30B
RWYC181322-D	1	Raceway		CBLC181322-B	TBX181322	FIT181322		CC30B
RWYC181323-A	1	Raceway		CBLC181323-A	TBX181123	FCV181323		CC30B
RWYC181323-B	1	Raceway		CBLC181323-B	JBX180004	TBX181323		CC30B
RWYC181323-D	1	Raceway		CBLC181323-B	TBX181323	FIT181323		CC30B
RWYC181331-A	1	Raceway		CBLC181331-A	JBX180002	CS181331		CC30B
RWYC181331-B	1	Raceway		CBLC181331-B	CS181331	JBX181331		CC30B
RWYC181332-A	1	Raceway		CBLC181332-A	JBX180002	CS181332		CC30B
RWYC181332-B	1	Raceway		CBLC181332-B	CS181332	JBX181332		CC30B
RWYC181411-A	1	Raceway		CBLC181411-A	JBX180008	CS181411		CC30B
RWYC181412-A	1	Raceway		CBLC181412-A	JBX180008	CS181412		CC30B
RWYC181413-A	1	Raceway		CBLC181413-A	JBX180008	CS181413		CC30B
RWYC181414-A	1	Raceway		CBLC181414-A	JBX180008	CS181414		CC30B
RWYC181421-A	1	Raceway		CBLC181421-A	TBX181221	FCV181421		CC30B
RWYC181422-A	1	Raceway		CBLC181422-A	TBX181221	FCV181422		CC30B
RWYC181423-A	1	Raceway		CBLC181423-A	TBX181223	FCV181423		CC30B
RWYC181431-A	1	Raceway		CBLC181431-A	JBX180002	CS181431		CC30B
RWYC181431-B	1	Raceway		CBLC181431-B	CS181431	JBX181431		CC30B
RWYC181432-A	1	Raceway		CBLC181432-A	JBX180002	CS181432		CC30B
RWYC181432-B	1	Raceway		CBLC181432-B	CS181432	JBX181432		CC30B
RWYC181511-A	1	Raceway		CBLC181511-A	JBX180004	CS181511		CC30B
RWYC181511-B	1	Raceway		CBLC181511-B	CS181511	JBX181511		CC30B
RWYC181512-A	1	Raceway		CBLC181512-A	JBX180004	CS181512		CC30B
RWYC181512-B	1	Raceway		CBLC181512-B	CS181512	JBX181512		CC30B
RWYC181521-A	1	Raceway		CBLC181521-A	JBX180004	CS181521		CC30B
RWYC181521-B	1	Raceway		CBLC181521-B	CS181521	JBX181521		CC30B
RWYC181522-A	1	Raceway		CBLC181522-A	JBX180004	CS181522		CC30B
RWYC181522-B	1	Raceway		CBLC181522-B	CS181522	JBX181522		CC30B
RWYC181611-A	1	Raceway		CBLC181611-A	JBX180002	SGTE181611		CC30B
RWYC181621-A	1	Raceway		CBLC181621-A	JBX180002	SGTE181621		CC30B
RWYC191011-AA	1-1/4	Raceway		CBLC191011-A	CAB331001	RIO 33C		CC30B
RWYC191011-AB	1-1/4	Raceway		CBLC191011-A	TB1920	CS191011		CC30B
RWYC191011-B	1-1/4	Raceway		CBLC191011-B	CS191011	PCV191011		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC1920-A	1-1/2	Raceway	DB33010D	CBLC191011-A	HH33010D	TB1920	EXISTING RACEWAY XC19050 TO BE RETAGGED CONTRACTOR TO VERIFY SIZE	CC30B
RWYC220001-A	1	Raceway	DB220002	CBLC000030-A	HH220002	CAB220001		CC30B
RWYC220002-A	2	Raceway	DB001402	CBLC000030-A	HH001404	HH220002		CC30B
				CBLC000031-A				
				CBLC000032-A				
RWYC229101A-C	1	Raceway	DB220002	CBLC000031-A	HH220002	MCC229101A		CC30B
RWYC229101B-C	1	Raceway	DB220002	CBLC000032-A	HH220002	MCC229101B		CC30B
RWYC33010D-A	1-1/4	Raceway		CBLC191011-A	TRAY 1033C	HH33010D		CC30B
RWYC340008-A	3-1/2	Raceway	DB340008	CBLC340133A-D	MH341001	CTC340013A		CC30A
				CBLC340133C-B				
RWYC340008-B	2	Raceway	DB340008	CBLC340133B-D	MH341001	CTC340014B		CC30A
RWYC341001-A	3-1/2	Raceway	DB340007	CBLC340133A-D	HH001001	MH341001		CC30A
				CBLC340133B-D				
				CBLC340133C-B				
RWYF000001A-A	4	Raceway		CBLF100011A-A	CTS340001A	CTS000001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF340102-C				
RWYF000001A-B	4	Raceway		CBLF260011A-A	CTS340001A	CTS000001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 020 CHANGE ORDER PENDING)	CC30A
				CBLF300011A-A				
				CBLF340102-D				
RWYF000001A-C	4	Raceway		CBLF050001A-A	CTS340001A	CTS000001A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF280011A-A				
RWYF000002B-A	4	Raceway		CBLF330001CA-A	NCE050004	CTS000002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF000002B-B	4	Raceway		CBLF330001CB-A	NCE050004	CTS000002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				
RWYF000002B-C	4	Raceway		CBLF100011A-B	CTS330103	CTS000002B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-B				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF300011A-B				
RWYF000002B-D	4	Raceway		CBLF050001B-A	CTS330103	CTS000002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF290011A-A				
RWYF000002B-E	3	Raceway		CBLF130011BA-A	CTS330103	CTS000002B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CC-A				
RWYF000010-A	4	Raceway		CBLF000011BA-B	JBX000010	CTS000002B	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF260011BA-A				
				CBLF290011A-A				
				CBLF290011BA-A				
RWYF000011BA-A	**2**	**Raceway**		**CBLF000011BA-A**	**CTS000006B**	**NCE000011**	**IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
				CBLF000011BA-B				
RWYF001002-A	2	Raceway		CBLF340102-A	DG340133A	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-B	2	Raceway		CBLF340102-F	DG340133B	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-C	2	Raceway		CBLF340102-H	DG340133C	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-D	4	Raceway	DB340001	CBLF210011A-A	MH341002	HH001002	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF240011A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYF001002-E	4	Raceway	DB340001	CBLF020011AB-A	MH341002	HH001002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF230011AB-A				
				CBLF340102-A				
				CBLF340102-F				
				CBLF340102-H				
RWYF001002-F	4	Raceway	DB340001	CBLF210011B-A	MH341002	HH001002	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF001002-G	4	Raceway	DB340001	CBLF240011CA-A	MH341002	HH001002	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF020001-A	4	Raceway	DB020005	CBLF210011A-A	JBX230001-B	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF240011A-A				
RWYF020001-B	4	Raceway	DB020005	CBLF230005A-A	HH020001	JBX230001-B	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF230011BA-A				
				CBLF240011CA-A				
RWYF020001-C	4	Raceway	DB020002	CBLF230011A-B	HH24225	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF020002-C	1	Raceway	DB020002	CBLX020002A	HH020001	HH24225	NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	CC5F
RWYF020005-B	1	Raceway	DB020005	CBLX020005D	HH020001	JBX230001-B	NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	CC5F
RWYF020011-A	2	Raceway		CBLF020011AB-A	JBX230001-A	JBX230001-B	NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	CC30A
RWYF020011-B	4	Raceway	DB020003	CBLF020011A-B	HH020001	NCE020011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC5F
				CBLF020011AB-A				
				CBLF210011A-D				
				CBLF230011A-C				
RWYF020011-C	4	Raceway	DB020003	CBLF020011BB-A	HH020001	NCE020011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC5F
				CBLF230005A-A				
				CBLF230011BA-A				
RWYF050001CA-A	2	Raceway		CBLF050001CA-A	CTS000005A	NCE050004	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A / REV 1
RWYF050004A-A	4	Raceway		CBLF050001A-A	CTS000005A	NCE050004	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A / REV 1
RWYF050004B-A	4	Raceway		CBLF050001B-A	CTS000006B	NCE050004	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A / REV 1
				CBLF330011CC-A				
RWYF050004CA-A	1	Raceway		CBLF160011BA-A	NCE050004	CTS000005A	(CCF 007)	CC30A / REV 1
RWYF100011A-A	3	Raceway		CBLF050001CA-A	INSTR1010	CTS000005A	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A / REV 1
				CBLF100011A-A				
RWYF100011A-B	3	Raceway		CBLF000011BA-A	INSTR1010	CTS000006B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A / REV 1
				CBLF100011A-B				
				CBLF100011BA-B				
RWYF130011A-A	3	Raceway		CBLF130011A-A	CTS000001A	NCE130011	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF130011A-B	3	Raceway		CBLF100011BA-B	NCE130011	CTS000002B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF290011BA-A				
RWYF160002-A	4	Raceway	DB160002	CBLF160011A-A	CTS000003A	HH160002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF XXX CHANGE ORDER PENDING)	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160002-B	4	Raceway	DB160002	CBLF160011A-B	CTS000004B	HH160002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF XXX CHANGE ORDER PENDING)	CC30B
				CBLF340102-J				
RWYF160002-C	4	Raceway	DB160002	CBLX160002-C	TUNNEL	HH160002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF160002-D	4	Raceway	DB160002	CBLX160002-D	TUNNEL	HH160002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF160003-A	4	Raceway	DB170001	CBLF220011A-B	HH17001A	HH160003	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYF160003-B	4	Raceway	DB170001	CBLF220011A-A	HH17001A	HH160003	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYF160003-C	2	Raceway	DB160014	CBLF220011BA-A	NCE160011	HH160003	IDFM - 2" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 3	CC30B
RWYF160011A-A	4	Raceway	DB160004	CBLF160011A-A	HH160002	NCE160011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160011A-B	4	Raceway	DB160004	CBLF160011A-B	HH160002	NCE160011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF340102-J				
RWYF169000A-A	2	Raceway	DB160001	CBLX169000A-A	CAB169000A	HH17001B	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF169000B-A	2	Raceway	DB160001	CBLX169000B-B	CAB169000B	HH17001B	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF17001A-B	1-1/4	Raceway	DB33010D	CBLF220011A-A	HH33010D	HH17001A	EXISTING RACEWAY XS17009 TO BE RETAGGED	CC30B
RWYF17001A-C	2	Raceway	DB33010D	CBLF220011A-B	HH33010D	HH17001A	EXISTING RACEWAY XS10000A TO BE RETAGGED	CC30B
				CBLF330011CB-A				
RWYF180001-A	4	Raceway	DB160016	CBLF220011A-B	HH160003	HH180001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC30B
				CBLF220011BA-A				
				CBLF330011CB-A				
RWYF180001-B	4	Raceway	DB160016	CBLF220011A-A	HH160003	HH180001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
RWYF180006-A	4	Raceway	DB180002	CBLF220011A-B	HH180001	HH180006	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC30B
				CBLF220011BA-A				
				CBLF330011CB-A				
RWYF180006-B	4	Raceway	DB180002	CBLF220011A-A	HH180001	HH180006	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
RWYF210000-A	2	Raceway		CBLF210011A-D	PBX210001S-B	NTWRK	IDFM - 2" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
RWYF210001-C	4	Raceway	DB210001S	CBLF210011DA-A	CTS24	PBX210001S-A	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
RWYF210001B-A	4	Raceway	DB210001S	CBLF210011A-A	CTS24	PBX210001S-B	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011B-A				
RWYF210001B-B	4	Raceway	DB210001S	CBLF210011A-D	CTS24	PBX210001S-B	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
				CBLF249101A-A				
RWYF210011-A	4	Raceway		CBLF210011A-A	PBX210001S-B	NCE210011	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
RWYF210011-B	4	Raceway		CBLF210011B-A	PBX210001S-B	NCE210011	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF249101A-A				
RWYF210011-C	4	Raceway		CBLF210011DA-A	PBX210001S-A	NCE210011	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
RWYF220002-A	4	Raceway	DB220004	CBLF220011A-B	HH180006	HH220002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYF220002-B	4	Raceway	DB220004	CBLF220011A-A	HH180006	HH220002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF220011A-A	4	Raceway	DB220002	CBLF220011A-A	HH220002	NCE220011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF220011A-B	4	Raceway	DB220002	CBLF220011A-B	HH220002	NCE220011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYF230001A-A	4	Raceway	DB23614A	CBLF020011AB-A	MH23613	JBX230001-A	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
				CBLF210011A-A				
				CBLF230011AB-A				
				CBLF240011A-A				
RWYF230001A-B	4	Raceway	DB23614A	CBLF210011B-A	MH23613	JBX230001-A	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF230001A-C	4	Raceway	DB23614A	CBLF240011CA-A	MH23613	JBX230001-A	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF230001B-A	4	Raceway		CBLF210011A-A	JBX230001-A	JBX230001-B	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
				CBLF240011A-A				
				CBLF240011CA-A				
RWYF230001B-B	3	Raceway		CBLF210011B-A	JBX230001-A	JBX230001-B	IDFM - (2) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
RWYF230001B-C	4	Raceway	DB020005	CBLF020011AB-A	JBX230001-B	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF210011B-A				
				CBLF230011A-B				
				CBLF230011A-C				
RWYF230011-A	2	Raceway		CBLF230011AB-A	JBX230001-A	NCE230011	IDFM - 2" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF230011-B	2	Raceway		CBLF230011A-B	JBX230001-B	NCE230011	IDFM - 2" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF230011A-C				
RWYF230011-C	1-1/2	Raceway		CBLF330011CA-A	NCE230011	JBX230001-A	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF230011-D	1-1/2	Raceway		CBLF230011BA-A	JBX230001-B	NCE230011	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF23005-A	1-1/2	Raceway		CBLF230005A-A	JBX230001-B	CAB230005	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF23613-A	4	Raceway	DB001001	CBLF020011AB-A	HH001002	MH23613	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF230011AB-A				
RWYF23613-B	4	Raceway	DB001001	CBLF210011B-A	HH001002	MH23613	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF23613-C	4	Raceway	DB001001	CBLF240011CA-A	HH001002	MH23613	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF23613-D	4	Raceway	DB001001	CBLF210011A-A	HH001002	MH23613	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF240011A-A				
RWYF240000-A	2	Raceway	DB240011S	CBLF210011A-A	HH24224	CTS24		CC30B
				CBLF240011A-A				
RWYF240000-B	1-1/2	Raceway	DB240011S	CBLF210011B-A	HH24224	CTS24	EXISTING RACEWAY TO BE RETAGGE. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	EXISTING
RWYF240000-C	1-1/2	Raceway	DB240011S	CBLF020011BB-A	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF210011A-D				
				CBLF240011CA-A				
RWYF240011-A	**3**	**Raceway**		**CBLF020011A-B**	**NCE240011**	**CTS24**	**IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
				CBLF210011DA-A				
				CBLF240011A-A				
RWYF240011-B	**2**	**Raceway**		**CBLF020011BB-A**	**NCE240011**	**CTS24**	**IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
				CBLF230011A-B				
				CBLF240011CA-A				
				CBLF249101A-A				
RWYF24224-A	2	Raceway	DB240009S	**CBLF210011A-A**	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	EXISTING
				CBLF240011A-A				
RWYF24224-B	1-1/2	Raceway	DB240009S	CBLF210011B-A	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24224-C	1-1/2	Raceway	DB240009S	CBLF020011BB-A	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF240011CA-A				
RWYF24224-D	1-1/2	Raceway	DB240011S	CBLF230011A-B	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24224-E	1-1/2	Raceway	DB240011S	CBLF020011A-B	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24225-A	4	Raceway	DB020002	CBLF020011BB-A	HH24225	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011A-A				
				CBLF240011A-A				
				CBLF240011CA-A				
RWYF24225-B	4	Raceway	DB020002	CBLF020011A-B	HH24225	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011A-D				
				CBLF210011B-A				
RWYF24225-D	1-1/2	Raceway	DB240009S	CBLF210011A-D	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF230011A-B				
RWYF24225-E	1-1/2	Raceway	DB240009S	CBLF020011A-B	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
RWYF260011A-A	4	Raceway		CBLF260011A-A	CTS000001A	NCE260011	IDFM - (2) - 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30D
RWYF260011A-B	4	Raceway		CBLF260011A-B	CTS000002B	NCE260011	IDFM - (3) - 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30D
RWYF260011BA-A	1-1/2	Raceway		CBLF260011BA-A	CTS000002B	NCE260011	IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30D
RWYF269000A	2	Raceway	DB260001	CBLF340102-D	CAB269000A	CTS000001A		CC30D
RWYF269000B	2	Raceway	DB260001	CBLF340102-K	CAB269000B	CTS000002B		CC30D
RWYF280011A-A	4	Raceway		CBLF280011A-A	CTS000001A	NCE280011	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF280011B-A	3	Raceway		CBLF280011B-A	JBX000010	NCE280011	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF290011A-A	4	Raceway		CBLF000011BA-B	NCE290011	JBX000010	IDFM - (2) 4"-3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF260011BA-A				
				CBLF280011B-A				
				CBLF290011A-A				
				CBLF290011BA-A				
RWYF300011A-A	2	Raceway		CBLF300011A-A	CTS000001A	NCE300011	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF300011A-B	2	Raceway		CBLF300011A-B	CTS000002B	NCE300011	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF330103-A	4	Raceway		CBLF330001CA-A	CTS000002B	CTS330103	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF330103-B	4	Raceway		CBLF330001CB-A	CTS000002B	CTS330103	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				
RWYF330104-D	4	Raceway		CBLF020011AB-A	CTS330104	CTS340002B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
RWYF330104-E	4	Raceway		CBLF330011CA-A	CTS340001A	CTS330104	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF330105-A	3	Raceway		CBLF130011BA-A	CTS330201	CTS330105	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CC-A				
RWYF330105-B	3	Raceway		CBLF330011CA-A	CTS330105	CTS330201	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CB-A				
RWYF330105-C	4	Raceway		CBLF100011A-B	CTS330201	CTS330105	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-B				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF300011A-B				
RWYF330105-D	4	Raceway		CBLF020011AB-A	CTS330201	CTS330105	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
RWYF330105-E	4	Raceway		CBLF050001B-A	CTS330201	CTS330105	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF290011A-A				
~~**RWYF33010C-A**~~	~~**1-1/2**~~	~~**Raceway**~~	~~**DB33010C**~~		~~**HH17001B**~~	~~**HH33010C**~~	~~**EXISTING RACEWAY C17030 TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. EXISTING RACEWAY NOT USED.**~~ **(CCF 020 CHANGE ORDER PENDING)**	**CC30A**
~~**RWYF33010C-B**~~	~~**1-1/2**~~	~~**Raceway**~~	~~**DB33010C**~~		~~**HH17001B**~~	~~**HH33010C**~~	~~**EXISTING RACEWAY P17040 TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. EXISTING RACEWAY NOT USED.**~~ **(CCF 020 CHANGE ORDER PENDING)**	~~**CC30A**~~
RWYF33010D-A	2	Raceway		CBLF220011A-B	RWYF33010D-AA	HH33010D	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYF33010D-AA	2	Raceway		CBLF220011A-B	CTS330104	RWYF33010D-A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF330011CB-A				
RWYF33010D-B	1-1/4	Raceway		CBLF220011A-A	CTS340001A	HH33010D	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	CC30B
RWYF330201-D	4	Raceway		CBLF330001CA-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF330201-E	4	Raceway		CBLF330001CB-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				
RWYF340001A-A	4	Raceway		CBLF100011A-A	CTS340205	CTS340001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (ADDENDUM 3)	CC30A / REV. A
				CBLF130011A-A				
				CBLF160011A-A				
RWYF340001A-B	4	Raceway		CBLF220011A-A	CTS340205	CTS340001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF260011A-A				
				CBLF300011A-A				
RWYF340001A-C	4	Raceway		CBLF050001A-A	CTS340205	CTS340001A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF280011A-A				
~~**RWYF340001A-D**~~	~~**3/4**~~	~~**Raceway**~~			~~**HH33010C**~~	~~**CTS340001A**~~	~~**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.**~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340002-A	4	Raceway	DB340002	CBLF340102-A	MH341002	CTS340013A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-H				
RWYF340002-B	4	Raceway	DB340002	CBLF340102-F	MH341002	CTS340014B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
~~**RWYF340002B-D**~~	~~**3/4**~~	~~**Raceway**~~			~~**HH33010C**~~	~~**CTS340002B**~~	~~**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.**~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340002B-E	1-1/2	Raceway		CBLF340102-J	CTS000002B	CTS340002B	NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	CC30A
				CBLF340102-K				
RWYF340003A-A	2	Raceway		CBLF240011CA-A	NCE340101	CTS340003A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF340013A-A	4	Raceway		CBLF210011A-A	CTS340201	CTS340013A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF240011A-A				
RWYF340102-A	4	Raceway		CBLF340102-A	CTS340013A	NCE340102	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-H				
RWYF340102-B	4	Raceway		CBLF340102-F	CTS340016B	NCE340102	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-J				
				CBLF340102-K				
RWYF341002-A	4	Raceway	DB340002	CBLF020011AB-A	CTS340014B	MH341002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF230011AB-A				
RWYF341002-B	4	Raceway	DB340002	CBLF210011B-A	CTS340014B	MH341002	IDFM - (2) 4" - 3 CELL INNDERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF341002-C	4	Raceway	DB340002	CBLF240011CA-A	CTS340013A	MH341002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF341002-D	4	Raceway	DB340002	CBLF210011A-A	CTS340013A	MH341002	IDFM - (2) 4" - 3 CELL INNDERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF240011A-A				
RWYH000001A-A	5	Raceway		CBLH269000A-A	CTH340001A	CTH000001A		CC30D
RWYH000002B-A	5	Raceway		CBLH269000B-A	CTH340002B	CTH000002B		CC30D
RWYH001001-A	5	Raceway		CBLH340133A-A	DG340133A	MH001001		CC30A
RWYH001001-B	5	Raceway		CBLH340133B-A	DG340133B	MH001001		CC30A
RWYH001001-C	5	Raceway		CBLH340133C-A	DG340133C	MH001001		CC30A
RWYH109001A-A	5	Raceway		CBLH109001A-A	CTH20133A	ATS109001A		
RWYH109001B-A	5	Raceway		CBLH109001B-A	CTH20133B	ATS109001B		

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYH169000A-A	5	Raceway	DB160001	CBLH169000A-A	HH17001B	SUB169000A		CC30B
RWYH169000B-A	5	Raceway	DB160001	CBLH169000B-A	HH17001B	SUB169000B		CC30B
RWYH17001BA-A	4	Raceway	DB33010C	CBLH169000A-A	HH33010C	HH17001B	EXISTING RACEWAY H17001 TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY	CC30B
RWYH17001BB-A	4	Raceway	DB33010C	CBLH169000B-A	HH33010C	HH17001B	EXISTING RACEWAY H17003 TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY	CC30B
RWYH21006A-A	5	Raceway		CBLH210000A-A	CTH340013A	HH21006B		CC30A
RWYH21006B-A	5	Raceway		CBLH210000B-A	CTH340014B	HH21006B		CC30A
RWYH269000A-A	5	Raceway	DB260001	CBLH269000A-A	CTH20133A	SUB269000A		CC30D
RWYH269000B-A	5	Raceway	DB260001	CBLH269000B-A	CTH20133B	SUB269000B		CC30D
RWYH290000A-A	4	Raceway		CBLH290000A-A	CTH30133A	SUB29A	EXISTING RACEWAY TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY	CC30A
RWYH290000B-A	4	Raceway		CBLH290000B-A	CTH30133B	SUB29B	EXISTING RACEWAY TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY	CC30A
RWYH33010CA-A	5	Raceway		CBLH169000A-A	CTH340001A	HH33010C		CC30B
RWYH33010CB-A	5	Raceway		CBLH169000B-A	CTH340002B	HH33010C		CC30B
RWYH340001-A	5	Raceway	DB340004	CBLH340133A-A	MH001001	MH340001		CC30A
RWYH340001-B	5	Raceway	DB340004	CBLH340133B-A	MH001001	MH340001		CC30A
RWYH340001-C	5	Raceway	DB340004	CBLH340133C-A	MH001001	MH340001		CC30A
RWYH340133A-A	5	Raceway	DB340005	CBLH340133A-A	MH340001	CTH340013A		CC30A
RWYH340133B-A	5	Raceway	DB340005	CBLH340133B-A	MH340001	CTH340014B		CC30A
RWYH340133C-A	5	Raceway	DB340005	CBLH340133C-A	MH340001	CTH340014B		CC30A
RWYH500000A-A	4	Raceway		CBLH500000A-A	CTH20133A	SUB50	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYH500000B-A	5	Raceway		CBLH500000B-A	CTH20133B	SUB50		CC30A
RWYM180101-A	1	Raceway		CBLV180101-A	JBX180101	M180101		CC30B
RWYM180102-A	1	Raceway		CBLV180102-A	JBX180102	M180102		CC30B
RWYM180103-A	1	Raceway		CBLV180103-A	JBX180103	M180103		CC30B
RWYM180104-A	1	Raceway		CBLV180104-A	JBX180104	M180104		CC30B
RWYM180105-A	1	Raceway		CBLV180105-A	JBX180105	M180105		CC30B
RWYM180106-A	1	Raceway		CBLV180106-A	JBX180106	M180106		CC30B
RWYM180107-A	1	Raceway		CBLV180107-A	JBX180107	M180107		CC30B
RWYM180108-A	1	Raceway		CBLV180108-A	JBX180108	M180108		CC30B
RWYM180109-A	1	Raceway		CBLV180109-A	JBX180109	M180109		CC30B
RWYM180110-A	1	Raceway		CBLV180110-A	JBX180110	M180110		CC30B
RWYM180111-A	1	Raceway		CBLV180111-A	JBX180111	M180111		CC30B
RWYM181001-A	1	Raceway		CBLV181001-A	JBX181001	M181001		CC30B
RWYM181002-A	1	Raceway		CBLV181002-A	JBX181002	M181002		CC30B
RWYM181003-A	1	Raceway		CBLV181003-A	JBX181003	M181003		CC30B
RWYM181004-A	1	Raceway		CBLV181004-A	JBX181004	M181004		CC30B
RWYM181005-A	1	Raceway		CBLV181005-A	JBX181005	M181005		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYM181006-A	1	Raceway		CBLV181006-A	JBX181006	M181006		CC30B
RWYM181511-A	1	Raceway		CBLV181511-A	JBX181511	M181511		CC30B
RWYM181512-A	1	Raceway		CBLV181512-A	JBX181512	M181512		CC30B
RWYM181521-A	1	Raceway		CBLV181521-A	JBX181521	M181521		CC30B
RWYM181522-A	1	Raceway		CBLV181522-A	JBX181522	M181522		CC30B
RWYP000011-A	1	Raceway		CBLP000011-A	DS000011	MCC 13A		CC30B
RWYP000011-B	1	Raceway		CBLP000011-B	TBX000011	DS000011		CC30B
RWYP000012-A	1	Raceway		CBLP000012-A	DS000012	MCC 13B		CC30B
RWYP000012-B	1	Raceway		CBLP000012-B	TBX000012	DS000012		CC30B
RWYP000021-A	1	Raceway		CBLP000021-A	DS000021	HH020002		CC30B
RWYP000021-B	1	Raceway		CBLP000021-B	TBX000021	DS000021		CC30B
RWYP000021-C	1	Raceway		CBLP000021-A	HH020002	MCC029001A		CC5F
RWYP000022-A	1	Raceway		CBLP000022-A	DS000022	HH020002		CC30B
RWYP000022-B	1	Raceway		CBLP000022-B	TBX000022	DS000022		CC30B
RWYP000022-C	1	Raceway		CBLP000022-A	HH020002	MCC029001B		CC5F
RWYP000031-A	1	Raceway		CBLP000031-A	DS000031	HH003101		CC30B
RWYP000031-B	1	Raceway		CBLP000031-B	TBX000031	DS000031		CC30B
RWYP000032-A	1	Raceway		CBLP000032-A	DS000032	HH003101		CC30B
RWYP000032-B	1	Raceway		CBLP000032-B	TBX000032	DS000032		CC30B
RWYP000901-A	2	Raceway	DB000901	CBLP000031-A	HH003101	HH000901		CC30B
				CBLP000032-A				
RWYP001001-A	2	Raceway	DB340007	CBLP340133AA-C	HH341001	HH001001		CC30A
RWYP001001-B	2	Raceway	DB340007	CBLP340133BA-C	HH341001	HH001001		CC30A
RWYP001001-C	2	Raceway	DB340007	CBLP340133CA-C	HH341001	HH001001		CC30A
RWYP001001-D	1	Raceway	DB340007	CBLP340133A-Q	HH341001	HH001001		CC30A
RWYP001001-E	1	Raceway	DB340007	CBLP340133A-AD	HH341001	HH001001		CC30A
RWYP001001-F	1	Raceway	DB340007	CBLP340133B-Q	HH341001	HH001001		CC30A
RWYP001001-G	1	Raceway	DB340007	CBLP340133B-AE	HH341001	HH001001		CC30A
RWYP001001-H	1	Raceway	DB340007	CBLP340133C-H	HH341001	HH001001		CC30A
RWYP001001-I	1	Raceway	DB340007	CBLP340133C-O	HH341001	HH001001		CC30A
RWYP001001-J	1	Raceway	DB340007	CBLP349201-F	HH341001	HH001001		CC30A
RWYP001001-K	1	Raceway	DB340007	CBLP001001-A	HH341001	HH001001		CC30A
RWYP001403-A	2	Raceway	DB001403	CBLP000031-A	HH001405	HH001403		CC30B
				CBLP000032-A				
RWYP001405-A	2	Raceway	DB001405	CBLP000031-A	HH000901	HH001405		CC30B
				CBLP000032-A				
RWYP006001-A	1	Raceway	DB005002	CBLP009100-A	HH006002	HH006001	EXISTING RACEWAY TO BE RETAGGED	CC30A
RWYP006002-A	1	Raceway	DB005003	CBLP009100-A	CTPR340003A	HH006002	EXISTING RACEWAY TO BE RETAGGED	CC30A
RWYP009100-AA	1	Raceway		CBLP009100-A	PNL349301A	CTPR340019A		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP009100-AB	1	Raceway	DB005001	CBLP009100-A	HH006001	SWGR009100	EXISTING RACEWAY TO BE RETAGGED	CC30A
RWYP020001-A	1	Raceway	DB020001	CBLP029201-39,41	PNL029201	RDWY LTG		CC5F
RWYP020001-D	1	Raceway		CBLP029303-C	PNL029303	HH020001		CC5F
RWYP029001A-A1	4	Raceway		CBLP029001A-A1	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A2	4	Raceway		CBLP029001A-A2	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A3	4	Raceway		CBLP029001A-A3	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A4	1	Raceway		CBLP029001A-A4	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-B1	4	Raceway	DB210001P	CBLP029001A-A1	PBX210001P	RWYP029001A-C1		CC5F
RWYP029001A-B2	4	Raceway	DB210001P	CBLP029001A-A2	PBX210001P	RWYP029001A-C2		CC5F
RWYP029001A-B3	4	Raceway	DB210001P	CBLP029001A-A3	PBX210001P	RWYP029001A-C3		CC5F
RWYP029001A-B4	4	Raceway	DB210001P	CBLP029001A-A4	PBX210001P	RWYP029001A-C4		CC5F
RWYP029001A-C1	4	Raceway		CBLP029001A-A1	RWYP029001A-B1	RWYP029001A-D1		CC5F
RWYP029001A-C2	4	Raceway		CBLP029001A-A2	RWYP029001A-B2	RWYP029001A-D2		CC5F
RWYP029001A-C3	4	Raceway		CBLP029001A-A3	RWYP029001A-B3	RWYP029001A-D3		CC5F
RWYP029001A-C4	4	Raceway		CBLP029001A-A4	RWYP029001A-B4	RWYP029001A-D4		CC5F
RWYP029001A-D1	4	Raceway	DB240011PC	CBLP029001A-A1	RWYP029001A-C1	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-D2	4	Raceway	DB240011PC	CBLP029001A-A2	RWYP029001A-C2	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-D3	4	Raceway	DB240011PC	CBLP029001A-A3	RWYP029001A-C3	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-D4	4	Raceway	DB240011PC	CBLP029001A-A4	RWYP029001A-C4	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-E1	4	Raceway	DB240009PC	CBLP029001A-A1	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-E2	4	Raceway	DB240009PC	CBLP029001A-A2	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-E3	4	Raceway	DB240009PC	CBLP029001A-A3	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-E4	4	Raceway	DB240009PC	CBLP029001A-A4	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001A-F1	4	Raceway	DB020001	CBLP029001A-A1	MH24225	MCC029001A		CC5F
RWYP029001A-F2	4	Raceway	DB020001	CBLP029001A-A2	MH24225	MCC029001A		CC5F
RWYP029001A-F3	4	Raceway	DB020001	CBLP029001A-A3	MH24225	MCC029001A		CC5F
RWYP029001A-F4	4	Raceway	DB020001	CBLP029001A-A4	MH24225	MCC029001A		CC5F
RWYP029001B-A1	4	Raceway		CBLP029001B-A1	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A2	4	Raceway		CBLP029001B-A2	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A3	4	Raceway		CBLP029001B-A3	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A4	4	Raceway		CBLP029001B-A4	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-B1	4	Raceway	DB210001P	CBLP029001B-A1	PBX210001P	RWYP029001B-C1		CC5F
RWYP029001B-B2	4	Raceway	DB210001P	CBLP029001B-A2	PBX210001P	RWYP029001B-C2		CC5F
RWYP029001B-B3	4	Raceway	DB210001P	CBLP029001B-A3	PBX210001P	RWYP029001B-C3		CC5F
RWYP029001B-B4	4	Raceway	DB210001P	CBLP029001B-A4	PBX210001P	RWYP029001B-C4		CC5F
RWYP029001B-C1	4	Raceway		CBLP029001B-A1	RWYP029001B-B1	RWYP029001B-D1		CC5F
RWYP029001B-C2	4	Raceway		CBLP029001B-A2	RWYP029001B-B2	RWYP029001B-D2		CC5F
RWYP029001B-C3	4	Raceway		CBLP029001B-A3	RWYP029001B-B3	RWYP029001B-D3		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP029001B-C4	4	Raceway		CBLP029001B-A4	RWYP029001B-B4	RWYP029001B-D4		CC5F
RWYP029001B-D1	4	Raceway	DB240011PC	CBLP029001B-A1	RWYP029001B-C1	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-D2	4	Raceway	DB240011PC	CBLP029001B-A2	RWYP029001B-C2	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-D3	4	Raceway	DB240011PC	CBLP029001B-A3	RWYP029001B-C3	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-D4	4	Raceway	DB240011PC	CBLP029001B-A4	RWYP029001B-C4	MH24224	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-E1	4	Raceway	DB240009PC	CBLP029001B-A1	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-E2	4	Raceway	DB240009PC	CBLP029001B-A2	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-E3	4	Raceway	DB240009PC	CBLP029001B-A3	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-E4	4	Raceway	DB240009PC	CBLP029001B-A4	MH24224	MH24225	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP029001B-F1	4	Raceway	DB020001	CBLP029001B-A1	MH24225	MCC029001B		CC5F
RWYP029001B-F2	4	Raceway	DB020001	CBLP029001B-A2	MH24225	MCC029001B		CC5F
RWYP029001B-F3	4	Raceway	DB020001	CBLP029001B-A3	MH24225	MCC029001B		CC5F
RWYP029001B-F4	4	Raceway	DB020001	CBLP029001B-A4	MH24225	MCC029001B		CC5F
RWYP150101-A	1	Raceway		CBLP150101-A	CTPR150001	DS150101		CC30B
RWYP150101-B	1	Raceway		CBLP150101-B	DS150101	TBX150101		CC30B
RWYP150102-A	1	Raceway		CBLP150102-A	CTPR150001	DS150102		CC30B
RWYP150102-B	1	Raceway		CBLP150102-B	DS150102	TBX150102		CC30B
RWYP150103-A	1	Raceway		CBLP150103-A	HH151001	DS150103		CC30B
RWYP150103-B	1	Raceway		CBLP150103-B	DS150103	TBX150103		CC30B
RWYP150104-A	1	Raceway		CBLP150104-A	HH151001	DS150104		CC30B
RWYP150104-B	1	Raceway		CBLP150104-B	DS150104	TBX150104		CC30B
RWYP150105-A	1	Raceway		CBLP150105-A	HH151003	DS150105		CC30B
RWYP150105-B	1	Raceway		CBLP150105-B	DS150105	TBX150105		CC30B
RWYP150106-A	1	Raceway		CBLP150106-A	HH151003	DS150106		CC30B
RWYP150106-B	1	Raceway		CBLP150106-B	DS150106	TBX150106		CC30B
RWYP150107-A	1	Raceway		CBLP150107-A	HH151003	DS150107		CC30B
RWYP150107-B	1	Raceway		CBLP150107-B	DS150107	TBX150107		CC30B
RWYP150108-A	1	Raceway		CBLP150108-A	HH151003	DS150108		CC30B
RWYP150108-B	1	Raceway		CBLP150108-B	DS150108	TBX150108		CC30B
RWYP150109-A	1	Raceway		CBLP150109-A	HH151003	DS150109		CC30B
RWYP150109-B	1	Raceway		CBLP150109-B	DS150109	TBX150109		CC30B
RWYP150110-A	1	Raceway		CBLP150110-A	HH151003	DS150110		CC30B
RWYP150110-B	1	Raceway		CBLP150110-B	DS150110	TBX150110		CC30B
RWYP150111-A	1	Raceway		CBLP150111-A	HH151003	DS150111		CC30B
RWYP150111-B	1	Raceway		CBLP150111-B	DS150111	TBX150111		CC30B
RWYP150112-A	1	Raceway		CBLP150112-A	CTP150003	DS150112		CC30B
RWYP150112-B	1	Raceway		CBLP150112-B	DS150112	TBX150112		CC30B
RWYP150113-A	1	Raceway		CBLP150113-A	CTP150003	DS150113		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP150113-B	1	Raceway		CBLP150113-B	DS150113	TBX150113		CC30B
RWYP150114-A	1	Raceway		CBLP150114-A	HH151007	DS150114		CC30B
RWYP150114-B	1	Raceway		CBLP150114-B	DS150114	TBX150114		CC30B
RWYP150115-A	1	Raceway		CBLP150115-A	HH151007	DS150115		CC30B
RWYP150115-B	1	Raceway		CBLP150115-B	DS150115	TBX150115		CC30B
RWYP150116-A	1	Raceway		CBLP150116-A	HH151009	DS150116		CC30B
RWYP150116-B	1	Raceway		CBLP150116-B	DS150116	TBX150116		CC30B
RWYP150117-A	1	Raceway		CBLP150117-A	HH151009	DS150117		CC30B
RWYP150117-B	1	Raceway		CBLP150117-B	DS150117	TBX150117		CC30B
RWYP150118-A	1	Raceway		CBLP150118-A	HH151009	DS150118		CC30B
RWYP150118-B	1	Raceway		CBLP150118-B	DS150118	TBX150118		CC30B
RWYP150119-A	1	Raceway		CBLP150119-A	HH151009	DS150119		CC30B
RWYP150119-B	1	Raceway		CBLP150119-B	DS150119	TBX150119		CC30B
RWYP151001-A	3	Raceway	DB150001	CBLP150103-A	CTPR150001	HH151001		CC30B
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
RWYP151003-A	3	Raceway	DB150003	CBLP150105-A	HH151001	HH151003		CC30B
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
RWYP151007-A	3	Raceway	DB150007	CBLP150114-A	CTP150003	HH151007		CC30B
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
RWYP151009-A	2	Raceway	DB150009	CBLP150116-A	HH151007	HH151009		CC30B
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
RWYP160001-A	1	Raceway		CBLP170250-A	PNL169402	HH160001		CC30B
RWYP160001-AA	1	Raceway		CBLP170111-B	VFD170111	HH160001		CC30B
RWYP160001-AB	1	Raceway		CBLP170112-B	VFD170112	HH160001		CC30B
RWYP160001-AC	1	Raceway		CBLP170113-B	VFD170113	HH160001		CC30B
RWYP160001-AD	1	Raceway		CBLP170121-B	VFD170121	HH160001		CC30B
RWYP160001-AE	1	Raceway		CBLP170122-B	VFD170122	HH160001		CC30B
RWYP160001-AF	1	Raceway		CBLP170123-B	VFD170123	HH160001		CC30B
RWYP160001-AG	1	Raceway		CBLP170131-B	VFD170131	HH160001		CC30B
RWYP160001-AH	1	Raceway		CBLP170132-B	VFD170132	HH160001		CC30B
RWYP160001-AJ	1	Raceway		CBLP170133-B	VFD170133	HH160001		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160001-AK	1	Raceway		CBLP170141-B	VFD170141	HH160001		CC30B
RWYP160001-AL	1	Raceway		CBLP170142-B	VFD170142	HH160001		CC30B
RWYP160001-AM	1	Raceway		CBLP170143-B	VFD170143	HH160001		CC30B
RWYP160001-B	1-1/2	Raceway	DB160003	CBLP170102-A	MCC169102B	HH160001		CC30B
				CBLP170104-A				
				CBLP170106-A				
				CBLP170202-A				
				CBLP170204-A				
RWYP160001-C	1-1/2	Raceway	DB160003	CBLP170111-A	VFD170111	HH160001		CC30B
RWYP160001-D	1-1/2	Raceway	DB160003	CBLP170112-A	VFD170112	HH160001		CC30B
RWYP160001-E	1-1/2	Raceway	DB160003	CBLP170113-A	VFD170113	HH160001		CC30B
RWYP160001-F	1-1/2	Raceway	DB160003	CBLP170121-A	VFD170121	HH160001		CC30B
RWYP160001-G	1-1/2	Raceway	DB160003	CBLP170122-A	VFD170122	HH160001		CC30B
RWYP160001-H	1-1/2	Raceway	DB160003	CBLP170123-A	VFD170123	HH160001		CC30B
RWYP160001-J	1-1/2	Raceway	DB160003	CBLP170131-A	VFD170131	HH160001		CC30B
RWYP160001-K	1-1/2	Raceway	DB160003	CBLP170132-A	VFD170132	HH160001		CC30B
RWYP160001-L	1-1/2	Raceway	DB160003	CBLP170133-A	VFD170133	HH160001		CC30B
RWYP160001-M	1-1/2	Raceway	DB160003	CBLP170141-A	VFD170141	HH160001		CC30B
RWYP160001-N	1-1/2	Raceway	DB160003	CBLP170142-A	VFD170142	HH160001		CC30B
RWYP160001-P	1-1/2	Raceway	DB160003	CBLP170143-A	VFD170143	HH160001		CC30B
RWYP160001-Q	1-1/4	Raceway	DB160003	CBLP170212-A	VFD170212	HH160001		CC30B
RWYP160001-R	1-1/4	Raceway	DB160003	CBLP170211-A	VFD170211	HH160001		CC30B
RWYP160001-S	1	Raceway		CBLP169301-D	PNL169301	HH160001		CC30B
				CBLP169301-E				
RWYP160001-U	1-1/2	Raceway	DB160003	CBLP170101-A	MCC169102A	HH160001		CC30B
				CBLP170103-A				
				CBLP170105-A				
				CBLP170201-A				
				CBLP170203-A				
RWYP160001-V	2	Raceway	DB160003	CBLP170220-A	PNL169203	HH160001		CC30B
				CBLP176001-A				
RWYP160001-W	1-1/2	Raceway	DB160003	CBLP169402-M	PNL169402	HH160001		CC30B
				CBLP169402-N				
RWYP160001-X	4	Raceway	DB160003	CBLX160001-X	MCC169102A	HH160001		CC30B
RWYP160001-Y	4	Raceway	DB160003	CBLX160001-Y	MCC169102B	HH160001		CC30B
RWYP160001-Z	1-1/2	Raceway	DB160003	CBLP170115-L	PNL169402	HH160001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
RWYP160002-W	1-1/2	Raceway	DB160003	CBLX160002-W	MCC169102A	HH160002		CC30B
RWYP160002-X	4	Raceway	DB160003	CBLX160002-X	MCC169102B	HH160002		CC30B
RWYP160004-A	4	Raceway	DB160013	CBLP180102-A	MCC169101B	HH160004		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181512-A				
RWYP160004-B	4	Raceway	DB160013	CBLP229101A-B	SWGR169101A	HH160004		CC30B
RWYP160004-C	4	Raceway	DB160013	CBLP229101B-A	SWGR169101B	HH160004		CC30B
RWYP160004-D	4	Raceway	DB160013	CBLP229101B-B	SWGR169101B	HH160004		CC30B
RWYP160004-E	1	Raceway	DB160013	CBLP181511-A	MCC169101A	HH160004		CC30B
RWYP160004-F	4	Raceway	DB160013	CBLP229101A-A	SWGR169101A	HH160004		CC30B
RWYP160004-G	1	Raceway	DB160013	CBLP169402-O	PNL169402	HH160004		CC30B
RWYP160004-H	1	Raceway		CBLP181621-A	PNL169204	HH160004		CC30B
RWYP160005-A	3	Raceway	DB160009	CBLP181111-A	MCC169101A	HH160005		CC30B
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP160005-B	2	Raceway	DB160009	CBLP181001-A	MCC169101A	HH160005		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181521-A				
RWYP160005-C	2-1/2	Raceway	DB160009	CBLP181132-A	VFD181132	HH160005		CC30B
RWYP160005-D	1-1/2	Raceway	DB160009	CBLP181522-A	MCC169101B	HH160005		CC30B
RWYP160005-E	2	Raceway	DB160009	CBLP180101-A	MCC169101A	HH160005		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP160005-F	3	Raceway	DB160009	CBLP181121-A	PNL169203	HH160005		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP160005-G	2	Raceway	DB160009	CBLP181221-A	PNL169204	HH160005		CC30B
				CBLP181222-A				
				CBLP181223-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
RWYP160005-H	2-1/2	Raceway	DB160009	CBLP181231-A	VFD181231	HH160005		CC30B
RWYP160005-J	2-1/2	Raceway	DB160009	CBLP181232-A	VFD181232	HH160005		CC30B
RWYP160005-K	2-1/2	Raceway	DB160009	CBLP181331-A	VFD181331	HH160005		CC30B
RWYP160005-L	2-1/2	Raceway	DB160009	CBLP181332-A	VFD181332	HH160005		CC30B
RWYP160005-M	2-1/2	Raceway	DB160009	CBLP181431-A	VFD181431	HH160005		CC30B
RWYP160005-N	2-1/2	Raceway	DB160009	CBLP181432-A	VFD181432	HH160005		CC30B
RWYP160005-P	2-1/2	Raceway	DB160009	CBLP181131-A	VFD181131	HH160005		CC30B
RWYP160005-Q	1	Raceway	DB160009	CBLP169402-P	PNL169402	HH160005		CC30B
				CBLP169402-Q				
RWYP160005-R	1	Raceway	DB160009	CBLP169402-K	PNL169402	HH160005		CC30B
RWYP160005-S	1	Raceway	DB160009	CBLP181550-A	PNL169402	HH160005		CC30B
				CBLP181651-A				
				CBLP181652-A				
RWYP160005-T	1-1/2	Raceway		CBLP181141-A	PNL169403	HH160005		CC30B
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
RWYP160005-U	1	Raceway		CBLP181550-C	RWYP181550-C	HH160005		CC30B
RWYP160007-A	5	Raceway	DB160007	CBLP160101-B	VFD160101	HH160007		CC30B
RWYP160007-B	5	Raceway	DB160007	CBLP160102-B	VFD160102	HH160007		CC30B
RWYP160007-C	3	Raceway	DB160007	CBLP160103-B	VFD160103	HH160007		CC30B
RWYP160007-D	1	Raceway	DB160007	CBLP169402-L	PNL169402	HH160007		CC30B
RWYP160007-E	3	Raceway	DB160007	CBLP160104-B	VFD160104	HH160007		CC30B
RWYP160007-F	3	Raceway	DB160007	CBLP160105-B	VFD160105	HH160007		CC30B
RWYP160007-G	3	Raceway	DB160007	CBLP160106-B	VFD160106	HH160007		CC30B
RWYP160007-H	1-1/2	Raceway		CBLP166001-A	PNL169204	HH160007		CC30B
RWYP160007-J	1	Raceway		CBLP160250-A	PNL169402	HH160007		CC30B
RWYP160007-K	1	Raceway		CBLP160101-C	PNL169403	HH160007		CC30B
				CBLP160103-C				
				CBLP160105-C				
RWYP160007-L	1	Raceway		CBLP160102-C	PNL169302	HH160007		CC30B
				CBLP160104-C				
				CBLP160106-C				
RWYP160010-A	4	Raceway	DB160005	CBLP169301-E	HH160001	HH160010		CC30B
				CBLP170111-A				
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170220-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP160010-B	4	Raceway	DB160005	CBLP170121-A	HH160001	HH160010		CC30B
				CBLP170122-A				
				CBLP170123-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160010-C	4	Raceway	DB160005	CBLP170131-A	HH160001	HH160010		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP160010-D	4	Raceway	DB160005	CBLP170141-A	HH160001	HH160010		CC30B
				CBLP170142-A				
				CBLP170143-A				
RWYP160010-E	1-1/2	Raceway	DB160005	CBLP170201-A	HH160001	HH160010		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP160010-F	4	Raceway	DB160005	CBLP170101-A	HH160001	HH160010		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
RWYP160010-G	2	Raceway	DB160005	CBLP170211-A	HH160001	HH160010		CC30B
RWYP160010-H	2	Raceway	DB160005	CBLP170212-A	HH160001	HH160010		CC30B
RWYP160010-O	1	Raceway	DB160005	CBLP169301-D	HH160001	HH160010		CC30B
				CBLP169402-M				
				CBLP169402-N				
RWYP160010-P	2	Raceway		CBLP170111-B	HH160001	HH160010		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP160101-B	2-1/2	Raceway		CBLP160101-B	HH160007	JBX160101		CC30B
RWYP160101-C	1	Raceway		CBLP160101-C	HH160007	CS160101		CC30B
RWYP160101-D	4	Raceway		CBLV160101-C	JBX160101	M160101	VENDOR CABLE	CC30B
RWYP160102-B	2-1/2	Raceway		CBLP160102-B	HH160007	JBX160102		CC30B
RWYP160102-C	1	Raceway		CBLP160102-C	HH160007	CS160102		CC30B
RWYP160102-D	4	Raceway		CBLV160102-C	JBX160102	M160102	VENDOR CABLE	CC30B
RWYP160103-B	2-1/2	Raceway		CBLP160103-B	HH160007	JBX160103		CC30B
RWYP160103-C	1	Raceway		CBLP160103-C	HH160007	CS160103		CC30B
RWYP160103-D	4	Raceway		CBLV160103-C	JBX160103	M160103	VENDOR CABLE	CC30B
RWYP160104-B	2-1/2	Raceway		CBLP160104-B	HH160007	JBX160104		CC30B
RWYP160104-C	1	Raceway		CBLP160104-C	HH160007	CS160104		CC30B
RWYP160104-D	4	Raceway		CBLV160104-C	JBX160104	M160104	VENDOR CABLE	CC30B
RWYP160105-B	2-1/2	Raceway		CBLP160105-B	HH160007	JBX160105		CC30B
RWYP160105-C	1	Raceway		CBLP160105-C	HH160007	CS160105		CC30B
RWYP160105-D	4	Raceway		CBLV160105-C	JBX160105	M160105	VENDOR CABLE	CC30B
RWYP160106-B	2-1/2	Raceway		CBLP160106-B	HH160007	JBX160106		CC30B
RWYP160106-C	1	Raceway		CBLP160106-C	HH160007	CS160106		CC30B
RWYP160106-D	4	Raceway		CBLV160106-C	JBX160106	M160106	VENDOR CABLE	CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160250-A	1	Raceway		CBLP160250-A	HH160007	DS160250		CC30B
RWYP160250-B	1	Raceway		CBLP160250-B	DS160250	CS160250		CC30B
RWYP160250-C	1	Raceway		CBLP160250-C	CS160250	HTT160250		CC30B
RWYP166001-A	2	Raceway		CBLP166001-A	HH160007	WRCP166001		CC30B
RWYP169301-D	1	Raceway		CBLP169301-D	HH170001	RDWY LTG		CC30B
RWYP169301-E	1	Raceway		CBLP169301-E	JBX170003	FLOOD LTG		CC30B
RWYP170001-A	3	Raceway		CBLP170111-A	HH160010	HH170001		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170220-A				
RWYP170001-B	3	Raceway	DB170002	CBLP170211-A	HH160010	HH170001		CC30B
				CBLP170212-A				
RWYP170001-E	1	Raceway	DB170002	CBLP169301-D	HH160010	HH170001		CC30B
				CBLP169301-E				
				CBLP169402-N				
RWYP170001-F	2	Raceway	DB170002	CBLP170115-L	HH160010	HH170001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP170001-G	2	Raceway	DB170002	CBLP170111-B	HH160010	HH170001		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP170002-A	4	Raceway	DB170004	CBLP170111-A	HH170001	JBX170002		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
RWYP170002-B	4	Raceway	DB170004	CBLP170121-A	HH170001	JBX170002		CC30B
				CBLP170122-A				
				CBLP170123-A				
RWYP170002-C	4	Raceway	DB170004	CBLP170131-A	HH170001	JBX170002		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP170002-F	2	Raceway	DB170004	CBLP176001-A	HH170001	JBX170002		CC30B
RWYP170002-G	1-1/2	Raceway	DB170004	CBLP170111-B	HH170001	JBX170002		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
RWYP170003-A	5	Raceway	DB170002	CBLP170121-A	HH160010	HH170001		CC30B
				CBLP170122-A				
				CBLP170123-A				
				CBLP170131-A				
				CBLP170132-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP170133-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170201-A				
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP170003-B	4	Raceway	DB170002	CBLP170101-A	HH160010	HH170001		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
RWYP170003-C	4	Raceway	DB170004	CBLP169301-E	HH170001	JBX170003		CC30B
				CBLP170101-A				
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
				CBLP170135-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170145-A				
RWYP170003-D	2	Raceway	DB170004	CBLP170141-B	HH170001	JBX170003		CC30B
				CBLP170142-B				
				CBLP170143-B				
RWYP170003-E	2	Raceway	DB170004	CBLP170204-A	HH170001	JBX170003		CC30B
RWYP170005-A	3	Raceway		CBLP170201-A	HH170001	JBX170005		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170211-A				
				CBLP170212-A				
				CBLP170220-A				
				CBLP170250-A				
RWYP170101-A	1	Raceway		CBLP170101-A	JBX170003	DS170101		CC30B
RWYP170101-B	1	Raceway		CBLP170101-B	DS170101	JBX170101		CC30B
RWYP170101-C	1	Raceway		CBLV170101-A	JBX170101	M170101		CC30B
RWYP170102-A	1	Raceway		CBLP170102-A	JBX170003	DS170102		CC30B
RWYP170102-B	1	Raceway		CBLP170102-B	DS170102	JBX170102		CC30B
RWYP170102-C	1	Raceway		CBLV170102-A	JBX170102	M170102		CC30B
RWYP170103-A	1	Raceway		CBLP170103-A	JBX170003	DS170103		CC30B
RWYP170103-B	1	Raceway		CBLP170103-B	DS170103	JBX170103		CC30B
RWYP170103-C	1	Raceway		CBLV170103-A	JBX170103	M170103		CC30B
RWYP170104-A	1	Raceway		CBLP170104-A	JBX170003	DS170104		CC30B
RWYP170104-B	1	Raceway		CBLP170104-B	DS170104	JBX170104		CC30B
RWYP170104-C	1	Raceway		CBLV170104-A	JBX170104	M170104		CC30B
RWYP170105-A	1	Raceway		CBLP170105-A	JBX170003	DS170105		CC30B
RWYP170105-B	1	Raceway		CBLP170105-B	DS170105	JBX170105		CC30B
RWYP170105-C	1	Raceway		CBLV170105-A	JBX170105	M170105		CC30B
RWYP170106-A	1	Raceway		CBLP170106-A	JBX170003	DS170106		CC30B
RWYP170106-B	1	Raceway		CBLP170106-B	DS170106	JBX170106		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170106-C	1	Raceway		CBLV170106-A	JBX170106	M170106		CC30B
RWYP170111-A	1	Raceway		CBLP170111-A	JBX170002	M170111		CC30B
RWYP170111-B	1	Raceway		CBLP170111-B	JBX170002	HTR170111		CC30B
RWYP170112-A	1	Raceway		CBLP170112-A	JBX170002	M170112		CC30B
RWYP170112-B	1	Raceway		CBLP170112-B	JBX170002	HTR170112		CC30B
RWYP170113-A	1	Raceway		CBLP170113-A	JBX170002	M170113		CC30B
RWYP170113-B	1	Raceway		CBLP170113-B	JBX170002	HTR170113		CC30B
RWYP170115-A	1	Raceway		CBLP170115-L	JBX170002	AIT170115		CC30B
RWYP170121-A	1	Raceway		CBLP170121-A	JBX170002	M170121		CC30B
RWYP170121-B	1	Raceway		CBLP170121-B	JBX170002	HTR170121		CC30B
RWYP170122-A	1	Raceway		CBLP170122-A	JBX170002	M170122		CC30B
RWYP170122-B	1	Raceway		CBLP170122-B	JBX170002	HTR170122		CC30B
RWYP170123-A	1	Raceway		CBLP170123-A	JBX170002	M170123		CC30B
RWYP170123-B	1	Raceway		CBLP170123-B	JBX170002	HTR170123		CC30B
RWYP170125-A	1	Raceway		CBLP170125-A	JBX170002	AIT170125		CC30B
RWYP170131-A	1	Raceway		CBLP170131-A	JBX170002	M170131		CC30B
RWYP170131-B	1	Raceway		CBLP170131-B	JBX170002	HTR170131		CC30B
RWYP170132-A	1	Raceway		CBLP170132-A	JBX170002	M170132		CC30B
RWYP170132-B	1	Raceway		CBLP170132-B	JBX170002	HTR170132		CC30B
RWYP170133-A	1	Raceway		CBLP170133-A	JBX170002	M170133		CC30B
RWYP170133-B	1	Raceway		CBLP170133-B	JBX170002	HTR170133		CC30B
RWYP170135-A	1	Raceway		CBLP170135-A	JBX170003	AIT170135		CC30B
RWYP170141-A	1	Raceway		CBLP170141-A	JBX170003	M170141		CC30B
RWYP170141-B	1	Raceway		CBLP170141-B	JBX170003	HTR170141		CC30B
RWYP170142-A	1	Raceway		CBLP170142-A	JBX170003	M170142		CC30B
RWYP170142-B	1	Raceway		CBLP170142-B	JBX170003	HTR170142		CC30B
RWYP170143-A	1	Raceway		CBLP170143-A	JBX170003	M170143		CC30B
RWYP170143-B	1	Raceway		CBLP170143-B	JBX170003	HTR170143		CC30B
RWYP170145-A	1	Raceway		CBLP170145-A	JBX170003	AIT170145		CC30B
RWYP170201-A	1	Raceway		CBLP170201-A	JBX170005	DS170201		CC30B
RWYP170201-B	1	Raceway		CBLP170201-B	DS170201	JBX170201		CC30B
RWYP170202-A	1	Raceway		CBLP170202-A	JBX170005	DS170202		CC30B
RWYP170202-B	1	Raceway		CBLP170202-B	DS170202	JBX170202		CC30B
RWYP170203-A	1	Raceway		CBLP170203-A	JBX170005	DS170203		CC30B
RWYP170203-B	1	Raceway		CBLP170203-B	DS170203	JBX170203		CC30B
RWYP170203-C	1	Raceway		CBLV170203-A	JBX170203	M170203		CC30B
RWYP170204-A	1	Raceway		CBLP170204-A	JBX170003	DS170204		CC30B
RWYP170204-B	1	Raceway		CBLP170204-B	DS170204	JBX170204		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170204-C	1	Raceway		CBLV170204-A	JBX170204	M170204		CC30B
RWYP170211-A	1-1/2	Raceway		CBLP170211-A	JBX170005	JBX170211		CC30B
RWYP170211-C	1	Raceway		CBLV170211-A	JBX170211	M170211		CC30B
RWYP170212-A	1-1/2	Raceway		CBLP170212-A	JBX170005	JBX170212		CC30B
RWYP170212-C	1	Raceway		CBLV170212-A	JBX170212	M170212		CC30B
RWYP170220-A	1	Raceway		CBLP170220-A	JBX170005	DS170220		CC30B
RWYP170220-B	1	Raceway		CBLP170220-B	HH170001	SGTE170220		CC30B
RWYP170250-A	1	Raceway		CBLP170250-A	JBX170005	DS170250		CC30B
RWYP170250-B	1	Raceway		CBLP170250-B	DS170250	CS170250		CC30B
RWYP170250-C	1	Raceway		CBLP170250-C	CS170250	HTT170250		CC30B
RWYP180001-A	6	Raceway	DB180005	CBLP181131-A	HH180003	JBX180001		CC30B
				CBLP181132-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181431-A				
				CBLP181432-A				
RWYP180001-B	2	Raceway	DB180005	CBLP181423-A	HH180003	JBX180001		CC30B
				CBLP186001-A				
RWYP180002-A	5	Raceway	DB160015	CBLP180102-A	HH160004	HH180002		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
				CBLP229101A-A				
RWYP180002-B	4	Raceway	DB160015	CBLP229101A-B	HH160004	HH180002		CC30B
RWYP180002-C	4	Raceway	DB160015	CBLP229101B-A	HH160004	HH180002		CC30B
RWYP180002-D	4	Raceway	DB160015	CBLP229101B-B	HH160004	HH180002		CC30B
RWYP180002-E	1	Raceway	DB160015	CBLP169402-O	HH160004	HH180002		CC30B
				CBLP181621-A				
RWYP180002-F	1	Raceway		CBLP181621-A	HH180002	JBX180002		CC30B
RWYP180003-A	5	Raceway	DB160011	CBLP181121-A	HH160005	HH180003		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181131-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181132-A				
				CBLP181141-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181223-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				
				CBLP181652-A				
RWYP180003-B	6	Raceway	DB160011	CBLP181001-A	HH160005	HH180003		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
				CBLP181431-A				
				CBLP181432-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP180003-C	1-1/2	Raceway	DB160011	CBLP181521-A	HH160005	HH180003		CC30B
				CBLP181522-A				
RWYP180003-D	1-1/2	Raceway	DB160011	CBLP180101-A	HH160005	HH180003		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP180003-E	3	Raceway	DB160011	CBLP181111-A	HH160005	HH180003		CC30B
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180003-F	3	Raceway	DB180005	CBLP181123-A	HH180003	JBX180003		CC30B
				CBLP181223-A				
				CBLP181511-A				
				CBLP181512-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				
				CBLP181652-A				
RWYP180003-G	4	Raceway	DB160009	CBLP180102-A	HH180002	HH180003		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
RWYP180003-H	2	Raceway	DB180005	CBLP181521-A	HH180003	JBX180003		CC30B
				CBLP181522-A				
RWYP180003-I	1	Raceway	DB160011	CBLP169402-P	HH160005	HH180003		CC30B
RWYP180003-J	1	Raceway	DB160011	CBLP169402-Q	HH160005	HH180003		CC30B
RWYP180005-A	2	Raceway	DB180005	CBLP180101-A	HH180003	JBX180005		CC30B
				CBLP180103-A				
				CBLP181121-A				
				CBLP181122-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181421-A				
				CBLP181422-A				
RWYP180005-B	4	Raceway	DB180001	CBLP229101A-B	HH180002	HH180005		CC30B
RWYP180005-C	4	Raceway	DB180001	CBLP229101B-A	HH180002	HH180005		CC30B
RWYP180005-D	4	Raceway	DB180001	CBLP229101B-B	HH180002	HH180005		CC30B
RWYP180005-E	1-1/2	Raceway	DB220003	CBLP181321-A	HH180007	JBX180005		CC30B
				CBLP181322-A				
RWYP180005-F	4	Raceway	DB180001	CBLP229101A-A	HH180002	HH180005		CC30B
RWYP180005-G	1	Raceway		CBLP229301-J	HH220001	HH180005		CC30B
RWYP180007-A	4	Raceway	DB180005	CBLP180105-A	HH180003	HH180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-B	4	Raceway	DB180007	CBLP180102-A	HH180007	JBX180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP186002-A				
RWYP180007-C	4	Raceway	DB180007	CBLP180105-A	HH180007	JBX180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-D	4	Raceway	DB180005	CBLP180102-A	HH180003	HH180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP186002-A				
RWYP180007-F	1	Raceway	DB180005	CBLP169402-Q	HH180003	HH180007		CC30B
RWYP180007-G	1-1/2	Raceway	DB180007	CBLP181141-A	HH180003	JBX180007		CC30B
				CBLP181241-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181341-A				
				CBLP181441-A				
RWYP180101-A	1	Raceway		CBLP180101-A	JBX180005	DS180101		CC30B
RWYP180101-B	1	Raceway		CBLP180101-B	DS180101	JBX180101		CC30B
RWYP180102-B	1	Raceway		CBLP180102-A	JBX180007	DS180102		CC30B
RWYP180102-C	1	Raceway		CBLP180102-B	DS180102	JBX180102		CC30B
RWYP180103-A	1	Raceway		CBLP180103-A	JBX180005	DS180103		CC30B
RWYP180103-B	1	Raceway		CBLP180103-B	DS180103	JBX180103		CC30B
RWYP180104-A	1	Raceway		CBLP180104-A	JBX180007	DS180104		CC30B
RWYP180104-B	1	Raceway		CBLP180104-B	DS180104	JBX180104		CC30B
RWYP180105-A	1	Raceway		CBLP180105-A	JBX180007	DS180105		CC30B
RWYP180105-B	1	Raceway		CBLP180105-B	DS180105	JBX180105		CC30B
RWYP180106-A	1	Raceway		CBLP180106-A	JBX180007	DS180106		CC30B
RWYP180106-B	1	Raceway		CBLP180106-B	DS180106	JBX180106		CC30B
RWYP180107-A	1	Raceway		CBLP180107-A	JBX180007	DS180107		CC30B
RWYP180107-B	1	Raceway		CBLP180107-B	DS180107	JBX180107		CC30B
RWYP180108-A	1	Raceway		CBLP180108-A	JBX180007	DS180108		CC30B
RWYP180108-B	1	Raceway		CBLP180108-B	DS180108	JBX180108		CC30B
RWYP180109-A	1	Raceway		CBLP180109-A	JBX180007	DS180109		CC30B
RWYP180109-B	1	Raceway		CBLP180109-B	DS180109	JBX180109		CC30B
RWYP180110-A	1	Raceway		CBLC180108-A	RWYC180108-A	CS180108		CC30B
RWYP180110-B	1	Raceway		CBLP180110-B	DS180110	JBX180110		CC30B
RWYP180111-A	1	Raceway		CBLP180111-A	JBX180007	DS180111		CC30B
RWYP180111-B	1	Raceway		CBLP180111-B	DS180111	JBX180111		CC30B
RWYP181001-A	1	Raceway		CBLP181001-A	JBX180007	DS181001		CC30B
RWYP181001-B	1	Raceway		CBLP181001-B	DS181001	JBX181001		CC30B
RWYP181002-A	1	Raceway		CBLP181002-A	JBX180007	DS181002		CC30B
RWYP181002-B	1	Raceway		CBLP181002-B	DS181002	JBX181002		CC30B
RWYP181003-A	1	Raceway		CBLP181003-A	JBX180007	DS181003		CC30B
RWYP181003-B	1	Raceway		CBLP181003-B	DS181003	JBX181003		CC30B
RWYP181004-A	1	Raceway		CBLP181004-A	JBX180007	DS181004		CC30B
RWYP181004-B	1	Raceway		CBLP181004-B	DS181004	JBX181004		CC30B
RWYP181005-A	1	Raceway		CBLP181005-A	JBX180007	DS181005		CC30B
RWYP181005-B	1	Raceway		CBLP181005-B	DS181005	JBX181005		CC30B
RWYP181006-A	1	Raceway		CBLP181006-A	JBX180007	DS181006		CC30B
RWYP181006-B	1	Raceway		CBLP181006-B	DS181006	JBX181006		CC30B
RWYP181111-A	1	Raceway		CBLP181111-A	JBX180007	DS181111		CC30B
RWYP181111-B	1	Raceway		CBLP181111-B	DS181111	M181111		CC30B
RWYP181111-C	1	Raceway		CBLP181111-C	JBX180007	HTR181111		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181112-A	1	Raceway		CBLP181112-A	JBX180007	DS181112		CC30B
RWYP181112-B	1	Raceway		CBLP181112-B	DS181112	M181112		CC30B
RWYP181112-C	1	Raceway		CBLP181112-C	JBX180007	HTR181112		CC30B
RWYP181113-A	1	Raceway		CBLP181113-A	JBX180007	DS181113		CC30B
RWYP181113-B	1	Raceway		CBLP181113-B	DS181113	M181113		CC30B
RWYP181113-C	1	Raceway		CBLP181113-C	JBX180007	HTR181113		CC30B
RWYP181114-A	1	Raceway		CBLP181114-A	JBX180007	DS181114		CC30B
RWYP181114-B	1	Raceway		CBLP181114-B	DS181114	M181114		CC30B
RWYP181114-C	1	Raceway		CBLP181114-C	JBX180007	HTR181114		CC30B
RWYP181121-A	1	Raceway		CBLP181121-A	JBX180005	FCV181121		CC30B
RWYP181122-A	1	Raceway		CBLP181122-A	JBX180005	DS181122		CC30B
RWYP181122-B	1	Raceway		CBLP181122-B	DS181122	FCV181122		CC30B
RWYP181123-A	1	Raceway		CBLP181123-A	JBX180003	FCV181123		CC30B
RWYP181131-A	2	Raceway		CBLP181131-A	JBX180001	JBX181131		CC30B
RWYP181131-B	4	Raceway		CBLV181131-A	JBX181131	M181131	VENDOR CABLE	CC30B
RWYP181132-A	2	Raceway		CBLP181132-A	JBX180001	JBX181132		CC30B
RWYP181132-B	4	Raceway		CBLV181132-A	JBX181132	M181132	VENDOR CABLE	CC30B
RWYP181141-A	1	Raceway		CBLP181141-A	JBX180007	AIT181141		CC30B
RWYP181211-A	1	Raceway		CBLP181211-A	JBX180007	DS181211		CC30B
RWYP181211-B	1	Raceway		CBLP181211-B	DS181211	M181211		CC30B
RWYP181211-C	1	Raceway		CBLP181211-C	JBX180007	HTR181211		CC30B
RWYP181212-A	1	Raceway		CBLP181212-A	JBX180007	DS181212		CC30B
RWYP181212-B	1	Raceway		CBLP181212-B	DS181212	M181212		CC30B
RWYP181212-C	1	Raceway		CBLP181212-C	JBX180007	HTR181212		CC30B
RWYP181213-A	1	Raceway		CBLP181213-A	JBX180007	DS181213		CC30B
RWYP181213-B	1	Raceway		CBLP181213-B	DS181213	M181213		CC30B
RWYP181213-C	1	Raceway		CBLP181213-C	JBX180007	HTR181213		CC30B
RWYP181214-A	1	Raceway		CBLP181214-A	JBX180007	DS181214		CC30B
RWYP181214-B	1	Raceway		CBLP181214-B	DS181214	M181214		CC30B
RWYP181214-C	1	Raceway		CBLP181214-C	JBX180007	HTR181214		CC30B
RWYP181221-A	1	Raceway		CBLP181221-A	JBX180005	FCV181221		CC30B
RWYP181222-A	1	Raceway		CBLP181222-A	JBX180005	DS181222		CC30B
RWYP181222-B	1	Raceway		CBLP181222-B	DS181222	FCV181222		CC30B
RWYP181223-A	1	Raceway		CBLP181223-A	JBX180003	FCV181223		CC30B
RWYP181231-A	2	Raceway		CBLP181231-A	JBX180001	JBX181231		CC30B
RWYP181231-B	4	Raceway		CBLV181231-A	JBX181231	M181231	VENDOR CABLE	CC30B
RWYP181232-A	2	Raceway		CBLP181232-A	JBX180001	JBX181232		CC30B
RWYP181232-B	4	Raceway		CBLV181232-A	JBX181232	M181232	VENDOR CABLE	CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181241-A	1	Raceway		CBLP181241-A	JBX180007	AIT181241		CC30B
RWYP181311-A	1	Raceway		CBLP181311-A	JBX180007	DS181311		CC30B
RWYP181311-B	1	Raceway		CBLP181311-B	DS181311	M181311		CC30B
RWYP181311-C	1	Raceway		CBLP181311-C	JBX180007	HTR181311		CC30B
RWYP181312-A	1	Raceway		CBLP181312-A	JBX180007	DS181312		CC30B
RWYP181312-B	1	Raceway		CBLP181312-B	DS181312	M181312		CC30B
RWYP181312-C	1	Raceway		CBLP181312-C	JBX180007	HTR181312		CC30B
RWYP181313-A	1	Raceway		CBLP181313-A	JBX180007	DS181313		CC30B
RWYP181313-B	1	Raceway		CBLP181313-B	DS181313	M181313		CC30B
RWYP181313-C	1	Raceway		CBLP181313-C	JBX180007	HTR181313		CC30B
RWYP181314-A	1	Raceway		CBLP181314-A	JBX180007	DS181314		CC30B
RWYP181314-B	1	Raceway		CBLP181314-B	DS181314	M181314		CC30B
RWYP181314-C	1	Raceway		CBLP181314-C	JBX180007	HTR181314		CC30B
RWYP181321-A	1	Raceway		CBLP181321-A	JBX180005	FCV181321		CC30B
RWYP181322-A	1	Raceway		CBLP181322-A	JBX180005	FCV181322		CC30B
RWYP181331-A	2	Raceway		CBLP181331-A	JBX180001	JBX181331		CC30B
RWYP181331-B	4	Raceway		CBLV181331-A	JBX181331	M181331	VENDOR CABLE	CC30B
RWYP181332-A	2	Raceway		CBLP181332-A	JBX180001	JBX181332		CC30B
RWYP181332-B	4	Raceway		CBLV181332-A	JBX181332	M181332	VENDOR CABLE	CC30B
RWYP181341-A	1	Raceway		CBLP181341-A	JBX180007	AIT181441		CC30B
RWYP181411-A	1	Raceway		CBLP181411-A	JBX180007	DS181411		CC30B
RWYP181411-B	1	Raceway		CBLP181411-B	DS181411	M181411		CC30B
RWYP181411-C	1	Raceway		CBLP181411-C	JBX180007	HTR181411		CC30B
RWYP181412-A	1	Raceway		CBLP181412-A	JBX180007	DS181412		CC30B
RWYP181412-B	1	Raceway		CBLP181412-B	DS181412	M181412		CC30B
RWYP181412-C	1	Raceway		CBLP181412-C	JBX180007	HTR181412		CC30B
RWYP181413-A	1	Raceway		CBLP181413-A	JBX180007	DS181413		CC30B
RWYP181413-B	1	Raceway		CBLP181413-B	DS181413	M181413		CC30B
RWYP181413-C	1	Raceway		CBLP181413-C	JBX180007	HTR181413		CC30B
RWYP181414-A	1	Raceway		CBLP181414-A	JBX180007	DS181414		CC30B
RWYP181414-B	1	Raceway		CBLP181414-B	DS181414	M181414		CC30B
RWYP181414-C	1	Raceway		CBLP181414-C	JBX180007	HTR181414		CC30B
RWYP181421-A	1	Raceway		CBLP181421-A	JBX180005	FCV181421		CC30B
RWYP181422-A	1	Raceway		CBLP181422-A	JBX180005	FCV181422		CC30B
RWYP181423-A	1	Raceway		CBLP181423-A	JBX180001	FCV181423		CC30B
RWYP181431-A	2	Raceway		CBLP181431-A	JBX180001	JBX181431		CC30B
RWYP181431-B	4	Raceway		CBLV181431-A	JBX181431	M181431	VENDOR CABLE	CC30B
RWYP181432-A	2	Raceway		CBLP181432-A	JBX180001	JBX181432		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181432-B	4	Raceway		CBLV181432-A	JBX181432	M181432	VENDOR CABLE	CC30B
RWYP181441-A	1	Raceway		CBLP181441-A	JBX180007	AIT181341		CC30B
RWYP181511-A	1	Raceway		CBLP181511-A	JBX180003	DS181511		CC30B
RWYP181511-B	1	Raceway		CBLP181511-B	DS181511	JBX181511		CC30B
RWYP181512-A	1	Raceway		CBLP181512-A	JBX180003	DS181512		CC30B
RWYP181512-B	1	Raceway		CBLP181512-B	DS181512	JBX181512		CC30B
RWYP181521-A	1	Raceway		CBLP181521-A	JBX180003	DS181521		CC30B
RWYP181521-B	1	Raceway		CBLP181521-B	DS181521	JBX181521		CC30B
RWYP181522-A	1	Raceway		CBLP181522-A	JBX180003	DS181522		CC30B
RWYP181522-B	1	Raceway		CBLP181522-B	DS181522	JBX181522		CC30B
RWYP181550-A	1	Raceway		CBLP181550-A	JBX180003	DS181550		CC30B
RWYP181550-B	1	Raceway		CBLP181550-B	DS181550	CS181550		CC30B
RWYP181550-C	1	Raceway		CBLP181550-C	CS181550	RWYP160005-U		CC30B
RWYP181621-A	1	Raceway		CBLP181621-A	JBX180002	DS181621		CC30B
RWYP181651-A	1	Raceway		CBLP181651-A	JBX180003	DS181651		CC30B
RWYP181651-B	1	Raceway		CBLP181651-B	DS181651	CS181651		CC30B
RWYP181651-C	1	Raceway		CBLP181651-C	CS181651	HTT181651		CC30B
RWYP181652-A	1	Raceway		CBLP181652-A	JBX180003	DS181652		CC30B
RWYP181652-B	1	Raceway		CBLP181652-B	DS181652	CS181652		CC30B
RWYP181652-C	1	Raceway		CBLP181652-C	CS181652	HTT181652		CC30B
RWYP18550-C	1	Raceway		CBLP181550-C	JBX180003	HTT181550		CC30B
RWYP186001-A	1-1/2	Raceway		CBLP186001-A	JBX180001	WRCP186001		CC30B
RWYP191011-A	1	Raceway		CBLP191011-A	TB1920	DS1910011		CC30B
RWYP191011-B	1	Raceway		CBLP191011-B	DS1910011	PCV191011		CC30B
RWYP1920-A	1-1/4	Raceway	DB33010D	CBLP191011-A	HH33010D	TB1920	EXISTING RACEWAY XP19061 TO BE RETAGGED. CONTRACTOR TO VERIFY SIZE	CC30B
RWYP192701-AA	1	Raceway	DB190002	CBLP192701-A	PNL229301	HH190001		CC30B
RWYP192701-AB	1	Raceway		CBLP192701-A	HH190001	AIT192701		CC30B
RWYP210001A-E	1	Raceway		CBLP210001A-E	PBX210001P	LV21A		CC5F
RWYP210001B-C	1	Raceway		CBLP210001B-C	PBX210001P	LV21B		CC5F
RWYP210001P-A	4	Raceway	DB210001P	CBLP210001A-E	CTP24	PBX210001P	EXISTING RACEWAY TO BE RETAGGED.	CC5F
				CBLP210001B-C				
				CBLP210011-B				
				CBLP210011A-A				
				CBLP210011B-A				
				CBLP219101-A				
				CBLP219101-B				
				CBLP240011A-A				
RWYP210011-B	1-1/2	Raceway		CBLP210001A-E	JP24	CTP24		CC5F
				CBLP210001B-C				
RWYP210011-C	1	Raceway		CBLP210011-B	JP24	CTP24		CC5F
RWYP210011-D	1	Raceway		CBLP210011-B	PBX210001P	TBX210011		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP210011A-A	1-1/2	Raceway		CBLP210011A-A	PBX210001P	MCC 21A		CC30B
				CBLP219101-A				
RWYP210011B-A	1-1/2	Raceway		CBLP210011B-A	PBX210001P	MCC 21B		CC30B
				CBLP219101-B				
RWYP21001C-A	1-1/4	Raceway	DB21001C	CBLP230390-A	HH21002C	HH21001C	EXISTING RACEWAY XP23003 TO BE RETAGGED	CC5F
RWYP21002C-A	1-1/4	Raceway	DB21002C	CBLP230390-A	MCC21A	HH21002C	EXISTING RACEWAY XP23003 TO BE RETAGGED	CC5F
RWYP219101-A	1-1/2	Raceway		CBLP210011A-A	JP24	CTP24		CC30B
				CBLP219101-A				
RWYP219101-B	1-1/2	Raceway		CBLP210011B-A	JP24	CTP24		CC30B
				CBLP219101-B				
RWYP220001-A	4	Raceway	DB220003	CBLP229101A-A	HH180005	HH220001		CC30B
RWYP220001-B	4	Raceway	DB220003	CBLP229101A-B	HH180005	HH220001		CC30B
RWYP220001-C	4	Raceway	DB220003	CBLP229101B-A	HH180005	HH220001		CC30B
RWYP220001-D	4	Raceway	DB220003	CBLP229101B-B	HH180005	HH220001		CC30B
RWYP220001-E	2	Raceway	DB001401	CBLP000031-A	HH001403	HH220001		CC30B
				CBLP000032-A				
RWYP229101A-A	4	Raceway	DB220001	CBLP229101A-A	HH220001	MCC229101A		CC30B
RWYP229101A-B	4	Raceway	DB220001	CBLP229101A-B	HH220001	MCC229101A		CC30B
RWYP229101A-E	1	Raceway	DB220001	CBLP000031-A	HH220001	MCC229101A		CC30B
RWYP229101B-A	4	Raceway	DB220001	CBLP229101B-A	HH220001	MCC229101B		CC30B
RWYP229101B-B	4	Raceway	DB220001	CBLP229101B-B	HH220001	MCC229101B		CC30B
RWYP229101B-E	1	Raceway	DB220001	CBLP000032-A	HH220001	MCC229101B		CC30B
RWYP229301-I	1	Raceway	DB220001	CBLP229301-I	PNL229301	HH220001		CC30B
				CBLP229301-J				
RWYP230390-A	1-1/4	Raceway	DB21000C	CBLP230390-A	HH21001C	DS230390	EXISTING RACEWAY XP23003 TO BE RETAGGED	CC5F
RWYP240011A-A	1	Raceway		CBLP240011A-A	CTP24	NCE240011		CC5F
RWYP240011A-B	1	Raceway		CBLP240011A-A	JP21	PBX210001P		CC5F
RWYP33010D-A	1	Raceway		CBLP191011-A	TRAY 480 VOLTS	HH33010D	EXISTING RACEYWAY	EXISTING
RWYP340133A-AD	1	Raceway		CBLP340133A-AD	HH001001	DG340133A		CC30A
RWYP340133A-AQ	1	Raceway		CBLP340133A-AQ	SWGR340133AA	NGR340133A		CC30B
RWYP340133A-QA	1	Raceway		CBLP340133A-Q	PNL349402	CTPR340017A		CC30A
RWYP340133A-QB	1	Raceway		CBLP340133A-Q	HH001001	DG340133A		CC30A
RWYP340133AA-C	2	Raceway		CBLP340133AA-C	HH001001	PNL340133AA		CC30A
RWYP340133B-AE	1	Raceway		CBLP340133B-AE	HH001001	DG340133B		CC30A
RWYP340133B-AR	1	Raceway		CBLP340133B-AR	SWGR340133BA	NGR340133B		CC30B
RWYP340133B-QA	1	Raceway		CBLP340133B-Q	PNL349302A	CTPR340010B		CC30A
RWYP340133B-QB	1	Raceway		CBLP340133B-Q	HH001001	DG340133B		CC30A
RWYP340133BA-C	2	Raceway		CBLP340133BA-C	HH001001	PNL340133BA		CC30A
RWYP340133C-HA	1	Raceway		CBLP340133C-H	PNL349301B	CTPR340017A		CC30A
RWYP340133C-HB	1	Raceway		CBLP340133C-H	HH001001	DG340133C		CC30A
RWYP340133C-O	1	Raceway		CBLP340133C-O	HH001001	DG340133C		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340133C-V	1	Raceway		CBLP340133C-V	SWGR340133CA	NGR340133C		CC30B
RWYP340133CA-C	2	Raceway		CBLP340133CA-C	HH001001	PNL340133CA		CC30A
RWYP341001-A	2	Raceway	DB340008	CBLP340133AA-C	CTPR340013A	HH341001		CC30A
RWYP341001-B	2	Raceway	DB340008	CBLP340133BA-C	CTPR340014B	HH341001		CC30A
RWYP341001-C	2	Raceway	DB340008	CBLP340133CA-C	CTPR340013A	HH341001		CC30A
RWYP341001-D	1	Raceway	DB340008	CBLP340133A-Q	CTPR340013A	HH341001		CC30A
RWYP341001-E	1	Raceway	DB340008	CBLP340133A-AD	PNL349406	HH341001		CC30A
RWYP341001-F	1	Raceway	DB340008	CBLP340133B-Q	CTPR340014B	HH341001		CC30A
RWYP341001-G	1	Raceway	DB340008	CBLP340133B-AE	PNL349407	HH341001		CC30A
RWYP341001-H	1	Raceway	DB340008	CBLP340133C-H	CTPR340013A	HH341001		CC30A
RWYP341001-I	1	Raceway	DB340008	CBLP340133C-O	PNL349405	HH341001		CC30A
RWYP341001-J	2	Raceway	DB340008	CBLP349201-F	CTPR340014B	HH341001		CC30A
				CBLP349201-G				
RWYP341001-K	1	Raceway	DB340008	CBLP001001-A	CTPR340013A	HH341001		CC30A
RWYP341001-L	1	Raceway	DB340008	CBLP341001-A	CTPR340014B	HH341001		CC30A
RWYP341011-B	1	Raceway		CBLP341011-B	CTPR340014B	HH341011		CC30A
RWYP349201-F	1	Raceway		CBLP349201-F	HH001001	RDWY LTG		CC30A
RWYP349201-G	1	Raceway		CBLP349201-G	HH341001	RDWY LTG		CC30A
RWYPX020001A	2	Raceway	DB020001	CBLX020001A	3W ELEC ROOM	MH24225		CC5F
RWYPX020001B	2	Raceway	DB020001	CBLX020001B	3W ELEC ROOM	MH24225		CC5F
RWYPX020001C	2	Raceway	DB020001	CBLX020001C	3W ELEC ROOM	MH24225		CC5F
RWYS151002-A	2-1/2	Raceway		CBLC150103-A	CTS150002	HH151002		CC30B
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
RWYS160000-A	1	Raceway		CBLS160101-C	HH160008	PLC160001		CC30B
				CBLS160101-D				
				CBLS160101-E				
RWYS160000-B	1	Raceway		CBLS160102-C	HH160008	PLC160001		CC30B
				CBLS160102-D				
				CBLS160102-E				
RWYS160000-C	1	Raceway		CBLS160103-C	HH160008	PLC160001		CC30B
				CBLS160103-D				
				CBLS160103-E				
RWYS160000-D	1	Raceway		CBLS160104-C	HH160008	PLC160001		CC30B
				CBLS160104-D				
				CBLS160104-E				
RWYS160000-E	1	Raceway		CBLS160105-C	HH160008	PLC160001		CC30B
				CBLS160105-D				
				CBLS160105-E				
RWYS160000-F	1	Raceway		CBLS160106-C	HH160008	PLC160001		CC30B
				CBLS160106-D				
				CBLS160106-E				
RWYS160002-A	1-1/2	Raceway	DB160004	CBLS170111-A	VFD170111	HH160002		CC30B
				CBLS170111-B				
RWYS160002-B	1-1/2	Raceway	DB160004	CBLS170112-A	VFD170112	HH160002		CC30B
				CBLS170112-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160002-C	1-1/2	Raceway	DB160004	CBLS170113-A	VFD170113	HH160002		CC30B
				CBLS170113-B				
RWYS160002-D	1-1/2	Raceway	DB160004	CBLS170121-A	VFD170121	HH160002		CC30B
				CBLS170121-B				
RWYS160002-E	1-1/2	Raceway	DB160004	CBLS170122-A	VFD170122	HH160002		CC30B
				CBLS170122-B				
RWYS160002-F	1-1/2	Raceway	DB160004	CBLS170123-A	VFD170123	HH160002		CC30B
				CBLS170123-B				
RWYS160002-G	1-1/2	Raceway	DB160004	CBLS170131-A	VFD170131	HH160002		CC30B
				CBLS170131-B				
RWYS160002-H	1-1/2	Raceway	DB160004	CBLS170132-A	VFD170132	HH160002		CC30B
				CBLS170132-B				
RWYS160002-J	1-1/2	Raceway	DB160004	CBLS170133-A	VFD170133	HH160002		CC30B
				CBLS170133-B				
RWYS160002-K	1-1/2	Raceway	DB160004	CBLS170141-A	VFD170141	HH160002		CC30B
				CBLS170141-B				
RWYS160002-L	1-1/2	Raceway	DB160004	CBLS170142-A	VFD170142	HH160002		CC30B
				CBLS170142-B				
RWYS160002-M	1-1/2	Raceway	DB160004	CBLS170143-A	VFD170143	HH160002		CC30B
				CBLS170143-B				
RWYS160003-A	4	Raceway	DB160014	CBLS181221-C	PLC169101B	HH160003		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS160006-A	1-1/2	Raceway	DB160010	CBLS181131-A	VFD181131	HH160006		CC30B
				CBLS181131-B				
RWYS160006-B	4	Raceway	DB160010	CBLS181121-C	PLC169101A	HH160006		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS160006-C	1-1/2	Raceway	DB160010	CBLS181132-A	VFD181132	HH160006		CC30B
				CBLS181132-B				
RWYS160006-D	1-1/2	Raceway	DB160010	CBLS181231-A	VFD181231	HH160006		CC30B
				CBLS181231-B				
RWYS160006-E	1-1/2	Raceway	DB160010	CBLS181232-A	VFD181232	HH160006		CC30B
				CBLS181232-B				
RWYS160006-F	1-1/2	Raceway	DB160010	CBLS181331-A	VFD181331	HH160006		CC30B
				CBLS181331-B				
RWYS160006-G	1-1/2	Raceway	DB160010	CBLS181332-A	VFD181332	HH160006		CC30B
				CBLS181332-B				
RWYS160006-H	1-1/2	Raceway	DB160010	CBLS181431-A	VFD181431	HH160006		CC30B
				CBLS181431-B				
RWYS160006-J	1-1/2	Raceway	DB160010	CBLS181432-A	VFD181432	HH160006		CC30B
				CBLS181432-B				
RWYS160008-A	1	Raceway	DB160008	CBLS160101-A	VFD160101	HH160008		CC30B
				CBLS160101-B				
RWYS160008-B	1	Raceway	DB160008	CBLS160102-A	VFD160102	HH160008		CC30B
				CBLS160102-B				
RWYS160008-C	1	Raceway	DB160008	CBLS160103-A	VFD160103	HH160008		CC30B
				CBLS160103-B				
RWYS160008-D	1	Raceway	DB160008	CBLS160104-A	VFD160104	HH160008		CC30B
				CBLS160104-B				
RWYS160008-E	1	Raceway	DB160008	CBLS160105-A	VFD160105	HH160008		CC30B
				CBLS160105-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160008-F	1	Raceway	DB160008	CBLS160106-A	VFD160106	HH160008		CC30B
				CBLS160106-B				
RWYS160008-H	1	Raceway		CBLS160100-A	CAB160001	HH160008		CC30B
RWYS160008-I	1	Raceway		CBLS160200-A	PLC160001	HH160008		CC30B
RWYS160009-A	4	Raceway	DB160006	CBLS170111-A	HH160002	HH160009		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
				CBLS170141-A				
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS160100-A	1	Raceway		CBLS160100-A	HH160008	LI160100		CC30B
RWYS160100-B	1	Raceway		CBLS160100-B	LI160100	LT160100		CC30B
RWYS160101-A	1	Raceway		CBLS160101-A	HH160008	CS160101		CC30B
RWYS160101-B	1	Raceway		CBLS160101-B	HH160008	CS160101		CC30B
RWYS160101-C	1	Raceway		CBLS160101-C	CS160101	HH160008		CC30B
RWYS160101-D	1	Raceway		CBLS160101-D	CS160101	HH160008		CC30B
RWYS160101-E	1	Raceway		CBLS160101-E	CS160101	HH160008		CC30B
RWYS160102-A	1	Raceway		CBLS160102-A	HH160008	CS160102		CC30B
RWYS160102-B	1	Raceway		CBLS160102-B	HH160008	CS160102		CC30B
RWYS160102-C	1	Raceway		CBLS160102-C	CS160102	HH160008		CC30B
RWYS160102-D	1	Raceway		CBLS160102-D	CS160102	HH160008		CC30B
RWYS160102-E	1	Raceway		CBLS160102-E	CS160102	HH160008		CC30B
RWYS160103-A	1	Raceway		CBLS160103-A	HH160008	CS160103		CC30B
RWYS160103-B	1	Raceway		CBLS160103-B	HH160008	CS160103		CC30B
RWYS160103-C	1	Raceway		CBLS160103-C	CS160103	HH160008		CC30B
RWYS160103-D	1	Raceway		CBLS160103-D	CS160103	HH160008		CC30B
RWYS160103-E	1	Raceway		CBLS160103-E	CS160103	HH160008		CC30B
RWYS160104-A	1	Raceway		CBLS160104-A	HH160008	CS160104		CC30B
RWYS160104-B	1	Raceway		CBLS160104-B	HH160008	CS160104		CC30B
RWYS160104-C	1	Raceway		CBLS160104-C	CS160104	HH160008		CC30B
RWYS160104-D	1	Raceway		CBLS160104-D	CS160104	HH160008		CC30B
RWYS160104-E	1	Raceway		CBLS160104-E	CS160104	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160105-A	1	Raceway		CBLS160105-A	HH160008	CS160105		CC30B
RWYS160105-B	1	Raceway		CBLS160105-B	HH160008	CS160105		CC30B
RWYS160105-C	1	Raceway		CBLS160105-C	CS160105	HH160008		CC30B
RWYS160105-D	1	Raceway		CBLS160105-D	CS160105	HH160008		CC30B
RWYS160105-E	1	Raceway		CBLS160105-E	CS160105	HH160008		CC30B
RWYS160106-A	1	Raceway		CBLS160106-A	HH160008	CS160106		CC30B
RWYS160106-B	1	Raceway		CBLS160106-B	HH160008	CS160106		CC30B
RWYS160106-C	1	Raceway		CBLS160106-C	CS160106	HH160008		CC30B
RWYS160106-D	1	Raceway		CBLS160106-D	CS160106	HH160008		CC30B
RWYS160106-E	1	Raceway		CBLS160106-E	CS160106	HH160008		CC30B
RWYS160200-A	1	Raceway		CBLS160200-A	HH160008	LI160200		CC30B
RWYS160200-B	1	Raceway		CBLS160200-B	LI160100	LT160200		CC30B
RWYS170001-A	4	Raceway	DB170003	CBLS170111-A	HH170002	JBX170001		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
RWYS170002-A	1-1/2	Raceway	DB170001	CBLS170211-A	HH160009	HH170002		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170002-F	2	Raceway	DB170001	CBLS170111-A	HH160009	HH170002		CC30B
				CBLS170112-A				
				CBLS170113-A				
				CBLS170121-A				
				CBLS170122-A				
				CBLS170123-A				
				CBLS170131-A				
				CBLS170132-A				
				CBLS170133-A				
				CBLS170141-A				
				CBLS170142-A				
				CBLS170143-A				
RWYS170002-G	2	Raceway	DB170001	CBLS170111-B	HH160009	HH170002		CC30B
				CBLS170112-B				
				CBLS170113-B				
				CBLS170121-B				
				CBLS170122-B				
				CBLS170123-B				
				CBLS170131-B				
				CBLS170132-B				
				CBLS170133-B				
				CBLS170141-B				
				CBLS170142-B				
				CBLS170143-B				
RWYS170004-C	2	Raceway	DB170003	CBLS170141-A	HH170002	JBX170004		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS170006-A	1-1/2	Raceway		CBLS170211-A	HH170002	JBX170006		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170111-A	1	Raceway		CBLS170111-A	JBX170001	CS170111		CC30B
RWYS170111-B	1	Raceway		CBLS170111-B	JBX170001	CS170111		CC30B
RWYS170112-A	1	Raceway		CBLS170112-A	JBX170001	CS170112		CC30B
RWYS170112-B	1	Raceway		CBLS170112-B	JBX170001	CS170112		CC30B
RWYS170113-A	1	Raceway		CBLS170113-A	JBX170001	CS170113		CC30B
RWYS170113-B	1	Raceway		CBLS170113-B	JBX170001	CS170113		CC30B
RWYS170121-A	1	Raceway		CBLS170121-A	JBX170001	CS170121		CC30B
RWYS170121-B	1	Raceway		CBLS170121-B	JBX170001	CS170121		CC30B
RWYS170122-A	1	Raceway		CBLS170122-A	JBX170001	CS170122		CC30B
RWYS170122-B	1	Raceway		CBLS170122-B	JBX170001	CS170122		CC30B
RWYS170123-A	1	Raceway		CBLS170123-A	JBX170001	CS170123		CC30B
RWYS170123-B	1	Raceway		CBLS170123-B	JBX170001	CS170123		CC30B
RWYS170131-A	1	Raceway		CBLS170131-A	JBX170001	CS170131		CC30B
RWYS170131-B	1	Raceway		CBLS170131-B	JBX170001	CS170131		CC30B
RWYS170132-A	1	Raceway		CBLS170132-A	JBX170001	CS170132		CC30B
RWYS170132-B	1	Raceway		CBLS170132-B	JBX170001	CS170132		CC30B
RWYS170133-A	1	Raceway		CBLS170133-A	JBX170001	CS170133		CC30B
RWYS170133-B	1	Raceway		CBLS170133-B	JBX170001	CS170133		CC30B
RWYS170141-A	1	Raceway		CBLS170141-A	JBX170004	CS170141		CC30B
RWYS170141-B	1	Raceway		CBLS170141-B	JBX170004	CS170141		CC30B
RWYS170142-A	1	Raceway		CBLS170142-A	JBX170004	CS170142		CC30B
RWYS170142-B	1	Raceway		CBLS170142-B	JBX170004	CS170142		CC30B
RWYS170143-A	1	Raceway		CBLS170143-A	JBX170004	CS170143		CC30B
RWYS170143-B	1	Raceway		CBLS170143-B	JBX170004	CS170143		CC30B
RWYS170211-A	1	Raceway		CBLS170211-A	JBX170006	CS170211		CC30B
RWYS170211-B	1	Raceway		CBLS170211-B	JBX170006	CS170211		CC30B
RWYS170212-A	1	Raceway		CBLS170212-A	JBX170006	CS170212		CC30B
RWYS170212-B	1	Raceway		CBLS170212-B	JBX170006	CS170212		CC30B
RWYS180001-A	4	Raceway	DB160016	CBLS181221-C	HH160003	HH180001		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180002-A	3	Raceway	DB180006	CBLS181131-A	HH180004	JBX180002		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180002-B	4	Raceway	DB180006	CBLS181123-C	HH180004	JBX180002		CC30B
				CBLS181611-B				
RWYS180002-C	4	Raceway	DB180006	CBLS181223-C	HH180004	JBX180002		CC30B
				CBLS181621-B				
RWYS180002-D	2	Raceway	DB180006	CBLS181221-C	HH180004	JBX180006		CC30B
RWYS180004-A	2-1/2	Raceway	DB160012	CBLS181131-A	HH160006	HH180004		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180004-B	3-1/2	Raceway	DB160012	CBLS181121-C	HH160006	HH180004		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS180004-C	3-1/2	Raceway	DB180010	CBLS181221-C	HH180001	HH180004		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180006-A	2-1/2	Raceway	DB180006	CBLS181121-C	HH180004	JBX180006		CC30B
RWYS181121-C	2	Raceway		CBLS181121-C	JBX180006	TBX181121		CC30B
RWYS181123-C	2	Raceway		CBLS181123-C	JBX180002	TBX181123		CC30B
RWYS181131-A	1	Raceway		CBLS181131-A	JBX180002	CS181131		CC30B
				CBLS181131-B				
RWYS181132-A	1	Raceway		CBLS181132-A	JBX180002	CS181132		CC30B
				CBLS181132-B				
RWYS181221-C	2	Raceway		CBLS181221-C	JBX180006	TBX181221		CC30B
RWYS181223-C	2	Raceway		CBLS181223-C	JBX180002	TBX181223		CC30B
RWYS181231-A	1	Raceway		CBLS181231-A	JBX180002	CS181231		CC30B
				CBLS181231-B				
RWYS181232-A	1	Raceway		CBLS181232-A	JBX180002	CS181232		CC30B
				CBLS181232-B				
RWYS181331-A	1	Raceway		CBLS181331-A	JBX180002	CS181331		CC30B
				CBLS181331-B				
RWYS181332-A	1	Raceway		CBLS181332-A	JBX180002	CS181332		CC30B
				CBLS181332-B				
RWYS181431-A	1	Raceway		CBLS181431-A	JBX180002	CS181431		CC30B
				CBLS181431-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS181432-A	1	Raceway		CBLS181432-A	JBX180002	CS181432		CC30B
				CBLS181432-B				
RWYS181611-B	2	Raceway		CBLS181611-B	JBX180002	TBX181611		CC30B
RWYS181621-A	1	Raceway		CBLS181621-A	TBX181621	SGTE181621		
RWYS181621-B	2	Raceway		CBLS181621-B	JBX180002	TBX181621		CC30B
RWYS181622A-A	1	Raceway		CBLS181622A-A	TBX181621	LI181622A		
RWYS191011-A	1	Raceway		CBLS191011-A	TB1921	CS191011		CC30B
RWYS191011-B	1	Raceway		CBLS191011-B	CS191011	PCV191011		CC30B
RWYS191012-B	1	Raceway		CBLS191012-A	TB1921	PIT191012		CC30B
RWYS1921-A	1-1/2	Raceway	DB33010C	CBLS191011-A	HH33010C	TB1921	EXISTING RACEWAY XS19040 TO BE RETAGGED. CONTRACTOR TO VERIFY SIZE	CC30B
				CBLS191012-A				
RWYS192701-AA	1	Raceway	DB190001	CBLD192701-A	CAB220001	HH190002		CC30B
RWYS192701-AB	1	Raceway		CBLD192701-A	HH190002	AIT192701		CC30B
RWYS33010C-A	1-1/4	Raceway		CBLS191011-A	TRAY 3320	HH33010C		CC30B
				CBLS191012-A				
RWYS331001-F	1-1/4	Raceway		CBLS191011-A	CAB331001	RIO 33C		CC30B
				CBLS191012-A				
RWYSX020003A	4	Raceway	DB020003	CBLX020003A	3W ELEC ROOM	HH020001		CC5F
RWYSX020003B	4	Raceway	DB020003	CBLX020003B	3W ELEC ROOM	HH020001		CC5F
RWYSX020005-A	4	Raceway	DB020005	CBLX020005A	HH020001	JBX230001-B		CC5F
RWYSX020005-B	4	Raceway	DB020005	CBLX020005B	HH020001	JBX230001-B		CC5F
RWYSX020005-C	4	Raceway	DB020005	CBLX020005C	HH020001	JBX230001-B		CC5F
RWYV170201-A	1	Raceway		CBLV170201-A	JBX170201	M170201		CC30B
RWYV170202-A	1	Raceway		CBLV170202-A	JBX170202	M170202		CC30B
RWYX000901-A	2	Raceway	DB000901	CBLX000901A	HH003101	HH000901		CC30B
RWYX000902-A	2	Raceway	DB000902	CBLX000902A	HH003102	HH000902		CC30B
RWYX001001-A	5	Raceway		CBLX340133A-A	DG340133A	MH001001		CC30A
RWYX001001-B	5	Raceway		CBLX340133B-A	DG340133B	MH001001		CC30A
RWYX001001-C	5	Raceway		CBLX340133C-A	DG340133C	MH001001		CC30A
RWYX001001-D	2	Raceway	DB340007	CBLX340007-A	HH341001	HH001001		CC30A
RWYX001001-E	2	Raceway	DB340007	CBLX340007-B	HH341001	HH001001		CC30A
RWYX001001-F	2	Raceway	DB340007	CBLX340007-C	HH341001	HH001001		CC30A
RWYX001001-G	2	Raceway	DB340007	CBLX340007-D	HH341001	HH001001		CC30A
RWYX001001-H	2	Raceway	DB340007	CBLX340007-E	HH341001	HH001001		CC30A
RWYX001001-I	2	Raceway	DB340007	CBLX340007-F	HH341001	HH001001		CC30A
RWYX001001-J	1	Raceway	DB340007	CBLX340133A-C	MH341001	HH001001		CC30A
RWYX001001-K	1	Raceway	DB340007	CBLX340133B-C	HH341001	HH001001		CC30A
RWYX001001-L	1	Raceway	DB340007	CBLX340133C-B	HH341001	HH001001		CC30A
RWYX001002-A	4	Raceway	DB340001	CBLX340001-A	MH341002	HH001002		CC30A
RWYX001002-B	4	Raceway	DB340001	CBLX340001-B	MH341002	HH001002		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX001002-C	4	Raceway	DB340001	CBLX340001-C	MH341002	HH001002		CC30A
RWYX001401-A	1	Raceway	DB001401	CBLX001401A	HH001403	HH220001		CC30B
RWYX001402-A	1	Raceway	DB001402	CBLX001402A	HH001404	HH220002		CC30B
RWYX001403-A	1	Raceway	DB001403	CBLX001403A	HH001405	HH001403		CC30B
RWYX001404-A	1	Raceway	DB001404	CBLX001404A	HH001406	HH001404		CC30B
RWYX001405-A	1	Raceway	DB001405	CBLX001405A	HH000901	HH001405		CC30B
RWYX001406-A	1	Raceway	DB001406	CBLX001406A	HH000902	HH001406		CC30B
RWYX150001-A	2	Raceway	DB150001	CBLX150001-A	TUNNEL	HH151001		CC30B
RWYX150001-B	2	Raceway	DB150001	CBLX150001-B	TUNNEL	HH151001		CC30B
RWYX150002-A	3	Raceway	DB150002	CBLX150002-A	TUNNEL	HH151002		CC30B
RWYX150002-B	3	Raceway	DB150002	CBLX150002-B	TUNNEL	HH151002		CC30B
RWYX150003-A	2	Raceway	DB150003	CBLX150003-A	HH151001	HH151003		CC30B
RWYX150003-B	2	Raceway	DB150003	CBLX150003-B	HH151001	HH151003		CC30B
RWYX150004-A	3	Raceway	DB150004	CBLX150004-A	HH151002	HH151004		CC30B
RWYX150004-B	3	Raceway	DB150004	CBLX150004-B	HH151002	HH151004		CC30B
RWYX150005-A	2	Raceway	DB150005	CBLX150005-A	HH151003	HH151005		CC30B
RWYX150006-A	3	Raceway	DB150006	CBLX150006-A	HH151004	HH151006		CC30B
RWYX150007-A	2	Raceway	DB150007	CBLX150007-C	TUNNEL	HH1007		CC30B
RWYX150007-B	2	Raceway	DB150007	CBLX150007-D	TUNNEL	HH1007		CC30B
RWYX150008-A	3	Raceway	DB150008	CBLX150008-C	TUNNEL	HH1008		CC30B
RWYX150008-B	3	Raceway	DB150008	CBLX150008-D	TUNNEL	HH1008		CC30B
RWYX150009-A	2	Raceway	DB150009	CBLX150009-C	HH1007	HH1009		CC30B
RWYX150009-B	2	Raceway	DB150009	CBLX150009-D	HH1007	HH1009		CC30B
RWYX150010-A	3	Raceway	DB150010	CBLX150010-C	HH1008	HH1010		CC30B
RWYX150010-B	3	Raceway	DB150010	CBLX150010-D	HH1008	HH1010		CC30B
RWYX160003-C	4	Raceway	DB160014	CBLX160003-A	MCC169101B	HH160003		CC30B
RWYX160003-D	4	Raceway	DB160014	CBLX160003-B	MCC169101B	HH160003		CC30B
RWYX160004-A	4	Raceway	DB160013	CBLX229101A-A	SWGR169001A	HH160004		CC30B
RWYX160004-B	4	Raceway	DB160013	CBLX229101B-A	SWGR169001B	HH160004		CC30B
RWYX160004-H	4	Raceway	DB160013	CBLX160004-A	MCC169101B	HH160004		CC30B
RWYX160004-J	4	Raceway	DB160013	CBLX160004-B	MCC169101B	HH160004		CC30B
RWYX160005-S	4	Raceway	DB160009	CBLX160005-A	MCC169101A	HH160005		CC30B
RWYX160005-T	4	Raceway	DB160009	CBLX160005-B	MCC169101A	HH160005		CC30B
RWYX160006-T	4	Raceway	DB160010	CBLX160006-B	MCC169101A	HH160006		CC30B
RWYX160006-U	4	Raceway	DB160010	CBLX160006-A	MCC169101A	HH160006		CC30B
RWYX160009-B	4	Raceway	DB160006	CBLX170004-A	HH160002	HH160009		CC30B
RWYX160010-J	4	Raceway	DB160005	CBLX170003-A	HH160001	HH160010		CC30B
RWYX160010-K	4	Raceway	DB160005	CBLX170003-B	HH160001	HH160010		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX160010-L	4	Raceway	DB160005	CBLX170003-C	HH160001	HH160010		CC30B
RWYX160010-M	4	Raceway	DB160005	CBLX170003-D	HH160001	HH160010		CC30B
RWYX169000A-A	5	Raceway	DB160001	CBLX169000A-A	HH17001B	SUB169000A	MV SPARE RACEWAY	CC30B
RWYX169000B-A	5	Raceway	DB160001	CBLX169000B-A	HH17001B	SUB169000B	MV SPARE RACEWAY	CC30B
RWYX170001-A	4	Raceway	DB170002	CBLX170003-A	HH160010	HH170001		CC30B
RWYX170001-B	4	Raceway	DB170002	CBLX170003-B	HH160010	HH170001		CC30B
RWYX170001-C	4	Raceway	DB170002	CBLX170003-C	HH160010	HH170001		CC30B
RWYX170001-D	4	Raceway	DB170002	CBLX170003-D	HH160010	HH170001		CC30B
RWYX170002-A	4	Raceway	DB170001	CBLX170004-A	HH160009	HH170002		CC30B
RWYX170003-K	4	Raceway	DB170004	CBLX170003-A	HH170001	JBX170003		CC30B
RWYX170003-L	4	Raceway	DB170004	CBLX170003-B	HH170001	JBX170003		CC30B
RWYX170003-M	4	Raceway	DB170004	CBLX170003-C	HH170001	JBX170003		CC30B
RWYX170003-N	4	Raceway	DB170004	CBLX170003-D	HH170001	JBX170003		CC30B
RWYX170004-F	4	Raceway	DB170003	CBLX170004-A	HH170002	JBX170004		CC30B
RWYX180001-A	4	Raceway	DB180001	CBLX180001-A	HH180002	HH180005		CC30B
RWYX180001-B	4	Raceway	DB180001	CBLX180001-B	HH180002	HH180005		CC30B
RWYX180001-C	4	Raceway	DB160016	CBLX180004-A				CC30B
RWYX180001-D	4	Raceway	DB160016	CBLX180004-B				CC30B
RWYX180002-A	4	Raceway	DB160015	CBLX229101A-A	HH160004	HH180002		CC30B
RWYX180002-B	4	Raceway	DB160015	CBLX229101B-A	HH160004	HH180002		CC30B
RWYX180002-C	4	Raceway	DB180002	CBLX180002-A	RWYX180002-F	HH180002		CC30B
RWYX180002-D	4	Raceway	DB180002	CBLX180002-B	RWYX180002-G	HH180002		CC30B
RWYX180002-F	4	Raceway	DB160015	CBLX180002-A	HH160004	RWYX180002-C		CC30B
RWYX180002-G	4	Raceway	DB160015	CBLX180002-B	HH160004	RWYX180002-D		CC30B
RWYX180003-K	4	Raceway	DB160011	CBLX180003-A	HH160005	RWYX180003-M		CC30B
RWYX180003-L	4	Raceway	DB160011	CBLX180003-B	HH160005	RWYX180003-N		CC30B
RWYX180003-M	4	Raceway	DB180009	CBLX180003-A	RWYX180003-K	HH180003		CC30B
RWYX180003-N	4	Raceway	DB180009	CBLX180003-B	RWYX180003-L	HH180003		CC30B
RWYX180004-L	4	Raceway	DB160012	CBLX180004-A	HH160006	RWYX180001-C		CC30B
RWYX180004-M	4	Raceway	DB160012	CBLX180004-B	HH160006	RWYX180001-D		CC30B
RWYX180004-N	4	Raceway	DB180010	CBLX180004-A	RWYX180001-C	HH180004		CC30B
RWYX180004-P	4	Raceway	DB180010	CBLX180004-B	RWYX180001-D	HH180004		CC30B
RWYX180005-A	4	Raceway	DB180001	CBLX229101A-A	HH180002	HH180005		CC30B
RWYX180005-B	4	Raceway	DB180001	CBLX229101B-A	HH180002	HH180005		CC30B
RWYX180007-G	4	Raceway	DB180005	CBLX180007-A	HH180003	HH180007		CC30B
RWYX180007-H	4	Raceway	DB180005	CBLX180007-B	HH180003	HH180007		CC30B
RWYX180008-P	4	Raceway	DB180006	CBLX180008-A	HH180004	HH180008		CC30B
RWYX180008-Q	4	Raceway	DB180006	CBLX180008-B	HH180004	HH180008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX190001-A	1	Raceway	DB190002	CBLX190001-A	AREA 22 BLDG	HH190001	STUB CONDUIT UP IN A FEASIBLE LOCATION IN THE ELEC RM	CC30B
RWYX190001-B	1	Raceway	DB190002	CBLX190001-B	AREA 22 BLDG	HH190001		CC30B
RWYX190001-C	1	Raceway	DB190002	CBLX190001-C	AREA 22 BLDG	HH190001		CC30B
RWYX190001-D	1	Raceway	DB190002	CBLX190001-D	AREA 22 BLDG	HH190001		CC30B
RWYX190002-A	1	Raceway	DB190001	CBLX190002-A	AREA 22 BLDG	HH190002	STUB CONDUIT UP IN A FEASIBLE LOCATION IN THE ELEC RM	CC30B
RWYX190002-B	1	Raceway	DB190001	CBLX190002-B	AREA 22 BLDG	HH190002		CC30B
RWYX210001	4	Raceway	DB210001S	CBLX210001A	CTS24	PBX210001S-A		CC5F
RWYX21006A-A	5	Raceway		CBLX210000A-A	CTH340014A	HH21006B	CCF 008	CC30A / REV 1
RWYX21006B-A	5	Raceway		CBLX210000B-A	CTH340012B	HH21006B	CCF 008	CC30A / REV 1
RWYX220001-A	4	Raceway	DB220003	CBLX229101A-A	HH180005	HH220001		CC30B
RWYX220001-B	4	Raceway	DB220003	CBLX229101B-A	HH180005	HH220001		CC30B
RWYX220001-C	2	Raceway	DB220002	CBLX220001-A	HH220002	PLC220001		CC30B
RWYX220001-D	4	Raceway	DB220001	CBLX220001-B	HH220001	ELEC RM SOUTH WALL		CC30B
RWYX220001-E	4	Raceway	DB220001	CBLX220001-C	HH220001	ELEC RM SOUTH WALL		CC30B
RWYX220003-A	4	Raceway	DB220003	CBLX220003-A	HH220001	HH220003		CC30B
RWYX220003-B	4	Raceway	DB220003	CBLX220003-B	HH220001	HH220003		CC30B
RWYX220003-C	1-1/2	Raceway	DB220003	CBLX220003-C	HH220001	HH220003		CC30B
RWYX220003-D	1-1/2	Raceway	DB220003	CBLX220003-D	HH220001	HH220003		CC30B
RWYX220004-A	4	Raceway	DB220004	CBLX220004-A	HH220002	HH180006		CC30B
RWYX220004-B	4	Raceway	DB220004	CBLX220004-B	HH220002	HH180006		CC30B
RWYX220004-C	2	Raceway	DB220004	CBLX220004-C	HH220002	HH180006		CC30B
RWYX220004-D	2	Raceway	DB220004	CBLX220004-D	HH220002	HH180006		CC30B
RWYX220011-A	4	Raceway	DB220002	CBLX220011-A	HH220002	NCE220011		CC30B
RWYX220011-B	4	Raceway	DB220002	CBLX220011-B	HH220002	NCE220011		CC30B
RWYX229101A-C	4	Raceway	DB220001	CBLX229101A-A	HH220001	MCC229101A		CC30B
RWYX229101A-D	2	Raceway	DB220001	CBLX229101A-B	HH220001	MCC229101A		CC30B
RWYX229101A-E	1	Raceway		CBLX229101A-C	HH220002	MCC229101A		CC30B
RWYX229101B-C	4	Raceway	DB220001	CBLX229101B-A	HH220001	MCC229101B		CC30B
RWYX229101B-D	2	Raceway	DB220001	CBLX229101B-B	HH220001	MCC229101B		CC30B
RWYX229101B-E	1	Raceway		CBLX229101B-C	HH220002	MCC229101B		CC30B
RWYX229301-A	1-1/2	Raceway	DB220001	CBLX229301-A	HH220001	PNL229301		CC30B
RWYX229301-B	1-1/2	Raceway	DB220001	CBLX229301-B	HH220001	PNL229301		CC30B
RWYX23613-A	4	Raceway	DB001001	CBLX001001A	HH001002	MH23613		CC30A
RWYX23613-B	4	Raceway	DB001001	CBLX001001B	HH001002	MH23613		CC30A
RWYX23613-C	4	Raceway	DB001001	CBLX001001C	HH001002	MH23613		CC30A
RWYX23614A-C	4	Raceway	DB23614A	CBLX23614A-A	MH23613	JBX230001-A		CC30A
RWYX23614A-D	4	Raceway	DB23614A	CBLX23614A-B	MH23613	JBX230001-A		CC30A
RWYX269000A-A	5	Raceway	DB260001	CBLX269000A-A	TUNNEL	SUB269000A		CC30D

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX269000B-A	5	Raceway	DB260001	CBLX269000B-A	TUNNEL	SUB269000B		CC30D
RWYX340001-D	5	Raceway	DB340004	CBLX340133A-A	MH001001	MH340001		CC30A
RWYX340001-E	5	Raceway	DB340004	CBLX340133B-A	MH001001	MH340001		CC30A
RWYX340001-F	5	Raceway	DB340004	CBLX340133C-A	MH001001	MH340001		CC30A
RWYX340011-A	5	Raceway	DB340006	CBLX340006-A	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-B	5	Raceway	DB340006	CBLX340006-B	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-C	5	Raceway	DB340006	CBLX340006-C	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-D	5	Raceway	DB340006	CBLX340006-D	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-E	5	Raceway	DB340006	CBLX340006-E	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-F	5	Raceway	DB340006	CBLX340006-F	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340133A-A	5	Raceway	DB340005	CBLX340133A-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133A-C	1	Raceway		CBLX340133A-C	HH001001	DG340133A		CC30A
RWYX340133B-A	5	Raceway	DB340005	CBLX340133B-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133B-C	1	Raceway		CBLX340133B-C	HH001001	DG340133B		CC30A
RWYX340133C-A	5	Raceway	DB340005	CBLX340133C-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133C-B	1	Raceway		CBLX340133C-B	HH001001	DG340133C		CC30A
RWYX341001-A	2	Raceway	DB340008	CBLX340008-A	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-B	2	Raceway	DB340008	CBLX340008-B	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-C	2	Raceway	DB340008	CBLX340008-C	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-D	2	Raceway	DB340008	CBLX340008-D	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-E	2	Raceway	DB340008	CBLX340008-E	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-F	1	Raceway	DB340008	CBLX340133A-C	PNL349406	MH341001		CC30A
RWYX341001-G	1	Raceway	DB340008	CBLX340133B-C	PNL349407	HH341001		CC30A
RWYX341001-H	1	Raceway	DB340008	CBLX340133C-B	PNL349405	HH341001		CC30A
RWYX341002-A	4	Raceway	DB340002	CBLX340002-A	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341002-B	4	Raceway	DB340002	CBLX340002-B	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341002-C	4	Raceway	DB340002	CBLX340002-C	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341011-A	3	Raceway	DB340009	CBLX340009-A	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-B	3	Raceway	DB340009	CBLX340009-B	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-C	3	Raceway	DB340009	CBLX340009-C	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-D	3	Raceway	DB340009	CBLX340009-D	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-E	3	Raceway	DB340009	CBLX340009-E	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-F	3	Raceway	DB340009	CBLX340009-F	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-G	3	Raceway	DB340009	CBLX340009-G	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341012-A	4	Raceway	DB340003	CBLX340003-A	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-B	4	Raceway	DB340003	CBLX340003-B	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-C	4	Raceway	DB340003	CBLX340003-C	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-D	4	Raceway	DB340003	CBLX340003-D	34 BLDG NORTH WALL	HH341012		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX341012-E	4	Raceway	DB340003	CBLX340003-E	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-F	4	Raceway	DB340003	CBLX340003-F	34 BLDG NORTH WALL	HH341012		CC30A

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC330101	18	Tray		CBLC330202-A			EXISTING TRAY IN ENGINE ROOM TO BE EXTEND INTO BLOWER ROOM	CC30B
				CBLC330202A-A				
				CBLC330202A-B				
				CBLC330203-A				
				CBLC330203-B				
				CBLC330203A-A				
				CBLC330204-A				
				CBLC330204-B				
				CBLC330204A-A				
				CBLC330550A-A				
				CBLC330550B-A				
				CBLC330641-A				
				CBLC330641-B				
				CBLC330642-A				
				CBLC330642-B				
				CBLC330643-A				
				CBLC330643-B				
				CBLC332021-A				
				CBLC332025-A				
				CBLC332031-A				
				CBLC332035-A				
				CBLC332041-A				
				CBLC332045-A				
				CBLC336411-A				
				CBLC336412-A				
				CBLC336421-A				
				CBLC336422-A				
				CBLC336431-A				
				CBLC336432-A				
				CBLC336436-A				
CTC340003A	12	Tray		CBLC340133A-B				CC30A
				CBLC340133A-C				
				CBLC340133A-E				
				CBLC340134A-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
CTC340004B	12	Tray		CBLC340032-A			ADDENDUM 3	CC30A/REV A
				CBLC340133B-B				
				CBLC340133B-C				
				CBLC340133B-E				
				CBLC340134B-A				
				CBLC340211-B				
				CBLC340211-C				
				CBLC340211-D				
				CBLC340411-B				
				CBLC340411-C				
				CBLC340411-D				
				CBLC340511-B				
				CBLC340511-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC341012-A				
				CBLC349000B-A				
CTC340005A	12	Tray		CBLC340133A-B				CC30A
				CBLC340133A-C				
				CBLC340133A-E				
				CBLC340134A-A				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
CTC340008B	12	Tray		CBLC340032-A			ADDENDUM 3	CC30A/REV A
				CBLC340211-B				
				CBLC340211-C				
				CBLC340211-D				
				CBLC340411-B				
				CBLC340411-C				
				CBLC340411-D				
				CBLC340511-B				
				CBLC340511-C				
CTC340009A	12	Tray		CBLC340031-A			ADDENDUM 3	CC30A/REV A
				CBLC340111-B				
				CBLC340111-C				
				CBLC340111-D				
				CBLC340311-B				
				CBLC340311-C				
				CBLC340311-D				
				CBLC340511-D				
				CBLC349303-A				
				CBLC349303-B				
CTC340010B	12	Tray		CBLC340133B-B			ADDENDUM 3	CC30A/REV A
				CBLC340133B-C				
				CBLC340133B-E				
				CBLC340134B-A				
				CBLC340211-B				
				CBLC340211-C				
				CBLC340211-D				
				CBLC340411-B				
				CBLC340411-C				
				CBLC340411-D				
				CBLC340511-B				
				CBLC340511-C				
				CBLC341012-A				
				CBLC349000B-A				
				CBLC349102-A				
CTC340011A	12	Tray		CBLC340111-A			ADDENDUM 3	CC30A/REV A
				CBLC340111-E				
				CBLC340133A-A				
				CBLC340133A-B				
				CBLC340133A-D				
				CBLC340133A-E				
				CBLC340133A-G				
				CBLC340133A-H				
				CBLC340133A-J				
				CBLC340133A-K				
				CBLC340133A-L				
				CBLC340133A-M				
				CBLC340133A-N				
				CBLC340133A-P				
				CBLC340311-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC340311-E				
CTC340012B	12	Tray		CBLC340133B-A			ADDENDUM 3	CC30A/REV A
				CBLC340133B-B				
				CBLC340133B-D				
				CBLC340133B-E				
				CBLC340133B-G				
				CBLC340133B-H				
				CBLC340133B-J				
				CBLC340133B-K				
				CBLC340133B-L				
				CBLC340133B-M				
				CBLC340133B-N				
				CBLC340133B-P				
				CBLC340211-A				
				CBLC340211-E				
				CBLC340411-A				
				CBLC340411-E				
CTC340013A	6	Tray		CBLC340095-A			ADDENDUM 3	CC30A/REV A
				CBLC340111-A				
				CBLC340111-B				
				CBLC340111-C				
				CBLC340111-D				
				CBLC340111-E				
				CBLC340133A-A				
				CBLC340133A-C				
				CBLC340133A-D				
				CBLC340133A-G				
				CBLC340133A-H				
				CBLC340133A-J				
				CBLC340133A-K				
				CBLC340133A-L				
				CBLC340133A-M				
				CBLC340133A-N				
				CBLC340133A-P				
				CBLC340133C-A				
				CBLC340133C-B				
				CBLC340133C-D				
				CBLC340133C-E				
				CBLC340133C-F				
				CBLC340133C-G				
				CBLC340133C-H				
				CBLC340134A-A				
				CBLC340311-A				
				CBLC340311-B				
				CBLC340311-C				
				CBLC340311-D				
				CBLC340311-E				
				CBLC340511-A				
				CBLC340511-D				
				CBLC340511-E				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
				CBLC349301-A				
				CBLC349301-B				
				CBLC349303-A				
				CBLC349303-B				
CTC340014B	12	Tray		CBLC340133B-C			ADDENDUM 3	CC30A/REV A
				CBLC340133B-D				
				CBLC340134B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC340211-A				
				CBLC340211-D				
				CBLC340211-E				
				CBLC340411-A				
				CBLC340411-D				
				CBLC340411-E				
				CBLC340511-B				
				CBLC340511-C				
				CBLC341012-A				
				CBLC349000B-A				
				CBLC349102-A				
				CBLC349202-A				
				CBLC349302-A				
				CBLC349302-B				
CTC340015A	12	Tray		CBLC340133C-A			ADDENDUM 3	CC30A/REV A
				CBLC340133C-B				
				CBLC340133C-D				
				CBLC340133C-E				
				CBLC340133C-F				
				CBLC340133C-G				
				CBLC340133C-H				
				CBLC340511-A				
				CBLC340511-E				
CTC340016B	6	Tray		CBLC340133B-A			ADDENDUM 3	CC30A/REV A
				CBLC340133B-C				
				CBLC340133B-D				
				CBLC340133B-G				
				CBLC340133B-H				
				CBLC340133B-J				
				CBLC340133B-K				
				CBLC340133B-L				
				CBLC340133B-M				
				CBLC340133B-N				
				CBLC340133B-P				
				CBLC340134B-A				
				CBLC340211-A				
				CBLC340211-B				
				CBLC340211-C				
				CBLC340211-D				
				CBLC340211-E				
				CBLC340411-A				
				CBLC340411-B				
				CBLC340411-C				
				CBLC340411-D				
				CBLC340411-E				
				CBLC340511-B				
				CBLC340511-C				
				CBLC341012-A				
				CBLC349000B-A				
				CBLC349102-A				
				CBLC349202-A				
				CBLC349302-A				
				CBLC349302-B				
CTC340017A	6	Tray		CBLC340111-A			ADDENDUM 3	CC30A/REV A
				CBLC340111-B				
				CBLC340111-C				
				CBLC340111-D				
				CBLC340111-E				
				CBLC340133A-A				
				CBLC340133A-C				
				CBLC340133A-D				
				CBLC340133A-G				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC340133A-H				
				CBLC340133A-J				
				CBLC340133A-K				
				CBLC340133A-L				
				CBLC340133A-M				
				CBLC340133A-N				
				CBLC340133A-P				
				CBLC340134A-A				
				CBLC340311-A				
				CBLC340311-B				
				CBLC340311-C				
				CBLC340311-D				
				CBLC340311-E				
				CBLC340511-D				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
				CBLC349301-A				
				CBLC349301-B				
				CBLC349303-A				
				CBLC349303-B				
CTC340018B	12	Tray		CBLC340032-A				CC30A
CTC340019A	12	Tray		CBLC349301-A				CC30A
				CBLC349301-B				
CTC340020B	12	Tray		CBLC340032-A			ADDENDUM 3	CC30A/REV A
				CBLC340133B-B				
				CBLC340133B-C				
				CBLC340133B-E				
				CBLC340134B-A				
				CBLC340211-B				
				CBLC340211-C				
				CBLC340211-D				
				CBLC340411-B				
				CBLC340411-C				
				CBLC340411-D				
				CBLC340511-B				
				CBLC340511-C				
				CBLC341012-A				
				CBLC349000B-A				
CTC340021A	6	Tray		CBLC340111-A			ADDENDUM 3	CC30A/REV A
				CBLC340111-B				
				CBLC340111-C				
				CBLC340111-D				
				CBLC340111-E				
				CBLC340133A-A				
				CBLC340133A-C				
				CBLC340133A-D				
				CBLC340133A-G				
				CBLC340133A-H				
				CBLC340133A-J				
				CBLC340133A-K				
				CBLC340133A-L				
				CBLC340133A-M				
				CBLC340133A-N				
				CBLC340133A-P				
				CBLC340134A-A				
				CBLC340311-A				
				CBLC340311-B				
				CBLC340311-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC340311-D				
				CBLC340311-E				
				CBLC340511-D				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
				CBLC349303-A				
				CBLC349303-B				
CTC340022B	12	Tray		CBLC341012-A				CC30A
CTC340023A	12	Tray		CBLC340111-B			ADDENDUM 3	CC30A/REV A
				CBLC340111-C				
				CBLC340111-D				
				CBLC340133A-B				
				CBLC340133A-C				
				CBLC340133A-E				
				CBLC340134A-A				
				CBLC340311-B				
				CBLC340311-C				
				CBLC340311-D				
				CBLC340511-D				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
				CBLC349303-A				
				CBLC349303-B				
CTC340024B	12	Tray		CBLC341012-A				CC30A
CTC340025A	12	Tray		CBLC340133A-B				CC30A
				CBLC340133A-C				
				CBLC340133A-E				
				CBLC340134A-A				
				CBLC341011-A				
				CBLC341013-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
CTH000001A	6	Tray		CBLH269000A-A				CC30D
CTH000002B	6	Tray		CBLH269000B-A				CC30D
CTH3310133A	18	Tray		CBLH109001A-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
				CBLH117000A-A				
				CBLH290000A-A				
				CBLH330641-A				
				CBLH500000A-A				
CTH3310133B	18	Tray		CBLH109001B-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
				CBLH117000B-A				
				CBLH290000B-A				
				CBLH330642-A				
				CBLH330643-A				
				CBLH500000B-A				
CTH3320133A	24	Tray		CBLH109001A-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
				CBLH269000A-A				
				CBLH500000A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTH3320133B	24	Tray		CBLH109001B-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
				CBLH269000B-A				
				CBLH500000B-A				
CTH3330133A	24	Tray		CBLH290000A-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
CTH3330133B	24	Tray		CBLH290000B-A			EXISTING CABLE TRAY IN AREA 33 GALLERY	EXISTING
CTH340001A	24	Tray		CBLH117000A-A				CC30A
				CBLH169000A-A				
				CBLH269000A-A				
CTH340002B	24	Tray		CBLH117000B-A				CC30A
				CBLH169000B-A				
				CBLH269000B-A				
CTH340003A	24	Tray		CBLH109001A-A				CC30A
				CBLH290000A-A				
				CBLH500000A-A				
CTH340004B	24	Tray		CBLH109001B-A				CC30A
				CBLH290000B-A				
				CBLH500000B-A				
CTH340005A	36	Tray		CBLH109001A-A				CC30A
				CBLH117000A-A				
				CBLH169000A-A				
				CBLH269000A-A				
				CBLH290000A-A				
				CBLH340111-A				
				CBLH340311-A				
				CBLH500000A-A				
CTH340006B	36	Tray		CBLH109001B-A				CC30A
				CBLH117000B-A				
				CBLH169000B-A				
				CBLH269000B-A				
				CBLH290000B-A				
				CBLH500000B-A				
CTH340007A	24	Tray		CBLH340133A-B1				CC30A
				CBLH340133A-B2				
				CBLH340133A-B3				
				CBLH340133A-B4				
CTH340009A	36	Tray		CBLH340133A-B1				CC30A
				CBLH340133A-B2				
				CBLH340133A-B3				
				CBLH340133A-B4				
CTH340010B	36	Tray		CBLH340133B-B1				CC30A
				CBLH340133B-B2				
				CBLH340133B-B3				
				CBLH340133B-B4				
CTH340011A	36	Tray		CBLH330000A-A1				CC30A
				CBLH330000A-A2				
				CBLH340133A-C				
				CBLH349000A-A				
CTH340012B	36	Tray		CBLH210000B-A				CC30A
				CBLH340133B-A				
				CBLH340133C-A				
				CBLH340211-A				
				CBLH340411-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTH340013A	36	Tray		CBLH210000A-A				CC30A
				CBLH340111-A				
				CBLH340133A-A				
				CBLH340311-A				
CTH340014B	36	Tray		CBLH210000B-A				CC30A
				CBLH340133B-A				
				CBLH340133C-A				
				CBLH340211-A				
				CBLH340411-A				
				CBLH340511-A				
CTH340015A	36	Tray		CBLH330000A-A1				CC30A
				CBLH330000A-A2				
				CBLH340133A-C				
				CBLH349000A-A				
CTH340016B	36	Tray		CBLH330000B-A1				CC30A
				CBLH330000B-A2				
				CBLH340133B-C				
				CBLH349000B-A				
CTH340018B	36	Tray		CBLH330000B-A1				CC30A
				CBLH330000B-A2				
				CBLH340133B-A				
				CBLH340133B-C				
				CBLH340211-A				
				CBLH340411-A				
				CBLH349000B-A				
CTPL340101A	6	Tray		CBLP349102-A1				CC30A
				CBLP349102-A2				
				CBLP349202-B				
CTPL340102B	18	Tray		CBLP349102-B1				CC30A
				CBLP349102-B2				
				CBLP349201-A1				
				CBLP349201-A2				
				CBLP349201-A3				
				CBLP349202-A				
				CBLP349306-A				
CTPL340103A	18	Tray		CBLP349101A-A1				CC30A
				CBLP349101A-A2				
				CBLP349101A-A3				
				CBLP349101A-A4				
				CBLP349102-A1				
				CBLP349102-A2				
CTPL340104B	18	Tray		CBLP349101B-A1				CC30A
				CBLP349101B-A2				
				CBLP349101B-A3				
				CBLP349101B-A4				
				CBLP349102-B1				
				CBLP349102-B2				
CTPR330101	18	Tray		CBLP336411-A			EXISTING TRAY TO BE EXTENDED INTO BLOWER ROOM	CC30B
				CBLP336421-A				
				CBLP336431-A				
CTPR331033A	6	Tray		CBLP330202A-A			EXISTING CABLE TRAY IN AREA 33 GALLERY TRAY 1033A	EXISTING
CTPR331033B	6	Tray		CBLP330203A-A			EXISTING TRAY 1033B	EXISTING
				CBLP330204A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPR340002B	18	Tray		CBLP340080-A				CC30A
				CBLP347903-A				
				CBLP348401A-A				
				CBLP348402A-A				
				CBLP348956-A				
CTPR340003A	24	Tray		CBLP009100-A				CC30A
				CBLP340101-B				
				CBLP340134A-A				
				CBLP340134A-E				
				CBLP340134B-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP341050-A				
				CBLP341060-A				
				CBLP349000A-C				
				CBLP349000B-C				
CTPR340004B	24	Tray		CBLP340010-A				CC30A
				CBLP340032-A				
				CBLP340080-A				
				CBLP340081-A				
				CBLP340082-A				
				CBLP340090-A				
				CBLP340101-C				
				CBLP340133BA-C				
				CBLP340134A-B				
				CBLP340134A-C				
				CBLP340134A-D				
				CBLP340134B-B				
				CBLP340134B-C				
				CBLP340134B-D				
				CBLP340134B-E				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340423-A				
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340523-A				
				CBLP340523B-A				
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP341032-A				
				CBLP347850-A				
				CBLP347901-A				
				CBLP347903-A				
				CBLP348254-A				
				CBLP348352-A				
				CBLP348354-A				
				CBLP348401A-A				
				CBLP348402A-A				
				CBLP348460-A				
				CBLP348901-A				
				CBLP348955-A				
				CBLP348956-A				
				CBLP349000A-A				
				CBLP349000A-B				
				CBLP349000A-D				
				CBLP349000B-A				
				CBLP349000B-B				
				CBLP349000B-D				
				CBLP349001B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP349001B-B				
				CBLP349101B-B				
				CBLP349101B-C				
				CBLP349101B-D				
				CBLP349101B-E				
				CBLP349201-B				
				CBLP349201-C				
				CBLP349201-D				
				CBLP349201-E				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349404-A				
				CBLP349411-A				
				CBLP349412-A				
CTPR340005A	24	Tray		CBLP009100-A				CC30A
				CBLP340101-B				
				CBLP340134A-A				
				CBLP340134A-E				
				CBLP340134B-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP341050-A				
				CBLP341060-A				
				CBLP349000A-C				
				CBLP349000B-C				
CTPR340006B	24	Tray		CBLP349001B-A				CC30A
				CBLP349001B-B				
CTPR340007A	24	Tray		CBLP349001A-A				CC30A
				CBLP349001A-B				
CTPR340008B	24	Tray		CBLP340032-A				CC30A
				CBLP340090-A				
				CBLP340133BA-C				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340423-A				
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340523-A				
				CBLP340523B-A				
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP348254-A				
				CBLP348352-A				
				CBLP348354-A				
				CBLP348460-A				
				CBLP348901-A				
				CBLP349101B-B				
				CBLP349101B-C				
				CBLP349101B-D				
				CBLP349101B-E				
				CBLP349201-B				
				CBLP349201-C				
				CBLP349201-D				
				CBLP349201-E				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349404-A				
				CBLP349411-A				
				CBLP349412-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPR340009A	24	Tray		CBLP340031-A				CC30A
				CBLP340091-A				
				CBLP340123-A				
				CBLP340123B-A				
				CBLP340126-A				
				CBLP340133AA-C				
				CBLP340133CA-C				
				CBLP340323-A				
				CBLP340323B-A				
				CBLP340326-A				
				CBLP341050-A				
				CBLP341060-A				
				CBLP348011-A				
				CBLP348012-A				
				CBLP348021-A				
				CBLP348022-A				
				CBLP349101A-B				
				CBLP349101A-C				
				CBLP349101A-D				
				CBLP349101A-E				
				CBLP349301-A				
				CBLP349303-B				
CTPR340010B	24	Tray		CBLP340001-B				CC30A
				CBLP340001-C				
				CBLP340083-A				
				CBLP340084-A				
				CBLP340090-A				
				CBLP340101-C				
				CBLP340102-C				
				CBLP340133-B				
				CBLP340133B-A				
				CBLP340133B-AS				
				CBLP340133B-B				
				CBLP340133B-C				
				CBLP340133B-D				
				CBLP340133B-E				
				CBLP340133B-F				
				CBLP340133B-G				
				CBLP340133B-H				
				CBLP340133B-I				
				CBLP340133B-J				
				CBLP340133B-K				
				CBLP340133B-L				
				CBLP340133B-M				
				CBLP340133B-N				
				CBLP340133B-O				
				CBLP340133B-P				
				CBLP340133B-Q				
				CBLP340133B-R				
				CBLP340133BA-C				
				CBLP340133C-P				
				CBLP340133C-Q				
				CBLP340133C-R				
				CBLP340133C-S				
				CBLP340133C-T				
				CBLP340133C-U				
				CBLP340134A-B				
				CBLP340134B-B				
				CBLP340134B-E				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340423-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340500-A				
				CBLP340511-A				
				CBLP340523-A				
				CBLP340523B-A				
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP341032-A				
				CBLP347901-A				
				CBLP347902-A				
				CBLP347903-A				
				CBLP348001A-A				
				CBLP348001B-A				
				CBLP348002A-A				
				CBLP348002B-A				
				CBLP348031-A				
				CBLP348032-A				
				CBLP348033-A				
				CBLP348041-A				
				CBLP348100-A				
				CBLP348100-B				
				CBLP348100-C				
				CBLP348100-D				
				CBLP348100-E				
				CBLP348152-A				
				CBLP348154-A				
				CBLP348200-A				
				CBLP348200-B				
				CBLP348200-C				
				CBLP348200-D				
				CBLP348200-E				
				CBLP348252-A				
				CBLP348254-A				
				CBLP348300-A				
				CBLP348300-B				
				CBLP348300-C				
				CBLP348300-D				
				CBLP348300-E				
				CBLP348352-A				
				CBLP348354-A				
				CBLP348401A-A				
				CBLP348401B-A				
				CBLP348402A-A				
				CBLP348402B-A				
				CBLP348410-A				
				CBLP348420-A				
				CBLP348450-A				
				CBLP348460-A				
				CBLP348470-A				
				CBLP348480-A				
				CBLP348601-A				
				CBLP348901-A				
				CBLP348951-A				
				CBLP348952-A				
				CBLP348953-A				
				CBLP348954-A				
				CBLP348955-A				
				CBLP348956-A				
				CBLP349000A-D				
				CBLP349000B-D				
				CBLP349001B-A				
				CBLP349001B-B				
				CBLP349101B-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP349101B-C				
				CBLP349101B-D				
				CBLP349101B-E				
				CBLP349201-B				
				CBLP349201-C				
				CBLP349201-D				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349404-A				
				CBLP349405-A				
				CBLP349411-A				
				CBLP349412-A				
CTPR340011A	24	Tray		CBLP340133A-A				CC30A
				CBLP340133A-AA				
				CBLP340133A-AB				
				CBLP340133A-AC				
				CBLP340133A-AE				
				CBLP340133A-AF				
				CBLP340133A-AG				
				CBLP340133A-AH				
				CBLP340133A-AI				
				CBLP340133A-AJ				
				CBLP340133A-AK				
				CBLP340133A-AL				
				CBLP340133A-AM				
				CBLP340133A-AN				
				CBLP340133A-AO				
				CBLP340133A-AP				
				CBLP340133A-B				
				CBLP340133A-C				
				CBLP340133A-D				
				CBLP340133A-E				
				CBLP340133A-F				
				CBLP340133A-G				
				CBLP340133A-H				
				CBLP340133A-I				
				CBLP340133A-J				
				CBLP340133A-K				
				CBLP340133A-L				
				CBLP340133A-M				
				CBLP340133A-N				
				CBLP340133A-O				
				CBLP340133A-P				
				CBLP340133A-R				
				CBLP340133A-S				
				CBLP340133A-T				
				CBLP340133A-U				
				CBLP340133A-V				
				CBLP340133A-W				
				CBLP340133A-X				
				CBLP340133A-Y				
				CBLP340133A-Z				
CTPR340012B	24	Tray		CBLP340133B-A				CC30A
				CBLP340133B-AA				
				CBLP340133B-AB				
				CBLP340133B-AC				
				CBLP340133B-AD				
				CBLP340133B-AF				
				CBLP340133B-AG				
				CBLP340133B-AH				
				CBLP340133B-AI				
				CBLP340133B-AJ				
				CBLP340133B-AK				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133B-AL				
				CBLP340133B-AM				
				CBLP340133B-AN				
				CBLP340133B-AO				
				CBLP340133B-AP				
				CBLP340133B-AQ				
				CBLP340133B-B				
				CBLP340133B-C				
				CBLP340133B-D				
				CBLP340133B-E				
				CBLP340133B-F				
				CBLP340133B-G				
				CBLP340133B-H				
				CBLP340133B-I				
				CBLP340133B-J				
				CBLP340133B-K				
				CBLP340133B-L				
				CBLP340133B-M				
				CBLP340133B-N				
				CBLP340133B-O				
				CBLP340133B-P				
				CBLP340133B-R				
				CBLP340133B-S				
				CBLP340133B-T				
				CBLP340133B-U				
				CBLP340133B-V				
				CBLP340133B-W				
				CBLP340133B-X				
				CBLP340133B-Y				
				CBLP340133B-Z				
				CBLP348200-A				
				CBLP348200-B				
				CBLP348200-C				
				CBLP348200-D				
				CBLP348200-E				
				CBLP348252-A				
				CBLP348254-A				
				CBLP348300-A				
				CBLP348300-B				
				CBLP348300-C				
				CBLP348300-D				
				CBLP348300-E				
				CBLP348352-A				
				CBLP348354-A				
				CBLP348952-A				
CTPR340013A	24	Tray		CBLP001001-A				CC30A
				CBLP340001-A				
				CBLP340091-A				
				CBLP340099A-A				
				CBLP340099B-A				
				CBLP340100-A				
				CBLP340102-B				
				CBLP340111-A				
				CBLP340123-A				
				CBLP340123B-A				
				CBLP340126-A				
				CBLP340133-A				
				CBLP340133A-AA				
				CBLP340133A-AB				
				CBLP340133A-AC				
				CBLP340133A-AE				
				CBLP340133A-AF				
				CBLP340133A-AG				
				CBLP340133A-AH				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133A-AI				
				CBLP340133A-AJ				
				CBLP340133A-AK				
				CBLP340133A-AL				
				CBLP340133A-AM				
				CBLP340133A-AN				
				CBLP340133A-AO				
				CBLP340133A-AP				
				CBLP340133A-AR				
				CBLP340133A-Q				
				CBLP340133A-R				
				CBLP340133A-S				
				CBLP340133A-T				
				CBLP340133A-U				
				CBLP340133A-V				
				CBLP340133A-W				
				CBLP340133A-X				
				CBLP340133A-Y				
				CBLP340133A-Z				
				CBLP340133AA-C				
				CBLP340133C-H				
				CBLP340133C-I				
				CBLP340133C-J				
				CBLP340133C-K				
				CBLP340133C-L				
				CBLP340133C-M				
				CBLP340133C-N				
				CBLP340133C-W				
				CBLP340133CA-C				
				CBLP340141-A				
				CBLP340151-A				
				CBLP340300-A				
				CBLP340311-A				
				CBLP340323-A				
				CBLP340323B-A				
				CBLP340326-A				
				CBLP340341-A				
				CBLP340351-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP348011-A				
				CBLP348012-A				
				CBLP348021-A				
				CBLP348022-A				
				CBLP349101A-E				
				CBLP349406-A				
CTPR340014B	24	Tray		CBLP340001-B				CC30A
				CBLP340001-C				
				CBLP340083-A				
				CBLP340084-A				
				CBLP340133B-AF				
				CBLP340133B-AG				
				CBLP340133B-AH				
				CBLP340133B-AI				
				CBLP340133B-AJ				
				CBLP340133B-AK				
				CBLP340133B-AL				
				CBLP340133B-AM				
				CBLP340133B-AN				
				CBLP340133B-AO				
				CBLP340133B-AP				
				CBLP340133B-AQ				
				CBLP340133B-Q				
				CBLP340133BA-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133C-P				
				CBLP340133C-Q				
				CBLP340133C-R				
				CBLP340133C-S				
				CBLP340133C-T				
				CBLP340133C-U				
				CBLP340200-A				
				CBLP340211-A				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340241-A				
				CBLP340251-A				
				CBLP340400-A				
				CBLP340411-A				
				CBLP340423-A				
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340441-A				
				CBLP340451-A				
				CBLP340500-A				
				CBLP340511-A				
				CBLP340523-A				
				CBLP340523B-A				
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP341001-A				
				CBLP341011-B				
				CBLP341032-A				
				CBLP346001-A				
				CBLP347902-A				
				CBLP348001A-A				
				CBLP348001B-A				
				CBLP348002A-A				
				CBLP348002B-A				
				CBLP348031-A				
				CBLP348032-A				
				CBLP348033-A				
				CBLP348041-A				
				CBLP348100-A				
				CBLP348100-B				
				CBLP348100-C				
				CBLP348100-D				
				CBLP348100-E				
				CBLP348152-A				
				CBLP348154-A				
				CBLP348401B-A				
				CBLP348402B-A				
				CBLP348420-A				
				CBLP348450-A				
				CBLP348470-A				
				CBLP348480-A				
				CBLP348601-A				
				CBLP348951-A				
				CBLP348954-A				
				CBLP349101B-E				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349407-A				
CTPR340015A	24	Tray		CBLP340133C-A				CC30A
				CBLP340133C-B				
				CBLP340133C-C				
				CBLP340133C-D				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133C-E				
				CBLP340133C-F				
				CBLP340133C-G				
				CBLP340133C-I				
				CBLP340133C-J				
				CBLP340133C-K				
				CBLP340133C-L				
				CBLP340133C-M				
				CBLP340133C-N				
CTPR340016B	24	Tray		CBLP340001-B				
				CBLP340001-C				
				CBLP340083-A				
				CBLP340084-A				
				CBLP340090-A				
				CBLP340102-C				
				CBLP340133-B				
				CBLP340133-C				
				CBLP340133-D				
				CBLP340133A-AS				
				CBLP340133B-AA				
				CBLP340133B-AB				
				CBLP340133B-AC				
				CBLP340133B-AD				
				CBLP340133B-AF				
				CBLP340133B-AG				
				CBLP340133B-AH				
				CBLP340133B-AI				
				CBLP340133B-AJ				
				CBLP340133B-AK				
				CBLP340133B-AL				
				CBLP340133B-AM				
				CBLP340133B-AN				
				CBLP340133B-AO				
				CBLP340133B-AP				
				CBLP340133B-AQ				
				CBLP340133B-AS				
				CBLP340133B-AT				
				CBLP340133B-Q				
				CBLP340133B-S				
				CBLP340133B-T				
				CBLP340133B-U				
				CBLP340133B-V				
				CBLP340133B-W				
				CBLP340133B-X				
				CBLP340133B-Y				
				CBLP340133B-Z				
				CBLP340133BA-C				
				CBLP340133C-P				
				CBLP340133C-Q				
				CBLP340133C-R				
				CBLP340133C-S				
				CBLP340133C-T				
				CBLP340133C-U				
				CBLP340133C-X				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340423-A				
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340500-A				
				CBLP340511-A				
				CBLP340523-A				
				CBLP340523B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP341032-A				
				CBLP347902-A				
				CBLP348001A-A				
				CBLP348001B-A				
				CBLP348002A-A				
				CBLP348002B-A				
				CBLP348031-A				
				CBLP348032-A				
				CBLP348033-A				
				CBLP348041-A				
				CBLP348100-A				
				CBLP348100-B				
				CBLP348100-C				
				CBLP348100-D				
				CBLP348100-E				
				CBLP348152-A				
				CBLP348154-A				
				CBLP348401B-A				
				CBLP348402B-A				
				CBLP348410-A				
				CBLP348420-A				
				CBLP348450-A				
				CBLP348460-A				
				CBLP348470-A				
				CBLP348480-A				
				CBLP348601-A				
				CBLP348951-A				
				CBLP348954-A				
				CBLP349101B-E				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349404-A				
				CBLP349405-A				
				CBLP349407-A				
CTPR340017A	24	Tray		CBLP340001-A				CC30A
				CBLP340091-A				
				CBLP340099A-A				
				CBLP340099B-A				
				CBLP340102-B				
				CBLP340123-A				
				CBLP340123B-A				
				CBLP340126-A				
				CBLP340133-A				
				CBLP340133A-AA				
				CBLP340133A-AB				
				CBLP340133A-AC				
				CBLP340133A-AE				
				CBLP340133A-AF				
				CBLP340133A-AG				
				CBLP340133A-AH				
				CBLP340133A-AI				
				CBLP340133A-AJ				
				CBLP340133A-AK				
				CBLP340133A-AL				
				CBLP340133A-AM				
				CBLP340133A-AN				
				CBLP340133A-AO				
				CBLP340133A-AP				
				CBLP340133A-AR				
				CBLP340133A-Q				
				CBLP340133A-R				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133A-S				
				CBLP340133A-T				
				CBLP340133A-U				
				CBLP340133A-V				
				CBLP340133A-W				
				CBLP340133A-X				
				CBLP340133A-Y				
				CBLP340133A-Z				
				CBLP340133AA-C				
				CBLP340133C-A				
				CBLP340133C-B				
				CBLP340133C-C				
				CBLP340133C-D				
				CBLP340133C-E				
				CBLP340133C-F				
				CBLP340133C-G				
				CBLP340133C-H				
				CBLP340133C-W				
				CBLP340133CA-C				
				CBLP340323-A				
				CBLP340323B-A				
				CBLP340326-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP348011-A				
				CBLP348012-A				
				CBLP348021-A				
				CBLP348022-A				
				CBLP349000A-C				
				CBLP349000B-C				
				CBLP349001A-A				
				CBLP349001A-B				
				CBLP349101A-E				
				CBLP349301-A				
CTPR340018B	24	Tray		CBLP340001-C				CC30A
				CBLP340010-A				
				CBLP340032-A				
				CBLP340080-A				
				CBLP340081-A				
				CBLP340082-A				
				CBLP340083-A				
				CBLP340084-A				
				CBLP340133C-P				
				CBLP340133C-Q				
				CBLP340133C-R				
				CBLP340133C-S				
				CBLP340133C-T				
				CBLP340133C-U				
				CBLP340134A-C				
				CBLP340134A-D				
				CBLP340134B-C				
				CBLP340134B-D				
				CBLP347850-A				
				CBLP349000A-A				
				CBLP349000A-B				
				CBLP349000B-A				
				CBLP349000B-B				
				CBLP349201-E				
				CBLP349405-A				
CTPR340019A	24	Tray		CBLP009100-A				CC30A
				CBLP340001-A				
				CBLP340101-B				
				CBLP340102-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPR340020B	24	Tray		CBLP340010-A				CC30A
				CBLP340032-A				
				CBLP340081-A				
				CBLP340082-A				
				CBLP340090-A				
				CBLP340101-C				
				CBLP340133BA-C				
				CBLP340134A-B				
				CBLP340134A-C				
				CBLP340134A-D				
				CBLP340134B-B				
				CBLP340134B-C				
				CBLP340134B-D				
				CBLP340134B-E				
				CBLP340223-A				
				CBLP340223B-A				
				CBLP340226-A				
				CBLP340423-A				
				CBLP340423B-A				
				CBLP340426-A				
				CBLP340523-A				
				CBLP340523B-A				
				CBLP340526-A				
				CBLP340541-A				
				CBLP340551-A				
				CBLP347850-A				
				CBLP347901-A				
				CBLP348254-A				
				CBLP348352-A				
				CBLP348354-A				
				CBLP348460-A				
				CBLP348901-A				
				CBLP348955-A				
				CBLP349000A-A				
				CBLP349000A-B				
				CBLP349000A-D				
				CBLP349000B-A				
				CBLP349000B-B				
				CBLP349000B-D				
				CBLP349001B-A				
				CBLP349001B-B				
				CBLP349101B-B				
				CBLP349101B-C				
				CBLP349101B-D				
				CBLP349101B-E				
				CBLP349201-B				
				CBLP349201-C				
				CBLP349201-D				
				CBLP349201-E				
				CBLP349201-F				
				CBLP349201-G				
				CBLP349404-A				
				CBLP349411-A				
				CBLP349412-A				
CTPR340021A	24	Tray		CBLP009100-A				CC30A
				CBLP340091-A				
				CBLP340101-B				
				CBLP340123-A				
				CBLP340123B-A				
				CBLP340126-A				
				CBLP340133A-A				
				CBLP340133A-AA				
				CBLP340133A-AB				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP340133A-AC				
				CBLP340133A-AE				
				CBLP340133A-AF				
				CBLP340133A-AG				
				CBLP340133A-AH				
				CBLP340133A-AI				
				CBLP340133A-AJ				
				CBLP340133A-AK				
				CBLP340133A-AL				
				CBLP340133A-AM				
				CBLP340133A-AN				
				CBLP340133A-AO				
				CBLP340133A-AP				
				CBLP340133A-B				
				CBLP340133A-C				
				CBLP340133A-D				
				CBLP340133A-E				
				CBLP340133A-F				
				CBLP340133A-G				
				CBLP340133A-H				
				CBLP340133A-I				
				CBLP340133A-J				
				CBLP340133A-K				
				CBLP340133A-L				
				CBLP340133A-M				
				CBLP340133A-N				
				CBLP340133A-O				
				CBLP340133A-P				
				CBLP340133A-R				
				CBLP340133A-S				
				CBLP340133A-T				
				CBLP340133A-U				
				CBLP340133A-V				
				CBLP340133A-W				
				CBLP340133A-X				
				CBLP340133A-Y				
				CBLP340133A-Z				
				CBLP340133AA-C				
				CBLP340133CA-C				
				CBLP340134A-A				
				CBLP340134A-E				
				CBLP340134B-A				
				CBLP340323-A				
				CBLP340323B-A				
				CBLP340326-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP348011-A				
				CBLP348012-A				
				CBLP348021-A				
				CBLP348022-A				
				CBLP349000A-C				
				CBLP349000B-C				
				CBLP349001A-A				
				CBLP349001A-B				
				CBLP349101A-B				
				CBLP349101A-C				
				CBLP349101A-D				
				CBLP349101A-E				
				CBLP349301-A				
				CBLP349303-B				
CTPR340022B	24	Tray		CBLP340081-A				CC30A
				CBLP340082-A				
				CBLP340101-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP347850-A				
				CBLP348955-A				
				CBLP349001B-A				
				CBLP349001B-B				
CTPR340023A	24	Tray		CBLP009100-A				CC30A
				CBLP340091-A				
				CBLP340101-B				
				CBLP340123-A				
				CBLP340123B-A				
				CBLP340126-A				
				CBLP340133AA-C				
				CBLP340133CA-C				
				CBLP340134A-A				
				CBLP340134A-E				
				CBLP340134B-A				
				CBLP340323-A				
				CBLP340323B-A				
				CBLP340326-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP348011-A				
				CBLP348012-A				
				CBLP348021-A				
				CBLP348022-A				
				CBLP349000A-C				
				CBLP349000B-C				
				CBLP349001A-A				
				CBLP349001A-B				
				CBLP349101A-B				
				CBLP349101A-C				
				CBLP349101A-D				
				CBLP349101A-E				
				CBLP349301-A				
				CBLP349303-B				
CTPR340024B	24	Tray		CBLP340081-A				CC30A
				CBLP340082-A				
				CBLP347850-A				
				CBLP348955-A				
CTPR340025A	24	Tray		CBLP009100-A				CC30A
				CBLP340101-B				
				CBLP340134A-A				
				CBLP340134A-E				
				CBLP340134B-A				
				CBLP341022-A				
				CBLP341031-A				
				CBLP341050-A				
				CBLP341060-A				
				CBLP349000A-C				
				CBLP349000B-C				
				CBLP349001A-A				
				CBLP349001A-B				
CTPR340201	24	Tray		CBLP347903-A				CC30A
				CBLP348401A-A				
				CBLP348402A-A				
				CBLP348956-A				
CTS000001A	18	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000002B. (CCF 007)	CC30A / REV 1
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF260011A-A				
				CBLF280011A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF300011A-A				
				CBLF340102-C				
				CBLF340102-D				
CTS000002B	18	Tray		CBLF050001B-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000001A. (CCF 007)	CC30A / REV 1
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
				CBLF340102-J				
				CBLF340102-K				
CTS000003A	18	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000004B. (CCF 007)	CC30A / REV 1
				CBLF100011A-A				
				CBLF160011A-A				
				CBLF340102-C				
CTS000004B	18	Tray		CBLF050001B-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 18" TRAY WITH CTS000003A. (CCF 007)	CC30A / REV 1
				CBLF100011A-B				
				CBLF160011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
				CBLF340102-J				
CTS000005A	12	Tray		CBLF050001A-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 12" TRAY WITH CTS000006B. (CCF 007)	CC30A
				CBLF100011A-A				
CTS000006B	12	Tray		CBLF050001B-A			CONTRACTOR TO DETERMINE LOCATION OF DIVIDER OF 12" TRAY WITH CTS000005A. (CCF 007)	CC30A
				CBLF100011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
CTS330101	18	Tray		CBLS330010A-A			EXISTING TRAY TO BE EXTENDED INTO BLOWER ROOM	CC30B
				CBLS330010B-A				
				CBLS330011A-A				
				CBLS330011B-A				
				CBLS330013A-A				
				CBLS330013B-A				
				CBLS330014A-A				
				CBLS330014B-A				
				CBLS330015A-A				
				CBLS330015B-A				
				CBLS330202A-A				
				CBLS330203A-A				
				CBLS330204A-A				
				CBLS330643A-A				
				CBLS330643B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS332021-A				
				CBLS332031-A				
				CBLS332041-A				
				CBLS336436-A				
CTS330103	18	Tray		CBLF050001B-A				CC30A
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011CC-A				
				CBLF331011-A				
CTS330104	18	Tray		CBLF020011AB-A				CC30A
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330011A-A				
				CBLF330011CA-A				
				CBLF330011CB-A				
				CBLF340101A-B				
				CBLF340101BA-A				
CTS330105	36	Tray		CBLF020011AB-A				CC30A
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011A-A				
				CBLF330011CA-A				
				CBLF330011CB-A				
				CBLF330011CC-A				
				CBLF331011-A				
				CBLF340101A-B				
				CBLF340101BA-A				
CTS330201	36	Tray		CBLF020011AB-A				CC30A
				CBLF050001B-A				
				CBLF100011A-B				
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF160011A-B				
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				
				CBLF260011A-B				
				CBLF290011A-A				
				CBLF300011A-B				
				CBLF330001BA-A				
				CBLF330001BB-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330001CA-A				
				CBLF330001CB-A				
				CBLF330001CC-A				
				CBLF330001CD-A				
				CBLF330001CE-A				
				CBLF330001CF-A				
				CBLF330011A-A				
				CBLF330011CA-A				
				CBLF330011CB-A				
				CBLF330011CC-A				
				CBLF331011-A				
				CBLF340101A-B				
				CBLF340101BA-A				
CTS340001A	18	Tray		CBLF050001A-A				CC30A
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330011A-A				
				CBLF330011CA-A				
				CBLF340101BA-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLX347950A-A				
				CBLX347950B-A				
				CBLX347950C-A				
				CBLX347957-A				
CTS340002B	18	Tray		CBLF020011AB-A				CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF340101A-B				
				CBLF340102-J				
				CBLF340102-K				
				CBLX347958-A				
				CBLX347970-A				
CTS340003A	12	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340111-A				
				CBLD340133A-F				
				CBLD340311-A				
				CBLD340511-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD349001-A				
				CBLD349001A-A				
				CBLD349101A-A				
				CBLD349101A-B				
				CBLD349101A-F				
				CBLD349201-A				
				CBLD349201-B				
				CBLD349201-G				
				CBLD349301-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340101BA-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347950A-A				
				CBLX347950B-A				
				CBLX347950C-A				
				CBLX347957-A				
				CBLX347964-A				
				CBLX347965-A				
				CBLX347982-A				
CTS3400047B	6	Tray		CBLD340133B-F				
CTS340004B	12	Tray		CBLD340001-D				CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340211-A				
				CBLD340411-A				
				CBLD341012-A				
				CBLD347801A-A				
				CBLD347802A-A				
				CBLD349102-A				
				CBLD349202-A				
				CBLD349302-A				
				CBLF020011AB-A				
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-G				
				CBLF340102-J				
				CBLF340102-K				
				CBLF340102-L				
				CBLX347958-A				
				CBLX347962-A				
				CBLX347970-A				
CTS340005A	12	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340111-A				
				CBLD340133A-F				
				CBLD340311-A				
				CBLD340511-A				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD349001A-A				
				CBLD349101A-A				
				CBLD349101A-B				
				CBLD349101A-F				
				CBLD349201-A				
				CBLD349201-B				
				CBLD349201-G				
				CBLD349301-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				
				CBLX347982-A				
CTS340006B	12	Tray		CBLD349001-B				CC30A
				CBLD349001B-A				
CTS340007A	12	Tray		CBLD349001-A				CC30A
				CBLD349001-C				
				CBLD349001A-A				
				CBLD349201-C				
CTS340008B	12	Tray		CBLD348901-A				CC30A
				CBLD349101B-A				
				CBLD349101B-B				
				CBLD349101B-F				
				CBLD349303-A				
CTS340009A	12	Tray		CBLD340001-G				CC30A
				CBLD349101A-A				
				CBLD349101A-B				
				CBLD349101A-F				
				CBLD349101B-C				
				CBLD349201-A				
				CBLD349201-B				
				CBLD349201-C				
				CBLD349201-F				
				CBLD349201-G				
CTS340010B	12	Tray		CBLD340001-D				CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340133B-F				
				CBLD340211-A				
				CBLD340411-A				
				CBLD341012-A				
				CBLD347801A-A				
				CBLD347802A-A				
				CBLD349102-A				
				CBLD349202-A				
				CBLD349302-A				
				CBLF020011AB-A				
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-G				
				CBLF340102-J				
				CBLF340102-K				
				CBLF340102-L				
				CBLS340030-A				
				CBLX347962-A				
CTS340011A	12	Tray		CBLD340111-C				CC30A
				CBLD340133A-F				
				CBLD340311-C				
				CBLF340133A-A				
				CBLF340133A-B				
				CBLF340133A-C				
				CBLF340133A-D				
				CBLF340133A-E				
				CBLF340133A-F				
				CBLF340133A-G				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133A-L				
				CBLF340133A-M				
				CBLF340133A-N				
CTS340012B	12	Tray		CBLD340133B-F				CC30A
				CBLD340211-C				
				CBLD340411-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133B-A				
				CBLF340133B-B				
				CBLF340133B-C				
				CBLF340133B-D				
				CBLF340133B-E				
				CBLF340133B-F				
				CBLF340133B-G				
				CBLF340133B-H				
CTS340013A	18	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340001-G				
				CBLD340111-A				
				CBLD340111-C				
				CBLD340311-A				
				CBLD340311-C				
				CBLD340511-A				
				CBLD340511-B				
				CBLD340511-C				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-C				
				CBLD349201-F				
				CBLF210011A-A				
				CBLF240011A-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLF340102-H				
				CBLF340102-M				
				CBLF340133A-A				
				CBLF340133A-B				
				CBLF340133A-C				
				CBLF340133A-D				
				CBLF340133A-E				
				CBLF340133A-F				
				CBLF340133A-G				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133B-F				
				CBLF340133B-G				
				CBLF340133B-H				
				CBLF340133C-A				
				CBLF340133C-B				
				CBLF340133C-C				
				CBLF340133C-D				
				CBLF340133C-E				
				CBLS341001-A				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLX347982-A				
CTS340014B	12	Tray		CBLD340001-D				CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340211-A				
				CBLD340211-C				
				CBLD340411-A				
				CBLD340411-C				
				CBLD341012-A				
				CBLF020011AB-A				
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-F				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133B-F				
				CBLF340133B-G				
				CBLF340133B-H				
				CBLS340030-A				
CTS340015A	12	Tray		CBLD340511-C				CC30A
				CBLF340133A-L				
				CBLF340133A-M				
				CBLF340133A-N				
				CBLF340133B-F				
				CBLF340133B-G				
				CBLF340133B-H				
				CBLF340133C-A				
				CBLF340133C-B				
				CBLF340133C-C				
				CBLF340133C-D				
				CBLF340133C-E				
CTS340016B	18	Tray		CBLD340001-D				CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340211-A				
				CBLD340211-C				
				CBLD340411-A				
				CBLD340411-C				
				CBLD341012-A				
				CBLD349202-A				
				CBLD349302-A				
				CBLF020011AB-A				
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340102-F				
				CBLF340102-G				
				CBLF340102-J				
				CBLF340102-K				
				CBLF340102-L				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133B-A				
				CBLF340133B-B				
				CBLF340133B-C				
				CBLF340133B-D				
				CBLF340133B-E				
				CBLF340133B-F				
				CBLF340133B-G				
				CBLF340133B-H				
				CBLS340030-A				
CTS340017A	18	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340001-G				
				CBLD340111-A				
				CBLD340111-C				
				CBLD340311-A				
				CBLD340311-C				
				CBLD340511-A				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-C				
				CBLD349201-F				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLF340133A-A				
				CBLF340133A-B				
				CBLF340133A-C				
				CBLF340133A-D				
				CBLF340133A-E				
				CBLF340133A-F				
				CBLF340133A-G				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133A-L				
				CBLF340133A-M				
				CBLF340133A-N				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				
				CBLX347982-A				
CTS340018B	12	Tray		CBLS340030-A				
CTS340019A	12	Tray		CBLD349301-A				
CTS340020B	12	Tray		CBLD340001-D				CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340133B-F				
				CBLD340211-A				
				CBLD340411-A				
				CBLD341012-A				
				CBLD347801A-A				
				CBLD347802A-A				
				CBLD348901-A				
				CBLD349101B-A				
				CBLD349101B-B				
				CBLD349101B-F				
				CBLD349102-A				
				CBLD349202-A				
				CBLD349302-A				
				CBLF340101A-B				
				CBLF340102-G				
				CBLF340102-L				
				CBLX347958-A				
				CBLX347962-A				
				CBLX347970-A				
CTS340021A	18	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340001-G				
				CBLD340111-A				
				CBLD340111-C				
				CBLD340311-A				
				CBLD340311-C				
				CBLD340511-A				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-C				
				CBLD349201-F				
				CBLD349301-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLF340133A-A				
				CBLF340133A-B				
				CBLF340133A-C				
				CBLF340133A-D				
				CBLF340133A-E				
				CBLF340133A-F				
				CBLF340133A-G				
				CBLF340133A-H				
				CBLF340133A-J				
				CBLF340133A-K				
				CBLF340133A-L				
				CBLF340133A-M				
				CBLF340133A-N				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				
				CBLX347982-A				
CTS340022B	12	Tray		CBLD341012-A				CC30A
				CBLD349001-B				
				CBLD349001B-A				
				CBLF340101A-B				
CTS340023A	12	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340001-G				
				CBLD340111-A				
				CBLD340133A-F				
				CBLD340311-A				
				CBLD340511-A				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-C				
				CBLD349201-F				
				CBLD349301-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				
				CBLX347982-A				
CTS340024B	12	Tray		CBLD341012-A				CC30A
CTS340025A	12	Tray		CBLD340001-A				CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340111-A				
				CBLD340133A-F				
				CBLD340311-A				
				CBLD340511-A				
				CBLD341011-A				
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
				CBLD347113A-A				
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-C				
				CBLD349101A-A				
				CBLD349101A-B				
				CBLD349101A-F				
				CBLD349201-A				
				CBLD349201-B				
				CBLD349201-C				
				CBLD349201-G				
				CBLD349301-A				
				CBLF240011CA-A				
				CBLF330011CA-A				
				CBLF340101A-A				
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLS341030-A				
				CBLS341071-A				
				CBLX347964-A				
				CBLX347982-A				
CTS340201	18	Tray		CBLD347231A-A				CC30A
				CBLD347231A-B				
				CBLD347231B-A				
				CBLD347231B-B				
				CBLD347231C-A				
				CBLD347231C-B				
				CBLD347231D-A				
				CBLD347231D-B				
				CBLD347232A-A				
				CBLD347232A-B				
				CBLD347232B-A				
				CBLD347232B-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347232C-A				
				CBLD347232C-B				
				CBLD347232D-A				
				CBLD347232D-B				
				CBLF210011A-A				
				CBLF240011A-A				
				CBLF340101A-A				
				CBLF340102-M				
				CBLX347985-A				
CTS340202	36	Tray		CBLD347201A-A				CC30A
				CBLD347201A-B				
				CBLD347201B-A				
				CBLD347201B-B				
				CBLD347201C-A				
				CBLD347201C-B				
				CBLD347201D-A				
				CBLD347201D-B				
				CBLD347202A-A				
				CBLD347202A-B				
				CBLD347202B-A				
				CBLD347202B-B				
				CBLD347202C-A				
				CBLD347202C-B				
				CBLD347202D-A				
				CBLD347202D-B				
				CBLD347203A-A				
				CBLD347203A-B				
				CBLD347203B-A				
				CBLD347203B-B				
				CBLD347203C-A				
				CBLD347203C-B				
				CBLD347203D-A				
				CBLD347203D-B				
				CBLD347204A-A				
				CBLD347204A-B				
				CBLD347204B-A				
				CBLD347204B-B				
				CBLD347204C-A				
				CBLD347204C-B				
				CBLD347204D-A				
				CBLD347204D-B				
				CBLD347205A-A				
				CBLD347205A-B				
				CBLD347205B-A				
				CBLD347205B-B				
				CBLD347205C-A				
				CBLD347205C-B				
				CBLD347205D-A				
				CBLD347205D-B				
				CBLD347207A-A				
				CBLD347207A-B				
				CBLD347207B-A				
				CBLD347207B-B				
				CBLD347208A-A				
				CBLD347208A-B				
				CBLD347208B-A				
				CBLD347208B-B				
				CBLD347208C-A				
				CBLD347208C-B				
				CBLD347208D-A				
				CBLD347208D-B				
				CBLD347209A-A				
				CBLD347209A-B				
				CBLD347209B-A				
				CBLD347209B-B				
				CBLD347209C-A				
				CBLD347209C-B				
				CBLD347209D-A				
				CBLD347209D-B				
				CBLD347210A-A				
				CBLD347210A-B				
				CBLD347210B-A				
				CBLD347210B-B				
				CBLD347210C-A				
				CBLD347210C-B				
				CBLD347210D-A				
				CBLD347210D-B				
				CBLD347211A-A				
				CBLD347211A-B				
				CBLD347211B-A				
				CBLD347211B-B				
				CBLD347211C-A				
				CBLD347211C-B				
				CBLD347211D-A				
				CBLD347211D-B				
				CBLD347212A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347212A-B				
				CBLD347212B-A				
				CBLD347212B-B				
				CBLD347212C-A				
				CBLD347212C-B				
				CBLD347212D-A				
				CBLD347212D-B				
				CBLD347213A-A				
				CBLD347213A-B				
				CBLD347213A-C				
				CBLD347213A-D				
				CBLD347213B-A				
				CBLD347213C-A				
				CBLD347213C-B				
				CBLD347213D-A				
				CBLD347214A-A				
				CBLD347214A-B				
				CBLD347214B-A				
				CBLD347214B-B				
				CBLD347214C-A				
				CBLD347214C-B				
				CBLD347214D-A				
				CBLD347214D-B				
				CBLD347215A-A				
				CBLD347215A-B				
				CBLD347215B-A				
				CBLD347215B-B				
				CBLD347215C-A				
				CBLD347215C-B				
				CBLD347215D-A				
				CBLD347215D-B				
				CBLD347217A-A				
				CBLD347217A-B				
				CBLD347217A-C				
				CBLD347217A-D				
				CBLD347217B-A				
				CBLD347217B-B				
				CBLD347217B-C				
				CBLD347217B-D				
				CBLD347217C-A				
				CBLD347217C-B				
				CBLD347217D-A				
				CBLD347217D-B				
				CBLD347218A-A				
				CBLD347218A-B				
				CBLD347218A-C				
				CBLD347218A-D				
				CBLD347218B-A				
				CBLD347218B-B				
				CBLD347218B-C				
				CBLD347218B-D				
				CBLD347218C-A				
				CBLD347218C-B				
				CBLD347218D-A				
				CBLD347218D-B				
				CBLD347219A-A				
				CBLD347219A-B				
				CBLD347219A-C				
				CBLD347219A-D				
				CBLD347219B-A				
				CBLD347219B-B				
				CBLD347219B-C				
				CBLD347219B-D				
				CBLD347219C-A				
				CBLD347219C-B				
				CBLD347219D-A				
				CBLD347219D-B				
				CBLD347220A-A				
				CBLD347220A-B				
				CBLD347220A-C				
				CBLD347220A-D				
				CBLD347220B-A				
				CBLD347220C-A				
				CBLD347220C-B				
				CBLD347221A-A				
				CBLD347221A-B				
				CBLD347221A-C				
				CBLD347221A-D				
				CBLD347221B-A				
				CBLD347221C-A				
				CBLD347221C-B				
				CBLD347222A-A				
				CBLD347222A-B				
				CBLD347222B-A				
				CBLD347222B-B				
				CBLD347222C-A				
				CBLD347222C-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347222D-A				
				CBLD347222D-B				
				CBLD347225A-A				
				CBLD347225A-B				
				CBLD347225B-A				
				CBLD347225B-B				
				CBLD347226A-A				
				CBLD347226A-B				
				CBLD347226A-C				
				CBLD347226A-D				
				CBLD347226B-A				
				CBLD347226B-B				
				CBLD347226B-C				
				CBLD347226B-D				
				CBLD347226C-A				
				CBLD347226C-B				
				CBLD347226C-C				
				CBLD347226C-D				
				CBLD347226D-A				
				CBLD347226D-B				
				CBLD347226E-A				
				CBLD347226E-B				
				CBLD347226F-A				
				CBLD347226F-B				
				CBLD347231A-A				
				CBLD347231A-B				
				CBLD347231B-A				
				CBLD347231B-B				
				CBLD347231C-A				
				CBLD347231C-B				
				CBLD347231D-A				
				CBLD347231D-B				
				CBLD347232A-A				
				CBLD347232A-B				
				CBLD347232B-A				
				CBLD347232B-B				
				CBLD347232C-A				
				CBLD347232C-B				
				CBLD347232D-A				
				CBLD347232D-B				
				CBLD347806A-A				
				CBLD347807A-A				
				CBLD347808A-A				
				CBLD347809A-A				
				CBLD347903-A				
				CBLD347903-B				
				CBLF050001A-A				
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF210011A-A				
				CBLF220011A-A				
				CBLF240011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330011A-A				
				CBLF340101A-A				
				CBLF340102-M				
				CBLX347956-A				
				CBLX347984-A				
				CBLX347985-A				
				CBLX347986-A				
CTS340203	36	Tray		CBLD347201A-A				CC30A
				CBLD347201A-B				
				CBLD347201B-A				
				CBLD347201B-B				
				CBLD347201C-A				
				CBLD347201C-B				
				CBLD347201D-A				
				CBLD347201D-B				
				CBLD347202A-A				
				CBLD347202A-B				
				CBLD347202B-A				
				CBLD347202B-B				
				CBLD347202C-A				
				CBLD347202C-B				
				CBLD347202D-A				
				CBLD347202D-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347203A-A				
				CBLD347203A-B				
				CBLD347203B-A				
				CBLD347203B-B				
				CBLD347203C-A				
				CBLD347203C-B				
				CBLD347203D-A				
				CBLD347203D-B				
				CBLD347204A-A				
				CBLD347204A-B				
				CBLD347204B-A				
				CBLD347204B-B				
				CBLD347204C-A				
				CBLD347204C-B				
				CBLD347204D-A				
				CBLD347204D-B				
				CBLD347205A-A				
				CBLD347205A-B				
				CBLD347205B-A				
				CBLD347205B-B				
				CBLD347205C-A				
				CBLD347205C-B				
				CBLD347205D-A				
				CBLD347205D-B				
				CBLD347207A-A				
				CBLD347207A-B				
				CBLD347207B-A				
				CBLD347207B-B				
				CBLD347208A-A				
				CBLD347208A-B				
				CBLD347208B-A				
				CBLD347208B-B				
				CBLD347208C-A				
				CBLD347208C-B				
				CBLD347208D-A				
				CBLD347208D-B				
				CBLD347209A-A				
				CBLD347209A-B				
				CBLD347209B-A				
				CBLD347209B-B				
				CBLD347209C-A				
				CBLD347209C-B				
				CBLD347209D-A				
				CBLD347209D-B				
				CBLD347210A-A				
				CBLD347210A-B				
				CBLD347210B-A				
				CBLD347210B-B				
				CBLD347210C-A				
				CBLD347210C-B				
				CBLD347210D-A				
				CBLD347210D-B				
				CBLD347211A-A				
				CBLD347211A-B				
				CBLD347211B-A				
				CBLD347211B-B				
				CBLD347211C-A				
				CBLD347211C-B				
				CBLD347211D-A				
				CBLD347211D-B				
				CBLD347212A-A				
				CBLD347212A-B				
				CBLD347212B-A				
				CBLD347212B-B				
				CBLD347212C-A				
				CBLD347212C-B				
				CBLD347212D-A				
				CBLD347212D-B				
				CBLD347213A-A				
				CBLD347213A-B				
				CBLD347213A-C				
				CBLD347213A-D				
				CBLD347213B-A				
				CBLD347213C-A				
				CBLD347213C-B				
				CBLD347213D-A				
				CBLD347214A-A				
				CBLD347214A-B				
				CBLD347214B-A				
				CBLD347214B-B				
				CBLD347214C-A				
				CBLD347214C-B				
				CBLD347214D-A				
				CBLD347214D-B				
				CBLD347215A-A				
				CBLD347215A-B				
				CBLD347215B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347215B-B				
				CBLD347215C-A				
				CBLD347215C-B				
				CBLD347215D-A				
				CBLD347215D-B				
				CBLD347217A-A				
				CBLD347217A-B				
				CBLD347217A-C				
				CBLD347217A-D				
				CBLD347217B-A				
				CBLD347217B-B				
				CBLD347217B-C				
				CBLD347217B-D				
				CBLD347217C-A				
				CBLD347217C-B				
				CBLD347217D-A				
				CBLD347217D-B				
				CBLD347218A-A				
				CBLD347218A-B				
				CBLD347218A-C				
				CBLD347218A-D				
				CBLD347218B-A				
				CBLD347218B-B				
				CBLD347218B-C				
				CBLD347218B-D				
				CBLD347218C-A				
				CBLD347218C-B				
				CBLD347218D-A				
				CBLD347218D-B				
				CBLD347219A-A				
				CBLD347219A-B				
				CBLD347219A-C				
				CBLD347219A-D				
				CBLD347219B-A				
				CBLD347219B-B				
				CBLD347219B-C				
				CBLD347219B-D				
				CBLD347219C-A				
				CBLD347219C-B				
				CBLD347219D-A				
				CBLD347219D-B				
				CBLD347220A-A				
				CBLD347220A-B				
				CBLD347220A-C				
				CBLD347220A-D				
				CBLD347220B-A				
				CBLD347220C-A				
				CBLD347220C-B				
				CBLD347221A-A				
				CBLD347221A-B				
				CBLD347221A-C				
				CBLD347221A-D				
				CBLD347221B-A				
				CBLD347221C-A				
				CBLD347221C-B				
				CBLD347222A-A				
				CBLD347222A-B				
				CBLD347222B-A				
				CBLD347222B-B				
				CBLD347222C-A				
				CBLD347222C-B				
				CBLD347222D-A				
				CBLD347222D-B				
				CBLD347225A-A				
				CBLD347225A-B				
				CBLD347225B-A				
				CBLD347225B-B				
				CBLD347806A-A				
				CBLD347807A-A				
				CBLD347808A-A				
				CBLD347809A-A				
				CBLF050001A-A				
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330011A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLX347959-A				
				CBLX347984-A				
CTS340204	18	Tray		CBLD347201A-A				CC30A
				CBLD347201A-B				
				CBLD347201B-A				
				CBLD347201B-B				
				CBLD347201C-A				
				CBLD347201C-B				
				CBLD347201D-A				
				CBLD347201D-B				
				CBLD347202A-A				
				CBLD347202A-B				
				CBLD347202B-A				
				CBLD347202B-B				
				CBLD347202C-A				
				CBLD347202C-B				
				CBLD347202D-A				
				CBLD347202D-B				
				CBLD347203A-A				
				CBLD347203A-B				
				CBLD347203B-A				
				CBLD347203B-B				
				CBLD347203C-A				
				CBLD347203C-B				
				CBLD347203D-A				
				CBLD347203D-B				
				CBLD347204A-A				
				CBLD347204A-B				
				CBLD347204B-A				
				CBLD347204B-B				
				CBLD347204C-A				
				CBLD347204C-B				
				CBLD347204D-A				
				CBLD347204D-B				
				CBLD347205A-A				
				CBLD347205A-B				
				CBLD347205B-A				
				CBLD347205B-B				
				CBLD347205C-A				
				CBLD347205C-B				
				CBLD347205D-A				
				CBLD347205D-B				
				CBLD347213A-A				
				CBLD347213A-B				
				CBLD347213A-C				
				CBLD347213A-D				
				CBLD347213B-A				
				CBLD347213C-A				
				CBLD347213C-B				
				CBLD347213D-A				
				CBLD347214A-A				
				CBLD347214A-B				
				CBLD347214B-A				
				CBLD347214B-B				
				CBLD347214C-A				
				CBLD347214C-B				
				CBLD347214D-A				
				CBLD347214D-B				
				CBLD347215A-A				
				CBLD347215A-B				
				CBLD347215B-A				
				CBLD347215B-B				
				CBLD347215C-A				
				CBLD347215C-B				
				CBLD347215D-A				
				CBLD347215D-B				
CTS340205	36	Tray		CBLD347207A-A				CC30A
				CBLD347207A-B				
				CBLD347207B-A				
				CBLD347207B-B				
				CBLD347208A-A				
				CBLD347208A-B				
				CBLD347208B-A				
				CBLD347208B-B				
				CBLD347208C-A				
				CBLD347208C-B				
				CBLD347208D-A				
				CBLD347208D-B				
				CBLD347209A-A				
				CBLD347209A-B				
				CBLD347209B-A				
				CBLD347209B-B				
				CBLD347209C-A				
				CBLD347209C-B				
				CBLD347209D-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347209D-B				
				CBLD347210A-A				
				CBLD347210A-B				
				CBLD347210B-A				
				CBLD347210B-B				
				CBLD347210C-A				
				CBLD347210C-B				
				CBLD347210D-A				
				CBLD347210D-B				
				CBLD347211A-A				
				CBLD347211A-B				
				CBLD347211B-A				
				CBLD347211B-B				
				CBLD347211C-A				
				CBLD347211C-B				
				CBLD347211D-A				
				CBLD347211D-B				
				CBLD347212A-A				
				CBLD347212A-B				
				CBLD347212B-A				
				CBLD347212B-B				
				CBLD347212C-A				
				CBLD347212C-B				
				CBLD347212D-A				
				CBLD347212D-B				
				CBLD347217A-A				
				CBLD347217A-B				
				CBLD347217A-C				
				CBLD347217A-D				
				CBLD347217B-A				
				CBLD347217B-B				
				CBLD347217B-C				
				CBLD347217B-D				
				CBLD347217C-A				
				CBLD347217C-B				
				CBLD347217D-A				
				CBLD347217D-B				
				CBLD347218A-A				
				CBLD347218A-B				
				CBLD347218A-C				
				CBLD347218A-D				
				CBLD347218B-A				
				CBLD347218B-B				
				CBLD347218B-C				
				CBLD347218B-D				
				CBLD347218C-A				
				CBLD347218C-B				
				CBLD347218D-A				
				CBLD347218D-B				
				CBLD347219A-A				
				CBLD347219A-B				
				CBLD347219A-C				
				CBLD347219A-D				
				CBLD347219B-A				
				CBLD347219B-B				
				CBLD347219B-C				
				CBLD347219B-D				
				CBLD347219C-A				
				CBLD347219C-B				
				CBLD347219D-A				
				CBLD347219D-B				
				CBLD347806A-A				
				CBLD347807A-A				
				CBLF050001A-A				
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330011A-A				
				CBLX347959-A				
CTS340206	36	Tray		CBLD347201A-A				CC30A
				CBLD347201A-B				
				CBLD347201B-A				
				CBLD347201B-B				
				CBLD347201C-A				
				CBLD347201C-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347201D-A				
				CBLD347201D-B				
				CBLD347202A-A				
				CBLD347202A-B				
				CBLD347202B-A				
				CBLD347202B-B				
				CBLD347202C-A				
				CBLD347202C-B				
				CBLD347202D-A				
				CBLD347202D-B				
				CBLD347203A-A				
				CBLD347203A-B				
				CBLD347203B-A				
				CBLD347203B-B				
				CBLD347203C-A				
				CBLD347203C-B				
				CBLD347203D-A				
				CBLD347203D-B				
				CBLD347204A-A				
				CBLD347204A-B				
				CBLD347204B-A				
				CBLD347204B-B				
				CBLD347204C-A				
				CBLD347204C-B				
				CBLD347204D-A				
				CBLD347204D-B				
				CBLD347205A-A				
				CBLD347205A-B				
				CBLD347205B-A				
				CBLD347205B-B				
				CBLD347205C-A				
				CBLD347205C-B				
				CBLD347205D-A				
				CBLD347205D-B				
				CBLD347207A-A				
				CBLD347207A-B				
				CBLD347207B-A				
				CBLD347207B-B				
				CBLD347208A-A				
				CBLD347208A-B				
				CBLD347208B-A				
				CBLD347208B-B				
				CBLD347208C-A				
				CBLD347208C-B				
				CBLD347208D-A				
				CBLD347208D-B				
				CBLD347209A-A				
				CBLD347209A-B				
				CBLD347209B-A				
				CBLD347209B-B				
				CBLD347209C-A				
				CBLD347209C-B				
				CBLD347209D-A				
				CBLD347209D-B				
				CBLD347210A-A				
				CBLD347210A-B				
				CBLD347210B-A				
				CBLD347210B-B				
				CBLD347210C-A				
				CBLD347210C-B				
				CBLD347210D-A				
				CBLD347210D-B				
				CBLD347211A-A				
				CBLD347211A-B				
				CBLD347211B-A				
				CBLD347211B-B				
				CBLD347211C-A				
				CBLD347211C-B				
				CBLD347211D-A				
				CBLD347211D-B				
				CBLD347212A-A				
				CBLD347212A-B				
				CBLD347212B-A				
				CBLD347212B-B				
				CBLD347212C-A				
				CBLD347212C-B				
				CBLD347212D-A				
				CBLD347212D-B				
				CBLD347213A-A				
				CBLD347213A-B				
				CBLD347213A-C				
				CBLD347213A-D				
				CBLD347213B-A				
				CBLD347213C-A				
				CBLD347213C-B				
				CBLD347213D-A				
				CBLD347214A-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347214A-B				
				CBLD347214B-A				
				CBLD347214B-B				
				CBLD347214C-A				
				CBLD347214C-B				
				CBLD347214D-A				
				CBLD347214D-B				
				CBLD347215A-A				
				CBLD347215A-B				
				CBLD347215B-A				
				CBLD347215B-B				
				CBLD347215C-A				
				CBLD347215C-B				
				CBLD347215D-A				
				CBLD347215D-B				
				CBLD347217A-A				
				CBLD347217A-B				
				CBLD347217A-C				
				CBLD347217A-D				
				CBLD347217B-A				
				CBLD347217B-B				
				CBLD347217B-C				
				CBLD347217B-D				
				CBLD347217C-A				
				CBLD347217C-B				
				CBLD347217D-A				
				CBLD347217D-B				
				CBLD347218A-A				
				CBLD347218A-B				
				CBLD347218A-C				
				CBLD347218A-D				
				CBLD347218B-A				
				CBLD347218B-B				
				CBLD347218B-C				
				CBLD347218B-D				
				CBLD347218C-A				
				CBLD347218C-B				
				CBLD347218D-A				
				CBLD347218D-B				
				CBLD347219A-A				
				CBLD347219A-B				
				CBLD347219A-C				
				CBLD347219A-D				
				CBLD347219B-A				
				CBLD347219B-B				
				CBLD347219B-C				
				CBLD347219B-D				
				CBLD347219C-A				
				CBLD347219C-B				
				CBLD347219D-A				
				CBLD347219D-B				
				CBLD347220A-A				
				CBLD347220A-B				
				CBLD347220A-C				
				CBLD347220A-D				
				CBLD347220B-A				
				CBLD347220C-A				
				CBLD347220C-B				
				CBLD347221A-A				
				CBLD347221A-B				
				CBLD347221A-C				
				CBLD347221A-D				
				CBLD347221B-A				
				CBLD347221C-A				
				CBLD347221C-B				
				CBLD347222A-A				
				CBLD347222A-B				
				CBLD347222B-A				
				CBLD347222B-B				
				CBLD347222C-A				
				CBLD347222C-B				
				CBLD347222D-A				
				CBLD347222D-B				
				CBLD347225A-A				
				CBLD347225A-B				
				CBLD347225B-A				
				CBLD347225B-B				
				CBLD347226A-A				
				CBLD347226A-B				
				CBLD347226A-C				
				CBLD347226A-D				
				CBLD347226B-A				
				CBLD347226B-B				
				CBLD347226B-C				
				CBLD347226B-D				
				CBLD347226C-A				
				CBLD347226C-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347226C-C				
				CBLD347226C-D				
				CBLD347226D-A				
				CBLD347226D-B				
				CBLD347226E-A				
				CBLD347226E-B				
				CBLD347226F-A				
				CBLD347226F-B				
				CBLD347806A-A				
				CBLD347807A-A				
				CBLD347808A-A				
				CBLD347809A-A				
				CBLD347903-A				
				CBLD347903-B				
				CBLF050001A-A				
				CBLF100011A-A				
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF220011A-A				
				CBLF260011A-A				
				CBLF280011A-A				
				CBLF300011A-A				
				CBLF330001BA-A				
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLF330001BD-A				
				CBLF330001BE-A				
				CBLF330001BF-A				
				CBLF330001BG-A				
				CBLF330011A-A				
				CBLX347956-A				
				CBLX347984-A				
				CBLX347986-A				
CTS340207	6	Tray		CBLD347226A-A				CC30A
				CBLD347226A-B				
				CBLD347226A-C				
				CBLD347226A-D				
				CBLD347226B-A				
				CBLD347226B-B				
				CBLD347226B-C				
				CBLD347226B-D				
				CBLD347226C-A				
				CBLD347226C-B				
				CBLD347226C-C				
				CBLD347226C-D				
				CBLD347226D-A				
				CBLD347226D-B				
				CBLD347226E-A				
				CBLD347226E-B				
				CBLD347226F-A				
				CBLD347226F-B				
RWYC001001-A	2	Raceway		CBLC340133A-D	DG340133A	HH001001		CC30A
RWYC001001-B	2	Raceway		CBLC340133B-D	DG340133B	HH001001		CC30A
RWYC001001-C	2	Raceway		CBLC340133C-B	DG340133C	HH001001		CC30A
RWYC007001-A	1-1/2	Raceway	DB005002	CBLC009100-A	HH007002	HH007001	EXISTING RACEWAY TO BE RETAGGED	CC30A
				CBLC009100-B				
RWYC007002-A	1	Raceway		CBLC009100-A	CAB340134A	HH007002		CC30A
RWYC007002-B	1	Raceway		CBLC009100-B	CAB340134B	HH007002		CC30A
RWYC009100-A	1-1/2	Raceway		CBLC009100-A	HH007001	SWGR009100		CC30A
				CBLC009100-B				
RWYC330001A-A	1	Raceway		CBLC330001A-A	RIO33A	MCC 33A		CC30A
				CBLC330001A-B				
RWYC330001B-A	1	Raceway		CBLC330001B-A	CAB339102	MCC 33B		CC30A
				CBLC330001B-B				
RWYC330001C-A	1	Raceway		CBLC330001C-A	RIO33C	MCC 33C		CC30A
				CBLC330001C-B				
RWYC330001D-A	1	Raceway		CBLC330001D-A	RIO33D	MCC 33D		CC30A
				CBLC330001D-B				
RWYC330001E-A	1	Raceway		CBLC330001E-A	CAB339105	MCC 33E		CC30A
				CBLC330001E-B				
RWYC330001F-A	1	Raceway		CBLC330001F-A	CAB339105	MCC 33F		CC30A
				CBLC330001F-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC330011A-A	1	Raceway		CBLS330011A-A	CTS330101	TIT3311A		CC30B
RWYC330011B-A	1	Raceway		CBLS330011B-A	CTS330101	TIT3311B		CC30B
RWYC33010D-A	1-1/2	Raceway		CBLC191011-A	TRAY 1033C	HH33010D		CC30B
RWYC330117A-A	1-1/2	Raceway		CBLC330117A-A	CAB331001	MVM 117A		CC30B
				CBLC330117A-B				
				CBLC330117A-C				
RWYC330117A-B	1	Raceway		CBLC330202A-B	MVM 117A	CTC330101		CC30B
RWYC330117B-A	1-1/2	Raceway		CBLC330117B-A	CAB331001	MVM 117B		CC30B
				CBLC330117B-B				
				CBLC330117B-C				
RWYC330117B-B	1	Raceway		CBLC330643-B	MVM 117B	CTC330101		CC30B
RWYC330202A-A	1	Raceway		CBLC330202A-B	CTC330101	TSH33202A		CC30B
RWYC330202A-B	1	Raceway		CBLC330202-A	CTC330101	CS33202		CC30B
RWYC330202AA-A	1	Raceway		CBLC330202A-A	CTC330101	CV33202A		CC30B
RWYC330203-A	1	Raceway		CBLC330203-A	CTC330101	CS33203		CC30B
RWYC330203-B	1	Raceway		CBLC330203-B	CTC330101	TSH33203		CC30B
RWYC330203A-A	1	Raceway		CBLC330203A-A	CTC330101	CV33203A		CC30B
RWYC330204-A	1	Raceway		CBLC330204-A	CTC330101	CS33204		CC30B
RWYC330204-B	1	Raceway		CBLC330204-B	CTC330101	TSH33204		CC30B
RWYC330204A-A	1	Raceway		CBLC330204A-A	CTC330101	CV33204A		CC30B
RWYC330550A-A	1	Raceway		CBLC330550A-A	CTC330101	PDSH330550A		CC30B
RWYC330550B-A	1	Raceway		CBLC330550B-A	CTC330101	PDSH330550B		CC30B
RWYC330641-A	1	Raceway		CBLC330641-A	CTC330101	CS33641		CC30B
RWYC330641-B	1	Raceway		CBLC330641-B	CTC330101	TSH33641		CC30B
RWYC330642-A	1	Raceway		CBLC330642-A	CTC330101	CS33642		CC30B
RWYC330642-B	1	Raceway		CBLC330642-B	CTC330101	TSH33642		CC30B
RWYC330643-A	1	Raceway		CBLC330643-A	CTC330101	CS33643		CC30B
RWYC330643-B	1	Raceway		CBLC330643-B	CTC330101	TSH33643		CC30B
RWYC331001-A	1-1/2	Raceway		CBLC330550A-A	CAB331001	CTC330101		CC30B
				CBLC330550B-A				
RWYC331001-B	2	Raceway		CBLC330203-A	CAB331001	CTC330101		CC30B
				CBLC330203-B				
				CBLC330203A-A				
				CBLC332031-A				
				CBLC332035-A				
RWYC331001-C	2	Raceway		CBLC330204-A	CAB331001	CTC330101		CC30B
				CBLC330204-B				
				CBLC330204A-A				
				CBLC332041-A				
				CBLC332045-A				
RWYC331001-D	2	Raceway		CBLC330202-A	CAB331001	CTC330101		CC30B
				CBLC330202A-A				
				CBLC332021-A				
				CBLC332025-A				
RWYC331001-E	2	Raceway		CBLC330641-A	CAB331001	CTC330101		CC30B
				CBLC330641-B				
				CBLC336411-A				
				CBLC336412-A				
RWYC331001-F	2	Raceway		CBLC330642-A	CAB331001	CTC330101		CC30B
				CBLC330642-B				
				CBLC336421-A				
				CBLC336422-A				
RWYC331001-G	2	Raceway		CBLC330643-A	CAB331001	CTC330101		CC30B
				CBLC336431-A				
				CBLC336432-A				
				CBLC336436-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC332021-A	1	Raceway		CBLC332021-A	CTC330101	FIT332021		CC30B
RWYC332025-A	1	Raceway		CBLC332025-A	CTC330101	TSH332025		CC30B
RWYC332031-A	1	Raceway		CBLC332031-A	CTC330101	FIT332031		CC30B
RWYC332035-A	1	Raceway		CBLC332035-A	CTC330101	TSH332035		CC30B
RWYC332041-A	1	Raceway		CBLC332041-A	CTC330101	FIT332041		CC30B
RWYC332045-A	1	Raceway		CBLC332045-A	CTC330101	TSH332045		CC30B
RWYC336411-A	1-1/2	Raceway		CBLC336411-A	CTC330101	CV336411		CC30B
RWYC336412-A	1	Raceway		CBLC336412-A	CTC330101	TSH336412		CC30B
RWYC336421-A	1-1/2	Raceway		CBLC336421-A	CTC330101	CV336421		CC30B
RWYC336422-A	1	Raceway		CBLC336422-A	CTC330101	TSH336422		CC30B
RWYC336431A-A	1-1/2	Raceway		CBLC336431-A	CTC330101	CV336431		CC30B
RWYC336432-A	1	Raceway		CBLC336432-A	CTC330101	TSH336432		CC30B
RWYC336436-A	1	Raceway		CBLC336436-A	CTC330101	FIT336436		CC30B
RWYC340001-A	3	Raceway		CBLC340133A-C	CAB340001	CTC340013A		CC30A
				CBLC340134A-A				
				CBLC341011-A				
				CBLC341050-A				
				CBLC341060-A				
				CBLC349000A-A				
RWYC340001-B	2-1/2	Raceway		CBLC340133B-C	CAB340001	CTC340014B		CC30A
				CBLC340134B-A				
				CBLC341012-A				
				CBLC349000B-A				
RWYC340001-C	3	Raceway		CBLC340095-A	CAB340001	CTC340013A	ADDENDUM 3	CC30A/REV A
				CBLC341013-A				
				CBLC349301-A				
				CBLC349301-B				
				CBLC349303-A				
				CBLC349303-B				
RWYC340001-D	2-1/2	Raceway		CBLC349102-A	CAB340001	CTC340014B	ADDENDUM 3	CC30A/REV A
				CBLC349202-A				
				CBLC349302-A				
				CBLC349302-B				
RWYC340008-A	4	Raceway	DB340008	CBLC340133A-D	MH341001	CTC340013A		CC30A
				CBLC340133C-B				
RWYC340008-B	2	Raceway	DB340008	CBLC340133B-D	MH341001	CTC340014B		CC30A
RWYC340031-A	1	Raceway		CBLC340031-A	CTC340009A	CS340031		CC30A
RWYC340031-B	1	Raceway		CBLC340031-B	CS340031	M340031		CC30A
RWYC340032-B	1	Raceway		CBLC340032-B	CS340032	M340032		CC30A
RWYC340080-A	3/4	Raceway		CBLC340080-A	DOOR340080	CS340080		CC30A / REV A
RWYC340081-A	3/4	Raceway		CBLC340081-A	DOOR340081	CS340081		CC30A / REV A
RWYC340082-A	3/4	Raceway		CBLC340082-A	DOOR340082	CS340082		CC30A / REV A
RWYC340083-A	3/4	Raceway		CBLC340083-A	DOOR340083	CS340083		CC30A / REV A
RWYC340084-A	3/4	Raceway		CBLC340084-A	DOOR340084	CS340084		CC30A / REV A
RWYC340085-A	3/4	Raceway		CBLC340085-A	DOOR340085	CS340085	CCF 002	CC30A / REV 1
RWYC340095-A	1	Raceway		CBLC340095-A	CTC340013A	FSH340095		CC30A
RWYC340111-A	1-1/2	Raceway		CBLC340111-A	CTC340013A	CAB340111		CC30A
RWYC340111-B	1-1/2	Raceway		CBLC340111-B	CTC340013A	CAB340111		CC30A
RWYC340111-C	1-1/2	Raceway		CBLC340111-C	CTC340013A	CAB340111		CC30A
RWYC340111-D	2	Raceway		CBLC340111-D	CTC340013A	CAB340111	ADDENDUM 3	CC30A/REV A
				CBLC340111-E				
RWYC340133A-A	2	Raceway		CBLC340133A-A	CAB340133	CTC340013A		CC30A
RWYC340133A-B	1	Raceway		CBLC340133A-B	CTC340003A	CAP340133A		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC340133A-C	1	Raceway		CBLC340133A-C	CTC340003A	CAP340133A		CC30A
RWYC340133A-E	1	Raceway		CBLC340133A-E	CAB340134A	CTC340003A		CC30A
RWYC340133AA-A	1-1/2	Raceway		CBLC340133A-F	CAB340133	CAB340133AA		CC30A
RWYC340133B-A	2	Raceway		CBLC340133B-A	CAB340133	CTC340016B		CC30A
RWYC340133B-B	1	Raceway		CBLC340133B-B	CTC340020B	CAP340133B		CC30A
RWYC340133B-C	1	Raceway		CBLC340133B-C	CTC340020B	CAP340133B		CC30A
RWYC340133B-E	1	Raceway		CBLC340133B-E	CAB340134B	CTC340020B		CC30A
RWYC340133BA-A	1-1/2	Raceway		CBLC340133B-F	CAB340133	CAB340133BA		CC30A
RWYC340133C-A	2	Raceway		CBLC340133C-A	CAB340133	CTC340013A		CC30A
RWYC340133CA-A	1-1/2	Raceway		CBLC340133C-C	CAB340133	CAB340133CA		CC30A
RWYC340134A-A	1-1/2	Raceway		CBLC340134A-A	CTC340003A	SUB340134A		CC30A
RWYC340134A-B	1	Raceway		CBLC340134A-B	CAB340134A	NGR340134A		CC30A
RWYC340134B-A	1-1/2	Raceway		CBLC340134B-A	CTC340020B	SUB340134B		CC30A
RWYC340134B-B	1	Raceway		CBLC340134B-B	CAB340134B	NGR340134B		CC30A
RWYC340141-A	1	Raceway		CBLC340141-A	CAB340111	CS340141		CC30A
RWYC340151-A	1	Raceway		CBLC340151-A	CAB340111	CS340151		CC30A
RWYC340211-A	1-1/2	Raceway		CBLC340211-A	CTC340014B	CAB340211		CC30A
RWYC340211-B	1-1/2	Raceway		CBLC340211-B	CTC340016B	CAB340211		CC30A
RWYC340211-C	1-1/2	Raceway		CBLC340211-C	CTC340016B	CAB340211		CC30A
RWYC340211-D	2	Raceway		CBLC340211-D	CTC340014B	CAB340211	ADDENDUM 3	CC30A/REV A
				CBLC340211-E				
RWYC340241-A	1	Raceway		CBLC340241-A	CAB340211	CS340241		CC30A
RWYC340251-A	1	Raceway		CBLC340251-A	CAB340211	CS340251		CC30A
RWYC340311-A	1-1/2	Raceway		CBLC340311-A	CTC340013A	CAB340311		CC30A
RWYC340311-B	1-1/2	Raceway		CBLC340311-B	CTC340013A	CAB340311		CC30A
RWYC340311-C	1-1/2	Raceway		CBLC340311-C	CTC340013A	CAB340311		CC30A
RWYC340311-D	2	Raceway		CBLC340311-D	CTC340013A	CAB340311	ADDENDUM 3	CC30A/REV A
				CBLC340311-E				
RWYC340341-A	1	Raceway		CBLC340341-A	CAB340311	CS340341		CC30A
RWYC340351-A	1	Raceway		CBLC340351-A	CAB340311	CS340351		CC30A
RWYC340411-A	1-1/2	Raceway		CBLC340411-A	CTC340014B	CAB340411		CC30A
RWYC340411-B	1-1/2	Raceway		CBLC340411-B	CTC340016B	CAB340411		CC30A
RWYC340411-C	1-1/2	Raceway		CBLC340411-C	CTC340016B	CAB340411		CC30A
RWYC340411-D	2	Raceway		CBLC340411-D	CTC340014B	CAB340411	ADDENDUM 3	CC30A/REV A
				CBLC340411-E				
RWYC340441-A	1	Raceway		CBLC340441-A	CAB340411	CS340441		CC30A
RWYC340451-A	1	Raceway		CBLC340451-A	CAB340411	CS340451		CC30A
RWYC340511-A	1-1/2	Raceway		CBLC340511-A	CTC340013A	CAB340511		CC30A
RWYC340511-B	1-1/2	Raceway		CBLC340511-B	CTC340014B	CAB340511		CC30A
RWYC340511-C	1-1/2	Raceway		CBLC340511-C	CTC340014B	CAB340511		CC30A
RWYC340511-D	2	Raceway		CBLC340511-D	CTC340013A	CAB340511	ADDENDUM 3	CC30A/REV A
				CBLC340511-E				
RWYC340541-A	1	Raceway		CBLC340541-A	CAB340511	CS340541		CC30A
RWYC340551-A	1	Raceway		CBLC340551-A	CAB340511	CS340551		CC30A
RWYC341001-A	4	Raceway	DB340007	CBLC340133A-D	HH001001	MH341001		CC30A
				CBLC340133B-D				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC340133C-B				
RWYC341011-A	1	Raceway		CBLC341011-A	CTC340005A	CAB341011		CC30A
RWYC341012-A	1	Raceway		CBLC341012-A	CTC340024B	CAB341012		CC30A
RWYC341013-A	1	Raceway		CBLC341013-A	CTC340005A	CAB341013		CC30A
RWYC341050-A	1	Raceway		CBLC341050-A	CTC340003A	CAB341050		CC30A
RWYC341060-A	1	Raceway		CBLC341060-A	CTC340003A	CAB341060		CC30A
RWYC349000A-A	1-1/2	Raceway		CBLC349000A-A	CTC340003A	SUB349000A		CC30A
RWYC349000B-A	1-1/2	Raceway		CBLC349000B-A	CTC340020B	SUB349000B		CC30A
RWYC349102-A	1-1/2	Raceway		CBLC349102-A	CTC340010B	ATS349102		CC30A
RWYC349202-A	1-1/2	Raceway		CBLC349202-A	CTC340016B	ATS349202		CC30A
RWYC349301-B	3/4	Raceway		CBLC349301-B	CTC340019A	MBS349301	ADDENDUM 3	CC30A/REV A
RWYC349302-A	1-1/2	Raceway		CBLC349302-A	CTC340016B	UPS349302		
RWYC349302-B	1	Raceway		CBLC349302-B	CTC340016B	MBS349302	ADDENDUM 3	CC30A/REV A
RWYD330001-A	1-1/2	Raceway		CBLD337202A-A	CONTROL ROOM HORSESHOE (CORNE	PBX330001		CC30A
				CBLD337202B-A				
				CBLD337202C-A				
				CBLD337202D-A				
RWYD330001-B	1-1/2	Raceway		CBLD337203A-A	CONTROL ROOM HORSESHOE (CORNE	PBX330001		CC30A
				CBLD337203B-A				
				CBLD337203C-A				
				CBLD337203D-A				
RWYD330001-C	1-1/2	Raceway		CBLD337202A-B	CONTROL ROOM HORSESHOE (CENTR	PBX330001		CC30A
				CBLD337202B-B				
				CBLD337202C-B				
				CBLD337202D-B				
RWYD330001-D	1-1/2	Raceway		CBLD337203A-B	CONTROL ROOM HORSESHOE (CENTR	PBX330001		CC30A
				CBLD337203B-B				
				CBLD337203C-B				
				CBLD337203D-B				
RWYD330001A-A	1	Raceway		CBLD330001A-A	NCE331011	MCC 33A		CC30A
RWYD330001B-A	1	Raceway		CBLD330001B-A	NCE331011	MCC 33B		CC30A
RWYD330001C-A	1	Raceway		CBLD330001C-A	NCE331011	MCC 33C		CC30A
RWYD330001D-A	1	Raceway		CBLD330001D-A	NCE331011	MCC 33D		CC30A
RWYD330001E-A	1	Raceway		CBLD330001E-A	NCE331011	MCC 33E		CC30A
RWYD330001F-A	1	Raceway		CBLD330001F-A	NCE331011	MCC 33F		CC30A
RWYD330117B-A	1	Raceway		CBLD330117B-A	CAB331001	MVM 117B		CC30B
RWYD337202A-A	1	Raceway		CBLD337202A-A	PBX330001	DRCP337202A		CC30A
				CBLD337202A-B				
RWYD337202B-A	1	Raceway		CBLD337202B-A	PBX330001	DRCP337202B		CC30A
				CBLD337202B-B				
RWYD337202C-A	1	Raceway		CBLD337202C-A	PBX330001	DRCP337202C		CC30A
				CBLD337202C-B				
RWYD337202D-A	1	Raceway		CBLD337202D-A	PBX330001	DRCP337202D		CC30A
				CBLD337202D-B				
RWYD337203A-A	1	Raceway		CBLD337203A-A	PBX330001	DRCP337203A		CC30A
				CBLD337203A-B				
RWYD337203B-A	1	Raceway		CBLD337203B-A	PBX330001	DRCP337203B		CC30A
				CBLD337203B-B				
RWYD337203C-A	1	Raceway		CBLD337203C-A	PBX330001	DRCP337203C		CC30A
				CBLD337203C-B				
RWYD337203D-A	1	Raceway		CBLD337203D-A	PBX330001	DRCP337203D		CC30A
				CBLD337203D-B				
RWYD340001-A	1-1/2	Raceway		CBLD340001-A	CTS340013A	CAB340001		CC30A
				CBLD340001-B				
				CBLD340001-C				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD340511-B				
				CBLD349201-F				
RWYD340001-B	1-1/2	Raceway		CBLD340001-D	CTS340014B	CAB340001		CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD341012-A				
RWYD340001-C	1-1/2	Raceway		CBLD341011-A	CAB340001	CTS340013A		CC30A
				CBLD341013-A				
				CBLD341050-A				
				CBLD341060-A				
RWYD340001-GA	1	Raceway		CBLD340001-G	CAB349101A	CTS340009A		CC30A
RWYD340001-GB	1	Raceway		CBLD340001-G	CTS340013A	CAB340001		CC30A
RWYD340003-A	2-1/2	Raceway		CBLD347113A-A	CTS340013A	JBX340003		CC30A
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLX347982-A				
RWYD340003-B	1-1/2	Raceway		CBLX340003-H	34 BLDG NORTH WALL	JBX340003		CC30A
RWYD340101-A	4	Raceway		CBLD340001-A	NCE340101	CTS340003A		CC30A
				CBLD340001-B				
				CBLD340001-C				
				CBLD340111-A				
				CBLD340311-A				
				CBLD340511-A				
				CBLD347803A-A				
				CBLD347804A-A				
				CBLD347805A-A				
				CBLD347902-A				
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
				CBLD349001-A				
				CBLD349001A-A				
				CBLD349101A-A				
				CBLD349101A-B				
				CBLD349101A-F				
				CBLD349201-A				
				CBLD349201-B				
				CBLD349201-G				
				CBLD349301-A				
				CBLX347950A-A				
				CBLX347950B-A				
				CBLX347950C-A				
				CBLX347982-A				
RWYD340101-B	4	Raceway		CBLD340001-D	NCE340101	CTS340020B		CC30A
				CBLD340001-E				
				CBLD340001-F				
				CBLD340211-A				
				CBLD340411-A				
				CBLD348901-A				
				CBLD349101B-A				
				CBLD349101B-B				
				CBLD349101B-F				
				CBLD349102-A				
				CBLD349202-A				
				CBLD349302-A				
				CBLX347970-A				
RWYD340101-C	2-1/2	Raceway		CBLD347113A-A	NCE340101	CTS340003A		CC30A
				CBLD347113A-B				
				CBLD347113B-A				
				CBLD347113B-B				
				CBLD347113C-A				
				CBLD347113C-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347113D-A				
				CBLD347113D-B				
				CBLD347114A-A				
				CBLD347114A-B				
				CBLD347114B-A				
				CBLD347114B-B				
				CBLD347114C-A				
				CBLD347114C-B				
				CBLD347114D-A				
				CBLD347114D-B				
RWYD340101-D	2-1/2	Raceway		CBLD347801A-A	NCE340101	CTS340020B		CC30A
				CBLD347802A-A				
RWYD340101-E	1	Raceway		CBLD349001-B	NCE340101	CTS340022B		
				CBLD349001B-A				
RWYD340101-F	1	Raceway		CBLD349303-A	NCE340101	CTS340008B		
RWYD340111-A	1	Raceway		CBLD340111-A	CTS340013A	CAB340111		CC30A
				CBLD340111-C				
RWYD340111-B	1	Raceway		CBLD340111-B	CAB340211	CAB340111		CC30A
RWYD340133-A	1-1/2	Raceway		CBLD340133-A	NCE340102	CAB340133		CC30A
				CBLD340133-B				
				CBLD340133-C				
RWYD340133-D	1	Raceway		CBLD340133-D	NCE340102	CAB340133		CC30A
				CBLD340133-E				
RWYD340133A-A	1	Raceway		CBLD340133A-A	NCE340102	CAB340133A		CC30A
				CBLD340133A-B				
RWYD340133A-C	1	Raceway		CBLD340133A-C	CAB340133	CAB340133A		CC30A
				CBLD340133A-D				
RWYD340133A-F	1	Raceway		CBLD340133A-F	CTS340003A	CAP340133A	CCF 008	CC30A / REV 1
RWYD340133B-A	1	Raceway		CBLD340133B-A	NCE340102	CAB340133B		CC30A
				CBLD340133B-B				
RWYD340133B-C	1	Raceway		CBLD340133B-C	CAB340133A	CAB340133B		CC30A
				CBLD340133B-D				
RWYD340133B-F	1	Raceway		CBLD340133B-F	CTS340020B	CAP340133B	CCF 008	CC30A / REV 1
RWYD340133C-A	1	Raceway		CBLD340133C-A	NCE340102	CAB340133C		CC30A
				CBLD340133C-B				
				CBLD340133C-C				
RWYD340133C-D	1	Raceway		CBLD340133C-D	CAB340133	CAB340133C		CC30A
RWYD340133C-E	1	Raceway		CBLD340133C-E	CAB340133B	CAB340133C		CC30A
				CBLD340133C-F				
RWYD340211-A	1	Raceway		CBLD340211-A	CTS340014B	CAB340211		CC30A
				CBLD340211-C				
RWYD340211-B	1	Raceway		CBLD340211-B	CAB340311	CAB340211		CC30A
RWYD340311-A	1	Raceway		CBLD340311-A	CTS340013A	CAB340311		CC30A
				CBLD340311-C				
RWYD340311-B	1	Raceway		CBLD340311-B	CAB340411	CAB340311		CC30A
RWYD340411-A	1	Raceway		CBLD340411-A	CTS340014B	CAB340411		CC30A
				CBLD340411-C				
RWYD340411-B	1	Raceway		CBLD340411-B	CAB340511	CAB340411		CC30A
RWYD340511-A	1	Raceway		CBLD340511-A	CTS340013A	CAB340511		CC30A
				CBLD340511-C				
RWYD340511-B	1	Raceway		CBLD340511-B	CTS340013A	CAB340511		CC30A
RWYD341011-A	1	Raceway		CBLD341011-A	CTS340005A	CAB341011		CC30A
RWYD341011-B	1	Raceway		CBLD341011-B	CAB341011	CAB341012		CC30A
RWYD341012-A	1	Raceway		CBLD341012-A	CTS340024B	CAB341012		CC30A
RWYD341012-B	1	Raceway		CBLD341012-B	CAB341012	CAB341013		CC30A
RWYD341013-A	1	Raceway		CBLD341013-A	CTS340005A	CAB341013		CC30A
RWYD341050-A	1	Raceway		CBLD341050-A	CTS340003A	CAB341050		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD341060-A	1	Raceway		CBLD341060-A	CTS340003A	CAB341060		CC30A
RWYD347103A-A	1	Raceway		CBLD347103A-A	NCE340102	DRCP347103A		CC30A
				CBLD347103A-B				
RWYD347103B-A	1	Raceway		CBLD347103B-A	NCE340102	DRCP347103B		CC30A
				CBLD347103B-B				
RWYD347103C-A	1	Raceway		CBLD347103C-A	NCE340102	DRCP347103C		CC30A
				CBLD347103C-B				
RWYD347103D-A	1	Raceway		CBLD347103D-A	NCE340102	DRCP347103D		CC30A
				CBLD347103D-B				
RWYD347113A-A	1	Raceway		CBLD347113A-A	JBX340003	DRCP347113A		CC30A
				CBLD347113A-B				
RWYD347113B-A	1	Raceway		CBLD347113B-A	JBX340003	DRCP347113B		CC30A
				CBLD347113B-B				
RWYD347113C-A	1	Raceway		CBLD347113C-A	JBX340003	DRCP347113C		CC30A
				CBLD347113C-B				
RWYD347113D-A	1	Raceway		CBLD347113D-A	JBX340003	DRCP347113D		CC30A
				CBLD347113D-B				
RWYD347114A-A	1	Raceway		CBLD347114A-A	JBX340003	DRCP347114A		CC30A
				CBLD347114A-B				
RWYD347114B-A	1	Raceway		CBLD347114B-A	JBX340003	DRCP347114B		CC30A
				CBLD347114B-B				
RWYD347114C-A	1	Raceway		CBLD347114C-A	JBX340003	DRCP347114C		CC30A
				CBLD347114C-B				
RWYD347114D-A	1	Raceway		CBLD347114D-A	JBX340003	DRCP347114D		CC30A
				CBLD347114D-B				
RWYD347201A-A	1	Raceway		CBLD347201A-A	CTS340204	DRCP347201A		CC30A
				CBLD347201A-B				
RWYD347201B-A	1	Raceway		CBLD347201B-A	CTS340204	DRCP347201B		CC30A
				CBLD347201B-B				
RWYD347201C-A	1	Raceway		CBLD347201C-A	CTS340204	DRCP347201C		CC30A
				CBLD347201C-B				
RWYD347201D-A	1	Raceway		CBLD347201D-A	CTS340204	DRCP347201D		CC30A
				CBLD347201D-B				
RWYD347202A-A	1	Raceway		CBLD347202A-A	CTS340204	DRCP347202A		CC30A
				CBLD347202A-B				
RWYD347202B-A	1	Raceway		CBLD347202B-A	CTS340204	DRCP347202B		CC30A
				CBLD347202B-B				
RWYD347202C-A	1	Raceway		CBLD347202C-A	CTS340204	DRCP347202C		CC30A
				CBLD347202C-B				
RWYD347202D-A	1	Raceway		CBLD347202D-A	CTS340204	DRCP347202D		CC30A
				CBLD347202D-B				
RWYD347203A-A	1	Raceway		CBLD347203A-A	CTS340204	DRCP347203A		CC30A
				CBLD347203A-B				
RWYD347203B-A	1	Raceway		CBLD347203B-A	CTS340204	DRCP347203B		CC30A
				CBLD347203B-B				
RWYD347203C-A	1	Raceway		CBLD347203C-A	CTS340204	DRCP347203C		CC30A
				CBLD347203C-B				
RWYD347203D-A	1	Raceway		CBLD347203D-A	CTS340204	DRCP347203D		CC30A
				CBLD347203D-B				
RWYD347204A-A	1	Raceway		CBLD347204A-A	CTS340204	DRCP347204A		CC30A
				CBLD347204A-B				
RWYD347204B-A	1	Raceway		CBLD347204B-A	CTS340204	DRCP347204B		CC30A
				CBLD347204B-B				
RWYD347204C-A	1	Raceway		CBLD347204C-A	CTS340204	DRCP347204C		CC30A
				CBLD347204C-B				
RWYD347204D-A	1	Raceway		CBLD347204D-A	CTS340204	DRCP347204D		CC30A
				CBLD347204D-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD347205A-A	1	Raceway		CBLD347205A-A	CTS340204	DRCP347205A		CC30A
				CBLD347205A-B				
RWYD347205B-A	1	Raceway		CBLD347205B-A	CTS340204	DRCP347205B		CC30A
				CBLD347205B-B				
RWYD347205C-A	1	Raceway		CBLD347205C-A	CTS340204	DRCP347205C		CC30A
				CBLD347205C-B				
RWYD347205D-A	1	Raceway		CBLD347205D-A	CTS340204	DRCP347205D		CC30A
				CBLD347205D-B				
RWYD347207A-A	1	Raceway		CBLD347207A-A	CTS340205	DRCP347207A		CC30A
				CBLD347207A-B				
RWYD347207B-A	1	Raceway		CBLD347207B-A	CTS340205	DRCP347207B		CC30A
				CBLD347207B-B				
RWYD347208A-A	1	Raceway		CBLD347208A-A	CTS340205	DRCP347208A		CC30A
				CBLD347208A-B				
RWYD347208B-A	1	Raceway		CBLD347208B-A	CTS340205	DRCP347208B		CC30A
				CBLD347208B-B				
RWYD347208C-A	1	Raceway		CBLD347208C-A	CTS340205	DRCP347208C		CC30A
				CBLD347208C-B				
RWYD347208D-A	1	Raceway		CBLD347208D-A	CTS340205	DRCP347208D		CC30A
				CBLD347208D-B				
RWYD347209A-A	1	Raceway		CBLD347209A-A	CTS340205	DRCP347209A		CC30A
				CBLD347209A-B				
RWYD347209B-A	1	Raceway		CBLD347209B-A	CTS340205	DRCP347209B		CC30A
				CBLD347209B-B				
RWYD347209C-A	1	Raceway		CBLD347209C-A	CTS340205	DRCP347209C		CC30A
				CBLD347209C-B				
RWYD347209D-A	1	Raceway		CBLD347209D-A	CTS340205	DRCP347209D		CC30A
				CBLD347209D-B				
RWYD347210A-A	1	Raceway		CBLD347210A-A	CTS340205	DRCP347210A		CC30A
				CBLD347210A-B				
RWYD347210B-A	1	Raceway		CBLD347210B-A	CTS340205	DRCP347210B		CC30A
				CBLD347210B-B				
RWYD347210C-A	1	Raceway		CBLD347210C-A	CTS340205	DRCP347210C		CC30A
				CBLD347210C-B				
RWYD347210D-A	1	Raceway		CBLD347210D-A	CTS340205	DRCP347210D		CC30A
				CBLD347210D-B				
RWYD347211A-A	1	Raceway		CBLD347211A-A	CTS340205	DRCP347211A		CC30A
				CBLD347211A-B				
RWYD347211B-A	1	Raceway		CBLD347211B-A	CTS340205	DRCP347211B		CC30A
				CBLD347211B-B				
RWYD347211C-A	1	Raceway		CBLD347211C-A	CTS340205	DRCP347211C		CC30A
				CBLD347211C-B				
RWYD347211D-A	1	Raceway		CBLD347211D-A	CTS340205	DRCP347211D		CC30A
				CBLD347211D-B				
RWYD347212A-A	1	Raceway		CBLD347212A-A	CTS340205	DRCP347212A		CC30A
				CBLD347212A-B				
RWYD347212B-A	1	Raceway		CBLD347212B-A	CTS340205	DRCP347212B		CC30A
				CBLD347212B-B				
RWYD347212C-A	1	Raceway		CBLD347212C-A	CTS340205	DRCP347212C		CC30A
				CBLD347212C-B				
RWYD347212D-A	1	Raceway		CBLD347212D-A	CTS340205	DRCP347212D		CC30A
				CBLD347212D-B				
RWYD347213A-A	1-1/2	Raceway		CBLD347213A-A	CTS340204	DRCP347213A		CC30A
				CBLD347213A-B				
				CBLD347213A-C				
				CBLD347213A-D				
RWYD347213B-A	1	Raceway		CBLD347213B-A	CTS340204	DRCP347213B		CC30A
RWYD347213C-A	1	Raceway		CBLD347213C-A	CTS340204	DRCP347213C		CC30A
				CBLD347213C-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD347213D-A	1	Raceway		CBLD347213D-A	CTS340204	DRCP347213D		CC30A
RWYD347214A-A	1	Raceway		CBLD347214A-A	CTS340204	DRCP347214A		CC30A
				CBLD347214A-B				
RWYD347214B-A	1	Raceway		CBLD347214B-A	CTS340204	DRCP347214B		CC30A
				CBLD347214B-B				
RWYD347214C-A	1	Raceway		CBLD347214C-A	CTS340204	DRCP347214C		CC30A
				CBLD347214C-B				
RWYD347214D-A	1	Raceway		CBLD347214D-A	CTS340204	DRCP347214D		CC30A
				CBLD347214D-B				
RWYD347215A-A	1	Raceway		CBLD347215A-A	CTS340204	DRCP347215A		CC30A
				CBLD347215A-B				
RWYD347215B-A	1	Raceway		CBLD347215B-A	CTS340204	DRCP347215B		CC30A
				CBLD347215B-B				
RWYD347215C-A	1	Raceway		CBLD347215C-A	CTS340204	DRCP347215C		CC30A
				CBLD347215C-B				
RWYD347215D-A	1	Raceway		CBLD347215D-A	CTS340204	DRCP347215D		CC30A
				CBLD347215D-B				
RWYD347217A-A	1-1/2	Raceway		CBLD347217A-A	CTS340205	DRCP347217A		CC30A
				CBLD347217A-B				
				CBLD347217A-C				
				CBLD347217A-D				
RWYD347217B-A	1-1/2	Raceway		CBLD347217B-A	CTS340205	DRCP347217B		CC30A
				CBLD347217B-B				
				CBLD347217B-C				
				CBLD347217B-D				
RWYD347217C-A	1	Raceway		CBLD347217C-A	CTS340205	DRCP347217C		CC30A
				CBLD347217C-B				
RWYD347217D-A	1	Raceway		CBLD347217D-A	CTS340205	DRCP347217D		CC30A
				CBLD347217D-B				
RWYD347218A-A	1-1/2	Raceway		CBLD347218A-A	CTS340205	DRCP347218A		CC30A
				CBLD347218A-B				
				CBLD347218A-C				
				CBLD347218A-D				
RWYD347218B-A	1-1/2	Raceway		CBLD347218B-A	CTS340205	DRCP347218B		CC30A
				CBLD347218B-B				
				CBLD347218B-C				
				CBLD347218B-D				
RWYD347218C-A	1	Raceway		CBLD347218C-A	CTS340205	DRCP347218C		CC30A
				CBLD347218C-B				
RWYD347218D-A	1	Raceway		CBLD347218D-A	CTS340205	DRCP347218D		CC30A
				CBLD347218D-B				
RWYD347219A-A	1-1/2	Raceway		CBLD347219A-A	CTS340205	DRCP347219A		CC30A
				CBLD347219A-B				
				CBLD347219A-C				
				CBLD347219A-D				
RWYD347219B-A	1-1/2	Raceway		CBLD347219B-A	CTS340205	DRCP347219B		CC30A
				CBLD347219B-B				
				CBLD347219B-C				
				CBLD347219B-D				
RWYD347219C-A	1	Raceway		CBLD347219C-A	CTS340205	DRCP347219C		CC30A
				CBLD347219C-B				
RWYD347219D-A	1	Raceway		CBLD347219D-A	CTS340205	DRCP347219D		CC30A
				CBLD347219D-B				
RWYD347220A-A	1-1/4	Raceway		CBLD347220A-A	CTS340203	DRCP347220A		CC30A
				CBLD347220A-B				
				CBLD347220A-C				
				CBLD347220A-D				
RWYD347220B-A	1	Raceway		CBLD347220B-A	CTS340203	DRCP347220B		CC30A
RWYD347220C-A	1	Raceway		CBLD347220C-A	CTS340203	DRCP347220C		CC30A
				CBLD347220C-B				
RWYD347221A-A	1-1/2	Raceway		CBLD347221A-A	CTS340203	DRCP347221A		CC30A
				CBLD347221A-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD347221A-C				
				CBLD347221A-D				
RWYD347221B-A	1	Raceway		CBLD347221B-A	CTS340203	DRCP347221B		CC30A
RWYD347221C-A	1	Raceway		CBLD347221C-A	CTS340203	DRCP347221C		CC30A
				CBLD347221C-B				
RWYD347222A-A	1	Raceway		CBLD347222A-A	CTS340203	DRCP347222A		CC30A
				CBLD347222A-B				
RWYD347222B-A	1	Raceway		CBLD347222B-A	CTS340203	DRCP347222B		CC30A
				CBLD347222B-B				
RWYD347222C-A	1	Raceway		CBLD347222C-A	CTS340203	DRCP347222C		CC30A
				CBLD347222C-B				
RWYD347222D-A	1	Raceway		CBLD347222D-A	CTS340203	DRCP347222D		CC30A
				CBLD347222D-B				
RWYD347225A-A	1	Raceway		CBLD347225A-A	CTS340203	DRCP347225A		CC30A
				CBLD347225A-B				
RWYD347225B-A	1	Raceway		CBLD347225B-A	CTS340203	DRCP347225B		CC30A
				CBLD347225B-B				
RWYD347226A-A	1-1/2	Raceway		CBLD347226A-A	CTS340207	DRCP347226A		CC30A
				CBLD347226A-B				
				CBLD347226A-C				
				CBLD347226A-D				
RWYD347226B-A	1-1/2	Raceway		CBLD347226B-A	CTS340207	DRCP347226B		CC30A
				CBLD347226B-B				
				CBLD347226B-C				
				CBLD347226B-D				
RWYD347226C-A	1-1/2	Raceway		CBLD347226C-A	CTS340207	DRCP347226C		CC30A
				CBLD347226C-B				
				CBLD347226C-C				
				CBLD347226C-D				
RWYD347226D-A	1	Raceway		CBLD347226D-A	CTS340207	DRCP347226D		CC30A
				CBLD347226D-B				
RWYD347226E-A	1	Raceway		CBLD347226E-A	CTS340207	DRCP347226E		CC30A
				CBLD347226E-B				
RWYD347226F-A	1	Raceway		CBLD347226F-A	CTS340207	DRCP347226F		CC30A
				CBLD347226F-B				
RWYD347231A-A	1	Raceway		CBLD347231A-A	CTS340201	DRCP347231A		CC30A
				CBLD347231A-B				
RWYD347231B-A	1	Raceway		CBLD347231B-A	CTS340201	DRCP347231B		CC30A
				CBLD347231B-B				
RWYD347231C-A	1	Raceway		CBLD347231C-A	CTS340201	DRCP347231C		CC30A
				CBLD347231C-B				
RWYD347231D-A	1	Raceway		CBLD347231D-A	CTS340201	DRCP347231D		CC30A
				CBLD347231D-B				
RWYD347232A-A	1	Raceway		CBLD347232A-A	CTS340201	DRCP347232A		CC30A
				CBLD347232A-B				
RWYD347232B-A	1	Raceway		CBLD347232B-A	CTS340201	DRCP347232B		CC30A
				CBLD347232B-B				
RWYD347232C-A	1	Raceway		CBLD347232C-A	CTS340201	DRCP347232C		CC30A
				CBLD347232C-B				
RWYD347232D-A	1	Raceway		CBLD347232D-A	CTS340201	DRCP347232D		CC30A
				CBLD347232D-B				
RWYD347801A-A	1	Raceway		CBLD347801A-A	CTS340010B	DRCP347801A		CC30A
RWYD347802-A	1	Raceway		CBLD347802-A	DRCP347802A	WAP347802		CC30A
RWYD347802A-A	1	Raceway		CBLD347802A-A	CTS340010B	DRCP347802A		CC30A
RWYD347803-A	1	Raceway		CBLD347803-A	DRCP347803A	WAP347803		CC30A
RWYD347803A-A	1	Raceway		CBLD347803A-A	JBX340003	DRCP347803A		CC30A
RWYD347804-A	1	Raceway		CBLD347804-A	DRCP347804A	WAP347804		CC30A
RWYD347804A-A	1	Raceway		CBLD347804A-A	JBX340003	DRCP347804A		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD347805-A	1	Raceway		CBLD347805-A	DRCP347805A	WAP347805		CC30A
RWYD347805A-A	1	Raceway		CBLD347805A-A	CTS340013A	DRCP347805A		CC30A
RWYD347806-A	1	Raceway		CBLD347806-A	DRCP347806A	WAP347806		CC30A
RWYD347806A-A	1	Raceway		CBLD347806A-A	CTS340205	DRCP347806A		CC30A
RWYD347807-A	1	Raceway		CBLD347807-A	DRCP347807A	WAP347807		CC30A
RWYD347807A-A	1	Raceway		CBLD347807A-A	CTS340205	DRCP347807A		CC30A
RWYD347808-A	1	Raceway		CBLD347808-A	DRCP347808A	WAP347808		CC30A
RWYD347808A-A	1	Raceway		CBLD347808A-A	CTS340203	DRCP347808A		CC30A
RWYD347809-A	1	Raceway		CBLD347809-A	DRCP347809A	WAP347809		CC30A
RWYD347809A-A	1	Raceway		CBLD347809A-A	CTS340203	DRCP347809A		CC30A
RWYD347901-A	**1-1/2**	Raceway		CBLD347901-A	NCE340101	CAB347901	**CCF 020 CHANGE ORDER PENDING**	CC30A
				CBLD347901-B				
				CBLD347901-C				
				CBLD347901-D				
				CBLD347901-E				
				CBLD347901-F				
				CBLD347901-G				
RWYD347901-B	**1-1/2**	**Raceway**		**CBLX347957-A**	**CAB347901**	**CTS340003A**	**CCF 020 CHANGE ORDER PENDING**	CC30A
				CBLX347964-A				
				CBLX347965-A				
RWYD347901-C	**1-1/2**	**Raceway**		**CBLX347958-A**	**CAB347901**	**CTS340020B**	**CCF 020 CHANGE ORDER PENDING**	CC30A
				CBLX347962-A				
RWYD347902-A	**1-1/2**	Raceway		CBLD347902-A	CTS340013A	CAB347902	**CCF 020 CHANGE ORDER PENDING**	CC30A
				CBLD347902-B				
				CBLD347902-C				
				CBLD347902-D				
				CBLD347902-E				
RWYD347903-A	1	Raceway		CBLD347903-A	CTS340206	CAB347903		CC30A
				CBLD347903-B				
RWYD347903-B	**1**	**Raceway**		**CBLX347959-A**	**CAB347903**	**CTS340203**	**CCF 020 CHANGE ORDER PENDING**	**CC30A**
RWYD348901-A	1	Raceway		CBLD348901-A	CTS340008B	CAB348901		CC30A
RWYD349001-C	1	Raceway		CBLD349001-C	CAB340111	CTS340013A		CC30A
RWYD349101A-C	1	Raceway		CBLD349101A-C	CAB349101B	CAB349101A		CC30A
RWYD349102-A	1	Raceway		CBLD349102-A	CTS340010B	ATS349102		CC30A
RWYD349201-A	1	Raceway		CBLD349201-A	CTS340009A	MCC349201		CC30A
RWYD349201-B	1	Raceway		CBLD349201-B	CTS340009A	CAB349201		CC30A
				CBLD349201-G				
RWYD349201-C	1	Raceway		CBLD349201-C	CTS340009A	CAB349201		CC30A
RWYD349202-A	1	Raceway		CBLD349202-A	CTS340016B	ATS349202		CC30A
RWYD349301-A	1	Raceway		CBLD349301-A	CTS340019A	UPS349301		CC30A
RWYD349302-A	1	Raceway		CBLD349302-A	CTS340016B	UPS349302		CC30A
RWYF000001A-A	4	Raceway		CBLF100011A-A	CTS340001A	CTS000001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-A				
				CBLF160011A-A				
				CBLF340102-C				
RWYF000001A-B	4	Raceway		CBLF260011A-A	CTS340001A	CTS000001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF300011A-A				
				CBLF340102-D				
RWYF000001A-C	4	Raceway		CBLF050001A-A	CTS340001A	CTS000001A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF280011A-A				
RWYF000002B-A	4	Raceway		CBLF330001CA-A	NCE050004	CTS000006B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF000002B-B	4	Raceway		CBLF330001CB-A	NCE050004	CTS000006B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYF000002B-C	4	Raceway		CBLF100011A-B	CTS330103	CTS000002B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-B				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF300011A-B				
RWYF000002B-D	4	Raceway		CBLF050001B-A	CTS330103	CTS000002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF290011A-A				
RWYF000002B-E	3	Raceway		CBLF130011BA-A	CTS330103	CTS000002B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CC-A				
RWYF000010-A	4	Raceway		CBLF290011A-A	CTS000002B	JBX000010	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-A	4	Raceway		CBLF340102-A	DG340133A	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-B	4	Raceway		CBLF340102-F	DG340133B	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-C	4	Raceway		CBLF340102-H	DG340133C	HH001002	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF001002-D	4	Raceway	DB340001	CBLF210011A-A	MH341002	HH001002	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF240011A-A				
RWYF001002-E	4	Raceway	DB340001	CBLF020011AB-A	MH341002	HH001002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF230011AB-A				
				CBLF340102-A				
				CBLF340102-F				
				CBLF340102-H				
RWYF001002-F	4	Raceway	DB340001	CBLF210011B-A	MH341002	HH001002	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF001002-G	4	Raceway	DB340001	CBLF240011CA-A	MH341002	HH001002	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF330002-A	**3/4**	**Raceway**		**CBLF330002-A**	**FIRE ALARM WORKSTATION**	**NCE330002**	**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
RWYF330010-A	**3/4**	**Raceway**		**CBLF330010-A**	**NCE330002**	**FACP330010**	**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
RWYF330010-B	**3/4**	**Raceway**		**CBLF330010-B**	**FIRE ALARM WORKSTATION**	**FACP330010**	**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
RWYF330103-A	4	Raceway		CBLF330001CA-A	CTS000002B	CTS330103	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF330103-B	4	Raceway		CBLF330001CB-A	CTS000002B	CTS330103	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				
RWYF330104-A	4	Raceway		CBLF330001BA-A	CTS340002B	CTS330104	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BB-A				
				CBLF330001BC-A				
RWYF330104-B	4	Raceway		CBLF330001BD-A	CTS340002B	CTS330104	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BE-A				
				CBLF330001BF-A				
RWYF330104-C	4	Raceway		CBLF330001BG-A	CTS340002B	CTS330104	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF330104-D	4	Raceway		CBLF020011AB-A	CTS330104	CTS340002B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF210011B-A				
				CBLF230011AB-A				
				CBLF340101A-B				
RWYF330104-E	4	Raceway		CBLF330011A-A	CTS340001A	CTS330104	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CA-A				
				CBLF340101BA-A				
RWYF330105-A	3	Raceway		CBLF130011BA-A	CTS330201	CTS330105	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CC-A				
				CBLF331011-A				
RWYF330105-B	3	Raceway		CBLF330011A-A	CTS330105	CTS330201	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CA-A				
				CBLF330011CB-A				
				CBLF340101BA-A				
RWYF330105-C	4	Raceway		CBLF100011A-B	CTS330201	CTS330105	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-B				
				CBLF160011A-B				
				CBLF260011A-B				
				CBLF300011A-B				
RWYF330105-D	4	Raceway		CBLF020011AB-A	CTS330201	CTS330105	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF210011B-A				
				CBLF220011A-B				
				CBLF230011AB-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF340101A-B				
RWYF330105-E	4	Raceway		CBLF050001B-A	CTS330201	CTS330105	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF290011A-A				
~~RWYF33010C-A~~	~~1-1/2~~	~~Raceway~~	~~DB33010C~~		~~HH17001B~~	~~HH33010C~~	~~EXISTING RACEWAY C17030 TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.~~ **EXISTING RACEWAY NOT USED. (CCF 020 CHANGE ORDER PENDING)**	CC30A
~~RWYF33010C-B~~	~~1-1/2~~	~~Raceway~~	~~DB33010C~~		~~HH17001B~~	~~HH33010C~~	~~EXISTING RACEWAY P17040 TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.~~ **EXISTING RACEWAY NOT USED. (CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF33010D-A	2	Raceway		CBLF220011A-B	RWYF33010D-AA	HH33010D	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	EXISTING
				CBLF330011CB-A				
RWYF33010D-AA	2	Raceway		CBLF220011A-B	CTS330104	RWYF33010D-A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CB-A				
RWYF33010D-B	1-1/4	Raceway		CBLF220011A-A	CTS340001A	HH33010D	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF330201-A	4	Raceway		CBLF330001BA-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BB-A				
				CBLF330001BC-A				
RWYF330201-B	4	Raceway		CBLF330001BD-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BE-A				
				CBLF330001BF-A				
RWYF330201-C	4	Raceway		CBLF330001BG-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF330201-D	4	Raceway		CBLF330001CA-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CC-A				
				CBLF330001CE-A				
RWYF330201-E	4	Raceway		CBLF330001CB-A	CTS330105	CTS330201	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001CD-A				
				CBLF330001CF-A				
RWYF331011-A	2	Raceway		CBLF331011-A	CTS330103	NCE331011	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF340001A-A	4	Raceway		CBLF100011A-A	CTS340205	CTS340001A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF130011A-A				
				CBLF160011A-A				
RWYF340001A-B	4	Raceway		CBLF220011A-A	CTS340205	CTS340001A	IDFM - (3) - 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF260011A-A				
				CBLF300011A-A				
				CBLF330011A-A				
RWYF340001A-C	4	Raceway		CBLF050001A-A	CTS340205	CTS340001A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF280011A-A				
~~RWYF340001A-D~~	~~1~~	~~Raceway~~			~~HH33010C~~	~~CTS340001A~~	~~NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340002-A	4	Raceway	DB340002	CBLF340102-A	MH341002	CTS340013A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-H				
RWYF340002-B	4	Raceway	DB340002	CBLF340102-F	MH341002	CTS340014B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF340002B-A	4	Raceway		CBLF330001BA-A	CTS340205	CTS340002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BB-A				
				CBLF330001BC-A				
				CBLX340002B-A				
RWYF340002B-B	4	Raceway		CBLF330001BD-A	CTS340205	CTS340002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330001BE-A				
				CBLF330001BF-A				
RWYF340002B-C	4	Raceway		CBLF330001BG-A	CTS340205	CTS340002B	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
~~RWYF340002B-D~~	~~1~~	~~Raceway~~			~~HH33010C~~	~~CTS340002B~~	~~NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340002B-E	1-1/2	Raceway		CBLF340102-J	CTS000002B	CTS340002B	IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-K				
RWYF340003A-A	2	Raceway		CBLF240011CA-A	NCE340101	CTS340003A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF340010-A	1-1/2	Raceway		CBLF340010-A	NCE340101	FACP340010	IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340010-B				
RWYF340013A-A	4	Raceway		CBLF210011A-A	CTS340201	CTS340013A	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. **(CCF 020 CHANGE ORDER PENDING)**	CC30A
				CBLF240011A-A				
				CBLF340101A-A				
				CBLF340102-M				
RWYF340101-A	4	Raceway		CBLF340101A-A	CTS340003A	NCE340101	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLF340101BA-A				
RWYF340101-B	4	Raceway		CBLF340101A-B	CTS340022B	NCE340101	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF340102-A	4	Raceway		CBLF340102-A	CTS340013A	NCE340102	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-B				
				CBLF340102-C				
				CBLF340102-D				
				CBLF340102-E				
				CBLF340102-H				
				CBLF340102-M				
RWYF340102-B	4	Raceway		CBLF340102-F	CTS340016B	NCE340102	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340102-G				
				CBLF340102-J				
				CBLF340102-K				
				CBLF340102-L				
~~RWYF340133-A~~	~~1-1/2~~	~~Raceway~~			~~CAB340133~~	~~CTS340013A~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
~~RWYF340133-B~~	~~1-1/2~~	~~Raceway~~			~~CAB340133~~	~~CTS340010B~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340133A-A	4	Raceway		CBLF340133A-A	NCE340102	CTS340013A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340133A-B				
				CBLF340133A-C				
				CBLF340133A-D				
				CBLF340133A-E				
				CBLF340133A-F				
				CBLF340133A-G				
~~RWYF340133AA-A~~	~~1-1/2~~	~~Raceway~~			~~CAB340133~~	~~CAB340133AA~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340133B-A	4	Raceway		CBLF340133B-A	NCE340102	CTS340016B	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340133B-B				
				CBLF340133B-C				
				CBLF340133B-D				
				CBLF340133B-E				
~~RWYF340133BA-A~~	~~1-1/2~~	~~Raceway~~			~~CAB340133~~	~~CAB340133BA~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340133C-A	4	Raceway		CBLF340133C-A	NCE340102	CTS340013A	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF340133C-B				
				CBLF340133C-C				
				CBLF340133C-D				
				CBLF340133C-E				
~~RWYF340133CA-A~~	~~1-1/2~~	~~Raceway~~			~~CAB340133~~	~~CAB340133CA~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340134A-A	2	Raceway		CBLF340102-B	CAB340134A	CTS340001A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
~~RWYF340134A-C~~	~~1-1/2~~	~~Raceway~~			~~CAB340134A~~	~~CTS340003A~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
~~RWYF340134A-D~~	~~1-1/2~~	~~Raceway~~			~~CAB340134A~~	~~CTS340003A~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF340134B-A	2	Raceway		CBLF340102-G	CAB340134B	CTS340020B	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
~~RWYF340134B-C~~	~~1-1/2~~	~~Raceway~~			~~CAB340134B~~	~~CTS340003A~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
~~RWYF340134B-D~~	~~1-1/2~~	~~Raceway~~			~~CAB340134B~~	~~CTS340003A~~	~~IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33~~ **(CCF 020 CHANGE ORDER PENDING)**	CC30A
RWYF341002-A	4	Raceway	DB340002	CBLF020011AB-A	CTS340014B	MH341002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF230011AB-A				
RWYF341002-B	4	Raceway	DB340002	CBLF210011B-A	CTS340014B	MH341002	IDFM - (2) 4" - 3 CELL INNDERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF341002-C	4	Raceway	DB340002	CBLF240011CA-A	CTS340013A	MH341002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF330011CA-A				
RWYF341002-D	4	Raceway	DB340002	CBLF210011A-A	CTS340013A	MH341002	IDFM - (2) 4" - 3 CELL INNDERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF240011A-A				
RWYF349000A-A	2	Raceway		CBLF340102-E	CAB349000A	CTS340003A	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF349000B-A	2	Raceway		CBLF340102-L	CAB349000B	CTS340020B	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYH000001A-A	5	Raceway		CBLH269000A-A	CTH340001A	CTH000001A		CC30D
RWYH000002B-A	5	Raceway		CBLH269000B-A	CTH340002B	CTH000002B		CC30D
RWYH001001-A	5	Raceway		CBLH340133A-A	DG340133A	MH001001		CC30A
RWYH001001-B	5	Raceway		CBLH340133B-A	DG340133B	MH001001		CC30A
RWYH001001-C	5	Raceway		CBLH340133C-A	DG340133C	MH001001		CC30A
RWYH330000A-A1	5	Raceway		CBLH330000A-A1	CTH340011A	T33A		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYH330000A-A2	5	Raceway		CBLH330000A-A2	CTH340011A	T33A		CC30A
RWYH330000B-A1	5	Raceway		CBLH330000B-A1	CTH340016B	T33B		CC30A
RWYH330000B-A2	5	Raceway		CBLH330000B-A2	CTH340016B	T33B		CC30A
RWYH33010CA-A	5	Raceway		CBLH169000A-A	CTH340001A	HH33010C		CC30B
RWYH33010CB-A	5	Raceway		CBLH169000B-A	CTH340002B	HH33010C		CC30B
RWYH330641-A	3	Raceway		CBLH330641-A	CTH3310133A	LAR330641		CC30B
RWYH330641-B	3	Raceway		CBLH330641-B	LAR330641	M33641		CC30B
RWYH330642-A	2-1/2	Raceway		CBLH330642-A	CTH3310133B	LAR33642	EXISTING RACEWAY H33201 TO BE RE-TAGGED.	EXISTING
RWYH330642-B	3	Raceway		CBLH330642-B	LAR33642	M33642		CC30B
RWYH330643-A	2-1/2	Raceway		CBLH330643-A	CTH3310133B	LAR33643	EXISTING RACEWAY H33202 TO BE RE-TAGGED.	EXISTING
RWYH330643-B	3	Raceway		CBLH330643-B	LAR33643	M33643		CC30B
RWYH340001-A	5	Raceway	DB340004	CBLH340133A-A	MH001001	MH340001		CC30A
RWYH340001-B	5	Raceway	DB340004	CBLH340133B-A	MH001001	MH340001		CC30A
RWYH340001-C	5	Raceway	DB340004	CBLH340133C-A	MH001001	MH340001		CC30A
RWYH340111-A	3	Raceway		CBLH340111-A	CTH340013A	M340111		CC30A
RWYH340133A-A	5	Raceway	DB340005	CBLH340133A-A	MH340001	CTH340013A		CC30A
RWYH340133A-C	3-1/2	Raceway		CBLH340133A-C	CTH340011A	CAP340133A		CC30A
RWYH340133B-A	5	Raceway	DB340005	CBLH340133B-A	MH340001	CTH340014B		CC30A
RWYH340133B-C	3-1/2	Raceway		CBLH340133B-C	CTH340016B	CAP340133B		CC30A
RWYH340133C-A	5	Raceway	DB340005	CBLH340133C-A	MH340001	CTH340014B		CC30A
RWYH340211-A	3	Raceway		CBLH340211-A	CTH340014B	M340211		CC30A
RWYH340311-A	3	Raceway		CBLH340311-A	CTH340013A	M340311		CC30A
RWYH340411-A	3	Raceway		CBLH340411-A	CTH340014B	M340411		CC30A
RWYH340511-A	3	Raceway		CBLH340511-A	CTH340014B	M340511		CC30A
RWYH349000A-A	5	Raceway		CBLH349000A-A	CTH340011A	SUB349000A		CC30A
RWYH349000A-B	5	Raceway		CBLH349000A-B	SUB349000B	SUB349000A		CC30A
RWYH349000B-A	5	Raceway		CBLH349000B-A	CTH340016B	SUB349000B		CC30A
RWYH349000B-B	5	Raceway		CBLH349000B-B	SUB349000A	SUB349000B		CC30A
RWYP001001-A	2	Raceway	DB340007	CBLP340133AA-C	HH341001	HH001001		CC30A
RWYP001001-B	2	Raceway	DB340007	CBLP340133BA-C	HH341001	HH001001		CC30A
RWYP001001-C	2	Raceway	DB340007	CBLP340133CA-C	HH341001	HH001001		CC30A
RWYP001001-D	1	Raceway	DB340007	CBLP340133A-Q	HH341001	HH001001		CC30A
RWYP001001-E	1	Raceway	DB340007	CBLP340133A-AD	MH341001	HH001001		CC30A
RWYP001001-F	1	Raceway	DB340007	CBLP340133B-Q	HH341001	HH001001		CC30A
RWYP001001-G	1	Raceway	DB340007	CBLP340133B-AE	HH341001	HH001001		CC30A
RWYP001001-H	1	Raceway	DB340007	CBLP340133C-H	HH341001	HH001001		CC30A
RWYP001001-I	1	Raceway	DB340007	CBLP340133C-O	HH341001	HH001001		CC30A
RWYP001001-J	1	Raceway	DB340007	CBLP349201-F	HH341001	HH001001		CC30A
RWYP001001-K	1	Raceway	DB340007	CBLP001001-A	HH341001	HH001001		CC30A
RWYP006001-A	1	Raceway	DB005002	CBLP009100-A	HH006002	HH006001		CC30A
RWYP006002-A	1	Raceway	DB005003	CBLP009100-A	CTPR340003A	HH006002		CC30A
RWYP009100-AA	1	Raceway		CBLP009100-A	PNL349301A	CTPR340019A		CC30A
RWYP009100-AB	1	Raceway	DB005001	CBLP009100-A	HH006001	SWGR009100		CC30A
RWYP330001-A	1	Raceway		CBLP330001-A	JP33A	NCE330001		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP330001-B	1	Raceway		CBLP330001-B	PNL330200F	NCE330001		CC30A
RWYP330001A-A	1	Raceway		CBLP330001A-A	PNL330200F	MCC 33A		CC30A
RWYP330001B-A	1	Raceway		CBLP330001B-A	PNL330200F	MCC 33B		CC30A
RWYP330001C-A	1	Raceway		CBLP330001C-A	PNL330200F	MCC 33C		CC30A
RWYP330001D-A	1	Raceway		CBLP330001D-A	PNL330200F	MCC 33D		CC30A
RWYP330001E-A	1	Raceway		CBLP330001E-A	PNL330200F	MCC 33E		CC30A
RWYP330001F-A	1	Raceway		CBLP330001F-A	PNL330200F	MCC 33F		CC30A
RWYP33010D-A	1	Raceway		CBLP191011-A	TRAY 480 VOLTS	HH33010D	EXISTING RACEWAY TO BE RETAGGED	EXISTING
RWYP33202A-A	1	Raceway		CBLP330202A-A	CTPR331033A	CV33202A	EXISTING RACEWAY XP33205 TO BE RE-TAGGED.	EXISTING
RWYP33203A-A	1	Raceway		CBLP330203A-A	CTPR331033B	CV33203A	EXISTING RACEWAY P33203 TO BE RE-TAGGED	EXISTING
RWYP33204A-A	1	Raceway		CBLP330204A-A	CTPR331033B	CV33204A	EXSITING RACEWAY P33204 TO BE RE-TAGGED.	EXISTING
RWYP336411-AA	1	Raceway		CBLP336411-A	MCC 33B	CTPR330101		CC30B
RWYP336411-AB	1	Raceway		CBLP336411-A	CTPR330101	CV336411		CC30B
RWYP336421-AA	1	Raceway		CBLP336421-A	MCC 33C	CTPR330101		CC30B
RWYP336421-AB	1	Raceway		CBLP336421-A	CTPR330101	CV336421		CC30B
RWYP336431-AA	1	Raceway		CBLP336431-A	MCC 33C	CTPR330101		CC30B
RWYP336431-AB	1	Raceway		CBLP336431-A	CTPR330101	CV336431		CC30B
RWYP338410-A	1	Raceway		CBLP338410-A	PNL330102A	DS338410		CC30A
RWYP338410-B	1	Raceway		CBLP338410-B	DS338410	EF338410		CC30A
RWYP340001-AA	1	Raceway		CBLP340001-A	PNL349301B	CTPR340013A		CC30A
RWYP340001-AB	1	Raceway		CBLP340001-A	CTPR340019A	CAB340001		CC30A
RWYP340001-BA	1	Raceway		CBLP340001-B	PNL349302A	CTPR340010B		CC30A
RWYP340001-BB	1	Raceway		CBLP340001-B	CTPR340014B	CAB340001		CC30A
RWYP340001-CA	1	Raceway		CBLP340001-C	PNL349408	CTPR340018B		CC30A
RWYP340001-CB	1	Raceway		CBLP340001-C	CTPR340014B	CAB340001		CC30A
RWYP340001-D	1-1/2	Raceway		CBLP340001-D	PNL349301A	PBX340002		CC30A
				CBLP340001-E				
RWYP340001-E	1-1/2	Raceway		CBLP340001-D	PBX340002	NCR340001		CC30A
				CBLP340001-E				
RWYP340001-F	1-1/2	Raceway		CBLP340001-F	PNL349302A	PBX340003		CC30A
				CBLP340001-G				
RWYP340001-G	1-1/2	Raceway		CBLP340001-F	PBX340003	NCR340001		CC30A
				CBLP340001-G				
RWYP340002-A	1	Raceway		CBLP348031-A	CTPR340014B	JBX340002		CC30A
RWYP340002-B	1	Raceway		CBLP348032-A	CTPR340014B	JBX340002		CC30A
RWYP340002-C	1	Raceway		CBLP348420-A	CTPR340014B	JBX340002		CC30A
RWYP340002-D	1	Raceway		CBLP340083-A	CTPR340014B	JBX340002		CC30A
RWYP340002-E	1	Raceway		CBLP340084-A	CTPR340014B	JBX340002		CC30A
RWYP340002-F	1	Raceway		CBLP340085-A	PNL349304	JBX340002	CCF 002	CC30A / REV 1
RWYP340010-AA	1	Raceway		CBLP340010-A	PNL349408	CTPR340018B		CC30A
RWYP340010-AB	1	Raceway		CBLP340010-A	CTPR340020B	FACP340010		CC30A
RWYP340011-A	1-1/2	Raceway		CBLP340011-A	PNL349301B	PBX340002		CC30A
				CBLP340011-B				
RWYP340011-B	1-1/2	Raceway		CBLP340011-A	PBX340002	NCR340011		CC30A
				CBLP340011-B				
RWYP340011-C	1-1/2	Raceway		CBLP340011-C	PNL349302B	PBX340003		CC30A
				CBLP340011-D				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340011-D	1-1/2	Raceway		CBLP340011-C	PBX340003	NCR340011		CC30A
				CBLP340011-D				
RWYP340012-A	1-1/2	Raceway		CBLP340012-A	PNL349301A	PBX340002		CC30A
				CBLP340012-B				
RWYP340012-B	1-1/2	Raceway		CBLP340012-A	PBX340002	NCE340012		CC30A
				CBLP340012-B				
RWYP340012-C	1-1/2	Raceway		CBLP340012-C	PNL349302A	PBX340003		CC30A
				CBLP340012-D				
RWYP340012-D	1-1/2	Raceway		CBLP340012-C	PBX340003	NCE340012		CC30A
				CBLP340012-D				
RWYP340013-A	1-1/2	Raceway		CBLP340013-A	PNL349301B	PBX340002		CC30A
				CBLP340013-B				
RWYP340013-B	1-1/2	Raceway		CBLP340013-A	PBX340002	NCE340013		CC30A
				CBLP340013-B				
RWYP340013-C	1-1/2	Raceway		CBLP340013-C	PNL349302B	PBX340003		CC30A
				CBLP340013-D				
RWYP340013-D	1-1/2	Raceway		CBLP340013-C	PBX340003	NCE340013		CC30A
				CBLP340013-D				
RWYP340021-A	1-1/2	Raceway		CBLP340021-A	PNL349301B	PBX340002		CC30A
				CBLP340021-B				
RWYP340021-B	1-1/2	Raceway		CBLP340021-A	PBX340002	NCR340021		CC30A
				CBLP340021-B				
RWYP340021-C	1-1/2	Raceway		CBLP340021-C	PNL349302B	PBX340003		CC30A
				CBLP340021-D				
RWYP340021-D	1-1/2	Raceway		CBLP340021-C	PBX340003	NCR340021		CC30A
				CBLP340021-D				
RWYP340022-A	1-1/2	Raceway		CBLP340022-A	PNL349301A	PBX340002		CC30A
				CBLP340022-B				
RWYP340022-B	1-1/2	Raceway		CBLP340022-A	PBX340002	NCE340022		CC30A
				CBLP340022-B				
RWYP340022-C	1-1/2	Raceway		CBLP340022-C	PNL349302A	PBX340003		CC30A
				CBLP340022-D				
RWYP340022-D	1-1/2	Raceway		CBLP340022-C	PBX340003	NCE340022		CC30A
				CBLP340022-D				
RWYP340023-A	1-1/2	Raceway		CBLP340023-A	PNL349301A	PBX340002		CC30A
				CBLP340023-B				
RWYP340023-B	1-1/2	Raceway		CBLP340023-A	PBX340002	NCE340023		CC30A
				CBLP340023-B				
RWYP340023-C	1-1/2	Raceway		CBLP340023-C	PNL349302A	PBX340003		CC30A
				CBLP340023-D				
RWYP340023-D	1-1/2	Raceway		CBLP340023-C	PBX340003	NCE340023		CC30A
				CBLP340023-D				
RWYP340031-A	1	Raceway		CBLP340031-A	CTPR340009A	DS340031		CC30A
RWYP340031-B	1	Raceway		CBLP340031-B	DS340031	M340031		CC30A
RWYP340032-A	1	Raceway		CBLP340032-A	CTPR340018B	DS340032		CC30A
RWYP340032-B	1	Raceway		CBLP340032-B	DS340032	M340032		CC30A
RWYP340051-A	1-1/2	Raceway		CBLP340051-A	PNL349301B	PBX340002		CC30A
				CBLP340051-B				
RWYP340051-B	1-1/2	Raceway		CBLP340051-A	PBX340002	NCR340051		CC30A
				CBLP340051-B				
RWYP340051-C	1-1/2	Raceway		CBLP340051-C	PNL349302B	PBX340003		CC30A
				CBLP340051-D				
RWYP340051-D	1-1/2	Raceway		CBLP340051-C	PBX340003	NCR340051		CC30A
				CBLP340051-D				
RWYP340052-A	1-1/2	Raceway		CBLP340052-A	PNL349301B	PBX340002		CC30A
				CBLP340052-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340052-B	1-1/2	Raceway		CBLP340052-A	PBX340002	NCE340052		CC30A
				CBLP340052-B				
RWYP340052-C	1-1/2	Raceway		CBLP340052-C	PNL349302B	PBX340003		CC30A
				CBLP340052-D				
RWYP340052-D	1-1/2	Raceway		CBLP340052-C	PBX340003	NCE340052		CC30A
				CBLP340052-D				
RWYP340053-A	1-1/2	Raceway		CBLP340053-A	PNL349301B	PBX340002		CC30A
				CBLP340053-B				
RWYP340053-B	1-1/2	Raceway		CBLP340053-A	PBX340002	FUTURE NCR		CC30A
				CBLP340053-B				
RWYP340053-C	1-1/2	Raceway		CBLP340053-C	PNL349302B	PBX340003		CC30A
				CBLP340053-D				
RWYP340053-D	1-1/2	Raceway		CBLP340053-C	PBX340003	FUTURE NCR		CC30A
				CBLP340053-D				
RWYP340080-AA	1	Raceway		CBLP340080-A	PNL349409	CTPR340018B		CC30A
RWYP340080-AB	1	Raceway		CBLP340080-A	CTPR340002B	DS340080		CC30A
RWYP340080-B	1	Raceway		CBLP340080-B	DS340080	DOOR340080		CC30A
RWYP340081-AA	1	Raceway		CBLP340081-A	PNL349409	CTPR340018B		CC30A
RWYP340081-AB	1	Raceway		CBLP340081-A	CTPR340024B	DS340081		CC30A
RWYP340081-B	1	Raceway		CBLP340081-B	DS340081	DOOR340081		CC30A
RWYP340082-AA	1	Raceway		CBLP340082-A	PNL349409	CTPR340018B		CC30A
RWYP340082-AB	1	Raceway		CBLP340082-A	CTPR340024B	DS340082		CC30A
RWYP340082-B	1	Raceway		CBLP340082-B	DS340082	DOOR340082		CC30A
RWYP340083-AA	1	Raceway		CBLP340083-A	PNL349409	CTPR340018B		CC30A
RWYP340083-AB	1	Raceway		CBLP340083-A	JBX340002	DS340083		CC30A
RWYP340083-B	1	Raceway		CBLP340083-B	DS340083	DOOR340083		CC30A
RWYP340084-AA	1	Raceway		CBLP340084-A	PNL349409	CTPR340018B		CC30A
RWYP340084-AB	1	Raceway		CBLP340084-A	JBX340002	DS340084		CC30A
RWYP340084-B	1	Raceway		CBLP340084-B	DS340084	DOOR340084		CC30A
RWYP340085-A	3/4	Raceway		CBLP340085-A	JBX340002	DS340085	CCF 002	CC30A / REV 1
RWYP340085-B	3/4	Raceway		CBLP340085-B	DS340085	DOOR340085	CCF 002	CC30A / REV 1
RWYP340090-A	1	Raceway		CBLP340090-A	CTPR340016B	DS340090		CC30A
RWYP340090-B	1	Raceway		CBLP340090-B	DS340090	CRN340090		CC30A
RWYP340091-A	1	Raceway		CBLP340091-A	CTPR340013A	DS340091		CC30A
RWYP340091-B	1	Raceway		CBLP340091-B	DS340091	HST340091		CC30A
RWYP340092-A	1	Raceway		CBLP340092-A	MCC349101B	DS340092		CC30A
RWYP340092-B	1	Raceway		CBLP340092-B	DS340092	HST340092		CC30A
RWYP340099A-AA	1-1/2	Raceway		CBLP340099A-A	PNL349203	CTPR340017A		CC30A
RWYP340099A-AB	1-1/2	Raceway		CBLP340099A-A	CTPR340013A	ELEV340099A		CC30A
RWYP340099B-AA	1	Raceway		CBLP340099B-A	PNL349301A	CTPR340017A		CC30A
RWYP340099B-AB	1	Raceway		CBLP340099B-A	CTPR340013A	ELEV340099B		CC30A
RWYP340100-AA	1	Raceway		CBLP340100-A	PNL349304	CTPR340013A		CC30A
RWYP340100-AB	1	Raceway		CBLP340100-A	CTPR340013A	CAB340100		CC30A
RWYP340100-B	1	Raceway		CBLP340100-B	CAB340100	M340100		CC30A
RWYP340101-A	1	Raceway		CBLP340101-A	CAB340111	PDISH340101		CC30A
RWYP340101-BA	1	Raceway		CBLP340101-B	PNL349301B	CTPR340019A		CC30A
RWYP340101-BB	1	Raceway		CBLP340101-B	CTPR340003A	NCE340101		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340101-CA	1	Raceway		CBLP340101-C	PNL349302B	CTPR340010B		CC30A
RWYP340101-CB	1	Raceway		CBLP340101-C	CTPR340022B	NCE340101		CC30A
~~RWYP340102-A~~	~~1~~	~~Raceway~~		~~CBLP340102-A~~	~~CAB340111~~	~~PDISH340102~~	ADDENDUM 3	CC30A/REV A
RWYP340102-BA	1	Raceway		CBLP340102-B	PNL349301B	CTPR340019A		CC30A
RWYP340102-BB	1	Raceway		CBLP340102-B	CTPR340013A	NCE340102		CC30A
RWYP340102-CA	1	Raceway		CBLP340102-C	PNL349302A	CTPR340010B		CC30A
RWYP340102-CB	1	Raceway		CBLP340102-C	CTPR340016B	NCE340102		CC30A
RWYP340111-AA	1	Raceway		CBLP340111-A	PNL349304	CTPR340013A		CC30A
RWYP340111-AB	1	Raceway		CBLP340111-A	CTPR340013A	CAB340111		CC30A
RWYP340111-B	1	Raceway		CBLP340111-B	DS340123	TBXP340111		CC30A
RWYP340111-C	1	Raceway		CBLP340111-C	DS340123B	TBXP340111		CC30A
RWYP340111-D	1	Raceway		CBLP340111-D	DS340126	TBXP340111		CC30A
RWYP340123-A	1	Raceway		CBLP340123-A	CTPR340013A	DS340123		CC30A
RWYP340123B-A	1	Raceway		CBLP340123B-A	CTPR340013A	DS340123B		CC30A
RWYP340126-A	1	Raceway		CBLP340126-A	CTPR340013A	DS340126		CC30A
RWYP340133-AA	1	Raceway		CBLP340133-A	PNL349301B	CTPR340017A		CC30A
RWYP340133-AB	1	Raceway		CBLP340133-A	CTPR340013A	CAB340133		CC30A
RWYP340133-BA	1	Raceway		CBLP340133-B	PNL349302A	CTPR340010B		CC30A
RWYP340133-BB	1	Raceway		CBLP340133-B	CTPR340016B	CAB340133		CC30A
RWYP340133-CA	1	Raceway		CBLP340133-C	PNL349406	CTPR340016B		CC30A
RWYP340133-CB	1	Raceway		CBLP340133-C	CTPR340016B	CAB340133		CC30A
RWYP340133-DA	1	Raceway		CBLP340133-D	PNL349407	CTPR340016B		CC30A
RWYP340133-DB	1	Raceway		CBLP340133-D	CTPR340016B	CAB340133		CC30A
RWYP340133A-A	1	Raceway		CBLP340133A-A	PNL349301A	CTPR340021A		CC30A
RWYP340133A-AA	1	Raceway		CBLP340133A-AA	PNL349406	CTPR340013A		CC30A
RWYP340133A-AB	1-1/2	Raceway		CBLP340133A-AB	PNL349406	CTPR340013A		CC30A
RWYP340133A-AC	1	Raceway		CBLP340133A-AC	PNL349406	CTPR340013A		CC30A
RWYP340133A-AD	1	Raceway		CBLP340133A-AD	HH001001	DG340133A		CC30A
RWYP340133A-AE	1	Raceway		CBLP340133A-AE	PNL349304	CTPR340013A		CC30A
RWYP340133A-AF	1-1/2	Raceway		CBLP340133A-AF	PNL349304	CTPR340013A		CC30A
RWYP340133A-AG	1-1/2	Raceway		CBLP340133A-AG	PNL349304	CTPR340013A		CC30A
RWYP340133A-AH	1-1/2	Raceway		CBLP340133A-AH	PNL349304	CTPR340013A		CC30A
RWYP340133A-AI	1-1/2	Raceway		CBLP340133A-AI	PNL349304	CTPR340013A		CC30A
RWYP340133A-AJ	1-1/2	Raceway		CBLP340133A-AJ	PNL349304	CTPR340013A		CC30A
RWYP340133A-AK	1-1/2	Raceway		CBLP340133A-AK	PNL349304	CTPR340013A		CC30A
RWYP340133A-AL	1-1/2	Raceway		CBLP340133A-AL	PNL349304	CTPR340013A		CC30A
RWYP340133A-AM	1-1/2	Raceway		CBLP340133A-AM	PNL349304	CTPR340013A		CC30A
RWYP340133A-AN	1-1/2	Raceway		CBLP340133A-AN	PNL349304	CTPR340013A		CC30A
RWYP340133A-AO	1-1/2	Raceway		CBLP340133A-AO	PNL349304	CTPR340013A		CC30A
RWYP340133A-AP	1-1/2	Raceway		CBLP340133A-AP	PNL349304	CTPR340013A		CC30A
RWYP340133A-AQ	1	Raceway		CBLP340133A-AQ	SWGR340133AA	NGR340133A		CC30A
RWYP340133A-B	1	Raceway		CBLP340133A-B	PNL349301A	CTPR340021A		CC30A
RWYP340133A-C	1	Raceway		CBLP340133A-C	PNL349301A	CTPR340021A		CC30A
RWYP340133A-D	1	Raceway		CBLP340133A-D	PNL349301A	CTPR340021A		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340133A-E	1	Raceway		CBLP340133A-E	PNL349301A	CTPR340021A		CC30A
RWYP340133A-F	1	Raceway		CBLP340133A-F	PNL349301A	CTPR340021A		CC30A
RWYP340133A-G	1	Raceway		CBLP340133A-G	PNL349301A	CTPR340021A		CC30A
RWYP340133A-H	1	Raceway		CBLP340133A-H	PNL349301A	CTPR340021A		CC30A
RWYP340133A-I	1	Raceway		CBLP340133A-I	PNL349301A	CTPR340021A		CC30A
RWYP340133A-J	1	Raceway		CBLP340133A-J	PNL349301A	CTPR340021A		CC30A
RWYP340133A-K	1	Raceway		CBLP340133A-K	PNL349301A	CTPR340021A		CC30A
RWYP340133A-L	1	Raceway		CBLP340133A-L	PNL349301A	CTPR340021A		CC30A
RWYP340133A-M	1	Raceway		CBLP340133A-M	PNL349301A	CTPR340021A		CC30A
RWYP340133A-N	1	Raceway		CBLP340133A-N	PNL349301A	CTPR340021A		CC30A
RWYP340133A-O	1	Raceway		CBLP340133A-O	PNL349301A	CTPR340021A		CC30A
RWYP340133A-P	1	Raceway		CBLP340133A-P	PNL349301A	CTPR340021A		CC30A
RWYP340133A-QA	1	Raceway		CBLP340133A-Q	PNL349301A	CTPR340017A		CC30A
RWYP340133A-QB	1	Raceway		CBLP340133A-Q	HH001001	DG340133A		CC30A
RWYP340133A-R	1	Raceway		CBLP340133A-R	PNL349406	CTPR340013A		CC30A
RWYP340133A-S	1	Raceway		CBLP340133A-S	PNL349406	CTPR340013A		CC30A
RWYP340133A-T	1	Raceway		CBLP340133A-T	PNL349406	CTPR340013A		CC30A
RWYP340133A-U	1	Raceway		CBLP340133A-U	PNL349406	CTPR340013A		CC30A
RWYP340133A-V	1	Raceway		CBLP340133A-V	PNL349406	CTPR340013A		CC30A
RWYP340133A-W	1	Raceway		CBLP340133A-W	PNL349406	CTPR340013A		CC30A
RWYP340133A-X	1	Raceway		CBLP340133A-X	PNL349406	CTPR340013A		CC30A
RWYP340133A-Y	1	Raceway		CBLP340133A-Y	PNL349406	CTPR340013A		CC30A
RWYP340133A-Z	1	Raceway		CBLP340133A-Z	PNL349406	CTPR340013A		CC30A
RWYP340133AA-AA	1	Raceway		CBLP340133A-AR	PNL349301B	CTPR340017A		CC30A
RWYP340133AA-AB	1-1/2	Raceway		CBLP340133A-AR	CTPR340013A	CAB340133A		CC30A
RWYP340133AA-BA	1	Raceway		CBLP340133A-AS	PNL349406	CTPR340016B		CC30A
RWYP340133AA-BB	1-1/2	Raceway		CBLP340133A-AS	CTPR340016B	CAB340133A		CC30A
RWYP340133AA-C	2	Raceway		CBLP340133AA-C	HH001001	PNL340133AA		CC30A
RWYP340133B-A	1	Raceway		CBLP340133B-A	PNL349302A	CTPR340010B		CC30A
RWYP340133B-AA	1	Raceway		CBLP340133B-AA	PNL349407	CTPR340016B		CC30A
RWYP340133B-AB	1	Raceway		CBLP340133B-AB	PNL349407	CTPR340016B		CC30A
RWYP340133B-AC	1	Raceway		CBLP340133B-AC	PNL349407	CTPR340016B		CC30A
RWYP340133B-AD	1	Raceway		CBLP340133B-AD	PNL349407	CTPR340016B		CC30A
RWYP340133B-AE	1	Raceway		CBLP340133B-AE	HH001001	DG340133B		CC30A
RWYP340133B-AF	1	Raceway		CBLP340133B-AF	PNL349305	CTPR340014B		CC30A
RWYP340133B-AG	1	Raceway		CBLP340133B-AG	PNL349305	CTPR340014B		CC30A
RWYP340133B-AH	1	Raceway		CBLP340133B-AH	PNL349305	CTPR340014B		CC30A
RWYP340133B-AI	1	Raceway		CBLP340133B-AI	PNL349305	CTPR340014B		CC30A
RWYP340133B-AJ	1	Raceway		CBLP340133B-AJ	PNL349305	CTPR340014B		CC30A
RWYP340133B-AK	1	Raceway		CBLP340133B-AK	PNL349305	CTPR340014B		CC30A
RWYP340133B-AL	1	Raceway		CBLP340133B-AL	PNL349305	CTPR340014B		CC30A
RWYP340133B-AM	1	Raceway		CBLP340133B-AM	PNL349305	CTPR340014B		CC30A
RWYP340133B-AN	1	Raceway		CBLP340133B-AN	PNL349305	CTPR340014B		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340133B-AO	1	Raceway		CBLP340133B-AO	PNL349305	CTPR340014B		CC30A
RWYP340133B-AP	1	Raceway		CBLP340133B-AP	PNL349305	CTPR340014B		CC30A
RWYP340133B-AQ	1	Raceway		CBLP340133B-AQ	PNL349305	CTPR340014B		CC30A
RWYP340133B-AR	1	Raceway		CBLP340133B-AR	SWGR340133BA	NGR340133B		CC30A
RWYP340133B-B	1	Raceway		CBLP340133B-B	PNL349302A	CTPR340010B		CC30A
RWYP340133B-C	1	Raceway		CBLP340133B-C	PNL349302A	CTPR340010B		CC30A
RWYP340133B-D	1	Raceway		CBLP340133B-D	PNL349302A	CTPR340010B		CC30A
RWYP340133B-E	1	Raceway		CBLP340133B-E	PNL349302A	CTPR340010B		CC30A
RWYP340133B-F	1	Raceway		CBLP340133B-F	PNL349302A	CTPR340010B		CC30A
RWYP340133B-G	1	Raceway		CBLP340133B-G	PNL349302A	CTPR340010B		CC30A
RWYP340133B-H	1	Raceway		CBLP340133B-H	PNL349302A	CTPR340010B		CC30A
RWYP340133B-I	1	Raceway		CBLP340133B-I	PNL349302A	CTPR340010B		CC30A
RWYP340133B-J	1	Raceway		CBLP340133B-J	PNL349302A	CTPR340010B		CC30A
RWYP340133B-K	1	Raceway		CBLP340133B-K	PNL349302A	CTPR340010B		CC30A
RWYP340133B-L	1	Raceway		CBLP340133B-L	PNL349302A	CTPR340010B		CC30A
RWYP340133B-M	1	Raceway		CBLP340133B-M	PNL349302A	CTPR340010B		CC30A
RWYP340133B-N	1	Raceway		CBLP340133B-N	PNL349302A	CTPR340010B		CC30A
RWYP340133B-O	1	Raceway		CBLP340133B-O	PNL349302A	CTPR340010B		CC30A
RWYP340133B-P	1	Raceway		CBLP340133B-P	PNL349302A	CTPR340010B		CC30A
RWYP340133B-QA	1	Raceway		CBLP340133B-Q	PNL349302A	CTPR340010B		CC30A
RWYP340133B-QB	1	Raceway		CBLP340133B-Q	HH001001	DG340133B		CC30A
RWYP340133B-R	1	Raceway		CBLP340133B-R	PNL349302A	CTPR340010B		CC30A
RWYP340133B-S	1	Raceway		CBLP340133B-S	PNL349407	CTPR340016B		CC30A
RWYP340133B-T	1	Raceway		CBLP340133B-T	PNL349407	CTPR340016B		CC30A
RWYP340133B-U	1	Raceway		CBLP340133B-U	PNL349407	CTPR340016B		CC30A
RWYP340133B-V	1	Raceway		CBLP340133B-V	PNL349407	CTPR340016B		CC30A
RWYP340133B-W	1	Raceway		CBLP340133B-W	PNL349407	CTPR340016B		CC30A
RWYP340133B-X	1	Raceway		CBLP340133B-X	PNL349407	CTPR340016B		CC30A
RWYP340133B-Y	1	Raceway		CBLP340133B-Y	PNL349407	CTPR340016B		CC30A
RWYP340133B-Z	1	Raceway		CBLP340133B-Z	PNL349407	CTPR340016B		CC30A
RWYP340133BA-AA	1	Raceway		CBLP340133B-AS	PNL349302A	CTPR340010B		CC30A
RWYP340133BA-AB	1	Raceway		CBLP340133B-AS	CTPR340016B	CAB340133BA		CC30A
RWYP340133BA-BA	1	Raceway		CBLP340133B-AT	PNL349407	CTPR340016B		CC30A
RWYP340133BA-BB	1	Raceway		CBLP340133B-AT	CTPR340016B	CAB340133BA		CC30A
RWYP340133BA-C	2	Raceway		CBLP340133BA-C	HH001001	PNL340133BA		CC30A
RWYP340133C-A	1	Raceway		CBLP340133C-A	PNL349301B	CTPR340017A		CC30A
RWYP340133C-B	1	Raceway		CBLP340133C-B	PNL349301B	CTPR340017A		CC30A
RWYP340133C-C	1	Raceway		CBLP340133C-C	PNL349301B	CTPR340017A		CC30A
RWYP340133C-D	1	Raceway		CBLP340133C-D	PNL349301B	CTPR340017A		CC30A
RWYP340133C-E	1	Raceway		CBLP340133C-E	PNL349301B	CTPR340017A		CC30A
RWYP340133C-F	1	Raceway		CBLP340133C-F	PNL349301B	CTPR340017A		CC30A
RWYP340133C-G	1	Raceway		CBLP340133C-G	PNL349301B	CTPR340017A		CC30A
RWYP340133C-HA	1	Raceway		CBLP340133C-H	PNL349301B	CTPR340017A		CC30A
RWYP340133C-HB	1	Raceway		CBLP340133C-H	HH001001	DG340133C		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340133C-I	1	Raceway		CBLP340133C-I	PNL349405	CTPR340013A		CC30A
RWYP340133C-J	1	Raceway		CBLP340133C-J	PNL349405	CTPR340013A		CC30A
RWYP340133C-K	1	Raceway		CBLP340133C-K	PNL349405	CTPR340013A		CC30A
RWYP340133C-L	1	Raceway		CBLP340133C-L	PNL349405	CTPR340013A		CC30A
RWYP340133C-M	1	Raceway		CBLP340133C-M	PNL349405	CTPR340013A		CC30A
RWYP340133C-N	1	Raceway		CBLP340133C-N	PNL349405	CTPR340013A		CC30A
RWYP340133C-O	1	Raceway		CBLP340133C-O	HH001001	DG340133C		CC30A
RWYP340133C-P	1	Raceway		CBLP340133C-P	PNL349408	CTPR340018B		CC30A
RWYP340133C-Q	1	Raceway		CBLP340133C-Q	PNL349408	CTPR340018B		CC30A
RWYP340133C-R	1	Raceway		CBLP340133C-R	PNL349408	CTPR340018B		CC30A
RWYP340133C-S	1	Raceway		CBLP340133C-S	PNL349408	CTPR340018B		CC30A
RWYP340133C-T	1	Raceway		CBLP340133C-T	PNL349408	CTPR340018B		CC30A
RWYP340133C-U	1	Raceway		CBLP340133C-U	PNL349408	CTPR340018B		CC30A
RWYP340133C-V	1	Raceway		CBLP340133C-V	SWGR340133CA	NGR340133C		CC30A
RWYP340133CA-AA	1	Raceway		CBLP340133C-W	PNL349301B	CTPR340017A		CC30A
RWYP340133CA-AB	1	Raceway		CBLP340133C-W	CTPR340013A	CAB340133CA		CC30A
RWYP340133CA-BA	1	Raceway		CBLP340133C-X	PNL349405	CTPR340016B		CC30A
RWYP340133CA-BB	1	Raceway		CBLP340133C-X	CTPR340016B	CAB340133CA		CC30A
RWYP340133CA-C	2	Raceway		CBLP340133CA-C	HH001001	PNL340133CA		CC30A
RWYP340134A-AA	1	Raceway		CBLP340134A-A	PNL349301A	CTPR340021A		CC30A
RWYP340134A-AB	1	Raceway		CBLP340134A-A	CTPR340003A	CAB340134A		CC30A
RWYP340134A-BA	1	Raceway		CBLP340134A-B	PNL349302A	CTPR340010B		CC30A
RWYP340134A-BB	1	Raceway		CBLP340134A-B	CTPR340020B	CAB340134A		CC30A
RWYP340134A-CA	1	Raceway		CBLP340134A-C	PNL349306	CTPR340018B		CC30A
RWYP340134A-CB	1	Raceway		CBLP340134A-C	CTPR340020B	SUB340134A		CC30A
RWYP340134A-DA	1	Raceway		CBLP340134A-D	PNL349306	CTPR340018B		CC30A
RWYP340134A-DB	1	Raceway		CBLP340134A-D	CTPR340020B	SUB340134A		CC30A
RWYP340134A-EA	1	Raceway		CBLP340134A-E	PNL349301B	CTPR340021A		CC30A
RWYP340134A-EB	1	Raceway		CBLP340134A-E	CTPR340003A	CAB340134A		CC30A
RWYP340134A-F	4	Raceway		CBLP340134A-F	SUB340134A	NGR340134A	ADDENDUM 3	CC30A/REV A
RWYP340134B-AA	1	Raceway		CBLP340134B-A	PNL349301A	CTPR340021A		CC30A
RWYP340134B-AB	1	Raceway		CBLP340134B-A	CTPR340003A	CAB340134B		CC30A
RWYP340134B-BA	1	Raceway		CBLP340134B-B	PNL349302A	CTPR340010B		CC30A
RWYP340134B-BB	1	Raceway		CBLP340134B-B	CTPR340020B	CAB340134B		CC30A
RWYP340134B-CA	1	Raceway		CBLP340134B-C	PNL349306	CTPR340018B		CC30A
RWYP340134B-CB	1	Raceway		CBLP340134B-C	CTPR340020B	SUB340134B		CC30A
RWYP340134B-DA	1	Raceway		CBLP340134B-D	PNL349306	CTPR340018B		CC30A
RWYP340134B-DB	1	Raceway		CBLP340134B-D	CTPR340020B	SUB340134B		CC30A
RWYP340134B-EA	1	Raceway		CBLP340134B-E	PNL349302B	CTPR340010B		CC30A
RWYP340134B-EB	1	Raceway		CBLP340134B-E	CTPR340020B	CAB340134B		CC30A
RWYP340134B-F	4	Raceway		CBLP340134B-F	SUB340134B	NGR340134B	ADDENDUM 3	CC30A/REV A
RWYP340141-AA	1	Raceway		CBLP340141-A	PNL349203	CTPR340013A		CC30A
RWYP340141-AB	1	Raceway		CBLP340141-A	CTPR340013A	DS340141		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340141-B	1	Raceway		CBLP340141-B	DS340141	FV340141		CC30A
RWYP340151-AA	1	Raceway		CBLP340151-A	PNL349203	CTPR340013A		CC30A
RWYP340151-AB	1	Raceway		CBLP340151-A	CTPR340013A	DS340151		CC30A
RWYP340151-B	1	Raceway		CBLP340151-B	DS340151	FV340151		CC30A
RWYP340200-AA	1	Raceway		CBLP340200-A	PNL349305	CTPR340014B		CC30A
RWYP340200-AB	1	Raceway		CBLP340200-A	CTPR340014B	CAB340200		CC30A
RWYP340200-B	1	Raceway		CBLP340200-B	CAB340200	M340200		CC30A
RWYP340201-A	1	Raceway		CBLP340201-A	CAB340211	PDISH340201		CC30A
~~RWYP340202-A~~	~~1~~	~~Raceway~~		~~CBLP340202-A~~	~~CAB340211~~	~~PDISH340202~~	ADDENDUM 3	CC30A/REV A
RWYP340211-AA	1	Raceway		CBLP340211-A	PNL349305	CTPR340014B		CC30A
RWYP340211-AB	1	Raceway		CBLP340211-A	CTPR340014B	CAB340211		CC30A
RWYP340211-B	1	Raceway		CBLP340211-B	DS340223	TBXP340211		CC30A
RWYP340211-C	1	Raceway		CBLP340211-C	DS340223B	TBXP340211		CC30A
RWYP340211-D	1	Raceway		CBLP340211-D	DS340226	TBXP340211		CC30A
RWYP340223-A	1	Raceway		CBLP340223-A	CTPR340014B	DS340223		CC30A
RWYP340223B-A	1	Raceway		CBLP340223B-A	CTPR340014B	DS340223B		CC30A
RWYP340226-A	1	Raceway		CBLP340226-A	CTPR340014B	DS340226		CC30A
RWYP340241-AA	1	Raceway		CBLP340241-A	PNL349204	CTPR340014B		CC30A
RWYP340241-AB	1	Raceway		CBLP340241-A	CTPR340014B	DS340241		CC30A
RWYP340241-B	1	Raceway		CBLP340241-B	DS340241	FV340241		CC30A
RWYP340251-AA	1	Raceway		CBLP340251-A	PNL349204	CTPR340014B		CC30A
RWYP340251-AB	1	Raceway		CBLP340251-A	CTPR340014B	DS340251		CC30A
RWYP340251-B	1	Raceway		CBLP340251-B	DS340251	FV340251		CC30A
RWYP340300-AA	1	Raceway		CBLP340300-A	PNL349304	CTPR340013A		CC30A
RWYP340300-AB	1	Raceway		CBLP340300-A	CTPR340013A	CAB340300		CC30A
RWYP340300-B	1	Raceway		CBLP340300-B	CAB340300	M340300		CC30A
RWYP340301-A	1	Raceway		CBLP340301-A	CAB340311	PDISH340301		CC30A
~~RWYP340302-A~~	~~1~~	~~Raceway~~		~~CBLP340302-A~~	~~CAB340311~~	~~PDISH340302~~	ADDENDUM 3	CC30A/REV A
RWYP340311-AA	1	Raceway		CBLP340311-A	PNL349304	CTPR340013A		CC30A
RWYP340311-AB	1	Raceway		CBLP340311-A	CTPR340013A	CAB340311		CC30A
RWYP340311-B	1	Raceway		CBLP340311-B	DS340323	TBXP340311		CC30A
RWYP340311-C	1	Raceway		CBLP340311-C	DS340323B	TBXP340311		CC30A
RWYP340311-D	1	Raceway		CBLP340311-D	DS340326	TBXP340311		CC30A
RWYP340323-A	1	Raceway		CBLP340323-A	CTPR340013A	DS340323		CC30A
RWYP340323B-A	1	Raceway		CBLP340323B-A	CTPR340013A	DS340323B		CC30A
RWYP340326-A	1	Raceway		CBLP340326-A	CTPR340013A	DS340326		CC30A
RWYP340341-AA	1	Raceway		CBLP340341-A	PNL349203	CTPR340013A		CC30A
RWYP340341-AB	1	Raceway		CBLP340341-A	CTPR340013A	DS340341		CC30A
RWYP340341-B	1	Raceway		CBLP340341-B	DS340341	FV340341		CC30A
RWYP340351-AA	1	Raceway		CBLP340351-A	PNL349203	CTPR340013A		CC30A
RWYP340351-AB	1	Raceway		CBLP340351-A	CTPR340013A	DS340351		CC30A
RWYP340351-B	1	Raceway		CBLP340351-B	DS340351	FV340351		CC30A
RWYP340400-AA	1	Raceway		CBLP340400-A	PNL349305	CTPR340014B		CC30A
RWYP340400-AB	1	Raceway		CBLP340400-A	CTPR340014B	CAB340400		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP340400-B	1	Raceway		CBLP340400-B	CAB340400	M340400		CC30A
RWYP340401-A	1	Raceway		CBLP340401-A	CAB340411	PDISH340401		CC30A
~~RWYP340402-A~~	~~1~~	~~Raceway~~		~~CBLP340402-A~~	~~CAB340411~~	~~PDISH340402~~	ADDENDUM 3	CC30A/REV A
RWYP340411-AA	1	Raceway		CBLP340411-A	PNL349305	CTPR340014B		CC30A
RWYP340411-AB	1	Raceway		CBLP340411-A	CTPR340014B	CAB340411		CC30A
RWYP340411-B	1	Raceway		CBLP340411-B	DS340423	TBXP340411		CC30A
RWYP340411-C	1	Raceway		CBLP340411-C	DS340423B	TBXP340411		CC30A
RWYP340411-D	1	Raceway		CBLP340411-D	DS340426	TBXP340411		CC30A
RWYP340423-A	1	Raceway		CBLP340423-A	CTPR340014B	DS340423		CC30A
RWYP340423B-A	1	Raceway		CBLP340423B-A	CTPR340014B	DS340423B		CC30A
RWYP340426-A	1	Raceway		CBLP340426-A	CTPR340014B	DS340426		CC30A
RWYP340441-AA	1	Raceway		CBLP340441-A	PNL349204	CTPR340014B		CC30A
RWYP340441-AB	1	Raceway		CBLP340441-A	CTPR340014B	DS340441		CC30A
RWYP340441-B	1	Raceway		CBLP340441-B	DS340441	FV340441		CC30A
RWYP340451-AA	1	Raceway		CBLP340451-A	PNL349204	CTPR340014B		CC30A
RWYP340451-AB	1	Raceway		CBLP340451-A	CTPR340014B	DS340451		CC30A
RWYP340451-B	1	Raceway		CBLP340451-B	DS340451	FV340451		CC30A
RWYP340500-AA	1	Raceway		CBLP340500-A	PNL349408	CTPR340010B		CC30A
RWYP340500-AB	1	Raceway		CBLP340500-A	CTPR340014B	CAB340500		CC30A
RWYP340500-B	1	Raceway		CBLP340500-B	CAB340500	M340500		CC30A
RWYP340501-A	1	Raceway		CBLP340501-A	CAB340511	PDISH340501		CC30A
~~RWYP340502-A~~	~~1~~	~~Raceway~~		~~CBLP340502-A~~	~~CAB340511~~	~~PDISH340502~~	ADDENDUM 3	CC30A/REV A
RWYP340511-AA	1	Raceway		CBLP340511-A	PNL349408	CTPR340010B		CC30A
RWYP340511-AB	1	Raceway		CBLP340511-A	CTPR340014B	CAB340511		CC30A
RWYP340523-A	1	Raceway		CBLP340523-A	CTPR340014B	DS340523		CC30A
RWYP340523B-A	1	Raceway		CBLP340523B-A	CTPR340014B	DS340523B		CC30A
RWYP340526-A	1	Raceway		CBLP340526-A	CTPR340014B	DS340526		CC30A
RWYP340541-A	1	Raceway		CBLP340541-A	CTPR340014B	DS340541		CC30A
RWYP340541-B	1	Raceway		CBLP340541-B	DS340541	FV340541		CC30A
RWYP340551-A	1	Raceway		CBLP340551-A	CTPR340014B	DS340551		CC30A
RWYP340551-B	1	Raceway		CBLP340551-B	DS340551	FV340551		CC30A
RWYP34100-A	1-1/2	Raceway		CBLP341060-A	CTPR340003A	CAB341060		CC30A
RWYP341001-A	2	Raceway	DB340008	CBLP340133AA-C	CTPR340013A	HH341001		CC30A
RWYP341001-B	2	Raceway	DB340008	CBLP340133BA-C	CTPR340014B	HH341001		CC30A
RWYP341001-C	2	Raceway	DB340008	CBLP340133CA-C	CTPR340013A	HH341001		CC30A
RWYP341001-D	1	Raceway	DB340008	CBLP340133A-Q	CTPR340013A	HH341001		CC30A
RWYP341001-E	1	Raceway	DB340008	CBLP340133A-AD	PNL349406	MH341001		CC30A
RWYP341001-F	1	Raceway	DB340008	CBLP340133B-Q	CTPR340014B	HH341001		CC30A
RWYP341001-G	1	Raceway	DB340008	CBLP340133B-AE	PNL349407	HH341001		CC30A
RWYP341001-H	1	Raceway	DB340008	CBLP340133C-H	CTPR340013A	HH341001		CC30A
RWYP341001-I	1	Raceway	DB340008	CBLP340133C-O	PNL349405	HH341001		CC30A
RWYP341001-J	1-1/2	Raceway	DB340008	CBLP349201-F CBLP349201-G	CTPR340014B	HH341001		CC30A
RWYP341001-K	1	Raceway	DB340008	CBLP001001-A	CTPR340013A	HH341001		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP341001-L	1	Raceway	DB340008	CBLP341001-A	CTPR340014B	HH341001		CC30A
RWYP341011-A	2-1/2	Raceway		CBLP341011-A	MCC349101A	CAB341011		CC30A
RWYP341011-B	1	Raceway		CBLP341011-B	CTPR340014B	HH341011		CC30A
RWYP341012-A	2-1/2	Raceway		CBLP341012-A	MCC349101B	CAB341012		CC30A
RWYP341013-A	2-1/2	Raceway		CBLP341013-A	MCC349101A	CAB341013		CC30A
RWYP341022-AA	1	Raceway		CBLP341022-A	PNL349304	CTPR340013A		CC30A
RWYP341022-AB	1	Raceway		CBLP341022-A	CTPR340003A	MME341022		CC30A
RWYP341031-AA	1	Raceway		CBLP341031-A	PNL349304	CTPR340013A		CC30A
RWYP341031-AB	1	Raceway		CBLP341031-A	CTPR340003A	MME341031		CC30A
RWYP341032-AA	1	Raceway		CBLP341032-A	PNL349305	CTPR340014B		CC30A
RWYP341032-AB	1	Raceway		CBLP341032-A	CTPR340004B	MME341032		CC30A
RWYP341050-A	1-1/2	Raceway		CBLP341050-A	CTPR340003A	CAB341050		CC30A
RWYP34201-E	1	Raceway		CBLP349201-E	PNL349408	CTPR340018B		CC30A
RWYP346001-AA	1-1/2	Raceway		CBLP346001-A	PNL349204	CTPR340014B		CC30A
RWYP346001-AB	1-1/2	Raceway		CBLP346001-A	CTPR340014B	WRCP346001		CC30A
RWYP347801-A	1	Raceway		CBLD347801-A	DRCP347801A	WAP347801		CC30A
RWYP347850-AA	1	Raceway		CBLP347850-A	PNL349306	CTPR340018B		CC30A
RWYP347850-AB	1	Raceway		CBLP347850-A	CTPR340024B	PAC347850		CC30A
RWYP347901-AA	3/4	Raceway		CBLP347901-A	PNL349302B	CTPR340010B	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347901-AB	3/4	Raceway		CBLP347901-A	CTPR340020B	CAB347901	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347902-AA	3/4	Raceway		CBLP347902-A	PNL349302B	CTPR340010B	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347902-AB	3/4	Raceway		CBLP347902-A	CTPR340014B	CAB347902	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347903-AA	3/4	Raceway		CBLP347903-A	PNL349302B	CTPR340010B	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347903-AB	3/4	Raceway		CBLP347903-A	CTPR340002B	CTPR340201	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP347903-AC	3/4	Raceway		CBLP347903-A	CTPR340201	CAB347903	CCF 015 CHANGE ORDER PENDING	CC30A
RWYP348001A-AA	1	Raceway		CBLP348001A-A	PNL349404	CTPR340010B		CC30A
RWYP348001A-AB	1	Raceway		CBLP348001A-A	CTPR340014B	ECU348001A		CC30A
RWYP348001B-AA	1	Raceway		CBLP348001B-A	PNL349404	CTPR340010B		CC30A
RWYP348001B-AB	1	Raceway		CBLP348001B-A	CTPR340014B	ECU348001B		CC30A
RWYP348002A-AA	1	Raceway		CBLP348002A-A	PNL349404	CTPR340010B		CC30A
RWYP348002A-AB	1	Raceway		CBLP348002A-A	CTPR340014B	ECU348002A		CC30A
RWYP348002B-AA	1	Raceway		CBLP348002B-A	PNL349404	CTPR340010B		CC30A
RWYP348002B-AB	1	Raceway		CBLP348002B-A	CTPR340014B	ECU348002B		CC30A
RWYP348011-A	1	Raceway		CBLP348011-A	CTPR340013A	M348011		CC30A
RWYP348012-A	1	Raceway		CBLP348012-A	CTPR340013A	M348012		CC30A
RWYP348021-A	1	Raceway		CBLP348021-A	CTPR340013A	M348021		CC30A
RWYP348022-A	1	Raceway		CBLP348022-A	CTPR340013A	M348022		CC30A
RWYP348031-AA	1	Raceway		CBLP348031-A	PNL349404	CTPR340010B		CC30A
RWYP348031-AB	1	Raceway		CBLP348031-A	JBX340002	DS348031		CC30A
RWYP348031-B	1	Raceway		CBLP348031-B	DS348031	UH348031		CC30A
RWYP348032-AA	1	Raceway		CBLP348032-A	PNL349404	CTPR340010B		CC30A
RWYP348032-AB	1	Raceway		CBLP348032-A	JBX340002	DS348032		CC30A
RWYP348032-B	1	Raceway		CBLP348032-B	DS348032	UH348032		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP348033-A	1	Raceway		CBLP348033-A	PNL349404	CTPR340010B		CC30A
RWYP348033-AB	1	Raceway		CBLP348033-A	CTPR340014B	DS348033		CC30A
RWYP348033-B	1	Raceway		CBLP348033-B	DS348033	UH348033		CC30A
RWYP348041-AA	1	Raceway		CBLP348041-A	PNL349404	CTPR340010B		CC30A
RWYP348041-AB	1	Raceway		CBLP348041-A	CTPR340014B	M348041		CC30A
RWYP348100-AA	1	Raceway		CBLP348100-A	PNL349404	CTPR340010B		CC30A
RWYP348100-AB	1	Raceway		CBLP348100-A	CTPR340014B	AHU348100		CC30A
RWYP348100-BA	1	Raceway		CBLP348100-B	PNL349412	CTPR340010B		CC30A
RWYP348100-BB	1	Raceway		CBLP348100-B	CTPR340014B	AHU348100		CC30A
RWYP348100-CA	1	Raceway		CBLP348100-C	PNL349412	CTPR340010B		CC30A
RWYP348100-CB	1	Raceway		CBLP348100-C	CTPR340014B	AHU348100		CC30A
RWYP348100-DA	1	Raceway		CBLP348100-D	PNL349412	CTPR340010B		CC30A
RWYP348100-DB	1	Raceway		CBLP348100-D	CTPR340014B	AHU348100		CC30A
RWYP348100-EA	1	Raceway		CBLP348100-E	PNL349412	CTPR340010B		CC30A
RWYP348100-EB	1	Raceway		CBLP348100-E	CTPR340014B	AHU348100		CC30A
RWYP348152-AA	1	Raceway		CBLP348152-A	PNL349404	CTPR340010B		CC30A
RWYP348152-AB	1	Raceway		CBLP348152-A	CTPR340014B	DS348152		CC30A
RWYP348152-B	1	Raceway		CBLP348152-B	DS348152	M348152		CC30A
RWYP348154-AA	1	Raceway		CBLP348154-A	PNL349404	CTPR340010B		CC30A
RWYP348154-AB	1	Raceway		CBLP348154-A	CTPR340014B	DS348154		CC30A
RWYP348154-B	1	Raceway		CBLP348154-B	DS348154	M348154		CC30A
RWYP348200-AA	1	Raceway		CBLP348200-A	PNL349404	CTPR340010B		CC30A
RWYP348200-AB	1	Raceway		CBLP348200-A	CTPR340012B	AHU348200		CC30A
RWYP348200-BA	1	Raceway		CBLP348200-B	PNL349411	CTPR340010B		CC30A
RWYP348200-BB	1	Raceway		CBLP348200-B	CTPR340012B	AHU348200		CC30A
RWYP348200-CA	1	Raceway		CBLP348200-C	PNL349411	CTPR340010B		CC30A
RWYP348200-CB	1	Raceway		CBLP348200-C	CTPR340012B	AHU348200		CC30A
RWYP348200-DA	1	Raceway		CBLP348200-D	PNL349411	CTPR340010B		CC30A
RWYP348200-DB	1	Raceway		CBLP348200-D	CTPR340012B	AHU348200		CC30A
RWYP348200-EA	1	Raceway		CBLP348200-E	PNL349411	CTPR340010B		CC30A
RWYP348200-EB	1	Raceway		CBLP348200-E	CTPR340012B	AHU348200		CC30A
RWYP348252-AA	1	Raceway		CBLP348252-A	PNL349404	CTPR340010B		CC30A
RWYP348252-AB	1	Raceway		CBLP348252-A	CTPR340012B	DS348252		CC30A
RWYP348252-B	1	Raceway		CBLP348252-B	DS348252	M348252		CC30A
RWYP348254-A	1	Raceway		CBLP348254-A	CTPR340012B	DS348254		CC30A
RWYP348254-B	1	Raceway		CBLP348254-B	DS348254	M348254		CC30A
RWYP348300-AA	1	Raceway		CBLP348300-A	PNL349404	CTPR340010B		CC30A
RWYP348300-AB	1	Raceway		CBLP348300-A	CTPR340012B	AHU348300		CC30A
RWYP348300-BA	1	Raceway		CBLP348300-B	PNL349412	CTPR340010B		CC30A
RWYP348300-BB	1	Raceway		CBLP348300-B	CTPR340012B	AHU348300		CC30A
RWYP348300-CA	1	Raceway		CBLP348300-C	PNL349412	CTPR340010B		CC30A
RWYP348300-CB	1	Raceway		CBLP348300-C	CTPR340012B	AHU348300		CC30A
RWYP348300-DA	1	Raceway		CBLP348300-D	PNL349412	CTPR340010B		CC30A
RWYP348300-DB	1	Raceway		CBLP348300-D	CTPR340012B	AHU348300		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP348300-EA	1	Raceway		CBLP348300-E	PNL349412	CTPR340010B		CC30A
RWYP348300-EB	1	Raceway		CBLP348300-E	CTPR340012B	AHU348300		CC30A
RWYP348352-A	1	Raceway		CBLP348352-A	CTPR340012B	DS348352		CC30A
RWYP348352-B	1	Raceway		CBLP348352-B	DS348352	M348352		CC30A
RWYP348354-A	1	Raceway		CBLP348354-A	CTPR340012B	DS348354		CC30A
RWYP348354-B	1	Raceway		CBLP348354-B	DS348354	M348354		CC30A
RWYP348401A-AA	1-1/2	Raceway		CBLP348401A-A	PNL349411	CTPR340010B		CC30A
RWYP348401A-AB	1-1/2	Raceway		CBLP348401A-A	CTPR340002B	CTPR340201		CC30A
RWYP348401A-AC	1-1/2	Raceway		CBLP348401A-A	CTPR340201	CDR348401A		CC30A
RWYP348401B-AA	1	Raceway		CBLP348401B-A	PNL349411	CTPR340010B		CC30A
RWYP348401B-AB	1	Raceway		CBLP348401B-A	CTPR340014B	DS348401B		CC30A
RWYP348401B-B	1	Raceway		CBLP348401B-B	DS348401B	CDR348401B		CC30A
RWYP348402A-AA	1-1/2	Raceway		CBLP348402A-A	PNL349411	CTPR340010B		CC30A
RWYP348402A-AB	1-1/2	Raceway		CBLP348402A-A	CTPR340002B	CTPR340201		CC30A
RWYP348402A-AC	1-1/2	Raceway		CBLP348402A-A	CTPR340201	CDR348402A		CC30A
RWYP348402B-AA	1	Raceway		CBLP348402B-A	PNL349411	CTPR340010B		CC30A
RWYP348402B-AB	1	Raceway		CBLP348402B-A	CTPR340014B	DS348402B		CC30A
RWYP348402B-B	1	Raceway		CBLP348402B-B	DS348402B	CDR348402B		CC30A
RWYP348410-AA	1	Raceway		CBLP348410-A	PNL349404	CTPR340010B		CC30A
RWYP348410-AB	1	Raceway		CBLP348410-A	CTPR340016B	DS348410		CC30A
RWYP348410-B	1	Raceway		CBLP348410-B	DS348410	EF348410		CC30A
RWYP348420-AA	1	Raceway		CBLP348420-A	PNL349404	CTPR340010B		CC30A
RWYP348420-AB	1	Raceway		CBLP348420-A	JBX340002	DS348420		CC30A
RWYP348420-B	1	Raceway		CBLP348420-B	DS348420	EF348420		CC30A
RWYP348430-A	1	Raceway		CBLP348430-A	MCC349303	EF348430		CC30A
RWYP348440-A	1	Raceway		CBLP348440-A	MCC349303	EF348440		CC30A
RWYP348450-AA	1	Raceway		CBLP348450-A	PNL349404	CTPR340010B		CC30A
RWYP348450-AB	1	Raceway		CBLP348450-A	CTPR340014B	EF348450		CC30A
RWYP348460-A	1	Raceway		CBLP348460-A	CTPR340016B	EF348460		CC30A
RWYP348470-AA	1	Raceway		CBLP348470-A	PNL349404	CTPR340010B		CC30A
RWYP348470-AB	1	Raceway		CBLP348470-A	CTPR340014B	DS348470		CC30A
RWYP348470-B	1	Raceway		CBLP348470-B	DS348470	EF348470		CC30A
RWYP348480-AA	1	Raceway		CBLP348480-A	PNL349404	CTPR340010B		CC30A
RWYP348480-AB	1	Raceway		CBLP348480-A	CTPR340014B	DS348480		CC30A
RWYP348480-B	1	Raceway		CBLP348480-B	DS348480	EF348480		CC30A
RWYP348601-AA	1	Raceway		CBLP348601-A	PNL349404	CTPR340010B		CC30A
RWYP348601-AB	1	Raceway		CBLP348601-A	CTPR340014B	WH348601		CC30A
RWYP348901-AA	1	Raceway		CBLP348901-A	PNL349404	CTPR340010B		CC30A
RWYP348951-AA	1	Raceway		CBLP348951-A	PNL349404	CTPR340010B		CC30A
RWYP348951-AB	1	Raceway		CBLP348951-A	CTPR340016B	CAB348951		CC30A
RWYP348952-AA	1	Raceway		CBLP348952-A	PNL349404	CTPR340010B		CC30A
RWYP348952-AB	1	Raceway		CBLP348952-A	CTPR340012B	CAB348952		CC30A
RWYP348953-AA	1	Raceway		CBLP348953-A	PNL349404	CTPR340010B		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP348953-AB	1	Raceway		CBLP348953-A	CTPR340010B	CAB348953		CC30A
RWYP348954-AA	1	Raceway		CBLP348954-A	PNL349404	CTPR340010B		CC30A
RWYP348954-AB	1	Raceway		CBLP348954-A	CTPR340014B	CAB348954		CC30A
RWYP348955-AA	1	Raceway		CBLP348955-A	PNL349404	CTPR340010B		CC30A
RWYP348955-AB	1	Raceway		CBLP348955-A	CTPR340024B	CAB348955		CC30A
RWYP348956-AA	1	Raceway		CBLP348956-A	PNL349404	CTPR340010B		CC30A
RWYP348956-AB	1	Raceway		CBLP348956-A	CTPR340002B	CTPR340201		CC30A
RWYP348956-AC	1	Raceway		CBLP348956-A	CTPR340201	CAB348956		CC30A
RWYP349000A-AA	1	Raceway		CBLP349000A-A	PNL349306	CTPR340018B		CC30A
RWYP349000A-AB	1	Raceway		CBLP349000A-A	CTPR340020B	SUB349000A		CC30A
RWYP349000A-BA	1	Raceway		CBLP349000A-B	PNL349306	CTPR340018B		CC30A
RWYP349000A-BB	1	Raceway		CBLP349000A-B	CTPR340020B	SUB349000A		CC30A
RWYP349000A-CA	1	Raceway		CBLP349000A-C	PNL349301A	CTPR340017A		CC30A
RWYP349000A-CB	1	Raceway		CBLP349000A-C	CTPR340003A	CAB349000A		CC30A
RWYP349000A-DA	1	Raceway		CBLP349000A-D	PNL349302B	CTPR340010B		CC30A
RWYP349000A-DB	1	Raceway		CBLP349000A-D	CTPR340020B	CAB349000A		CC30A
RWYP349000B-AA	1	Raceway		CBLP349000B-A	PNL349306	CTPR340018B		CC30A
RWYP349000B-AB	1	Raceway		CBLP349000B-A	CTPR340020B	SUB349000B		CC30A
RWYP349000B-BA	1	Raceway		CBLP349000B-B	PNL349306	CTPR340018B		CC30A
RWYP349000B-BB	1	Raceway		CBLP349000B-B	CTPR340020B	SUB349000B		CC30A
RWYP349000B-CA	1	Raceway		CBLP349000B-C	PNL349301A	CTPR340017A		CC30A
RWYP349000B-CB	1	Raceway		CBLP349000B-C	CTPR340003A	CAB349000B		CC30A
RWYP349000B-DA	1	Raceway		CBLP349000B-D	PNL349302B	CTPR340010B		CC30A
RWYP349000B-DB	1	Raceway		CBLP349000B-D	CTPR340020B	CAB349000B		CC30A
RWYP349001A-A	1-1/2	Raceway		CBLP349001A-A	PNL349301B	CTPR340017A		CC30A
RWYP349001A-B	1	Raceway		CBLP349001A-B	PNL349301B	CTPR340017A		CC30A
RWYP349001B-A	1	Raceway		CBLP349001B-A	PNL349302B	CTPR340010B		CC30A
RWYP349001B-B	1-1/2	Raceway		CBLP349001B-B	PNL349302B	CTPR340010B		CC30A
RWYP349101A-B	1	Raceway		CBLP349101A-B	PNL349301B	CTPR340021A		CC30A
RWYP349101A-C	1	Raceway		CBLP349101A-C	PNL349301B	CTPR340021A		CC30A
RWYP349101A-D	1	Raceway		CBLP349101A-D	PNL349301B	CTPR340021A		CC30A
RWYP349101A-E	1	Raceway		CBLP349101A-E	PNL349304	CTPR340013A		CC30A
RWYP349101B-B	1	Raceway		CBLP349101B-B	PNL349302B	CTPR340010B		CC30A
RWYP349101B-C	1	Raceway		CBLP349101B-C	PNL349302B	CTPR340010B		CC30A
RWYP349101B-D	1	Raceway		CBLP349101B-D	PNL349302B	CTPR340010B		CC30A
RWYP349101B-E	1	Raceway		CBLP349101B-E	PNL349305	CTPR340014B		CC30A
RWYP349102-A1	4	Raceway		CBLP349102-A1	CTPL340101A	ATS349102		CC30A
RWYP349102-A2	4	Raceway		CBLP349102-A2	CTPL340101A	ATS349102		CC30A
RWYP349102-B1	4	Raceway		CBLP349102-B1	CTPL340102B	ATS349102		CC30A
RWYP349102-B2	4	Raceway		CBLP349102-B2	CTPL340102B	ATS349102		CC30A
RWYP349201-A1	4	Raceway		CBLP349201-A1	ATS349102	CTPL340102B		CC30A
RWYP349201-A2	4	Raceway		CBLP349201-A2	ATS349102	CTPL340102B		CC30A
RWYP349201-A3	4	Raceway		CBLP349201-A3	ATS349102	CTPL340102B		CC30A
RWYP349201-B	1	Raceway		CBLP349201-B	PNL349302B	CTPR340010B		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP349201-C	1	Raceway		CBLP349201-C	PNL349302B	CTPR340010B		CC30A
RWYP349201-D	1	Raceway		CBLP349201-D	PNL349302B	CTPR340010B		CC30A
RWYP349201-F	1	Raceway		CBLP349201-F	HH001001	RDWY LTG		CC30A
RWYP349201-G	1	Raceway		CBLP349201-G	HH341001	RDWY LTG		CC30A
RWYP349202-A	1-1/2	Raceway		CBLP349202-A	CTPL340102B	ATS349202		CC30A
RWYP349202-B	1-1/2	Raceway		CBLP349202-B	CTPL340101A	ATS349202		CC30A
RWYP349203-A	3	Raceway		CBLP349203-A	MCC349101A	PNL349203		CC30A
RWYP349204-A	3	Raceway		CBLP349204-A	MCC349101B	PNL349204		CC30A
RWYP349301-A	1-1/2	Raceway		CBLP349301-A	CTPR340017A	XFMR349301		CC30A
RWYP349301-B	1-1/2	Raceway		CBLP349301-B	XFMR349301	CB349301		CC30A
RWYP349301-C	1-1/2	Raceway		CBLP349301-C	CB349301	MBS349301		CC30A
RWYP349301-E	2	Raceway		CBLP349301-E	MBS349301	UPS349301		CC30A
				CBLP349301-F				
RWYP349301-G	1-1/2	Raceway		CBLP349301-G	UPS349301	BAT349301		CC30A
RWYP349301A-A	1-1/2	Raceway		CBLP349301A-A	MBS349301	PNL349301A		CC30A
RWYP349301B-A	1-1/2	Raceway		CBLP349301B-A	MBS349301	PNL349301B		CC30A
RWYP349302-A	1-1/2	Raceway		CBLP349302-A	ATS349202	XFMR349302		CC30A
RWYP349302-B	1-1/2	Raceway		CBLP349302-B	XFMR349302	CB349302		CC30A
RWYP349302-C	1-1/2	Raceway		CBLP349302-C	CB349302	MBS349302		CC30A
RWYP349302-E	2	Raceway		CBLP349302-E	MBS349302	UPS349302		CC30A
				CBLP349302-F				
RWYP349302-G	1-1/2	Raceway		CBLP349302-G	UPS349302	BAT349302		CC30A
RWYP349302A-A	1-1/2	Raceway		CBLP349302A-A	MBS349302	PNL349302A		CC30A
RWYP349302B-A	1-1/2	Raceway		CBLP349302B-A	MBS349302	PNL349302B		CC30A
RWYP349303-A1	3	Raceway		CBLP349303-A1	MCC349201	MCC349303		CC30A
RWYP349303-A2	3	Raceway		CBLP349303-A2	MCC349201	MCC349303		CC30A
RWYP349303-B	3/4	Raceway		CBLP349303-B	PNL349301B	CTPR340021A		CC30A
RWYP349304-A	1-1/2	Raceway		CBLP349304-A	PNL349203	XFMR349304		CC30A
RWYP349304-B	1-1/2	Raceway		CBLP349304-B	XFMR349304	PNL349304		CC30A
RWYP349305-A	1-1/2	Raceway		CBLP349305-A	PNL349204	XFMR349305		CC30A
RWYP349305-B	1-1/2	Raceway		CBLP349305-B	XFMR349305	PNL349305		CC30A
RWYP349306-A	2-1/2	Raceway		CBLP349306-A	CTPL340102B	XFMR349306		CC30A
RWYP349306-B	3	Raceway		CBLP349306-B	XFMR349306	PNL349306		CC30A
RWYP349307-A	2	Raceway		CBLP349307-A	MCC349201	XFMR349307		CC30A
RWYP349307-B	3	Raceway		CBLP349307-B	XFMR349307	PNL349307		CC30A
RWYP349308-A	2	Raceway		CBLP349308-A	MCC349201	XFMR349308		CC30A
RWYP349308-B	4	Raceway		CBLP349308-B	XFMR349308	CB349308		CC30A
RWYP349308-C	4	Raceway		CBLP349308-C	CB349308	PNL349308		CC30A
RWYP349401-A	2	Raceway		CBLP349401-A	PNL349308	PNL349401		CC30A
RWYP349402-A	1-1/2	Raceway		CBLP349402-A	PNL349308	PNL349402		CC30A
RWYP349403-A	1-1/2	Raceway		CBLP349403-A	PNL349308	PNL349403		CC30A
RWYP349404-A	2	Raceway		CBLP349404-A	CTPR340010B	XFMR349404		CC30A
RWYP349404-B	2	Raceway		CBLP349404-B	XFMR349404	PNL349404		CC30A
RWYP349405-AA	1-1/2	Raceway		CBLP349405-A	PNL349306	CTPR340018B		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP349405-AB	1-1/2	Raceway		CBLP349405-A	CTPR340016B	DS349405		CC30A
RWYP349405-B	1	Raceway		CBLP349405-B	DS349405	BYC349405		CC30A
RWYP349405-C	1	Raceway		CBLP349405-C	BYC349405	TBX349405		CC30A
RWYP349405-D	2-1/2	Raceway		CBLP349405-D	CB349405	TBX349405		CC30A
RWYP349405-E	2-1/2	Raceway		CBLP349405-E	MTS349405B	PNL349405		CC30A
RWYP349405-F	2-1/2	Raceway		CBLP349405-F	MTS349405B	34 BLDG NORTH WALL		CC30A
RWYP349405A-A	2-1/2	Raceway		CBLP349405A-A	TBX349405	MTS349405A		CC30A
RWYP349405A-B	2-1/2	Raceway		CBLP349405A-B	TBX349406	MTS349405A		CC30A
RWYP349405B-A	2-1/2	Raceway		CBLP349405B-A	MTS349405A	MTS349405B		CC30A
RWYP349406-AA	1-1/2	Raceway		CBLP349406-A	PNL349304	CTPR340013A		CC30A
RWYP349406-AB	1-1/2	Raceway		CBLP349406-A	CTPR340013A	DS349406		CC30A
RWYP349406-B	1	Raceway		CBLP349406-B	DS349406	BYC349406		CC30A
RWYP349406-C	1	Raceway		CBLP349406-C	BYC349406	TBX349406		CC30A
RWYP349406-D	2-1/2	Raceway		CBLP349406-D	CB349406	TBX349406		CC30A
RWYP349406-E	2-1/2	Raceway		CBLP349406-E	MTS349406B	PNL349406		CC30A
RWYP349406-F	2-1/2	Raceway		CBLP349406-F	MTS349406B	34 BLDG NORTH WALL		CC30A
RWYP349406A-A	2-1/2	Raceway		CBLP349406A-A	TBX349406	MTS349406A		CC30A
RWYP349406A-B	2-1/2	Raceway		CBLP349406A-B	TBX349407	MTS349406A		CC30A
RWYP349406B-A	2-1/2	Raceway		CBLP349406B-A	MTS349406A	MTS349406B		CC30A
RWYP349407-AA	1-1/2	Raceway		CBLP349407-A	PNL349305	CTPR340014B		CC30A
RWYP349407-AB	1-1/2	Raceway		CBLP349407-A	CTPR340016B	DS349407		CC30A
RWYP349407-B	1	Raceway		CBLP349407-B	DS349407	BYC349407		CC30A
RWYP349407-C	1	Raceway		CBLP349407-C	BYC349407	TBX349407		CC30A
RWYP349407-D	2-1/2	Raceway		CBLP349407-D	CB349407	TBX349407		CC30A
RWYP349407-E	2-1/2	Raceway		CBLP349407-E	MTS349407B	PNL349407		CC30A
RWYP349407-F	2-1/2	Raceway		CBLP349407-F	MTS349407B	34 BLDG NORTH WALL		CC30A
RWYP349407A-A	2-1/2	Raceway		CBLP349407A-A	TBX349407	MTS349407A		CC30A
RWYP349407A-B	2-1/2	Raceway		CBLP349407A-B	TBX349405	MTS349407A		CC30A
RWYP349407B-A	2-1/2	Raceway		CBLP349407B-A	MTS349407A	MTS349407B		CC30A
RWYP349408-A	1-1/2	Raceway		CBLP349408-A	PNL349306	PNL349408		CC30A
RWYP349409-A	1-1/2	Raceway		CBLP349409-A	PNL349306	PNL349409		CC30A
RWYP349410-A	1-1/2	Raceway		CBLP349410-A	PNL349306	PNL349410		CC30A
RWYP349411-A	2	Raceway		CBLP349411-A	CTPR340010B	PNL349411		CC30A
RWYP349412-A	2	Raceway		CBLP349412-A	CTPR340010B	PNL349412		CC30A
RWYS330010A-A	1	Raceway		CBLS330010A-A	CTS330101	TIT3310A		CC30B
RWYS330010A-B	1	Raceway		CBLS330010A-B	TIT3310A	TE3310A		CC30B
RWYS330010B-A	1	Raceway		CBLS330010B-A	CTS330101	TIT3310B		CC30B
RWYS330010B-B	1	Raceway		CBLS330010B-B	TIT3310B	TE3310B		CC30B
RWYS330011A-B	1	Raceway		CBLS330011A-B	TIT3310A	TE3311A		CC30B
RWYS330011B-B	1	Raceway		CBLS330011B-B	TIT3310B	TE3311B		CC30B
RWYS330013A-A	1	Raceway		CBLS330013A-A	CTS330101	TE3313A		CC30B
RWYS330013B-A	1	Raceway		CBLS330013B-A	CTS330101	TE3313A		CC30B
RWYS330014A-A	1	Raceway		CBLS330014A-A	CTS330101	TIT3314A		CC30B
RWYS330014B-A	1	Raceway		CBLS330014B-A	CTS330101	TIT3314B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS330015A-A	1	Raceway		CBLS330015A-A	CTS330101	TIT3315A		CC30B
RWYS330015A-B	1	Raceway		CBLS330015A-B	TIT3315A	TE3315A		CC30B
RWYS330015B-A	1	Raceway		CBLS330015B-A	CTS330101	TIT3315B		CC30B
RWYS330015B-B	1	Raceway		CBLS330015B-B	TIT3315B	TE3315B		CC30B
RWYS33010C-A	1-1/2	Raceway		CBLS191011-A	TRAY 3320	HH33010C		CC30B
				CBLS191012-A				
RWYS330117A-A	1	Raceway		CBLS330013A-A	MVM 117A	CTS330101		CC30B
				CBLS330013B-A				
RWYS330117B-A	1	Raceway		CBLS330643A-A	MVM 117B	CTS330101		CC30B
				CBLS330643B-A				
RWYS330202AA-A	1	Raceway		CBLS330202A-A	CTS330101	CV33202A		CC30B
RWYS330203A-A	1	Raceway		CBLS330203A-A	CTS330101	CV33203A		CC30B
RWYS330204A-A	1	Raceway		CBLS330204A-A	CTS330101	CV33204A		CC30B
RWYS330643A-A	1	Raceway		CBLS330643A-A	CTS330101	TE33643A		CC30B
RWYS330643B-A	1	Raceway		CBLS330643B-A	CTS330101	TE33643B		CC30B
RWYS331001-A	1-1/2	Raceway		CBLS330014A-A	CAB331001	CTS330101		CC30B
				CBLS330014B-A				
				CBLS330203A-A				
				CBLS332031-A				
RWYS331001-B	1-1/2	Raceway		CBLS330015A-A	CAB331001	CTS330101		CC30B
				CBLS330015B-A				
				CBLS330204A-A				
				CBLS332041-A				
RWYS331001-C	1	Raceway		CBLS330202A-A	CAB331001	CTS330101		CC30B
				CBLS332021-A				
RWYS331001-D	1	Raceway		CBLS330010A-A	CAB331001	CTS330101		CC30B
				CBLS330010B-A				
RWYS331001-E	1	Raceway		CBLS330011A-A	CAB331001	CTS330101		CC30B
				CBLS330011B-A				
				CBLS336436-A				
RWYS331001-F	1-1/2	Raceway		CBLS191011-A	CAB331001	RIO 33C		CC30B
				CBLS191012-A				
RWYS3314A-B	1	Raceway		CBLS330014A-B	TIT3314A	TE3314A		CC30B
RWYS3314B-B	1	Raceway		CBLS330014B-B	TIT3314B	TE3314B		CC30B
RWYS332021-A	1	Raceway		CBLS332021-A	CTS330101	FIT332021		CC30B
RWYS332021-B	1	Raceway		CBLS332021-B	FIT332021	FE332021		CC30B
RWYS332031-A	1	Raceway		CBLS332031-A	CTS330101	FIT332031		CC30B
RWYS332031-B	1	Raceway		CBLS332031-B	FIT332031	FE332031		CC30B
RWYS332041-A	1	Raceway		CBLS332041-A	CTS330101	FIT332041		CC30B
RWYS332041-B	1	Raceway		CBLS332041-B	FIT332041	FE332041		CC30B
RWYS336436-A	1	Raceway		CBLS336436-A	CTS330101	FIT336436		CC30B
RWYS336436-B	1	Raceway		CBLS336436-B	FIT336436	FE336436		CC30B
RWYS340001-A	1	Raceway		CBLS341001-A	CAB340001	CTS340013A		CC30A
				CBLS341030-A				
				CBLS341071-A				
RWYS340030-AA	1	Raceway		CBLS340030-A	CAB340001	CTS340014B		CC30A
RWYS340030-AB	1	Raceway		CBLS340030-A	CTS340018B	LIT340030		CC30A
RWYS340101-A	1	Raceway		CBLS340101-A	CAB340111	PDISH340101		CC30A
~~RWYS340102-A~~	~~1~~	~~Raceway~~		~~CBLS340102-A~~	~~CAB340111~~	~~PDISH340102~~	ADDENDUM 3	CC30A/REV A
RWYS340141-A	1	Raceway		CBLS340141-A	CS340141	FV340141	ADDENDUM 3	CC30A/REV A
RWYS340151-A	1	Raceway		CBLS340151-A	CS340151	FV340151	ADDENDUM 3	CC30A/REV A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS340201-A	1	Raceway		CBLS340201-A	CAB340211	PDISH340201		CC30A
~~RWYS340202-A~~	~~1~~	~~Raceway~~		~~CBLS340202-A~~	~~CAB340211~~	~~PDISH340202~~	ADDENDUM 3	CC30A/REV A
RWYS340241-A	1	Raceway		CBLS340241-A	CS340241	FV340241	ADDENDUM 3	CC30A/REV A
RWYS340251-A	1	Raceway		CBLS340251-A	CS340251	FV340251	ADDENDUM 3	CC30A/REV A
RWYS340301-A	1	Raceway		CBLS340301-A	CAB340311	PDISH340301		CC30A
~~RWYS340302-A~~	~~1~~	~~Raceway~~		~~CBLS340302-A~~	~~CAB340311~~	~~PDISH340302~~	ADDENDUM 3	CC30A/REV A
RWYS340341-A	1	Raceway		CBLS340341-B	CS340341	FV340341	ADDENDUM 3	CC30A/REV A
RWYS340351-A	1	Raceway		CBLS340351-A	CS340351	FV340351	ADDENDUM 3	CC30A/REV A
RWYS340401-A	1	Raceway		CBLS340401-A	CAB340411	PDISH340401		CC30A
~~RWYS340402-A~~	~~1~~	~~Raceway~~		~~CBLS340402-A~~	~~CAB340411~~	~~PDISH340402~~	ADDENDUM 3	CC30A/REV A
RWYS340441-A	1	Raceway		CBLS340441-A	CS340441	FV340441	ADDENDUM 3	CC30A/REV A
RWYS340451-A	1	Raceway		CBLS340451-A	CS340451	FV340451	ADDENDUM 3	CC30A/REV A
RWYS340501-A	1	Raceway		CBLS340501-A	CAB340511	PDISH340501		CC30A
~~RWYS340502-A~~	~~1~~	~~Raceway~~		~~CBLS340502-A~~	~~CAB340511~~	~~PDISH340502~~	ADDENDUM 3	CC30A/REV A
RWYS340541-A	1	Raceway		CBLS340541-A	CS340541	FV340541	ADDENDUM 3	CC30A/REV A
RWYS340551-A	1	Raceway		CBLS340551-A	CS340551	FV340551	ADDENDUM 3	CC30A/REV A
RWYS341001-AA	1	Raceway		CBLS341001-A	CTS340013A	PIT341001		CC30A
RWYS341030-A	1	Raceway		CBLS341030-A	CTS340003A	PIT341030		CC30A
RWYS341071-A	1	Raceway		CBLS341071-A	CTS340003A	FIT341071		CC30A
RWYS341071-B	1	Raceway		CBLS341071-B	FIT341071	FE341071		CC30A
RWYV340111-A	3/4	Raceway		CBLV340111-A	CAB340111	TBXP340111	ADDENDUM 3	CC30A/REV A
RWYV340111-B	3/4	Raceway		CBLV340111-B	CAB340111	TBXS340111		CC30A
RWYV340131-A	3/4	Raceway		CBLV340131-A	CAB340111	PIT340131		CC30A
RWYV340131-B	3/4	Raceway		CBLV340131-B	CAB340111	TIT340131		CC30A
RWYV340211-A	3/4	Raceway		CBLV340211-A	CAB340211	TBXP340211		CC30A/REV A
RWYV340211-B	3/4	Raceway		CBLV340211-B	CAB340211	TBXS340211		CC30A
RWYV340231-A	3/4	Raceway		CBLV340231-A	CAB340211	PIT340231		CC30A
RWYV340231-B	3/4	Raceway		CBLV340231-B	CAB340211	TIT340231		CC30A
RWYV340311-A	3/4	Raceway		CBLV340311-A	CAB340311	TBXP340311		CC30A/REV A
RWYV340311-B	3/4	Raceway		CBLV340311-B	CAB340311	TBXS340311		CC30A
RWYV340331-A	3/4	Raceway		CBLV340331-A	CAB340311	PIT340331		CC30A
RWYV340331-B	3/4	Raceway		CBLV340331-B	CAB340311	TIT340331		CC30A
RWYV340411-A	3/4	Raceway		CBLV340411-A	CAB340411	TBXP340411		CC30A/REV A
RWYV340411-B	3/4	Raceway		CBLV340411-B	CAB340411	TBXS340411		CC30A
RWYV340431-A	3/4	Raceway		CBLV340431-A	CAB340411	PIT340431		CC30A
RWYV340431-B	3/4	Raceway		CBLV340431-B	CAB340411	TIT340431		CC30A
RWYV340511-A	3/4	Raceway		CBLV340511-A	CAB340511	TBXP340511		CC30A/REV A
RWYV340511-B	3/4	Raceway		CBLV340511-B	CAB340511	TBXS340511		CC30A
RWYV340531-A	3/4	Raceway		CBLV340531-A	CAB340511	PIT340531		CC30A
RWYV340531-B	3/4	Raceway		CBLV340531-B	CAB340511	TIT340531		CC30A
RWYX001001-A	5	Raceway		CBLX340133A-A	DG340133A	MH001001		CC30A
RWYX001001-B	5	Raceway		CBLX340133B-A	DG340133B	MH001001		CC30A
RWYX001001-C	5	Raceway		CBLX340133C-A	DG340133C	MH001001		CC30A
RWYX001001-J	1	Raceway	DB340007	CBLX340133A-C	MH341001	HH001001		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX001001-K	1	Raceway	DB340007	CBLX340133B-C	HH341001	HH001001		CC30A
RWYX001001-L	1	Raceway	DB340007	CBLX340133C-B	HH341001	HH001001		CC30A
RWYX340001-D	5	Raceway		CBLX340133A-A	MH001001	MH340001		CC30A
RWYX340001-E	5	Raceway		CBLX340133B-A	MH001001	MH340001		CC30A
RWYX340001-F	5	Raceway		CBLX340133C-A	MH001001	MH340001		CC30A
RWYX340001-G	1	Raceway		CBLX340001-G	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-H	1	Raceway		CBLX340001-H	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-I	1	Raceway		CBLX340001-I	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-J	1	Raceway		CBLX340001-J	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-K	1	Raceway		CBLX340001-K	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-L	1	Raceway		CBLX340001-L	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-M	1	Raceway		CBLX340001-M	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001-N	1	Raceway		CBLX340001-N	34 BLDG NORTH WALL	JBX340001	ADDENDUM 3	CC30A / REV A
RWYX340001A-A	4	Raceway		CBLX340001A-A	CTS340205	CTS340001A	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A / REV A
RWYX340002-D	1	Raceway		CBLX340002-D	34 BLDG NORTH WALL	JBX340002	ADDENDUM 3	CC30A / REV A
RWYX340002-E	1	Raceway		CBLX340002-E	34 BLDG NORTH WALL	JBX340002	ADDENDUM 3	CC30A / REV A
RWYX340002-F	1	Raceway		CBLX340002-F	34 BLDG NORTH WALL	JBX340002	ADDENDUM 3	CC30A / REV A
RWYX340003-G	3	Raceway		CBLX340003-G	34 BLDG NORTH WALL	JBX340003	ADDENDUM 3	CC30A / REV A
RWYX340004-A	2	Raceway		CBLX340004-A	34 BLDG NORTH WALL	JBX340004	ADDENDUM 3	CC30A / REV A
RWYX340004-B	2	Raceway		CBLX340004-B	34 BLDG NORTH WALL	JBX340004	ADDENDUM 3	CC30A / REV A
RWYX340004-C	2	Raceway		CBLX340004-C	34 BLDG NORTH WALL	JBX340004	ADDENDUM 3	CC30A / REV A
RWYX340005-A	1	Raceway		CBLX340005-A	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-B	1	Raceway		CBLX340005-B	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-C	1	Raceway		CBLX340005-C	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-D	1	Raceway		CBLX340005-D	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-E	1	Raceway		CBLX340005-E	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-F	1	Raceway		CBLX340005-F	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-G	1	Raceway		CBLX340005-G	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340005-H	1	Raceway		CBLX340005-H	34 BLDG NORTH WALL	JBX340005	ADDENDUM 3	CC30A / REV A
RWYX340006-G	1	Raceway		CBLX340006-G	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-H	1	Raceway		CBLX340006-H	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-I	1	Raceway		CBLX340006-I	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-J	1	Raceway		CBLX340006-J	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-K	1	Raceway		CBLX340006-K	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-L	1	Raceway		CBLX340006-L	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-M	1	Raceway		CBLX340006-M	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340006-N	1	Raceway		CBLX340006-N	34 BLDG NORTH WALL	JBX340006	ADDENDUM 3	CC30A / REV A
RWYX340007-A	1	Raceway		CBLX340007-A	34 BLDG NORTH WALL	JBX340007	ADDENDUM 3	CC30A / REV A
RWYX340007-B	1	Raceway		CBLX340007-B	34 BLDG NORTH WALL	JBX340007	ADDENDUM 3	CC30A / REV A
RWYX340007-C	1	Raceway		CBLX340007-C	34 BLDG NORTH WALL	JBX340007	ADDENDUM 3	CC30A / REV A
RWYX340007-D	1	Raceway		CBLX340007-D	34 BLDG NORTH WALL	JBX340007	ADDENDUM 3	CC30A / REV A
RWYX340008-F	1	Raceway		CBLX340008-F	34 BLDG NORTH WALL	JBX340008	ADDENDUM 3	CC30A / REV A
RWYX340008-G	1	Raceway		CBLX340008-G	34 BLDG NORTH WALL	JBX340008	ADDENDUM 3	CC30A / REV A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX340008-H	1	Raceway		CBLX340008-H	34 BLDG NORTH WALL	JBX340008	ADDENDUM 3	CC30A / REV A
RWYX340008-I	1	Raceway		CBLX340008-I	34 BLDG NORTH WALL	JBX340008	ADDENDUM 3	CC30A / REV A
RWYX340009-H	1	Raceway		CBLX340009-H	34 BLDG NORTH WALL	JBX340009	ADDENDUM 3	CC30A / REV A
RWYX340009-I	1	Raceway		CBLX340009-I	34 BLDG NORTH WALL	JBX340009	ADDENDUM 3	CC30A / REV A
RWYX340009-J	1	Raceway		CBLX340009-J	34 BLDG NORTH WALL	JBX340009	ADDENDUM 3	CC30A / REV A
RWYX340009-K	1	Raceway		CBLX340009-K	34 BLDG NORTH WALL	JBX340009	ADDENDUM 3	CC30A / REV A
RWYX340011-A	5	Raceway		CBLX340006-A	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-B	5	Raceway		CBLX340006-B	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-C	5	Raceway		CBLX340006-C	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-D	5	Raceway		CBLX340006-D	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-E	5	Raceway		CBLX340006-E	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340011-F	5	Raceway		CBLX340006-F	34 BLDG NORTH WALL	MH340011		CC30A
RWYX340013A-B	4	Raceway		CBLX340013A-B	CTS340201	CTS340013A	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYX340014B-A	1	Raceway		CBLX340013B-A	CTS340201	CTS340014B		CC30A
RWYX340090-A	1	Raceway		CBLX340090-A	CTPR340016B	DS340090	CCF 008	CC30A / REV 1
RWYX340091-A	1	Raceway		CBLX340091-A	CTPR340013A	DS340091	CCF 008	CC30A / REV 1
RWYX340100-A	1	Raceway		CBLX340100-A	34 BLDG NORTH WALL	CAB340100		CC30A
RWYX340111-A	3	Raceway		CBLX340111-A	34 BLDG NORTH WALL	M340111		CC30A
RWYX340111-B	2	Raceway		CBLX340111-B	34 BLDG NORTH WALL	CAB340111		CC30A
RWYX340111-C	1	Raceway		CBLX340111-C	34 BLDG NORTH WALL	CAB340111		CC30A
RWYX340111-D	2	Raceway		CBLX340111-D	34 BLDG NORTH WALL	CAB340111		CC30A
~~RWYX340111-E~~	~~2~~	~~Raceway~~		~~CBLX340111-E~~	~~34 BLDG NORTH WALL~~	~~CAB340111~~	ADDENDUM 3	~~CC30A~~
RWYX340123-A	1	Raceway		CBLX340123-A	34 BLDG NORTH WALL	DS340123		CC30A
RWYX340123B-A	1	Raceway		CBLX340123B-A	34 BLDG NORTH WALL	DS340123B		CC30A
RWYX340126-A	1	Raceway		CBLX340126-A	34 BLDG NORTH WALL	DS340126		CC30A
RWYX340133A-A	5	Raceway		CBLX340133A-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133A-B	4	Raceway		CBLX340133A-B	34 BLDG SOUTH WALL	CAP340133A		CC30A
RWYX340133A-C	1	Raceway		CBLX340133A-C	HH001001	DG340133A		CC30A
RWYX340133A-D	1	Raceway		CBLX340133A-D	34 BLDG SOUTH WALL	RWYX340133B-D		CC30A
RWYX340133B-A	5	Raceway		CBLX340133B-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133B-B	4	Raceway		CBLX340133B-B	34 BLDG SOUTH WALL	CAP340133B		CC30A
RWYX340133B-C	1	Raceway		CBLX340133B-C	HH001001	DG340133B		CC30A
RWYX340133B-D	1	Raceway		CBLX340133A-D	RWYX340133A-D	CAP340133A		CC30A
RWYX340133C-A	5	Raceway		CBLX340133C-A	MH340001	34 BLDG NORTH WALL		CC30A
RWYX340133C-B	1	Raceway		CBLX340133C-B	HH001001	DG340133C		CC30A
RWYX340134A-A	4	Raceway		CBLX340134A-A	SUB340134A	NGR340134A		CC30A/REV A
RWYX340134A-B	2	Raceway		CBLX340134A-B	34 BLDG SOUTH WALL	NGR340134A		CC30A/REV A
RWYX340134A-C	2	Raceway		CBLX340134A-C	34 BLDG SOUTH WALL	CAB340134A	CCF 008	CC30A/REV 1
RWYX340134B-A	4	Raceway		CBLX340134B-A	SUB340134B	NGR340134B		CC30A/REV A
RWYX340134B-B	2	Raceway		CBLX340134B-B	34 BLDG SOUTH WALL	NGR340134B		CC30A/REV A
RWYX340134B-C	2	Raceway		CBLX340134B-C	34 BLDG SOUTH WALL	CAB340134A	CCF 008	CC30A/REV 1
RWYX340141	1	Raceway		CBLX340141-A	34 BLDG NORTH WALL	DS340141		CC30A
RWYX340151-A	1	Raceway		CBLX340151-A	34 BLDG NORTH WALL	DS340151		CC30A
RWYX340200-A	1	Raceway		CBLX340200-A	34 BLDG NORTH WALL	CAB340200		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX340211-A	3	Raceway		CBLX340211-A	34 BLDG NORTH WALL	M340211		CC30A
RWYX340211-B	2	Raceway		CBLX340211-B	34 BLDG NORTH WALL	CAB340211		CC30A
RWYX340211-C	2	Raceway		CBLX340211-C	34 BLDG NORTH WALL	CAB340211		CC30A
RWYX340211-D	2	Raceway		CBLX340211-D	34 BLDG NORTH WALL	CAB340211		CC30A
~~RWYX340211-E~~	~~2~~	~~Raceway~~		~~CBLX340211-E~~	~~34 BLDG NORTH WALL~~	~~CAB340211~~	ADDENDUM 3	CC30A
RWYX340223-A	1	Raceway		CBLX340223-A	34 BLDG NORTH WALL	DS340223		CC30A
RWYX340223B-A	1	Raceway		CBLX340223B-A	34 BLDG NORTH WALL	DS340223B		CC30A
RWYX340226-A	1	Raceway		CBLX340226-A	34 BLDG NORTH WALL	DS340226		CC30A
RWYX340241-A	1	Raceway		CBLX340241-A	34 BLDG NORTH WALL	DS340241		CC30A
RWYX340251-A	1	Raceway		CBLX340251-A	34 BLDG NORTH WALL	DS340251		CC30A
RWYX340300-A	1	Raceway		CBLX340300-A	34 BLDG NORTH WALL	CAB340300		CC30A
RWYX340311-A	3	Raceway		CBLX340311-A	34 BLDG NORTH WALL	M340311		CC30A
RWYX340311-B	2	Raceway		CBLX340311-B	34 BLDG NORTH WALL	CAB340311		CC30A
RWYX340311-C	2	Raceway		CBLX340311-C	34 BLDG NORTH WALL	CAB340311		CC30A
RWYX340311-D	2	Raceway		CBLX340311-D	34 BLDG NORTH WALL	CAB340311		CC30A
~~RWYX340311-E~~	~~2~~	~~Raceway~~		~~CBLX340311-E~~	~~34 BLDG NORTH WALL~~	~~CAB340311~~	ADDENDUM 3	CC30A
RWYX340323-A	1	Raceway		CBLX340323-A	34 BLDG NORTH WALL	DS340323		CC30A
RWYX340323B-A	1	Raceway		CBLX340323B-A	34 BLDG NORTH WALL	DS340323B		CC30A
RWYX340326-A	1	Raceway		CBLX340326-A	34 BLDG NORTH WALL	DS340326		CC30A
RWYX340341-A	1	Raceway		CBLX340341-A	34 BLDG NORTH WALL	DS340341		CC30A
RWYX340351-A	1	Raceway		CBLX340351-A	34 BLDG NORTH WALL	DS340351		CC30A
RWYX340400-A	1	Raceway		CBLX340400-A	34 BLDG NORTH WALL	CAB340400		CC30A
RWYX340411-A	3	Raceway		CBLX340411-A	34 BLDG NORTH WALL	M340411		CC30A
RWYX340411-B	2	Raceway		CBLX340411-B	34 BLDG NORTH WALL	CAB340411		CC30A
RWYX340411-C	2	Raceway		CBLX340411-C	34 BLDG NORTH WALL	CAB340411		CC30A
RWYX340411-D	2	Raceway		CBLX340411-D	34 BLDG NORTH WALL	CAB340411		CC30A
~~RWYX340411-E~~	~~2~~	~~Raceway~~		~~CBLX340411-E~~	~~34 BLDG NORTH WALL~~	~~CAB340411~~	ADDENDUM 3	CC30A
RWYX340423-A	1	Raceway		CBLX340423-A	34 BLDG NORTH WALL	DS340423B		CC30A
RWYX340423B-A	1	Raceway		CBLX340423B-A	34 BLDG NORTH WALL	DS340423B		CC30A
RWYX340426-A	1	Raceway		CBLX340426-A	34 BLDG NORTH WALL	DS340426		CC30A
RWYX340441-A	1	Raceway		CBLX340441-A	34 BLDG NORTH WALL	DS340441		CC30A
RWYX340451-A	1	Raceway		CBLX340451-A	34 BLDG NORTH WALL	DS340451		CC30A
RWYX340500-A	1	Raceway		CBLX340500-A	34 BLDG NORTH WALL	CAB340500		CC30A
RWYX340511-A	3	Raceway		CBLX340511-A	34 BLDG NORTH WALL	M340511		CC30A
RWYX340511-B	2	Raceway		CBLX340511-B	34 BLDG NORTH WALL	CAB340511		CC30A
RWYX340511-C	2	Raceway		CBLX340511-C	34 BLDG NORTH WALL	CAB340511		CC30A
RWYX340511-D	2	Raceway		CBLX340511-D	34 BLDG NORTH WALL	CAB340511		CC30A
~~RWYX340511-E~~	~~2~~	~~Raceway~~		~~CBLX340511-E~~	~~34 BLDG NORTH WALL~~	~~CAB340511~~	ADDENDUM 3	CC30A
RWYX340523-A	1	Raceway		CBLX340523-A	34 BLDG NORTH WALL	DS340523B		CC30A
RWYX340523B-A	1	Raceway		CBLX340523B-A	34 BLDG NORTH WALL	DS340523B		CC30A
RWYX340526-A	1	Raceway		CBLX340526-A	34 BLDG NORTH WALL	DS340526		CC30A
RWYX340541-A	1	Raceway		CBLX340541-A	34 BLDG NORTH WALL	DS340541		CC30A
RWYX340551-A	1	Raceway		CBLX340551-A	34 BLDG NORTH WALL	DS340551		CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX341001-A	2	Raceway	DB340008	CBLX340008-A	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-B	2	Raceway	DB340008	CBLX340008-B	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-C	2	Raceway	DB340008	CBLX340008-C	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-D	2	Raceway	DB340008	CBLX340008-D	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-E	2	Raceway	DB340008	CBLX340008-E	34 BLDG NORTH WALL	HH341001		CC30A
RWYX341001-F	1	Raceway	DB340008	CBLX340133A-C	PNL349406	MH341001		CC30A
RWYX341001-G	1	Raceway	DB340008	CBLX340133B-C	PNL349407	HH341001		CC30A
RWYX341001-H	1	Raceway	DB340008	CBLX340133C-B	PNL349405	HH341001		CC30A
RWYX341002-A	4	Raceway	DB340002	CBLX340002-A	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341002-B	4	Raceway	DB340002	CBLX340002-B	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341002-C	4	Raceway	DB340002	CBLX340002-C	34 BLDG NORTH WALL	MH341002		CC30A
RWYX341011-A	3	Raceway	DB340009	CBLX340009-A	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-B	3	Raceway	DB340009	CBLX340009-B	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-C	3	Raceway	DB340009	CBLX340009-C	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-D	3	Raceway	DB340009	CBLX340009-D	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-E	3	Raceway	DB340009	CBLX340009-E	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-F	3	Raceway	DB340009	CBLX340009-F	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-G	3	Raceway	DB340009	CBLX340009-G	34 BLDG NORTH WALL	HH341011		CC30A
RWYX341011-H	3	Raceway	DB340009	CBLX340009-L	34 BLDG NORTH WALL	HH341011	CCF 008	CC30A / REV 1
RWYX341012-A	4	Raceway	DB340003	CBLX340003-A	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-B	4	Raceway	DB340003	CBLX340003-B	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-C	4	Raceway	DB340003	CBLX340003-C	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-D	4	Raceway	DB340003	CBLX340003-D	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-E	4	Raceway	DB340003	CBLX340003-E	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341012-F	4	Raceway	DB340003	CBLX340003-F	34 BLDG NORTH WALL	HH341012		CC30A
RWYX341014-A	2-1/2	Raceway		CBLX341014-A	MCC349101B	CAB341014		CC30A
RWYX346001-A	1-1/2	Raceway		CBLX346001-A	34 BLDG NORTH WALL	WRCP346001		CC30A
RWYX347902-A	1	Raceway		CBLX347902-A	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347902-B	1	Raceway		CBLX347902-B	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347902-C	1	Raceway		CBLX347902-C	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347902-D	1	Raceway		CBLX347902-D	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347902-E	1	Raceway		CBLX347902-E	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347902-F	1	Raceway		CBLX347902-F	34 BLDG NORTH WALL	CAB347902	CCF 008	CC30A / REV 1
RWYX347950A-A	1	Raceway		CBLX347950A-A	CTS340001A	PBX347950A		CC30A
RWYX347950B-A	1	Raceway		CBLX347950B-A	CTS340001A	PBX347950B		CC30A
RWYX347950C-A	1	Raceway		CBLX347950C-A	CTS340001A	PBX347950C		CC30A
RWYX347956-A	1	Raceway		CBLX347956-A	CTS340206	PBX347956		CC30A
RWYX347957-A	1	Raceway		CBLX347957-A	CTS340001A	PBX347957		CC30A
RWYX347958-A	1	Raceway		CBLX347958-A	CTS340002B	PBX347958		CC30A
RWYX347959-A	1	Raceway		CBLX347959-A	CTS340205	PBX347959		CC30A
RWYX347960-A	1	Raceway		CBLX347960-A	**CAB347902**	PBX347960	**CCF 020 CHANGE ORDER PENDING**	CC30A
RWYX347961-A	1	Raceway		CBLX347961-A	**CAB347902**	PBX347961	**CCF 020 CHANGE ORDER PENDING**	CC30A
RWYX347962-A	1	Raceway		CBLX347962-A	CTS340010B	PBX347962		CC30A
RWYX347963-A	1	Raceway		CBLX347963-A	**CAB347902**	PBX347963	**CCF 020 CHANGE ORDER PENDING**	CC30A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX347964-A	1	Raceway		CBLX347964-A	**CTS340013A**	PBX347964	**CCF 020 CHANGE ORDER PENDING**	CC30A
RWYX347965-A	1	Raceway		CBLX347965-A	CTS340003A	PBX347965		CC30A
RWYX347970-A	1	Raceway		CBLX347970-A	CTS340002B	PBX347970		CC30A
RWYX347972-A	1	Raceway		CBLX347972-A	**CAB347902**	PBX347972	**CCF 020 CHANGE ORDER PENDING**	CC30A
RWYX347973A-A	1	Raceway		CBLX347973A-A	NCE340101	PBX347973A		CC30A
RWYX347973B-A	1	Raceway		CBLX347973B-A	NCE340101	PBX347973B		CC30A
RWYX347974A-A	1	Raceway		CBLX347974A-A	NCE340101	PBX347974A		CC30A
RWYX347974B-A	1	Raceway		CBLX347974B-A	NCE340101	PBX347974B		CC30A
RWYX347975-A	1	Raceway		CBLX347975-A	NCE340101	PBX347975		CC30A
RWYX347976-A	1	Raceway		CBLX347976-A	**CAB347901**	PBX347976	**CCF 020 CHANGE ORDER PENDING**	CC30A
RWYX347977A-A	1	Raceway		CBLX347977A-A	NCE340101	PBX347977A		CC30A
RWYX347977B-A	1	Raceway		CBLX347977B-A	NCE340101	PBX347977B		CC30A
RWYX347978-A	1	Raceway		CBLX347978-A	NCE340101	PBX347978		CC30A
RWYX347982-A	1	Raceway		CBLX347982-A	JBX340003	PBX347982		CC30A
RWYX347984-A	1	Raceway		CBLX347984-A	CTS340203	PBX347984		CC30A
RWYX347985-A	1	Raceway		CBLX347985-A	CTS340201	PBX347985		CC30A
RWYX347986-A	1	Raceway		CBLX347986-A	CTS340206	PBX347986		CC30A
RWYX347988A-A	1	Raceway		CBLX347988A-A	NCR340021	PBX347988A		CC30A
RWYX347988B-A	1	Raceway		CBLX347988B-A	NCR340021	PBX347988B		CC30A
RWYX348410-A	1	Raceway		CBLX348410-A	CTPR340016B	DS348410	CCF 008	CC30A / REV 1
RWYX349000A-A	5	Raceway		CBLX349000A-A	34 BLDG SOUTH WALL	SUB349000A	CCF 008	CC30A / REV 1
RWYX349000A-B	1	Raceway		CBLX349000A-B	34 BLDG SOUTH WALL	CAB349000A	CCF 008	CC30A / REV 1
RWYX349000A-C	1	Raceway		CBLX349000A-C	34 BLDG SOUTH WALL	CAB349000A	CCF 008	CC30A / REV 1
RWYX349000A-D	1	Raceway		CBLX349000A-D	34 BLDG SOUTH WALL	CAB349000A	CCF 008	CC30A / REV 1
RWYX349000A-E	2	Raceway		CBLX349000A-E	34 BLDG SOUTH WALL	SUB349000A	CCF 008	CC30A / REV 1
RWYX349000B-A	5	Raceway		CBLX349000B-A	34 BLDG SOUTH WALL	SUB349000B	CCF 008	CC30A / REV 1
RWYX349000B-B	1	Raceway		CBLX349000B-B	34 BLDG SOUTH WALL	CAB349000B	CCF 008	CC30A / REV 1
RWYX349000B-C	1	Raceway		CBLX349000B-C	34 BLDG SOUTH WALL	CAB349000B	CCF 008	CC30A / REV 1
RWYX349000B-D	1	Raceway		CBLX349000B-D	34 BLDG SOUTH WALL	CAB349000B	CCF 008	CC30A / REV 1
RWYX349000B-E	2	Raceway		CBLX349000B-E	34 BLDG SOUTH WALL	SUB349000B	CCF 008	CC30A / REV 1
RWYX349405-A	1-1/2	Raceway		CBLX349405-A	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-B	1-1/2	Raceway		CBLX349405-B	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-C	1-1/2	Raceway		CBLX349405-C	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-D	1-1/2	Raceway		CBLX349405-D	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-E	1	Raceway		CBLX349405-E	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-F	1	Raceway		CBLX349405-F	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-G	1	Raceway		CBLX349405-G	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-H	1	Raceway		CBLX349405-H	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-I	1	Raceway		CBLX349405-I	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-J	1	Raceway		CBLX349405-J	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-K	1	Raceway		CBLX349405-K	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-L	1	Raceway		CBLX349405-L	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349405-M	1	Raceway		CBLX349405-M	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX349405-N	1	Raceway		CBLX349405-N	34 BLDG NORTH WALL	PNL349405	ADDENDUM 3	CC30A / REV A
RWYX349406-A	1-1/2	Raceway		CBLX349406-A	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-B	1-1/2	Raceway		CBLX349406-B	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-C	1	Raceway		CBLX349406-C	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-D	1	Raceway		CBLX349406-D	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-E	1	Raceway		CBLX349406-E	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-F	1	Raceway		CBLX349406-F	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349406-G	1	Raceway		CBLX349406-G	34 BLDG NORTH WALL	PNL349406	ADDENDUM 3	CC30A / REV A
RWYX349407-A	2	Raceway		CBLX349407-A	34 BLDG NORTH WALL	PNL349407	ADDENDUM 3	CC30A / REV A
RWYX349407-B	2	Raceway		CBLX349407-B	34 BLDG NORTH WALL	PNL349407	ADDENDUM 3	CC30A / REV A
RWYX349407-C	2	Raceway		CBLX349407-C	34 BLDG NORTH WALL	PNL349407	ADDENDUM 3	CC30A / REV A
RWYX349407-D	2	Raceway		CBLX349407-D	34 BLDG NORTH WALL	PNL349407	CCF 008	CC30A / REV 1
RWYX349407-E	2	Raceway		CBLX349407-E	34 BLDG NORTH WALL	PNL349407	CCF 008	CC30A / REV 1

Engineer: JRP
January 2021 - CCF 020

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
CTC020101	18	Tray		CBLC020120-A				CC 5F
				CBLC020305-A				
				CBLC020310-A				
				CBLC020320-A				
				CBLC020330-A				
				CBLC020430-A				
				CBLC020831-A				
				CBLC020831-B				
				CBLC020832-A				
				CBLC020832-B				
				CBLC020910-A				
				CBLC020910-B				
				CBLC020920-A				
				CBLC020920-B				
CTC020102	18	Tray		CBLC000021-A				CC 5F
				CBLC000022-A				
				CBLC020110-A				
				CBLC020120-A				
				CBLC020130-A				
				CBLC020305-A				
				CBLC020340-A				
				CBLC020350-A				
				CBLC020601-A				
				CBLC020801-A				
				CBLC020831-A				
				CBLC020831-B				
				CBLC020832-A				
				CBLC020832-B				
				CBLC020910-A				
				CBLC020910-B				
				CBLC020911-A				
				CBLC020912-A				
				CBLC020913-A				
				CBLC020920-A				
				CBLC020920-B				
				CBLC020921-A				
				CBLC020922-A				
				CBLC020923-A				
				CBLC029101-A				
CTC020103	12	Tray		CBLC000020-A				CC 5F
				CBLC000021-A				
				CBLC000022-A				
				CBLC020110-A				
				CBLC020120-A				
				CBLC020130-A				
				CBLC020137-A				
				CBLC020138-A				
				CBLC020210-A				
				CBLC020220-A				
				CBLC020230-A				
				CBLC020601-A				
				CBLC020801-A				
				CBLC020831-A				
				CBLC020831-B				
				CBLC020832-A				
				CBLC020832-B				
				CBLC020910-A				
				CBLC020910-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLC020911-A				
				CBLC020912-A				
				CBLC020913-A				
				CBLC020920-B				
				CBLC020921-A				
				CBLC020922-A				
				CBLC020923-A				
				CBLS020123-A				
				CBLS020919-A				
CTC020104	12	Tray		CBLC000020-A				CC 5F
				CBLC020135-A				
				CBLC020136-A				
				CBLC020137-A				
				CBLC020138-A				
				CBLC020210-A				
				CBLC020220-A				
				CBLC020230-A				
				CBLC020305-A				
				CBLC020610B-A				
				CBLC020801-A				
				CBLC029101-A				
				CBLC029102-A				
				CBLC029202-A				
				CBLC029202-B				
				CBLC029302-A				
				CBLC029302-B				
				CBLS020123-A				
				CBLS020919-A				
CTC020105	12	Tray		CBLC020136-A				CC 5F
CTC020106	12	Tray		CBLC020305-A				CC 5F
				CBLC020310-A				
				CBLC020320-A				
				CBLC020330-A				
				CBLC020510-A				
				CBLC020520-A				
				CBLC020530-A				
				CBLC020540-A				
				CBLC020550-A				
CTC020107	12	Tray		CBLC020340-A				CC 5F
				CBLC020350-A				
				CBLC020410-A				
				CBLC020420-A				
				CBLC020430-A				
				CBLC020440-A				
CTC020108	12	Tray		CBLC020305-A				CC 5F
				CBLC020310-A				
				CBLC020320-A				
				CBLC020330-A				
				CBLC020510-A				
CTC020109	12	Tray		CBLC020340-A				CC 5F
				CBLC020350-A				
				CBLC020410-A				
				CBLC020420-A				
				CBLC020430-A				
				CBLC020440-A				
				CBLC020510-A				
				CBLC020520-A				
				CBLC020530-A				
				CBLC020540-A				
				CBLC020550-A				
CTC020110	12	Tray		CBLC020410-A				CC 5F
				CBLC020420-A				
				CBLC020430-A				
				CBLC020440-A				
				CBLC020510-A				
				CBLC020520-A				
				CBLC020530-A				
				CBLC020540-A				
				CBLC020550-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
CTC020111	6	Tray		CBLC020310-A				CC 5F
CTC020112	6	Tray		CBLC020320-A				CC 5F
CTC020113	6	Tray		CBLC020330-A				CC 5F
CTC020114	6	Tray		CBLC020340-A				CC 5F
CTC020115	6	Tray		CBLC020350-A				CC 5F
CTC020116	6	Tray		CBLC020410-A				CC 5F
CTC020117	6	Tray		CBLC020420-A				CC 5F
CTC020118	6	Tray		CBLC020430-A				CC 5F
CTC020119	6	Tray		CBLC020440-A				CC 5F
CTC020120	6	Tray		CBLC020510-A				CC 5F
CTC020121	6	Tray		CBLC020520-A				CC 5F
CTC020122	6	Tray		CBLC020530-A				CC 5F
CTC020123	6	Tray		CBLC020540-A				CC 5F
CTC020124	6	Tray		CBLC020550-A				CC 5F
CTC20108	12	Tray		CBLC020520-A				CC 5F
				CBLC020530-A				
				CBLC020540-A				
				CBLC020550-A				
CTPR020101A	18	Tray		CBLP020305-A				CC 5F
				CBLP020310-A				
				CBLP020330-A				
				CBLP020410-A				
				CBLP020430-A				
				CBLP020430-B				
				CBLP020510-A				
				CBLP020530-A				
				CBLP020540-A				
				CBLP020610-A				
				CBLP020910-A				
				CBLP029001A-B				
				CBLP029001A-C				
				CBLP029102A-A				
CTPR020101B	18	Tray		CBLP020120-A				CC 5F
				CBLP020320-A				
				CBLP020420-A				
				CBLP020440-A				
				CBLP020520-A				
				CBLP020540-A				
				CBLP020920-A				
				CBLP029001B-B				
				CBLP029001B-C				
				CBLP029102B-A				
CTPR020102A	18	Tray		CBLP000021-A				CC 5F
				CBLP020001-C				
				CBLP020110-A				
				CBLP020123-A				
				CBLP020130-A				
				CBLP020301-A				
				CBLP020350-A				
				CBLP020410-A				
				CBLP020430-A				
				CBLP020509-A				
				CBLP020510-A				
				CBLP020530-A				
				CBLP020540-A				
				CBLP020601-A				
				CBLP020610-A				
				CBLP020610Z-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLP020800-A				
				CBLP020831-A				
				CBLP020910-A				
				CBLP020911-A				
				CBLP020912-A				
				CBLP020913-A				
				CBLP020919-A				
				CBLP022100-A				
				CBLP027850-A				
				CBLP027901-A				
				CBLP029001A-B				
				CBLP029001A-C				
CTPR020102B	18	Tray		CBLP000022-A				CC 5F
				CBLP020120-A				
				CBLP020340-A				
				CBLP020420-A				
				CBLP020520-A				
				CBLP020540-A				
				CBLP020832-A				
				CBLP020920-A				
				CBLP020921-A				
				CBLP020922-A				
				CBLP020923-A				
				CBLP028901-A				
				CBLP029001B-B				
				CBLP029001B-C				
CTPR020103A	12	Tray		CBLP000021-A				CC 5F
				CBLP020110-A				
				CBLP020123-A				
				CBLP020130-A				
				CBLP020210-A				
				CBLP020210-B				
				CBLP020230-A				
				CBLP020230-B				
				CBLP020601-A				
				CBLP020610Z-A				
				CBLP020800-A				
				CBLP020831-A				
				CBLP020910-A				
				CBLP020911-A				
				CBLP020912-A				
				CBLP020913-A				
				CBLP020919-A				
				CBLP022100-A				
CTPR020103B	12	Tray		CBLP000022-A				CC 5F
				CBLP020120-A				
				CBLP020220-A				
				CBLP020220-B				
				CBLP020832-A				
				CBLP020920-A				
				CBLP020921-A				
				CBLP020922-A				
				CBLP020923-A				
CTPR020104A	12	Tray		CBLP020001-C				CC 5F
				CBLP020123-A				
				CBLP020210-A				
				CBLP020210-B				
				CBLP020230-A				
				CBLP020230-B				
				CBLP020301-A				
				CBLP020305-A				
				CBLP020610-A				
				CBLP020610B-A				
				CBLP020831-A				
				CBLP020919-A				
				CBLP027850-A				
				CBLP027901-A				
				CBLP029001A-C				
				CBLP029102A-A				
CTPR020104B	12	Tray		CBLP020220-A				CC 5F
				CBLP020220-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLP020832-A				
				CBLP028901-A				
				CBLP029001B-C				
				CBLP029102B-A				
CTPR020105A	12	Tray		CBLP020305-A				CC 5F
				CBLP027850-A				
				CBLP029102A-A				
CTPR020105B	12	Tray		CBLP029102B-A				CC 5F
CTPR020106A	12	Tray		CBLP020305-A				CC 5F
				CBLP020310-A				
				CBLP020330-A				
				CBLP020510-B				
				CBLP020530-B				
				CBLP020550-B				
CTPR020106B	12	Tray		CBLP020320-A				CC 5F
				CBLP020520-B				
				CBLP020540-B				
CTPR020107A	12	Tray		CBLP020301-A				CC 5F
				CBLP020350-A				
				CBLP020410-A				
				CBLP020410-B				
				CBLP020430-B				
				CBLP020509-A				
CTPR020107B	12	Tray		CBLP020340-A				CC 5F
				CBLP020420-A				
				CBLP020420-B				
				CBLP020440-B				
CTPR020108A	12	Tray		CBLP020305-A				CC 5F
				CBLP020310-A				
				CBLP020330-A				
				CBLP020510-B				
				CBLP020530-B				
				CBLP020550-B				
CTPR020108B	12	Tray		CBLP020320-A				CC 5F
				CBLP020520-B				
				CBLP020540-B				
CTPR020109A	12	Tray		CBLP020301-A				CC 5F
				CBLP020350-A				
				CBLP020410-B				
				CBLP020430-B				
				CBLP020509-A				
				CBLP020510-B				
				CBLP020530-B				
				CBLP020550-B				
CTPR020109B	12	Tray		CBLP020340-A				CC 5F
				CBLP020420-B				
				CBLP020440-B				
				CBLP020520-B				
				CBLP020540-B				
CTPR020110A	12	Tray		CBLP020301-A				CC 5F
				CBLP020410-B				
				CBLP020430-B				
				CBLP020509-A				
				CBLP020510-B				
				CBLP020530-B				
				CBLP020550-B				
CTPR020110B	12	Tray		CBLP020420-B				CC 5F
				CBLP020440-B				
				CBLP020520-B				
				CBLP020540-B				
CTPR020111A	6	Tray		CBLP020310-A				CC 5F
CTPR020112B	6	Tray		CBLP020320-A				CC 5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
CTPR020113A	6	Tray		CBLP020330-A				CC 5F
CTPR020114B	6	Tray		CBLP020340-A				CC 5F
CTPR020115A	6	Tray		CBLP020350-A				CC 5F
CTPR020116A	6	Tray		CBLP020410-B				CC 5F
CTPR020117B	6	Tray		CBLP020420-B				CC 5F
CTPR020118A	6	Tray		CBLP020430-B				CC 5F
CTPR020119B	6	Tray		CBLP020440-B				CC 5F
CTPR020120A	6	Tray		CBLP020510-B				CC 5F
CTPR020121B	6	Tray		CBLP020520-B				CC 5F
CTPR020122A	6	Tray		CBLP020530-B				CC 5F
CTPR020123B	6	Tray		CBLP020540-B				CC 5F
CTPR020124A	6	Tray		CBLP020550-B				CC 5F
CTPR020125	24	Tray		CBLV020610AA1				CC 5F
				CBLV020610AA2				
				CBLV020610AA3				
				CBLV020610AB1				
				CBLV020610AB2				
				CBLV020610AB3				
CTS020100	6	Tray		CBLD020210-A				CC 5F
				CBLD020220-A				
				CBLD020230-A				
				CBLD020610B-A				
				CBLD020610B-B				
				CBLD027801A-A				
				CBLD027901-A				
				CBLD027901-B				
				CBLD027901-C				
				CBLD027901-D				
				CBLD027901-E				
				CBLD027901-F				
				CBLD028901-A				
				CBLD029001A-A				
				CBLD029001AA-A				
				CBLD029001AA-B				
				CBLD029001B-A				
				CBLD029001BB-A				
				CBLD029001BB-B				
				CBLD029101-A				
				CBLD029102-A				
				CBLD029202-A				
				CBLD029302-A				
				CBLF020011D-A				
CTS020101	18	Tray		CBLD020410-A				CC 5F
				CBLD020420-A				
				CBLD020430-A				
				CBLD020440-A				
				CBLD020510-A				
				CBLD020520-A				
				CBLD020530-A				
				CBLD020540-A				
				CBLD020550-A				
				CBLD029001A-A				
				CBLD029001AA-A				
				CBLD029001AA-B				
				CBLD029001B-A				
				CBLD029001BB-A				
				CBLD029001BB-B				
				CBLS020120-A				
				CBLS020120-B				
				CBLS020301-A				
				CBLS020302-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLS020302A-A				
				CBLS020303A-A				
				CBLS020303B-A				
				CBLS020305-A				
				CBLS020310-A				
				CBLS020310-B				
				CBLS020320-A				
				CBLS020320-B				
				CBLS020330-A				
				CBLS020330-B				
				CBLS020430-A				
				CBLS020430-B				
				CBLS020800-A				
				CBLS020800-B				
				CBLS020810-A				
				CBLS020820-A				
				CBLS020831-A				
				CBLS020832-A				
				CBLS020910A-A				
				CBLS020910B-A				
				CBLS020920A-A				
				CBLS020920B-A				
CTS020102	18	Tray		CBLD020210-A				CC 5F
				CBLD020220-A				
				CBLD020230-A				
				CBLD027801A-A				
				CBLD027901-A				
				CBLD027901-B				
				CBLD027901-C				
				CBLD027901-D				
				CBLD027901-E				
				CBLD027901-F				
				CBLD028901-A				
				CBLD029001A-A				
				CBLD029001AA-A				
				CBLD029001AA-B				
				CBLD029001B-A				
				CBLD029001BB-A				
				CBLD029001BB-B				
				CBLD029101-A				
				CBLS020110-A				
				CBLS020110-B				
				CBLS020120-A				
				CBLS020120-B				
				CBLS020130-A				
				CBLS020130-B				
				CBLS020305-A				
				CBLS020340-A				
				CBLS020340-B				
				CBLS020350-A				
				CBLS020350-B				
				CBLS020401-A				
				CBLS020402-A				
				CBLS020501-A				
				CBLS020502-A				
				CBLS020509-A				
				CBLS020601-A				
				CBLS020800-A				
				CBLS020800-B				
				CBLS020810-A				
				CBLS020815-A				
				CBLS020820-A				
				CBLS020831-A				
				CBLS020832-A				
				CBLS020910A-A				
				CBLS020910B-A				
				CBLS020911-A				
				CBLS020912-A				
				CBLS020913-A				
				CBLS020920A-A				
				CBLS020920B-A				
				CBLS020921-A				
				CBLS020922-A				
				CBLS020923-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
CTS020103	12	Tray		CBLD020210-A				CC 5F
				CBLD020210-C				
				CBLD020220-A				
				CBLD020230-A				
				CBLS020110-A				
				CBLS020110-B				
				CBLS020120-A				
				CBLS020120-B				
				CBLS020130-A				
				CBLS020130-B				
				CBLS020601-A				
				CBLS020800-A				
				CBLS020800-B				
				CBLS020810-A				
				CBLS020815-A				
				CBLS020820-A				
				CBLS020831-A				
				CBLS020832-A				
				CBLS020910A-A				
				CBLS020910B-A				
				CBLS020911-A				
				CBLS020912-A				
				CBLS020913-A				
				CBLS020920A-A				
				CBLS020920B-A				
				CBLS020921-A				
				CBLS020922-A				
				CBLS020923-A				
CTS020104	12	Tray		CBLD020210-A				CC 5F
				CBLD020220-A				
				CBLD020230-A				
				CBLD020610B-A				
				CBLD020610B-B				
				CBLD027801A-A				
				CBLD027901-A				
				CBLD027901-B				
				CBLD027901-C				
				CBLD027901-D				
				CBLD027901-E				
				CBLD027901-F				
				CBLD028901-A				
				CBLD029001A-A				
				CBLD029001AA-A				
				CBLD029001AA-B				
				CBLD029001B-A				
				CBLD029001BB-A				
				CBLD029001BB-B				
				CBLD029101-A				
				CBLD029102-A				
				CBLD029202-A				
				CBLD029302-A				
				CBLS020305-A				
				CBLS020401-A				
				CBLS020402-A				
				CBLS020501-A				
				CBLS020502-A				
				CBLS020509-A				
				CBLS020600-A				
				CBLS020610-A				
				CBLS020815-A				
CTS020106	12	Tray		CBLS020305-A				CC 5F
				CBLS020310-A				
				CBLS020310-B				
				CBLS020320-A				
				CBLS020320-B				
				CBLS020330-A				
				CBLS020330-B				
				CBLS020510-A				
				CBLS020510-B				
				CBLS020520-A				
				CBLS020520-B				
				CBLS020530-A				
				CBLS020530-B				
				CBLS020540-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLS020540-B				
				CBLS020550-A				
				CBLS020550-B				
CTS020107	12	Tray		CBLD020410-A				CC 5F
				CBLD020420-A				
				CBLD020430-A				
				CBLD020440-A				
				CBLS020301-A				
				CBLS020302-A				
				CBLS020302A-A				
				CBLS020303A-A				
				CBLS020303B-A				
				CBLS020340-A				
				CBLS020340-B				
				CBLS020350-A				
				CBLS020350-B				
				CBLS020401-A				
				CBLS020402-A				
				CBLS020410-A				
				CBLS020410-B				
				CBLS020420-A				
				CBLS020420-B				
				CBLS020430-A				
				CBLS020430-B				
				CBLS020440-A				
				CBLS020440-B				
				CBLS020501-A				
				CBLS020502-A				
				CBLS020509-A				
CTS020108	12	Tray		CBLS020305-A				CC 5F
				CBLS020310-A				
				CBLS020310-B				
				CBLS020320-A				
				CBLS020320-B				
				CBLS020330-A				
				CBLS020330-B				
				CBLS020510-A				
				CBLS020510-B				
				CBLS020520-A				
				CBLS020520-B				
				CBLS020530-A				
				CBLS020530-B				
				CBLS020540-A				
				CBLS020540-B				
				CBLS020550-A				
				CBLS020550-B				
CTS020109	12	Tray		CBLS020301-A				CC 5F
				CBLS020302-A				
				CBLS020302A-A				
				CBLS020303A-A				
				CBLS020303B-A				
				CBLS020340-A				
				CBLS020340-B				
				CBLS020350-A				
				CBLS020350-B				
				CBLS020401-A				
				CBLS020402-A				
				CBLS020410-A				
				CBLS020410-B				
				CBLS020420-A				
				CBLS020420-B				
				CBLS020430-A				
				CBLS020430-B				
				CBLS020440-A				
				CBLS020440-B				
				CBLS020501-A				
				CBLS020502-A				
				CBLS020509-A				
				CBLS020510-A				
				CBLS020510-B				
				CBLS020520-A				
				CBLS020520-B				
				CBLS020530-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLS020530-B				
				CBLS020540-A				
				CBLS020540-B				
				CBLS020550-A				
				CBLS020550-B				
CTS020110	12	Tray		CBLS020301-A				CC 5F
				CBLS020302-A				
				CBLS020401-A				
				CBLS020402-A				
				CBLS020410-A				
				CBLS020410-B				
				CBLS020420-A				
				CBLS020420-B				
				CBLS020430-A				
				CBLS020430-B				
				CBLS020440-A				
				CBLS020440-B				
				CBLS020501-A				
				CBLS020502-A				
				CBLS020509-A				
				CBLS020510-A				
				CBLS020510-B				
				CBLS020520-A				
				CBLS020520-B				
				CBLS020530-A				
				CBLS020530-B				
				CBLS020540-A				
				CBLS020540-B				
				CBLS020550-A				
				CBLS020550-B				
CTS020111	6	Tray		CBLS020310-A				CC 5F
				CBLS020310-B				
CTS020112	6	Tray		CBLS020320-A				CC 5F
				CBLS020320-B				
CTS020113	6	Tray		CBLS020330-A				CC 5F
				CBLS020330-B				
CTS020114	6	Tray		CBLS020340-A				CC 5F
				CBLS020340-B				
CTS020115	6	Tray		CBLS020350-A				CC 5F
				CBLS020350-B				
CTS020116	6	Tray		CBLS020410-A				CC 5F
				CBLS020410-B				
CTS020117	6	Tray		CBLS020420-A				CC 5F
				CBLS020420-B				
CTS020118	6	Tray		CBLS020430-A				CC 5F
				CBLS020430-B				
CTS020119	6	Tray		CBLS020440-A				CC 5F
				CBLS020440-B				
CTS020120	6	Tray		CBLS020509-A				CC 5F
				CBLS020510-A				
				CBLS020510-B				
CTS020121	6	Tray		CBLS020520-A				
				CBLS020520-B				
CTS020122	6	Tray		CBLS020530-A				
				CBLS020530-B				
CTS020123	6	Tray		CBLS020540-A				CC 5F
				CBLS020540-B				
CTS020124	6	Tray		CBLS020550-A				CC 5F
				CBLS020550-B				
CTS24	6	Tray		CBLF020011A-B			FIELD DETERMINE EXISTING TRAY. FA TO BE RUN IN SEP CONDUIT	EXIST

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
				CBLF020011BB-A				
				CBLF210011A-D				
				CBLF210011DA-A				
				CBLX020006A				
				CBLX020006B				
CTS330104	6	Tray		CBLF020011AB-A				
CTS330105	6	Tray		CBLF020011AB-A				
CTS330201	6	Tray		CBLF020011AB-A				
CTS340002B	6	Tray		CBLF020011AB-A				
CTS340004B	6	Tray		CBLF020011AB-A				
CTS340010B	6	Tray		CBLF020011AB-A				
CTS340014B	6	Tray		CBLF020011AB-A				
CTS340016B	6	Tray		CBLF020011AB-A				
RWYC000020-C	1	Raceway		CBLC000020-A	CTC020103	HH020003		CC 5F/REV A
RWYC000021-C	1	Raceway		CBLC000021-A	CTC020103	HH020003		CC 5F/REV A
RWYC000022-C	1	Raceway		CBLC000022-A	CTC020103	HH020003		CC 5F/REV A
RWYC020110-A	1-1/2	Raceway		CBLC020110-A	CTC020103	CS020110	ADD 3	CC 5F/ADD#3
RWYC020110-B	1	Raceway		CBLC020110-B	CS020110	JB020110		CC 5F
RWYC020120-A	1-1/2	Raceway		CBLC020120-A	CTC020103	CS020120	ADD 3	CC 5F/ADD#3
RWYC020120-B	1	Raceway		CBLC020120-B	CS020120	JB020120		CC 5F
RWYC020130-A	1-1/2	Raceway		CBLC020130-A	CTC020103	CS020130A	ADD 3	CC 5F/ADD#3
RWYC020130-B	1	Raceway		CBLC020130-B	CS020130	JB020130		CC 5F
RWYC020135-A	1	Raceway		CBLC020135-A	CTC020104	FSH020135		CC 5F
RWYC020136-A	1	Raceway		CBLC020136-A	CTC020105	FSH020136		CC 5F
RWYC020137-A	1	Raceway		CBLC020137-A	CTC020103	FSH020137		CC 5F
RWYC020138-A	1	Raceway		CBLC020138-A	CTC020103	FSH020138		CC 5F
RWYC020210-A	1	Raceway		CBLC020210-A	CTC020103	CAB020210		CC 5F
RWYC020210-B	1-1/4	Raceway		CBLC020210-B	CAB020210	TBX020210		CC 5F
RWYC020210-C	1-1/4	Raceway		CBLC020210-C	CAB020210	TBX020210		CC 5F
RWYC020220-A	1	Raceway		CBLC020220-A	CTC020103	CAB020220		CC 5F
RWYC020220-B	1-1/4	Raceway		CBLC020220-B	CAB020220	TBX020220		CC 5F
RWYC020220-C	1-1/4	Raceway		CBLC020220-C	CAB020220	TBX020220		CC 5F
RWYC020230-A	1	Raceway		CBLC020230-A	CTC020103	CAB020230		CC 5F
RWYC020230-B	1-1/4	Raceway		CBLC020230-B	CAB020230	TBX020230		CC 5F
RWYC020230-C	1-1/4	Raceway		CBLC020230-C	CAB020230	TBX020230		CC 5F
RWYC020300-A	1	Raceway		CBLC020305-A	CTC020108	FSL020305		CC 5F
RWYC020310-B	1	Raceway		CBLC020310-B	TSH020310	CS020310		CC 5F
RWYC020320-B	1	Raceway		CBLC020320-B	TSH020320	CS020320		CC 5F
RWYC020330-B	1	Raceway		CBLC020330-B	TSH020330	CS020330		CC 5F
RWYC020340-B	1	Raceway		CBLC020340-B	TSH020340	CS020340		CC 5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYC020350-B	1	Raceway		CBLC020350-B	TSH020350	CS020350		CC 5F
RWYC020410-B	1	Raceway		CBLC020410-B	CS020410	TSH020410		CC 5F
RWYC020420-B	1	Raceway		CBLC020420-B	CS020420	TSH020420		CC 5F
RWYC020430-B	1	Raceway		CBLC020430-B	CS020430	TSH020430		CC 5F
RWYC020440-B	1	Raceway		CBLC020440-B	CS020440	TSH020440		CC 5F
RWYC020509-A	1	Raceway		CBLC020509-A	PNL020509	SV020509		CC 5F
RWYC020510-A1	1-1/2	Raceway		CBLC020510-A	VFD020510	CTC020106		CC 5F
RWYC020510-A2	1	Raceway		CBLC020510-A	CTC020120	CS020510		CC 5F
RWYC020510-B	1	Raceway		CBLC020510-B	CS020510	TSH020510		CC 5F
RWYC020520-A1	1-1/2	Raceway		CBLC020520-A	VFD020520	CTC020106		CC 5F
RWYC020520-A2	1-1/2	Raceway		CBLC020520-A	CTC020121	CS020520		CC 5F
RWYC020520-B	1	Raceway		CBLC020520-B	CS020520	TSH020520		CC 5F
RWYC020530-A1	1-1/2	Raceway		CBLC020530-A	VFD020530	CTC020106		CC 5F
RWYC020530-A2	1-1/2	Raceway		CBLC020530-A	CTC020122	CS020530		CC 5F
RWYC020530-B	1	Raceway		CBLC020530-B	CS020530	TSH020530		CC 5F
RWYC020540-A1	1-1/2	Raceway		CBLC020540-A	VFD020540	CTC020106		CC 5F
RWYC020540-A2	1-1/2	Raceway		CBLC020540-A	CTC020123	CS020540		CC 5F
RWYC020540-B	1	Raceway		CBLC020540-B	CS020540	TSH020540		CC 5F
RWYC020550-A1	1-1/2	Raceway		CBLC020550-A	VFD020550	CTC020106		CC 5F
RWYC020550-A2	1-1/2	Raceway		CBLC020550-A	CTC020124	CS020550		CC 5F
RWYC020550-B	1	Raceway		CBLC020550-B	CS020550	TSH020550		CC 5F
RWYC020601-A	1	Raceway		CBLC020601-A	CTC020103	CS020601		CC 5F
RWYC020601-B	1	Raceway		CBLC020601-B	CS020601	FV020601		CC 5F
RWYC020610B-A	1-1/4	Raceway		CBLC020610B-A	CAB020001	CTC020104		CC 5F
RWYC020610B-B	1-1/4	Raceway		CBLC020610B-A	CTC020104	CAB020610B		CC 5F
RWYC020801-A	1	Raceway		CBLC020801-A	CAB020001	CTC020103		CC 5F
RWYC020910-A	1	Raceway		CBLC020910-A	CTC020103	CS020910	ADD #2	CC 5F/ADD#2
RWYC020910-B	1	Raceway		CBLC020910-B	CTC020103	DS020910	ADD #2	CC 5F/ADD#2
RWYC020911-A	1-1/4	Raceway		CBLC020911-A	CTC020103	CS020911		CC 5F
RWYC020911-B	1	Raceway		CBLC020911-B	CS020911	FV020911		CC 5F
RWYC020912-A	1-1/4	Raceway		CBLC020912-A	CTC020103	CS020912		CC 5F
RWYC020912-B	1	Raceway		CBLC020912-B	CS020912	FV020912		CC 5F
RWYC020913-A	1-1/4	Raceway		CBLC020913-A	CTC020103	CS020913		CC 5F
RWYC020913-B	1	Raceway		CBLC020913-B	CS020913	FV020913		CC 5F
RWYC020920-A	1	Raceway		CBLC020920-A	CTPC020103	CS020920	ADD #2	CC 5F/ADD#2
RWYC020920-B	1	Raceway		CBLC020920-B	CTC020103	DS020920	ADD #2	CC 5F/ADD#2
RWYC020921-A	1-1/4	Raceway		CBLC020921-A	CTC020103	CS020921		CC 5F
RWYC020921-B	1	Raceway		CBLC020921-B	CS020921	FV020921		CC 5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYC020922-A	1-1/4	Raceway		CBLC020922-A	CTC020103	CS020922		CC 5F
RWYC020922-B	1	Raceway		CBLC020922-B	CS020922	FV020922		CC 5F
RWYC020923-A	1-1/4	Raceway		CBLC020923-A	CTC020103	CS020923		CC 5F
RWYC020923-B	1	Raceway		CBLC020923-B	CS020923	FV020923		CC 5F
RWYC02831-A	1-1/2	Raceway		CBLC020831-A	CTC020103	CS020831		CC 5F
RWYC02831-B	1	Raceway		CBLC020831-B	CTC020103	PSH020831		CC 5F
RWYC02832-A	1-1/2	Raceway		CBLC020832-A	CTC020103	CS020832		CC 5F
RWYC02832-B	1	Raceway		CBLC020832-B	CTC020103	PSH020832		CC 5F
RWYC029101-A	1-1/2	Raceway		CBLC029101-A	CTC020102	ATS029101		CC 5F
RWYC029102-A	1-1/2	Raceway		CBLC029102-A	CTC020104	ATS029102		CC5F
RWYC029202-A	1-1/2	Raceway		CBLC029202-A	CTC020104	UPS029202		CC5F
RWYC029202-B	1	Raceway		CBLC029202-B	CTC020104	MBS029202	CCF01	CC5F
RWYC029302-A	1-1/2	Raceway		CBLC029302-A	CTC020104	UPS029302		CC5F
RWYC029302-B	1	Raceway		CBLC029302-B	CTC020104	MBS029302	CCF01	CC5F
RWYC230390-A	1	Raceway		CBLC230390-A	CAB230005	CAB230390		CC5F
RWYC230391-A	1	Raceway		CBLC230391-A	CAB230005	CAB230391	ADD #2	CC 5F/ADD#2
RWYC230491-A	1	Raceway		CBLC230491-A	CAB230005	CAB230491	ADD #2	CC 5F/ADD#2
RWYC230591-A	1	Raceway		CBLC230591-A	CAB230005	CAB230591	ADD #2	CC 5F/ADD#2
RWYD020001-A	2	Raceway		CBLD020001-A	CAB020001	NCE020011		CC5F
				CBLD020001-B				
				CBLD020001-C				
				CBLD020001-G				
RWYD020001-B	2	Raceway		CBLD020001-D	CAB020001	NCE020011		CC5F
				CBLD020001-E				
				CBLD020001-F				
RWYD020008-A	1	Raceway		CBLD020008-A	DRCP020008	NCE020011		CC5F
RWYD020210-A1	1	Raceway		CBLD020210-A	CAB020210	CTS020103		CC 5F
RWYD020210-B1	1	Raceway		CBLD020210-B	CAB020210	CAB020220		CC 5F
RWYD020210-C1	1	Raceway		CBLD020210-C	CAB020210	CTS020103		CC 5F
RWYD020210-C2	1	Raceway		CBLD020210-C	CTS020103	CAB020610B		CC 5F
RWYD020220-A1	1	Raceway		CBLD020220-A	CAB020220	CTS020103		CC 5F
RWYD020220-B1	1	Raceway		CBLD020220-B	CAB020220	CAB020230		CC 5F
RWYD020230-A1	1	Raceway		CBLD020230-A	CAB020230	CTS020103		CC 5F
RWYD020230-B1	1	Raceway		CBLD020230-B	CAB020230	CAB029001B		CC 5F
RWYD020410-A	1	Raceway		CBLD020410-A	CTS020107	VFD020410		CC 5F
RWYD020420-A	1	Raceway		CBLD020420-A	CTS020107	VFD020420		CC 5F
RWYD020430-A	1	Raceway		CBLD020430-A	CTS020107	VFD020430		CC 5F
RWYD020440-A	1	Raceway		CBLD020440-A	CTS020107	VFD020440		CC 5F
RWYD020510-A	1	Raceway		CBLD020510-A	CTS020101	VFD020510		CC 5F
RWYD020520-A	1	Raceway		CBLD020520-A	CTS020101	VFD020520		CC 5F
RWYD020530-A	1	Raceway		CBLD020530-A	CTS020101	VFD020530		CC 5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYD020540-A	1	Raceway		CBLD020540-A	CTS020101	VFD020540		CC 5F
RWYD020550-A	1	Raceway		CBLD020550-A	CTS020101	VFD020550		CC 5F
RWYD020610A	1-1/2	Raceway		CBLD020610A-A	CAB020610A	CAB020610B		CC 5F
				CBLD020610A-B				
RWYD020610B	1-1/2	Raceway		CBLD020610B-A	CAB020610B	CTS020104		
				CBLD020610B-B				
RWYD027801-A	1	Raceway		CBLV027801-A	WAP027801	DRCP027801A		CC 5F
RWYD027801A-A	1	Raceway		CBLD027801A-A	DRCP027801A	CTS020102		CC 5F
RWYD027901-A	1	Raceway		CBLD027901-A	CTS020102	CAB027901	**CCF 020 CHANGE ORDER PENDING**	CC5F
				CBLD027901-C				
				CBLD027901-E				
RWYD027901-B	**1**	**Raceway**		**CBLD027901-B**	**CTS020102**	**CAB027901**	**CCF 020 CHANGE ORDER PENDING.**	**CC5F**
				CBLD027901-D				
				CBLD027901-F				
RWYD027950-A	1-1/2	Raceway		CBLX027950-A	PBX027950	**CAB027901**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYD027953-A	1-1/2	Raceway		CBLX027953-A	PBX027953	**CAB027901**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYD027955-A	1-1/2	Raceway		CBLX027955-A	PBX027955	**CAB027901**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYD027956-A	1-1/2	Raceway		CBLX027956-A	PBX027956	**CAB027901**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYD027957-A	1-1/2	Raceway		CBLX027957-A	PBX027957	**CAB027901**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYD028901-A	1	Raceway		CBLD028901-A	CTS020102	CAB028901		CC5F
RWYD029001-H	1	Raceway		CBLD029001-H	CAB020001	CAB029001A		CC5F
RWYD029001A-A	1	Raceway		CBLD029001A-A	MCC029001A	CTS020101		CC5F
RWYD029001AA-A	1	Raceway		CBLD029001AA-A	CAB029001A	CTS020101		CC5F
				CBLD029001AA-B				
RWYD029001B-A	1	Raceway		CBLD029001B-A	MCC029001B	CTS020101		CC5F
RWYD029001BA-A	1	Raceway		CBLD029001BA-A	CAB029001B	CAB029001A		CC5F
RWYD029001BB-A	1	Raceway		CBLD029001BB-A	CAB029001B	CTS020101		CC5F
				CBLD029001BB-B				
RWYD029101-A	1	Raceway		CBLD029101-A	CTS020102	ATS029101		CC5F
RWYD029102-A	1	Raceway		CBLD029102-A	CTS020104	ATS029102		CC5F
RWYD029202-A	1	Raceway		CBLD029202-A	CTS020104	UPS029202		CC5F
RWYD029302-A	1	Raceway		CBLD029302-A	CTS020104	UPS029302		CC5F
RWYD230011-A	1	Raceway		CBLD230011-A	CAB230001	NCE230011		CC5F
RWYD230011-B	1	Raceway		CBLD230011-B	WAP	NCE230011		CC5F
RWYD230011-C	1	Raceway		CBLD230011-C	UVPC	NCE230011		CC5F
				CBLD230011-D				
RWYD230011-E	1	Raceway		CBLD230011-E	RacewayToFrmErr	RacewayToFrmErr		CC5F
				CBLD230011-F				
RWYD230611-A	1-1/2	Raceway		CBLD230611-A	NCE230011	PDC 23611	**CCF 020 CHANGE ORDER PENDING**	CC5F
				CBLD230611-B				
				CBLD230611-C				
				CBLD230611-D				
RWYD230619-A	1-1/2	Raceway		CBLD230619-A	NCE230011	PDC 23619	**CCF 020 CHANGE ORDER PENDING**	CC5F
				CBLD230619-B				
				CBLD230619-C				
				CBLD230619-D				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYD230631-A	1-1/2	Raceway		CBLD230631-A	NCE230011	PDC 23631	**CCF 020 CHANGE ORDER PENDING**	CC5F
				CBLD230631-B				
				CBLD230631-C				
				CBLD230631-D				
RWYD230639-A	1-1/2	Raceway		CBLD230639-A	NCE230011	PDC 23639	**CCF 020 CHANGE ORDER PENDING**	CC5F
				CBLD230639-B				
				CBLD230639-C				
				CBLD230639-D				
RWYF001002-E	4	Raceway	DB340001	CBLF020011AB-A	MH341002	HH001002		CC30A
RWYF020001-B	4	Raceway	DB020005	CBLF230005A-A	HH020001	JBX230001-B	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF230011BA-A				
RWYF020002-C	4	Raceway	DB020002	CBLX020002B	HH020001	HH24225	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF020005-B	4	Raceway	DB020005	CBLX020005D	HH020001	JBX230001-B	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
			DB020005					
RWYF020010-A	1-1/4	Raceway		CBLF020010-A	NCE020011	FACP020010	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF020010-B				
RWYF020011-A	2	Raceway		CBLF020011AB-A	JBX230001-A	JBX230001-B	NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	CC5F
RWYF020011-B	4	Raceway	DB020003	CBLF020011A-B	HH020001	NCE020011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC5F
				CBLF020011AB-A				
				CBLF210011A-D				
				CBLF230011A-C				
RWYF020011-C	4	Raceway	DB020003	CBLF020011BB-A	HH020001	NCE020011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC5F
				CBLF230005A-A				
				CBLF230011BA-A				
RWYF020011D-A	**1**	**Raceway**		**CBLF020011D-A**	**CAB020001**	**CTS020100**	**NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE. (CCF 020 CHANGE ORDER PENDING)**	**CC5F**
RWYF210001-A	4	Raceway	DB210001S	CBLX020006A	PBX210001S-A	CTS24	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF210001-C	4	Raceway	DB210001S	CBLF210011DA-A	CTS24	PBX210001S-A	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033.	CC5F
RWYF210001B-B	4	Raceway	DB210001S	CBLF210011A-D	CTS24	PBX210001S-B	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF210011-B	4	Raceway		CBLF210011A-D	PBX210001S-B	NCE210011	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF210011-C	2	Raceway		CBLF210011DA-A	PBX210001S-A	NCE210011	IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33.	CC5F
RWYF230001A-A	4	Raceway	DB23614A	CBLF020011AB-A	MH23613	JBX230001-A	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A
RWYF230001B-C	4	Raceway	DB020005	CBLF020011AB-A	JBX230001-B	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF230011A-C				
RWYF230005-A	1-1/2	Raceway		CBLF230005A-A	JBX230001-B	CAB230005	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF230010-A	**3/4**	**Raceway**		**CBLF230010-A**	**NCE230011**	**FACP230010**	**CCF 020 CHANGE ORDER PENDING**	CC5F
RWYF230011-B	2	Raceway		CBLF230011A-C	JBX230001-B	NCE230011	IDFM - 2" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF230011-D	1-1/2	Raceway		CBLF230011BA-A	JBX230001-B	NCE230011	IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF23613-A	4	Raceway	DB001001	CBLF020011AB-A	HH001002	MH23613	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
RWYF240000-C	1-1/2	Raceway		CBLF020011BB-A	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF210011A-D				
RWYF240011-A	**3**	**Raceway**		**CBLF020011A-B**	**NCE240011**	**CTS24**	**IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC5F**
				CBLF210011DA-A				
RWYF240011-B	**2**	**Raceway**		**CBLF020011BB-A**	**NCE240011**	**CTS24**	**IFDM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 020 CHANGE ORDER PENDING)**	**CC5F**
RWYF24224-C	1-1/2	Raceway		CBLF020011BB-A	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYF24224-E	1-1/2	Raceway		CBLF020011A-B	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24225-A	4	Raceway	DB020002	CBLF020011BB-A	HH24225	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF24225-B	4	Raceway	DB020002	CBLF020011A-B CBLF210011A-D	HH24225	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF24225-D	1-1/2	Raceway	DB240009S	CBLF210011A-D	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
RWYF24225-E	1-1/2	Raceway	DB240009S	CBLF020011A-B	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
RWYF330104-D	1-1/4	Raceway		CBLF020011AB-A	CTS330104	CTS340002B		
RWYF330105-D	1-1/4	Raceway		CBLF020011AB-A	CTS330201	CTS330105		
RWYF341002-A	1-1/4	Raceway		CBLF020011AB-A	CTS340014B	MH341002		
RWYFX210001	4	Raceway	DB210001S	CBLX020006B	PBX210001S-A	CTS24		
RWYM020110	1	Raceway		CBLM020110-A	JB020110	M020110		CC5F
RWYM020120-A	1	Raceway		CBLM020120-A	JB020120	M020120		CC5F
RWYM020130-A	1	Raceway		CBLM020130-A	JB020130	M020130		CC5F
RWYM027850-A	1	Raceway		CBLM027850-A	PAC027850	HS027850		CC5F
RWYM027850-B	1	Raceway		CBLM027850-B	HS027850	PA027850		CC5F
RWYM027851-A	1	Raceway		CBLM027851-A	HS027850	AMP027851		CC5F
RWYM027851-B	1	Raceway		CBLM027851-B	AMP027851	PA027851		CC5F
RWYM027852-A	1	Raceway		CBLM027852-A	AMP027851	AMP027852		CC5F
RWYM027852-B	1	Raceway		CBLM027852-B	AMP027852	PA027852		CC5F
RWYM027853-A	1	Raceway		CBLM027853-A	PAC027850	HS027853		CC5F
RWYM027853-B	1	Raceway		CBLM027853-B	HS027853	PA027853		CC5F
RWYM027854-A	1	Raceway		CBLM027854-A	HS027853	AMP027854		CC5F
RWYM027854-B	1	Raceway		CBLM027854-B	AMP027854	PA027854		CC5F
RWYM027855-A	1	Raceway		CBLM027855-A	AMP027854	AMP027855		CC5F
RWYM027855-B	1	Raceway		CBLM027855-B	AMP027855	PA027855		CC5F
RWYM027856-A	1	Raceway		CBLM027856-A	AMP027855	AMP027856		CC5F
RWYM027856-B	1	Raceway		CBLM027856-B	AMP027856	PA027856		CC5F
RWYM027857-A	1	Raceway		CBLM027857-A	PAC027850	HS027857		CC5F
RWYM027857-B	1	Raceway		CBLM027857-B	HS027857	PA027857		CC5F
RWYM027858-A	1	Raceway		CBLM027858-A	HS027857	AMP027858		CC5F
RWYM027858-B	1	Raceway		CBLM027858-B	AMP027858	PA027858		CC5F
RWYM027859-A	1	Raceway		CBLM027859-A	AMP027858	AMP027859		CC5F
RWYM027859-B	1	Raceway		CBLM027859-B	AMP027859	PA027859		CC5F
RWYM027860-A	1	Raceway		CBLM027860-A	AMP027859	AMP027860		CC5F
RWYM027860-B	1	Raceway		CBLM027860-B	AMP027860	PA027860		CC5F
RWYP000021-C	1	Raceway		CBLP000021-A	CTPR020103A	HH020002		CC5F/REV A
RWYP000022-C	1	Raceway		CBLP000022-A	CTPR020103B	HH020002		CC5F/REV A

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP020001-A	1	Raceway		CBLP020001-A	PNL029202	CAB020001		CC5F
RWYP020001-B	1	Raceway		CBLP020001-B	PNL029302	CAB020001		CC5F
RWYP020001-C	1	Raceway		CBLP020001-C	CTPR020104A	CAB020001		CC5F
RWYP020001-D	1	Raceway		CBLP029303-C	PNL029303	HH020001		CC5F/REV A
RWYP020010-A	1	Raceway		CBLP020010-A	PNL029302	FACP020010		CC5F
RWYP020011-A	1	Raceway		CBLP020011-A	PNL029202	NCE020011		CC5F
RWYP020011-B	1	Raceway		CBLP020011-B	PNL029302	NCE020011		CC5F
RWYP020105-A	1	Raceway		CBLP020105-A	PNL029303	DS020105		CC5F
RWYP020105-B	1	Raceway		CBLP020105-B	DS020105	DOOR M020105		CC5F
RWYP020108-A	1	Raceway		CBLP020108-A	PNL029303	DS020108		CC5F
RWYP020108-B	1	Raceway		CBLP020108-B	DS020108	DOOR M020108		CC5F
RWYP020110-A	2	Raceway		CBLP020110-A	CTPR020103A	JB020110		CC5F
RWYP020120-A	2	Raceway		CBLP020120-A	CTPR020103B	JB020120		CC5F
RWYP020123-A	2	Raceway		CBLP020123-A	CTPR020103A	AIT020123	ADD #2	CC5F/ADD#2
RWYP020130-A	2	Raceway		CBLP020130-A	CTPR020103A	JB020130		CC5F
RWYP020210-A1	1	Raceway		CBLP020210-A	PNL029201	CTPR020104A		CC5F
RWYP020210-A2	1	Raceway		CBLP020210-A	CTPR020103A	CAB020210		CC5F
RWYP020210-B1	1	Raceway		CBLP020210-B	PNL029302	CTPR020104A		CC5F
RWYP020210-B2	1	Raceway		CBLP020210-B	CTPR020103A	CAB020210		CC5F
RWYP020210-C1	1	Raceway		CBLP020210-C	CAB020210	TBX020210	ADD #3	CC5F/ADD#3
RWYP020210A-A	1	Raceway		CBLP020210A-A	TBX020210	M020210A	ADD #3	CC5F/ADD#3
RWYP020210B-A	1	Raceway		CBLP020210B-A	TBX020210	M020210B	ADD #3	CC5F/ADD#3
RWYP020220-A1	1	Raceway		CBLP020220-A	PNL029201	CTPR020104B		CC5F
RWYP020220-A2	1	Raceway		CBLP020220-A	CTPR020103B	CAB020220		CC5F
RWYP020220-B1	1	Raceway		CBLP020220-B	PNL029202	CTPR020104B		CC5F
RWYP020220-B2	1	Raceway		CBLP020220-B	CTPR020103B	CAB020220		CC5F
RWYP020220-C1	1	Raceway		CBLP020220-C	CAB020220	TBX020220	ADD #3	CC5F/ADD#3
RWYP020220A-A	1	Raceway		CBLP020220A-A	TBX020220	M020220A	ADD #3	CC5F/ADD#3
RWYP020220B-A	1	Raceway		CBLP020220B-A	TBX020220	M020220B	ADD #3	CC5F/ADD#3
RWYP020230-A1	1	Raceway		CBLP020230-A	PNL029201	CTPR020104A		CC5F
RWYP020230-A2	1	Raceway		CBLP020230-A	CTPR020103A	CAB020230		CC5F
RWYP020230-B1	1	Raceway		CBLP020230-B	PNL029302	CTPR020104A		CC5F
RWYP020230-B2	1	Raceway		CBLP020230-B	CTPR020103A	CAB020230		CC5F
RWYP020230-C1	1	Raceway		CBLP020230-C	CAB020230	TBX020230	ADD #3	CC5F/ADD#3
RWYP020230A-A	1	Raceway		CBLP020230A-A	TBX020230	M020230A	ADD #3	CC5F/ADD#3
RWYP020230B-A	1	Raceway		CBLP020230B-A	TBX020230	M020230B	ADD #3	CC5F/ADD#3
RWYP020301-A	1	Raceway		CBLP020301-A	PNL029302	CTPR020104A		CC5F
RWYP020301-B	1	Raceway		CBLP020301-A	CTPR020110A	LIT PNL020301		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP020305-A	1	Raceway		CBLP020305-A	CTPR020108A	AIT020305		CC5F
RWYP020509A-B	1	Raceway		CBLP020509-A	CTPR020110A	PNL020509		CC5F
RWYP020510-A	2	Raceway		CBLP020510-A	CTPR020101A	VFD020510		CC5F
RWYP020510-B	2	Raceway		CBLP020510-B	VFD020510	CTPR020106A		CC5F
RWYP020520-A	2	Raceway		CBLP020520-A	CTPR020101B	VFD020520		CC5F
RWYP020520-B	2	Raceway		CBLP020520-B	VFD020520	CTPR020106B		CC5F
RWYP020530-A	2	Raceway		CBLP020530-A	CTPR020101A	VFD020530		CC5F
RWYP020530-B	2	Raceway		CBLP020530-B	VFD020530	CTPR020106A		CC5F
RWYP020540-A	2	Raceway		CBLP020540-A	CTPR020101B	CTPR020102A		CC5F
RWYP020540-B	2	Raceway		CBLP020540-B	VFD020540	CTPR020106B		CC5F
RWYP020550-A	2	Raceway		CBLP020540-A	CTPR020101A	VFD020540		CC5F
RWYP020550-B	2	Raceway		CBLP020550-B	VFD020550	CTPR020106A		CC5F
RWYP020601-A	1	Raceway		CBLP020601-A	CTPR020103A	DS020601		CC5F
RWYP020601-B	1	Raceway		CBLP020601-B	DS020601	FV020601		CC5F
RWYP020610A-A	2	Raceway		CBLP020610A-A	XFMR020610	CAB020610A		CC5F
RWYP020610B-A	1	Raceway		CBLP020610B-A	PNL029302	CTPR020104A		CC5F
RWYP020610B-B	1	Raceway		CBLP020610B-A	CTPR020104A	CAB020610B		CC5F
RWYP020610Z-A	1	Raceway		CBLP020610Z-A	CTPR020103A	DS020610Z		CC5F
RWYP020610Z-B	1	Raceway		CBLP020610Z-B	DS020610Z	CRN020610 ENCL		CC5F
RWYP020800-A	1	Raceway		CBLP020800-A	PNL029302	CTPR020103A		CC5F
RWYP020800-B	1	Raceway		CBLP020800-A	CTPR020102A	PNL020800		CC5F
RWYP020910-A	2	Raceway		CBLP020910-A	CTPR020103A	DS020910		CC5F
RWYP020910-B	2	Raceway		CBLP020910-B	DS020910	M020910		CC5F
RWYP020911-A	1	Raceway		CBLP020911-A	CTPR020103A	DS020911		CC5F
RWYP020911-B	1	Raceway		CBLP020911-B	DS020911	FV020911		CC5F
RWYP020912-A	1	Raceway		CBLP020912-A	CTPR020103A	DS020912		CC5F
RWYP020912-B	1	Raceway		CBLP020912-B	DS020912	FV020912		CC5F
RWYP020913-A	1	Raceway		CBLP020913-A	CTPR020103A	DS020913		CC5F
RWYP020913-B	1	Raceway		CBLP020913-B	DS020913	FV020913		CC5F
RWYP020919-A	2	Raceway		CBLP020919-A	CTPR020103A	FIT020919	ADD #2	CC5F/ADD#2
RWYP020920-A	2	Raceway		CBLP020920-A	CTPR020103B	DS020920		CC5F
RWYP020920-B	2	Raceway		CBLP020920-B	DS020920	M020920		CC5F
RWYP020921-A	1	Raceway		CBLP020921-A	CTPR020103B	DS020921		CC5F
RWYP020921-B	1	Raceway		CBLP020921-B	DS020921	FV020921		CC5F
RWYP020922-A	1	Raceway		CBLP020922-A	CTPR020103B	DS020922		CC5F
RWYP020922-B	1	Raceway		CBLP020922-B	DS020922	FV020922		CC5F
RWYP020923-A	1	Raceway		CBLP020923-A	CTPR020103B	DS020923		CC5F
RWYP020923-B	1	Raceway		CBLP020923-B	DS020923	FV020923		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP02100-A	1	Raceway		CBLP022100-A	CTPR020103A	DS020100		CC5F
RWYP02100-B	1	Raceway		CBLP022100-B	DS020100	MME 020100 ENCL		CC5F
RWYP027850-A	1	Raceway		CBLP027850-A	CTPR020105A	CAB PAC027850		CC5F
RWYP027901-A	1	Raceway		CBLP027901-A	PNL029302	CTPR020104A		CC5F
RWYP027901-B	1	Raceway		CBLP027901-A	CTPR020102A	CAB027901		CC5F
RWYP028001-A	1	Raceway		CBLP028001-A	PNL029303	DS028001		
RWYP028002-A	1	Raceway		CBLP028002-A	PNL029303	DS028002		
RWYP028003-A	1	Raceway		CBLP028003-A	PNL029303	DS028003		
RWYP028031-A	1	Raceway		CBLP028031-A	PNL029303	DS028031		
RWYP028032-A	1	Raceway		CBLP028032-A	PNL029303	DS028032		
RWYP028033-A	1	Raceway		CBLP028033-A	PNL029303	DS028033		
RWYP028100-A	1-1/2	Raceway		CBLP028100-A	PNL029201	DS028100		
RWYP02831-A	1	Raceway		CBLP020831-A	PNL029302	CTPR020104A		CC5F
RWYP02831-B	1	Raceway		CBLP020831-A	CTPR020103A	M020831		CC5F
RWYP02832-A	1	Raceway		CBLP020832-A	PNL029202	CTPR020104B		CC5F
RWYP02832-B	1	Raceway		CBLP020832-A	CTPR020103B	M020832		CC5F
RWYP028410-A	1	Raceway		CBLP028410-A	PNL029303	DS028410		
RWYP028420-A	1	Raceway		CBLP028420-A	PNL029303	DS028420		
RWYP028610-A	1	Raceway		CBLP028601-A	PNL029303	WH028610		
RWYP028901-A	1	Raceway		CBLP028901-A	PNL029202	CTPR020104B		CC5F
RWYP028901-B	1	Raceway		CBLP028901-A	CTPR020102B	CAB028901		CC5F
RWYP029001A-A	1	Raceway		CBLP029001A-A	PNL029302	CAB029001A		CC5F
RWYP029001A-A1	4	Raceway		CBLP029001A-A1	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A2	4	Raceway		CBLP029001A-A2	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A3	4	Raceway		CBLP029001A-A3	LVSWGR21A	PBX210001P		CC5F
RWYP029001A-A4	4	Raceway	DB210001P	CBLP029001A-A4	PBX210001P	PBX210001P	SPARE RACEWAY	CC5F
RWYP029001A-B	1	Raceway		CBLP029001A-B	CTPR020101A	CAB029001A		CC5F
RWYP029001A-B1	4	Raceway	DB210001P	CBLP029001A-A1	PBX210001P	RWYP029001A-C1		CC5F
RWYP029001A-B2	4	Raceway	DB210001P	CBLP029001A-A2	PBX210001P	RWYP029001A-C2		CC5F
RWYP029001A-B3	4	Raceway	DB210001P	CBLP029001A-A3	PBX210001P	RWYP029001A-C3		CC5F
RWYP029001A-B4	4	Raceway	DB210001P	CBLP029001A-A4	PBX210001P	RWYP029001A-C4		CC5F
RWYP029001A-C	1	Raceway		CBLP029001A-C	CTPR020101A	MCC029001A		
RWYP029001A-C1	4	Raceway		CBLP029001A-A1	RWYP029001A-B1	RWYP029001A-D1		CC5F
RWYP029001A-C2	4	Raceway		CBLP029001A-A2	RWYP029001A-B2	RWYP029001A-D2		CC5F
RWYP029001A-C3	4	Raceway		CBLP029001A-A3	RWYP029001A-B3	RWYP029001A-D3		CC5F
RWYP029001A-C4	4	Raceway		CBLP029001A-A4	RWYP029001A-B4	RWYP029001A-D4		CC5F
RWYP029001A-D1	4	Raceway	DB240011PC	CBLP029001A-A1	RWYP029001A-C1	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001A-D2	4	Raceway	DB240011PC	CBLP029001A-A2	RWYP029001A-C2	MH24224	EXISTING DUCTBANK	EXIST

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP029001A-D3	4	Raceway	DB240011PC	CBLP029001A-A3	RWYP029001A-C3	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001A-D4	4	Raceway	DB240011PC	CBLP029001A-A4	RWYP029001A-C4	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001A-E1	4	Raceway	DB240009PC	CBLP029001A-A1	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001A-E2	4	Raceway	DB240009PC	CBLP029001A-A2	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001A-E3	4	Raceway	DB240009PC	CBLP029001A-A3	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001A-E4	4	Raceway	DB240009PC	CBLP029001A-A4	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001A-F1	4	Raceway	DB020001	CBLP029001A-A1	MH24225	MCC029001A		CC5F
RWYP029001A-F2	4	Raceway	DB020001	CBLP029001A-A2	MH24225	MCC029001A		CC5F
RWYP029001A-F3	4	Raceway	DB020001	CBLP029001A-A3	MH24225	MCC029001A		CC5F
RWYP029001A-F4	4	Raceway	DB020001	CBLP029001A-A4	MH24225	MCC029001A		CC5F
RWYP029001B-A	1	Raceway		CBLP029001B-A	PNL029202	CAB029001B		CC5F
RWYP029001B-A1	4	Raceway		CBLP029001B-A1	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A2	4	Raceway		CBLP029001B-A2	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A3	4	Raceway		CBLP029001B-A3	LVSWGR21B	PBX210001P		CC5F
RWYP029001B-A4	1	Raceway		CBLP029001B-A4	PBX210001P	PBX210001P		
RWYP029001B-B	1	Raceway		CBLP029001B-B	CTPR020101B	CAB029001B		CC5F
RWYP029001B-B1	4	Raceway	DB210001P	CBLP029001B-A1	PBX210001P	RWYP029001B-C1		CC5F
RWYP029001B-B2	4	Raceway	DB210001P	CBLP029001B-A2	PBX210001P	RWYP029001B-C2		CC5F
RWYP029001B-B3	4	Raceway	DB210001P	CBLP029001B-A3	PBX210001P	RWYP029001B-C3		CC5F
RWYP029001B-B4	4	Raceway	DB210001P	CBLP029001B-A4	PBX210001P	RWYP029001B-C4		CC5F
RWYP029001B-C	1	Raceway		CBLP029001B-C	CTPR020101B	MCC029001B		
RWYP029001B-C1	4	Raceway		CBLP029001B-A1	RWYP029001B-B1	RWYP029001B-D1		CC5F
RWYP029001B-C2	4	Raceway		CBLP029001B-A2	RWYP029001B-B2	RWYP029001B-D2		CC5F
RWYP029001B-C3	4	Raceway		CBLP029001B-A3	RWYP029001B-B3	RWYP029001B-D3		CC5F
RWYP029001B-C4	4	Raceway		CBLP029001B-A4	RWYP029001B-B4	RWYP029001B-D4		CC5F
RWYP029001B-D1	4	Raceway	DB240011PC	CBLP029001B-A1	RWYP029001B-C1	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001B-D2	4	Raceway	DB240011PC	CBLP029001B-A2	RWYP029001B-C2	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001B-D3	4	Raceway	DB240011PC	CBLP029001B-A3	RWYP029001B-C3	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001B-D4	4	Raceway	DB240011PC	CBLP029001B-A4	RWYP029001B-C4	MH24224	EXISTING DUCTBANK	EXIST
RWYP029001B-E1	4	Raceway	DB240009PC	CBLP029001B-A1	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001B-E2	4	Raceway	DB240009PC	CBLP029001B-A2	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001B-E3	4	Raceway	DB240009PC	CBLP029001B-A3	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001B-E4	4	Raceway	DB240009PC	CBLP029001B-A4	MH24224	MH24225	EXISTING DUCTBANK	EXIST
RWYP029001B-F1	4	Raceway	DB020001	CBLP029001B-A1	MH24225	MCC029001B		CC5F
RWYP029001B-F2	4	Raceway	DB020001	CBLP029001B-A2	MH24225	MCC029001B		CC5F
RWYP029001B-F3	4	Raceway	DB020001	CBLP029001B-A3	MH24225	MCC029001B		CC5F
RWYP029001B-F4	4	Raceway	DB020001	CBLP029001B-A4	MH24225	MCC029001B		CC5F
RWYP029101-A	2-1/2	Raceway		CBLP029101-A	MCC029001A	ATS029101		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP029101-B	2-1/2	Raceway		CBLP029101-B	MCC029001B	ATS029101		CC5F
RWYP029201-A	2-1/2	Raceway		CBLP029201-A	ATS029201	PNL029201		CC5F
RWYP029201A-A	1	Raceway		CBLP029201A-A	PNL029201	RDWY LTG		CC5F
RWYP029202-A	1-1/2	Raceway		CBLP029202-A	ATS029102	XFMR029202		CC5F
RWYP029202-B	2-1/2	Raceway		CBLP029202-B	XFMR029202	CB029202		CC5F
RWYP029202-C	2-1/2	Raceway		CBLP029202-C	CB029202	MBS029202		CC5F
RWYP029202-E	2-1/2	Raceway		CBLP029202-E	UPS029202	MBS029202		CC5F
				CBLP029202-F				
RWYP029202-G	2-1/2	Raceway		CBLP029202-G	MBS029202	PNL029202		CC5F
RWYP029301-A	1-1/2	Raceway		CBLP029301-A	PNL029201	XFMR029301		CC5F
RWYP029301-B	2-1/2	Raceway		CBLP029301-B	XFMR029301	PNL029301		CC5F
RWYP029302-A	1-1/2	Raceway		CBLP029302-A	PNL029201	XFMR029302		CC5F
RWYP029302-B	2-1/2	Raceway		CBLP029302-B	XFMR029302	CB029302		CC5F
RWYP029302-D	2-1/2	Raceway		CBLP029302-D	MBS029302	UPS029302		CC5F
				CBLP029302-F				
RWYP029302-E	2-1/2	Raceway		CBLP029302-E	CB029302	MBS029302		CC5F
RWYP029302-G	2-1/2	Raceway		CBLP029302-G	MBS029302	PNL029302		CC5F
RWYP029303-A	1-1/2	Raceway		CBLP029303-A	PNL029201	XFMR029303		CC5F
RWYP029303-B	2-1/2	Raceway		CBLP029303-B	XFMR029303	PNL029303		CC5F
RWYP21001C-A	1	Raceway		CBLP230390-A	HH21002C	HH21001C		CC5F
RWYP21002C-A	1	Raceway		CBLP230390-A	MCC21A	HH21002C		CC5F
RWYP230005-A	1	Raceway		CBLP230005-A	PBD23661	CAB230005		CC5F
RWYP230005-B	1	Raceway		CBLP230005-B	PBD23662	CAB230005		CC5F
RWYP230011-A	1	Raceway		CBLP230011-A	PBD23661	TBX230011		CC5F
RWYP230011-B	1	Raceway		CBLP230011-B	PBD23662	NCE230011		CC5F
RWYP230390-A	1	Raceway		CBLP230390-A	HH21001C	DS230390		CC5F
RWYP230390-B	1	Raceway		CBLP230390-B	DS230390	CAB230390		CC5F
RWYP230391-A	1	Raceway		CBLP230391-A	PBD23661	CAB230391		CC5F
RWYP230391-B	1	Raceway		CBLP230391-B	PBD23662	CAB230391		CC5F
RWYP230491-A	1	Raceway		CBLP230491-A	PBD23661	CAB230491		CC5F
RWYP230491-B	1	Raceway		CBLP230491-B	PBD23662	CAB230491		CC5F
RWYP230591-A	1	Raceway		CBLP230591-A	PBD23661	CAB230591		CC5F
RWYP230591-B	1	Raceway		CBLP230591-B	PBD23662	CAB230591		CC5F
RWYPX020001A	2	Raceway	DB020001	CBLX020001A	3W ELEC ROOM	MH24225		CC5F
RWYPX020001B	2	Raceway	DB020001	CBLX020001B	3W ELEC ROOM	MH24225		CC5F
RWYPX020001C	2	Raceway	DB020001	CBLX020001C	3W ELEC ROOM	MH24225		CC5F
RWYS020110-A	1	Raceway		CBLS020110-A	CTS020103	CS020110		CC5F
				CBLS020110-B				
RWYS020120-A	1	Raceway		CBLS020120-A	CTS020103	CS020120		CC5F
				CBLS020120-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYS020123-A	1	Raceway		CBLS020123-A	AIT020123	CTC020103		CC5F
RWYS020130-A	1	Raceway		CBLS020130-A	CTS020103	CS020130		CC5F
				CBLS020130-B				
RWYS020210-A	1	Raceway		CBLS020210-A	CAB020210	LIT020210		CC5F
RWYS020210-B	1	Raceway		CBLS020210-B	CAB020210	LSHH020210		CC5F
RWYS020210-C	1	Raceway		CBLS020210-C	CAB020210	TBX020210		CC5F
RWYS020210-D	1	Raceway		CBLS020210-D	CAB020210	TBX020210		CC5F
RWYS020220-A	1	Raceway		CBLS020220-A	CAB020220	LIT020220		CC5F
RWYS020220-B	1	Raceway		CBLS020220-B	CAB020220	LSHH020220		CC5F
RWYS020220-C	1	Raceway		CBLS020220-C	CAB020220	TBX020220		CC5F
RWYS020220-D	1	Raceway		CBLS020220-D	CAB020220	TBX020220		CC5F
RWYS020230-A	1	Raceway		CBLS020230-A	CAB020230	LIT020230		CC5F
RWYS020230-B	1	Raceway		CBLS020230-B	CAB020230	LSHH020230		CC5F
RWYS020230-C	1	Raceway		CBLS020230-C	CAB020230	TBX020230		CC5F
RWYS020230-D	1	Raceway		CBLS020230-D	CAB020230	TBX020230		CC5F
RWYS020300-A	1	Raceway		CBLS020305-A	CTS020108	AIT020305		CC5F
RWYS020301-A	1	Raceway		CBLS020301-A	CAB029001A	CTS020101		CC5F
RWYS020301-B	1	Raceway		CBLS020301-A	CTS020110	LIT PNL020301		CC5F
RWYS020301-C	1	Raceway		CBLV020301-A	LIT PNL020301	LIT020301		CC5F
RWYS020302-A	1	Raceway		CBLS020302-A	CAB029001B	CTS020101		CC5F
RWYS020302-B	1	Raceway		CBLS020302-A	CTS020110	LIT PNL020301		CC5F
RWYS020302-C	1	Raceway		CBLV020302-A	LIT PNL020301	LIT020302		CC5F
RWYS020302A-A	1	Raceway		CBLS020302A-A	CTS020109	FIT020302		CC5F
RWYS020303A-A	1	Raceway		CBLS020303A-A	CTS020109	PIT020303A		CC5F
RWYS020303B-A	1	Raceway		CBLS020303B-A	CTS020109	PIT020303B		CC5F
RWYS020509-A	1	Raceway		CBLS020509-A	CTS020120	PIT020509		CC5F
RWYS020510-A	1	Raceway		CBLS020510-A	VFD020510	CTS020106		CC5F
				CBLS020510-B				
RWYS020510-B	1	Raceway		CBLS020510-A	CTS020120	CS020510		CC5F
				CBLS020510-B				
RWYS020520-A	1	Raceway		CBLS020520-A	VFD020520	CTS020106		CC5F
				CBLS020520-B				
RWYS020520-B	1	Raceway		CBLS020520-A	CTS020121	CS020520		CC5F
				CBLS020520-B				
RWYS020530-A	1	Raceway		CBLS020530-A	VFD020530	CTS020106		CC5F
				CBLS020530-B				
RWYS020530-B	1	Raceway		CBLS020530-A	CTS020122	CS020530		CC5F
				CBLS020530-B				
RWYS020540-A	1	Raceway		CBLS020540-A	VFD020540	CTS020106		CC5F
				CBLS020540-B				
RWYS020540-B	1	Raceway		CBLS020540-A	CTS020123	CS020540		CC5F
				CBLS020540-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYS020550-A	1	Raceway		CBLS020550-A	VFD020550	CTS020106		CC5F
				CBLS020550-B				
RWYS020550-B	1	Raceway		CBLS020550-A	CTS020124	CS020550		CC5F
				CBLS020550-B				
RWYS020600-A	1	Raceway		CBLS020600-A	CTS020104	FIT020600		CC5F
RWYS020601-A	1	Raceway		CBLS020601-A	CTS020103	CS020601		CC5F
RWYS020601-B	1	Raceway		CBLS020601-B	CS020601	FV020601		CC5F
RWYS020610-A	1	Raceway		CBLS020610-A	CAB020001	CTS020104		CC5F
RWYS020610-B	1	Raceway		CBLS020610-B	CAB020610A	LSH020610		CC5F
RWYS020610B-A	1	Raceway		CBLS020610B-A	CAB020610B	CAB029001A		CC5F
RWYS020815-A	1	Raceway		CBLS020815-A	CTS020103	AIT020815		CC5F
RWYS020815-B	1	Raceway		CBLS020815-B	AIT020815	AE020815		CC5F
RWYS020815A-A	1	Raceway		CBLS020815A-A	AIT020815	XA020815A		CC5F
RWYS020815B-A	1	Raceway		CBLS020815B-A	AIT020815	XA020815B		CC5F
RWYS020910A-A	1	Raceway		CBLS020910A-A	CTS020103	TIT020910A		CC5F
RWYS020910B-A	1	Raceway		CBLS020910B-A	CTS020103	TIT020910B		CC5F
RWYS020911-A	1	Raceway		CBLS020911-A	CTS020103	CS020911		CC5F
RWYS020911-B	1	Raceway		CBLS020911-B	CS020911	FV020911		CC5F
RWYS020912-A	1	Raceway		CBLS020912-A	CTS020103	CS020912		CC5F
RWYS020912-B	1	Raceway		CBLS020912-B	CS020912	FV020912		CC5F
RWYS020913-A	1	Raceway		CBLS020913-A	CTS020103	CS020913		CC5F
RWYS020913-B	1	Raceway		CBLS020913-B	CS020913	FV020913		CC5F
RWYS020919-A	1	Raceway		CBLS020919-A	FIT020919	CTC020103		CC5F
RWYS020920A-A	1	Raceway		CBLS020920A-A	CTS020103	TIT020920A		CC5F
RWYS020920B-A	1	Raceway		CBLS020920B-A	CTS020103	TIT020920B		CC5F
RWYS020921-A	1	Raceway		CBLS020921-A	CTS020103	CS020921		CC5F
RWYS020921-B	1	Raceway		CBLS020921-B	CS020921	FV020921		CC5F
RWYS020922-A	1	Raceway		CBLS020922-A	CTS020103	CS020922		CC5F
RWYS020922-B	1	Raceway		CBLS020922-B	CS020922	FV020922		CC5F
RWYS020923-A	1	Raceway		CBLS020923-A	CTS020103	CS020923		CC5F
RWYS020923-B	1	Raceway		CBLS020923-B	CS020923	FV020923		CC5F
RWYS02831-A	1	Raceway		CBLS020831-A	CTS020103	CS020831		CC5F
RWYS02832-A	1	Raceway		CBLS020832-A	CTS020103	CS020832		CC5F
RWYS230391-A	1	Raceway		CBLS230391-A	CAB230005	CAB230391		CC5F
RWYS230391-B	1	Raceway		CBLS230391-B	CAB230391	LIT230391		CC5F
RWYS230491-A	1	Raceway		CBLS230491-A	CAB230005	CAB230491		CC5F
RWYS230491-B	1	Raceway		CBLS230491-B	CAB230491	LIT230491		CC5F
RWYS230591-A	1	Raceway		CBLS230591-A	CAB230005	CAB230591		CC5F
RWYS230591-B	1	Raceway		CBLS230591-B	CAB230591	LIT230591		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYSX020001A	4	Raceway	DB020002	CBLX020002A	HH020001	HH24225		CC5F
RWYSX020003A	4	Raceway	DB020003	CBLX020003A	3W ELEC ROOM	HH020001		CC5F
RWYSX020003B	4	Raceway	DB020003	CBLX020003B	3W ELEC ROOM	HH020001		CC5F
RWYSX020005-A	4	Raceway	DB020005	CBLX020005A	HH020001	JBX230001-B		CC5F
RWYSX020005-B	4	Raceway	DB020005	CBLX020005B	HH020001	JBX230001-B		CC5F
RWYSX020005-C	4	Raceway	DB020005	CBLX020005C	HH020001	JBX230001-B		CC5F
RWYX210001P-A	1	Raceway		CBLX210001P-A	CTPS24	PBX210001P		

Engineer: JDC
January 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD050001A-A	3/4	Raceway		CBLD050001A-A	NCR050002	SWGR LV-50		CC30A
RWYD050002A-A	3/4	Raceway		CBLD050002A-A	NCE050004	NCR050002		CC30A
RWYF050004A-A	4	Raceway		CBLF050001A-A	CTS000005A	NCE050004	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC 30A
RWYF050004B-A	4	Raceway		CBLF050001B-A	CTS000006B	NCE050004	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF330011CC-A				
RWYF050004CA-A	2	Raceway		CBLF050001CA-A	CTS000005A	NCE050004	IDFM - 2" - 4 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF160011BA-A				
RWYF050010-A	**1**	**Raceway**		**CBLF050010-A**	**NCE050004**	**FACP050010**	**INNERDUCT NOT REQUIRED FOR SINGLE FIBER OPTIC CONDUCTOR. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
RWYH500000A-A	4	Raceway		CBLH500000A-A	CTH20133A	SUB50	EXISTING RACEWAY TO BE RENAMED	EXISTING
RWYH500000B-A	4	Raceway		CBLH500000B-A	CTH20133B	SUB50	EXISTING RACEWAY TO BE RENAMED	EXISTING
RWYP050001A-A	3/4	Raceway		CBLP050001A-A	PBD	SWGR LV-50		CC30A

Engineer: JDC
January 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC100101	6	Tray		CBLC150101-A				EXISTING
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
				CBLC150112-A				
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
CTC100102	6	Tray		CBLC150101-A				EXISTING
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
				CBLC150112-A				
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
CTC100104	6	Tray		CBLC150101-A				EXISTING
				CBLC150102-A				
				CBLC150103-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
CTPR100101	6	Tray		CBLP150101-A				EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR100102	6	Tray		CBLP150101-A				EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR10C	6	Tray		CBLP150101-A				EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR10F	6	Tray		CBLP150101-A				EXISTING
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
				CBLP150112-A				
				CBLP150113-A				
				CBLP150114-A				
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
CTPR150001	6	Tray		CBLP150101-A				CC30B
				CBLP150102-A				
				CBLP150103-A				
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
CTS100101	6	Tray		CBLF000011BA-A				EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				
CTS100103	6	Tray		CBLF000011BA-A				EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTS100105	6	Tray		CBLF000011BA-A				EXISTING
				CBLF050001CA-A				
				CBLF100011A-A				
				CBLF100011A-B				
				CBLF100011BA-B				
CTS150002	6	Tray		CBLC150101-A				CC30B
				CBLC150102-A				
				CBLC150103-A				
				CBLC150104-A				
				CBLC150105-A				
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
CTS150004	6	Tray		CBLC150112-A				CC30B
				CBLC150113-A				
				CBLC150114-A				
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
RWYC109101-A	3/4	Raceway		CBLC109101-A	CAB109101	MCC109101		CC30B
				CBLC109101-B				
RWYC109102-A	3/4	Raceway		CBLC109102-A	CAB109102	MCC109102		CC30B
				CBLC109102-B				
RWYC109103-A	3/4	Raceway		CBLC109103-A	CAB109101	MCC109103		CC30B
				CBLC109103-B				
RWYC109104-A	3/4	Raceway		CBLC109104-A	CAB109102	MCC109104		CC30B
				CBLC109104-B				
RWYC150101-A	1-1/4	Raceway		CBLC150101-A	CTS150002	CS150101		CC30B
RWYC150101-B	1	Raceway		CBLC150101-B	CS150101	TBX150101		CC30B
RWYC150102-A	1-1/4	Raceway		CBLC150102-A	CTS150002	CS150102		CC30B
RWYC150102-B	3/4	Raceway		CBLC150102-B	CS150102	TBX150102		CC30B
RWYC150103-A	1-1/4	Raceway		CBLC150103-A	HH151002	CS150103		CC30B
RWYC150103-B	1	Raceway		CBLC150103-B	CS150103	TBX150103		CC30B
RWYC150104-A	1-1/4	Raceway		CBLC150104-A	HH151002	CS150104		CC30B
RWYC150104-B	1	Raceway		CBLC150104-B	CS150104	TBX150104		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC150105-A	1-1/4	Raceway		CBLC150105-A	HH151004	CS150105		CC30B
RWYC150105-B	1	Raceway		CBLC150105-B	CS150105	TBX150105		CC30B
RWYC150106-A	1-1/4	Raceway		CBLC150106-A	HH151004	CS150106		CC30B
RWYC150106-B	1	Raceway		CBLC150106-B	CS150106	TBX150106		CC30B
RWYC150107-A	1-1/4	Raceway		CBLC150107-A	HH151004	CS150107		CC30B
RWYC150107-B	1	Raceway		CBLC150107-B	CS150107	TBX150107		CC30B
RWYC150108-A	1-1/4	Raceway		CBLC150108-A	HH151004	CS150108		CC30B
RWYC150108-B	1	Raceway		CBLC150108-B	CS150108	TBX150108		CC30B
RWYC150109-A	1-1/4	Raceway		CBLC150109-A	HH151004	CS150109		CC30B
RWYC150109-B	1	Raceway		CBLC150109-B	CS150109	TBX150109		CC30B
RWYC150110-A	1-1/4	Raceway		CBLC150110-A	HH151004	CS150110		CC30B
RWYC150110-B	1	Raceway		CBLC150110-B	CS150110	TBX150110		CC30B
RWYC150111-A	1-1/4	Raceway		CBLC150111-A	HH151004	CS150111		CC30B
RWYC150111-B	1	Raceway		CBLC150111-B	CS150111	TBX150111		CC30B
RWYC150112-A	1-1/4	Raceway		CBLC150112-A	CTS150004	CS150112		CC30B
RWYC150112-B	1	Raceway		CBLC150112-B	CS150112	TBX150112		CC30B
RWYC150113-A	1-1/4	Raceway		CBLC150113-A	CTS150004	CS150113		CC30B
RWYC150113-B	1	Raceway		CBLC150113-B	CS150113	TBX150113		CC30B
RWYC150114-A	1-1/4	Raceway		CBLC150114-A	HH151008	CS150114		CC30B
RWYC150114-B	1	Raceway		CBLC150114-B	CS150114	TBX150114		CC30B
RWYC150115-A	1-1/4	Raceway		CBLC150115-A	HH151008	CS150115		CC30B
RWYC150115-B	1	Raceway		CBLC150115-B	CS150115	TBX150115		CC30B
RWYC150116-A	1-1/4	Raceway		CBLC150116-A	HH151010	CS150116		CC30B
RWYC150116-B	1	Raceway		CBLC150116-B	CS150116	TBX150116		CC30B
RWYC150117-A	1-1/4	Raceway		CBLC150117-A	HH151010	CS150117		CC30B
RWYC150117-B	1	Raceway		CBLC150117-B	CS150117	TBX150117		CC30B
RWYC150118-A	1-1/4	Raceway		CBLC150118-A	HH151010	CS150118		CC30B
RWYC150118-B	1	Raceway		CBLC150118-B	CS150118	TBX150118		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC150119-A	1-1/4	Raceway		CBLC150119-A	HH151010	CS150119		CC30B
RWYC150119-B	1	Raceway		CBLC150119-B	CS150119	TBX150119		CC30B
RWYC151002-A	3-1/2	Raceway	DB150002	CBLC150107-A	CTS150002	HH151002		CC30B
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
RWYC151004-A	4	Raceway	DB150004	CBLC150105-A	HH151002	HH151004		CC30B
				CBLC150106-A				
				CBLC150107-A				
				CBLC150108-A				
				CBLC150109-A				
				CBLC150110-A				
				CBLC150111-A				
RWYC151008-A	4	Raceway	DB150008	CBLC150114-A	CTS150004	HH151008		CC30B
				CBLC150115-A				
				CBLC150116-A				
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
RWYC151010-A	3-1/2	Raceway	DB150010	CBLC150116-A	HH151008	HH151010		CC30B
				CBLC150117-A				
				CBLC150118-A				
				CBLC150119-A				
RWYD100001-H	**1**	**Raceway**		**CBLD100001-H**	**CAB109105B**	**CAB100001**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD109101-D	3/4	Raceway		CBLD109101-D	NCE100011	MCC109101		CC30B
RWYD109102-D	3/4	Raceway		CBLD109102-D	NCE100011	MCC109102		CC30B
RWYD109103-D	3/4	Raceway		CBLD109103-D	NCE100011	MCC109103		CC30B
RWYD109104-D	3/4	Raceway		CBLD109104-D	NCE100011	MCC109104		CC30B
RWYD109105A-A	3/4	Raceway		CBLD109105A-A	MCC109105A	CAB109105A		CC30B
RWYD109105A-B	3/4	Raceway		CBLD109105A-B	MCC109105A	CAB109105A		CC30B
RWYD109105A-C	3/4	Raceway		CBLD109105A-C	NCE100011	MCC109105A		CC30B
RWYD109105A-D	**1**	Raceway		CBLD109105A-D	NCE100011	CAB109105A	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD109105A-F				
RWYD109105A-E	3/4	Raceway		CBLD109105A-E	CAB100001	CAB109105A		CC30B
RWYD109105B-A	3/4	Raceway		CBLD109105B-A	MCC109105B	CAB109105B		CC30B
RWYD109105B-B	3/4	Raceway		CBLD109105B-B	MCC109105B	CAB109105B		CC30B
RWYD109105B-C	3/4	Raceway		CBLD109105B-C	NCE100011	MCC109105B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD109105B-D	**1**	Raceway		CBLD109105B-D	NCE100011	CAB109105B	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD109105B-F				
RWYD109105B-E	3/4	Raceway		CBLD109105B-E	CAB109105A	CAB109105B		CC30B
RWYF100010-A	**1**	**Raceway**		**CBLF100010-A**	**NCE100011**	**FACP100010**	**INNERDUCT NOT REQUIRED FOR A SINGLE FIBER CONDUCTOR. (CCF 020 CHANGE PENDING)**	**CC30A**
RWYF100011A-A	3-1/2	Raceway		CBLF050001CA-A	INSTR1010	CTS000005A	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007)	CC30A/CCF 007
				CBLF100011A-A				
RWYF100011A-B	3-1/2	Raceway		**CBLF000011BA-A**	INSTR1010	CTS000006B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 007) **(CCF 020 CHANGE ORDER PENDING)**	CC30A/CCF 007
				CBLF100011A-B				
				~~**CBLF100011BA-B**~~				
RWYP109101-A	3/4	Raceway		CBLP109101-C	JP10	MCC109101		CC30B
RWYP109101-B	3/4	Raceway		CBLP109101-D	JP10	CAB109101		CC30B
RWYP109102-A	3/4	Raceway		CBLP109102-C	PNL109302	MCC109102		CC30B
RWYP109103-A	3/4	Raceway		CBLP109103-C	JP10	MCC109103		CC30B
RWYP109103-B	3/4	Raceway		CBLP109103-D	JP10	CAB109103		CC30B
RWYP109104-A	3/4	Raceway		CBLP109104-C	PNL109302	MCC109104		CC30B
RWYP109105A-A1	3-1/2	Raceway		CBLP109105A-A1	CTP10C	MCC109105A		CC30B
RWYP109105A-A2	3-1/2	Raceway		CBLP109105A-A2	CTP10C	MCC109105A		CC30B
RWYP109105A-A3	3-1/2	Raceway		CBLP109105A-A3	CTP10C	MCC109105A		CC30B
RWYP109105A-B	3/4	Raceway		CBLP109105A-B	PNL109302	MCC109105A		CC30B
RWYP109105A-C	3/4	Raceway		CBLP109105A-C	JP10	MCC109105A		CC30B
RWYP109105A-D	3/4	Raceway		CBLP109105A-D	JP10	CAB109105A		CC30B
RWYP109105A-EA	3/4	Raceway		CBLP109105A-E	LLP10A	CTP 10E		CC30B
RWYP109105A-EB	3/4	Raceway		CBLP109105A-E	CTP 10A	CAB109105A		CC30B
RWYP109105A-F	3/4	Raceway		CBLP109105A-F	JP10	PMM109105A		CC30B
RWYP109105B-A1	3-1/2	Raceway		CBLP109105B-A1	CTP10C	MCC109105B		CC30B
RWYP109105B-A2	3-1/2	Raceway		CBLP109105B-A2	CTP10C	MCC109105B		CC30B
RWYP109105B-A3	3-1/2	Raceway		CBLP109105B-A3	CTP10C	MCC109105B		CC30B
RWYP109105B-B	3/4	Raceway		CBLP109105B-B	PNL109302	MCC109105B		CC30B
RWYP109105B-C	3/4	Raceway		CBLP109105B-C	PNL109302	MCC109105B		CC30B
RWYP109105B-D	3/4	Raceway		CBLP109105B-D	PNL109302	CAB109105B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP109105B-E	3/4	Raceway		CBLP109105B-E	PNL109203	CAB109105B		CC30B
RWYP109205-A	3	Raceway		CBLP109205-A	MCC109105A	MCC109205		CC30B
RWYP150101-A	1	Raceway		CBLP150101-A	CTPR150001	DS150101		CC30B
RWYP150101-B	1	Raceway		CBLP150101-B	DS150101	TBX150101		CC30B
RWYP150102-A	1	Raceway		CBLP150102-A	CTPR150001	DS150102		CC30B
RWYP150102-B	1	Raceway		CBLP150102-B	DS150102	TBX150102		CC30B
RWYP150103-A	1	Raceway		CBLP150103-A	HH151001	DS150103		CC30B
RWYP150103-B	1	Raceway		CBLP150103-B	DS150103	TBX150103		CC30B
RWYP150104-A	1	Raceway		CBLP150104-A	HH151001	DS150104		CC30B
RWYP150104-B	1	Raceway		CBLP150104-B	DS150104	TBX150104		CC30B
RWYP150105-A	1	Raceway		CBLP150105-A	HH151003	DS150105		CC30B
RWYP150105-B	1	Raceway		CBLP150105-B	DS150105	TBX150105		CC30B
RWYP150106-A	1	Raceway		CBLP150106-A	HH151003	DS150106		CC30B
RWYP150106-B	1	Raceway		CBLP150106-B	DS150106	TBX150106		CC30B
RWYP150107-A	1	Raceway		CBLP150107-A	HH151003	DS150107		CC30B
RWYP150107-B	1	Raceway		CBLP150107-B	DS150107	TBX150107		CC30B
RWYP150108-A	1	Raceway		CBLP150108-A	HH151003	DS150108		CC30B
RWYP150108-B	1	Raceway		CBLP150108-B	DS150108	TBX150108		CC30B
RWYP150109-A	1	Raceway		CBLP150109-A	HH151003	DS150109		CC30B
RWYP150109-B	1	Raceway		CBLP150109-B	DS150109	TBX150109		CC30B
RWYP150110-A	1	Raceway		CBLP150110-A	HH151003	DS150110		CC30B
RWYP150110-B	1	Raceway		CBLP150110-B	DS150110	TBX150110		CC30B
RWYP150111-A	1	Raceway		CBLP150111-A	HH151003	DS150111		CC30B
RWYP150111-B	1	Raceway		CBLP150111-B	DS150111	TBX150111		CC30B
RWYP150112-A	1	Raceway		CBLP150112-A	CTP150003	DS150112		CC30B
RWYP150112-B	1	Raceway		CBLP150112-B	DS150112	TBX150112		CC30B
RWYP150113-A	1	Raceway		CBLP150113-A	CTP150003	DS150113		CC30B
RWYP150113-B	1	Raceway		CBLP150113-B	DS150113	TBX150113		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP150114-A	1	Raceway		CBLP150114-A	HH151007	DS150114		CC30B
RWYP150114-B	1	Raceway		CBLP150114-B	DS150114	TBX150114		CC30B
RWYP150115-A	1	Raceway		CBLP150115-A	HH151007	DS150115		CC30B
RWYP150115-B	1	Raceway		CBLP150115-B	DS150115	TBX150115		CC30B
RWYP150116-A	1	Raceway		CBLP150116-A	HH151009	DS150116		CC30B
RWYP150116-B	1	Raceway		CBLP150116-B	DS150116	TBX150116		CC30B
RWYP150117-A	1	Raceway		CBLP150117-A	HH151009	DS150117		CC30B
RWYP150117-B	1	Raceway		CBLP150117-B	DS150117	TBX150117		CC30B
RWYP150118-A	1	Raceway		CBLP150118-A	HH151009	DS150118		CC30B
RWYP150118-B	1	Raceway		CBLP150118-B	DS150118	TBX150118		CC30B
RWYP150119-A	1	Raceway		CBLP150119-A	HH151009	DS150119		CC30B
RWYP150119-B	1	Raceway		CBLP150119-B	DS150119	TBX150119		CC30B
RWYP151001-A	3	Raceway	DB150001	CBLP150103-A	CTPR150001	HH151001		CC30B
				CBLP150104-A				
				CBLP150105-A				
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
RWYP151003-A	3	Raceway	DB150003	CBLP150105-A	HH151001	HH151003		CC30B
				CBLP150106-A				
				CBLP150107-A				
				CBLP150108-A				
				CBLP150109-A				
				CBLP150110-A				
				CBLP150111-A				
RWYP151007-A	3	Raceway	DB150007	CBLP150114-A	CTP150003	HH151007		CC30B
				CBLP150115-A				
				CBLP150116-A				
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
RWYP151009-A	2	Raceway	DB150009	CBLP150116-A	HH151007	HH151009		CC30B
				CBLP150117-A				
				CBLP150118-A				
				CBLP150119-A				
RWYS151002-A	3	Raceway		CBLC150103-A	CTS150002	HH151002		CC30B
				CBLC150104-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC150105-A				
				CBLC150106-A				
RWYX150001-A	2	Raceway		CBLX150001-A	TUNNEL	HH151001		CC30B
RWYX150001-B	2	Raceway		CBLX150001-B	TUNNEL	HH151001		CC30B
RWYX150002-A	3	Raceway		CBLX150002-A	TUNNEL	HH151002		CC30B
RWYX150002-B	3	Raceway		CBLX150002-B	TUNNEL	HH151002		CC30B
RWYX150003-A	2	Raceway		CBLX150003-A	HH151001	HH151003		CC30B
RWYX150003-B	2	Raceway		CBLX150003-B	HH151001	HH151003		CC30B
RWYX150004-A	3	Raceway		CBLX150004-A	HH151002	HH151004		CC30B
RWYX150004-B	3	Raceway		CBLX150004-B	HH151002	HH151004		CC30B
RWYX150005-A	1	Raceway		CBLX150005-A	HH151003	HH151005		CC30B
RWYX150006-A	3	Raceway		CBLX150006-A	HH151004	HH151006		CC30B
RWYX150007-A	2	Raceway		CBLX150007-C	TUNNEL	HH1007		CC30B
RWYX150007-B	2	Raceway		CBLX150007-D	TUNNEL	HH1007		CC30B
RWYX150008-A	3	Raceway		CBLX150008-C	TUNNEL	HH1008		CC30B
RWYX150008-B	3	Raceway		CBLX150008-D	TUNNEL	HH1008		CC30B
RWYX150009-A	2	Raceway		CBLX150009-C	HH1007	HH1009		CC30B
RWYX150009-B	2	Raceway		CBLX150009-D	HH1007	HH1009		CC30B
RWYX150010-A	3	Raceway		CBLX150010-C	HH1008	HH1010		CC30B
RWYX150010-B	3	Raceway		CBLX150010-D	HH1008	HH1010		CC30B

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC139001A-A	3/4	Raceway		CBLC139001A-A	RIO 13A	MCC 13A	ADDENDUM 3	CC30A / REV A
RWYC139001A-B	3/4	Raceway		CBLC139001A-B	RIO 13A	MCC 13A	ADDENDUM 3	CC30A / REV A
RWYC139001B-A	3/4	Raceway		CBLC139001B-A	CAB139001	MCC 13B	ADDENDUM 3	CC30A / REV A
RWYC139001B-B	3/4	Raceway		CBLC139001B-B	CAB139001	MCC 13B	ADDENDUM 3	CC30A / REV A
RWYD130011-A	3/4	Raceway		CBLD130011-A	NCR-MTN-1	NCE130011	ADDENDUM 3	CC30A / REV A
RWYD130011-B	1	Raceway		CBLD130011-B	CAB139001	NCE130011	ADDENDUM 3	CC30A / REV A
				CBLD130011-C				
				CBLD130011-D				
RWYD139001-A	1	Raceway		CBLD139001-A	MCC 13A	CAB139001	**CCF 020 CHANGE ORDER PENDING**	CC30A
				CBLD139001-B				
RWYD139001A-A	3/4	Raceway		CBLD139001A-A	NCE130011	MCC 13A		CC30A
RWYD139001B-A	3/4	Raceway		CBLD139001B-A	NCE130011	MCC 13B		CC30A
RWYF130010-A	**1**	**Raceway**		**CBLF130010-A**	**NCE130011**	**FACP130010**	**INNERDUCT NOT REQUIRED FOR SINGLE CONDUCTOR. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
RWYF130011A-A	3	Raceway		CBLF130011A-A	CTS000001A	NCE130011	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF130011A-B	3	Raceway		CBLF100011BA-B	NCE130011	CTS000002B	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
				CBLF130011A-B				
				CBLF130011BA-A				
				CBLF290011BA-A				
RWYP130011-A	3/4	Raceway		CBLP130011-A	LP13S	NCE130011	ADDENDUM 3	CC30A / REV A
RWYP139001A-A	3/4	Raceway		CBLP139001A-A	LP13S	MCC 13A		CC30A
RWYP139001B-A	3/4	Raceway		CBLP139001B-A	LP13S	MCC 13B		CC30A

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTC160001	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169302-B				
CTC160002	12	Tray		CBLC169403-A			ADDENDUM 5	CC30B/REV A
				CBLC169403-B				
CTC160003	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-B				
				CBLC169403-B				
CTC160004	12	Tray		CBLC169302-B			ADDENDUM 2 (CABLE) / ADDENDUM 5 (TRAY SIZE)	CC30B/REV A
				CBLC169403-B				
CTC160005	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169403-A				
CTC160006	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169403-A				
CTC160007	12	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A
				CBLC169202-A				
				CBLC169302-A				
				CBLC169302-B				
				CBLC169403-A				
				CBLC169403-B				
				CBLD160101-A				
CTC160008	12	Tray		CBLC169302-B			ADDENDUM 2 (CABLE) / ADDENDUM 5 (TRAY SIZE)	CC30B/REV A
				CBLC169403-B				
CTPL160001	6	Tray		CBLP160001-S				CC30B
				CBLP169101BB-B				
				CBLP169101BC-B				
				CBLP169101BD-B				
				CBLP169102BB-B				
				CBLP169102BC-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
CTPL160002	18	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BC-A				
				CBLP169101BD-A				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BC-A				
				CBLP169402-F				
				CBLP169402-G				
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-J				
				CBLP169502-K				
				CBLP169502-L				
				CBLP169502-M				
CTPL160003	24	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BB-B				
				CBLP169101BC-A				
				CBLP169101BC-B				
				CBLP169101BD-A				
				CBLP169101BD-B				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-F				
				CBLP169402-G				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-J				
				CBLP169502-K				
				CBLP169502-L				
				CBLP169502-M				
CTPL160004	18	Tray		CBLP160001-S				CC30B
				CBLP169101A-G				
				CBLP169101AB-A				
				CBLP169101AB-B				
				CBLP169101AC-A				
				CBLP169101AC-B				
				CBLP169101AD-A				
				CBLP169101AD-B				
				CBLP169101B-H				
				CBLP169101BB-A				
				CBLP169101BB-B				
				CBLP169101BC-A				
				CBLP169101BC-B				
				CBLP169101BD-A				
				CBLP169101BD-B				
				CBLP169203-A				
				CBLP169204-A				
				CBLP169402-F				
				CBLP169402-G				
				CBLP169502-J				
				CBLP169502-K				
CTPL160005	12	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-H				
				CBLP169402-R				
				CBLP169502-L				
				CBLP169502-M				
CTPL160006	12	Tray		CBLP160001-A				CC30B
				CBLP160001-T				
				CBLP169102AB-A				
				CBLP169102AB-B				
				CBLP169102AC-A				
				CBLP169102AC-B				
				CBLP169102BB-A				
				CBLP169102BB-B				
				CBLP169102BC-A				
				CBLP169102BC-B				
				CBLP169402-H				
				CBLP169402-R				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP169502-L				
				CBLP169502-M				
CTPR160007	6	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
CTPR160008	9	Tray		CBLP160001-A				CC30B
				CBLP160001-S				
				CBLP160001-T				
				CBLP169203-A				
				CBLP169204-A				
CTS160001	12	Tray		CBLD169201-A			ADDENDUM 5	CC30B/REV A
				CBLD169202-A				
				CBLD169302-A				
CTS160002	12	Tray		CBLD169403-A			ADDENDUM 5	CC30B/REV A
CTS160003	12	Tray		CBLD169201-A			ADDENDUM 5	CC30B/REV A
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160005	12	Tray		CBLD169001A-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160006	12	Tray		CBLD169001A-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160007	12	Tray		CBLD160102-A			ADDENDUM 5	CC30B/REV A
				CBLD160103-A				
				CBLD160104-A				
				CBLD160105-A				
				CBLD160106-A				
				CBLD168901-A				
				CBLD169001A-A				
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
CTS160008	12	Tray		CBLD168901-A			ADDENDUM 5	CC30B/REV A
				CBLD169001A-A				
				CBLD169001A-B				
				CBLD169001A-C				
				CBLD169001B-A				
				CBLD169001B-B				
				CBLD169001B-C				
				CBLD169201-A				
				CBLD169202-A				
				CBLD169302-A				
				CBLD169403-A				
RWYC160001-A	1	Raceway		CBLC170222-A	PLC160001	HH160001		CC30B
RWYC160002-A	1-1/4	Raceway		CBLC170201-A	MCC169102A	HH160002		CC30B
RWYC160002-B	1	Raceway	DB160004	CBLC170112-A	VFD170112	HH160002		CC30B
RWYC160002-C	1	Raceway	DB160004	CBLC170113-A	VFD170113	HH160002		CC30B
RWYC160002-D	1	Raceway	DB160004	CBLC170121-A	VFD170121	HH160002		CC30B
RWYC160002-E	1	Raceway	DB160004	CBLC170122-A	VFD170122	HH160002		CC30B
RWYC160002-F	1	Raceway	DB160004	CBLC170123-A	VFD170123	HH160002		CC30B
RWYC160002-G	1	Raceway	DB160004	CBLC170131-A	VFD170131	HH160002		CC30B
RWYC160002-H	1	Raceway	DB160004	CBLC170132-A	VFD170132	HH160002		CC30B
RWYC160002-J	1	Raceway	DB160004	CBLC170133-A	VFD170133	HH160002		CC30B
RWYC160002-K	1	Raceway	DB160004	CBLC170141-A	VFD170141	HH160002		CC30B
RWYC160002-L	1	Raceway	DB160004	CBLC170142-A	VFD170142	HH160002		CC30B
RWYC160002-M	1	Raceway	DB160004	CBLC170143-A	VFD170143	HH160002		CC30B
RWYC160002-N	1	Raceway	DB160004	CBLC170211-A	VFD170211	HH160002		CC30B
RWYC160002-P	1	Raceway	DB160004	CBLC170212-A	VFD170212	HH160002		CC30B
RWYC160002-Q	1	Raceway	DB160004	CBLS170211-A	VFD170211	HH160002		CC30B
RWYC160002-R	1	Raceway	DB160004	CBLS170212-A	VFD170212	HH160002		CC30B
RWYC160002-S	1	Raceway	DB160004	CBLS170211-B	VFD170211	HH160002		CC30B
RWYC160002-T	1	Raceway	DB160004	CBLS170212-B	VFD170212	HH160002		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160002-U	2	Raceway		CBLC170101-A	MCC169102A	HH160002		CC30B
				CBLC170103-A				
				CBLC170105-A				
				CBLC170203-A				
RWYC160002-V	2	Raceway	DB160004	CBLC170102-A	MCC169102B	HH160002		CC30B
				CBLC170104-A				
				CBLC170106-A				
				CBLC170202-A				
				CBLC170204-A				
RWYC160002-X	1	Raceway		CBLC170111-A	VFD170111	HH160002		CC30B
RWYC160003-A	2	Raceway	DB160014	CBLC180108-A	MCC169101B	HH160003		CC30B
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
RWYC160003-B	3	Raceway	DB160014	CBLC181221-A	PLC169101B	HH160003		CC30B
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC160003-C	3	Raceway	DB160014	CBLC181211-A	MCC169101B	HH160003		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC160003-D	1	Raceway	DB160014	CBLC181321-B	PLC169101A	HH160003		CC30B
				CBLC181322-B				
				CBLC181323-B				
RWYC160003-E	1-1/2	Raceway	DB160014	CBLC180102-A	MCC169101B	HH160003		CC30B
				CBLC180104-A				
				CBLC180106-A				
RWYC160006-A	1-1/2	Raceway	DB160010	CBLC181131-A	VFD181131	HH160006		CC30B
RWYC160006-B	1-1/2	Raceway	DB160010	CBLC181132-A	VFD181132	HH160006		CC30B
RWYC160006-C	1	Raceway	DB160010	CBLC181231-A	VFD181231	HH160006		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160006-D	2-1/2	Raceway	DB160010	CBLC180101-A	MCC169101A	HH160006		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC160006-E	1-1/2	Raceway	DB160010	CBLC181511-A	MCC169101A	HH160006		CC30B
				CBLC181521-A				
RWYC160006-F	2	Raceway	DB160010	CBLC181111-A	MCC169101A	HH160006		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
RWYC160006-G	3	Raceway	DB160010	CBLC181121-A	PLC169101A	HH160006		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181323-A				
RWYC160006-H	1	Raceway	DB160010	CBLC181432-A	VFD181432	HH160006		CC30B
RWYC160006-K	1	Raceway	DB160010	CBLC181001-A	MCC169101A	HH160006		CC30B
RWYC160006-L	1	Raceway	DB160010	CBLC181003-A	MCC169101A	HH160006		CC30B
RWYC160006-M	1	Raceway	DB160010	CBLC181005-A	MCC169101A	HH160006		CC30B
RWYC160006-N	1	Raceway	DB160010	CBLC181232-A	VFD181232	HH160006		CC30B
RWYC160006-P	1	Raceway	DB160010	CBLC181331-A	VFD181331	HH160006		CC30B
RWYC160006-Q	2	Raceway	DB160010	CBLC181311-A	MCC169101A	HH160006		CC30B
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC160006-R	1	Raceway	DB160010	CBLC181332-A	VFD181332	HH160006		CC30B
RWYC160006-S	1	Raceway	DB160010	CBLC181431-A	VFD181431	HH160006		CC30B
RWYC160006-T	1	Raceway	DB160010	CBLC181611-A	PLC169101A	HH160006		CC30B
RWYC160006-U	1	Raceway		CBLC160006-A	HH160008	SV160006		CC30B
RWYC160008-A	1-1/4	Raceway	DB160008	CBLC160101-A	VFD160101	HH160008		CC30B
RWYC160008-B	1-1/4	Raceway	DB160008	CBLC160102-A	VFD160102	HH160008		CC30B
RWYC160008-C	1-1/4	Raceway	DB160008	CBLC160103-A	VFD160103	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160008-D	1-1/4	Raceway	DB160008	CBLC160104-A	VFD160104	HH160008		CC30B
RWYC160008-E	1-1/4	Raceway	DB160008	CBLC160105-A	VFD160105	HH160008		CC30B
RWYC160008-F	1-1/4	Raceway	DB160008	CBLC160106-A	VFD160106	HH160008		CC30B
RWYC160008-G	1	Raceway		CBLC160006-A	CAB160001	HH160008		CC30B
RWYC160009-A	3	Raceway	DB160006	CBLC170201-A	HH160002	HH160009		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC160009-B	1-1/2	Raceway	DB160006	CBLS170211-A	HH160002	HH160009		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYC160009-C	2-1/2	Raceway	DB160006	CBLC170101-A	HH160002	HH160009		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
RWYC160009-D	3	Raceway	DB160006	CBLC170111-A	HH160002	HH160009		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC160009-E	1	Raceway		CBLC170222-A	HH160001	HH160009		CC30B
RWYC160080-A	1	Raceway		CBLC160080-A	CS160080	M160080		CC30B
RWYC160081-A	1	Raceway		CBLC160081-A	CS160081	M160081		CC30B
RWYC160095-A	1	Raceway		CBLC160095-A	CAB160001	FSH160095		CC30B
RWYC160101-A	1-1/4	Raceway		CBLC160101-A	HH160008	CS160101		CC30B
RWYC160101-B	1	Raceway		CBLC160101-B	CS160101	M160101		CC30B
RWYC160102-A	1-1/4	Raceway		CBLC160102-A	HH160008	CS160102		CC30B
RWYC160102-B	1	Raceway		CBLC160102-B	CS160102	M160102		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC160103-A	1-1/4	Raceway		CBLC160103-A	HH160008	CS160103		CC30B
RWYC160103-B	1	Raceway		CBLC160103-B	CS160103	M160103		CC30B
RWYC160104-A	1-1/4	Raceway		CBLC160104-A	HH160008	CS160104		CC30B
RWYC160104-B	1	Raceway		CBLC160104-B	CS160104	M160104		CC30B
RWYC160105-A	1-1/4	Raceway		CBLC160105-A	HH160008	CS160105		CC30B
RWYC160105-B	1	Raceway		CBLC160105-B	CS160105	M160105		CC30B
RWYC160106-A	1-1/4	Raceway		CBLC160106-A	HH160008	CS160106		CC30B
RWYC160106-B	1	Raceway		CBLC160106-B	CS160106	M160106		CC30B
RWYC169101A-C	3/4	Raceway		CBLC169101A-C	PLC169101A	MCC169101A		CC30B
RWYC169101A-E	3/4	Raceway		CBLC169101A-E	PLC169101A	NET169101AA		CC30B
RWYC169101B-C	3/4	Raceway		CBLC169101B-C	PLC169101B	MCC169101B		CC30B
RWYC169101B-E	3/4	Raceway		CBLC169101B-E	PLC169101B	NET169101BA		CC30B
RWYC169102A-C	3/4	Raceway		CBLC169102A-C	PLC169102A	MCC169102A		CC30B
RWYC169102A-D	3/4	Raceway		CBLC169102A-D	PLC169102A	NET169102AA		CC30B
RWYC169102B-D	3/4	Raceway		CBLC169102B-D	PLC169102B	NET169102BA		CC30B
RWYC170001-B	3	Raceway	DB170003	CBLC170111-A	HH170002	JBX170001		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
RWYC170002-A	3	Raceway	DB170001	CBLC170111-A	HH160009	HH170002		CC30B
				CBLC170112-A				
				CBLC170113-A				
				CBLC170121-A				
				CBLC170122-A				
				CBLC170123-A				
				CBLC170131-A				
				CBLC170132-A				
				CBLC170133-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
RWYC170002-E	1-1/2	Raceway	DB170001	CBLC170211-A	HH160009	HH170002		CC30B
				CBLC170212-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170004-A	3	Raceway	DB170001	CBLC170101-A	HH160009	HH170002		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170201-A				
				CBLC170202-A				
				CBLC170203-A				
				CBLC170204-A				
RWYC170004-B	3	Raceway	DB170003	CBLC170101-A	HH170002	JBX170004		CC30B
				CBLC170102-A				
				CBLC170103-A				
				CBLC170104-A				
				CBLC170105-A				
				CBLC170106-A				
				CBLC170141-A				
				CBLC170142-A				
				CBLC170143-A				
				CBLC170204-A				
RWYC170004-F	1	Raceway		CBLC170222-A	HH160009	HH170001		CC30B
RWYC170005-A	1	Raceway		CBLC170222-A	HH170001	JBX170005		CC30B
RWYC170006-A	3	Raceway		CBLC170201-A	HH170002	JBX170006		CC30B
				CBLC170202-A				
				CBLC170203-A				
				CBLC170211-A				
				CBLC170212-A				
RWYC170101-A	1	Raceway		CBLC170101-A	JBX170004	CS170101		CC30B
RWYC170101-B	1	Raceway		CBLC170101-B	CS170101	JBX170101		CC30B
RWYC170102-A	1	Raceway		CBLC170102-A	JBX170004	CS170102		CC30B
RWYC170102-B	1	Raceway		CBLC170102-B	CS170102	JBX170102		CC30B
RWYC170103-A	1	Raceway		CBLC170103-A	JBX170004	CS170103		CC30B
RWYC170103-B	1	Raceway		CBLC170103-B	CS170103	JBX170103		CC30B
RWYC170104-A	1	Raceway		CBLC170104-A	JBX170004	CS170104		CC30B
RWYC170104-B	1	Raceway		CBLC170104-B	CS170104	JBX170104		CC30B
RWYC170105-A	1	Raceway		CBLC170105-A	JBX170004	CS170105		CC30B
RWYC170105-B	1	Raceway		CBLC170105-B	CS170105	JBX170105		CC30B
RWYC170106-A	1	Raceway		CBLC170106-A	JBX170004	CS170106		CC30B
RWYC170106-B	1	Raceway		CBLC170106-B	CS170106	JBX170106		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170111-A	1	Raceway		CBLC170111-A	JBX170001	CS170111		CC30B
RWYC170111-B	1	Raceway		CBLC170111-B	CS170111	TSH170111		CC30B
RWYC170112-A	1	Raceway		CBLC170112-A	JBX170001	CS170112		CC30B
RWYC170112-B	1	Raceway		CBLC170112-B	CS170112	TSH170112		CC30B
RWYC170113-A	1	Raceway		CBLC170113-A	JBX170001	CS170113		CC30B
RWYC170113-B	1	Raceway		CBLC170113-B	CS170113	TSH170113		CC30B
RWYC170121-A	1	Raceway		CBLC170121-A	JBX170001	CS170121		CC30B
RWYC170121-B	1	Raceway		CBLC170121-B	CS170121	TSH170121		CC30B
RWYC170122-A	1	Raceway		CBLC170122-A	JBX170001	CS170122		CC30B
RWYC170122-B	1	Raceway		CBLC170122-B	CS170122	TSH170122		CC30B
RWYC170123-A	1	Raceway		CBLC170123-A	JBX170001	CS170123		CC30B
RWYC170123-B	1	Raceway		CBLC170123-B	CS170123	TSH170123		CC30B
RWYC170131-A	1	Raceway		CBLC170131-A	JBX170001	CS170131		CC30B
RWYC170131-B	1	Raceway		CBLC170131-B	CS170131	TSH170131		CC30B
RWYC170132-A	1	Raceway		CBLC170132-A	JBX170001	CS170132		CC30B
RWYC170132-B	1	Raceway		CBLC170132-B	CS170132	TSH170132		CC30B
RWYC170133-A	1	Raceway		CBLC170133-A	JBX170001	CS170133		CC30B
RWYC170133-B	1	Raceway		CBLC170133-B	CS170133	TSH170133		CC30B
RWYC170141-A	1	Raceway		CBLC170141-A	JBX170004	CS170141		CC30B
RWYC170141-B	1	Raceway		CBLC170141-B	CS170141	TSH170141		CC30B
RWYC170142-A	1	Raceway		CBLC170142-A	JBX170004	CS170142		CC30B
RWYC170142-B	1	Raceway		CBLC170142-B	CS170142	TSH170142		CC30B
RWYC170143-A	1	Raceway		CBLC170143-A	JBX170004	CS170143		CC30B
RWYC170143-B	1	Raceway		CBLC170143-B	CS170143	TSH170143		CC30B
RWYC170201-A	1	Raceway		CBLC170201-A	JBX170006	CS170201		CC30B
RWYC170201-B	1	Raceway		CBLC170201-B	CS170201	JBX170201		CC30B
RWYC170202-A	1	Raceway		CBLC170202-A	JBX170006	CS170202		CC30B
RWYC170202-B	1	Raceway		CBLC170202-B	CS170202	JBX170202		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC170203-A	1	Raceway		CBLC170203-A	JBX170006	CS170203		CC30B
RWYC170203-B	1	Raceway		CBLC170203-B	CS170203	JBX170203		CC30B
RWYC170204-B	1	Raceway		CBLC170204-B	CS170204	JBX170204		CC30B
RWYC170211-A	1	Raceway		CBLC170211-A	JBX170006	CS170211		CC30B
RWYC170211-B	1	Raceway		CBLC170211-B	CS170211	JBX170211		CC30B
RWYC170212-A	1	Raceway		CBLC170212-A	JBX170006	CS170212		CC30B
RWYC170212-B	1	Raceway		CBLC170212-B	CS170212	JBX170212		CC30B
RWYC170222-A	1	Raceway		CBLC170222-A	JBX170005	SV170222		CC30B
RWYC180001-A	4	Raceway	DB160016	CBLC180102-A	HH160003	HH180001		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
				CBLC181211-A				
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
				CBLC181522-A				
RWYC180001-B	3	Raceway	DB160016	CBLC181221-A	HH160003	HH180001		CC30B
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				
				CBLC181621-A				
RWYC180002-A	3	Raceway	DB180003	CBLC181131-A	HH180004	JBX180002	ADDENDUM 5	CC30B/REV A
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181432-A				
RWYC180002-B	1	Raceway	DB180003	CBLC181323-A	HH180003	JBX180002	ADDENDUM 5	CC30B/REV A
RWYC180002-C	1-1/2	Raceway	DB180003	CBLC181423-A	HH180004	JBX180002	ADDENDUM 5	CC30B/REV A
				CBLC181611-A				
				CBLC181621-A				
RWYC180003-B	1	Raceway	DB160012	CBLC181323-A	HH160006	HH180003		CC30B
RWYC180004-A	3	Raceway	DB160012	CBLC181111-A	HH160006	HH180004		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181131-A				
				CBLC181132-A				
				CBLC181231-A				
				CBLC181232-A				
				CBLC181331-A				
				CBLC181332-A				
				CBLC181431-A				
				CBLC181432-A				
RWYC180004-B	1-1/2	Raceway	DB180006	CBLC181511-A	HH180004	JBX180004		CC30B
				CBLC181512-A				
RWYC180004-C	2-1/2	Raceway	DB160012	CBLC181121-A	HH160006	HH180004		CC30B
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181123-A				
				CBLC181123-B				
				CBLC181321-A				
				CBLC181322-A				
				CBLC181611-A				
RWYC180004-D	3-1/2	Raceway	DB180010	CBLC180102-A	HH180001	HH180004		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
				CBLC181002-A				
				CBLC181004-A				
				CBLC181006-A				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181321-B				
				CBLC181322-B				
				CBLC181323-B				
				CBLC181421-A				
				CBLC181422-A				
				CBLC181423-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180004-E	1-1/2	Raceway	DB180006	CBLC181123-A	HH180004	JBX180004		CC30B
				CBLC181123-B				
				CBLC181223-A				
				CBLC181223-B				
				CBLC181323-B				
RWYC180004-F	1-1/2	Raceway	DB180006	CBLC181521-A	HH180004	JBX180004		CC30B
				CBLC181522-A				
RWYC180004-G	4	Raceway	DB160012	CBLC180101-A	HH160006	HH180004		CC30B
				CBLC180103-A				
				CBLC180105-A				
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
				CBLC181511-A				
				CBLC181521-A				
RWYC180004-H	3	Raceway	DB180010	CBLC181211-A	HH180001	HH180004		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
				CBLC181512-A				
RWYC180004-J	1	Raceway	DB180010	CBLC181522-A	HH180001	HH180004		CC30B
RWYC180004-K	1	Raceway	DB180010	CBLC181621-A	HH180001	HH180004		CC30B
RWYC180006-A	3	Raceway	DB180006	CBLC180101-A	HH180004	JBX180006		CC30B
				CBLC180103-A				
				CBLC181121-A				
				CBLC181121-B				
				CBLC181122-A				
				CBLC181122-B				
				CBLC181221-A				
				CBLC181221-B				
				CBLC181222-A				
				CBLC181222-B				
				CBLC181321-A				
				CBLC181321-B				
				CBLC181322-A				
				CBLC181322-B				
				CBLC181422-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180008-A	2-1/2	Raceway	DB180006	CBLC180102-A	HH180004	HH180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-B	2	Raceway	DB180006	CBLC180105-A	HH180004	HH180008		CC30B
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
RWYC180008-C	1	Raceway	DB180006	CBLC181421-A	HH180004	HH180008		CC30B
RWYC180008-D	1	Raceway	DB180008	CBLC181421-A	HH180008	JBX180008		CC30B
RWYC180008-E	2	Raceway	DB180006	CBLC181001-A	HH180004	HH180008		CC30B
				CBLC181003-A				
				CBLC181005-A				
RWYC180008-F	2	Raceway	DB180006	CBLC181211-A	HH180004	HH180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
RWYC180008-G	2	Raceway	DB180006	CBLC181411-A	HH180004	HH180008		CC30B
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180008-H	3	Raceway	DB180006	CBLC181111-A	HH180004	HH180008		CC30B
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				
				CBLC181314-A				
RWYC180008-J	2	Raceway	DB180008	CBLC181002-A	HH180008	JBX180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-K	4	Raceway	DB180008	CBLC180105-A	HH180008	JBX180008		CC30B
				CBLC180107-A				
				CBLC180109-A				
				CBLC180111-A				
				CBLC181001-A				
				CBLC181003-A				
				CBLC181005-A				
				CBLC181111-A				
				CBLC181112-A				
				CBLC181113-A				
				CBLC181114-A				
				CBLC181311-A				
				CBLC181312-A				
				CBLC181313-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLC181314-A				
RWYC180008-L	2-1/2	Raceway	DB180008	CBLC180102-A	HH180008	JBX180008		CC30B
				CBLC180104-A				
				CBLC180106-A				
				CBLC180108-A				
				CBLC180110-A				
RWYC180008-M	2	Raceway	DB180006	CBLC181002-A	HH180004	HH180008		CC30B
				CBLC181004-A				
				CBLC181006-A				
RWYC180008-N	3	Raceway	DB180008	CBLC181211-A	HH180008	JBX180008		CC30B
				CBLC181212-A				
				CBLC181213-A				
				CBLC181214-A				
				CBLC181411-A				
				CBLC181412-A				
				CBLC181413-A				
				CBLC181414-A				
RWYC180101-A	1	Raceway		CBLC180101-A	JBX180006	CS180101		CC30B
RWYC180101-B	1	Raceway		CBLC180101-B	CS180101	JBX180101		CC30B
RWYC180102-A	1	Raceway		CBLC180102-A	JBX180008	CS180102		CC30B
RWYC180102-B	1	Raceway		CBLC180102-B	CS180102	JBX180102		CC30B
RWYC180103-A	1	Raceway		CBLC180103-A	JBX180006	CS180103		CC30B
RWYC180103-B	1	Raceway		CBLC180103-B	CS180103	JBX180103		CC30B
RWYC180104-A	1	Raceway		CBLC180104-A	JBX180008	CS180104		CC30B
RWYC180104-B	1	Raceway		CBLC180104-B	CS180104	JBX180104		CC30B
RWYC180105-A	1	Raceway		CBLC180105-A	JBX180008	CS180105		CC30B
RWYC180105-B	1	Raceway		CBLC180105-B	CS180105	JBX180105		CC30B
RWYC180106-A	1	Raceway		CBLC180106-A	JBX180008	CS180106		CC30B
RWYC180106-B	1	Raceway		CBLC180106-B	CS180106	JBX180106		CC30B
RWYC180107-A	1	Raceway		CBLC180107-A	JBX180008	CS180107		CC30B
RWYC180107-B	1	Raceway		CBLC180107-B	CS180107	JBX180107		CC30B
RWYC180108-A	1	Raceway		CBLC180108-A	JBX180008	CS180108		CC30B
RWYC180108-B	1	Raceway		CBLC180108-B	JBX180108	CS180108		CC30B
RWYC180109-A	1	Raceway		CBLC180109-A	JBX180008	CS180109		CC30B
RWYC180109-B	1	Raceway		CBLC180109-B	CS180109	JBX180109		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC180110-A	1	Raceway		CBLC180110-A	JBX180008	CS180110		CC30B
RWYC180110-B	1	Raceway		CBLC180110-B	CS180110	JBX180110		CC30B
RWYC180111-A	1	Raceway		CBLC180111-A	JBX180008	CS180111		CC30B
RWYC180111-B	1	Raceway		CBLC180111-B	CS180111	JBX180111		CC30B
RWYC181001-A	1	Raceway		CBLC181001-A	JBX180008	CS181001		CC30B
RWYC181001-B	1	Raceway		CBLC181001-B	CS181001	JBX181001		CC30B
RWYC181002-A	1	Raceway		CBLC181002-A	JBX180008	CS181002		CC30B
RWYC181002-B	1	Raceway		CBLC181002-B	CS181002	JBX181002		CC30B
RWYC181003-A	1	Raceway		CBLC181003-A	JBX180008	CS181003		CC30B
RWYC181003-B	1	Raceway		CBLC181003-B	CS181003	JBX181003		CC30B
RWYC181004-A	1	Raceway		CBLC181004-A	JBX180008	CS181004		CC30B
RWYC181004-B	1	Raceway		CBLC181004-B	CS181004	JBX181004		CC30B
RWYC181005-A	1	Raceway		CBLC181005-A	JBX180008	CS181005		CC30B
RWYC181005-B	1	Raceway		CBLC181005-B	CS181005	JBX181005		CC30B
RWYC181006-A	1	Raceway		CBLC181006-A	JBX180008	CS181006		CC30B
RWYC181006-B	1	Raceway		CBLC181006-B	CS181006	JBX181006		CC30B
RWYC181111-A	1-1/2	Raceway		CBLC181111-A	JBX180008	CS181111		CC30B
RWYC181111-B	1-1/2	Raceway		CBLC181112-A	JBX180008	CS181112		CC30B
RWYC181111-C	1-1/2	Raceway		CBLC181113-A	JBX180008	CS181113		CC30B
RWYC181111-D	1-1/2	Raceway		CBLC181114-A	JBX180008	CS181114		CC30B
RWYC181121-A	2	Raceway		CBLC181121-A	JBX180006	TBX181121		CC30B
				CBLC181121-B				
RWYC181121-B	1	Raceway		CBLC181121-A	TBX181121	FCV181121		CC30B
RWYC181121-C	1	Raceway		CBLC181121-B	TBX181121	FIT181121		CC30B
RWYC181122-A	1	Raceway		CBLC181122-A	JBX180006	TBX181122		CC30B
				CBLC181122-B				
RWYC181122-B	1	Raceway		CBLC181122-A	TBX181122	FCV181122		CC30B
RWYC181122-C	1	Raceway		CBLC181122-B	TBX181122	FIT181122		CC30B
RWYC181123-A	1	Raceway		CBLC181323-A	JBX180002	TBX181123		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181123-B	1	Raceway		CBLC181123-A	JBX180004	TBX181123		CC30B
				CBLC181123-B				
RWYC181123-C	1	Raceway		CBLC181123-A	TBX181123	FCV181123		CC30B
RWYC181123-D	1	Raceway		CBLC181123-B	TBX181123	FIT181123		CC30B
RWYC181131-A	1	Raceway		CBLC181131-A	JBX180002	CS181131		CC30B
RWYC181131-B	1	Raceway		CBLC181131-B	CS181131	JBX181131		CC30B
RWYC181132-A	1	Raceway		CBLC181132-A	JBX180002	CS181132		CC30B
RWYC181132-B	1	Raceway		CBLC181132-B	CS181132	JBX181132		CC30B
RWYC181211-A	1	Raceway		CBLC181211-A	JBX180008	CS181211		CC30B
RWYC181212-A	1	Raceway		CBLC181212-A	JBX180008	CS181212		CC30B
RWYC181213-A	1	Raceway		CBLC181213-A	JBX180008	CS181213		CC30B
RWYC181214-A	1	Raceway		CBLC181214-A	JBX180008	CS181214		CC30B
RWYC181221-A	1	Raceway		CBLC181421-A	JBX180008	TBX181221		CC30B
RWYC181221-B	1-1/2	Raceway		CBLC181221-A	JBX180006	TBX181221		CC30B
				CBLC181221-B				
				CBLC181422-A				
RWYC181221-C	1	Raceway		CBLC181221-A	TBX181221	FCV181221		CC30B
RWYC181221-D	1	Raceway		CBLC181221-B	TBX181221	FIT181221		CC30B
RWYC181222-A	1	Raceway		CBLC181222-A	TBX181222	FCV181222		CC30B
RWYC181222-B	1	Raceway		CBLC181222-A	JBX180006	TBX181222		CC30B
				CBLC181222-B				
RWYC181222-D	1	Raceway		CBLC181222-B	TBX181222	FIT181222		CC30B
RWYC181223-A	1	Raceway		CBLC181423-A	JBX180002	TBX181223		CC30B
RWYC181223-B	1	Raceway		CBLC181223-A	JBX180004	TBX181223		CC30B
				CBLC181223-B				
RWYC181223-C	1	Raceway		CBLC181223-A	TBX181223	FCV181223		CC30B
RWYC181223-D	1	Raceway		CBLC181223-B	TBX181223	FIT181223		CC30B
RWYC181231-A	1	Raceway		CBLC181231-A	JBX180002	CS181231		CC30B
RWYC181231-B	1	Raceway		CBLC181231-B	CS181231	JBX181231		CC30B
RWYC181232-A	1	Raceway		CBLC181232-A	JBX180002	CS181232		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181232-B	1	Raceway		CBLC181232-B	CS181232	JBX181232		CC30B
RWYC181314-A	1	Raceway		CBLC181311-A	JBX180008	CS181311		CC30B
RWYC181314-B	1	Raceway		CBLC181312-A	JBX180008	CS181312		CC30B
RWYC181314-C	1	Raceway		CBLC181313-A	JBX180008	CS181313		CC30B
RWYC181314-D	1	Raceway		CBLC181314-A	JBX180008	CS181314		CC30B
RWYC181321-A	1	Raceway		CBLC181321-A	JBX180006	TBX181321		CC30B
RWYC181321-B	1	Raceway		CBLC181321-A	TBX181321	FCV181321		CC30B
RWYC181321-C	1	Raceway		CBLC181321-B	JBX180006	TBX181321		CC30B
RWYC181321-D	1	Raceway		CBLC181321-B	TBX181321	FIT181321		CC30B
RWYC181322-A	1	Raceway		CBLC181322-A	JBX180006	TBX181322		CC30B
RWYC181322-B	1	Raceway		CBLC181322-B	JBX180006	TBX181322		CC30B
RWYC181322-C	1	Raceway		CBLC181322-A	TBX181322	FCV181322		CC30B
RWYC181322-D	1	Raceway		CBLC181322-B	TBX181322	FIT181322		CC30B
RWYC181323-A	1	Raceway		CBLC181323-A	TBX181123	FCV181323		CC30B
RWYC181323-B	1	Raceway		CBLC181323-B	JBX180004	TBX181323		CC30B
RWYC181323-D	1	Raceway		CBLC181323-B	TBX181323	FIT181323		CC30B
RWYC181331-A	1	Raceway		CBLC181331-A	JBX180002	CS181331		CC30B
RWYC181331-B	1	Raceway		CBLC181331-B	CS181331	JBX181331		CC30B
RWYC181332-A	1	Raceway		CBLC181332-A	JBX180002	CS181332		CC30B
RWYC181332-B	1	Raceway		CBLC181332-B	CS181332	JBX181332		CC30B
RWYC181411-A	1	Raceway		CBLC181411-A	JBX180008	CS181411		CC30B
RWYC181412-A	1	Raceway		CBLC181412-A	JBX180008	CS181412		CC30B
RWYC181413-A	1	Raceway		CBLC181413-A	JBX180008	CS181413		CC30B
RWYC181414-A	1	Raceway		CBLC181414-A	JBX180008	CS181414		CC30B
RWYC181421-A	1	Raceway		CBLC181421-A	TBX181221	FCV181421		CC30B
RWYC181422-A	1	Raceway		CBLC181422-A	TBX181221	FCV181422		CC30B
RWYC181423-A	1	Raceway		CBLC181423-A	TBX181223	FCV181423		CC30B
RWYC181431-A	1	Raceway		CBLC181431-A	JBX180002	CS181431		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC181431-B	1	Raceway		CBLC181431-B	CS181431	JBX181431		CC30B
RWYC181432-A	1	Raceway		CBLC181432-A	JBX180002	CS181432		CC30B
RWYC181432-B	1	Raceway		CBLC181432-B	CS181432	JBX181432		CC30B
RWYC181511-A	1	Raceway		CBLC181511-A	JBX180004	CS181511		CC30B
RWYC181511-B	1	Raceway		CBLC181511-B	CS181511	JBX181511		CC30B
RWYC181512-A	1	Raceway		CBLC181512-A	JBX180004	CS181512		CC30B
RWYC181512-B	1	Raceway		CBLC181512-B	CS181512	JBX181512		CC30B
RWYC181521-A	1	Raceway		CBLC181521-A	JBX180004	CS181521		CC30B
RWYC181521-B	1	Raceway		CBLC181521-B	CS181521	JBX181521		CC30B
RWYC181522-A	1	Raceway		CBLC181522-A	JBX180004	CS181522		CC30B
RWYC181522-B	1	Raceway		CBLC181522-B	CS181522	JBX181522		CC30B
RWYC181611-A	1	Raceway		CBLC181611-A	JBX180002	SGTE181611		CC30B
RWYC181621-A	1	Raceway		CBLC181621-A	JBX180002	SGTE181621		CC30B
RWYD160001-A	1	Raceway		CBLD160001-A	NCE160011	CAB160001		CC30B
				CBLD160001-B				
				CBLD160001-C				
RWYD160001-B	1	Raceway		CBLD160001-D	NCE160011	CAB160001		CC30B
				CBLD160001-E				
				CBLD160001-F				
RWYD160001-K	3/4	Raceway		CBLD169101-K	CAB169101A	CAB160001		CC30B
RWYD167801-A	3/4	Raceway		CBLD167801-A	NCE160011	DRCP167801		CC30B
RWYD167802-A	3/4	Raceway		CBLD167802-A	NCE160011	DRCP167802		CC30B
RWYD167901-A	**1**	Raceway		CBLD167901-A	NCE160011	CAB167901	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD167901-C				
				CBLD167901-E				
RWYD167901-B	**1**	**Raceway**		**CBLD167901-B**	**NCE160011**	**CAB167901**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD167901-D				
RWYD169001-A	3/4	Raceway		CBLD169001-A	CAB160001	SWGR169001A/B		CC30B
RWYD169001A-D	3/4	Raceway		CBLD169001A-D	SWGR169001A	PLC169001		CC30B
RWYD169001B-D	3/4	Raceway		CBLD169001B-D	SWGR169001B	PLC169001		CC30B
RWYD169101A-AA	1	Raceway		CBLD181331-A	VFD181331	MCC169101A		CC30B
RWYD169101A-AB	1	Raceway		CBLD181332-A	VFD181332	MCC169101A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD169101A-AC	1	Raceway		CBLD181431-A	VFD181431	PLC169101B		CC30B
RWYD169101A-AD	1	Raceway		CBLD181432-A	VFD181432	PLC169101B		CC30B
RWYD169101A-AE	3/4	Raceway		CBLD169101AB-A	MCC169101A	CAB169101A		CC30B
RWYD169101A-AF	3/4	Raceway		CBLD169101AD-A	MCC169101A	CAB169101A		CC30B
RWYD169101A-AG	3/4	Raceway		CBLD169101A-A	NCE160011	MCC169101A		CC30B
RWYD169101A-AH	3/4	Raceway		CBLD169101B-A	NCE160011	CAB169101B		CC30B
RWYD169101A-B	3/4	Raceway		CBLD169101A-B	CAB169101B	CAB169101A		CC30B
~~**RWYD169101A-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-C**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-D**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-E**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-E**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-F**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-F**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-G**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-G**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-H**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-H**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-J**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-J**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-K**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-K**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-L**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-L**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-M**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-M**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-N**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-N**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-P**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-P**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-Q**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-Q**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-R**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-R**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-S**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-S**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-T**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-T**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~**RWYD169101A-U**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD169101A-U**~~	~~**MCC169101A**~~	~~**PLC169101A**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169101A-V	**1**	**Raceway**		**CBLD169101A-V**	**NCE160011**	**CAB169101A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD169101A-W				
RWYD169101A-W	1	Raceway		CBLD181131-A	VFD181131	MCC169101A		CC30B
RWYD169101A-X	1	Raceway		CBLD181132-A	VFD181132	MCC169101A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD169101A-Y	1	Raceway		CBLD181231-A	VFD181231	PLC169101B		CC30B
RWYD169101A-Z	1	Raceway		CBLD181232-A	VFD181232	PLC169101B		CC30B
~~RWYD169101AB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169101AB-A~~	~~PLC169101A~~	~~RWYD169101A-AE~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101AD-A~~	~~3/4~~	~~Raceway~~		~~CBLD169101AD-A~~	~~PLC169101A~~	~~RWYD169101A-AF~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-A~~	~~1~~	~~Raceway~~		~~CBLD169101B-A~~	~~MCC169101B~~	~~RWYD169101A-AH~~	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYD169101B-B	3/4	Raceway		CBLD169101B-B	CAB169102A	CAB169101B		CC30B
~~RWYD169101B-C~~	~~1~~	~~Raceway~~		~~CBLD169101B-C~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-D~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-D~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-E~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-E~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-F~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-F~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-G~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-G~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-H~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-H~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-J~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-J~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-K~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-K~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-L~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-L~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-M~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-M~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-N~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-N~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-P~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-P~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-Q~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-Q~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-R~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-R~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
~~RWYD169101B-S~~	~~3/4~~	~~Raceway~~		~~CBLD169101B-S~~	~~MCC169101B~~	~~PLC169101B~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169101B-T	3/4	Raceway		CBLD169101BB-A	MCC169101B	CAB169101B		CC30B
RWYD169101B-U	3/4	Raceway		CBLD169101BC-A	MCC169101B	CAB169101B		CC30B
RWYD169101B-V	3/4	Raceway		CBLD169102B-C	RWYD169102B-C	NET169001A		CC30B
RWYD169101B-W	**1**	**Raceway**		**CBLD169101B-V**	**NCE160011**	**CAB169101B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
				CBLD169101B-W				
RWYD169102A-A	3/4	Raceway		CBLD169102A-A	NCE160011	MCC169102A		CC30B
~~RWYD169102A-B~~	~~1~~	~~Raceway~~		~~CBLD169102A-B~~	~~CAB169102A~~	~~NET169101BA~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD169102A-C	1	Raceway		CBLD169102A-C	CAB169102B	CAB169102A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
~~RWYD169102A-D~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-D~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-E~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-E~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-F~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-F~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102A-G~~	~~3/4~~	~~Raceway~~		~~CBLD169102A-G~~	~~MCC169102A~~	~~PLC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102A-H	3/4	Raceway		CBLD169102AB-A	MCC169102A	CAB169102A		CC30B
RWYD169102A-J	3/4	Raceway		CBLD169102AC-A	MCC169102A	CAB169102A		CC30B
RWYD169102A-K	1	Raceway		CBLD169102-A-K	NCE160011	CAB169102A	CCF 020 CHANGE ORDER PENDING	CC30B
				CBLD169102-A-L				
~~RWYD169102AB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102AB-A~~	~~CAB169102A~~	~~MCC169102A~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102AC-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102AC-A~~	~~CAB169102A~~	~~RWYD169102A-J~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102B-A	3/4	Raceway		CBLD169102B-A	NCE160011	MCC169102B		CC30B
~~RWYD169102B-B~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-B~~	~~CAB169102B~~	~~NET169102AA~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-C~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-C~~	~~CAB169102B~~	~~RWYD169101B-V~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-D~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-D~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-E~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-E~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102B-F~~	~~3/4~~	~~Raceway~~		~~CBLD169102B-F~~	~~MCC169102B~~	~~PLC169102B~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169102B-G	3/4	Raceway		CBLD169102BB-A	MCC169102B	CAB169102B		CC30B
RWYD169102B-H	3/4	Raceway		CBLD169102BC-A	MCC169102B	CAB169102B		CC30B
RWYD169102B-J	1	Raceway		CBLD169102-B-J	NCE160011	CAB169102B	CCF 020 CHANGE ORDER PENDING	CC30B
				CBLD169102-B-K				
~~RWYD169102BB-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102BB-A~~	~~CAB169102B~~	~~RWYD169102B-G~~	CCF 020 CHANGE ORDER PENDING	CC30B
~~RWYD169102BC-A~~	~~3/4~~	~~Raceway~~		~~CBLD169102BC-A~~	~~CAB169102B~~	~~RWYD169102B-H~~	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD169402-A	3/4	Raceway		CBLD169402-A	NCE160011	UPS169402		CC30B
RWYD170111-A	1	Raceway		CBLD170111-A	MCC169102A	VFD170111		CC30B
RWYD170112-A	1	Raceway		CBLD170112-A	MCC169102A	VFD170112		CC30B
RWYD170113-A	1	Raceway		CBLD170113-A	MCC169102A	VFD170113		CC30B
RWYD170121-A	1	Raceway		CBLD170121-A	MCC169102B	VFD170121		CC30B
RWYD170122-A	1	Raceway		CBLD170122-A	MCC169102B	VFD170122		CC30B
RWYD170123-A	1	Raceway		CBLD170123-A	MCC169102B	VFD170123		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD170131-A	1	Raceway		CBLD170131-A	MCC169102A	VFD170131		CC30B
RWYD170132-A	1	Raceway		CBLD170132-A	MCC169102A	VFD170132		CC30B
RWYD170133-A	1	Raceway		CBLD170133-A	MCC169102A	VFD170133		CC30B
RWYD170141-A	1	Raceway		CBLD170141-A	MCC169102B	VFD170141		CC30B
RWYD170142-A	1	Raceway		CBLD170142-A	MCC169102B	VFD170142		CC30B
RWYD170143-A	1	Raceway		CBLD170143-A	MCC169102B	VFD170143		CC30B
RWYD170211-A	1	Raceway		CBLD170211-A	MCC169102A	VFD170211		CC30B
RWYD170212-A	1	Raceway		CBLD170212-A	MCC169102B	VFD170212		CC30B
RWYD181141-A	1	Raceway		CBLD181141-A	CAB180150	AIT181141		CC30B
RWYD181241-A	1	Raceway		CBLD181241-A	CAB180150	AIT181241		CC30B
RWYD181341-A	1	Raceway		CBLD181341-A	CAB180150	AIT181341		CC30B
RWYD181441-A	1	Raceway		CBLD181441-A	CAB180150	AIT181441		CC30B
RWYF160002-A	4	Raceway	DB160002	CBLF160011A-A	CTS000003A	HH160002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160002-B	4	Raceway	DB160002	CBLF160011A-B	CTS000004B	HH160002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	CC30B
				CBLF340102-J				
RWYF160003-C	2	Raceway	DB160014	CBLF220011BA-A	NCE160011	HH160003	IDFM - 2" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYF160010-A	1-1/4	Raceway		CBLF160010-A	NCE160011	FACP160010	IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				~~**CBLF160010-B**~~				
RWYF160011-A	**1-1/2**	**Raceway**		**CBLF160011-A**	**CAB169000A**	**NCE160011**	**IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	**CC30B**
RWYF160011-B	**1-1/2**	**Raceway**		**CBLF160011-B**	**CAB169000B**	**NCE160011**	**IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)**	CC30B
RWYF160011A-A	4	Raceway	DB160004	CBLF160011A-A	HH160002	NCE160011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF160011BA-A				
				CBLF340102-C				
RWYF160011A-B	4	Raceway	DB160004	CBLF160011A-B	HH160002	NCE160011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CCF 020 CHANGE ORDER PENDING)**	CC30B
				CBLF340102-J				
RWYF169101B-A	1	Raceway		CBLF169101B-A	CAB180250	MCC169101B		CC30B
RWYF180001-A	4	Raceway	DB160016	CBLF169101A-A	HH160003	HH180001	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF180006-A	4	Raceway	DB180002	CBLF220011BA-A	HH180001	HH180006	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
RWYM180101-A	1	Raceway		CBLV180101-A	JBX180101	M180101		CC30B
RWYM180102-A	1	Raceway		CBLV180102-A	JBX180102	M180102		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYM180103-A	1	Raceway		CBLV180103-A	JBX180103	M180103		CC30B
RWYM180104-A	1	Raceway		CBLV180104-A	JBX180104	M180104		CC30B
RWYM180105-A	1	Raceway		CBLV180105-A	JBX180105	M180105		CC30B
RWYM180106-A	1	Raceway		CBLV180106-A	JBX180106	M180106		CC30B
RWYM180107-A	1	Raceway		CBLV180107-A	JBX180107	M180107		CC30B
RWYM180108-A	1	Raceway		CBLV180108-A	JBX180108	M180108		CC30B
RWYM180109-A	1	Raceway		CBLV180109-A	JBX180109	M180109		CC30B
RWYM180110-A	1	Raceway		CBLV180110-A	JBX180110	M180110		CC30B
RWYM180111-A	1	Raceway		CBLV180111-A	JBX180111	M180111		CC30B
RWYM181001-A	1	Raceway		CBLV181001-A	JBX181001	M181001		CC30B
RWYM181002-A	1	Raceway		CBLV181002-A	JBX181002	M181002		CC30B
RWYM181003-A	1	Raceway		CBLV181003-A	JBX181003	M181003		CC30B
RWYM181004-A	1	Raceway		CBLV181004-A	JBX181004	M181004		CC30B
RWYM181005-A	1	Raceway		CBLV181005-A	JBX181005	M181005		CC30B
RWYM181006-A	1	Raceway		CBLV181006-A	JBX181006	M181006		CC30B
RWYM181511-A	1	Raceway		CBLV181511-A	JBX181511	M181511		CC30B
RWYM181512-A	1	Raceway		CBLV181512-A	JBX181512	M181512		CC30B
RWYM181521-A	1	Raceway		CBLV181521-A	JBX181521	M181521		CC30B
RWYM181522-A	1	Raceway		CBLV181522-A	JBX181522	M181522		CC30B
RWYP160001-A	1	Raceway		CBLP170250-A	PNL169402	HH160001		CC30B
RWYP160001-AA	1	Raceway		CBLP170111-B	VFD170111	HH160001		CC30B
RWYP160001-AB	1	Raceway		CBLP170112-B	VFD170112	HH160001		CC30B
RWYP160001-AC	1	Raceway		CBLP170113-B	VFD170113	HH160001		CC30B
RWYP160001-AD	1	Raceway		CBLP170121-B	VFD170121	HH160001		CC30B
RWYP160001-AE	1	Raceway		CBLP170122-B	VFD170122	HH160001		CC30B
RWYP160001-AF	1	Raceway		CBLP170123-B	VFD170123	HH160001		CC30B
RWYP160001-AG	1	Raceway		CBLP170131-B	VFD170131	HH160001		CC30B
RWYP160001-AH	1	Raceway		CBLP170132-B	VFD170132	HH160001		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160001-AJ	1	Raceway		CBLP170133-B	VFD170133	HH160001		CC30B
RWYP160001-AK	1	Raceway		CBLP170141-B	VFD170141	HH160001		CC30B
RWYP160001-AL	1	Raceway		CBLP170142-B	VFD170142	HH160001		CC30B
RWYP160001-AM	1	Raceway		CBLP170143-B	VFD170143	HH160001		CC30B
RWYP160001-B	1-1/2	Raceway	DB160003	CBLP170102-A	MCC169102B	HH160001		CC30B
				CBLP170104-A				
				CBLP170106-A				
				CBLP170202-A				
				CBLP170204-A				
RWYP160001-C	1-1/2	Raceway	DB160003	CBLP170111-A	VFD170111	HH160001		CC30B
RWYP160001-D	1-1/2	Raceway	DB160003	CBLP170112-A	VFD170112	HH160001		CC30B
RWYP160001-E	1-1/2	Raceway	DB160003	CBLP170113-A	VFD170113	HH160001		CC30B
RWYP160001-F	1-1/2	Raceway	DB160003	CBLP170121-A	VFD170121	HH160001		CC30B
RWYP160001-G	1-1/2	Raceway	DB160003	CBLP170122-A	VFD170122	HH160001		CC30B
RWYP160001-H	1-1/2	Raceway	DB160003	CBLP170123-A	VFD170123	HH160001		CC30B
RWYP160001-J	1-1/2	Raceway	DB160003	CBLP170131-A	VFD170131	HH160001		CC30B
RWYP160001-K	1-1/2	Raceway	DB160003	CBLP170132-A	VFD170132	HH160001		CC30B
RWYP160001-L	1-1/2	Raceway	DB160003	CBLP170133-A	VFD170133	HH160001		CC30B
RWYP160001-M	1-1/2	Raceway	DB160003	CBLP170141-A	VFD170141	HH160001		CC30B
RWYP160001-N	1-1/2	Raceway	DB160003	CBLP170142-A	VFD170142	HH160001		CC30B
RWYP160001-P	1-1/2	Raceway	DB160003	CBLP170143-A	VFD170143	HH160001		CC30B
RWYP160001-Q	1-1/4	Raceway	DB160003	CBLP170212-A	VFD170212	HH160001		CC30B
RWYP160001-R	1-1/4	Raceway	DB160003	CBLP170211-A	VFD170211	HH160001		CC30B
RWYP160001-TA	3/4	Raceway		CBLP160001-T	PNL169402	CTPL160002		CC30B
RWYP160001-TB	3/4	Raceway		CBLP160001-T	CTPR160007	CAB160001		CC30B
RWYP160001-U	1-1/2	Raceway	DB160003	CBLP170101-A	MCC169102A	HH160001		CC30B
				CBLP170103-A				
				CBLP170105-A				
				CBLP170201-A				
				CBLP170203-A				
RWYP160001-V	2	Raceway		CBLP170220-A	PNL169203	HH160001		CC30B
				CBLP176001-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160001-W	1-1/2	Raceway		CBLP169402-I	PNL169402	HH160001		CC30B
				CBLP169402-M				
				CBLP169402-N				
RWYP160001-X	4	Raceway	DB160003	CBLX160001-X	MCC169102A	HH160001		CC30B
RWYP160001-Y	4	Raceway	DB160003	CBLX160001-Y	MCC169102B	HH160001		CC30B
RWYP160001-Z	1-1/2	Raceway	DB160003	CBLP170115-L	PNL169402	HH160001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
RWYP160002-W	2	Raceway	DB160004	CBLX160002-W	MCC169102A	HH160002		CC30B
RWYP160002-X	2	Raceway	DB160004	CBLX160002-X	MCC169102B	HH160002		CC30B
RWYP160004-A	4	Raceway	DB160013	CBLP180102-A	MCC169101B	HH160004		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181512-A				
RWYP160004-B	4	Raceway	DB160013	CBLP229101A-B	SWGR169101A	HH160004		CC30B
RWYP160004-C	4	Raceway	DB160013	CBLP229101B-A	SWGR169101B	HH160004		CC30B
RWYP160004-D	4	Raceway	DB160013	CBLP229101B-B	SWGR169101B	HH160004		CC30B
RWYP160004-E	1	Raceway	DB160013	CBLP181511-A	MCC169101A	HH160004		CC30B
RWYP160004-F	4	Raceway	DB160013	CBLP229101A-A	SWGR169101A	HH160004		CC30B
RWYP160004-G	1	Raceway		CBLP169402-J	PNL169402	HH160004		CC30B
				CBLP169402-O				
RWYP160004-H	1	Raceway		CBLP181621-A	PNL169204	HH160004		CC30B
RWYP160005-A	3	Raceway	DB160009	CBLP181111-A	MCC169101A	HH160005		CC30B
				CBLP181111-C				
				CBLP181112-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP160005-B	2	Raceway	DB160009	CBLP181001-A	MCC169101A	HH160005		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181521-A				
RWYP160005-C	2-1/2	Raceway	DB160009	CBLP181132-A	VFD181132	HH160005		CC30B
RWYP160005-D	1-1/2	Raceway	DB160009	CBLP181522-A	MCC169101B	HH160005		CC30B
RWYP160005-E	2	Raceway	DB160009	CBLP180101-A	MCC169101A	HH160005		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP160005-F	3	Raceway	DB160009	CBLP181121-A	PNL169203	HH160005		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP160005-G	2	Raceway	DB160009	CBLP181221-A	PNL169204	HH160005		CC30B
				CBLP181222-A				
				CBLP181223-A				
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
RWYP160005-H	2-1/2	Raceway	DB160009	CBLP181231-A	VFD181231	HH160005		CC30B
RWYP160005-J	2-1/2	Raceway	DB160009	CBLP181232-A	VFD181232	HH160005		CC30B
RWYP160005-K	2-1/2	Raceway	DB160009	CBLP181331-A	VFD181331	HH160005		CC30B
RWYP160005-L	2-1/2	Raceway	DB160009	CBLP181332-A	VFD181332	HH160005		CC30B
RWYP160005-M	2-1/2	Raceway	DB160009	CBLP181431-A	VFD181431	HH160005		CC30B
RWYP160005-N	2-1/2	Raceway	DB160009	CBLP181432-A	VFD181432	HH160005		CC30B
RWYP160005-P	2-1/2	Raceway	DB160009	CBLP181131-A	VFD181131	HH160005		CC30B
RWYP160005-Q	1	Raceway	DB160009	CBLP169402-P	PNL169402	HH160005		CC30B
				CBLP169402-Q				
RWYP160005-R	1	Raceway		CBLP169402-K	RWYP169402-K	DRINKING FOUNTAIN		CC30B
RWYP160005-S	1	Raceway	DB160009	CBLP181550-A	PNL169402	HH160005		CC30B
				CBLP181651-A				
				CBLP181652-A				
RWYP160005-T	1-1/2	Raceway		CBLP181141-A	PNL169403	HH160005		CC30B
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
RWYP160005-U	1	Raceway		CBLP181550-C	RWYP181550-C	HH160005		CC30B
RWYP160007-A	5	Raceway	DB160007	CBLP160101-B	VFD160101	HH160007		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP160007-B	5	Raceway	DB160007	CBLP160102-B	VFD160102	HH160007		CC30B
RWYP160007-C	3	Raceway	DB160007	CBLP160103-B	VFD160103	HH160007		CC30B
RWYP160007-D	1	Raceway		CBLP169402-L	PNL169402	HH160007		CC30B
RWYP160007-E	3	Raceway	DB160007	CBLP160104-B	VFD160104	HH160007		CC30B
RWYP160007-F	3	Raceway	DB160007	CBLP160105-B	VFD160105	HH160007		CC30B
RWYP160007-G	3	Raceway	DB160007	CBLP160106-B	VFD160106	HH160007		CC30B
RWYP160007-H	1-1/2	Raceway		CBLP166001-A	PNL169204	HH160007		CC30B
RWYP160007-J	1	Raceway		CBLP160250-A	PNL169402	HH160007		CC30B
RWYP160007-K	1	Raceway		CBLP160101-C	PNL169403	HH160007		CC30B
				CBLP160103-C				
				CBLP160105-C				
RWYP160007-L	1	Raceway		CBLP160102-C	PNL169302	HH160007		CC30B
				CBLP160104-C				
				CBLP160106-C				
RWYP160010-A	4	Raceway	DB160005	CBLP170111-A	HH160001	HH160010		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170220-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP160010-B	4	Raceway	DB160005	CBLP170121-A	HH160001	HH160010		CC30B
				CBLP170122-A				
				CBLP170123-A				
RWYP160010-C	4	Raceway	DB160005	CBLP170131-A	HH160001	HH160010		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP160010-D	4	Raceway	DB160005	CBLP170141-A	HH160001	HH160010		CC30B
				CBLP170142-A				
				CBLP170143-A				
RWYP160010-E	1-1/2	Raceway	DB160005	CBLP170201-A	HH160001	HH160010		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP160010-F	4	Raceway	DB160005	CBLP170101-A	HH160001	HH160010		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
RWYP160010-G	2	Raceway	DB160005	CBLP170211-A	HH160001	HH160010		CC30B
RWYP160010-H	2	Raceway	DB160005	CBLP170212-A	HH160001	HH160010		CC30B
RWYP160010-N	3/4	Raceway		CBLP160010-A	PNL169403	FACP160010		CC30B
RWYP160010-O	1	Raceway		CBLP169402-M	HH160001	HH160010		CC30B
				CBLP169402-N				
RWYP160010-P	2	Raceway	DB160005	CBLP170111-B	HH160001	HH160010		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP160011-A	3/4	Raceway		CBLP160011 -A	PNL169302	NCE160011		CC30B
RWYP160011-B	3/4	Raceway		CBLP160011 -B	PNL169403	NCE160011		CC30B
RWYP160080-A	3/4	Raceway		CBLP160080 -A	PNL169402	DS160080		CC30B
RWYP160080-B	3/4	Raceway		CBLP160080-B	DS160080	M160080		CC30B
RWYP160081-A	3/4	Raceway		CBLP160081-A	PNL169402	DS160081		CC30B
RWYP160081-B	3/4	Raceway		CBLP160081-B	DS160081	M160081		CC30B
RWYP160101-A	2-1/2	Raceway		CBLP160101-A	SWGR169001A	VFD160101		CC30B
RWYP160101-B	2-1/2	Raceway		CBLP160101-B	HH160007	JBX160101		CC30B
RWYP160101-C	1	Raceway		CBLP160101-C	HH160007	CS160101		CC30B
RWYP160101-D	4	Raceway		CBLV160101-C	JBX160101	M160101	VENDOR CABLE	CC30B
RWYP160102-A	2-1/2	Raceway		CBLP160102-A	SWGR169001B	VFD160102		CC30B
RWYP160102-B	2-1/2	Raceway		CBLP160102-B	HH160007	JBX160102		CC30B
RWYP160102-C	1	Raceway		CBLP160102-C	HH160007	CS160102		CC30B
RWYP160102-D	4	Raceway		CBLV160102-C	JBX160102	M160102	VENDOR CABLE	CC30B
RWYP160103-A	2-1/2	Raceway		CBLP160103-A	SWGR169001A	VFD160103		CC30B
RWYP160103-B	2-1/2	Raceway		CBLP160103-B	HH160007	JBX160103		CC30B
RWYP160103-C	1	Raceway		CBLP160103-C	HH160007	CS160103		CC30B
RWYP160103-D	4	Raceway		CBLV160103-C	JBX160103	M160103	VENDOR CABLE	CC30B
RWYP160104-A	2-1/2	Raceway		CBLP160104-A	SWGR169001B	VFD160104		CC30B
RWYP160104-B	2-1/2	Raceway		CBLP160104-B	HH160007	JBX160104		CC30B
RWYP160104-C	1	Raceway		CBLP160104-C	HH160007	CS160104		CC30B
RWYP160104-D	4	Raceway		CBLV160104-C	JBX160104	M160104	VENDOR CABLE	CC30B
RWYP160105-A	2-1/2	Raceway		CBLP160105-A	SWGR169001A	VFD160105		CC30B
RWYP160105-B	2-1/2	Raceway		CBLP160105-B	HH160007	JBX160105		CC30B
RWYP160105-C	1	Raceway		CBLP160105-C	HH160007	CS160105		CC30B
RWYP160105-D	4	Raceway		CBLV160105-C	JBX160105	M160105	VENDOR CABLE	CC30B
RWYP160106-A	2-1/2	Raceway		CBLP160106-A	SWGR169001B	VFD160106		CC30B
RWYP160106-B	2-1/2	Raceway		CBLP160106-B	HH160007	JBX160106		CC30B
RWYP160106-C	1	Raceway		CBLP160106-C	HH160007	CS160106		CC30B
RWYP160106-D	4	Raceway		CBLV160106-C	JBX160106	M160106	VENDOR CABLE	CC30B
RWYP160250-A	1	Raceway		CBLP160250-A	HH160007	DS160250		CC30B
RWYP160250-B	1	Raceway		CBLP160250-B	DS160250	CS160250		CC30B
RWYP160250-C	1	Raceway		CBLP160250-C	CS160250	HTT160250		CC30B
RWYP166001-A	2	Raceway		CBLP166001-A	HH160007	WRCP166001		CC30B
RWYP167850-A	3/4	Raceway		CBLP167850-A	PNL169402	PAC167850		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP168001-A	1	Raceway		CBLP168001-A	PNL169402	DS168001		CC30B
RWYP168001-B	1	Raceway		CBLP168001-B	DS168001	EF168001		CC30B
RWYP168002-A	3/4	Raceway		CBLP168002-A	PNL169402	EF168002		CC30B
RWYP168003-A	3/4	Raceway		CBLP168003-A	PNL169402	EF168003		CC30B
RWYP168011-A	3/4	Raceway		CBLP168011-A	PNL169402	P168011		CC30B
RWYP168031-A	3/4	Raceway		CBLP168031-A	PNL169402	DS168031		CC30B
RWYP168031-B	3/4	Raceway		CBLP168031-B	DS168031	UH168031		CC30B
RWYP168100-A	3/4	Raceway		CBLP168100-A	MCC169301	DS168100		CC30B
RWYP168100-B	3/4	Raceway		CBLP168100-B	DS168100	M168100		CC30B
RWYP168200-A	3/4	Raceway		CBLP168200-A	MCC169301	DS168200		CC30B
RWYP168200-B	3/4	Raceway		CBLP168200-B	DS168200	M168200		CC30B
RWYP168901-A	3/4	Raceway		CBLP168901-A	NCE160011	CAB168901		CC30B
RWYP168901-B	3/4	Raceway		CBLP168901 -B	PNL169402	CAB168901		CC30B
RWYP169000A-A	3/4	Raceway		CBLP169000A-A	PNL169403	RLY169000A		CC30B
RWYP169000A-B	3/4	Raceway		CBLP169000A-B	PNL169403	SUB169000A		CC30B
RWYP169000A-C	3/4	Raceway		CBLP169000A-C	PNL169302	RLY169000A		CC30B
RWYP169000B-A	3/4	Raceway		CBLP169000B-A	PNL169403	RLY169000B		CC30B
RWYP169000B-B	3/4	Raceway		CBLP169000B-B	PNL169302	RLY169000B		CC30B
RWYP169000B-C	3/4	Raceway		CBLP169000B-C	PNL169302	SUB169000B		CC30B
RWYP169001A-A	3/4	Raceway		CBLP169001A-A	PNL169403	SWGR169001A		CC30B
RWYP169001A-B	3/4	Raceway		CBLP169001A-B	PNL169403	SWGR169001A		CC30B
RWYP169001B-A	3/4	Raceway		CBLP169001B-A	PNL169302	SWGR169001B		CC30B
RWYP169001B-B	3/4	Raceway		CBLP169001B-B	PNL169302	SWGR169001B		CC30B
RWYP169101A-A	3-1/2	Raceway		CBLP169101A-A	SWGR169001A	MCC169101A		CC30B
RWYP169101A-B	3-1/2	Raceway		CBLP169101A-B	SWGR169001A	MCC169101A		CC30B
RWYP169101A-C	3-1/2	Raceway		CBLP169101A-C	SWGR169001A	MCC169101A		CC30B
RWYP169101A-D	3-1/2	Raceway		CBLP169101A-D	SWGR169001A	RWYP169101A-F		CC30B
RWYP169101A-E	3-1/2	Raceway		CBLP169101A-E	SWGR169001A	MCC169101A		CC30B
RWYP169101A-F	1	Raceway		CBLP169101A-D	RWYP169101A-D	MCC169101A		CC30B
RWYP169101A-H	3/4	Raceway		CBLP169101A-H	PNL169403	CAB169101A		CC30B
RWYP169101B-A	3-1/2	Raceway		CBLP169101B-A	SWGR169001B	MCC169101B		CC30B
RWYP169101B-B	3-1/2	Raceway		CBLP169101B-B	SWGR169001B	MCC169101B		CC30B
RWYP169101B-C	3-1/2	Raceway		CBLP169101B-C	SWGR169001B	MCC169101B		CC30B
RWYP169101B-D	3-1/2	Raceway		CBLP169101B-D	SWGR169001B	RWYP169101B-F		CC30B
RWYP169101B-E	3-1/2	Raceway		CBLP169101B-E	SWGR169001B	MCC169101B		CC30B
RWYP169101B-F	1	Raceway		CBLP169101B-D	RWYP169101B-D	MCC169101B		CC30B
RWYP169101B-J	3/4	Raceway		CBLP169101B-J	PNL169302	CAB169101B		CC30B
RWYP169102A-A	3	Raceway		CBLP169102A-A	SWGR169001A	MCC169102A		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP169102A-B	3	Raceway		CBLP169102A-B	SWGR169001A	MCC169102A		CC30B
RWYP169102A-C	3	Raceway		CBLP169102A-C	SWGR169001A	MCC169102A		CC30B
RWYP169102A-D	3	Raceway		CBLP169102A-D	SWGR169001A	MCC169102A		CC30B
RWYP169102A-E	3/4	Raceway		CBLP169102A-E	PLC169102A	MCC169102A		CC30B
RWYP169102A-F	3/4	Raceway		CBLP169102A-F	PNL169403	CAB169102A		CC30B
RWYP169102B-A	3	Raceway		CBLP169102B-A	SWGR169001B	MCC169102B		CC30B
RWYP169102B-B	3	Raceway		CBLP169102B-B	SWGR169001B	MCC169102B		CC30B
RWYP169102B-C	3	Raceway		CBLP169102B-C	SWGR169001B	MCC169102B		CC30B
RWYP169102B-D	3	Raceway		CBLP169102B-D	SWGR169001B	MCC169102B		CC30B
RWYP169102B-E	3/4	Raceway		CBLP169102B-E	PNL169302	CAB169102B		CC30B
RWYP169102B-G	3/4	Raceway		CBLP169102B-G	PLC169102B	MCC169102B		CC30B
RWYP169201-A	4	Raceway		CBLP169201-A	MCC169101A	ATS169201		CC30B
RWYP169201-B	3-1/2	Raceway		CBLP169201-B	MCC169101B	ATS169201		CC30B
RWYP169201-C	3-1/2	Raceway		CBLP169201-C	ATS169201	XFMR169301		CC30B
RWYP169202-A	3-1/2	Raceway		CBLP169202-A	MCC169102A	ATS169202		CC30B
RWYP169202-B	3-1/2	Raceway		CBLP169202-B	MCC169102B	ATS169202		CC30B
RWYP169301-A	3	Raceway		CBLP169301-A	XFMR169301	PNL169301		CC30B
RWYP169301-B	3	Raceway		CBLP169301-B	XFMR169301	PNL169301		CC30B
RWYP169301-C	2	Raceway		CBLP169301-C	PNL169301	MCC169401		CC30B
RWYP169301-D	1	Raceway		CBLP169301-D	HH170001	JBX70003		CC30B
RWYP169302-A	1-1/4	Raceway		CBLP169302-A	ATS169202	XFMR169302		CC30B
RWYP169302-B	1-1/2	Raceway		CBLP169302-B	XFMR169302	CB169302		CC30B
RWYP169302-C	1-1/2	Raceway		CBLP169302-C	CB169302	MBS169302		CC30B
RWYP169302-E	2	Raceway		CBLP169302-E	MBS169302	UPS169302		CC30B
				CBLP169302-F				
RWYP169302-G	1	Raceway		CBLP169302-G	MBS169302	PNL169302		CC30B
RWYP169302-H	1-1/2	Raceway		CBLP169302-H	UPS169302	BAT169302		CC30B
RWYP169402-A	2	Raceway		CBLP169402-A	PNL169301	XFMR169402		CC30B
RWYP169402-B	3	Raceway		CBLP169402-B	XFMR169402	PNL169402		CC30B
RWYP169402-C	1-1/2	Raceway		CBLP169402-C	PNL169402	PNL169501		CC30B
RWYP169402-D	1-1/2	Raceway		CBLP169402-D	PNL169402	PNL169502		CC30B
RWYP169402-E	3/4	Raceway		CBLP169402-E	PNL169402	RECIRC PUMP		CC30B
RWYP169402-K	3/4	Raceway		CBLP169402-K	PNL169402	RWYP160005-R		CC30B
RWYP169403-A	1-1/2	Raceway		CBLP169403-A	PNL169301	XFMR169403		CC30B
RWYP169403-B	2	Raceway		CBLP169403-B	XFMR169403	CB169403		CC30B
RWYP169403-D	1-1/2	Raceway		CBLP169403-D	CB169403	MBS169403		CC30B
RWYP169403-E	1-1/2	Raceway		CBLP169403-E	MBS169403	PNL169403		CC30B
RWYP169403-F	2-1/2	Raceway		CBLP169403-F	MBS169403	UPS169403		CC30B
				CBLP169403-G				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP169403-H	1-1/2	Raceway		CBLP169403-H	UPS169403	BAT169403		CC30B
RWYP170001-A	3	Raceway		CBLP170111-A	HH160010	HH170001		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170220-A				
RWYP170001-B	3	Raceway		CBLP170211-A	HH160010	HH170001		CC30B
				CBLP170212-A				
RWYP170001-E	1	Raceway	DB170002	CBLP169402-N	HH160010	HH170001		CC30B
RWYP170001-F	2	Raceway	DB170002	CBLP170115-L	HH160010	HH170001		CC30B
				CBLP170125-A				
				CBLP170135-A				
				CBLP170145-A				
				CBLP170250-A				
				CBLP176001-A				
RWYP170001-G	2	Raceway	DB170002	CBLP170111-B	HH160010	HH170001		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
				CBLP170141-B				
				CBLP170142-B				
				CBLP170143-B				
RWYP170002-A	4	Raceway	DB170004	CBLP170111-A	HH170001	JBX170002		CC30B
				CBLP170112-A				
				CBLP170113-A				
				CBLP170115-L				
				CBLP170125-A				
RWYP170002-B	4	Raceway	DB170004	CBLP170121-A	HH170001	JBX170002		CC30B
				CBLP170122-A				
				CBLP170123-A				
RWYP170002-C	4	Raceway	DB170004	CBLP170131-A	HH170001	JBX170002		CC30B
				CBLP170132-A				
				CBLP170133-A				
RWYP170002-F	2	Raceway	DB170004	CBLP176001-A	HH170001	JBX170002		CC30B
RWYP170002-G	1-1/2	Raceway	DB170004	CBLP170111-B	HH170001	JBX170002		CC30B
				CBLP170112-B				
				CBLP170113-B				
				CBLP170121-B				
				CBLP170122-B				
				CBLP170123-B				
				CBLP170131-B				
				CBLP170132-B				
				CBLP170133-B				
RWYP170003-A	5	Raceway	DB170002	CBLP170121-A	HH160010	HH170001		CC30B
				CBLP170122-A				
				CBLP170123-A				
				CBLP170131-A				
				CBLP170132-A				
				CBLP170133-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170201-A				
				CBLP170202-A				
				CBLP170203-A				
				CBLP170204-A				
RWYP170003-B	4	Raceway	DB170002	CBLP170101-A	HH160010	HH170001		CC30B
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP170105-A				
				CBLP170106-A				
RWYP170003-C	4	Raceway	DB170004	CBLP169301-E	HH170001	JBX170003		CC30B
				CBLP170101-A				
				CBLP170102-A				
				CBLP170103-A				
				CBLP170104-A				
				CBLP170105-A				
				CBLP170106-A				
				CBLP170135-A				
				CBLP170141-A				
				CBLP170142-A				
				CBLP170143-A				
				CBLP170145-A				
RWYP170003-D	2	Raceway	DB170004	CBLP170141-B	HH170001	JBX170003		CC30B
				CBLP170142-B				
				CBLP170143-B				
RWYP170003-E	2	Raceway	DB170004	CBLP170204-A	HH170001	JBX170003		CC30B
RWYP170005-A	3	Raceway		CBLP170201-A	HH170001	JBX170005		CC30B
				CBLP170202-A				
				CBLP170203-A				
				CBLP170211-A				
				CBLP170212-A				
				CBLP170220-A				
				CBLP170250-A				
RWYP170101-A	1	Raceway		CBLP170101-A	JBX170003	DS170101		CC30B
RWYP170101-B	1	Raceway		CBLP170101-B	DS170101	JBX170101		CC30B
RWYP170101-C	1	Raceway		CBLV170101-A	JBX170101	M170101		CC30B
RWYP170102-A	1	Raceway		CBLP170102-A	JBX170003	DS170102		CC30B
RWYP170102-B	1	Raceway		CBLP170102-B	DS170102	JBX170102		CC30B
RWYP170102-C	1	Raceway		CBLV170102-A	JBX170102	M170102		CC30B
RWYP170103-A	1	Raceway		CBLP170103-A	JBX170003	DS170103		CC30B
RWYP170103-B	1	Raceway		CBLP170103-B	DS170103	JBX170103		CC30B
RWYP170103-C	1	Raceway		CBLV170103-A	JBX170103	M170103		CC30B
RWYP170104-A	1	Raceway		CBLP170104-A	JBX170003	DS170104		CC30B
RWYP170104-B	1	Raceway		CBLP170104-B	DS170104	JBX170104		CC30B
RWYP170104-C	1	Raceway		CBLV170104-A	JBX170104	M170104		CC30B
RWYP170105-A	1	Raceway		CBLP170105-A	JBX170003	DS170105		CC30B
RWYP170105-B	1	Raceway		CBLP170105-B	DS170105	JBX170105		CC30B
RWYP170105-C	1	Raceway		CBLV170105-A	JBX170105	M170105		CC30B
RWYP170106-A	1	Raceway		CBLP170106-A	JBX170003	DS170106		CC30B
RWYP170106-B	1	Raceway		CBLP170106-B	DS170106	JBX170106		CC30B
RWYP170106-C	1	Raceway		CBLV170106-A	JBX170106	M170106		CC30B
RWYP170111-A	1	Raceway		CBLP170111-A	JBX170002	M170111		CC30B
RWYP170111-B	1	Raceway		CBLP170111-B	JBX170002	HTR170111		CC30B
RWYP170112-A	1	Raceway		CBLP170112-A	JBX170002	M170112		CC30B
RWYP170112-B	1	Raceway		CBLP170112-B	JBX170002	HTR170112		CC30B
RWYP170113-A	1	Raceway		CBLP170113-A	JBX170002	M170113		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170113-B	1	Raceway		CBLP170113-B	JBX170002	HTR170113		CC30B
RWYP170115-A	1	Raceway		CBLP170115-L	JBX170002	AIT170115		CC30B
RWYP170121-A	1	Raceway		CBLP170121-A	JBX170002	M170121		CC30B
RWYP170121-B	1	Raceway		CBLP170121-B	JBX170002	HTR170121		CC30B
RWYP170122-A	1	Raceway		CBLP170122-A	JBX170002	M170122		CC30B
RWYP170122-B	1	Raceway		CBLP170122-B	JBX170002	HTR170122		CC30B
RWYP170123-A	1	Raceway		CBLP170123-A	JBX170002	M170123		CC30B
RWYP170123-B	1	Raceway		CBLP170123-B	JBX170002	HTR170123		CC30B
RWYP170125-A	1	Raceway		CBLP170125-A	JBX170002	AIT170125		CC30B
RWYP170131-A	1	Raceway		CBLP170131-A	JBX170002	M170131		CC30B
RWYP170131-B	1	Raceway		CBLP170131-B	JBX170002	HTR170131		CC30B
RWYP170132-A	1	Raceway		CBLP170132-A	JBX170002	M170132		CC30B
RWYP170132-B	1	Raceway		CBLP170132-B	JBX170002	HTR170132		CC30B
RWYP170133-A	1	Raceway		CBLP170133-A	JBX170002	M170133		CC30B
RWYP170133-B	1	Raceway		CBLP170133-B	JBX170002	HTR170133		CC30B
RWYP170135-A	1	Raceway		CBLP170135-A	JBX170003	AIT170135		CC30B
RWYP170141-A	1	Raceway		CBLP170141-A	JBX170003	M170141		CC30B
RWYP170141-B	1	Raceway		CBLP170141-B	JBX170003	HTR170141		CC30B
RWYP170142-A	1	Raceway		CBLP170142-A	JBX170003	M170142		CC30B
RWYP170142-B	1	Raceway		CBLP170142-B	JBX170003	HTR170142		CC30B
RWYP170143-A	1	Raceway		CBLP170143-A	JBX170003	M170143		CC30B
RWYP170143-B	1	Raceway		CBLP170143-B	JBX170003	HTR170143		CC30B
RWYP170145-A	1	Raceway		CBLP170145-A	JBX170003	AIT170145		CC30B
RWYP170201-A	1	Raceway		CBLP170201-A	JBX170005	DS170201		CC30B
RWYP170201-B	1	Raceway		CBLP170201-B	DS170201	JBX170201		CC30B
RWYP170202-A	1	Raceway		CBLP170202-A	JBX170005	DS170202		CC30B
RWYP170202-B	1	Raceway		CBLP170202-B	DS170202	JBX170202		CC30B
RWYP170203-A	1	Raceway		CBLP170203-A	JBX170005	DS170203		CC30B
RWYP170203-B	1	Raceway		CBLP170203-B	DS170203	JBX170203		CC30B
RWYP170203-C	1	Raceway		CBLV170203-A	JBX170203	M170203		CC30B
RWYP170204-A	1	Raceway		CBLP170204-A	JBX170003	DS170204		CC30B
RWYP170204-B	1	Raceway		CBLP170204-B	DS170204	JBX170204		CC30B
RWYP170204-C	1	Raceway		CBLV170204-A	JBX170204	M170204		CC30B
RWYP170211-A	1-1/2	Raceway		CBLP170211-A	JBX170005	JBX170211		CC30B
RWYP170211-C	1	Raceway		CBLV170211-A	JBX170211	M170211		CC30B
RWYP170212-A	1-1/2	Raceway		CBLP170212-A	JBX170005	JBX170212		CC30B
RWYP170212-C	1	Raceway		CBLV170212-A	JBX170212	M170212		CC30B
RWYP170220-A	1	Raceway		CBLP170220-A	JBX170005	DS170220		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP170220-B	1	Raceway		CBLP170220-B	HH170001	SGTE170220		CC30B
RWYP170250-A	1	Raceway		CBLP170250-A	JBX170005	DS170250		CC30B
RWYP170250-B	1	Raceway		CBLP170250-B	DS170250	CS170250		CC30B
RWYP170250-C	1	Raceway		CBLP170250-C	CS170250	HTT170250		CC30B
RWYP180001-A	6	Raceway	DB180004	CBLP181131-A	HH180003	JBX180001	ADDENDUM 5	CC30B/REV A
				CBLP181132-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181431-A				
				CBLP181432-A				
RWYP180001-B	2	Raceway	DB180004	CBLP181423-A	HH180003	JBX180001	ADDENDUM 5	CC30B/REV A
				CBLP186001-A				
RWYP180002-A	5	Raceway	DB160015	CBLP180102-A	HH160004	HH180002		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
				CBLP229101A-A				
RWYP180002-B	4	Raceway	DB160015	CBLP229101A-B	HH160004	HH180002		CC30B
RWYP180002-C	4	Raceway	DB160015	CBLP229101B-A	HH160004	HH180002		CC30B
RWYP180002-D	4	Raceway	DB160015	CBLP229101B-B	HH160004	HH180002		CC30B
RWYP180002-E	1	Raceway	DB160015	CBLP169402-O	HH160004	HH180002		CC30B
				CBLP181621-A				
RWYP180002-F	1	Raceway	DB180004	CBLP181621-A	HH180002	JBX180001	ADDENDUM 5	CC30B/REV A
RWYP180003-A	5	Raceway	DB160011	CBLP181121-A	HH160005	HH180003		CC30B
				CBLP181122-A				
				CBLP181123-A				
				CBLP181131-A				
				CBLP181132-A				
				CBLP181141-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181223-A				
				CBLP181231-A				
				CBLP181232-A				
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181652-A				
RWYP180003-B	6	Raceway	DB160011	CBLP181001-A	HH160005	HH180003		CC30B
				CBLP181003-A				
				CBLP181005-A				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181331-A				
				CBLP181332-A				
				CBLP181421-A				
				CBLP181422-A				
				CBLP181423-A				
				CBLP181431-A				
				CBLP181432-A				
				CBLP186001-A				
				CBLP186002-A				
RWYP180003-C	1-1/2	Raceway	DB160011	CBLP181521-A	HH160005	HH180003		CC30B
				CBLP181522-A				
RWYP180003-D	1-1/2	Raceway	DB160011	CBLP180101-A	HH160005	HH180003		CC30B
				CBLP180103-A				
				CBLP180105-A				
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
RWYP180003-E	3	Raceway	DB160011	CBLP181111-A	HH160005	HH180003		CC30B
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180003-F	3	Raceway	DB180005	CBLP181123-A	HH180003	JBX180003		CC30B
				CBLP181223-A				
				CBLP181511-A				
				CBLP181512-A				
				CBLP181550-A				
				CBLP181550-C				
				CBLP181651-A				
				CBLP181652-A				
RWYP180003-G	4	Raceway	DB180009	CBLP180102-A	HH180002	HH180003		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181414-C				
				CBLP181511-A				
				CBLP181512-A				
RWYP180003-H	2	Raceway	DB180005	CBLP181521-A	HH180003	JBX180003		CC30B
				CBLP181522-A				
RWYP180003-I	1	Raceway	DB160011	CBLP169402-P	HH160005	HH180003		CC30B
RWYP180003-J	1	Raceway	DB160011	CBLP169402-Q	HH160005	HH180003		CC30B
RWYP180005-A	2	Raceway	DB180005	CBLP180101-A	HH180003	JBX180005		CC30B
				CBLP180103-A				
				CBLP181121-A				
				CBLP181122-A				
				CBLP181221-A				
				CBLP181222-A				
				CBLP181421-A				
				CBLP181422-A				
RWYP180005-B	4	Raceway	DB180001	CBLP229101A-B	HH180002	HH180005		CC30B
RWYP180005-C	4	Raceway	DB180001	CBLP229101B-A	HH180002	HH180005		CC30B
RWYP180005-D	4	Raceway	DB180001	CBLP229101B-B	HH180002	HH180005		CC30B
RWYP180005-E	1-1/2	Raceway	DB180001	CBLP181321-A	HH180007	JBX180005		CC30B
				CBLP181322-A				
RWYP180005-F	4	Raceway	DB180001	CBLP229101A-A	HH180002	HH180005		CC30B
RWYP180007-A	4	Raceway	DB180005	CBLP180105-A	HH180003	HH180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-B	4	Raceway	DB180007	CBLP180102-A	HH180007	JBX180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
RWYP180007-C	4	Raceway	DB180007	CBLP180105-A	HH180007	JBX180007		CC30B
				CBLP180107-A				
				CBLP180109-A				
				CBLP180111-A				
				CBLP181001-A				
				CBLP181003-A				
				CBLP181005-A				
				CBLP181111-A				
				CBLP181111-C				
				CBLP181112-A				
				CBLP181112-C				
				CBLP181113-A				
				CBLP181113-C				
				CBLP181114-A				
				CBLP181114-C				
				CBLP181311-A				
				CBLP181311-C				
				CBLP181312-A				
				CBLP181312-C				
				CBLP181313-A				
				CBLP181313-C				
				CBLP181314-A				
				CBLP181314-C				
RWYP180007-D	4	Raceway	DB180005	CBLP180102-A	HH180003	HH180007		CC30B
				CBLP180104-A				
				CBLP180106-A				
				CBLP180108-A				
				CBLP180110-A				
				CBLP181002-A				
				CBLP181004-A				
				CBLP181006-A				
				CBLP181211-A				
				CBLP181211-C				
				CBLP181212-A				
				CBLP181212-C				
				CBLP181213-A				
				CBLP181213-C				
				CBLP181214-A				
				CBLP181214-C				
				CBLP181321-A				
				CBLP181322-A				
				CBLP181411-A				
				CBLP181411-C				
				CBLP181412-A				
				CBLP181412-C				
				CBLP181413-A				
				CBLP181413-C				
				CBLP181414-A				
				CBLP181414-C				
				CBLP186002-A				
RWYP180007-F	1	Raceway	DB180005	CBLP169402-Q	HH180003	HH180007		CC30B
RWYP180007-G	1-1/2	Raceway	DB180007	CBLP181141-A	HH180003	JBX180007		CC30B
				CBLP181241-A				
				CBLP181341-A				
				CBLP181441-A				
RWYP180007-H	1-1/2	Raceway	DB180007	CBLP186002-A	HH180007	JBX180007		CC30B
RWYP180101-A	1	Raceway		CBLP180101-A	JBX180005	DS180101		CC30B
RWYP180101-B	1	Raceway		CBLP180101-B	DS180101	JBX180101		CC30B
RWYP180102-B	1	Raceway		CBLP180102-A	JBX180007	DS180102		CC30B
RWYP180102-C	1	Raceway		CBLP180102-B	DS180102	JBX180102		CC30B
RWYP180103-A	1	Raceway		CBLP180103-A	JBX180005	DS180103		CC30B
RWYP180103-B	1	Raceway		CBLP180103-B	DS180103	JBX180103		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP180104-A	1	Raceway		CBLP180104-A	JBX180007	DS180104		CC30B
RWYP180104-B	1	Raceway		CBLP180104-B	DS180104	JBX180104		CC30B
RWYP180105-A	1	Raceway		CBLP180105-A	JBX180007	DS180105		CC30B
RWYP180105-B	1	Raceway		CBLP180105-B	DS180105	JBX180105		CC30B
RWYP180106-A	1	Raceway		CBLP180106-A	JBX180007	DS180106		CC30B
RWYP180106-B	1	Raceway		CBLP180106-B	DS180106	JBX180106		CC30B
RWYP180107-A	1	Raceway		CBLP180107-A	JBX180007	DS180107		CC30B
RWYP180107-B	1	Raceway		CBLP180107-B	DS180107	JBX180107		CC30B
RWYP180108-A	1	Raceway		CBLP180108-A	JBX180007	DS180108		CC30B
RWYP180108-B	1	Raceway		CBLP180108-B	DS180108	JBX180108		CC30B
RWYP180109-A	1	Raceway		CBLP180109-A	JBX180007	DS180109		CC30B
RWYP180109-B	1	Raceway		CBLP180109-B	DS180109	JBX180109		CC30B
RWYP180110-A	1	Raceway		CBLP180110-A	JBX180007	DS180110		CC30B
RWYP180110-B	1	Raceway		CBLP180110-B	DS180110	JBX180110		CC30B
RWYP180111-A	1	Raceway		CBLP180111-A	JBX180007	DS180111		CC30B
RWYP180111-B	1	Raceway		CBLP180111-B	DS180111	JBX180111		CC30B
RWYP181001-A	1	Raceway		CBLP181001-A	JBX180007	DS181001		CC30B
RWYP181001-B	1	Raceway		CBLP181001-B	DS181001	JBX181001		CC30B
RWYP181002-A	1	Raceway		CBLP181002-A	JBX180007	DS181002		CC30B
RWYP181002-B	1	Raceway		CBLP181002-B	DS181002	JBX181002		CC30B
RWYP181003-A	1	Raceway		CBLP181003-A	JBX180007	DS181003		CC30B
RWYP181003-B	1	Raceway		CBLP181003-B	DS181003	JBX181003		CC30B
RWYP181004-A	1	Raceway		CBLP181004-A	JBX180007	DS181004		CC30B
RWYP181004-B	1	Raceway		CBLP181004-B	DS181004	JBX181004		CC30B
RWYP181005-A	1	Raceway		CBLP181005-A	JBX180007	DS181005		CC30B
RWYP181005-B	1	Raceway		CBLP181005-B	DS181005	JBX181005		CC30B
RWYP181006-A	1	Raceway		CBLP181006-A	JBX180007	DS181006		CC30B
RWYP181006-B	1	Raceway		CBLP181006-B	DS181006	JBX181006		CC30B
RWYP181111-A	1	Raceway		CBLP181111-A	JBX180007	DS181111		CC30B
RWYP181111-B	1	Raceway		CBLP181111-B	DS181111	M181111		CC30B
RWYP181111-C	1	Raceway		CBLP181111-C	JBX180007	HTR181111		CC30B
RWYP181112-A	1	Raceway		CBLP181112-A	JBX180007	DS181112		CC30B
RWYP181112-B	1	Raceway		CBLP181112-B	DS181112	M181112		CC30B
RWYP181112-C	1	Raceway		CBLP181112-C	JBX180007	HTR181112		CC30B
RWYP181113-A	1	Raceway		CBLP181113-A	JBX180007	DS181113		CC30B
RWYP181113-B	1	Raceway		CBLP181113-B	DS181113	M181113		CC30B
RWYP181113-C	1	Raceway		CBLP181113-C	JBX180007	HTR181113		CC30B
RWYP181114-A	1	Raceway		CBLP181114-A	JBX180007	DS181114		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181114-B	1	Raceway		CBLP181114-B	DS181114	M181114		CC30B
RWYP181114-C	1	Raceway		CBLP181114-C	JBX180007	HTR181114		CC30B
RWYP181121-A	1	Raceway		CBLP181121-A	JBX180005	FCV181121		CC30B
RWYP181122-A	1	Raceway		CBLP181122-A	JBX180005	DS181122		CC30B
RWYP181122-B	1	Raceway		CBLP181122-B	DS181122	FCV181122		CC30B
RWYP181123-A	1	Raceway		CBLP181123-A	JBX180003	FCV181123		CC30B
RWYP181131-A	2	Raceway		CBLP181131-A	JBX180001	JBX181131		CC30B
RWYP181131-B	4	Raceway		CBLV181131-A	JBX181131	M181131	VENDOR CABLE	CC30B
RWYP181132-A	2	Raceway		CBLP181132-A	JBX180001	JBX181132		CC30B
RWYP181132-B	4	Raceway		CBLV181132-A	JBX181132	M181132	VENDOR CABLE	CC30B
RWYP181141-A	1	Raceway		CBLP181141-A	JBX180007	AIT181141		CC30B
RWYP181211-A	1	Raceway		CBLP181211-A	JBX180007	DS181211		CC30B
RWYP181211-B	1	Raceway		CBLP181211-B	DS181211	M181211		CC30B
RWYP181211-C	1	Raceway		CBLP181211-C	JBX180007	HTR181211		CC30B
RWYP181212-A	1	Raceway		CBLP181212-A	JBX180007	DS181212		CC30B
RWYP181212-B	1	Raceway		CBLP181212-B	DS181212	M181212		CC30B
RWYP181212-C	1	Raceway		CBLP181212-C	JBX180007	HTR181212		CC30B
RWYP181213-A	1	Raceway		CBLP181213-A	JBX180007	DS181213		CC30B
RWYP181213-B	1	Raceway		CBLP181213-B	DS181213	M181213		CC30B
RWYP181213-C	1	Raceway		CBLP181213-C	JBX180007	HTR181213		CC30B
RWYP181214-A	1	Raceway		CBLP181214-A	JBX180007	DS181214		CC30B
RWYP181214-B	1	Raceway		CBLP181214-B	DS181214	M181214		CC30B
RWYP181214-C	1	Raceway		CBLP181214-C	JBX180007	HTR181214		CC30B
RWYP181221-A	1	Raceway		CBLP181221-A	JBX180005	FCV181221		CC30B
RWYP181222-A	1	Raceway		CBLP181222-A	JBX180005	DS181222		CC30B
RWYP181222-B	1	Raceway		CBLP181222-B	DS181222	FCV181222		CC30B
RWYP181223-A	1	Raceway		CBLP181223-A	JBX180003	FCV181223		CC30B
RWYP181231-A	2	Raceway		CBLP181231-A	JBX180001	JBX181231		CC30B
RWYP181231-B	4	Raceway		CBLV181231-A	JBX181231	M181231	VENDOR CABLE	CC30B
RWYP181232-A	2	Raceway		CBLP181232-A	JBX180001	JBX181232		CC30B
RWYP181232-B	4	Raceway		CBLV181232-A	JBX181232	M181232	VENDOR CABLE	CC30B
RWYP181241-A	1	Raceway		CBLP181241-A	JBX180007	AIT181241		CC30B
RWYP181311-A	1	Raceway		CBLP181311-A	JBX180007	DS181311		CC30B
RWYP181311-B	1	Raceway		CBLP181311-B	DS181311	M181311		CC30B
RWYP181311-C	1	Raceway		CBLP181311-C	JBX180007	HTR181311		CC30B
RWYP181312-A	1	Raceway		CBLP181312-A	JBX180007	DS181312		CC30B
RWYP181312-B	1	Raceway		CBLP181312-B	DS181312	M181312		CC30B
RWYP181312-C	1	Raceway		CBLP181312-C	JBX180007	HTR181312		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181313-A	1	Raceway		CBLP181313-A	JBX180007	DS181313		CC30B
RWYP181313-B	1	Raceway		CBLP181313-B	DS181313	M181313		CC30B
RWYP181313-C	1	Raceway		CBLP181313-C	JBX180007	HTR181313		CC30B
RWYP181314-A	1	Raceway		CBLP181314-A	JBX180007	DS181314		CC30B
RWYP181314-B	1	Raceway		CBLP181314-B	DS181314	M181314		CC30B
RWYP181314-C	1	Raceway		CBLP181314-C	JBX180007	HTR181314		CC30B
RWYP181321-A	1	Raceway		CBLP181321-A	JBX180005	FCV181321		CC30B
RWYP181322-A	1	Raceway		CBLP181322-A	JBX180005	FCV181322		CC30B
RWYP181331-A	2	Raceway		CBLP181331-A	JBX180001	JBX181331		CC30B
RWYP181331-B	4	Raceway		CBLV181331-A	JBX181331	M181331	VENDOR CABLE	CC30B
RWYP181332-A	2	Raceway		CBLP181332-A	JBX180001	JBX181332		CC30B
RWYP181332-B	4	Raceway		CBLV181332-A	JBX181332	M181332	VENDOR CABLE	CC30B
RWYP181341-A	1	Raceway		CBLP181341-A	JBX180007	AIT181441		CC30B
RWYP181411-A	1	Raceway		CBLP181411-A	JBX180007	DS181411		CC30B
RWYP181411-B	1	Raceway		CBLP181411-B	DS181411	M181411		CC30B
RWYP181411-C	1	Raceway		CBLP181411-C	JBX180007	HTR181411		CC30B
RWYP181412-A	1	Raceway		CBLP181412-A	JBX180007	DS181412		CC30B
RWYP181412-B	1	Raceway		CBLP181412-B	DS181412	M181412		CC30B
RWYP181412-C	1	Raceway		CBLP181412-C	JBX180007	HTR181412		CC30B
RWYP181413-A	1	Raceway		CBLP181413-A	JBX180007	DS181413		CC30B
RWYP181413-B	1	Raceway		CBLP181413-B	DS181413	M181413		CC30B
RWYP181413-C	1	Raceway		CBLP181413-C	JBX180007	HTR181413		CC30B
RWYP181414-A	1	Raceway		CBLP181414-A	JBX180007	DS181414		CC30B
RWYP181414-B	1	Raceway		CBLP181414-B	DS181414	M181414		CC30B
RWYP181414-C	1	Raceway		CBLP181414-C	JBX180007	HTR181414		CC30B
RWYP181421-A	1	Raceway		CBLP181421-A	JBX180005	FCV181421		CC30B
RWYP181422-A	1	Raceway		CBLP181422-A	JBX180005	FCV181422		CC30B
RWYP181423-A	1	Raceway		CBLP181423-A	JBX180001	FCV181423		CC30B
RWYP181431-A	2	Raceway		CBLP181431-A	JBX180001	JBX181431		CC30B
RWYP181431-B	4	Raceway		CBLV181431-A	JBX181431	M181431	VENDOR CABLE	CC30B
RWYP181432-A	2	Raceway		CBLP181432-A	JBX180001	JBX181432		CC30B
RWYP181432-B	4	Raceway		CBLV181432-A	JBX181432	M181432	VENDOR CABLE	CC30B
RWYP181441-A	1	Raceway		CBLP181441-A	JBX180007	AIT181341		CC30B
RWYP181511-A	1	Raceway		CBLP181511-A	JBX180003	DS181511		CC30B
RWYP181511-B	1	Raceway		CBLP181511-B	DS181511	JBX181511		CC30B
RWYP181512-A	1	Raceway		CBLP181512-A	JBX180003	DS181512		CC30B
RWYP181512-B	1	Raceway		CBLP181512-B	DS181512	JBX181512		CC30B
RWYP181521-A	1	Raceway		CBLP181521-A	JBX180003	DS181521		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP181521-B	1	Raceway		CBLP181521-B	DS181521	JBX181521		CC30B
RWYP181522-A	1	Raceway		CBLP181522-A	JBX180003	DS181522		CC30B
RWYP181522-B	1	Raceway		CBLP181522-B	DS181522	JBX181522		CC30B
RWYP181550-A	1	Raceway		CBLP181550-A	JBX180003	DS181550		CC30B
RWYP181550-B	1	Raceway		CBLP181550-B	DS181550	CS181550		CC30B
RWYP181550-C	1	Raceway		CBLP181550-C	CS181550	RWYP160005-U		CC30B
RWYP181621-A	1	Raceway		CBLP181621-A	JBX180001	DS181621	ADDENDUM 2	CC30B/REV A
RWYP181651-A	1	Raceway		CBLP181651-A	JBX180003	DS181651		CC30B
RWYP181651-B	1	Raceway		CBLP181651-B	DS181651	CS181651		CC30B
RWYP181651-C	1	Raceway		CBLP181651-C	CS181651	HTT181651		CC30B
RWYP181652-A	1	Raceway		CBLP181652-A	JBX180003	DS181652		CC30B
RWYP181652-B	1	Raceway		CBLP181652-B	DS181652	CS181652		CC30B
RWYP181652-C	1	Raceway		CBLP181652-C	CS181652	HTT181652		CC30B
RWYP18550-C	1	Raceway		CBLP181550-C	JBX180003	HTT181550		CC30B
RWYP186001-A	1-1/2	Raceway		CBLP186001-A	JBX180001	WRCP186001		CC30B
RWYS160000-A	1	Raceway		CBLS160101-C	HH160008	PLC160001		CC30B
				CBLS160101-D				
				CBLS160101-E				
RWYS160000-B	1	Raceway		CBLS160102-C	HH160008	PLC160001		CC30B
				CBLS160102-D				
				CBLS160102-E				
RWYS160000-C	1	Raceway		CBLS160103-C	HH160008	PLC160001		CC30B
				CBLS160103-D				
				CBLS160103-E				
RWYS160000-D	1	Raceway		CBLS160104-C	HH160008	PLC160001		CC30B
				CBLS160104-D				
				CBLS160104-E				
RWYS160000-E	1	Raceway		CBLS160105-C	HH160008	PLC160001		CC30B
				CBLS160105-D				
				CBLS160105-E				
RWYS160000-F	1	Raceway		CBLS160106-C	HH160008	PLC160001		CC30B
				CBLS160106-D				
				CBLS160106-E				
RWYS160002-A	1-1/2	Raceway	DB160004	CBLS170111-A	VFD170111	HH160002		CC30B
				CBLS170111-B				
RWYS160002-B	1-1/2	Raceway	DB160004	CBLS170112-A	VFD170112	HH160002		CC30B
				CBLS170112-B				
RWYS160002-C	1-1/2	Raceway	DB160004	CBLS170113-A	VFD170113	HH160002		CC30B
				CBLS170113-B				
RWYS160002-D	1-1/2	Raceway	DB160004	CBLS170121-A	VFD170121	HH160002		CC30B
				CBLS170121-B				
RWYS160002-E	1-1/2	Raceway	DB160004	CBLS170122-A	VFD170122	HH160002		CC30B
				CBLS170122-B				
RWYS160002-F	1-1/2	Raceway	DB160004	CBLS170123-A	VFD170123	HH160002		CC30B
				CBLS170123-B				
RWYS160002-G	1-1/2	Raceway	DB160004	CBLS170131-A	VFD170131	HH160002		CC30B
				CBLS170131-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160002-H	1-1/2	Raceway	DB160004	CBLS170132-A	VFD170132	HH160002		CC30B
				CBLS170132-B				
RWYS160002-J	1-1/2	Raceway	DB160004	CBLS170133-A	VFD170133	HH160002		CC30B
				CBLS170133-B				
RWYS160002-K	1-1/2	Raceway	DB160004	CBLS170141-A	VFD170141	HH160002		CC30B
				CBLS170141-B				
RWYS160002-L	1-1/2	Raceway	DB160004	CBLS170142-A	VFD170142	HH160002		CC30B
				CBLS170142-B				
RWYS160002-M	1-1/2	Raceway	DB160004	CBLS170143-A	VFD170143	HH160002		CC30B
				CBLS170143-B				
RWYS160003-A	4	Raceway	DB160014	CBLS181221-C	PLC169101B	HH160003		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS160006-A	1-1/2	Raceway	DB160010	CBLS181131-A	VFD181131	HH160006		CC30B
				CBLS181131-B				
RWYS160006-B	4	Raceway	DB160010	CBLS181121-C	PLC169101A	HH160006		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS160006-C	1-1/2	Raceway	DB160010	CBLS181132-A	VFD181132	HH160006		CC30B
				CBLS181132-B				
RWYS160006-D	1-1/2	Raceway	DB160010	CBLS181231-A	VFD181231	HH160006		CC30B
				CBLS181231-B				
RWYS160006-E	1-1/2	Raceway	DB160010	CBLS181232-A	VFD181232	HH160006		CC30B
				CBLS181232-B				
RWYS160006-F	1-1/2	Raceway	DB160010	CBLS181331-A	VFD181331	HH160006		CC30B
				CBLS181331-B				
RWYS160006-G	1-1/2	Raceway	DB160010	CBLS181332-A	VFD181332	HH160006		CC30B
				CBLS181332-B				
RWYS160006-H	1-1/2	Raceway	DB160010	CBLS181431-A	VFD181431	HH160006		CC30B
				CBLS181431-B				
RWYS160006-J	1-1/2	Raceway	DB160010	CBLS181432-A	VFD181432	HH160006		CC30B
				CBLS181432-B				
RWYS160008-A	1	Raceway	DB160008	CBLS160101-A	VFD160101	HH160008		CC30B
				CBLS160101-B				
RWYS160008-B	1	Raceway	DB160008	CBLS160102-A	VFD160102	HH160008		CC30B
				CBLS160102-B				
RWYS160008-C	1	Raceway	DB160008	CBLS160103-A	VFD160103	HH160008		CC30B
				CBLS160103-B				
RWYS160008-D	1	Raceway	DB160008	CBLS160104-A	VFD160104	HH160008		CC30B
				CBLS160104-B				
RWYS160008-E	1	Raceway	DB160008	CBLS160105-A	VFD160105	HH160008		CC30B
				CBLS160105-B				
RWYS160008-F	1	Raceway	DB160008	CBLS160106-A	VFD160106	HH160008		CC30B
				CBLS160106-B				
RWYS160008-H	1	Raceway		CBLS160100-A	CAB160001	HH160008		CC30B
RWYS160008-I	1	Raceway		CBLS160200-A	PLC160001	HH160008		CC30B
RWYS160009-A	4	Raceway	DB160006	CBLS170111-A	HH160002	HH160009		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
				CBLS170141-A				
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS160100-A	1	Raceway		CBLS160100-A	HH160008	LI160100		CC30B
RWYS160100-B	1	Raceway		CBLS160100-B	LI160100	LT160100		CC30B
RWYS160101-A	1	Raceway		CBLS160101-A	HH160008	CS160101		CC30B
RWYS160101-B	1	Raceway		CBLS160101-B	HH160008	CS160101		CC30B
RWYS160101-C	1	Raceway		CBLS160101-C	CS160101	HH160008		CC30B
RWYS160101-D	1	Raceway		CBLS160101-D	CS160101	HH160008		CC30B
RWYS160101-E	1	Raceway		CBLS160101-E	CS160101	HH160008		CC30B
RWYS160101-F	1	Raceway		CBLS160101-F	CS160101	TE160101		CC30B
RWYS160101-G	1	Raceway		CBLS160101-G	CS160101	TE160101B		CC30B
RWYS160101-H	1	Raceway		CBLS160101-H	CS160101	TE160101C		CC30B
RWYS160102-A	1	Raceway		CBLS160102-A	HH160008	CS160102		CC30B
RWYS160102-B	1	Raceway		CBLS160102-B	HH160008	CS160102		CC30B
RWYS160102-C	1	Raceway		CBLS160102-C	CS160102	HH160008		CC30B
RWYS160102-D	1	Raceway		CBLS160102-D	CS160102	HH160008		CC30B
RWYS160102-E	1	Raceway		CBLS160102-E	CS160102	HH160008		CC30B
RWYS160102-F	1	Raceway		CBLS160102-F	CS160102	TE160102		CC30B
RWYS160102-G	1	Raceway		CBLS160102-G	CS160102	TE160102B		CC30B
RWYS160102-H	1	Raceway		CBLS160102-H	CS160102	TE160102C		CC30B
RWYS160103-A	1	Raceway		CBLS160103-A	HH160008	CS160103		CC30B
RWYS160103-B	1	Raceway		CBLS160103-B	HH160008	CS160103		CC30B
RWYS160103-C	1	Raceway		CBLS160103-C	CS160103	HH160008		CC30B
RWYS160103-D	1	Raceway		CBLS160103-D	CS160103	HH160008		CC30B
RWYS160103-E	1	Raceway		CBLS160103-E	CS160103	HH160008		CC30B
RWYS160103-F	1	Raceway		CBLS160103-F	CS160103	TE160103		CC30B
RWYS160103-G	1	Raceway		CBLS160103-G	CS160103	TE160103B		CC30B
RWYS160103-H	1	Raceway		CBLS160103-H	CS160103	TE160103C		CC30B
RWYS160104-A	1	Raceway		CBLS160104-A	HH160008	CS160104		CC30B
RWYS160104-B	1	Raceway		CBLS160104-B	HH160008	CS160104		CC30B
RWYS160104-C	1	Raceway		CBLS160104-C	CS160104	HH160008		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS160104-D	1	Raceway		CBLS160104-D	CS160104	HH160008		CC30B
RWYS160104-E	1	Raceway		CBLS160104-E	CS160104	HH160008		CC30B
RWYS160104-F	1	Raceway		CBLS160104-F	CS160104	TE160104		CC30B
RWYS160104-G	1	Raceway		CBLS160104-G	CS160104	TE160104B		CC30B
RWYS160104-H	1	Raceway		CBLS160104-H	CS160104	TE160104C		CC30B
RWYS160105-A	1	Raceway		CBLS160105-A	HH160008	CS160105		CC30B
RWYS160105-B	1	Raceway		CBLS160105-B	HH160008	CS160105		CC30B
RWYS160105-C	1	Raceway		CBLS160105-C	CS160105	HH160008		CC30B
RWYS160105-D	1	Raceway		CBLS160105-D	CS160105	HH160008		CC30B
RWYS160105-E	1	Raceway		CBLS160105-E	CS160105	HH160008		CC30B
RWYS160105-F	1	Raceway		CBLS160105-F	CS160105	TE160105		CC30B
RWYS160105-G	1	Raceway		CBLS160105-G	CS160105	TE160105B		CC30B
RWYS160105-H	1	Raceway		CBLS160105-H	CS160105	TE160105C		CC30B
RWYS160106-A	1	Raceway		CBLS160106-A	HH160008	CS160106		CC30B
RWYS160106-B	1	Raceway		CBLS160106-B	HH160008	CS160106		CC30B
RWYS160106-C	1	Raceway		CBLS160106-C	CS160106	HH160008		CC30B
RWYS160106-D	1	Raceway		CBLS160106-D	CS160106	HH160008		CC30B
RWYS160106-E	1	Raceway		CBLS160106-E	CS160106	HH160008		CC30B
RWYS160106-F	1	Raceway		CBLS160106-F	CS160106	TE160106		CC30B
RWYS160106-G	1	Raceway		CBLS160106-G	CS160106	TE160106B		CC30B
RWYS160106-H	1	Raceway		CBLS160106-H	CS160106	TE160106C		CC30B
RWYS160200-A	1	Raceway		CBLS160200-A	HH160008	LI160200		CC30B
RWYS160200-B	1	Raceway		CBLS160200-B	LI160100	LT160200		CC30B
RWYS170001-A	4	Raceway	DB170003	CBLS170111-A	HH170002	JBX170001		CC30B
				CBLS170111-B				
				CBLS170112-A				
				CBLS170112-B				
				CBLS170113-A				
				CBLS170113-B				
				CBLS170121-A				
				CBLS170121-B				
				CBLS170122-A				
				CBLS170122-B				
				CBLS170123-A				
				CBLS170123-B				
				CBLS170131-A				
				CBLS170131-B				
				CBLS170132-A				
				CBLS170132-B				
				CBLS170133-A				
				CBLS170133-B				
RWYS170002-A	1-1/2	Raceway	DB170001	CBLS170211-A	HH160009	HH170002		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170002-F	2	Raceway	DB170001	CBLS170111-A	HH160009	HH170002		CC30B
				CBLS170112-A				
				CBLS170113-A				
				CBLS170121-A				
				CBLS170122-A				
				CBLS170123-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLS170131-A				
				CBLS170132-A				
				CBLS170133-A				
				CBLS170141-A				
				CBLS170142-A				
				CBLS170143-A				
RWYS170002-G	2	Raceway	DB170001	CBLS170111-B	HH160009	HH170002		CC30B
				CBLS170112-B				
				CBLS170113-B				
				CBLS170121-B				
				CBLS170122-B				
				CBLS170123-B				
				CBLS170131-B				
				CBLS170132-B				
				CBLS170133-B				
				CBLS170141-B				
				CBLS170142-B				
				CBLS170143-B				
RWYS170004-C	2	Raceway	DB170003	CBLS170141-A	HH170002	JBX170004		CC30B
				CBLS170141-B				
				CBLS170142-A				
				CBLS170142-B				
				CBLS170143-A				
				CBLS170143-B				
RWYS170006-A	1-1/2	Raceway		CBLS170211-A	HH170002	JBX170006		CC30B
				CBLS170211-B				
				CBLS170212-A				
				CBLS170212-B				
RWYS170111-A	1	Raceway		CBLS170111-A	JBX170001	CS170111		CC30B
RWYS170111-B	1	Raceway		CBLS170111-B	JBX170001	CS170111		CC30B
RWYS170112-A	1	Raceway		CBLS170112-A	JBX170001	CS170112		CC30B
RWYS170112-B	1	Raceway		CBLS170112-B	JBX170001	CS170112		CC30B
RWYS170113-A	1	Raceway		CBLS170113-A	JBX170001	CS170113		CC30B
RWYS170113-B	1	Raceway		CBLS170113-B	JBX170001	CS170113		CC30B
RWYS170121-A	1	Raceway		CBLS170121-A	JBX170001	CS170121		CC30B
RWYS170121-B	1	Raceway		CBLS170121-B	JBX170001	CS170121		CC30B
RWYS170122-A	1	Raceway		CBLS170122-A	JBX170001	CS170122		CC30B
RWYS170122-B	1	Raceway		CBLS170122-B	JBX170001	CS170122		CC30B
RWYS170123-A	1	Raceway		CBLS170123-A	JBX170001	CS170123		CC30B
RWYS170123-B	1	Raceway		CBLS170123-B	JBX170001	CS170123		CC30B
RWYS170131-A	1	Raceway		CBLS170131-A	JBX170001	CS170131		CC30B
RWYS170131-B	1	Raceway		CBLS170131-B	JBX170001	CS170131		CC30B
RWYS170132-A	1	Raceway		CBLS170132-A	JBX170001	CS170132		CC30B
RWYS170132-B	1	Raceway		CBLS170132-B	JBX170001	CS170132		CC30B
RWYS170133-A	1	Raceway		CBLS170133-A	JBX170001	CS170133		CC30B
RWYS170133-B	1	Raceway		CBLS170133-B	JBX170001	CS170133		CC30B
RWYS170141-A	1	Raceway		CBLS170141-A	JBX170004	CS170141		CC30B
RWYS170141-B	1	Raceway		CBLS170141-B	JBX170004	CS170141		CC30B
RWYS170142-A	1	Raceway		CBLS170142-A	JBX170004	CS170142		CC30B
RWYS170142-B	1	Raceway		CBLS170142-B	JBX170004	CS170142		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS170143-A	1	Raceway		CBLS170143-A	JBX170004	CS170143		CC30B
RWYS170143-B	1	Raceway		CBLS170143-B	JBX170004	CS170143		CC30B
RWYS170211-A	1	Raceway		CBLS170211-A	JBX170006	CS170211		CC30B
RWYS170211-B	1	Raceway		CBLS170211-B	JBX170006	CS170211		CC30B
RWYS170212-A	1	Raceway		CBLS170212-A	JBX170006	CS170212		CC30B
RWYS170212-B	1	Raceway		CBLS170212-B	JBX170006	CS170212		CC30B
RWYS180001-A	4	Raceway	DB160016	CBLS181221-C	HH160003	HH180001		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180002-A	3	Raceway	DB180006	CBLS181131-A	HH180004	JBX180002		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180002-B	4	Raceway	DB180006	CBLS181123-C	HH180004	JBX180002		CC30B
				CBLS181611-B				
RWYS180002-C	4	Raceway	DB180006	CBLS181223-C	HH180004	JBX180002		CC30B
				CBLS181621-B				
RWYS180002-D	2	Raceway	DB180006	CBLS181221-C	HH180004	JBX180006		CC30B
RWYS180004-A	2-1/2	Raceway	DB160012	CBLS181131-A	HH160006	HH180004		CC30B
				CBLS181131-B				
				CBLS181132-A				
				CBLS181132-B				
				CBLS181231-A				
				CBLS181231-B				
				CBLS181232-A				
				CBLS181232-B				
				CBLS181331-A				
				CBLS181331-B				
				CBLS181332-A				
				CBLS181332-B				
				CBLS181431-A				
				CBLS181431-B				
				CBLS181432-A				
				CBLS181432-B				
RWYS180004-B	4	Raceway	DB160012	CBLS181121-C	HH160006	HH180004		CC30B
				CBLS181123-C				
				CBLS181611-B				
RWYS180004-C	4	Raceway	DB180010	CBLS181221-C	HH180001	HH180004		CC30B
				CBLS181223-C				
				CBLS181621-B				
RWYS180006-A	2-1/2	Raceway	DB180006	CBLS181121-C	HH180004	JBX180006		CC30B
RWYS181121-A	1	Raceway		CBLS181121-A	TBX181121	FCV181121		CC30B
RWYS181121-B	1	Raceway		CBLS181121-B	TBX181121	FIT181121		CC30B
RWYS181121-C	2	Raceway		CBLS181121-C	JBX180006	TBX181121		CC30B
RWYS181122-A	1	Raceway		CBLS181122-A	TBX181121	FCV181122		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS181122-B	1	Raceway		CBLS181122-B	TBX181121	FIT181122		CC30B
RWYS181123-A	1	Raceway		CBLS181123-A	TBX181123	FCV181123		CC30B
RWYS181123-B	1	Raceway		CBLS181123-B	TBX181123	FIT181123		CC30B
RWYS181123-C	2	Raceway		CBLS181123-C	JBX180002	TBX181123		CC30B
RWYS181131-A	1	Raceway		CBLS181131-A	JBX180002	CS181131		CC30B
				CBLS181131-B				
RWYS181132-A	1	Raceway		CBLS181132-A	JBX180002	CS181132		CC30B
				CBLS181132-B				
RWYS181141A-A	1	Raceway		CBLS181141A-A	AIT181141	AE181141A		CC30B
RWYS181141B-A	1	Raceway		CBLS181141B-A	AIT181141	AE181141B		CC30B
RWYS181141C-A	1	Raceway		CBLS181141C-A	AIT181141	AE181141C		CC30B
RWYS181141D-A	1	Raceway		CBLS181141D-A	AIT181141	AE181141D		CC30B
RWYS1811612A-A	1	Raceway		CBLS181612A-A	TBX181611	LI181612A		CC30B
RWYS181221-A	1	Raceway		CBLS181221-A	TBX181221	FCV181221		CC30B
RWYS181221-B	1	Raceway		CBLS181221-B	TBX181221	FIT181221		CC30B
RWYS181221-C	2	Raceway		CBLS181221-C	JBX180006	TBX181221		CC30B
RWYS181222-A	1	Raceway		CBLS181222-A	TBX181221	FCV181222		CC30B
RWYS181222-B	1	Raceway		CBLS181222-B	TBX181221	FIT181222		CC30B
RWYS181223-A	1	Raceway		CBLS181223-A	TBX181223	FCV181223		CC30B
RWYS181223-B	1	Raceway		CBLS181223-B	TBX181223	FIT181223		CC30B
RWYS181223-C	2	Raceway		CBLS181223-C	JBX180002	TBX181223		CC30B
RWYS181231-A	1	Raceway		CBLS181231-A	JBX180002	CS181231		CC30B
				CBLS181231-B				
RWYS181232-A	1	Raceway		CBLS181232-A	JBX180002	CS181232		CC30B
				CBLS181232-B				
RWYS181241A-A	1	Raceway		CBLS181241A-A	AIT181241	AE181241A		CC30B
RWYS181241B-A	1	Raceway		CBLS181241B-A	AIT181241	AE181241B		CC30B
RWYS181241C-A	1	Raceway		CBLS181241C-A	AIT181241	AE181241C		CC30B
RWYS181241D-A	1	Raceway		CBLS181241D-A	AIT181241	AE181241D		CC30B
RWYS181321-A	1	Raceway		CBLS181321-A	TBX181121	FCV181321		CC30B
RWYS181321-B	1	Raceway		CBLS181321-B	TBX181121	FIT181321		CC30B
RWYS181322-A	1	Raceway		CBLS181322-A	TBX181121	FCV181322		CC30B
RWYS181322-B	1	Raceway		CBLS181322-B	TBX181121	FIT181322		CC30B
RWYS181323-A	1	Raceway		CBLS181323-A	TBX181123	FCV181323		CC30B
RWYS181323-B	1	Raceway		CBLS181323-B	TBX181123	FIT181323		CC30B
RWYS181331-A	1	Raceway		CBLS181331-A	JBX180002	CS181331		CC30B
				CBLS181331-B				
RWYS181332-A	1	Raceway		CBLS181332-A	JBX180002	CS181332		CC30B
				CBLS181332-B				
RWYS181341A-A	1	Raceway		CBLS181341A-A	AIT181341	AE181341A		CC30B
RWYS181341B-A	1	Raceway		CBLS181341B-A	AIT181341	AE181341B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS181341C-A	1	Raceway		CBLS181341C-A	AIT181341	AE181341C		CC30B
RWYS181341D-A	1	Raceway		CBLS181341D-A	AIT181341	AE181341D		CC30B
RWYS181421-A	1	Raceway		CBLS181421-A	TBX181221	FCV181421		CC30B
RWYS181421-B	1	Raceway		CBLS181421-B	TBX181221	FIT181421		CC30B
RWYS181422-A	1	Raceway		CBLS181422-A	TBX181221	FCV181422		CC30B
RWYS181422-B	1	Raceway		CBLS181422-B	TBX181221	FIT181422		CC30B
RWYS181423-A	1	Raceway		CBLS181423-A	TBX181223	FCV181423		CC30B
RWYS181423-B	1	Raceway		CBLS181423-B	TBX181223	FIT181423		CC30B
RWYS181431-A	1	Raceway		CBLS181431-A	JBX180002	CS181431		CC30B
				CBLS181431-B				
RWYS181432-A	1	Raceway		CBLS181432-A	JBX180002	CS181432		CC30B
				CBLS181432-B				
RWYS181441A-A	1	Raceway		CBLS181441A-A	AIT181441	AE181441A		CC30B
RWYS181441B-A	1	Raceway		CBLS181441B-A	AIT181441	AE181441B		CC30B
RWYS181441C-A	1	Raceway		CBLS181441C-A	AIT181441	AE181441C		CC30B
RWYS181441D-A	1	Raceway		CBLS181441D-A	AIT181441	AE181441D		CC30B
RWYS181510A-A	1	Raceway		CBLS181510A-A	TBX181121	LI181510A		CC30B
RWYS181520A-A	1	Raceway		CBLS181520A-A	TBX181121	LI181520A		CC30B
RWYS181611-A	1	Raceway		CBLS181611-A	TBX181611	SGTE181611		CC30B
RWYS181611-B	2	Raceway		CBLS181611-B	JBX180002	TBX181611		CC30B
RWYS181621-A	1	Raceway		CBLS181621-A	TBX181621	SGTE181621		CC30B
RWYS181621-B	2	Raceway		CBLS181621-B	JBX180002	TBX181621		CC30B
RWYS181622A-A	1	Raceway		CBLS181622A-A	TBX181621	LI181622A		CC30B
RWYV170201-A	1	Raceway		CBLV170201-A	JBX170201	M170201		CC30B
RWYV170202-A	1	Raceway		CBLV170202-A	JBX170202	M170202		CC30B
RWYX160003-C	4	Raceway		CBLX160003-A	MCC169101B	HH160003		CC30B
RWYX160003-D	4	Raceway		CBLX160003-B	MCC169101B	HH160003		CC30B
RWYX160004-A	4	Raceway	DB160013	CBLX229101A-A	SWGR169001A	HH160004		CC30B
RWYX160004-B	4	Raceway	DB160013	CBLX229101B-A	SWGR169001B	HH160004		CC30B
RWYX160004-H	4	Raceway	DB160013	CBLX160004-A	MCC169101B	HH160004		CC30B
RWYX160004-J	4	Raceway	DB160013	CBLX160004-B	MCC169101B	HH160004		CC30B
RWYX160005-S	4	Raceway	DB160009	CBLX160005-A	MCC169101A	HH160005		CC30B
RWYX160005-T	4	Raceway	DB160009	CBLX160005-B	MCC169101A	HH160005		CC30B
RWYX160006-T	4	Raceway	DB160010	CBLX160006-B	MCC169101A	HH160006		CC30B
RWYX160006-U	4	Raceway	DB160010	CBLX160006-A	MCC169101A	HH160006		CC30B
RWYX160009-B	4	Raceway	DB160006	CBLX170004-A	HH160002	HH160009		CC30B
RWYX160010-J	4	Raceway	DB160005	CBLX170003-A	HH160001	HH160010		CC30B
RWYX160010-K	4	Raceway	DB160005	CBLX170003-B	HH160001	HH160010		CC30B
RWYX160010-L	4	Raceway	DB160005	CBLX170003-C	HH160001	HH160010		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX160010-M	4	Raceway	DB160005	CBLX170003-D	HH160001	HH160010		CC30B
RWYX167950-A	3/4	Raceway		CBLX167950-A	**CAB167901**	PBX167950	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167951-A	3/4	Raceway		CBLX167951-A	**CAB167901**	PBX167951	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167952-A	3/4	Raceway		CBLX167952-A	**CAB167901**	PBX167952	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX167953-A	3/4	Raceway		CBLX167953-A	**CAB167901**	PBX167953	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX170001-A	2	Raceway	DB170002	CBLX170003-A	HH160010	HH170001		CC30B
RWYX170001-B	2	Raceway	DB170002	CBLX170003-B	HH160010	HH170001		CC30B
RWYX170001-C	2	Raceway	DB170002	CBLX170003-C	HH160010	HH170001		CC30B
RWYX170001-D	2	Raceway	DB170002	CBLX170003-D	HH160010	HH170001		CC30B
RWYX170002-A	2	Raceway	DB170001	CBLX170004-A	HH160009	HH170002		CC30B
RWYX170003-K	2	Raceway	DB170004	CBLX170003-A	HH170001	JBX170003		CC30B
RWYX170003-L	2	Raceway	DB170004	CBLX170003-B	HH170001	JBX170003		CC30B
RWYX170003-M	2	Raceway	DB170004	CBLX170003-C	HH170001	JBX170003		CC30B
RWYX170003-N	2	Raceway	DB170004	CBLX170003-D	HH170001	JBX170003		CC30B
RWYX170004-F	2	Raceway	DB170003	CBLX170004-A	HH170002	JBX170004		CC30B
RWYX180001-C	2	Raceway	DB160016	CBLX180004-A				CC30B
RWYX180001-D	2	Raceway	DB160016	CBLX180004-B				CC30B
RWYX180002-A	2	Raceway	DB160015	CBLX229101A-A	HH160004	HH180002		CC30B
RWYX180002-B	2	Raceway	DB160015	CBLX229101B-A	HH160004	HH180002		CC30B
RWYX180002-F	2	Raceway	DB160015	CBLX180002-A	HH160004	HH180002		CC30B
RWYX180002-G	2	Raceway	DB160015	CBLX180002-B	HH160004	HH180002		CC30B
RWYX180003-K	2	Raceway	DB160011	CBLX180003-A	HH160005	RWYX180003-M		CC30B
RWYX180003-L	2	Raceway	DB160011	CBLX180003-B	HH160005	RWYX180003-N		CC30B
RWYX180003-M	2	Raceway	DB180009	CBLX180003-A	RWYX180003-K	HH180003		CC30B
RWYX180003-N	2	Raceway	DB180009	CBLX180003-B	RWYX180003-L	HH180003		CC30B
RWYX180004-L	2	Raceway	DB160012	CBLX180004-A	HH160006	RWYX180001-C		CC30B
RWYX180004-M	2	Raceway	DB160012	CBLX180004-B	HH160006	RWYX180001-D		CC30B
RWYX180004-N	2	Raceway	DB180010	CBLX180004-A	RWYX180001-C	HH180004		CC30B
RWYX180004-P	2	Raceway	DB180010	CBLX180004-B	RWYX180001-D	HH180004		CC30B
RWYX180005-A	2	Raceway	DB180001	CBLX229101A-A	HH180002	HH180005		CC30B
RWYX180005-B	2	Raceway	DB180001	CBLX229101B-A	HH180002	HH180005		CC30B
RWYX180007-G	2	Raceway	DB180005	CBLX180007-A	HH180003	HH180007		CC30B
RWYX180007-H	2	Raceway	DB180005	CBLX180007-B	HH180003	HH180007		CC30B
RWYX180008-P	2	Raceway	DB180006	CBLX180008-A	HH180004	HH180008		CC30B
RWYX180008-Q	2	Raceway	DB180006	CBLX180008-B	HH180004	HH180008		CC30B

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC190001-A	1	Raceway		CBLX192001-A	HH220002	HH190002		CC30B
RWYC191011-AA	1-1/4	Raceway		CBLC191011-A	CAB331001	RIO 33C		CC30B
RWYC191011-AB	1-1/4	Raceway		CBLC191011-A	TB1920	CS191011		CC30B
RWYC191011-B	1-1/4	Raceway		CBLC191011-B	CS191011	PCV191011		CC30B
RWYC1920-A	1-1/4	Raceway		CBLC191011-A	HH33010D	TB1920		CC30B
RWYC220001-A	1	Raceway		CBLC000030-A	HH220002	CAB220001		CC30B
RWYC220001-D	1	Raceway		CBLX192001-A	MCC229101A	HH220002		CC30B
RWYC220002-A	2	Raceway		CBLC000030-A	HH001404	HH220002		CC30B
				CBLC000031-A				
				CBLC000032-A				
RWYC223020-A	1	Raceway		CBLC223020-A	CAB220001	HS223020B		CC30B
RWYC223020-B	3/4	Raceway		CBLC223020-B	CAB220001	FIT223020		CC30B
RWYC223101-A	1	Raceway		CBLC223101-A	MCC229101A	CS223101		CC30B
RWYC223102-A	1	Raceway		CBLC223102-A	MCC229101B	CS223102		CC30B
RWYC223111-A	3/4	Raceway		CBLC223111-A	MCC229101A	CS223111		CC30B
RWYC223111-B	3/4	Raceway		CBLC223111-B	CS223111	TSH223111		CC30B
RWYC223111-C	3/4	Raceway		CBLC223111-C	MCC229101A	FSL223111		CC30B
RWYC223111-D	3/4	Raceway		CBLC223111-D	MCC229101A	SV223111		CC30B
RWYC223111-E	3/4	Raceway		CBLC223111-E	MCC229101A	ZSC223111		CC30B
RWYC223112-A	3/4	Raceway		CBLC223112-A	MCC229101B	CS223112		CC30B
RWYC223112-B	3/4	Raceway		CBLC223112-B	CS223112	TSH223112		CC30B
RWYC223112-C	3/4	Raceway		CBLC223112-C	MCC229101B	FSL223112		CC30B
RWYC223112-D	3/4	Raceway		CBLC223112-D	MCC229101B	SV223112		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC223112-E	3/4	Raceway		CBLC223112-E	MCC229101B	ZSC223112		CC30B
RWYC223113-A	3/4	Raceway		CBLC223113-A	MCC229101A	CS223113		CC30B
RWYC223113-B	3/4	Raceway		CBLC223113-B	CS223113	TSH223113		CC30B
RWYC223113-C	3/4	Raceway		CBLC223113-C	MCC229101A	FSL223113		CC30B
RWYC223113-D	3/4	Raceway		CBLC223113-D	MCC229101A	SV223113		CC30B
RWYC223113-E	3/4	Raceway		CBLC223113-E	MCC229101A	ZSC223113		CC30B
RWYC223120-A	3/4	Raceway		CBLC223120-A	CAB220001	FIT223120		CC30B
RWYC223131-A	3/4	Raceway		CBLC223131-A	CAB220001	HS223131B		CC30B
RWYC223133-A	3/4	Raceway		CBLC223133-A	CAB220001	SV223133		CC30B
RWYC223141-A	3/4	Raceway		CBLC223141-A	MCC229101A	CS223141		CC30B
RWYC223141-B	3/4	Raceway		CBLC223141-B	CS223141	TSH223141		CC30B
RWYC223141-C	3/4	Raceway		CBLC223141-C	MCC229101A	FSL223141		CC30B
RWYC223141-D	3/4	Raceway		CBLC223141-D	MCC229101A	SV223141		CC30B
RWYC223141-E	3/4	Raceway		CBLC223141-E	MCC229101A	ZSC223141		CC30B
RWYC223142-A	3/4	Raceway		CBLC223142-A	MCC229101B	CS223142		CC30B
RWYC223142-B	3/4	Raceway		CBLC223142-B	CS223142	TSH223142		CC30B
RWYC223142-C	3/4	Raceway		CBLC223142-C	MCC229101B	FSL223142		CC30B
RWYC223142-D	3/4	Raceway		CBLC223142-D	MCC229101B	SV223142		CC30B
RWYC223142-E	3/4	Raceway		CBLC223142-E	MCC229101B	ZSC223142		CC30B
RWYC223150-A	1	Raceway		CBLC223150-A	CAB220001	CS223150		CC30B
RWYC223151-A	3/4	Raceway		CBLC223151-A	MCC229101A	CS223151		CC30B
RWYC223151-B	3/4	Raceway		CBLC223151-B	CS223151	TSH223151		CC30B
RWYC223151-C	3/4	Raceway		CBLC223151-C	MCC229101A	FSL223151		CC30B
RWYC223151-D	3/4	Raceway		CBLC223151-D	MCC229101A	SV223151		CC30B
RWYC223151-E	3/4	Raceway		CBLC223151-E	MCC229101A	ZSC223151		CC30B
RWYC223152-A	3/4	Raceway		CBLC223152-A	MCC229101B	CS223152		CC30B
RWYC223152-B	3/4	Raceway		CBLC223152-B	CS223152	TSH223152		CC30B
RWYC223152-C	3/4	Raceway		CBLC223152-C	MCC229101B	FSL223152		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYC223152-D	3/4	Raceway		CBLC223152-D	MCC229101B	SV223152		CC30B
RWYC223152-E	3/4	Raceway		CBLC223152-E	MCC229101B	ZSC223152		CC30B
RWYC223159-A	3/4	Raceway		CBLC223159-A	CAB220001	FIT223159		CC30B
RWYC223191-A	1	Raceway		CBLC223191-A	MCC229101A	CS223191		CC30B
RWYC223191-B	1	Raceway		CBLC223191-B	CS223191	TBX223191		CC30B
RWYC223192-A	1	Raceway		CBLC223192-A	MCC229101B	CS223192		CC30B
RWYC223192-B	1	Raceway		CBLC223192-B	CS223192	TBX223192		CC30B
RWYC229101A-A	3/4	Raceway		CBLC229101A-A	CAB220001	MCC229101A		CC30B
RWYC229101A-B	1	Raceway		CBLC229101A-B	CAB220001	MCC229101A		CC30B
RWYC229101A-C	1	Raceway		CBLC000031-A	HH220002	MCC229101A		CC30B
RWYC229101A-D	3/4	Raceway		CBLC229101A-C	CAB220001	MCC229101A		CC30B
RWYC229101B-A	3/4	Raceway		CBLC229101B-A	CAB220001	MCC229101B		CC30B
RWYC229101B-B	3/4	Raceway		CBLC229101B-B	CAB220001	MCC229101B		CC30B
RWYC229101B-C	1	Raceway		CBLC000032-A	HH220002	MCC229101B		CC30B
RWYC229101B-D	3/4	Raceway		CBLC229101B-C	CAB220001	MCC229101B		CC30B
RWYC229201-A	1	Raceway		CBLC229201-A	CAB220001	ATS229201		CC30B
RWYC229301-A	1-1/4	Raceway		CBLC229301-A	CAB220001	UPS229301		CC30B
RWYC229301-B	3/4	Raceway		CBLC229301-B	PLC220001	MBS229301		
RWYD192701-AA	1	Raceway		CBLD192701-A	CAB220001	HH190002		CC30B
RWYD192701-AB	1	Raceway		CBLD192701-A	HH190002	AIT192701		CC30B
RWYD220001-A	3/4	Raceway		CBLD220001-A	NCE220011	CAB220001		CC30B
RWYD220001-B	3/4	Raceway		CBLD220001-B	NCE220011	CAB220001		CC30B
~~RWYD220001-C~~	**~~3/4~~**	**~~Raceway~~**		**~~CBLD220001-C~~**	**~~NCE220011~~**	**~~CAB220001~~**	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYD220001-D	3/4	Raceway		CBLD220001-D	NCE220011	CAB220001		CC30B
RWYD220001-E	3/4	Raceway		CBLD220001-E	NCE220011	CAB220001		CC30B
~~RWYD220001-F~~	**~~3/4~~**	**~~Raceway~~**		**~~CBLD220001-F~~**	**~~NCE220011~~**	**~~CAB220001~~**	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYD220010-A	3/4	Raceway		CBLD220010-A	NCE220011	FACP220010		CC30B
RWYD220011-C	3/4	Raceway		CBLD228901-A	NCE220011	CAB228901		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYD220011-E	3/4	Raceway		CBLD229201-A	NCE220011	ATS229201		CC30B
RWYD227801-A	3/4	Raceway		CBLD227801-A	NCE220011	WAP227801		CC30B
RWYD227802-A	3/4	Raceway		CBLD227802-A	NCE220011	WAP227802		CC30B
RWYD227901-A	**1**	Raceway		CBLD227901-A	NCE220011	CAB227901	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD227901-B				
				CBLD227901-C				
RWYD229101A-A	3/4	Raceway		CBLD229101A-A	NCE220011	MCC229101A		CC30B
RWYD229101AB-B	3/4	Raceway		CBLD229101AB-A	CAB220001	MCC229101A		CC30B
RWYD229101B-A	3/4	Raceway		CBLD229101B-A	NCE220011	MCC229101B		CC30B
RWYD229101BB-A	3/4	Raceway		CBLD229101BB-A	CAB220001	MCC229101B		CC30B
RWYD229301-A	3/4	Raceway		CBLD229301-A	NCE220011	UPS229301		CC30B
RWYF220002-A	4	Raceway	DB220004	CBLF220011A-B	HH180006	HH220002	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYF220002-B	4	Raceway	DB220004	CBLF220011A-A	HH180006	HH220002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF220010-A	1-1/2	Raceway		CBLF220010-A	NCE220011	FACP220010	IDFM - 1" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220010-B				
RWYF220011A-A	4	Raceway	DB220002	CBLF220011A-A	HH220002	NCE220011	IDFM - (3) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF220011BA-A				
RWYF220011A-B	4	Raceway	DB220002	CBLF220011A-B	HH220002	NCE220011	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30B
				CBLF330011CB-A				
RWYP190001-A	1	Raceway		CBLX192001-B	HH220001	HH190001		CC30B
RWYP191011-A	1	Raceway		CBLP191011-A	TB1920	DS1910011		CC30B
RWYP191011-B	1	Raceway		CBLP191011-B	DS1910011	PCV191011		CC30B
RWYP1920-A	1	Raceway		CBLP191011-A	HH33010D	TB1920		CC30B
RWYP192701-AA	1	Raceway		CBLP192701-A	PNL229301	HH190001		CC30B
RWYP192701-AB	1	Raceway		CBLP192701-A	HH190001	AIT192701		CC30B
RWYP220001-A	4	Raceway		CBLP229101A-A	HH180005	HH220001		CC30B
RWYP220001-B	4	Raceway		CBLP229101A-B	HH180005	HH220001		CC30B
RWYP220001-C	4	Raceway		CBLP229101B-A	HH180005	HH220001		CC30B
RWYP220001-D	4	Raceway		CBLP229101B-B	HH180005	HH220001		CC30B
RWYP220001-E	1	Raceway		CBLP000031-A	HH001403	HH220001		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
				CBLP000032-A				
RWYP220001-H	1	Raceway		CBLX192001-B	MCC229101A	HH220001		CC30B
RWYP220001-J	3/4	Raceway		CBLP220001-A	PNL229301	CAB220001		CC30B
RWYP220010-A	3/4	Raceway		CBLP220010-A	PNL229301	FACP220010		CC30B
RWYP220011-A	3/4	Raceway		CBLP000011-A	PNL229301	NCE220011		CC30B
RWYP220090-A	3/4	Raceway		CBLP220090-A	MCC229101B	DS220090		CC30B
RWYP220090-B	3/4	Raceway		CBLP220090-B	DS220090	HST220090		CC30B
RWYP223020-A	1	Raceway		CBLP223020-A	MCC229101B	DS223020		CC30B
RWYP223020-B	1	Raceway		CBLP223020-B	DS223020	FCV223020		CC30B
RWYP223101-A	1	Raceway		CBLP223101-A	MCC229101A	DS223101		CC30B
RWYP223101-B	1	Raceway		CBLP223101-B	DS223101	M223101		CC30B
RWYP223102-A	1	Raceway		CBLP223102-A	MCC229101B	DS223102		CC30B
RWYP223102-B	1	Raceway		CBLP223102-B	DS223102	M223102		CC30B
RWYP223105-A	1	Raceway		CBLP223105-A	PNL229301	AIT223105		CC30B
RWYP223111-A	2	Raceway		CBLP223111-A	MCC229101A	M223111		CC30B
RWYP223112-A	2	Raceway		CBLP223112-A	MCC229101B	M223112		CC30B
RWYP223113-A	2	Raceway		CBLP223113-A	MCC229101A	M223113		CC30B
RWYP223131-A	1	Raceway		CBLP223131-A	MCC229101B	DS223131		CC30B
RWYP223131-B	1	Raceway		CBLP223131-B	DS223131	SGTE223131		CC30B
RWYP223141-A	1-1/2	Raceway		CBLP223141-A	MCC229101A	M223141		CC30B
RWYP223142-A	1-1/2	Raceway		CBLP223142-A	MCC229101B	M223142		CC30B
RWYP223150-A	1	Raceway		CBLP223150-A	PNL229301	DS223150		CC30B
RWYP223150-B	1	Raceway		CBLP223150-B	DS223150	CS223150		CC30B
RWYP223150-C	1	Raceway		CBLP223150-C	CS223150	HTT223150		CC30B
RWYP223151-A	1-1/2	Raceway		CBLP223151-A	MCC229101A	M223151		CC30B
RWYP223152-A	1-1/2	Raceway		CBLP223152-A	MCC229101B	M223152		CC30B
RWYP223160-A	3/4	Raceway		CBLP223160-A	PNL229301	AIT223160		CC30B
RWYP223191-A	1	Raceway		CBLP223191-A	MCC229101A	DS223191		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP223191-B	1	Raceway		CBLP223191-B	DS223191	TBX223191		CC30B
RWYP223192-A	1	Raceway		CBLP223192-A	MCC229101B	DS223192		CC30B
RWYP223192-B	1	Raceway		CBLP223192-B	DS223192	TBX223192		CC30B
RWYP227850-A	3/4	Raceway		CBLP227850-A	PNL229301	PAC227850		CC30B
RWYP228001-A	1	Raceway		CBLP228001-A	MCC229101A	DS228001		CC30B
RWYP228001-B	1	Raceway		CBLP228001-B	DS228001	EF228001		CC30B
RWYP228002-A	1	Raceway		CBLP228002-A	PNL229302	DS228002		CC30B/ADDENDUM 2
RWYP228002-B	1	Raceway		CBLP228002-B	DS228002	EF228002		CC30B
RWYP228012-A	1	Raceway		CBLP228012-A	PNL229302	DS228012		CC30B/ADDENDUM 2
RWYP228012-B	1	Raceway		CBLP228012-B	DS228012	HXT228012		CC30B
RWYP228031-A	3/4	Raceway		CBLP228031-A	PNL229302	DS228031		CC30B/ADDENDUM 2
RWYP228031-B	3/4	Raceway		CBLP228031-B	DS228031	UH228031		CC30B
RWYP228032-A	3/4	Raceway		CBLP228032-A	PNL229302	DS228032		CC30B/ADDENDUM 2
RWYP228032-B	3/4	Raceway		CBLP228032-B	DS228032	UH228032		CC30B
RWYP228033-A	3/4	Raceway		CBLP228033-A	PNL229302	DS228033		CC30B/ADDENDUM 2
RWYP228033-B	3/4	Raceway		CBLP228033-B	DS228033	UH228033		CC30B
RWYP228034-A	3/4	Raceway		CBLP228034-A	PNL229302	DS228034		CC30B/ADDENDUM 2
RWYP228034-B	3/4	Raceway		CBLP228034-B	DS228034	UH228034		CC30B
RWYP228901-A	3/4	Raceway		CBLP228901-A	PNL229301	CAB228901		CC30B
RWYP228901-B	3/4	Raceway		CBLP228901-B	PNL229301	CAB228901		CC30B
RWYP229101A-A	5	Raceway		CBLP229101A-A	HH220001	MCC229101A		CC30B
RWYP229101A-B	5	Raceway		CBLP229101A-B	HH220001	MCC229101A		CC30B
RWYP229101A-C	3/4	Raceway		CBLP229101A-C	PNL229301	MCC229101A		CC30B
RWYP229101A-E	1	Raceway		CBLP000031-A	HH220001	MCC229101A		CC30B
RWYP229101AB-A	3/4	Raceway		CBLP229101AB-A	PNL229301	MCC229101A		CC30B
RWYP229101B-A	5	Raceway		CBLP229101B-A	HH220001	MCC229101B		CC30B
RWYP229101B-B	5	Raceway		CBLP229101B-B	HH220001	MCC229101B		CC30B
RWYP229101B-C	3/4	Raceway		CBLP229101B-C	PNL229301	MCC229101B		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYP229101B-E	1	Raceway		CBLP000032-A	HH220001	MCC229101B		CC30B
RWYP229101BB-A	3/4	Raceway		CBLP229101BB-A	PNL229301	MCC229101B		CC30B
RWYP229201-A	2	Raceway		CBLP229201-A	MCC229101A	ATS229201		CC30B
RWYP229201-B	2	Raceway		CBLP229201-B	MCC229101B	ATS229201		CC30B
RWYP229201-C	2	Raceway		CBLP229201-C	ATS229201	PNL229201		CC30B/ADDENDUM 2
RWYP229301-A	1-1/4	Raceway		CBLP229301-D	PNL229201	XFMR229301		CC30B/ADDENDUM 2
RWYP229301-B	3	Raceway		CBLP229301-B	CB229301	MBS229301		CC30B
RWYP229301-C	1-1/2	Raceway		CBLP229301-C	XFMR229301	CB229301		CC30B
RWYP229301-D	3	Raceway		CBLP229301-A	MBS229301	PNL229301		CC30B
RWYP229301-E	1-1/4	Raceway		CBLP229301-E	MBS229301	UPS229301		CC30B/ADDENDUM 2
RWYP229301-F	3	Raceway		CBLP229301-F	UPS229301	MBS229301		CC30B
RWYP229301-I	1	Raceway		CBLP229301-I	PNL229301	HH220001		CC30B
RWYP229301-J	1	Raceway		CBLP229301-J	PNL229301	HH220001		CC30B
RWYP229302-A	1-1/4	Raceway		CBLP229302-A	PNL229201	XFMR229302		CC30B/ADDENDUM 2
RWYP229302-B	2	Raceway		CBLP229302-B	XFMR229302	PNL229302		CC30B/ADDENDUM 2
RWYS191011-A	1	Raceway		CBLS191011-A	TB1921	CS191011		CC30B
RWYS191011-B	1	Raceway		CBLS191011-B	CS191011	PCV191011		CC30B
RWYS191012-B	1	Raceway		CBLS191012-A	TB1921	PIT191012		CC30B
RWYS1921-A	1-1/4	Raceway		CBLS191011-A	HH33010C	TB1921		CC30B
				CBLS191012-A				
RWYS192701A-A	1	Raceway		CBLS192701A-A	AIT192701	AE192701A		CC30B
RWYS192701B-A	1	Raceway		CBLS192701B-A	AIT192701	AE192701B		CC30B
RWYS223020-A	1	Raceway		CBLS223020-A	CAB220001	FIT223020		CC30B
RWYS223020-B	1	Raceway		CBLS223020-B	FIT223020	FE223020		CC30B
RWYS223020-C	1	Raceway		CBLS223020-C	CAB220001	HS223020A		CC30B
RWYS223030-A	1	Raceway		CBLS223030-A	CAB220001	LI223030A		CC30B
RWYS223030-B	1	Raceway		CBLS223030-B	LI223030A	LIT223030		CC30B
RWYS223105-A	1	Raceway		CBLS223105-A	CAB220001	AIT223105		CC30B
RWYS223105-B	1	Raceway		CBLS223105-B	AIT223105	AE223105		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYS223111-A	3/4	Raceway		CBLS223111-A	MCC229101A	CS223111		CC30B
RWYS223111-B	3/4	Raceway		CBLS223111-B	MCC229101A	CS223111		CC30B
RWYS223112-A	3/4	Raceway		CBLS223112-A	MCC229101B	CS223112		CC30B
RWYS223112-B	3/4	Raceway		CBLS223112-B	MCC229101B	CS223112		CC30B
RWYS223113-A	3/4	Raceway		CBLS223113-A	MCC229101A	CS223113		CC30B
RWYS223113-B	3/4	Raceway		CBLS223113-B	MCC229101A	CS223113		CC30B
RWYS223120-A	3/4	Raceway		CBLS223120-A	CAB220001	FE/FIT223120		CC30B
RWYS223121-A	3/4	Raceway		CBLS223121-A	CAB220001	PIT223121		CC30B
RWYS223131-A	3/4	Raceway		CBLS223131-A	CAB220001	HS223131A		CC30B
RWYS223132-A	3/4	Raceway		CBLS223132-A	CAB220001	PIT223132		CC30B
RWYS223141-A	3/4	Raceway		CBLS223141-A	MCC229101A	CS223141		CC30B
RWYS223141-B	3/4	Raceway		CBLS223141-B	MCC229101A	CS223141		CC30B
RWYS223142-A	3/4	Raceway		CBLS223142-A	MCC229101B	CS223142		CC30B
RWYS223142-B	3/4	Raceway		CBLS223142-B	MCC229101B	CS223142		CC30B
RWYS223151-A	3/4	Raceway		CBLS223151-A	MCC229101A	CS223151		CC30B
RWYS223151-B	3/4	Raceway		CBLS223151-B	MCC229101A	CS223151		CC30B
RWYS223152-A	3/4	Raceway		CBLS223152-A	MCC229101B	CS223152		CC30B
RWYS223152-B	3/4	Raceway		CBLS223152-B	MCC229101B	CS223152		CC30B
RWYS223159-A	3/4	Raceway		CBLS223159-A	CAB220001	FE/FIT223159		CC30B
RWYS223160-A	3/4	Raceway		CBLS223160-A	CAB220001	AIT223160		CC30B
RWYS223160-B	3/4	Raceway		CBLS223160-B	AIT223160	AE223160		CC30B
RWYS223190-A	3/4	Raceway		CBLS223190-A	CAB220001	LIT223190		CC30B
RWYS229101BB-B	3/4	Raceway		CBLD229101BB-B	MCC229101A	MCC229101B		CC30B
RWYX190001-A	4	Raceway	DB190001	CBLX190001-A	AREA 22 BLDG	HH190001		CC30B
RWYX190001-B	4	Raceway	DB190001	CBLX190001-B	AREA 22 BLDG	HH190001		CC30B
RWYX190001-C	2	Raceway	DB190001	CBLX190001-C	AREA 22 BLDG	HH190001		CC30B
RWYX190001-D	2	Raceway	DB190001	CBLX190001-D	AREA 22 BLDG	HH190001		CC30B
RWYX190002-A	2	Raceway	DB190002	CBLX190002-A	AREA 22 BLDG	HH190002		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV
RWYX190002-B	2	Raceway	DB190002	CBLX190002-B	AREA 22 BLDG	HH190002		CC30B
RWYX220001-A	4	Raceway	DB220003	CBLX229101A-A	HH180005	HH220001		CC30B
RWYX220001-B	4	Raceway	DB220003	CBLX229101B-A	HH180005	HH220001		CC30B
RWYX220001-C	2	Raceway	DB220002	CBLX220001-A	HH220002	PLC220001		CC30B
RWYX220004-A	4	Raceway	DB220004	CBLX220004-A	HH220002	HH180006		CC30B
RWYX220004-B	4	Raceway	DB220004	CBLX220004-B	HH220002	HH180006		CC30B
RWYX220004-C	2	Raceway	DB220004	CBLX220004-C	HH220002	HH180006		CC30B
RWYX220004-D	2	Raceway	DB220004	CBLX220004-D	HH220002	HH180006		CC30B
RWYX220011-A	4	Raceway	DB220002	CBLX220011-A	HH220002	NCE220011		CC30B
RWYX220011-B	4	Raceway	DB220002	CBLX220011-B	HH220002	NCE220011		CC30B
RWYX227950-A	1	Raceway		CBLX227950-A	**CAB227901**	PBX227950	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX227951-A	1	Raceway		CBLX227951-A	**CAB227901**	PBX227951	**CCF 020 CHANGE ORDER PENDING**	CC30B
RWYX227952-A	1	Raceway		CBLX227952-A	NCE220011	PBX227952		CC30B
RWYX229101A-C	2	Raceway		CBLX229101A-A	HH220001	MCC229101A		CC30B
RWYX229101A-D	2	Raceway	DB220001	CBLX229101A-B	HH220001	MCC229101A		CC30B
RWYX229101A-E	2	Raceway		CBLX229101A-C	HH220002	MCC229101A		CC30B
RWYX229101B-C	2	Raceway		CBLX229101B-A	HH220001	MCC229101B		CC30B
RWYX229101B-D	2	Raceway		CBLX229101B-B	HH220001	MCC229101B		CC30B
RWYX229101B-E	1	Raceway		CBLX229101B-C	HH220002	MCC229101B		CC30B
RWYX229301-A	1-1/4	Raceway		CBLX229301-A	HH220001	PNL229301		CC30B
				CBLX229301-B				

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
CTS24	6	Tray		**CBLF020011A-B**			EXISTING TRAY (CCF 020 CHANGE ORDER PENDING)	
				CBLF020011BB-A				
				CBLF210011A-A				
				CBLF210011A-D				
				CBLF210011B-A				
				CBLF210011DA-A				
				CBLF230011A-B				
				CBLF240011A-A				
				CBLF240011CA-A				
				CBLF249101A-A				
RWYC210021A-A	3/4	Raceway		CBLC210021A-A	RIO21A	MCC 21A		CC30B
RWYC210021A-B	3/4	Raceway		CBLC210021A-B	RIO21A	MCC 21A		CC30B
RWYC210021B-A	3/4	Raceway		CBLC210021B-A	RIO21B	MCC 21B		CC30B
RWYC210021B-B	3/4	Raceway		CBLC210021B-B	RIO21B	MCC 21B		CC30B
RWYC210101-A	3/4	Raceway		CBLC210101-A	VFD210101	CS210101		CC30B
RWYC210101-B	3/4	Raceway		CBLC210101-B	CS210101	TSH210101		CC30B
RWYC210101-C	3/4	Raceway		CBLC210101-C	VFD210101	FSL210101		CC30B
RWYC210101-D	3/4	Raceway		CBLC210101-D	VFD210101	SV210101		CC30B
RWYC210101-E	3/4	Raceway		CBLC210101-E	RIO21A	FIT210101		CC30B
RWYC210102-A	3/4	Raceway		CBLC210102-A	VFD210102	CS210102		CC30B
RWYC210102-B	3/4	Raceway		CBLC210102-B	CS210102	TSH210102		CC30B
RWYC210102-C	3/4	Raceway		CBLC210102-C	VFD210102	FSL210102		CC30B
RWYC210102-D	3/4	Raceway		CBLC210102-D	VFD210102	SV210102		CC30B
RWYC210102-E	3/4	Raceway		CBLC210102-E	RIO21B	FIT210102		CC30B
RWYC210103-A	3/4	Raceway		CBLC210103-A	VFD210103	CS210103		CC30B
RWYC210103-B	3/4	Raceway		CBLC210103-B	CS210103	TSH210103		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYC210103-C	3/4	Raceway		CBLC210103-C	VFD210103	FSL210103		CC30B
RWYC210103-D	3/4	Raceway		CBLC210103-D	VFD210103	SV210103		CC30B
RWYC210103-E	3/4	Raceway		CBLC210103-E	RIO21A	FIT210103		CC30B
RWYC210104-A	3/4	Raceway		CBLC210104-A	VFD210104	CS210104		CC30B
RWYC210104-B	3/4	Raceway		CBLC210104-B	CS210104	TSH210104		CC30B
RWYC210104-C	3/4	Raceway		CBLC210104-C	VFD210104	FSL210104		CC30B
RWYC210104-D	3/4	Raceway		CBLC210104-D	VFD210104	SV210104		CC30B
RWYC210104-E	3/4	Raceway		CBLC210104-E	RIO21B	FIT210104		CC30B
RWYC210105-A	3/4	Raceway		CBLC210105-A	VFD210105	CS210105		CC30B
RWYC210105-B	3/4	Raceway		CBLC210105-B	CS210105	TSH210105		CC30B
RWYC210105-C	3/4	Raceway		CBLC210105-C	VFD210105	FSL210105		CC30B
RWYC210105-D	3/4	Raceway		CBLC210105-D	VFD210105	SV210105		CC30B
RWYC210105-E	3/4	Raceway		CBLC210105-E	RIO21A	FIT210105		CC30B
RWYC210106-A	3/4	Raceway		CBLC210106-A	VFD210106	CS210106		CC30B
RWYC210106-B	3/4	Raceway		CBLC210106-B	CS210106	TSH210106		CC30B
RWYC210106-C	3/4	Raceway		CBLC210106-C	VFD210106	FSL210106		CC30B
RWYC210106-D	3/4	Raceway		CBLC210106-D	VFD210106	SV210106		CC30B
RWYC210106-E	3/4	Raceway		CBLC210106-E	RIO21B	FIT210106		CC30B
RWYC210107-A	3/4	Raceway		CBLC210107-A	VFD210107	CS210107		CC30B
RWYC210107-B	3/4	Raceway		CBLC210107-B	CS210107	TSH210107		CC30B
RWYC210107-C	3/4	Raceway		CBLC210107-C	VFD210107	FSL210107		CC30B
RWYC210107-D	3/4	Raceway		CBLC210107-D	VFD210107	SV210107		CC30B
RWYC210107-E	3/4	Raceway		CBLC210107-E	RIO21A	FIT210107		CC30B
RWYC210108-A	3/4	Raceway		CBLC210108-A	VFD210108	CS210108		CC30B
RWYC210108-B	3/4	Raceway		CBLC210108-B	CS210108	TSH210108		CC30B
RWYC210108-C	3/4	Raceway		CBLC210108-C	VFD210108	FSL210108		CC30B
RWYC210108-D	3/4	Raceway		CBLC210108-D	VFD210108	SV210108		CC30B
RWYC210108-E	3/4	Raceway		CBLC210108-E	RIO21B	FIT210108		CC30B

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYC240024A-A	**3/4**	**Raceway**		**CBLC240024A-A**	**RIO24A**	**MCC24A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYC240024B-A	**3/4**	**Raceway**		**CBLC240024B-A**	**RIO24B**	**MCC24B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD210001A-A	3/4	Raceway		CBLD210001A-A	RIO21A	CAB210001		CC30B
RWYD210001A-E	3/4	Raceway		CBLD210001A-E	NCE210011	LV21A		CC30B
RWYD210001B-C	3/4	Raceway		CBLD210001B-C	NCE210011	LV21B		CC30B
RWYD210011A-A	**1**	Raceway		CBLD210011A-A	MCC21A	NCE210011	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD210011A-F				
				CBLD210011B-F				
RWYD210011A-B	1-1/2	Raceway		CBLD210011A-B	CAB210001	NCE210011	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD210011A-C				
				~~**CBLD210011A-D**~~				
				CBLD210011A-E				
				CBLD210011B-B				
				CBLD210011B-C				
				~~**CBLD210011B-D**~~				
				CBLD210011B-E				
RWYD210011B-A	**1**	Raceway		CBLD210011A-G	MCC21B	NCE210011	**CCF 020 CHANGE ORDER PENDING**	CC30B
				CBLD210011B-A				
				CBLD210011B-G				
RWYD210011C-A	3/4	Raceway		CBLD210011C-A	WAP	NCE210011		CC30B
RWYD210101-A	3/4	Raceway		CBLD210101-A	RIO21A	VFD210101		CC30B
RWYD210102-A	3/4	Raceway		CBLD210102-A	RIO21B	VFD210102		CC30B
RWYD210103-A	3/4	Raceway		CBLD210103-A	RIO21A	VFD210103		CC30B
RWYD210104-A	3/4	Raceway		CBLD210104-A	RIO21B	VFD210104		CC30B
RWYD210105-A	3/4	Raceway		CBLD210105-A	RIO21A	VFD210105		CC30B
RWYD210106-A	3/4	Raceway		CBLD210106-A	RIO21B	VFD210106		CC30B
RWYD210107-A	3/4	Raceway		CBLD210107-A	RIO21A	VFD210107		CC30B
RWYD210108-A	3/4	Raceway		CBLD210108-A	RIO21B	VFD210108		CC30B
RWYD219101AA-A	3/4	Raceway		CBLD219101AA-A	**CAB210001A**	MCC 21A	CCF 020 CHANGE ORDER PENDING	CC30B
RWYD219101AA-B	3/4	Raceway		CBLD219101AA-B	RIO21B	MCC 21A		CC30B
RWYD219101BA-A	3/4	Raceway		CBLD219101BA-A	CAB210001	MCC 21B		CC30B
~~**RWYD219101BA-B**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLD219101BA-B**~~	~~**RIO21B**~~	~~**MCC 21B**~~	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD240011-A	**3/4**	**Raceway**		**CBLD240011-A**	**NCE240011**	**UPS24**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD240011-B	**3/4**	**Raceway**		**CBLD240011-B**	**NCE240011**	**MCC24A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYD240011-C	**3/4**	**Raceway**		**CBLD240011-C**	**RIO24A**	**NCE240011**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD240011-D	**3/4**	**Raceway**		**CBLD240011-D**	**NCE240011**	**RIO24B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD240011-E	**3/4**	**Raceway**		**CBLD240011-E**	**NCE240011**	**MCC24B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYD240024A-A	**3/4**	**Raceway**		**CBLD240024A-A**	**RIO24B**	**RIO24A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYF210000-A	2	Raceway		CBLF210011A-D	PBX210001S-B	NTWRK	IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
RWYF210001-C	4	Raceway	DB210001S	CBLF210011DA-A	CTS24	PBX210001S-A	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F
RWYF210001B-A	4	Raceway	DB210001S	CBLF210011A-A	CTS24	PBX210001S-B	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011B-A				
RWYF210001B-B	4	Raceway	DB210001S	CBLF210011A-D	CTS24	PBX210001S-B	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF249101A-A				
RWYF210011-A	4	Raceway		CBLF210011A-A	PBX210001S-B	NCE210011	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B
RWYF210011-B	4	Raceway		CBLF210011B-A	PBX210001S-B	NCE210011	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF249101A-A				
RWYF210011-C	2	Raceway		CBLF210011DA-A	PBX210001S-A	NCE210011	IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
RWYF21001A-A	1-1/4	Raceway		CBLF210001A-A	NCE210011	CAB210001	IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33	CC30B
				CBLF210001A-B				
RWYF240000-A	2	Raceway	DB240011S	CBLF210011A-A	HH24224	CTS24	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	EXISTING
				CBLF240011A-A				
RWYF240000-B	1-1/2	Raceway		CBLF210011B-A	HH24224	CTS24	EXISTING RACEWAY TO BE RETAGGEd. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE	EXISTING
RWYF240000-C	1-1/2	Raceway		CBLF020011BB-A	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF210011A-D				
				CBLF240011CA-A				
RWYF240010-A	**1**	**Raceway**		**CBLF240010-A**	**NCE240011**	**FACP240010**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYF240011-A	**3**	**Raceway**		**CBLF020011A-B**	**NCE240011**	**CTS24**	**IDFM - (2) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33**	**CC30B**
				CBLF210011DA-A				
				CBLF240011A-A				
RWYF240011-B	**2**	**Raceway**		**CBLF020011BB-A**	**NCE240011**	**CTS24**	**IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33**	**CC30B**
				CBLF230011A-B				
				CBLF240011CA-A				
				CBLF249101A-A				
RWYF24224-A	2	Raceway	DB240009S	CBLF210011A-A	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	EXISTING
				CBLF240011A-A				
RWYF24224-B	1-1/2	Raceway	DB240009S	CBLF210011B-A	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24224-C	1-1/2	Raceway	DB240009S	CBLF020011BB-A	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF240011CA-A				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYF24224-D	1-1/2	Raceway	DB240011S	CBLF230011A-B	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24224-E	1-1/2	Raceway	DB240011S	CBLF020011A-B	CTS24	HH24224	EXISTING RACEWAY TO BE RETAGGED. NO INNERDUCT REQUIRED IF ONLY SINGLE FIBER OPTIC CABLE.	EXISTING
RWYF24225-A	4	Raceway	DB020002	CBLF020011BB-A	HH24225	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011A-A				
				CBLF240011A-A				
				CBLF240011CA-A				
RWYF24225-B	4	Raceway	DB020002	CBLF020011A-B	HH24225	HH020001	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F
				CBLF210011A-D				
				CBLF210011B-A				
RWYF24225-D	1-1/2	Raceway	DB240009S	CBLF210011A-D	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
				CBLF230011A-B				
RWYF24225-E	1-1/2	Raceway	DB240009S	CBLF020011A-B	HH24224	HH24225	EXISTING RACEWAY TO BE RETAGGED. IDFM - 1" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	EXISTING
RWYP210001-A	3/4	Raceway		CBLP210001-A	JP21	CAB210001		CC30B
RWYP210001-B	3/4	Raceway		CBLP210001-B	JP24	CAB210001		CC30B
RWYP210001-C	3/4	Raceway		CBLP210001-C	LP21L	CAB210001		CC30B
RWYP210001A-E	3/4	Raceway		CBLP210001A-E	PBX210001P	LV21A		CC30B
RWYP210001B-C	3/4	Raceway		CBLP210001B-C	PBX210001P	LV21B		CC30B
RWYP210001P-A	4	Raceway	DB210001P	CBLP210001A-E	CTP24	PBX210001P	EXISTING RACEWAY TO BE RETAGGED	CC5F
				CBLP210001B-C				
				CBLP210011-B				
				CBLP210011A-A				
				CBLP210011B-A				
				CBLP219101-A				
				CBLP219101-B				
				CBLP240011A-A				
RWYP210001P-B	**3/4**	**Raceway**		**CBLP240011A-A**	**JP21**	**PBX210001P**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYP210011-A	3/4	Raceway		CBLP210011-A	JP21	NCE210011		CC5F
RWYP210011-B	1-1/2	Raceway		CBLP210001A-E	JP24	CTP24		CC30B
				CBLP210001B-C				
RWYP210011-C	3/4	Raceway		CBLP210011-B	JP24	CTP24		CC5F
RWYP210011-D	3/4	Raceway		CBLP210011-B	PBX210001P	TBX210011		CC5F
RWYP210011A-A	1-1/2	Raceway		CBLP210011A-A	PBX210001P	MCC 21A		CC30B
				CBLP219101-A				
RWYP210011B-A	1-1/2	Raceway		CBLP210011B-A	PBX210001P	MCC 21B		CC30B
				CBLP219101-B				
RWYP21001C-A	3/4	Raceway		CBLP230390-A	HH21002C	HH21001C		CC5F

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYP21002C-A	3/4	Raceway		CBLP230390-A	MCC21A	HH21002C		CC5F
RWYP210101-A	2	Raceway		CBLP210101-A	MCC21A	VFD210101		CC30B
RWYP210101-B	2	Raceway		CBLP210101-B	VFD210101	M210101		CC30B
RWYP210102-A	2	Raceway		CBLP210102-A	MCC21B	VFD210102		CC30B
RWYP210102-B	2	Raceway		CBLP210102-B	VFD210102	M210102		CC30B
RWYP210103-A	2	Raceway		CBLP210103-A	MCC21A	VFD210103		CC30B
RWYP210103-B	2	Raceway		CBLP210103-B	VFD210103	M210103		CC30B
RWYP210104-A	2	Raceway		CBLP210104-A	MCC21B	VFD210104		CC30B
RWYP210104-B	2	Raceway		CBLP210104-B	VFD210104	M210104		CC30B
RWYP210105-A	2	Raceway		CBLP210105-A	MCC21A	VFD210105		CC30B
RWYP210105-B	2	Raceway		CBLP210105-B	VFD210105	M210105		CC30B
RWYP210106-A	2	Raceway		CBLP210106-A	MCC21B	VFD210106		CC30B
RWYP210106-B	2	Raceway		CBLP210106-B	VFD210106	M210106		CC30B
RWYP210107-A	2	Raceway		CBLP210107-A	MCC21A	VFD210107		CC30B
RWYP210107-B	2	Raceway		CBLP210107-B	VFD210107	M210107		CC30B
RWYP210108-A	2	Raceway		CBLP210108-A	MCC21B	VFD210108		CC30B
RWYP210108-B	2	Raceway		CBLP210108-B	VFD210108	M210108		CC30B
RWYP219101-A	1-1/2	Raceway		CBLP210011A-A	JP24	CTP24		
				CBLP219101-A				
RWYP219101-B	1-1/2	Raceway		CBLP210011B-A	JP24	CTP24		CC30B
				CBLP219101-B				
RWYP240011-B	**3/4**	**Raceway**		**CBLP240011-B**	**JP24**	**MCC24A**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYP240011-E	**3/4**	**Raceway**		**CBLP240011-E**	**JP24**	**MCC24B**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYP240011A-A	**3/4**	**Raceway**		**CBLP240011A-A**	**CTP24**	**NCE240011**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYP240011A-B	**3/4**	**Raceway**		**CBLP240011A-B**	**JP24**	**TBX240011**	**CCF 020 CHANGE ORDER PENDING**	**CC30B**
RWYS210101-A	1	Raceway		CBLS210101-A	VFD210101	CS210101		CC30B
				CBLS210101-B				
RWYS210101-B	3/4	Raceway		CBLS210101-C	RIO21A	FIT210101		CC30B
RWYS210102-A	1	Raceway		CBLS210102-A	VFD210102	CS210102		CC30B
				CBLS210102-B				

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYS210102-B	3/4	Raceway		CBLS210102-C	RIO21B	FIT210102		CC30B
RWYS210103-A	1	Raceway		CBLS210103-A	VFD210103	CS210103		CC30B
				CBLS210103-B				
RWYS210103-B	3/4	Raceway		CBLS210103-C	RIO21A	FIT210103		CC30B
RWYS210104-A	1	Raceway		CBLS210104-A	VFD210104	CS210104		CC30B
				CBLS210104-B				
RWYS210104-B	3/4	Raceway		CBLS210104-C	RIO21B	FIT210104		CC30B
RWYS210105-A	1	Raceway		CBLS210105-A	VFD210105	CS210105		CC30B
				CBLS210105-B				
RWYS210105-B	3/4	Raceway		CBLS210105-C	RIO21A	FIT210105		CC30B
RWYS210106-A	1	Raceway		CBLS210106-A	VFD210106	CS210106		CC30B
				CBLS210106-B				
RWYS210106-B	3/4	Raceway		CBLS210106-C	RIO21B	FIT210106		CC30B
RWYS210107-A	1	Raceway		CBLS210107-A	VFD210107	CS210107		CC30B
				CBLS210107-B				
RWYS210107-B	3/4	Raceway		CBLS210107-C	RIO21A	FIT210107		CC30B
RWYS210108-A	1	Raceway		CBLS210108-A	VFD210108	CS210108		CC30B
				CBLS210108-B				
RWYS210108-B	3/4	Raceway		CBLS210108-C	RIO21B	FIT210108		CC30B
RWYV210101	3/4	Raceway		CBLV210101-A	FIT210101	FE210101		CC30B
RWYV210102	3/4	Raceway		CBLV210102-A	FIT210102	FE210102		CC30B
RWYV210103	3/4	Raceway		CBLV210103-A	FIT210103	FE210103		CC30B
RWYV210104	3/4	Raceway		CBLV210104-A	FIT210104	FE210104		CC30B
RWYV210105	3/4	Raceway		CBLV210105-A	FIT210105	FE210105		CC30B
RWYV210106	3/4	Raceway		CBLV210106-A	FIT210106	FE210106		CC30B
RWYV210107	3/4	Raceway		CBLV210107-A	FIT210107	FE210107		CC30B
RWYV210108	3/4	Raceway		CBLV210108-A	FIT210108	FE210108		CC30B

Engineer: JDC
February 2021

Cable Tray/Raceway Schedule

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT/ REV
RWYC290001A-A	3/4	Raceway		CBLC290001A-A	RIO29A	MCC 29A		CC30A
				CBLC290001A-B				
RWYC290001B-A	3/4	Raceway		CBLC290001B-A	RIO29B	MCC 29B		CC30A
				CBLC290001B-B				
RWYC290001C-A	3/4	Raceway		CBLC290001C-A	RIO29C	MCC 29C		CC30A
				CBLC290001C-B				
RWYD290001A-A	3/4	Raceway		CBLD290001A-A	NCE290011	MCC 29A		CC30A
RWYD290001B-A	3/4	Raceway		CBLD290001B-A	NCE290011	MCC 29B		CC30A
RWYD290001C-A	3/4	Raceway		CBLD290001C-A	NCE290011	MCC 29C		CC30A
RWYF280011A-A	4	Raceway		CBLF280011A-A	CTS000001A	NCE280011	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF280011B-A	4	Raceway		CBLF280011B-A	JBX000010	NCE280011	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A
RWYF290010-A	**1**	**Raceway**		**CBLF290010-A**	**NCE290011**	**FACP290010**	**CCF 020 CHANGE ORDER PENDING**	**CC30A**
RWYF290011A-A	4	Raceway		CBLF000011BA-B	NCE290011	JBX000010	IDFM - (2) 4"-3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A
				CBLF280011B-A				
				CBLF290011A-A				
				CBLF290011BA-A				
RWYH290000A-A	4	Raceway		CBLH290000A-A	CTH30133A	SUB29A	EXISTING RACEWAY TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY.	EXISTING
RWYH290000B-A	4	Raceway		CBLH290000B-A	CTH30133B	SUB29B	EXISTING RACEWAY TO BE RETAGGED. CONTRACTOR TO SELECT CABLE THAT FITS IN EXISTING RACEWAY.	EXISTING
RWYP290001A-A	3/4	Raceway		CBLP290001A-A	JP PANEL 29A	MCC 29A		CC30A
RWYP290001B-A	3/4	Raceway		CBLP290001B-A	JP PANEL 29A	MCC 29B		CC30A
RWYP290001C-A	3/4	Raceway		CBLP290001C-A	JP PANEL 29A	MCC 29C		CC30A
RWYP290011-A	3/4	Raceway		CBLP290011-A	JP PANEL 29	NCE290011		CC30A
RWYP290011-B	3/4	Raceway		CBLP290011-B	LP 29B	NCE290011		CC30A

SECTION 26 24 19

MOTOR-CONTROL CENTERS

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies freestanding, factory assembled 600 (480) volt Motor Control Centers (MCC).
2. Requirements apply to new freestanding sections and modifications to existing sections.
3. Work for this project includes providing new replacement buckets including all wiring and equipment into existing MCCs to power and control equipment furnished on this project as shown on the drawings.
4. Work includes configuration of MCC mounted relays and low voltage Variable Frequency Drives.
5. The Contractor shall obtain host IP address, subnet mask, and default gateway information for the Ethernet networked equipment located within the MCCs. Obtain via a request for information (RFI).

B. Equipment List

Equipment Number	Name
MCC349101A	MCC349101A BLOWER BUILDING 480V MCC A-SIDE
MCC349101B	MCC349101B BLOWER BUILDING 480V MCC B-SIDE
MCC349201	MCC349201 BLOWER BUILDING 480V MCC C-SIDE

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean

the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/NEMA ICS 1	Industrial Control Systems: General Requirements
ANSI/NEMA ICS 18	Motor Control Centers
ANSI/IEEE C37.20.7	Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
CSA C22.2.022	Evaluation Methods for Arc Resistance Ratings of Enclosed Electrical Equipment
IBC	International Building Code
NFPA 79	Electrical Standards for Industrial Machinery
UL 845	Motor Control Centers

B. Codes and Standards:

1. MCCs and all components shall be Underwriters Laboratory listed to UL 845 and shall conform to NEMA ICS-1 and ICS-18 standards. UL Listed labels shall be applied to the vertical sections and the individual units (or “buckets”) installed within those sections. MCCs shall be tested and verified per IEEE guideline C37.20.7 and CSA standard 22.2 No. 0.22-11.

C. Factory Test:

1. All system components shall be factory-wired and tested as a system prior to shipment. Testing shall be designed to verify system operation and shall include as a minimum:
   a. Verification of drawings and bill of materials versus the constructed equipment.
   b. Verification of electrical ratings from the one lines and specifications versus the equipment.
   c. Energize the MCC and test the operation of each motor controller and associated hard wired connections and programmed logic.
   d. Verify voltage output of each control transformer and DC power supply within the MCC.
   e. Test of each network interface
   f. Verify logic functionality, as described herein, of programmed devices internal to the MCC.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be

underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Elementary connection and interconnection diagrams as required in paragraph 2.07, in accordance with NFPA 79 and/or NEMA ICS 18 Part 1 standards.
5. List of starters and feeder tap compartments indicating the size and type of circuit protection.
6. Network diagrams, network bill of material data for network components and cabling.
7. DC Power supply load calculations.
8. Time current curves for all protection devices.
9. Interrupting, withstand, and continuous current rating of:
   a. Bus bars
   b. Feeder tap units
   c. Starter units
   d. Main incoming units
10. Nameplate schedule.
11. Dimensioned drawings showing conduit access locations.
12. Weights
13. Front view elevation with starter and component schedule.
14. Installation instructions.
15. Factory test plan
16. Factory test results
17. Field test plan
18. Field test results
19. Operation and maintenance information as specified in Section 01 78 23. Electronic program file, in native and PDF format, with comments for each motor starter overload. Draft configuration provided prior to equipment startup for review. Final configuration of software provided after equipment commissioning for inclusion in operation and maintenance manual.
20. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
21. Final As-Builts. Maintain stick set of MCC, elementaries, interconnections, one-lines, network diagrams, and elevations and provide final red-lines upon project completion.

22. Host IP address, subnet mask, and default gateway allocation listing for each Ethernet connected device within the MCCs.

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA:

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

1.05 PROJECT OR SITE CONDITIONS

A. Environmental Requirements: The equipment shall be sized and de-rated in accordance with the manufacturer's guidelines for the project altitude, temperature, and other conditions specified in Section 01 11 80.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. Manufacturers equipment to match existing installation base. MCCs shall be as manufactured by:
   1. Eaton Cutler-Hammer Freedom Arc Resistant
   2. Schneider Electric Arc Resistant
   3. Allen-Bradley Centerline 2100 ArcShield
   4. Siemens tiastar Arc Resistant
   5. Approved Equal

2.02 SERVICE

A. MCCs shall be rated 480 volts, 60 Hertz, 3 phase, 3 wire, and short circuit withstand rating of 65,000A rms symmetrical unless specified otherwise on the drawings.

B. MCCs shall be rated for arc resistance with a minimum arc duration rating of 50ms@480V and 600V.

C. MCCs rated for arc resistance shall have a Type 2 accessibility rating as defined in CSA standard 22.2 No. 0.22-11 and IEEE guideline C37.20.7.

2.03 STRUCTURE AND CONSTRUCTION

A. Structure:
   1. MCCs shall be made of No. 12 gage steel minimum and, unless otherwise shown, each section shall be 90 inches high by 20 inches wide by 21 inches deep. The individual unit compartments shall be a minimum of 12 inches high.
   2. Each section shall have 72 inches for stacking starter units into the sections.

3. Enhanced door hinges and door latches designed to contain arc blast energy and prevent doors from opening during an arc flash event. Doors shall be gasketed.
4. A full height vertical wireway, 4-inch wide minimum, and not less than 35 square inches in cross section, shall be provided for each vertical MCC section. The wireway shall contain full height removable doors. Horizontal wireways shall be provided top and bottom, extending the length of MCCs. Wire ways shall be gasketed.
5. Bottom channel sills shall be mounted front and rear of the vertical sections extending the full length of the MCC lineup. A removable lifting angle shall be mounted on top and shall extend the width of the MCC lineup.
6. Containing isolation barriers between each structure to aid in the containment of arc blast energy and prevention of prorogation of the event to subsequent structures in the lineup.
7. A four-inch vertical section on the left and right end of each MCC lineup to increase the structural integrity of the MCC so that it can withstand arc blast energy.
8. Arc resistant shall not require an exhaust plenum, roof flaps, or similar venting device/assembly on top of the MCC to vent the arc blast energy and gases generated during an arc flash event.

B. Construction:
1. MCCs located indoors shall have NEMA 1 gasketed enclosures.
2. Starter units, size 5 and smaller, and feeder tap units 400 amperes and smaller shall be drawout plug-in construction with hardened, tin-plated copper alloy stabs, steel spring backups. The door shall have interference tabs which prevent door closure if unit is improperly installed.
3. Units shall be latched in the position to assure proper bus contact. The unit disconnect device shall be interlocked to prevent removal or reinsertion of a unit when the disconnect is in the "ON" or "TRIPPED" positions.
4. Circuit breaker disconnect operators shall be capable of accommodating three padlocks for locking in the "OPEN" position. Handle mechanism shall be a vertical motion device with four positions: ON, OFF, TRIPPED and RESET. Securely mounted to the front of the unit and mechanically connected to the breaker. Handle provides a positive indication of the breaker or switch position, even with the door open.
5. Hardware for mounting future starter and feeder tap units shall be provided at compartments specified as "FUTURE."

2.04 FINISH AND COLOR

A. The finish and color shall be in accordance with Section 26 05 00.

2.05 BUS

A. General:
1. Bus shall be tin-plated copper with bolted connections between vertical and horizontal bus bars. Access for tightening these connections shall be from the front, without the need for tools on the rear of the connection. Insulated horizontal and vertical bus barriers shall be provided. Barriers shall be fabricated from high-strength, glass-filled polyester resin.
2. The bus shall be braced to withstand a fault current of 65,000 amperes, RMS, symmetrical.

3. Vertical and horizontal bus shall be completely insulated.

B. Horizontal Bus:
1. Unless otherwise specified or shown, the main horizontal bus shall be rated a minimum 600 amperes continuous.
2. Extend existing main horizontal bus to provide new MCC sections. New sections ratings shall meet or exceed existing and shall maintain existing listing.

C. Vertical Bus:
1. Unless otherwise specified or shown, the vertical bus shall be rated a minimum 300 amperes continuous.

D. Ground Bus:
1. A 1/4-inch by 2-inch ground bus shall be provided the full length of the MCC. Ground bus shall be located at the bottom of the MCC. 300A minimum. Provide a lug to terminate a bare 4/0 AWG copper ground conductors at each end of the ground bus.

2.06 WIRING

A. General:
1. MCCs shall be provided with NEMA ICS 18 Class II, Type B wiring. All starter units shall have pull apart terminal blocks for control wiring. Terminal blocks shall be provided for power wiring for starters size 2 and smaller.
2. MCCs shall be provided with all necessary interconnecting wiring and interlocking. When an MCC control section is specified on the drawings or schedules, wire directly to the relays or programmable controller's input/output modules as part of the interconnecting wiring.
3. Provide elementary and connection diagrams for each starter unit; network diagrams indicating all cable connections and host IP address, subnet mask, and default gateway allocation; and an interconnection diagram for the entire MCC.

B. Power Wire:
1. Power wire shall be copper 90 degrees C insulated, sized to suit load; minimum power wire size shall be No. 12 AWG copper stranded.

C. Control Wire:
1. Control wire shall be No. 16 AWG stranded copper wire, rated 90 degrees C machine tool wiring (MTW) and UL listed for panel wiring. Internal wires shall be numbered, and the number shall be on the manufacturer wiring diagrams.

D. Terminations and Cable Connections:
1. Terminals:
   a. Control terminals: Finger safe screw cage clamp for 16-12 awg bare copper wire. . Electrolytic copper, tin-plated, 600V and 30A.
2. Cable Connectors:
   a. Cable connectors for use with stranded copper wire, sizes No. 8 AWG to 1000 kCmil shall be UL listed. Dished conical washers shall be used for each bolted connection. Connectors shall be reusable and shall be rated for use with copper

conductors. Incoming line and outgoing feeder compartments shall be provided with crimp type lugs, 3M Company, Burndy Company, or equal.

E. Conductor Markers: Markers used for identification shall meet the requirements of Section 26 05 00.

2.07 MAIN AND FEEDER CIRCUIT PROTECTION

A. General:

1. Main and feeder tap units shall consist of circuit breakers, as specified or shown on the drawings. Series ratings for overcurrent devices to meet specified short circuit withstand ratings is prohibited. Main and tie breaker shall be 100% rated, with frame size, solid state trip unit, rating plug, and the fully adjustable (dynamic) trip functions. Trip settings shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay. Minimum short circuit capacity shall be 42,000 amps symmetrical.
2. Feeder breakers feeding downstream distribution equipment including panelboards, switchboards, and MCCs, and all breakers 250A and greater shall include a solid state trip unit, rating plug, and the fully adjustable (dynamic) trip functions. Feeder breaker shall fully coordinate with the main breaker. The fully adjustable (dynamic) trip functions shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay.
3. Digitrip RMS 310+ or equal.

B. Circuit Breakers (Thermal Magnetic):

1. Thermal-magnetic circuit breakers shall be molded case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

C. Circuit Breakers (Magnetic Only):

1. Magnetic circuit breakers shall be molded-case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

2.08 MOTOR STARTER UNITS

A. General:

1. Motor starter units shall be combination type with contactor and thermal magnetic circuit breaker, or motor circuit protector, and solid-state overload unit as indicated on the drawings or specified in the MCC schedule. The starter units shall have a minimum combination UL listing of 65,000 amperes RMS symmetrical or as indicated or specified in the schedule.
2. For reversing motors, controls internal to the motor starter or overload, shall inhibit direction change while the motor is turning. When selecting to go from a Forward to

Reverse motion, or the other direction, the motor shall be commanded to come to a complete stop prior to starting in the opposite direction.

B. Motor Circuit Protectors:

1. The molded case motor circuit protector (MCP) shall operate on the magnetic principle with a current sensing coil in each of the three poles to provide an instantaneous trip for short circuit protection. The trip setting shall be adjustable from 700 to 1300 percent of the motor full load amperes from the front of the MCP. The motor circuit protector shall be set at its lowest position at the factory.

C. Control Power Supply:

1. Each control power supply shall be rated 480 input and 24VDC output. The control power supply shall be sized for the load it feeds but shall not be less than the minimum ratings as follows:

NEMA starter size	Minimum power supply watt rating
1	120
2	120
3	240
4	240

2. Each control power supply shall be provided with a fuse on the output. A fuse shall be provided on each input conductor (three or two) and the fuses shall be rated to interrupt 200,000 amperes at 600 volts.
3. Fuse holder for secondary fuse shall be drawout indicating type and mounted on the door of the compartment. Fuse holders for primary fuses shall be fuse clips with full barriers between fuses.
4. Power supplies shall be Eaton PSG series or approved equal.

D. Control Power transformer (CPT):

1. Where a space heater is specified inside a motor, provide a CPT with a minimum size that is 125% of the heater load. Provide heater control in the starter unit to turn off the space heater when the motor controller is energizing the motor and turn on the heater when the motor controller is not energizing the motor.

E. Contactors:

1. Unless otherwise specified or shown, contactors shall be full voltage, 3-pole, 600 volt AC, NEMA Size-1 minimum. Contacts shall be double break, silver-cadmium oxide, and weld resistant. Contacts shall be isolated to prevent arcing. Coils and magnets shall be capable of being removed or replaced without special tools. IEC contactors are prohibited.
2. Reversing, multispeed, and reduced voltage starters shall have additional contactors, overload relays, and auxiliary relays as required, and shall have mechanically interlocked contactor coils to prevent simultaneous engagement.
3. Lighting contactors with interposing relay with 120V coil. Relay is controled by 120V circuit from the lighting control panel..

F. Auxiliary Contacts:

1. Contactors shall be equipped with auxiliary contacts, rated 10 amperes at 120 volts AC. Refer to drawings for actual quantities required. As a minimum, each contactor shall be equipped with two normally open and two normally closed electrically isolated auxiliary contacts with the used and auxiliary contacts wired out to terminal blocks.

G. Surge Suppressor:
   1. A surge suppressor shall be provided for all coils in each starter unit. Suppressor shall be encapsulated in a small module suitable for mounting directly to the coil. Size 3 or larger starters shall include an interposing relay to electrically isolate the starter coil from the I/O module output.
   2. A surge suppressor shall be at the terminal strip on conductors that control solenoid valves or other inductive loads.

H. Terminal Blocks:
   1. Terminal blocks shall be screw cage type rated 600 volts; minimum rating 30 amperes for control wiring and 60 amperes power wiring. Starters Size 3 and larger shall terminate the power leads directly to the contactor.
   2. Control terminals pull apart for 16 awg to 12 awg stranded conductors.
   3. The minimum number of terminals shall be as specified on the drawings. Terminal blocks shall be provided with integral marking strips and shall be permanently marked with the internal conductor number as depicted on the manufacturer wiring diagrams. Internal wiring shall be connected on one side of the terminal block; outgoing conductors shall be connected to the other side.

I. Programmable Motor Overload Relay:
   1. Motor starters shall include a programmable electronic overload relay with configurable internal logic. Logic will allow for field input faults, with configurable time delay and latching logic. Overload relays shall monitor all three phases individually for incoming voltage, motor current and frequency. Provide modules cables and power supplies and other appurtenances required to measure voltage and current, provide the programmable control, provide human interface, provide discrete inputs and outputs, and provide the network interfaces specified on the drawings and in the specifications.
   2. Overload relay current range to be sized by Contractor to match the equipment. Settings to be adjusted in accordance with NEC, the full load amps of the equipment, and the manufacturer's instructions.
   3. Overload relays shall support protective functions with adjustable settings. The functions can be enabled or disabled. The overload shall support the following protective functions at a minimum:
      a. Thermal Overload
      b. Overload time delay with a range of Class 5 to Class 40
      c. Instantaneous Overcurrent
      d. Undercurrent
      e. Jam
      f. Stall
      g. Phase current unbalance
      h. Phase loss

i. High and low voltage
j. Voltage imbalance
k. Phase voltage reversal
l. Voltage loss
m. Ground fault

4. Programmable with 8,000 word minimum memory. USB connection on the operator interface for programming (with the door shut). Provide cables and software for modifying, uploading, and downloading programs from a laptop computer.
5. The overload and expansion modules shall have discrete inputs and outputs. The data from inputs shall be communicated through Modbus TCP Ethernet communications. Module outputs shall be controlled through internal logic with status monitored through the user interface and onboard communications. Additional inputs and outputs shall be available by adding modules. A minimum of 12 inputs and 12 outputs shall be provided at each motor starter.
   a. Inputs 24VDC
   b. Outputs dry contact rated 5A at 250VAC and 5A at 30 VDC. At least one output single pole double throw.
   c. Control programming shall, to the greatest extent possible, be the same programming for all motors. Programming shall include the following configuration:
   d. Local MCC control via user interface:
      1) Start / Stop (regardless of field HOA position)
   e. Remote hardwired Hand control via local control station near motor:
      1) HOA in Hand – (when motor is non-reversing) motor runs in forward motion continuously.
      2) HOA in Hand and F/R in Forward – (when motor is reversing) motor runs in forward motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      3) HOA in Hand and F/R in Reverse – (when motor is reversing) motor runs in reverse motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      4) Off – motor does not run.
      5) HOA in Auto – Network control via Modbus TCP Ethernet communications. (PLC/SCADA control)
      6) All faults will be configured and available. Faults will be based upon digital inputs listed herein, and internally determined fault conditions. All faults based upon field inputs shall be active, as shown on Drawings.
      7) All status will be configured and available. Status will be based upon digital inputs listed herein, and points available through internal monitoring.
   f. Program the inputs and outputs as specified herein and shown on the drawings.
   g. The following field inputs shall be configured as faults within the internal logic, with no need for additional relay or external timing devices:
      1) Motor temperature high (no delay on)

2) Motor moisture high (no delay on)
3) Seal water flow switch low (timed delay on @ 5 secs initial value) to allow flow prior to motor start)
4) Discharge pressure high (timed delay on @ 1.0 secs initial value)
5) Suction pressure low (timed delay on @ 1.5 secs initial value)
6) E-stop (no delay on)
7) Pump stator temperature high (no delay on)

h. The following status inputs shall be provided, as a minimum:
1) HOA hand / run forward status
2) HOA hand / run reverse status (reversing motor)
3) HOA auto status
4) Ready status (Control power monitoring)
5) Remote call to run (external control)

i. The following relay type outputs shall be provided, as a minimum:
1) Forward starter coil
2) Reverse starter coil (for reversing motors)
3) Seal water solenoid valve with a reverse-current protection diode (for seal water required applications – see Drawings)
4) Run status pilot light (at motor local control station)
5) Fault status pilot light (at motor local control station)

6. Door mounted user interface with the following features incorporated:
a. USB or RJ-45 port for programming
b. Start, Stop, and Auto buttons.
c. Reset button
d. Navigation buttons
e. Status lights.
f. Three rows of text.
g. Display of voltage phase to ground and phase to phase, current for each phase, power, power factor, and other system data
h. Display of fault notification and diagnostic information

7. Overload Relay shall support native Modbus TCP (Ethernet) communications for remote monitoring and control. I/O communications local to the bucket shall be Modbus, Modbus 485, or Modbus TCP.

8. Automatic, network, electronic, and manual reset functions shall be supported.

9. The overload shall provide the following diagnostic and operational information via Ethernet at a minimum:
a. Error and trip information
b. Ground fault, L1, L2, L3 and three-phase average currents
c. L1-L2, L2-L3, L1-L3 and three-phase average voltages
d. Voltage and current unbalance
e. Power factor
f. Power
g. Fault history (last four faults)

h. Run timer value

10. Manufacturer:
    a. Eaton C445
    b. Schneider Electric TeSys T
    c. Allen-Bradley E300
    d. Siemens Simicode Pro
    e. Or approved equal.

J. Ethernet: ~~All motor control centers shall be factory wired and configured with Ethernet communications.~~ The Ethernet communications network shall include overload relays, power meters, and network switches. See the drawings ~~and schedules~~ for more information about number of connections and configuration.

2.09 ETHERNET COMMUNICATIONS CABLING SYSTEM

A. Cabling System:

1. Contractor to provide, install, and terminate Ethernet communications cabling between network capable devices, individual motor control center buckets to the internally mounted network switches. Where existing MCCs are modified by the project, the Contractor shall provide, install, and terminate new network cable routed from the existing or new MCC buckets to the new internally mounted network switches.

~~1. The MCC shall include a pre-engineered communication cabling system to connect motor overload units and VFDs within the MCC.~~

2. Appropriate terminators and grounding shall be provided. Cable terminators to include integral ground for shielding.
3. Ethernet cable shall be shielded CAT6 UL 600V rated with a yellow outer insulation jacket color.
4. Ethernet cable through the MCC section shall be routed in so that they are protected from mechanical damage. Cable management shall be provided in vertical wireways to group network cables and maximize distance from power cabling.
5. Ethernet switches within the MCC shall be wired in a Resilient Ethernet Protocol ring topology, with the switches supporting a star configuration to the MCC bucket devices. ~~Manufacturer~~ Contractor to provide cabling between shipping splits. Contractor to provide and route cabling from the two outermost switches to the PLC panel completing the ring, as shown on the Drawings.

B. Ethernet Equipment:

1. Provide one managed Ethernet switch for every shipping split. There shall be a maximum of three vertical sections per shipping split.
2. The switches shall be powered with 24VDC powered by 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules .
3. Locate Ethernet switch and power supply within a dedicated MCC bucket, located at the top most space within the vertical section.
4. Provide spare ports sufficient to support spare MCC buckets within shipping split for future equipment per switch. Provide 1 spare port for programming access, per switch.

5. Alarm contact output rated at minimum 30VDC, 1A.
6. Manufacturer, Model: Cisco Catalyst IE 2000 series, to match existing. No substitutions.

2.10 ADJUSTABLE FREQUENCY DRIVES

A. Where used in the Contract AFD, ASD, VFD, VSD, shall be interchangeable terms to refer to adjustable frequency drives. AFDs mounted in MCCs shall comply with 26 29 23 and the following requirements.
   1. AFDs shall be coordinated with the driven equipment. Where required by distance or motor provided supply load reactors or motor termination kits.
   2. Provide variable or constant torque PWM type drives for motors as indicated on the Drawings. Include circuit breaker disconnecting means, 3-percent line reactors and cooling fans as required to dissipate the heat into the room.
   3. Provide ratings as indicated.
   4. Provide microprocessor Operator Interface Station (OIS)/Human Interface Module (HIM) mounted on the MCC bucket door, with associated communications cable.
   5. EMI/RFI shielding as required for products and wiring.
   6. Provide current limiting fuses for short circuit protection as required to meet SCCR listing of MCC.
   7. Provide factory technician for setup, startup services, and training.
   8. Provide Form C relays with 5-ampere contacts for interlocks as shown on drawings.
   9. Provide programmable relay outputs for status, and alarms, as shown on drawings.
   10. Provide isolated 4-20madc analog input for speed control.
   11. Provide isolated 4-20madc analog output for speed indication.
   12. Provide network communications, using facility standard communications protocol - Modbus TCP.
   13. Provide additional optional I/O modules, as shown on drawings.
   14. Configure drive to provide control with input from the following locations:
      a. MCC Bucket -
         1) Local mode – Manual start/stop and speed control at MCC through AFD HIM.
      b. Field Mounted Local Control Station
         1) AFD HIM in Remote mode
         2) Hand mode (Remote 1)
            a) Hand-Off-Auto (HOA) in the Hand position
            b) Manual start/stop and speed control – wired input
      c. SCADA -
         1) AFD HIM in Remote mode
         2) Auto mode (Remote 2)
         3) HOA in Auto position
         4) PLC based automatic control – network input
   15. Configure field inputs in accordance with 26 29 23.

2.11 MISCELLANEOUS

A. General:

1. Control devices such as pushbuttons, selector switches, indicating lights and overload reset pushbuttons shall be incorporated within the overload or variable frequency drive digital user interface, or HIM module, mounted on the unit compartment door.
2. The control devices shall comply with the requirements of Section 26 09 16.

E. Elapsed Time Indicator:

1. The elapsed time indicator shall be incorporated within the overload or variable frequency drive digital user interface or HIM module, mounted on the unit compartment door.

2.12 NAMEPLATES

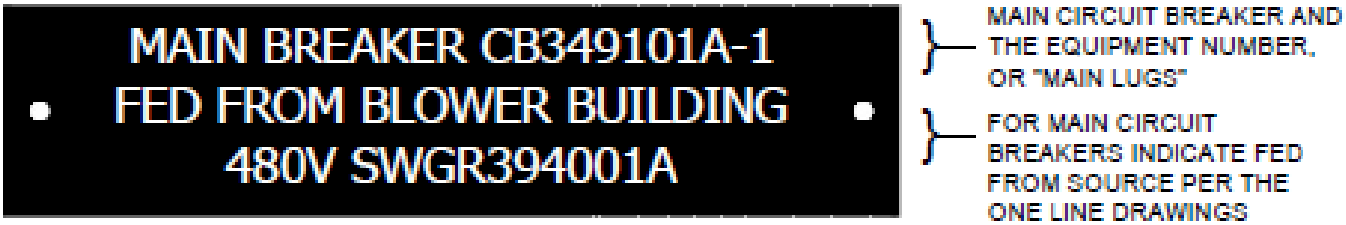
A. Nameplates: In addition to the manufacturer's identification, nameplates shall be provided showing the motor control center, main breaker, and feeder breaker and other component designations as indicated on the Drawings.

B. Nameplates shall be back engraved type and shall comply with Section 26 05 00 as modified in this Section.

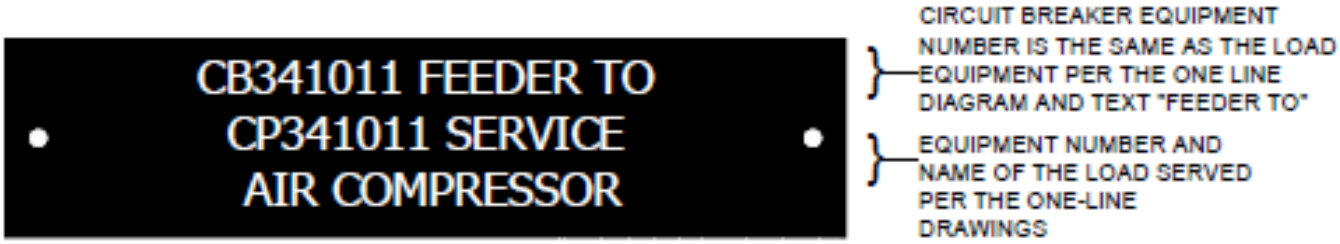
C. Master nameplates shall be minimum 6 by 10 inches, four lines, 19 characters per line, 9/16-inch lettering.

D. Unit nameplates shall include the circuit breaker equipment number and the name of the equipment fed per the one line drawings. Main breakers shall include the breaker equipment number and the power source information shown on the one line Drawings. Other components in the motor control center indicated on the one lines shall have nameplates with the equipment numbers as a minimum and the full equipment name if shown. Nameplates shall be engraved per the typical examples shown below. See Section 26 05 00 for additional nameplate requirements.

TYPICAL FOR MASTER NAMEPLATE



TYPICAL NAME PLATE FOR MAIN CIRCUIT BREAKERS OR MAIN LUGS



TYPICAL NAME PLATE FOR FEEDER BREAKERS

2.13 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:
   1. High-energy parallel design for IEEE C62.41 and C62.45 category C
   2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses
   3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)
   4. Form C dry contacts
   5. UL 1449
   6. 5-year warranty

C. Surge Capacity: 160 kA minimum surge capacity per phase.

D. Unit Mounting: SPD shall be mounted in a MCC unit. The unit shall include:
   1. Circuit breaker. Overcurrent device shall be selected and sized by the SPD manufacturer. The overcurrent device may be a circuit breaker or a fuse, per the manufacturer's standard.
   2. Disconnect
   3. Display on the door.

E. Door mounted display with the following
   1. LCD screen with surge count
   2. Surge count reset button.
   3. LED for each phase indicating protection is functional

4. LED for each phase indicating replacement is required
5. Alarm with silence button

F. Eaton SPD Series or approved equal.

2.14 POWER METER

A. Provide a power meter in accordance with Section 26 09 13 where specified or shown on the drawings.

B. Power meter shall be powered with 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules.

2.15 SPARE PARTS

A. One set consisting of the following spare parts shall be provided:
   1. 1--set each fuse size and type
   2. 10--indicating light bulbs

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.
   2. Install MCC level and plumb. Pad height 3-1/2 inch. Installation per the manufacturer's installation instruction.

3.02 GENERAL

A. The MCCs shall be erected in accordance with the recommendations of the manufacturer and with the details specified herein.

B. Cables larger than No. 6 AWG which hang from their vertical connections shall be supported within 2 feet of the connection.

C. The solid-state overload relay settings shall be implemented by the Contractor with the settings selected based on the actual full load amperes of the motor connected to the starter and the requirements of the motor driven equipment. Refer to the manufacturer's literature for setting the overload relays.

D. The motor circuit protectors shall be adjusted by the Contractor to the lowest setting not causing false tripping.

E. The Contractor shall adjust the protection settings per the short circuit, coordination, and arc flash report. after obtaining approval by the Construction Manager.

F. Ethernet host IP addresses, subnet mask, and default gateway for each starter overload and starter input/output module shall be set by the Contractor. The Ethernet overload is commissioned with software configuration tools. Contractor to coordinate with Owner final IP address, subnet mask, and default gateway allocation.

3.03 REPAIR/RESTORATION

A. Use existing below MCC penetrations to access cable tray for routing to process equipment as shown on the drawings. Re-seal penetrations with listed raceway seal and clean MCC interior.

3.04 TRAINING

A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.
   1. Training Sessions:
      a. Procedures: Section 01 79 00.
      b. Provide a minimum of 12 hours of classroom training on the motor control center installations. Conduct two 2-hour training sessions for operators and one 8-hour training session for electricians. Assume that this training will be done on consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Record completion of training on the form in in Section 01 99 90.

3.05 FIELD TESTS

A. MCCs shall be tested in accordance with Section 26 08 00 and 01 45 23.

END OF SECTION

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SECTION 27 11 00

COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. This section specifies requirements for the equipment and cable installations in communications equipment rooms, electrical rooms, and telecommunications closets.

B. Included in this section are material and installation requirements for communications racks and rack cable management.

C. Communications Equipment Rack Schedule:

1. The Communications Equipment Rack Schedule, in the Attachment at the end of this section, lists ~~Contractor~~ Owner provided network racks and cabinets required for the project along with specific requirements for each rack and cabinet. Specific requirements are also specified on the rack layout and wiring diagrams referenced in the Communications Equipment Rack Schedule.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).
3. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/TIA-568 Series	Commercial Building Telecommunications Cabling Standard
ANSI/TIA-569	Telecommunications Pathways and Spaces
ANSI/TIA-606	Administration Standard for the Telecommunications Infrastructure of Commerical Buildings
ANSI/TIA-607	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
ASCE/SEI 7	Minimum Design Loads for Buildings and Other Structures
BICSI	Telecommunications Distribution Methods Manual

Reference	Title
EIA/ECA-310	Cabinets, Racks, Panels, and Associated Equipment
NFPA 70	National Electric Code

5. Additional references are listed in Section 26 05 00. They are a part of this section as specified and modified.

B. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Contract Documents shall be subject to the control and approval of the Owner or Owner's Representative.

C. Contractor shall adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA), and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.

1.03 ENVIRONMENTAL CONDITIONS

A. Equipment provided under this section shall be suitable for operation under ambient conditions described in Section 26 05 00.

1.04 SUBMITTALS

A. General:
   1. Submittals and transmittal procedures for submittals are defined in Section 01 33 00. Submit in accordance with the procedures set forth in the General Conditions of the Contract Documents and Section 01 33 00 that include drawings, information and technical data for equipment and as required in Section 26 05 00.

B. Action Submittal Items:
   1. Package 1:
      a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.
      b. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.
         1) The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.
         2) Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
      c. A copy of the Contract Document Instrumentation drawings relating to the submitted equipment, with addendum updates that apply to the equipment in

this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

2. Package 2:
   a. Marked manufacturer product literature for all equipment and components provided or selected for Owner to provide.
   b. List of miscellaneous items, cables, spare parts, that will be provided.
   ~~b.~~c. Bill of materials for network enclosure components which provides the Owner a comprehensive listing of parts to be purchased for installation by Contractor.
3. Package 3:
   a. Installation drawings for only the equipment, components, and mounting accessories to be provided.
   b. Shop drawings for communications equipment room fiittings, including plans, elevations, sections, details, and attachments to other work.
      1) Equipment assemblies shall be detailed to indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
      2) Include workspace requirements and access for cable connections for equipment racks and cabinets.
      3) Indicate location of Secondary Bonding Busbar and its mounting detail showing standoff insulators and wall mounting brackets.
      ~~3)~~4) Provide termination drawings indicating cable termination locations within the fiber optic or twisted pair patch panels.
   c. Seismic qualification certificates for equipment frames from manufacturer. Certificates shall include:
      1) Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
      2) Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions. Base certification on the maximum number of components capable of being mounted in each rack type. Identify components on which certification is based.
      3) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
   d. Contractor's certifications and calculations that the equipment meets the seismic requirements specified in Sections 01 33 00 and 01 73 24, and this Section.

C. Closeout Submittals:
   1. Package 4:
      a. Provide the following product data in accordance with Section 01 33 00:
         1) Final reviewed submittal, including revised as-built submittal drawings in AutoCAD and PDF format.
         2) Final as-built cable schedules in native, editable file (e.g., Microsoft Office Excel) and PDF format.

~~2)~~3) Final installation drawings with any modifications provided during installation

~~3)~~4) Manufacturer's operation and maintenance information, edited for this project, as specified in Section 26 05 00.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Equipment frames shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. The term "withstand" means that the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified.

B. Seismic anchoring and bracing: Sections 40 61 13 and 01 73 24.

2.02 TELECOMMUNICATIONS BACKBOARDS

A. Where specified on the Drawings, server room and telecommunications closet walls shall be covered with 3/4-inch A-C grade fire retardant plywood, painted with two coats of light-colored, non-conductive, fire retardant paint.

B. Plywood shall extend from the floor to 8 feet above the finished floor and shall be mounted with the "A" side exposed.

C. Power and telecommunications outlets and light switches shall be surface mounted on the plywood backboard.

2.03 EQUIPMENT FRAMES

A. General Requirements:

1. Racks:
   a. Freestanding and wall-mounted racks shall be modular-steel units designed for telecommunications equipment support and coordinated with dimensions of units to be supported. Racks shall assemble with nut and bolt hardware.
   b. Each rack shall have two L-shaped base angles and two equipment-mounting rails. Where specified on the Drawings, racks shall have two L-shaped top angles. The base angles shall be pre-punched for attachment to the floor.
   c. Modular dimension width shall be compatible with EIA/ECA-310 standard, 19-inch panel mounting. Equipment mounting rails shall be punched on the front and rear flange with square-punched holes. Equipment mounting rails shall have marked and numbered rack-mount spaces (U), with the numbering starting at the bottom of the rack.
   d. UL Listed.
   e. Racks shall be black in color.
   f. Finish shall be manufacturer's standard, baked-polyester powder coat.
   g. Racks shall be provide with cage nuts and all necessary equipment-mounting hardware.

B. Freestanding Two-Post Racks:

1. Rack frame shall be welded steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Equipment space: 44U or 45U.
3. Load capacity: 1000 pounds (full load capacity shall be included in seismic certification).
4. Rack dimensions: 84”x24”x15” (HxWxD).
5. Bonding and grounding:
   a. Rack components bonded through welds.
   b. Masked ground connection points at the top and base of the rack.
   c. Provide attachment hardware for bonding equipment mounting rails to rack.
   d. Ground terminal block that accepts a minimum of two ground connections for bonding to the Secondary Bonding Busbar.
6. Accessories:
   a. Vertical cabling sections: Provide double-sided, front and rear cable management pathways with latches to organize and secure cables. Cable managers shall have large pass-through ports to allow transitions between front and rear pathways.
   b. Cable management fingers: Provide cable management fingers kits that are easily installed to the front and rear rack frame and that extend the full height of the rack.
   c. Vertical power strip mounting hardware kit: Provide mounting hardware for securely attaching vertical power strips and power distribution units (PDUs) to the rack or the back of a vertical cabling section.
   d. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   e. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
7. Manufacturers:
   a. ~~Chatsworth Products, Inc. SeismicFrame~~ APC NetShelter 2 Two-Post Rack
   b. Or approved equal.

C. Freestanding Four-Post Rack Cabinets:

1. Rack frame shall be welded and bolted steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Provide rack cabinet with top and side panels and front and rear doors. Doors shall be perforated, removable, and reversible to open from the right or left. Provide keyed locking mechanisms on front and rear doors.
3. Equipment space: 43U.
4. Load capacity: 1500 pounds with 100 pound top load (load capacity shall be included in seismic certification).
5. Rack cabinet dimensions: 84”x24”x52” (HxWxD).
6. Bonding and grounding:

a. Equipment mounting rails, top panel, side panels, and doors electrically bonded to cabinet frame.
b. Ground lug at the top and base of the cabinet frame.

7. Accessories:
   a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
   b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
   c. Vertical dual PDU mounting hardware kit: Provide mounting hardware for securely attaching two PDUs to the cabinet frame.
   d. Air dam and seal kits: Provide top, bottom, and side baffles to block airflow around the sides and top of the equipment mounting space so that cold air passes through equipment and hot air does not recirculate. Provide manufacturer recommended seal and rail grommet kits to improve air seal.
   e. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   f. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
8. Manufacturers:
   a. ~~Chatsworth Products~~APC (Schneider Electric), Inc. ~~Z4 Series SeismicFrame Cabinet System~~NetShelter VX Seismic 42U Enclosure w/Sides
   b. Or approved equal.

D. Wall-Mount Rack Cabinets:
1. Rack frame shall be steel with two pairs of adjustable depth equipment mounting rails and wall-mounting hardware.
2. Rack cabinet shall have a hinged center section that allows the section to swing out from the rear section, allowing access to the rear of the rack frame. Rack cabinet shall have a front door with keyed locking mechanism. Rear section shall be lockable independently from the front door.
3. Rack cabinet shall include 120 VAC, filtered fan assembly that maintains the NEMA rating of the rack cabinet enclosure and provides cooling to the equipment installed within.
4. Enclosure rating: NEMA 12K
5. Equipment space: 19U.
6. Load capacity: 250 pounds.
7. Rack cabinet dimensions: 36”x24”x24” (HxWxD). Rear section shall have 5-inch depth, minimum, for receiving conduits.
8. Bonding and grounding:
   a. Protective grounding studs and grounding jumper wires that electrically bond the enclosure doors to the enclosure frame.
   b. Main protective grounding stud located inside the rear section.
   c. Grounding kit.
9. Accessories:

a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
c. Provide manufacturer recommended mounting hardware for the installation.
d. Provide five spare fan assembly filters.

10. Manufacturers:
    a. ~~Great Lakes Case & Cabinet NEMA 12K Series Wall Mount~~Tripp-Lite SmartRack 26U UPS-Depth Wall-Mount, with Clear Acrylic Window
    b. Or approved equal.

E. Horizontal Cable Management for Racks
1. Horizontal cable management kits shall be installed on 19-inch wide industry standard racks above or below patch panels and switches, where specified, to organize patch cables.
2. Kits shall be available in single-sided and double-sided configuration at heights of 1U, 2U, and 3U.
3. Kits shall include covers that can be opened from the top and bottom or removed altogether.
4. Kits shall include top and bottom cable guide fingers to separate and organize patch cords.
5. Depth:
    a. Single-sided: 5 inches.
    b. Double-sided: 12 inches.
6. Color: Black.
7. Manufacturers:
    a. ~~Chatsworth Products, Inc. Universal~~ APC, Inc. NetShelter Horizontal Cable Manageement~~r~~
    b. Or approved equal.

2.04 POWER DISTRIBUTION UNITS

A. PDUs for Freestanding Racks:
1. PDUs shall be vertical, rack-mount, switched type with ability to turn individual outlets on and off and configure sequenced power-on processes. PDU shall include functionality for continuous power monitoring of the PDU and each outlet. Additional requirements include:
    a. Power input shall be one of the following, as specified on the Drawings:
        1) 120 VAC, single-phase, 30 A.
        2) 208 VAC, three-phase, 50 A.
    b. Power cord: Integral cord, 10-foot length minimum.
    c. Circuit protection: UL 489 Listed, single-pole or two-pole, hydraulic-magnetic breakers.
    d. Outlet quantity: 24.
    e. Outlet type: Coordinate outlet type requirements with Owner.

f. Include power cord retention tethers to secure straight power cords at outlets.
g. UL Listed.
h. Local LCD display for viewing total voltage, current, and power on PDU. Display shall provide alarm notifications.
i. Operating temperature: 32 to 149 degrees F.
j. Operating relative humidity: 5 to 95 percent, non-condensing.
k. Color: Black.
l. Network power monitoring and external connections:
    1) One 10/100/1000 Mbps RJ-45 Ethernet port.
    2) Two RJ-45 ports for providing linking connection to additional PDUs.
    3) Two USB ports for firmware updates.
    4) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.
        a) Power monitoring shall be provided for the PDU and each outlet.
        b) Support monitoring of up to 16 PDUs via one Ethernet connection and IP address.
        c) Support configuration for a backup, secondary Ethernet connection through an alternate linked PDU.
    5) Data logging functionality for recording data, events, and alarms.
m. Grounding and bonding:
    1) Grounded input plug.
    2) External ground connection with threaded attachment point.
    3) Provide manufacturer recommended grounding kit and accessories.
n. Manufacturer:
    1) ~~Chatsworth Products, Inc. Switched Pro eConnect PDU~~APC, Inc, Rack PDU
    2) Or approved equal.

2. Unless otherwise specified, provide two PDUs per freestanding rack. One PDU shall be powered from the building “A” bus UPS system; the other PDU shall be powered from the building “B” bus UPS system.
3. Coordinate rack mounting hardware and installation with rack manufacturer.

B. PDUs for Wall-Mounted Rack Cabinets:
1. PDUs shall be horizontal, rack-mount, with an integral automatic transfer switch (ATS) designed to automatically switch between primary and secondary power inputs based on availability and quality of the primary power source. Additional requirements include:
    a. Rack size: Standard 19-inch, 1U space.
    b. Power input: 120 VAC, single-phase, 16 A.
    c. Provide integral circuit breaker.
    d. Power cords: 10-foot length minimum with two NEMA 5-20P plugs.
    e. Outlet quantity: 10.
    f. Outlet type: NEMA 5-20R.
    g. UL Listed.

h. Local LCD display for viewing voltage and current on PDU. Display shall provide indication of primary or secondary power source availability and active status as well as alarm notifications.

i. Test button to manually force transfer between primary and secondary power sources.

j. Operating temperature: 32 to 122 degrees F.

k. Operating relative humidity: 5 to 90 percent, non-condensing.

l. Color: Black.

m. Network power monitoring and external connections:

1) One 10/100 Mbps RJ-45 Ethernet port.

2) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.

n. Grounding and bonding:

1) Grounded input plug.

2) Provide manufacturer recommended grounding kit and accessories.

o. Accessories:

1) Provide cable restraint system consisting of cable management tray, mounting brackets, and tie wraps.

p. Manufacturer:

1) ~~Eaton eATS ePDU~~APC, Inc Rack PDU

2) Or approved equal.

2. Unless otherwise specified, one PDU power input shall be powered from the building "A" bus UPS system; the other PDU power input shall be powered from the building "B" bus UPS system.

2.05 PATCH PANELS

A. Category 6A/Class E_A Patch Panels:

1. Unshielded Twisted Pair (UTP):

a. Category 6A UTP patch panels shall be flat, steel, 110-type, and component-rated. Patch panels shall meet or exceed component performance requirements for Cat 6A, Class E_A for 10GBASE-T. Patch panels shall include conductor retention feature to simplify termination and a rear cable management bar. Port label holders shall be windowed to accept printable inserts. Provide reversible card for T568A and T568B wiring schemes. Additional requirements include:

1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.

2) Ports: 24 (1U) or 48 (2U)

3) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.

4) Insertion loss: 0.45 dB or less at 500 MHz.

5) UL Listed.

6) Color: Black.

7) Manufacturer:

a) Leviton eXtreme

b) Or approved equal.

2. Shielded Twisted Pair (STP):
   a. Category 6A STP patch panels shall be flat, shielded, and fabricated to accept shielded Cat 6A connectors. Patch panels shall include a stainless steel plate (for grounding continuity between connectors and patch panel), star washers, and grounding lug. Additional requirements include:
      1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.
      2) Ports: 24 (1U) or 48 (2U)
      3) Connectors: See connectors paragraph in this Section.
      4) Color: Black.
      5) Manufacturer:
         a) Leviton Atlas-X1 Shielded Flat QuickPort Patch Panel
      6) Or approved equal.

B. Fiber-Optic Patch Panels:
   1. Patch panels shall be modular, steel, with front and rear hinged and removeable covers. Patch panels shall accept 3 adapter plates or fiber splice modules per rack unit of space. Rear fiber cable management rings shall be stackable and adjustable. Patch panel shall have a sliding tray that slides forward and backward to provide front and rear access to bulkheads. Additional requirements include:
      a. Rack size: 19-inch, 1U or 2U space, as specified on Drawings.
      b. Fiber Splice Modules:
         1) Fiber pigtail fusion splice modules shall be fully enclosed to protect and organize heat-shrink fusion spliced fibers. Modules shall be pre-loaded with 3-meter, color-coded pigtail assembly. Modules shall be provided by the same manufacturer as the fiber-optic patch panel.
         2) Single-mode (OS2):
            a) Fiber-count: 12, 24, or 48 fibers per cassette~~24~~.
            b) Adapters: Duplex LC or ~~/UPC~~ ~~q~~Quad LC.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Blue.
            e) Maximum insertion loss: 0.35 dB.
            f) Return loss: > 55 dB.
         3) Multi-mode (OM3):
            a) Fiber-count: ~~12~~12 or 24.
            b) Adapters: LC duplex.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Aqua.
            e) Maximum insertion loss: 0.4 dB.
            f) Return loss: > 25 dB.
         4) Manufacturer:
            a) OCC RTSXU Rack Mount Sliding assembly with Splice Cassette Assembly ~~Leviton SDX Fiber Splice Module~~
            b) Or approved equal.
      ~~c. Fiber Adapter Plates:~~

~~1) Fiber adapter plates shall be modular and adapters and plate shall be integrated. Adapter plates shall be provided by the same manufacturer as the fiber-optic patch panel.~~

~~2) Multi-mode (OM1):~~

~~a) Fiber count: 1224.~~

~~b) Adapters: LC duplex~~

~~c) Adapter sleeve material: Zirconia ceramic.~~

~~d) Plate color: Beige.~~

~~3) Manufacturer:~~

~~a) Leviton SDX Fiber Adapter Plate~~

~~b) Or approved equal.~~

~~d. Color: Black.~~

~~e. Manufacturer:~~

~~1) Leviton Opt-X 1000i~~

~~2) Or approved equal.~~

2.06 CONNECTORS

A. Category 6A/Class E_A Connectors:

1. UTP:

a. Connectors shall be component-rated and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the UTP patch panels. Additional requirements include:

1) Conductor accommodation: 26 to 22-gauge, solid or stranded.

2) Connector body material: Die-cast zinc.

3) Spring-wire contacts: Gold-plated copper-based alloy.

4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.

5) Operating temperature: 14 to 140 degrees F.

6) UL Listed.

7) Color: Per application, see table below.

8) Manufacturer:

a) Leviton Atlas-X1 Cat 6A Component-Rated UTP QuickPort Connector

b) Or approved equal.

2. STP:

a. Connectors shall be shielded, component-rated, and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied

with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the STP patch panels. Additional requirements include:

1) Conductor accommodation: 26 to 22-gauge, solid or stranded.
2) Connector body material: Die-cast zinc.
3) Spring-wire contacts: Gold-plated copper-based alloy.
4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.
5) Operating temperature: 14 to 140 degrees F.
6) UL Listed.
7) Color: Per application, see table below.
8) Manufacturer:
   a) Leviton Atlas-X1 Cat 6A Component-Rated Shielded QuickPort Connector
   b) Or approved equal.

3. Connector Color Code:
   a. Provide connector colors per table below:

Connected Device(s)	Connector Color
Wireless access points (WAPs)	Light almond
Cameras, door controllers, access control panels, and other site security equipment	Dark red
VOIP telephones, general staff office data jacks, printers and shared office equipment, and other business LAN equipment	White
SCADA workstation data jacks and Area PLC slot 06 communications modules	Orange
Area PLC slot 05 communications modules	Brown
PLC slot 03 communications modules	Blue
IT office and workshop data jacks (except for those dedicated to SCADA workstations)	Purple
Power monitoring meters, power quality meters, energy management system (EMS) workstations, protective relays, UPSs, ATSs, and other EMS equipment	Yellow
HVAC control panels	Green

2.07 WALLPLATES

A. Provide wallplates that are flush-mount, fit standard NEMA openings, and are compatible with the connectors specified in this Section. Wallplates and connectors shall be by the same manufacturer. Wallplates shall be provided with identification windows that accept machine-printed inserts at the top and bottom so that each data jack has an individual identification window associated with it. Additional requirements include:
   1. Material: For architecturally finished areas, provide high-impact, fire-retardant plastic wallplates rated UL 94V-0. For all other areas (including electrical rooms), provide stainless steel wallplates.
   2. UL Listed.
   3. Color: For platic wallplates, coordinate with Owner for color preference. Screws shall be the same color as the wallplate.
   4. Provide single-gang or dual-gang wallplates based on quantities specified on the Drawings and the following:
      a. Single-gang: 1 or 2 data jacks.
      b. Dual-gang: 3 or 4 data jacks.

5. Manufacturer:
    a. Leviton QuickPort Wallplates with ID Windows
    b. Or approved equal.

2.08 LADDER RACK, SUPPORTS, AND ACCESSORIES

A. General:
1. The Drawings specify general requirements for location, width, and means of ladder rack installation. Contractor shall provide a detailed design of the ladder rack installation, including all necessary supports, splices, kits, and accessories based on the equipment provided under Section 27.
2. Ladder rack system shall conform to Category 6A requirements.
3. Ladder rack system shall be UL Classified for suitability as an equipment grounding conductor.
4. Ladder rack system color: Black.
5. Manufacturer:
    a. APC, Inc. ~~Chatsworth Products, Inc. Universal~~ NetShelter Cable Runway
    b. Or approved equal.

B. Ladder Rack:
1. Provide tubular steel ladder rack with cross members welded at intervals of 12 or fewer inches.
2. Load capacity: 130 lb/ft, or greater, with support every 5 feet.

C. Horizontal and Vertical 90-Degree Bends:
1. Provide tubular steel ladder rack 90-degree bends with cross members welded at roughly 23-degree increments. Bends shall be designed for conformance with Category 6A cable minimum bend radius requirements.

D. Ladder Rack Splices, Kits, and Accessories:
1. Provide T-junction splice kits, rack and cabinet elevation kits, mounting plates, support brackets, end caps, and accessories required for a complete ladder rack system that complies with manufacturer installation requirements and recommended best practices.

2.09 GROUNDING

A. Secondary Bonding Busbar:
1. For each server room and telecommunications closet, provide a UL Listed, 2-inch wide, 1/4-inch thick, copper Secondary Bonding Busbar kit with 1-inch offset stainless steel mounting brackets and 1 1/2-inch insulators. Busbars shall meet BICSI and TIA-607 standards and include antioxidant joint compound, UL Listed compression lugs, nuts, washers, and all necessary components.

B. Rack Bonding Busbar:
1. For each rack and cabinet, provide a horizontal or vertical Rack Bonding Busbar attached to the equipment mounting rails. Busbars shall meets BICSI and TIA-607 standards.

PART 3 EXECUTION

3.01 COORDINATION

A. Seismic Anchorage and Bracing: Sections 26 05 00 and 01 73 24.

3.02 INSTALLATION

A. General:
   1. Comply with BICSI TDMM for layout and installation of communications equipment rooms.
   2. Coordinate layout and installation of communications equipment with the Contractor and Owner's Representative.

B. Cables:
   1. Comply with TIA/EIA-568-C.2 standards for Category cable installations.
   2. Comply with TIA/EIA-568-C.3 standards for fiber-optic cable installations.
   3. Separation from EMI Sources:
      a. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
      b. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 5 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 12 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 24 inches.
      c. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 2-1/2 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 6 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 12 inches.
      d. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
         1) Electrical equipment rating less than 2 kVA: No requirement.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 3 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 6 inches.
   4. Bundle, lace, and train conductors without exceeding manufacturer minimum bending radius requirements for all Category and fiber-optic cabling, but not less than radii specified in BICSI ITSIM. Use lacing bars and distribution spools, as necessary.
   5. Provide minimum of 10-foot slack loops in server rooms for incoming/outgoing Category and fiber-optic cable to accommodate future modifications to the server room equipment arrangement. Use an extended or figure-8 loop configuration to alleviate cable stress.

6. Provide minimum of 18 inches of slack above work area installations for re-terminations and to accommodate future moves, adds, and changes.
7. No more than 50 Category cables shall be bundled together to limit damage to cables on the bottom of the bundle.
8. Use appropriate tools and adhere to manufacturer recommendations and requirements for all terminations. Terminate all conductors and fibers; no cable shall contain unterminated elements.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Remove and discard cable if damaged during installation and replace it with new cable.

C. Racks and Cable Management:
1. Assemble racks and cable management according to manufacturer's instructions. Verify that equipment mounting rails are sized properly for rack-mount equipment before attaching the rack to the floor.
2. All freestanding racks must be attached to the floor in four places using appropriate floor mounting anchors. When placed over a raised floor, threaded rods shall pass through the raised floor tile and be secured in the structural floor below per manufacturer recommendations.
3. In seismic areas, the rack shall have additional bracing as required by building codes and the recommendations of a licensed structural engineer.
4. Racks and cabinets shall be grounded to the Secondary Bonding Busbar using appropriate hardware provided by the Contractor. The ground shall meet local code requirements and shall be approved by the AHJ.
   a. Connections to the Secondary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug.
   b. Connections from the Secondary Bonding Busbar to the racks/cabinets shall be made at the Rack Bonding Busbar via irreversible compression-type connections.
5. Rack and cabinet frames shall be independently bonded to the Rack Bonding Busbar via irreversible compression-type connections.
6. Ladder rack may be attached to the topo of the rack to deliver cables to the rack. The rack should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.
7. The equipment load should be evenly distributed and uniform on the rack. Place large and heavy equipment toward the bottom of the rack. Secure all equipment to the rack with equipment mounting screws.
8. Distribute cables in the cable management hardware symmetrically to feed into each patch panel from left and right.

D. Patch Panels:
1. All patch panels shall be installed in the racks as specified on the Contract Drawings.
2. Each patch panel shall be attached to the rack using the rack screws supplied with the panel.
3. All patch panels shall be installed level and plum within the racks.
4. For each shielded Category cable patch panel, bond the patch panel to the Rack Bonding Busbar via a #6 AWG Unit Bonding Conductor. Connections to the Rack Bonding Busbar shall be made with UL listed two-hole lugs.

E. Ladder Rack:

1. Provide all components of the ladder rack system (ladder rack, bends, splices, supports, and accessories) from a single manufacturer.
2. Ladder rack shall be installed with side stringers facing down so that the ladder forms an inverted U-shape and so that welds between the stringers and cross members face away from cables.
3. Ladder rack shall be secured to the structural ceiling, building truss system, wall, floor, and/or the tops of equipment racks and cabinets using the manufacturer's recommended supports and appropriate installation hardware and methods as defined by local code or the AHJ.
4. Ladder rack splices shall be made in mid-span, not over a support, with the manufacturer's recommended splice hardware.
5. Ladder rack shall be supported every 5 feet or less in accordance with TIA-569. Ladder rack shall be supported within 2 feet of very splice and within 2 feet on both/all sides of every intersection. Support ladder rack within 2 feet on both sides of every change in elevation. Support ladder rack every two feet when attached vertically to a wall.
6. Leave a minimum of 12 inches between ladder rack and ceiling/building truss structure. Leave a minimum of 3 inches between ladder rack and the tops of equipment racks and cabinets. Multiple tiers of ladder rack shall be installed with a minimum clearance of 12 inches between each tier of ladder rack. When located above an acoustical drop ceiling, leave a minimum of 3 inches clearance between the top of the drop ceiling tiles and the bottom of the ladder rack.
7. Install rubber finishing caps on any exposed metal end rail or potential sharp point.
8. When installed under a raised floor, ladder rack shall be installed with a minimum 3-inch clearance between the top of the ladder rack and the bottom of the floor tiles or floor system stringers, whichever is lower in elevation. Maintain 3-inch clearance between ladder racks wherever ladder racks cross.
9. Within each server room, ladder rack should be bonded together, electrically continuous, and bonded to the Secondary Bonding Busbar, unless otherwise noted in the specifications and Contract Documents. Ladder rack and bends shall be bonded across each splice with a bonding kit. Ladder rack shall be bonded to the Secondary Bonding Busbar using an approved ground lug on the ladder rack and a minimum #6 AWG grounding wire or as recommended by the AHJ. Remove paint from the ladder rack where bonding/ground lugs contact the ladder rack so that the lug will contact bare metal. Use antioxidant joint compound in between the bare metal on the ladder rack ad ground lug. Verify continuity through the bonds at splices and intersections between individual ladder rack sections and bends and through the bond to the Secondary Bonding Busbar.
10. The quantity of cables within the ladder rack will not exceed a whole number value equal to 25 percent of the interior area of the ladder rack divided by the cross-sectional area of the cable, leaving space for future additions up to 50 percent fill. The interior area of ladder rack will be considered to be the width of the ladder rack multiplied by a height of 2 inches, unless cable retaining posts are added to the ladder rack. The interior area of ladder rack equipped with cable retaining posts will be considered to be the width of the ladder rack multiplied by a height of 6 inches. Actual cable fill for ladder rack that is not equipped with cable retaining posts will not exceed 2 inches in height. Actual cable fill for ladder rack equipped with cable retaining posts will not exceed 6 inches in height.

11. The combined weight of cables within the ladder rack will not exceed the stated load capacity of the ladder rack as stated in the manufacturer's product literature or load/design tables.
12. Cables (cable bundles) will be secured to the cross members of ladder rack with 3/4-inch wide reusable straps. Single-use cable ties and ties or straps narrower than 3/4-inches are not allowed. Straps are not required when ladder rack is equipped with cable retaining posts.
13. Use a radius drop to guide cables wherever cable exits overhead ladder rack to access a rack, cabinet, or wall-mounted rack.
14. Whenever possible, maintain a 2-foot separation between ladder rack used for communication cables and pathways for other utilities or building services.
15. The installer will provide touch-up paint color-matched to the finish on the ladder rack and will correct any minor cosmetic damage (chips, small scratches, etc.) resulting from normal handling during the installation process prior to delivery to the Owner. If a component is cosmetically damaged to the extent that correction in the field is against manufacturer recommendations, the component shall be replaced with a new component. If a component is physically damaged due to mishandling or modification during the installation process, it shall not be used as part of the ladder rack system.

3.03 GROUNDING AND BONDING

A. Install the telecommunication grounding system per TIA-607 and BICSI TDMM standards.

B. Locate Secondary Bonding Busbar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar.

C. Bond metallic equipment to the Secondary Bonding Busbar using no smaller than #6 AWG equipment grounding conductors.

D. Each Secondary Bonding Busbar shall be bonded to the building Primary Bonding Busbar. Connections of the Secondary Bonding Busbar to the Primary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug and appropriate gauge cable.

3.04 IDENTIFICATION

A. Identify system components, wiring, and cabling per TIA/EIA-606-C for Administration Class 3 and Section 26 05 00 requirements.

B. Color-code voice and data service backboards, connections, covers, and labels.

C. Cable Schedule: Install in a prominent location in each server room and telecommunications closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for the Project.

D. Equipment nameplates are in accordance with 40 67 00.

3.05 ATTACHMENTS

A. 27 11 00 – Attachment A: Communications Equipment Rack Schedule

1. Description of headings in Communications Equipment Rack Schedule.

Field or Heading	Example	Comment or Description
Item	1	Unique schedule row number reference.
Area	16	Area number reference associated with equipment tag. See tagging on instrument legend sheets.
Loop Number	0011	Loop number reference associated with equipment tag. See tagging on instrument legend sheets.
Tag	NCE160011	Unique equipment tag. See tagging on instrument legend sheets.
Nameplate First Line	AREA 16	Text to engrave on first line of nameplate.
Nameplate Second Line	NETWORK CABINET	Text to engrave on second line of nameplate. None, if blank.
Nameplate Third Line		Text to engrave on third line of nameplate. None, if blank.
Nameplate Fourth Line		Text to engrave on fourth line of nameplate. None, if blank.
Rack Drawing(s)	I-00-6511	Reference to the typical rack layout and wiring diagram(s) that are relevant to the equipment.
Location Drawing		Reference to electrical plan drawing where equipment location is specified.
Application Notes		Optional, as required for clarification.

END OF SECTION

Communications Equipment Rack Schedule

Item	Area	Loop Number	Tag	Nameplate First Line	Nameplate Second Line	Nameplate Third Line	Nameplate Fourth Line	Rack Drawing(s)	Location Drawing	Network Diagram	Application Notes
	00	0011	NCE000011	NCE0011	AREA 00	TUNNEL	NETWORK CABINET	I-00-6530	E-00-1016	I-00-6110	CCF 020
	05	0001	NCE050001	---	---	---	---	EXISTING	E-05-4002	I-05-6101	
	05	0002	NCR050002	---	---	---	---	EXISTING	E-05-4002	I-05-6101	
	05	0003	NCE050003	---	---	---	---	EXISTING	E-05-4002	I-05-6101	
	05	0004	NCE050004	---	---	---	---	EXISTING	E-05-4002	I-05-6101	
	13	0011	NCE130011	NCE130011	AREA 13	ELECTRICAL ROOM	NETWORK CABINET	I-00-6512	E-13-1202	I-13-6101	ADDENDUM NO. 2
	13	---	NCR-MTN-1	---	---	---	---	EXISTING	E-13-1202	I-13-6101	
	24	~~0011~~	~~NCE240011~~	~~NCE240011~~	~~AREA 24~~	~~ELECTRICAL ROOM~~	~~NETWORK CABINET~~	~~I-00-6512~~	~~E-24-1211~~	~~I-24-6101~~	~~ADDENDUM NO. 2~~ (CCF 020)
	29	0011	NCE290011	NCE290011	AREA 29	ELECTRICAL ROOM	NETWORK CABINET	I-00-6523	E-29-1101	I-29-6101	CCF 020
	33	0001	NCE330001	NCE330001	AREA 33	CONTROL ROOM	NETWORK CABINET	I-00-6524	E-33-1221	I-33-6101	
	33	0011	NCE331011	NCE331011	AREA 33	ELECTRICAL ROOM	NETWORK CABINET	EXISTING	E-33-1111	I-33-6102	ADDENDUM NO. 2
	33	0002	NCE330002	NCE330002	AREA 33	CONTROL ROOM	NETWORK CABINET	EXISTING	E-33-1221	I-33-6102	ADDENDUM NO. 2
	34	0001	NCR340001	NCR340001	AREA 34	SERVER ROOM	NETWORK RACK	I-00-6525	E-34-1223	I-34-6101	
	34	0011	NCR340011	NCR340011	AREA 34	SERVER ROOM	NETWORK RACK	I-00-6526	E-34-1223	I-34-6101	
	34	0012	NCE340012	NCE340012	AREA 34	SERVER ROOM	NETWORK CABINET	I-00-6523	E-34-1223	I-34-6101	
	34	0013	NCE340013	NCE340013	AREA 34	SERVER ROOM	NETWORK CABINET	I-00-6523	E-34-1223	I-34-6101	
	34	0021	NCR340021	NCR340021	AREA 34	SERVER ROOM	NETWORK RACK	I-00-6527	E-34-1223	I-34-6101	
	34	0022	NCE340022	NCE340022	AREA 34	SERVER ROOM	NETWORK CABINET	I-00-6523	E-34-1223	I-34-6101	
	34	0023	NCE340023	NCE340023	AREA 34	SERVER ROOM	NETWORK CABINET	I-00-6523	E-34-1223	I-34-6101	
	34	0051	NCR340051	NCR340051	AREA 34	SERVER ROOM	NETWORK RACK	I-00-6528	E-34-1223	I-34-6101	
	34	0052	NCE340052	NCE340052	AREA 34	SERVER ROOM	NETWORK CABINET	I-00-6523	E-34-1223	I-34-6101	
	34	0101	NCE340101	NCE340101	AREA 34	ELECTRICAL ROOM	NETWORK CABINET	I-00-6514	E-34-1112	I-34-6102	
	34	0102	NCE340102	NCE340102	AREA 34	ELECTRICAL ARC FLASH ROOM	NETWORK CABINET	I-00-6511	E-34-1112	I-34-6111	ADDENDUM NO. 2

SECTION 26 24 19

MOTOR-CONTROL CENTERS

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies freestanding, factory assembled 600 (480) volt Motor Control Centers (MCC).
2. Requirements apply to new freestanding sections and modifications to existing sections.
3. Work for this project includes providing new replacement buckets including all wiring and equipment into existing MCCs to power and control equipment furnished on this project as shown on the drawings.
4. Work includes configuration of MCC mounted relays and low voltage Variable Frequency Drives.
5. The Contractor shall obtain host IP address, subnet mask, and default gateway information for the Ethernet networked equipment located within the MCCs. Obtain via a request for information (RFI).

B. Equipment List

Equipment Number	Name
MCC109105A	MCC109105A HEADWORKS BUILDING 480V MCC A-SIDE
MCC109105B	MCC109105B HEADWORKS BUILDING 480V MCC B-SIDE
MCC169101A	MCC169101A ANAEROBIC AND AERATION 480V MCC A-SIDE
MCC169101B	MCC169101B ANAEROBIC AND AERATION 480V MCC B-SIDE
MCC169102A	MCC169102A ANAEROBIC AND AERATION 480V MCC A-SIDE
MCC169102B	MCC169102B ANAEROBIC AND AERATION 480V MCC B-SIDE

Equipment Number	Name
MCC229101A	MCC229101A RAS/WAS BASIN AND AERATION BASIN 2 480V MCC A-SIDE
MCC229101B	MCC229101B RAS/WAS BASIN AND AERATION BASIN 2 480V MCC B-SIDE

1.02 QUALITY ASSURANCE

C. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/NEMA ICS 1	Industrial Control Systems: General Requirements
ANSI/NEMA ICS 18	Motor Control Centers
ANSI/IEEE C37.20.7	Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
CSA C22.2.022	Evaluation Methods for Arc Resistance Ratings of Enclosed Electrical Equipment
IBC	International Building Code
NFPA 79	Electrical Standards for Industrial Machinery
UL 845	Motor Control Centers

B. Codes and Standards:

1. MCCs and all components shall be Underwriters Laboratory listed to UL 845 and shall conform to NEMA ICS-1 and ICS-18 standards. UL Listed labels shall be applied to the vertical sections and the individual units (or “buckets”) installed within those sections. MCCs shall be tested and verified per IEEE guideline C37.20.7 and CSA standard 22.2 No. 0.22-11.

C. Factory Test:

1. All system components shall be factory-wired and tested as a system prior to shipment. Testing shall be designed to verify system operation and shall include as a minimum:
   a. Verification of drawings and bill of materials versus the constructed equipment.
   b. Verification of electrical ratings from the one lines and specifications versus the equipment.
   c. Energize the MCC and test the operation of each motor controller and associated hard wired connections and programmed logic.
   d. Verify voltage output of each control transformer and DC power supply within the MCC.
   e. Test of each network interface
   f. Verify logic functionality, as described herein, of programmed devices internal to the MCC.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (☐) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Elementary connection and interconnection diagrams as required in paragraph 2.07, in accordance with NFPA 79 and/or NEMA ICS 18 Part 1 standards.
5. List of starters and feeder tap compartments indicating the size and type of circuit protection.
6. Network diagrams, network bill of material data for network components and cabling.
7. DC Power supply load calculations.
8. Time current curves for all protection devices.
9. Interrupting, withstand, and continuous current rating of:

a. Bus bars
b. Feeder tap units
c. Starter units
d. Main incoming units

10. Nameplate schedule.
11. Dimensioned drawings showing conduit access locations.
12. Weights
13. Front view elevation with starter and component schedule.
14. Installation instructions.
15. Factory test plan
16. Factory test results
17. Field test plan
18. Field test results
19. Operation and maintenance information as specified in Section 01 78 23. Electronic program file, in native and PDF format, with comments for each motor starter overload. Draft configuration provided prior to equipment startup for review. Final configuration of software provided after equipment commissioning for inclusion in operation and maintenance manual.
20. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
21. Final As-Builts. Maintain stick set of MCC, elementaries, interconnections, one-lines, network diagrams, and elevations and provide final red-lines upon project completion.
22. Host IP address, subnet mask, and default gateway allocation listing for each Ethernet connected device within the MCCs.

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

1.05 PROJECT OR SITE CONDITIONS

A. Environmental Requirements: The equipment shall be sized and de-rated in accordance with the manufacturer's guidelines for the project altitude, temperature, and other conditions specified in Section 01 11 80.

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. Manufacturers equipment to match existing installation base. MCCs shall be as manufactured by:
   1. Eaton Cutler-Hammer Freedom Arc Resistant
   2. Schneider Electric Arc Resistant

3. Allen-Bradley Centerline 2100 ArcShield
4. Siemens tiastar Arc Resistant
5. Approved Equal

2.02 SERVICE

A. MCCs shall be rated 480 volts, 60 Hertz, 3 phase, 3 wire, and short circuit withstand rating of 65,000A rms symmetrical unless specified otherwise on the drawings.

B. MCCs shall be rated for arc resistance with a minimum arc duration rating of 50ms@480V and 600V.

C. MCCs rated for arc resistance shall have a Type 2 accessibility rating as defined in CSA standard 22.2 No. 0.22-11 and IEEE guideline C37.20.7.

2.03 STRUCTURE AND CONSTRUCTION

A. Structure:
1. MCCs shall be made of No. 12 gage steel minimum and, unless otherwise shown, each section shall be 90 inches high by 20 inches wide by 21 inches deep. The individual unit compartments shall be a minimum of 12 inches high.
2. Each section shall have 72 inches for stacking starter units into the sections.
3. Enhanced door hinges and door latches designed to contain arc blast energy and prevent doors from opening during an arc flash event. Doors shall be gasketed.
4. A full height vertical wireway, 4-inch wide minimum, and not less than 35 square inches in cross section, shall be provided for each vertical MCC section. The wireway shall contain full height removable doors. Horizontal wireways shall be provided top and bottom, extending the length of MCCs. Wire ways shall be gasketed.
5. Bottom channel sills shall be mounted front and rear of the vertical sections extending the full length of the MCC lineup. A removable lifting angle shall be mounted on top and shall extend the width of the MCC lineup.
6. Containing isolation barriers between each structure to aid in the containment of arc blast energy and prevention of prorogation of the event to subsequent structures in the lineup.
7. A four-inch vertical section on the left and right end of each MCC lineup to increase the structural integrity of the MCC so that it can withstand arc blast energy.
8. Arc resistant shall not require an exhaust plenum, roof flaps, or similar venting device/assembly on top of the MCC to vent the arc blast energy and gases generated during an arc flash event.

B. Construction:
1. MCCs located indoors shall have NEMA 1 gasketed enclosures.
2. Starter units, size 5 and smaller, and feeder tap units 400 amperes and smaller shall be drawout plug-in construction with hardened, tin-plated copper alloy stabs, steel spring backups. The door shall have interference tabs which prevent door closure if unit is improperly installed.
3. Units shall be latched in the position to assure proper bus contact. The unit disconnect device shall be interlocked to prevent removal or reinsertion of a unit when the disconnect is in the "ON" or "TRIPPED" positions.

4. Circuit breaker disconnect operators shall be capable of accommodating three padlocks for locking in the "OPEN" position. Handle mechanism shall be a vertical motion device with four positions: ON, OFF, TRIPPED and RESET. Securely mounted to the front of the unit and mechanically connected to the breaker. Handle provides a positive indication of the breaker or switch position, even with the door open.
5. Hardware for mounting future starter and feeder tap units shall be provided at compartments specified as "FUTURE."

2.04 FINISH AND COLOR

A. The finish and color shall be in accordance with Section 26 05 00.

2.05 BUS

A. General:
   1. Bus shall be tin-plated copper with bolted connections between vertical and horizontal bus bars. Access for tightening these connections shall be from the front, without the need for tools on the rear of the connection. Insulated horizontal and vertical bus barriers shall be provided. Barriers shall be fabricated from high-strength, glass-filled polyester resin.
   2. The bus shall be braced to withstand a fault current of 65,000 amperes, RMS, symmetrical.
   3. Vertical and horizontal bus shall be completely insulated.

D. Horizontal Bus:
   1. Unless otherwise specified or shown, the main horizontal bus shall be rated a minimum 600 amperes continuous.
   2. Extend existing main horizontal bus to provide new MCC sections. New sections ratings shall meet or exceed existing and shall maintain existing listing.

E. Vertical Bus:
   1. Unless otherwise specified or shown, the vertical bus shall be rated a minimum 300 amperes continuous.

F. Ground Bus:
   1. A 1/4-inch by 2-inch ground bus shall be provided the full length of the MCC. Ground bus shall be located at the bottom of the MCC. 300A minimum. Provide a lug to terminate a bare 4/0 AWG copper ground conductors at each end of the ground bus.

2.06 WIRING

A. General:
   1. MCCs shall be provided with NEMA ICS 18 Class II, Type B wiring. All starter units shall have pull apart terminal blocks for control wiring. Terminal blocks shall be provided for power wiring for starters size 2 and smaller.
   2. MCCs shall be provided with all necessary interconnecting wiring and interlocking. When an MCC control section is specified on the drawings or schedules, wire directly to the relays or programmable controller's input/output modules as part of the interconnecting wiring.

3. Provide elementary and connection diagrams for each starter unit; network diagrams indicating all cable connections and host IP address, subnet mask, and default gateway allocation; and an interconnection diagram for the entire MCC.

B. Power Wire:
   1. Power wire shall be copper 90 degrees C insulated, sized to suit load; minimum power wire size shall be No. 12 AWG copper stranded.

C. Control Wire:
   1. Control wire shall be No. 16 AWG stranded copper wire, rated 90 degrees C machine tool wiring (MTW) and UL listed for panel wiring. Internal wires shall be numbered, and the number shall be on the manufacturer wiring diagrams.

D. Terminations and Cable Connections:
   1. Terminals:
      a. Control terminals: Finger safe screw cage clamp for 16-12 awg bare copper wire. . Electrolytic copper, tin-plated, 600V and 30A.
   2. Cable Connectors:
      a. Cable connectors for use with stranded copper wire, sizes No. 8 AWG to 1000 kCmil shall be UL listed. Dished conical washers shall be used for each bolted connection. Connectors shall be reusable and shall be rated for use with copper conductors. Incoming line and outgoing feeder compartments shall be provided with crimp type lugs, 3M Company, Burndy Company, or equal.

E. Conductor Markers: Markers used for identification shall meet the requirements of Section 26 05 00.

2.07 MAIN AND FEEDER CIRCUIT PROTECTION

A. General:
   1. Main and feeder tap units shall consist of circuit breakers, as specified or shown on the drawings. Series ratings for overcurrent devices to meet specified short circuit withstand ratings is prohibited. Main and tie breakers shall be 100% rated, with frame size, solid state trip unit, rating plug, and the fully adjustable (dynamic) trip functions. Trip settings shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay. Minimum short circuit capacity shall be 42,000 amps symmetrical.
   2. Feeder breakers feeding downstream distribution equipment including panelboards, switchboards, and MCCs, and all breakers 250A and greater shall include a solid state trip unit, rating plug and the fully adjustable (dynamic) trip functions Feeder breaker shall fully coordinate with the main breaker. The fully adjustable (dynamic) trip functions shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay.
   3. Digitrip RMS 310+ or equal.

B. Circuit Breakers (Thermal Magnetic):
   1. Thermal-magnetic circuit breakers shall be molded case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The

tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

C. Circuit Breakers (Magnetic Only):

1. Magnetic circuit breakers shall be molded-case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

2.08 MOTOR STARTER UNITS

A. General:

1. Motor starter units shall be combination type with contactor and thermal magnetic circuit breaker, or motor circuit protector, and solid-state overload unit as indicated on the drawings or specified in the MCC schedule. The starter units shall have a minimum combination UL listing of 65,000 amperes RMS symmetrical or as indicated or specified in the schedule.
2. For reversing motors, controls internal to the motor starter or overload, shall inhibit direction change while the motor is turning. When selecting to go from a Forward to Reverse motion, or the other direction, the motor shall be commanded to come to a complete stop prior to starting in the opposite direction.

B. Motor Circuit Protectors:

1. The molded case motor circuit protector (MCP) shall operate on the magnetic principle with a current sensing coil in each of the three poles to provide an instantaneous trip for short circuit protection. The trip setting shall be adjustable from 700 to 1300 percent of the motor full load amperes from the front of the MCP. The motor circuit protector shall be set at its lowest position at the factory.

C. Control Power Supply:

1. Each control power supply shall be rated 480 input and 24VDC output. The control power supply shall be sized for the load it feeds but shall not be less than the minimum ratings as follows:

NEMA starter size	Minimum power supply watt rating
1	120
2	120
3	240
4	240

2. Each control power supply shall be provided with a fuse on the output. A fuse shall be provided on each input conductor (three or two) and the fuses shall be rated to interrupt 200,000 amperes at 600 volts.
3. Fuse holder for secondary fuse shall be drawout indicating type and mounted on the door of the compartment. Fuse holders for primary fuses shall be fuse clips with full barriers between fuses.

4. Power supplies shall be Eaton PSG series or approved equal.

D. Control Power transformer (CPT):
   1. Where a space heater is specified inside a motor, provide a CPT with a minimum size that is 125% of the heater load. Provide heater control in the starter unit to turn off the space heater when the motor controller is energizing the motor and turn on the heater when the motor controller is not energizing the motor.

E. Contactors:
   1. Unless otherwise specified or shown, contactors shall be full voltage, 3-pole, 600 volt AC, NEMA Size-1 minimum. Contacts shall be double break, silver-cadmium oxide, and weld resistant. Contacts shall be isolated to prevent arcing. Coils and magnets shall be capable of being removed or replaced without special tools. IEC contactors are prohibited.
   2. Reversing, multispeed, and reduced voltage starters shall have additional contactors, overload relays, and auxiliary relays as required, and shall have mechanically interlocked contactor coils to prevent simultaneous engagement.
   3. Lighting contactors with interposing relay with 120V coil. Relay is controled by 120V circuit from the lighting control panel..

F. Auxiliary Contacts:
   1. Contactors shall be equipped with auxiliary contacts, rated 10 amperes at 120 volts AC. Refer to drawings for actual quantities required. As a minimum, each contactor shall be equipped with two normally open and two normally closed electrically isolated auxiliary contacts with the used and auxiliary contacts wired out to terminal blocks.

G. Surge Suppressor:
   1. A surge suppressor shall be provided for all coils in each starter unit. Suppressor shall be encapsulated in a small module suitable for mounting directly to the coil. Size 3 or larger starters shall include an interposing relay to electrically isolate the starter coil from the I/O module output.
   2. A surge suppressor shall be at the terminal strip on conductors that control solenoid valves or other inductive loads.

H. Terminal Blocks:
   1. Terminal blocks shall be screw cage type rated 600 volts; minimum rating 30 amperes for control wiring and 60 amperes power wiring. Starters Size 3 and larger shall terminate the power leads directly to the contactor.
   2. Control terminals pull apart for 16 awg to 12 awg stranded conductors.
   3. The minimum number of terminals shall be as specified on the drawings. Terminal blocks shall be provided with integral marking strips and shall be permanently marked with the internal conductor number as depicted on the manufacturer wiring diagrams. Internal wiring shall be connected on one side of the terminal block; outgoing conductors shall be connected to the other side.

I. Programmable Motor Overload Relay:
   1. Motor starters shall include a programmable electronic overload relay with configurable internal logic. Logic will allow for field input faults, with configurable time

delay and latching logic. Overload relays shall monitor all three phases individually for incoming voltage, motor current and frequency. Provide modules cables and power supplies and other appurtenances required to measure voltage and current, provide the programmable control, provide human interface, provide discrete inputs and outputs, and provide the network interfaces specified on the drawings and in the specifications.

2. Overload relay current range to be sized by Contractor to match the equipment. Settings to be adjusted in accordance with NEC, the full load amps of the equipment, and the manufacturer's instructions.
3. Overload relays shall support protective functions with adjustable settings. The functions can be enabled or disabled. The overload shall support the following protective functions at a minimum:
   a. Thermal Overload
   b. Overload time delay with a range of Class 5 to Class 40
   c. Instantaneous Overcurrent
   d. Undercurrent
   e. Jam
   f. Stall
   g. Phase current unbalance
   h. Phase loss
   i. High and low voltage
   j. Voltage imbalance
   k. Phase voltage reversal
   l. Voltage loss
   m. Ground fault
4. Programmable with 8,000 word minimum memory. USB connection on the operator interface for programming (with the door shut). Provide cables and software for modifying, uploading, and downloading programs from a laptop computer.
5. The overload and expansion modules shall have discrete inputs and outputs. The data from inputs shall be communicated through Modbus TCP Ethernet communications. Module outputs shall be controlled through internal logic with status monitored through the user interface and onboard communications. Additional inputs and outputs shall be available by adding modules. A minimum of 12 inputs and 12 outputs shall be provided at each motor starter.
   a. Inputs 24VDC
   b. Outputs dry contact rated 5A at 250VAC and 5A at 30 VDC. At least one output single pole double throw.
   c. Control programming shall, to the greatest extent possible, be the same programming for all motors. Programming shall include the following configuration:
   d. Local MCC control via user interface:
      1) Start / Stop (regardless of field HOA position)
   e. Remote hardwired Hand control via local control station near motor:
      1) HOA in Hand – (when motor is non-reversing) motor runs in forward motion continuously.

2) HOA in Hand and F/R in Forward – (when motor is reversing) motor runs in forward motion continuously.
    a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
3) HOA in Hand and F/R in Reverse – (when motor is reversing) motor runs in reverse motion continuously.
    a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
4) Off – motor does not run.
5) HOA in Auto – Network control via Modbus TCP Ethernet communications. (PLC/SCADA control)
6) All faults will be configured and available. Faults will be based upon digital inputs listed herein, and internally determined fault conditions. All faults based upon field inputs shall be active, as shown on Drawings.
7) All status will be configured and available. Status will be based upon digital inputs listed herein, and points available through internal monitoring.

f. Program the inputs and outputs as specified herein and shown on the drawings.

g. The following field inputs shall be configured as faults within the internal logic, with no need for additional relay or external timing devices:
    1) Motor temperature high (no delay on)
    2) Motor moisture high (no delay on)
    3) Seal water flow switch low (timed delay on @ 5 secs initial value) to allow flow prior to motor start)
    4) Discharge pressure high (timed delay on @ 1.0 secs initial value)
    5) Suction pressure low (timed delay on @ 1.5 secs initial value)
    6) E-stop (no delay on)
    7) Pump stator temperature high (no delay on)

h. The following status inputs shall be provided, as a minimum:
    1) HOA hand / run forward status
    2) HOA hand / run reverse status (reversing motor)
    3) HOA auto status
    4) Ready status (Control power monitoring)
    5) Remote call to run (external control)

i. The following relay type outputs shall be provided, as a minimum:
    1) Forward starter coil
    2) Reverse starter coil (for reversing motors)
    3) Seal water solenoid valve with a reverse-current protection diode (for seal water required applications – see Drawings)
    4) Run status pilot light (at motor local control station)
    5) Fault status pilot light (at motor local control station)

6. Door mounted user interface with the following features incorporated:
    a. USB or RJ-45 port for programming
    b. Start, Stop, and Auto buttons.
    c. Reset button

d. Navigation buttons
e. Status lights.
f. Three rows of text.
g. Display of voltage phase to ground and phase to phase, current for each phase, power, power factor, and other system data
h. Display of fault notification and diagnostic information

7. Overload Relay shall support native Modbus TCP (Ethernet) communications for remote monitoring and control. I/O communications local to the bucket shall be Modbus, Modbus 485, or Modbus TCP.
8. Automatic, network, electronic, and manual reset functions shall be supported.
9. The overload shall provide the following diagnostic and operational information via Ethernet at a minimum:
   a. Error and trip information
   b. Ground fault, L1, L2, L3 and three-phase average currents
   c. L1-L2, L2-L3, L1-L3 and three-phase average voltages
   d. Voltage and current unbalance
   e. Power factor
   f. Power
   g. Fault history (last four faults)
   h. Run timer value
10. Manufacturer:
    a. Eaton C445
    b. Schneider Electric TeSys T
    c. Or approved equal.

J. Ethernet: ~~All motor control centers shall be factory wired and configured with Ethernet communications.~~ The Ethernet communications network shall include overload relays, power meters, and network switches. See the drawings ~~and schedules~~ for more information about number of connections and configuration.

2.09 ETHERNET COMMUNICATIONS CABLING SYSTEM

A. Cabling System:
   1. Contractor to provide, install, and terminate Ethernet communications cabling between network capable devices, individual motor control center buckets to the internally mounted network switches. Where existing MCCs are modified by the project, the Contractor shall provide, install, and terminate new network cable routed from the existing or new MCC buckets to the new internally mounted network switches.
   ~~1. The MCC shall include a pre-engineered communication cabling system to connect motor overload units and VFDs within the MCC.~~
   2. Appropriate terminators and grounding shall be provided. Cable terminators to include integral ground for shielding.
   3. Ethernet cable shall be shielded CAT6 UL 600V rated with a yellow outer insulation jacket color.

4. Ethernet cable through the MCC section shall be routed in so that they are protected from mechanical damage. Cable management shall be provided in vertical wireways to group network cables and maximize distance from power cabling.
5. Ethernet switches within the MCC shall be wired in a Resilient Ethernet Protocol ring topology, with the switches supporting a star configuration to the MCC bucket devices. ~~Manufacturer~~ Contractor to provide cabling between shipping splits. Contractor to provide and route cabling from the two outermost switches to the PLC panel completing the ring, as shown on the Drawings.

B. Ethernet Equipment:

1. Provide one managed Ethernet switch for every shipping split. There shall be a maximum of three vertical sections per shipping split.
2. The switches shall be powered with 24VDC powered by 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules .
3. Locate Ethernet switch and power supply within a dedicated MCC bucket, located at the top most space within the vertical section.
4. Provide spare ports sufficient to support spare MCC buckets within shipping split for future equipment per switch. Provide 1 spare port for programming access, per switch.
5. Alarm contact output rated at minimum 30VDC, 1A.
6. Manufacturer, Model: Cisco Catalyst IE 2000 series, to match existing. No substitutions.

2.10 ADJUSTABLE FREQUENCY DRIVES

A. Where used in the Contract AFD, ASD, VFD, VSD, shall be interchangeable terms to refer to adjustable frequency drives. AFDs mounted in MCCs shall comply with 26 29 23 and the following requirements.

1. AFDs shall be coordinated with the driven equipment. Where required by distance or motor provided supply load reactors or motor termination kits.
2. Provide variable or constant torque PWM type drives for motors as indicated on the Drawings. Include circuit breaker disconnecting means, 3-percent line reactors and cooling fans as required to dissipate the heat into the room.
3. Provide ratings as indicated.
4. Provide microprocessor Operator Interface Station (OIS)/Human Interface Module (HIM) mounted on the MCC bucket door, with associated communications cable.
5. EMI/RFI shielding as required for products and wiring.
6. Provide current limiting fuses for short circuit protection as required to meet SCCR listing of MCC.
7. Provide factory technician for setup, startup services, and training.
8. Provide Form C relays with 5-ampere contacts for interlocks as shown on drawings.
9. Provide programmable relay outputs for status, and alarms, as shown on drawings.
10. Provide isolated 4-20madc analog input for speed control.
11. Provide isolated 4-20madc analog output for speed indication.
12. Provide network communications, using facility standard communications protocol - Modbus TCP.
13. Provide additional optional I/O modules, as shown on drawings.

14. Configure drive to provide control with input from the following locations:
    a. MCC Bucket -
        1) Local mode – Manual start/stop and speed control at MCC through AFD HIM.
    b. Field Mounted Local Control Station
        1) AFD HIM in Remote mode
        2) Hand mode (Remote 1)
            a) Hand-Off-Auto (HOA) in the Hand position
            b) Manual start/stop and speed control – wired input
    c. SCADA -
        1) AFD HIM in Remote mode
        2) Auto mode (Remote 2)
        3) HOA in Auto position
        4) PLC based automatic control – network input
15. Configure field inputs in accordance with 26 29 23.

2.11 MISCELLANEOUS

A. General:
    1. Control devices such as pushbuttons, selector switches, indicating lights and overload reset pushbuttons shall be incorporated within the overload or variable frequency drive digital user interface, or HIM module, mounted on the unit compartment door.
    2. The control devices shall comply with the requirements of Section 26 09 16.

G. Elapsed Time Indicator:
    1. The elapsed time indicator shall be incorporated within the overload or variable frequency drive digital user interface or HIM module, mounted on the unit compartment door.

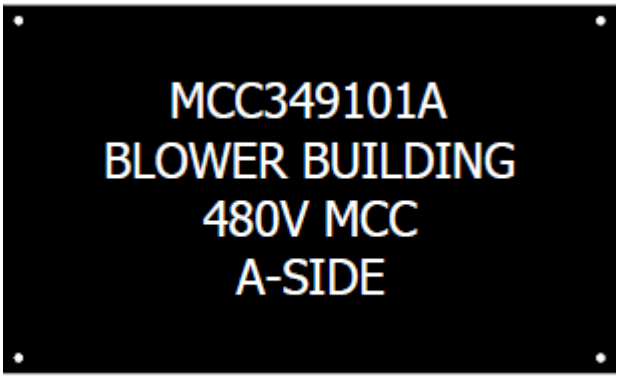
2.12 NAMEPLATES

A. Nameplates: In addition to the manufacturer's identification, nameplates shall be provided showing the motor control center, main breaker, and feeder breaker and other component designations as indicated on the Drawings.

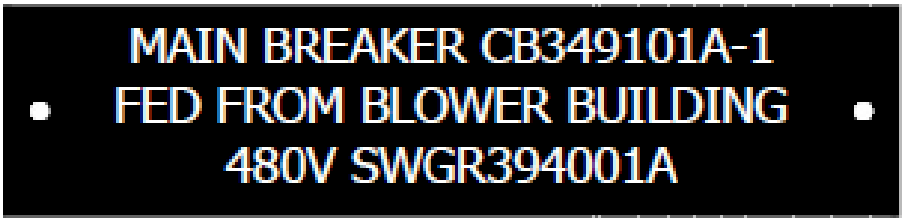
B. Nameplates shall be back engraved type and shall comply with Section 26 05 00 as modified in this Section.

C. Master nameplates shall be minimum 6 by 10 inches, four lines, 19 characters per line, 9/16-inch lettering.

D. Unit nameplates shall include the circuit breaker equipment number and the name of the equipment fed per the one line drawings. Main breakers shall include the breaker equipment number and the power source information shown on the one line Drawings. Other components in the motor control center indicated on the one lines shall have nameplates with the equipment numbers as a minimum and the full equipment name if shown. Nameplates shall be engraved per the typical examples shown below. See Section 26 05 00 for additional nameplate requirements.



TYPICAL FOR MASTER NAMEPLATE



MAIN CIRCUIT BREAKER AND THE EQUIPMENT NUMBER, OR "MAIN LUGS"

FOR MAIN CIRCUIT BREAKERS INDICATE FED FROM SOURCE PER THE ONE LINE DRAWINGS

TYPICAL NAME PLATE FOR MAIN CIRCUIT BREAKERS OR MAIN LUGS

CIRCUIT BREAKER EQUIPMENT NUMBER IS THE SAME AS THE LOAD EQUIPMENT PER THE ONE LINE DIAGRAM AND TEXT "FEEDER TO"

EQUIPMENT NUMBER AND NAME OF THE LOAD SERVED PER THE ONE-LINE DRAWINGS

TYPICAL NAME PLATE FOR FEEDER BREAKERS

2.13 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:
   1. High-energy parallel design for IEEE C62.41 and C62.45 category C
   2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses
   3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)
   4. Form C dry contacts
   5. UL 1449

6. 5-year warranty

C. Surge Capacity: 160 kA minimum surge capacity per phase.

D. Unit Mounting: SPD shall be mounted in a MCC unit. The unit shall include:
   1. Circuit breaker. Overcurrent device shall be selected and sized by the SPD manufacturer. The overcurrent device may be a circuit breaker or a fuse, per the manufacturer's standard.
   2. Disconnect
   3. Display on the door.

E. Door mounted display with the following
   1. LCD screen with surge count
   2. Surge count reset button.
   3. LED for each phase indicating protection is functional
   4. LED for each phase indicating replacement is required
   5. Alarm with silence button

F. Eaton SPD Series or approved equal.

2.14 POWER METER.

A. Provide a power meter in accordance with Section 26 09 13 where specified or shown on the drawings.

B. Power meter shall be powered with 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules.

2.15 SPARE PARTS

A. One set consisting of the following spare parts shall be provided:
   1. 1--set each fuse size and type
   2. 10--indicating light bulbs

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.
   2. Install MCC level and plumb. Pad height 3-1/2 inch. Installation per the manufacturer’s installation instruction.

3.02 GENERAL

A. The MCCs shall be erected in accordance with the recommendations of the manufacturer and with the details specified herein.

B. Cables larger than No. 6 AWG which hang from their vertical connections shall be supported within 2 feet of the connection.

C. The solid-state overload relay settings shall be implemented by the Contractor with the settings selected based on the actual full load amperes of the motor connected to the starter and the requirements of the motor driven equipment. Refer to the manufacturer's literature for setting the overload relays.

D. The motor circuit protectors shall be adjusted by the Contractor to the lowest setting not causing false tripping.

E. The Contractor shall adjust the protection settings per the short circuit, coordination, and arc flash report. after obtaining approval by the Construction Manager.

F. Ethernet host IP addresses, subnet mask, and default gateway for each starter overload and starter input/output module shall be set by the Contractor. The Ethernet overload is commissioned with software configuration tools. Contractor to coordinate with Owner final IP address, subnet mask, and default gateway allocation.

3.03 REPAIR/RESTORATION

A. Use existing below MCC penetrations to access cable tray for routing to process equipment as shown on the drawings. Re-seal penetrations with listed raceway seal and clean MCC interior.

3.04 TRAINING

A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.
   1. Training Sessions:
      a. Procedures: Section 01 79 00.
      b. Provide a minimum of 12 hours of classroom training on the motor control center installations. Conduct two 2-hour training sessions for operators and one 8-hour training session for electricians. Assume that this training will be done on consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Record completion of training on the form in in Section 01 99 90.

3.05 FIELD TESTS

A. MCCs shall be tested in accordance with Section 26 08 00 and 01 45 23.

END OF SECTION

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SECTION 27 11 00

COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. This section specifies requirements for the equipment and cable installations in communications equipment rooms, electrical rooms, and telecommunications closets.

B. Included in this section are material and installation requirements for communications racks and rack cable management.

C. Communications Equipment Rack Schedule:

1. The Communications Equipment Rack Schedule, in the Attachment at the end of this section, lists ~~Contractor~~ Owner provided network racks and cabinets required for the project along with specific requirements for each rack and cabinet. Specific requirements are also specified on the rack layout and wiring diagrams referenced in the Communications Equipment Rack Schedule.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).
3. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/TIA-568 Series	Commercial Building Telecommunications Cabling Standard
ANSI/TIA-569	Telecommunications Pathways and Spaces
ANSI/TIA-606	Administration Standard for the Telecommunications Infrastructure of Commerical Buildings
ANSI/TIA-607	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
ASCE/SEI 7	Minimum Design Loads for Buildings and Other Structures
BICSI	Telecommunications Distribution Methods Manual

Reference	Title
EIA/ECA-310	Cabinets, Racks, Panels, and Associated Equipment
NFPA 70	National Electric Code

5. Additional references are listed in Section 26 05 00. They are a part of this section as specified and modified.

B. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Contract Documents shall be subject to the control and approval of the Owner or Owner's Representative.

C. Contractor shall adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA), and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.

1.03 ENVIRONMENTAL CONDITIONS

A. Equipment provided under this section shall be suitable for operation under ambient conditions described in Section 26 05 00.

1.04 SUBMITTALS

A. General:
   1. Submittals and transmittal procedures for submittals are defined in Section 01 33 00. Submit in accordance with the procedures set forth in the General Conditions of the Contract Documents and Section 01 33 00 that include drawings, information and technical data for equipment and as required in Section 26 05 00.

B. Action Submittal Items:
   1. Package 1:
      a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.
      b. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.
         1) The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.
         2) Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
      c. A copy of the Contract Document Instrumentation drawings relating to the submitted equipment, with addendum updates that apply to the equipment in

this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

2. Package 2:
   a. Marked manufacturer product literature for all equipment and components provided or selected for Owner to provide.
   b. List of miscellaneous items, cables, spare parts, that will be provided.
   ~~b.~~c. Bill of materials for network enclosure components which provides the Owner a comprehensive listing of parts to be purchased for installation by Contractor.
3. Package 3:
   a. Installation drawings for only the equipment, components, and mounting accessories to be provided.
   b. Shop drawings for communications equipment room fiittings, including plans, elevations, sections, details, and attachments to other work.
      1) Equipment assemblies shall be detailed to indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
      2) Include workspace requirements and access for cable connections for equipment racks and cabinets.
      3) Indicate location of Secondary Bonding Busbar and its mounting detail showing standoff insulators and wall mounting brackets.
      ~~3)~~4) Provide termination drawings indicating cable termination locations within the fiber optic or twisted pair patch panels.
   c. Seismic qualification certificates for equipment frames from manufacturer. Certificates shall include:
      1) Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
      2) Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions. Base certification on the maximum number of components capable of being mounted in each rack type. Identify components on which certification is based.
      3) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
   d. Contractor's certifications and calculations that the equipment meets the seismic requirements specified in Sections 01 33 00 and 01 73 24, and this Section.

C. Closeout Submittals:
   1. Package 4:
      a. Provide the following product data in accordance with Section 01 33 00:
         1) Final reviewed submittal, including revised as-built submittal drawings in AutoCAD and PDF format.
         2) Final as-built cable schedules in native, editable file (e.g., Microsoft Office Excel) and PDF format.

~~2)~~3) Final installation drawings with any modifications provided during installation

~~3)~~4) Manufacturer's operation and maintenance information, edited for this project, as specified in Section 26 05 00.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Equipment frames shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. The term "withstand" means that the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified.

B. Seismic anchoring and bracing: Sections 40 61 13 and 01 73 24.

2.02 TELECOMMUNICATIONS BACKBOARDS

A. Where specified on the Drawings, server room and telecommunications closet walls shall be covered with 3/4-inch A-C grade fire retardant plywood, painted with two coats of light-colored, non-conductive, fire retardant paint.

B. Plywood shall extend from the floor to 8 feet above the finished floor and shall be mounted with the "A" side exposed.

C. Power and telecommunications outlets and light switches shall be surface mounted on the plywood backboard.

2.03 EQUIPMENT FRAMES

A. General Requirements:

1. Racks:
   a. Freestanding and wall-mounted racks shall be modular-steel units designed for telecommunications equipment support and coordinated with dimensions of units to be supported. Racks shall assemble with nut and bolt hardware.
   b. Each rack shall have two L-shaped base angles and two equipment-mounting rails. Where specified on the Drawings, racks shall have two L-shaped top angles. The base angles shall be pre-punched for attachment to the floor.
   c. Modular dimension width shall be compatible with EIA/ECA-310 standard, 19-inch panel mounting. Equipment mounting rails shall be punched on the front and rear flange with square-punched holes. Equipment mounting rails shall have marked and numbered rack-mount spaces (U), with the numbering starting at the bottom of the rack.
   d. UL Listed.
   e. Racks shall be black in color.
   f. Finish shall be manufacturer's standard, baked-polyester powder coat.
   g. Racks shall be provide with cage nuts and all necessary equipment-mounting hardware.

B. Freestanding Two-Post Racks:

1. Rack frame shall be welded steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Equipment space: 44U or 45U.
3. Load capacity: 1000 pounds (full load capacity shall be included in seismic certification).
4. Rack dimensions: 84”x24”x15” (HxWxD).
5. Bonding and grounding:
   a. Rack components bonded through welds.
   b. Masked ground connection points at the top and base of the rack.
   c. Provide attachment hardware for bonding equipment mounting rails to rack.
   d. Ground terminal block that accepts a minimum of two ground connections for bonding to the Secondary Bonding Busbar.
6. Accessories:
   a. Vertical cabling sections: Provide double-sided, front and rear cable management pathways with latches to organize and secure cables. Cable managers shall have large pass-through ports to allow transitions between front and rear pathways.
   b. Cable management fingers: Provide cable management fingers kits that are easily installed to the front and rear rack frame and that extend the full height of the rack.
   c. Vertical power strip mounting hardware kit: Provide mounting hardware for securely attaching vertical power strips and power distribution units (PDUs) to the rack or the back of a vertical cabling section.
   d. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   e. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
7. Manufacturers:
   a. ~~Chatsworth Products, Inc. SeismicFrame~~ APC NetShelter 2 Two-Post Rack
   b. Or approved equal.

C. Freestanding Four-Post Rack Cabinets:

1. Rack frame shall be welded and bolted steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Provide rack cabinet with top and side panels and front and rear doors. Doors shall be perforated, removable, and reversible to open from the right or left. Provide keyed locking mechanisms on front and rear doors.
3. Equipment space: 43U.
4. Load capacity: 1500 pounds with 100 pound top load (load capacity shall be included in seismic certification).
5. Rack cabinet dimensions: 84”x24”x52” (HxWxD).
6. Bonding and grounding:

a. Equipment mounting rails, top panel, side panels, and doors electrically bonded to cabinet frame.
b. Ground lug at the top and base of the cabinet frame.

7. Accessories:
   a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
   b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
   c. Vertical dual PDU mounting hardware kit: Provide mounting hardware for securely attaching two PDUs to the cabinet frame.
   d. Air dam and seal kits: Provide top, bottom, and side baffles to block airflow around the sides and top of the equipment mounting space so that cold air passes through equipment and hot air does not recirculate. Provide manufacturer recommended seal and rail grommet kits to improve air seal.
   e. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   f. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
8. Manufacturers:
   a. ~~Chatsworth Products~~APC (Schneider Electric), Inc. ~~Z4 Series SeismicFrame Cabinet System~~NetShelter VX Seismic 42U Enclosure w/Sides
   b. Or approved equal.

D. Wall-Mount Rack Cabinets:
1. Rack frame shall be steel with two pairs of adjustable depth equipment mounting rails and wall-mounting hardware.
2. Rack cabinet shall have a hinged center section that allows the section to swing out from the rear section, allowing access to the rear of the rack frame. Rack cabinet shall have a front door with keyed locking mechanism. Rear section shall be lockable independently from the front door.
3. Rack cabinet shall include 120 VAC, filtered fan assembly that maintains the NEMA rating of the rack cabinet enclosure and provides cooling to the equipment installed within.
4. Enclosure rating: NEMA 12K
5. Equipment space: 19U.
6. Load capacity: 250 pounds.
7. Rack cabinet dimensions: 36”x24”x24” (HxWxD). Rear section shall have 5-inch depth, minimum, for receiving conduits.
8. Bonding and grounding:
   a. Protective grounding studs and grounding jumper wires that electrically bond the enclosure doors to the enclosure frame.
   b. Main protective grounding stud located inside the rear section.
   c. Grounding kit.
9. Accessories:

a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
c. Provide manufacturer recommended mounting hardware for the installation.
d. Provide five spare fan assembly filters.

10. Manufacturers:
    a. ~~Great Lakes Case & Cabinet NEMA 12K Series Wall Mount~~Tripp-Lite SmartRack 26U UPS-Depth Wall-Mount, with Clear Acrylic Window
    b. Or approved equal.

E. Horizontal Cable Management for Racks
1. Horizontal cable management kits shall be installed on 19-inch wide industry standard racks above or below patch panels and switches, where specified, to organize patch cables.
2. Kits shall be available in single-sided and double-sided configuration at heights of 1U, 2U, and 3U.
3. Kits shall include covers that can be opened from the top and bottom or removed altogether.
4. Kits shall include top and bottom cable guide fingers to separate and organize patch cords.
5. Depth:
    a. Single-sided: 5 inches.
    b. Double-sided: 12 inches.
6. Color: Black.
7. Manufacturers:
    a. ~~Chatsworth Products, Inc. Universal~~ APC, Inc. NetShelter Horizontal Cable Manageement~~r~~
    b. Or approved equal.

2.04 POWER DISTRIBUTION UNITS

A. PDUs for Freestanding Racks:
1. PDUs shall be vertical, rack-mount, switched type with ability to turn individual outlets on and off and configure sequenced power-on processes. PDU shall include functionality for continuous power monitoring of the PDU and each outlet. Additional requirements include:
    a. Power input shall be one of the following, as specified on the Drawings:
        1) 120 VAC, single-phase, 30 A.
        2) 208 VAC, three-phase, 50 A.
    b. Power cord: Integral cord, 10-foot length minimum.
    c. Circuit protection: UL 489 Listed, single-pole or two-pole, hydraulic-magnetic breakers.
    d. Outlet quantity: 24.
    e. Outlet type: Coordinate outlet type requirements with Owner.

f. Include power cord retention tethers to secure straight power cords at outlets.
g. UL Listed.
h. Local LCD display for viewing total voltage, current, and power on PDU. Display shall provide alarm notifications.
i. Operating temperature: 32 to 149 degrees F.
j. Operating relative humidity: 5 to 95 percent, non-condensing.
k. Color: Black.
l. Network power monitoring and external connections:
    1) One 10/100/1000 Mbps RJ-45 Ethernet port.
    2) Two RJ-45 ports for providing linking connection to additional PDUs.
    3) Two USB ports for firmware updates.
    4) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.
        a) Power monitoring shall be provided for the PDU and each outlet.
        b) Support monitoring of up to 16 PDUs via one Ethernet connection and IP address.
        c) Support configuration for a backup, secondary Ethernet connection through an alternate linked PDU.
    5) Data logging functionality for recording data, events, and alarms.
m. Grounding and bonding:
    1) Grounded input plug.
    2) External ground connection with threaded attachment point.
    3) Provide manufacturer recommended grounding kit and accessories.
n. Manufacturer:
    1) ~~Chatsworth Products, Inc. Switched Pro eConnect PDU~~APC, Inc, Rack PDU
    2) Or approved equal.

2. Unless otherwise specified, provide two PDUs per freestanding rack. One PDU shall be powered from the building “A” bus UPS system; the other PDU shall be powered from the building “B” bus UPS system.
3. Coordinate rack mounting hardware and installation with rack manufacturer.

B. PDUs for Wall-Mounted Rack Cabinets:
1. PDUs shall be horizontal, rack-mount, with an integral automatic transfer switch (ATS) designed to automatically switch between primary and secondary power inputs based on availability and quality of the primary power source. Additional requirements include:
    a. Rack size: Standard 19-inch, 1U space.
    b. Power input: 120 VAC, single-phase, 16 A.
    c. Provide integral circuit breaker.
    d. Power cords: 10-foot length minimum with two NEMA 5-20P plugs.
    e. Outlet quantity: 10.
    f. Outlet type: NEMA 5-20R.
    g. UL Listed.

h. Local LCD display for viewing voltage and current on PDU. Display shall provide indication of primary or secondary power source availability and active status as well as alarm notifications.

i. Test button to manually force transfer between primary and secondary power sources.

j. Operating temperature: 32 to 122 degrees F.

k. Operating relative humidity: 5 to 90 percent, non-condensing.

l. Color: Black.

m. Network power monitoring and external connections:

1) One 10/100 Mbps RJ-45 Ethernet port.

2) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.

n. Grounding and bonding:

1) Grounded input plug.

2) Provide manufacturer recommended grounding kit and accessories.

o. Accessories:

1) Provide cable restraint system consisting of cable management tray, mounting brackets, and tie wraps.

p. Manufacturer:

1) ~~Eaton eATS ePDU~~APC, Inc Rack PDU

2) Or approved equal.

2. Unless otherwise specified, one PDU power input shall be powered from the building "A" bus UPS system; the other PDU power input shall be powered from the building "B" bus UPS system.

2.05 PATCH PANELS

A. Category 6A/Class E_A Patch Panels:

1. Unshielded Twisted Pair (UTP):

a. Category 6A UTP patch panels shall be flat, steel, 110-type, and component-rated. Patch panels shall meet or exceed component performance requirements for Cat 6A, Class E_A for 10GBASE-T. Patch panels shall include conductor retention feature to simplify termination and a rear cable management bar. Port label holders shall be windowed to accept printable inserts. Provide reversible card for T568A and T568B wiring schemes. Additional requirements include:

1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.

2) Ports: 24 (1U) or 48 (2U)

3) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.

4) Insertion loss: 0.45 dB or less at 500 MHz.

5) UL Listed.

6) Color: Black.

7) Manufacturer:

a) Leviton eXtreme

b) Or approved equal.

2. Shielded Twisted Pair (STP):
   a. Category 6A STP patch panels shall be flat, shielded, and fabricated to accept shielded Cat 6A connectors. Patch panels shall include a stainless steel plate (for grounding continuity between connectors and patch panel), star washers, and grounding lug. Additional requirements include:
      1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.
      2) Ports: 24 (1U) or 48 (2U)
      3) Connectors: See connectors paragraph in this Section.
      4) Color: Black.
      5) Manufacturer:
         a) Leviton Atlas-X1 Shielded Flat QuickPort Patch Panel
      6) Or approved equal.

B. Fiber-Optic Patch Panels:
   1. Patch panels shall be modular, steel, with front and rear hinged and removeable covers. Patch panels shall accept 3 adapter plates or fiber splice modules per rack unit of space. Rear fiber cable management rings shall be stackable and adjustable. Patch panel shall have a sliding tray that slides forward and backward to provide front and rear access to bulkheads. Additional requirements include:
      a. Rack size: 19-inch, 1U or 2U space, as specified on Drawings.
      b. Fiber Splice Modules:
         1) Fiber pigtail fusion splice modules shall be fully enclosed to protect and organize heat-shrink fusion spliced fibers. Modules shall be pre-loaded with 3-meter, color-coded pigtail assembly. Modules shall be provided by the same manufacturer as the fiber-optic patch panel.
         2) Single-mode (OS2):
            a) Fiber-count: 12, 24, or 48 fibers per cassette~~24~~.
            b) Adapters: Duplex LC or ~~/UPC~~ ~~q~~Quad LC.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Blue.
            e) Maximum insertion loss: 0.35 dB.
            f) Return loss: > 55 dB.
         3) Multi-mode (OM3):
            a) Fiber-count: ~~12~~12 or 24.
            b) Adapters: LC duplex.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Aqua.
            e) Maximum insertion loss: 0.4 dB.
            f) Return loss: > 25 dB.
         4) Manufacturer:
            a) OCC RTSXU Rack Mount Sliding assembly with Splice Cassette Assembly ~~Leviton SDX Fiber Splice Module~~
            b) Or approved equal.
      ~~c. Fiber Adapter Plates:~~

~~1) Fiber adapter plates shall be modular and adapters and plate shall be integrated. Adapter plates shall be provided by the same manufacturer as the fiber-optic patch panel.~~

~~2) Multi-mode (OM1):~~

~~a) Fiber count: 1224.~~

~~b) Adapters: LC duplex~~

~~c) Adapter sleeve material: Zirconia ceramic.~~

~~d) Plate color: Beige.~~

~~3) Manufacturer:~~

~~a) Leviton SDX Fiber Adapter Plate~~

~~b) Or approved equal.~~

~~d. Color: Black.~~

~~e. Manufacturer:~~

~~1) Leviton Opt-X 1000i~~

~~2) Or approved equal.~~

2.06 CONNECTORS

A. Category 6A/Class E_A Connectors:

1. UTP:

a. Connectors shall be component-rated and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the UTP patch panels. Additional requirements include:

1) Conductor accommodation: 26 to 22-gauge, solid or stranded.

2) Connector body material: Die-cast zinc.

3) Spring-wire contacts: Gold-plated copper-based alloy.

4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.

5) Operating temperature: 14 to 140 degrees F.

6) UL Listed.

7) Color: Per application, see table below.

8) Manufacturer:

a) Leviton Atlas-X1 Cat 6A Component-Rated UTP QuickPort Connector

b) Or approved equal.

2. STP:

a. Connectors shall be shielded, component-rated, and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied

with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the STP patch panels. Additional requirements include:

1) Conductor accommodation: 26 to 22-gauge, solid or stranded.
2) Connector body material: Die-cast zinc.
3) Spring-wire contacts: Gold-plated copper-based alloy.
4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.
5) Operating temperature: 14 to 140 degrees F.
6) UL Listed.
7) Color: Per application, see table below.
8) Manufacturer:
   a) Leviton Atlas-X1 Cat 6A Component-Rated Shielded QuickPort Connector
   b) Or approved equal.

3. Connector Color Code:
   a. Provide connector colors per table below:

Connected Device(s)	Connector Color
Wireless access points (WAPs)	Light almond
Cameras, door controllers, access control panels, and other site security equipment	Dark red
VOIP telephones, general staff office data jacks, printers and shared office equipment, and other business LAN equipment	White
SCADA workstation data jacks and Area PLC slot 06 communications modules	Orange
Area PLC slot 05 communications modules	Brown
PLC slot 03 communications modules	Blue
IT office and workshop data jacks (except for those dedicated to SCADA workstations)	Purple
Power monitoring meters, power quality meters, energy management system (EMS) workstations, protective relays, UPSs, ATSs, and other EMS equipment	Yellow
HVAC control panels	Green

2.07 WALLPLATES

A. Provide wallplates that are flush-mount, fit standard NEMA openings, and are compatible with the connectors specified in this Section. Wallplates and connectors shall be by the same manufacturer. Wallplates shall be provided with identification windows that accept machine-printed inserts at the top and bottom so that each data jack has an individual identification window associated with it. Additional requirements include:

1. Material: For architecturally finished areas, provide high-impact, fire-retardant plastic wallplates rated UL 94V-0. For all other areas (including electrical rooms), provide stainless steel wallplates.
2. UL Listed.
3. Color: For platic wallplates, coordinate with Owner for color preference. Screws shall be the same color as the wallplate.
4. Provide single-gang or dual-gang wallplates based on quantities specified on the Drawings and the following:
   a. Single-gang: 1 or 2 data jacks.
   b. Dual-gang: 3 or 4 data jacks.

5. Manufacturer:
    a. Leviton QuickPort Wallplates with ID Windows
    b. Or approved equal.

2.08 LADDER RACK, SUPPORTS, AND ACCESSORIES

A. General:
1. The Drawings specify general requirements for location, width, and means of ladder rack installation. Contractor shall provide a detailed design of the ladder rack installation, including all necessary supports, splices, kits, and accessories based on the equipment provided under Section 27.
2. Ladder rack system shall conform to Category 6A requirements.
3. Ladder rack system shall be UL Classified for suitability as an equipment grounding conductor.
4. Ladder rack system color: Black.
5. Manufacturer:
    a. APC, Inc. ~~Chatsworth Products, Inc. Universal~~ NetShelter Cable Runway
    b. Or approved equal.

B. Ladder Rack:
1. Provide tubular steel ladder rack with cross members welded at intervals of 12 or fewer inches.
2. Load capacity: 130 lb/ft, or greater, with support every 5 feet.

C. Horizontal and Vertical 90-Degree Bends:
1. Provide tubular steel ladder rack 90-degree bends with cross members welded at roughly 23-degree increments. Bends shall be designed for conformance with Category 6A cable minimum bend radius requirements.

D. Ladder Rack Splices, Kits, and Accessories:
1. Provide T-junction splice kits, rack and cabinet elevation kits, mounting plates, support brackets, end caps, and accessories required for a complete ladder rack system that complies with manufacturer installation requirements and recommended best practices.

2.09 GROUNDING

A. Secondary Bonding Busbar:
1. For each server room and telecommunications closet, provide a UL Listed, 2-inch wide, 1/4-inch thick, copper Secondary Bonding Busbar kit with 1-inch offset stainless steel mounting brackets and 1 1/2-inch insulators. Busbars shall meet BICSI and TIA-607 standards and include antioxidant joint compound, UL Listed compression lugs, nuts, washers, and all necessary components.

B. Rack Bonding Busbar:
1. For each rack and cabinet, provide a horizontal or vertical Rack Bonding Busbar attached to the equipment mounting rails. Busbars shall meets BICSI and TIA-607 standards.

PART 3 EXECUTION

3.01 COORDINATION

A. Seismic Anchorage and Bracing: Sections 26 05 00 and 01 73 24.

3.02 INSTALLATION

A. General:
   1. Comply with BICSI TDMM for layout and installation of communications equipment rooms.
   2. Coordinate layout and installation of communications equipment with the Contractor and Owner's Representative.

B. Cables:
   1. Comply with TIA/EIA-568-C.2 standards for Category cable installations.
   2. Comply with TIA/EIA-568-C.3 standards for fiber-optic cable installations.
   3. Separation from EMI Sources:
      a. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
      b. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 5 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 12 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 24 inches.
      c. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 2-1/2 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 6 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 12 inches.
      d. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
         1) Electrical equipment rating less than 2 kVA: No requirement.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 3 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 6 inches.
   4. Bundle, lace, and train conductors without exceeding manufacturer minimum bending radius requirements for all Category and fiber-optic cabling, but not less than radii specified in BICSI ITSIM. Use lacing bars and distribution spools, as necessary.
   5. Provide minimum of 10-foot slack loops in server rooms for incoming/outgoing Category and fiber-optic cable to accommodate future modifications to the server room equipment arrangement. Use an extended or figure-8 loop configuration to alleviate cable stress.

6. Provide minimum of 18 inches of slack above work area installations for re-terminations and to accommodate future moves, adds, and changes.
7. No more than 50 Category cables shall be bundled together to limit damage to cables on the bottom of the bundle.
8. Use appropriate tools and adhere to manufacturer recommendations and requirements for all terminations. Terminate all conductors and fibers; no cable shall contain unterminated elements.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Remove and discard cable if damaged during installation and replace it with new cable.

C. Racks and Cable Management:
1. Assemble racks and cable management according to manufacturer's instructions. Verify that equipment mounting rails are sized properly for rack-mount equipment before attaching the rack to the floor.
2. All freestanding racks must be attached to the floor in four places using appropriate floor mounting anchors. When placed over a raised floor, threaded rods shall pass through the raised floor tile and be secured in the structural floor below per manufacturer recommendations.
3. In seismic areas, the rack shall have additional bracing as required by building codes and the recommendations of a licensed structural engineer.
4. Racks and cabinets shall be grounded to the Secondary Bonding Busbar using appropriate hardware provided by the Contractor. The ground shall meet local code requirements and shall be approved by the AHJ.
   a. Connections to the Secondary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug.
   b. Connections from the Secondary Bonding Busbar to the racks/cabinets shall be made at the Rack Bonding Busbar via irreversible compression-type connections.
5. Rack and cabinet frames shall be independently bonded to the Rack Bonding Busbar via irreversible compression-type connections.
6. Ladder rack may be attached to the topo of the rack to deliver cables to the rack. The rack should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.
7. The equipment load should be evenly distributed and uniform on the rack. Place large and heavy equipment toward the bottom of the rack. Secure all equipment to the rack with equipment mounting screws.
8. Distribute cables in the cable management hardware symmetrically to feed into each patch panel from left and right.

D. Patch Panels:
1. All patch panels shall be installed in the racks as specified on the Contract Drawings.
2. Each patch panel shall be attached to the rack using the rack screws supplied with the panel.
3. All patch panels shall be installed level and plum within the racks.
4. For each shielded Category cable patch panel, bond the patch panel to the Rack Bonding Busbar via a #6 AWG Unit Bonding Conductor. Connections to the Rack Bonding Busbar shall be made with UL listed two-hole lugs.

E. Ladder Rack:

1. Provide all components of the ladder rack system (ladder rack, bends, splices, supports, and accessories) from a single manufacturer.
2. Ladder rack shall be installed with side stringers facing down so that the ladder forms an inverted U-shape and so that welds between the stringers and cross members face away from cables.
3. Ladder rack shall be secured to the structural ceiling, building truss system, wall, floor, and/or the tops of equipment racks and cabinets using the manufacturer's recommended supports and appropriate installation hardware and methods as defined by local code or the AHJ.
4. Ladder rack splices shall be made in mid-span, not over a support, with the manufacturer's recommended splice hardware.
5. Ladder rack shall be supported every 5 feet or less in accordance with TIA-569. Ladder rack shall be supported within 2 feet of very splice and within 2 feet on both/all sides of every intersection. Support ladder rack within 2 feet on both sides of every change in elevation. Support ladder rack every two feet when attached vertically to a wall.
6. Leave a minimum of 12 inches between ladder rack and ceiling/building truss structure. Leave a minimum of 3 inches between ladder rack and the tops of equipment racks and cabinets. Multiple tiers of ladder rack shall be installed with a minimum clearance of 12 inches between each tier of ladder rack. When located above an acoustical drop ceiling, leave a minimum of 3 inches clearance between the top of the drop ceiling tiles and the bottom of the ladder rack.
7. Install rubber finishing caps on any exposed metal end rail or potential sharp point.
8. When installed under a raised floor, ladder rack shall be installed with a minimum 3-inch clearance between the top of the ladder rack and the bottom of the floor tiles or floor system stringers, whichever is lower in elevation. Maintain 3-inch clearance between ladder racks wherever ladder racks cross.
9. Within each server room, ladder rack should be bonded together, electrically continuous, and bonded to the Secondary Bonding Busbar, unless otherwise noted in the specifications and Contract Documents. Ladder rack and bends shall be bonded across each splice with a bonding kit. Ladder rack shall be bonded to the Secondary Bonding Busbar using an approved ground lug on the ladder rack and a minimum #6 AWG grounding wire or as recommended by the AHJ. Remove paint from the ladder rack where bonding/ground lugs contact the ladder rack so that the lug will contact bare metal. Use antioxidant joint compound in between the bare metal on the ladder rack ad ground lug. Verify continuity through the bonds at splices and intersections between individual ladder rack sections and bends and through the bond to the Secondary Bonding Busbar.
10. The quantity of cables within the ladder rack will not exceed a whole number value equal to 25 percent of the interior area of the ladder rack divided by the cross-sectional area of the cable, leaving space for future additions up to 50 percent fill. The interior area of ladder rack will be considered to be the width of the ladder rack multiplied by a height of 2 inches, unless cable retaining posts are added to the ladder rack. The interior area of ladder rack equipped with cable retaining posts will be considered to be the width of the ladder rack multiplied by a height of 6 inches. Actual cable fill for ladder rack that is not equipped with cable retaining posts will not exceed 2 inches in height. Actual cable fill for ladder rack equipped with cable retaining posts will not exceed 6 inches in height.

11. The combined weight of cables within the ladder rack will not exceed the stated load capacity of the ladder rack as stated in the manufacturer's product literature or load/design tables.
12. Cables (cable bundles) will be secured to the cross members of ladder rack with 3/4-inch wide reusable straps. Single-use cable ties and ties or straps narrower than 3/4-inches are not allowed. Straps are not required when ladder rack is equipped with cable retaining posts.
13. Use a radius drop to guide cables wherever cable exits overhead ladder rack to access a rack, cabinet, or wall-mounted rack.
14. Whenever possible, maintain a 2-foot separation between ladder rack used for communication cables and pathways for other utilities or building services.
15. The installer will provide touch-up paint color-matched to the finish on the ladder rack and will correct any minor cosmetic damage (chips, small scratches, etc.) resulting from normal handling during the installation process prior to delivery to the Owner. If a component is cosmetically damaged to the extent that correction in the field is against manufacturer recommendations, the component shall be replaced with a new component. If a component is physically damaged due to mishandling or modification during the installation process, it shall not be used as part of the ladder rack system.

3.03 GROUNDING AND BONDING

A. Install the telecommunication grounding system per TIA-607 and BICSI TDMM standards.

B. Locate Secondary Bonding Busbar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar.

C. Bond metallic equipment to the Secondary Bonding Busbar using no smaller than #6 AWG equipment grounding conductors.

D. Each Secondary Bonding Busbar shall be bonded to the building Primary Bonding Busbar. Connections of the Secondary Bonding Busbar to the Primary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug and appropriate gauge cable.

3.04 IDENTIFICATION

A. Identify system components, wiring, and cabling per TIA/EIA-606-C for Administration Class 3 and Section 26 05 00 requirements.

B. Color-code voice and data service backboards, connections, covers, and labels.

C. Cable Schedule: Install in a prominent location in each server room and telecommunications closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for the Project.

D. Equipment nameplates are in accordance with 40 67 00.

3.05 ATTACHMENTS

A. 27 11 00 – Attachment A: Communications Equipment Rack Schedule

1. Description of headings in Communications Equipment Rack Schedule.

Field or Heading	Example	Comment or Description
Item	1	Unique schedule row number reference.
Area	16	Area number reference associated with equipment tag. See tagging on instrument legend sheets.
Loop Number	0011	Loop number reference associated with equipment tag. See tagging on instrument legend sheets.
Tag	NCE160011	Unique equipment tag. See tagging on instrument legend sheets.
Nameplate First Line	AREA 16	Text to engrave on first line of nameplate.
Nameplate Second Line	NETWORK CABINET	Text to engrave on second line of nameplate. None, if blank.
Nameplate Third Line		Text to engrave on third line of nameplate. None, if blank.
Nameplate Fourth Line		Text to engrave on fourth line of nameplate. None, if blank.
Rack Drawing(s)	I-00-6511	Reference to the typical rack layout and wiring diagram(s) that are relevant to the equipment.
Location Drawing		Reference to electrical plan drawing where equipment location is specified.
Application Notes		Optional, as required for clarification.

END OF SECTION

Communications Equipment Rack Schedule

Item	Area	Loop Number	Tag	Nameplate First Line	Nameplate Second Line	Nameplate Third Line	Nameplate Fourth Line	Rack Drawing(s)	Location Drawing	Network Diagram	Application Notes
	16	0011	NCE160011	NCE160011	AREA 16	ELECTRICAL ROOM	NETWORK CABINET	I-00-6511	E-16EB-1101	I-16-6101	
	22	0011	NCE220011	NCE220011	AREA 22	ELECTRICAL ROOM	NETWORK CABINET	I-00-6512	E-22-3002	I-22-6101	
	24	0011	NCE240011	NCE240011	AREA 24	ELECTRICAL ROOM	NETWORK CABINET	I-00-6512	E-24-1211	I-24-6101	CCF 020

SECTION 26 24 19

MOTOR-CONTROL CENTERS

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies freestanding, factory assembled 600 (480) volt Motor Control Centers (MCC).
2. Requirements apply to new freestanding sections and modifications to existing sections.
3. Work for this project includes providing new replacement buckets including all wiring and equipment into existing MCCs to power and control equipment furnished on this project as shown on the drawings.
4. Work includes configuration of MCC mounted motor management relays , reduced voltage solid state soft starters (RVSS) and low voltage Variable Frequency Drives.
5. The Contractor shall obtain host IP address, subnet mask, and default gateway information for the Ethernet networked equipment located within the MCCs. Obtain via a request for information (RFI).

B. Equipment List

Equipment Number	Name
MCC029001A	MCC029001A 3W FILTER BUILDING 480V MCC A-SIDE
MCC029001B	MCC029001B 3W FILTER BUILDING 480V MCC B-SIDE

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was

discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/NEMA ICS 1	Industrial Control Systems: General Requirements
ANSI/NEMA ICS 18	Motor Control Centers
ANSI/IEEE C37.20.7	Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
CSA C22.2.022	Evaluation Methods for Arc Resistance Ratings of Enclosed Electrical Equipment
IBC	International Building Code
NFPA 79	Electrical Standards for Industrial Machinery
UL 845	Motor Control Centers

B. Codes and Standards:
   1. MCCs and all components shall be Underwriters Laboratory listed to UL 845 and shall conform to NEMA ICS-1 and ICS-18 standards. UL Listed labels shall be applied to the vertical sections and the individual units (or "buckets") installed within those sections. MCCs shall be tested and verified per IEEE guideline C37.20.7 and CSA standard 22.2 No. 0.22-11.

C. Factory Test:
   1. All system components shall be factory-wired and tested as a system prior to shipment. Testing shall be designed to verify system operation and shall include as a minimum:
      a. Verification of drawings and bill of materials versus the constructed equipment.
      b. Verification of electrical ratings from the one lines and specifications versus the equipment.
      c. Energize the MCC and test the operation of each motor controller and associated hard wired connections and programmed logic.
      d. Verify voltage output of each control transformer and DC power supply within the MCC.
      e. Test of each network interface
      f. Verify logic functionality, as described herein, of programmed devices internal to the MCC.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:
   1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (☐) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons

for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Elementary connection and interconnection diagrams as required in paragraph 2.07, in accordance with NFPA 79 and/or NEMA ICS 18 Part 1 standards.
5. List of starters and feeder tap compartments indicating the size and type of circuit protection.
6. Network diagrams, network bill of material data for network components and cabling.
7. Kirk Key interlocking operation
8. DC Power supply load calculations.
9. Time current curves for all protection devices.
10. Interrupting, withstand, and continuous current rating of:
    a. Bus bars
    b. Feeder tap units
    c. Starter units
    d. Main incoming units
11. Nameplate schedule.
12. Dimensioned drawings showing conduit access locations.
13. Weights
14. Front view elevation with starter and component schedule.
15. Installation instructions.
16. Factory test plan
17. Factory test results
18. Field test plan
19. Field test results
20. Operation and maintenance information as specified in Section 01 78 23. Electronic program file, in native and PDF format, with comments for each motor starter overload. Draft configuration provided prior to equipment startup for review. Final configuration of software provided after equipment commissioning for inclusion in operation and maintenance manual.
21. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
22. Final As-Builts. Maintain stick set of MCC, elementaries, interconnections, one-lines, network diagrams, and elevations and provide final red-lines upon project completion.

23. Host IP address, subnet mask, and default gateway allocation listing for each Ethernet connected device within the MCCs.

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA:

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

1.05 PROJECT OR SITE CONDITIONS

A. Environmental Requirements: The equipment shall be sized and de-rated in accordance with the manufacturer's guidelines for the project altitude, temperature, and other conditions specified in Section 01 11 80.

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. Manufacturers equipment to match existing installation base. MCCs shall be as manufactured by:
   1. Eaton Cutler-Hammer Freedom Arc Resistant
   2. Schneider Electric Arc Resistant Model 6
   3. Approved Equal

2.02 SERVICE

A. MCCs shall be rated 480 volts, 60 Hertz, 3 phase, 3 wire, and short circuit withstand rating of 65,000A rms symmetrical unless specified otherwise on the drawings.

B. MCCs shall be rated for arc resistance with a minimum arc duration rating of 50ms@480V and 600V.

C. MCCs rated for arc resistance shall have a Type 2 accessibility rating as defined in CSA standard 22.2 No. 0.22-11 and IEEE guideline C37.20.7.

2.03 STRUCTURE AND CONSTRUCTION

A. Structure:
   1. MCCs shall be made of No. 12 gage steel minimum and, unless otherwise shown, each section shall be 90 inches high by 20 inches wide by 21 inches deep. The individual unit compartments shall be a minimum of 12 inches high.
   2. Each section shall have 72 inches for stacking starter units into the sections.
   3. Constructed and arranged in a Main-Tie-Tie-Main configuration for dual feeds from process area switchgear, where identified on drawings. For Main-Tie-Tie-Main MCC configurations, the MCC Main and Tie circuit breakers will be key interlocked within the MCC.

4. Enhanced door hinges and door latches designed to contain arc blast energy and prevent doors from opening during an arc flash event. Doors shall be gasketed.
5. A full height vertical wireway, 4-inch wide minimum, and not less than 35 square inches in cross section, shall be provided for each vertical MCC section. The wireway shall contain full height removable doors. Horizontal wireways shall be provided top and bottom, extending the length of MCCs. Wire ways shall be gasketed.
6. Bottom channel sills shall be mounted front and rear of the vertical sections extending the full length of the MCC lineup. A removable lifting angle shall be mounted on top and shall extend the width of the MCC lineup.
7. Containing isolation barriers between each structure to aid in the containment of arc blast energy and prevention of prorogation of the event to subsequent structures in the lineup.
8. A four-inch vertical section on the left and right end of each MCC lineup to increase the structural integrity of the MCC so that it can withstand arc blast energy.
9. Arc resistant shall not require an exhaust plenum, roof flaps, or similar venting device/assembly on top of the MCC to vent the arc blast energy and gases generated during an arc flash event.

B. Construction:
1. MCCs located indoors shall have NEMA 1 gasketed enclosures.
2. MCC 0290001A/B main incoming sections and main breakers/lugs shall each accommodate bottom entry of 4-4” conduit and 3 parallel runs 3#750 kcmil XHHW-2 Cu conductors.
3. Starter units, size 5 and smaller, and feeder tap units 400 amperes and smaller shall be drawout plug-in construction with hardened, tin-plated copper alloy stabs, steel spring backups. The door shall have interference tabs which prevent door closure if unit is improperly installed.
4. Units shall be latched in the position to assure proper bus contact. The unit disconnect device shall be interlocked to prevent removal or reinsertion of a unit when the disconnect is in the "ON" or "TRIPPED" positions.
5. Circuit breaker disconnect operators shall be capable of accommodating three padlocks for locking in the "OPEN" position. Handle mechanism shall be a vertical motion device with four positions: ON, OFF, TRIPPED and RESET. Securely mounted to the front of the unit and mechanically connected to the breaker. Handle provides a positive indication of the breaker or switch position, even with the door open.
6. Hardware for mounting future starter and feeder tap units shall be provided at compartments specified as "FUTURE."
7. Key Interlocks: Provide Kirk Key interlocks to provide interlocking between the main and tie breakers as noted on the drawings. Locks to be mounted on panel doors and wired to lock out breakers.
   a. Provide key interlocks for the dual tie circuit breakers and the incoming main breakers that will be configured to allow only the following circuit breaker closure configurations:
      - Only three of the four circuit breakers allowed closed at any given time

2.04 FINISH AND COLOR

A. The finish and color shall be in accordance with Section 26 05 00.

2.05 BUS

A. General:
   1. Bus shall be tin-plated copper with bolted connections between vertical and horizontal bus bars. Access for tightening these connections shall be from the front, without the need for tools on the rear of the connection. Insulated horizontal and vertical bus barriers shall be provided. Barriers shall be fabricated from high-strength, glass-filled polyester resin.
   2. The bus shall be braced to withstand a fault current of 65,000 amperes, RMS, symmetrical.
   3. Vertical and horizontal bus shall be completely insulated.

B. Horizontal Bus:
   1. Unless otherwise specified or shown, the main horizontal bus shall be rated a minimum 1200 amperes continuous.

C. Vertical Bus:
   1. Unless otherwise specified or shown, the vertical bus shall be rated a minimum 600 amperes continuous.

D. Ground Bus:
   1. A 1/4-inch by 2-inch ground bus shall be provided the full length of the MCC. Ground bus shall be located at the bottom of the MCC. Provide a lug to terminate a bare 4/0 AWG copper ground conductors at each end of the ground bus.

2.06 WIRING

A. General:
   1. MCCs shall be provided with NEMA ICS 18 Class II, Type B wiring. All starter units shall have pull apart terminal blocks for control wiring. Terminal blocks shall be provided for power wiring for starters size 2 and smaller.
   2. MCCs shall be factory wired, provided with all necessary interconnecting wiring and interlocking. When an MCC control section is specified on the drawings or schedules, wire directly to the relays or programmable controller's input/output modules as part of the factory interconnecting wiring.
   3. Provide elementary and connection diagrams for each starter unit; network diagrams indicating all cable connections and host IP address, subnet mask, and default gateway allocation; and an interconnection diagram for the entire MCC.

B. Power Wire:
   1. Power wire shall be copper 90 degrees C insulated, sized to suit load; minimum power wire size shall be No. 12 AWG copper stranded.

C. Control Wire:
   1. Control wire shall be No. 16 AWG stranded copper wire, rated 90 degrees C machine tool wiring (MTW) and UL listed for panel wiring. Internal wires shall be numbered, and the number shall be on the manufacturer wiring diagrams.

D. Terminations and Cable Connections:

1. Terminals:
   a. Control terminals: Finger safe screw cage clamp for 16-12 awg bare copper wire. Electrolytic copper, tin-plated, 600V and 30A.
2. Cable Connectors:
   a. Cable connectors for use with stranded copper wire, sizes No. 8 AWG to 1000 kCmil shall be UL listed. Dished conical washers shall be used for each bolted connection. Connectors shall be reusable and shall be rated for use with copper conductors. Incoming line and outgoing feeder compartments shall be provided with crimp type lugs, 3M Company, Burndy Company, or equal.

E. Conductor Markers: Markers used for identification shall meet the requirements of Section 26 05 00.

2.07 MAIN, TIE AND FEEDER CIRCUIT PROTECTION

A. General:
1. Main, tie and feeder tap units shall consist of circuit breakers, as specified or shown on the drawings. Series ratings for overcurrent devices to meet specified short circuit withstand ratings is prohibited. Main and tie breaker shall be 100% rated, with frame size, solid state trip unit, rating plug, and the fully adjustable (dynamic) trip functions including: Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay. Minimum short circuit capacity shall be 65,000 amps symmetrical.
2. Feeder breakers feeding downstream distribution equipment including panelboards, switchboards, and MCCs, and all breakers 250A and greater shall include a solid state trip unit, rating plug, and fully coordinate with the main breaker. The fully adjustable (dynamic) trip functions shall include: Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay.
3. Digitrip RMS 310+ or equal.

B. Circuit Breakers (Thermal Magnetic):
1. Thermal-magnetic circuit breakers shall be molded case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

C. Circuit Breakers (Magnetic Only):
1. Magnetic circuit breakers shall be molded-case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

2.08 MOTOR STARTER UNITS

A. General:

1. Motor starter units shall be combination type with contactor and thermal magnetic circuit breaker, or motor circuit protector, and solid-state overload unit as indicated on the drawings or specified in the MCC schedule. The starter units shall have a minimum combination UL listing of 65,000 amperes RMS symmetrical or as indicated or specified in the schedule.
2. For reversing motors, controls internal to the motor starter or overload, shall inhibit direction change while the motor is turning. When selecting to go from a Forward to Reverse motion, or the other direction, the motor shall be commanded to come to a complete stop prior to starting in the opposite direction.

B. Motor Circuit Protectors:
1. The molded case motor circuit protector (MCP) shall operate on the magnetic principle with a current sensing coil in each of the three poles to provide an instantaneous trip for short circuit protection. The trip setting shall be adjustable from 700 to 1300 percent of the motor full load amperes from the front of the MCP. The motor circuit protector shall be set at its lowest position at the factory.

C. Control Power Supply:
1. Each control power supply shall be rated 480 input and 24VDC output. The control power supply shall be sized for the load it feeds but shall not be less than the minimum ratings as follows:

NEMA starter size	Minimum power supply watt rating
1	120
2	120
3	240
4	240

2. Each control power supply shall be provided with a fuse on the output. A fuse shall be provided on each input conductor (three or two) and the fuses shall be rated to interrupt 200,000 amperes at 600 volts.
3. Fuse holder for secondary fuse shall be drawout indicating type and mounted on the door of the compartment. Fuse holders for primary fuses shall be fuse clips with full barriers between fuses.
4. Power supplies shall be Eaton PSG series or approved equal.

D. Control Power transformer (CPT):
1. Where a space heater is specified inside a motor, provide a CPT with a minimum size that is 125% of the heater load. Provide heater control in the starter unit to turn off the space heater when the motor controller is energizing the motor and turn on the heater when the motor controller is not energizing the motor.

E. Contactors:
1. Unless otherwise specified or shown, contactors shall be full voltage, 3-pole, 600 volt AC, NEMA Size-1 minimum. Contacts shall be double break, silver-cadmium oxide, and weld resistant. Contacts shall be isolated to prevent arcing. Coils and magnets shall be capable of being removed or replaced without special tools. IEC contactors are prohibited.

2. Reversing, multispeed, and reduced voltage starters shall have additional contactors, overload relays, and auxiliary relays as required, and shall have mechanically interlocked contactor coils to prevent simultaneous engagement.

F. Auxiliary Contacts:

1. Contactors shall be equipped with auxiliary contacts, rated 10 amperes at 120 volts AC. Refer to drawings for actual quantities required. As a minimum, each contactor shall be equipped with two normally open and two normally closed electrically isolated auxiliary contacts with the used and auxiliary contacts wired out to terminal blocks.

G. Surge Suppressor:

1. A surge suppressor shall be provided for all coils in each starter unit. Suppressor shall be encapsulated in a small module suitable for mounting directly to the coil. Size 3 or larger starters shall include an interposing relay to electrically isolate the starter coil from the I/O module output.
2. A surge suppressor shall be at the terminal strip on conductors that control solenoid valves or other inductive loads.

H. Terminal Blocks:

1. Terminal blocks shall be screw cage type rated 600 volts; minimum rating 30 amperes for control wiring and 60 amperes power wiring. Starters Size 3 and larger shall terminate the power leads directly to the contactor.
2. Control terminals pull apart for 16 awg to 12 awg stranded conductors.
3. The minimum number of terminals shall be as specified on the drawings. Terminal blocks shall be provided with integral marking strips and shall be permanently marked with the internal conductor number as depicted on the manufacturer wiring diagrams. Internal wiring shall be connected on one side of the terminal block; outgoing conductors shall be connected to the other side.

I. Programmable Motor Overload Relay:

1. Motor starters shall include a programmable electronic overload relay with configurable internal logic. Logic will allow for field input faults, with configurable time delay and latching logic. Overload relays shall monitor all three phases individually for incoming voltage, motor current and frequency. Provide modules cables and power supplies and other appurtenances required to measure voltage and current, provide the programmable control, provide human interface, provide discrete inputs and outputs, and provide the network interfaces specified on the drawings and in the specifications.
2. Overload relay current range to be sized by Contractor to match the equipment. Settings to be adjusted in accordance with NEC, the full load amps of the equipment, and the manufacturer's instructions.
3. Overload relays shall support protective functions with adjustable settings. The functions can be enabled or disabled. The overload shall support the following protective functions at a minimum:
   a. Thermal Overload
   b. Overload time delay with a range of Class 5 to Class 40
   c. Instantaneous Overcurrent

d. Undercurrent
e. Jam
f. Stall
g. Phase current unbalance
h. Phase loss
i. High and low voltage
j. Voltage imbalance
k. Phase voltage reversal
l. Voltage loss
m. Ground fault

4. Programmable with 8,000 word minimum memory. USB connection on the operator interface for programming (with the door shut). Provide cables and software for modifying, uploading, and downloading programs from a laptop computer.
5. The overload and expansion modules shall have discrete inputs and outputs. The data from inputs shall be communicated through Modbus TCP Ethernet communications. Module outputs shall be controlled through internal logic with status monitored through the user interface and onboard communications. Additional inputs and outputs shall be available by adding modules. A minimum of 12 inputs and 12 outputs shall be provided at each motor starter.
   a. Inputs 24VDC
   b. Outputs dry contact rated 5A at 250VAC and 5A at 30 VDC. At least one output single pole double throw.
   c. Control programming shall, to the greatest extent possible, be the same programming for all motors. Programming shall include the following configuration:
   d. Local MCC control via user interface:
      1) Start / Stop (regardless of field HOA position)
   e. Remote hardwired Hand control via local control station near motor:
      1) HOA in Hand – (when motor is non-reversing) motor runs in forward motion continuously.
      2) HOA in Hand and F/R in Forward – (when motor is reversing) motor runs in forward motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      3) HOA in Hand and F/R in Reverse – (when motor is reversing) motor runs in reverse motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      4) Off – motor does not run.
      5) HOA in Auto – Network control via Modbus TCP Ethernet communications. (PLC/SCADA control)
      6) All faults will be configured and available. Faults will be based upon digital inputs listed herein, and internally determined fault conditions. All faults based upon field inputs shall be active, as shown on Drawings.

7) All status will be configured and available. Status will be based upon digital inputs listed herein, and points available through internal monitoring.

f. Program the inputs and outputs as specified herein and shown on the drawings.

g. The following field inputs shall be configured as faults within the internal logic, with no need for additional relay or external timing devices:

1) Motor temperature high (no delay on)
2) Motor moisture high (no delay on)
3) Seal water flow switch low (timed delay on @ 5 secs initial value) to allow flow prior to motor start)
4) Discharge pressure high (timed delay on @ 1.0 secs initial value)
5) Suction pressure low (timed delay on @ 1.5 secs initial value)
6) E-stop (no delay on)
7) Pump stator temperature high (no delay on)

h. The following status inputs shall be provided, as a minimum:

1) HOA hand / run forward status
2) HOA hand / run reverse status (reversing motor)
3) HOA auto status
4) Ready status (Control power monitoring)
5) Remote call to run (external control)

i. The following relay type outputs shall be provided, as a minimum:

1) Forward starter coil
2) Reverse starter coil (for reversing motors)
3) Seal water solenoid valve with a reverse-current protection diode (for seal water required applications – see Drawings)
4) Run status pilot light (at motor local control station)
5) Fault status pilot light (at motor local control station)

6. Door mounted user interface with the following features incorporated:

a. USB or RJ-45 port for programming
b. Start, Stop, and Auto buttons.
c. Reset button
d. Navigation buttons
e. Status lights.
f. Three rows of text.
g. Display of voltage phase to ground and phase to phase, current for each phase, power, power factor, and other system data
h. Display of fault notification and diagnostic information

7. Overload Relay shall support native Modbus TCP (Ethernet) communications for remote monitoring and control. I/O communications local to the bucket shall be Modbus, Modbus 485, or Modbus TCP.
8. Automatic, network, electronic, and manual reset functions shall be supported.
9. The overload shall provide the following diagnostic and operational information via Ethernet at a minimum:

a. Error and trip information

b. Ground fault, L1, L2, L3 and three-phase average currents
c. L1-L2, L2-L3, L1-L3 and three-phase average voltages
d. Voltage and current unbalance
e. Power factor
f. Power
g. Fault history (last four faults)
h. Run timer value

10. Manufacturer:
    a. Eaton C445
    b. Schneider Electric TeSys T
    c. Or approved equal.

J. Ethernet: ~~All motor control centers shall be factory wired and configured with Ethernet communications.~~ The Ethernet communications network shall include overload relays, power meters, and network switches. See the drawings ~~and schedules~~ for more information about number of connections and configuration.

2.09 ETHERNET COMMUNICATIONS CABLING SYSTEM

A. Cabling System:

~~1. The MCC shall include a pre-engineered communication cabling system to connect motor overload units and VFDs within the MCC.~~

1. Contractor to provide, install, and terminate Ethernet communications cabling between network capable devices, individual motor control center buckets to the internally mounted network switches. Where existing MCCs are modified by the project, the Contractor shall provide, install, and terminate new network cable routed from the existing or new MCC buckets to the new internally mounted network switches.
2. Appropriate terminators and grounding shall be provided. Cable terminators to include integral ground for shielding.
3. Ethernet cable shall be shielded CAT6 UL 600V rated with a yellow outer insulation jacket color.
4. Ethernet cable through the MCC section shall be routed in so that they are protected from mechanical damage. Cable management shall be provided in vertical wireways to group network cables and maximize distance from power cabling.
5. Ethernet switches within the MCC shall be wired in a Resilient Ethernet Protocol ring topology, with the switches supporting a star configuration to the MCC bucket devices. ~~Manufacturer~~ Contractor to provide cabling between shipping splits. Contractor to provide and route cabling from the two outermost switches to the PLC panel completing the ring, as shown on the Drawings.

B. Ethernet Equipment:

1. Provide one managed Ethernet switch for every shipping split or as shown on drawings. There shall be a maximum of three vertical sections per shipping split.
2. The switches shall be powered with 24VDC powered by 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules.

3. Locate Ethernet switch and power supply within a dedicated MCC bucket, located at the top most space within the vertical section.
4. Provide spare ports sufficient to support spare MCC buckets within shipping split for future equipment per switch. Provide 1 spare port for programming access, per switch.
5. Alarm contact output rated at minimum 30VDC, 1A.
6. Manufacturer, Model: Cisco Catalyst IE 2000 series, to match existing. No substitutions.

2.10 ADJUSTABLE FREQUENCY DRIVES

A. Where used in the Contract AFD, ASD, VFD, VSD, shall be interchangeable terms to refer to adjustable frequency drives. AFDs mounted in MCCs shall comply with 26 29 23 and the following requirements.
   1. AFDs shall be coordinated with the driven equipment. Where required by distance or motor provided supply load reactors or motor termination kits.
   2. Provide variable or constant torque PWM type drives for motors as indicated on the Drawings. Include circuit breaker disconnecting means, 3-percent line reactors and cooling fans as required to dissipate the heat into the room.
   3. Provide ratings as indicated.
   4. Provide microprocessor Operator Interface Station (OIS)/Human Interface Module (HIM) mounted on the MCC bucket door, with associated communications cable.
   5. EMI/RFI shielding as required for products and wiring.
   6. Provide current limiting fuses for short circuit protection as required to meet SCCR listing of MCC.
   7. Provide factory technician for setup, startup services, and training.
   8. Provide Form C relays with 5-ampere contacts for interlocks as shown on drawings.
   9. Provide programmable relay outputs for status, and alarms, as shown on drawings.
   10. Provide isolated 4-20madc analog input for speed control.
   11. Provide isolated 4-20madc analog output for speed indication.
   12. Provide network communications, using facility standard communications protocol - Modbus TCP.
   13. Provide additional optional I/O modules, as shown on drawings.
   14. Configure drive to provide control with input from the following locations:
      a. MCC Bucket -
         1) Local mode – Manual start/stop and speed control at MCC through AFD HIM.
      b. Field Mounted Local Control Station
         1) AFD HIM in Remote mode
         2) Hand mode (Remote 1)
            a) Hand-Off-Auto (HOA) in the Hand position
            b) Manual start/stop and speed control – wired input
      c. SCADA -
         1) AFD HIM in Remote mode
         2) Auto mode (Remote 2)
         3) HOA in Auto position

4) PLC based automatic control – network input

15. Configure field inputs in accordance with 26 29 23.

2.11 MISCELLANEOUS

A. General:

1. Control devices such as pushbuttons, selector switches, indicating lights and overload reset pushbuttons shall be incorporated within the overload or variable frequency drive digital user interface, or HIM module, mounted on the unit compartment door.
2. The control devices shall comply with the requirements of Section 26 09 16.

B. Elapsed Time Indicator:

1. The elapsed time indicator shall be incorporated within the overload or variable frequency drive digital user interface or HIM module, mounted on the unit compartment door.

2.12 NAMEPLATES

A. Nameplates: In addition to the manufacturer's identification, nameplates shall be provided showing the motor control center, main breaker, and feeder breaker and other component designations as indicated on the Drawings.

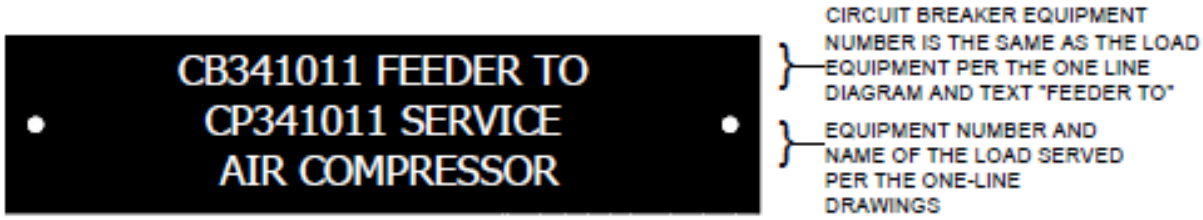
B. Nameplates shall be back engraved type and shall comply with Section 26 05 00 as modified in this Section.

C. Master nameplates shall be minimum 6 by 10 inches, four lines, 19 characters per line, 9/16-inch lettering.

D. Unit nameplates shall include the circuit breaker equipment number and the name of the equipment fed per the one line drawings. Main breakers shall include the breaker equipment number and the power source information shown on the one line Drawings. Other components in the motor control center indicated on the one lines shall have nameplates with the equipment numbers as a minimum and the full equipment name if shown. Nameplates shall be engraved per the typical examples shown below. See Section 26 05 00 for additional nameplate requirements.

TYPICAL FOR MASTER NAMEPLATE

TYPICAL NAME PLATE FOR MAIN CIRCUIT BREAKERS OR MAIN LUGS



TYPICAL NAME PLATE FOR FEEDER BREAKERS

2.13 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:
   1. High-energy parallel design for IEEE C62.41 and C62.45 category C
   2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses
   3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)
   4. Form C dry contacts
   5. UL 1449
   6. 5-year warranty

C. Surge Capacity: 160 kA minimum surge capacity per phase.

D. Unit Mounting: SPD shall be mounted in an MCC unit. The unit shall include:
   1. Circuit breaker. Overcurrent device shall be selected and sized by the SPD manufacturer. The overcurrent device may be a circuit breaker or a fuse, per the manufacturer's standard.
   2. Disconnect
   3. Display on the door.

E. Door mounted display with the following
   1. LCD screen with surge count
   2. Surge count reset button.
   3. LED for each phase indicating protection is functional
   4. LED for each phase indicating replacement is required
   5. Alarm with silence button

F. Eaton SPD Series or approved equal.

2.14 POWER METER.

A. Provide a power meter in accordance with Section 26 09 13 where specified or shown on the drawings.

B. Power meter shall be powered with 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules

2.15 SPARE PARTS

A. One set consisting of the following spare parts shall be provided:
   1. 1--set each fuse size and type
   2. 10--indicating light bulbs

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.
   2. Install MCC level and plumb. Pad height 3-1/2 inch. Installation per the manufacturer's installation instruction.

3.02 GENERAL

A. The MCCs shall be erected in accordance with the recommendations of the manufacturer and with the details specified herein.

B. Cables larger than No. 6 AWG which hang from their vertical connections shall be supported within 2 feet of the connection.

C. The solid-state overload relay settings shall be implemented by the Contractor with the settings selected based on the actual full load amperes of the motor connected to the starter and the requirements of the motor driven equipment. Refer to the manufacturer's literature for setting the overload relays.

D. The motor circuit protectors shall be adjusted by the Contractor to the lowest setting not causing false tripping.

E. The Contractor shall adjust the protection settings per the short circuit, coordination, and arc flash report, after obtaining approval by the Construction Manager.

F. Ethernet host IP addresses, subnet mask, and default gateway for each starter overload and starter input/output module shall be set by the Contractor. The Ethernet overload is commissioned with software configuration tools. Contractor to coordinate with Owner final IP address, subnet mask, and default gateway allocation.

3.03 TRAINING

A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.

1. Training Sessions:

   a. Procedures: Section 01 79 00.

   b. Provide a minimum of 12 hours of classroom training on the motor control center installations. Conduct two 2-hour training sessions for operators and one 8-hour training session for electricians. Assume that this training will be done on consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Record completion of training on the form in in Section 01 99 90.

3.04 FIELD TESTS

A. MCCs shall be tested in accordance with Section 26 08 00 and 01 45 23.

END OF SECTION

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SECTION 27 11 00

COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 GENERAL

1.01 DESCRIPTION

A. This section specifies requirements for the equipment and cable installations in communications equipment rooms, electrical rooms, and telecommunications closets.

B. Included in this section are material and installation requirements for communications racks and rack cable management.

C. Communications Equipment Rack Schedule:

1. The Communications Equipment Rack Schedule, in the Attachment at the end of this section, lists ~~Contractor~~ Owner provided network racks and cabinets required for the project along with specific requirements for each rack and cabinet. Specific requirements are also specified on the rack layout and wiring diagrams referenced in the Communications Equipment Rack Schedule.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).
3. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/TIA-568 Series	Commercial Building Telecommunications Cabling Standard
ANSI/TIA-569	Telecommunications Pathways and Spaces
ANSI/TIA-606	Administration Standard for the Telecommunications Infrastructure of Commerical Buildings
ANSI/TIA-607	Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
ASCE/SEI 7	Minimum Design Loads for Buildings and Other Structures
BICSI	Telecommunications Distribution Methods Manual

Reference	Title
EIA/ECA-310	Cabinets, Racks, Panels, and Associated Equipment
NFPA 70	National Electric Code

5. Additional references are listed in Section 26 05 00. They are a part of this section as specified and modified.

B. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the Contract Documents shall be subject to the control and approval of the Owner or Owner's Representative.

C. Contractor shall adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA), and Telecommunications Industry Association (TIA) recommended installation practices when installing communications/data cabling.

1.03 ENVIRONMENTAL CONDITIONS

A. Equipment provided under this section shall be suitable for operation under ambient conditions described in Section 26 05 00.

1.04 SUBMITTALS

A. General:
   1. Submittals and transmittal procedures for submittals are defined in Section 01 33 00. Submit in accordance with the procedures set forth in the General Conditions of the Contract Documents and Section 01 33 00 that include drawings, information and technical data for equipment and as required in Section 26 05 00.

B. Action Submittal Items:
   1. Package 1:
      a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements.
      b. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.
         1) The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.
         2) Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
      c. A copy of the Contract Document Instrumentation drawings relating to the submitted equipment, with addendum updates that apply to the equipment in

this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

2. Package 2:
   a. Marked manufacturer product literature for all equipment and components provided or selected for Owner to provide.
   b. List of miscellaneous items, cables, spare parts, that will be provided.
   ~~b.~~c. Bill of materials for network enclosure components which provides the Owner a comprehensive listing of parts to be purchased for installation by Contractor.
3. Package 3:
   a. Installation drawings for only the equipment, components, and mounting accessories to be provided.
   b. Shop drawings for communications equipment room fiittings, including plans, elevations, sections, details, and attachments to other work.
      1) Equipment assemblies shall be detailed to indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
      2) Include workspace requirements and access for cable connections for equipment racks and cabinets.
      3) Indicate location of Secondary Bonding Busbar and its mounting detail showing standoff insulators and wall mounting brackets.
      ~~3)~~4) Provide termination drawings indicating cable termination locations within the fiber optic or twisted pair patch panels.
   c. Seismic qualification certificates for equipment frames from manufacturer. Certificates shall include:
      1) Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
      2) Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions. Base certification on the maximum number of components capable of being mounted in each rack type. Identify components on which certification is based.
      3) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
   d. Contractor's certifications and calculations that the equipment meets the seismic requirements specified in Sections 01 33 00 and 01 73 24, and this Section.

C. Closeout Submittals:
   1. Package 4:
      a. Provide the following product data in accordance with Section 01 33 00:
         1) Final reviewed submittal, including revised as-built submittal drawings in AutoCAD and PDF format.
         2) Final as-built cable schedules in native, editable file (e.g., Microsoft Office Excel) and PDF format.

~~2)~~3) Final installation drawings with any modifications provided during installation

~~3)~~4) Manufacturer's operation and maintenance information, edited for this project, as specified in Section 26 05 00.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Equipment frames shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. The term "withstand" means that the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified.

B. Seismic anchoring and bracing: Sections 40 61 13 and 01 73 24.

2.02 TELECOMMUNICATIONS BACKBOARDS

A. Where specified on the Drawings, server room and telecommunications closet walls shall be covered with 3/4-inch A-C grade fire retardant plywood, painted with two coats of light-colored, non-conductive, fire retardant paint.

B. Plywood shall extend from the floor to 8 feet above the finished floor and shall be mounted with the "A" side exposed.

C. Power and telecommunications outlets and light switches shall be surface mounted on the plywood backboard.

2.03 EQUIPMENT FRAMES

A. General Requirements:

1. Racks:
   a. Freestanding and wall-mounted racks shall be modular-steel units designed for telecommunications equipment support and coordinated with dimensions of units to be supported. Racks shall assemble with nut and bolt hardware.
   b. Each rack shall have two L-shaped base angles and two equipment-mounting rails. Where specified on the Drawings, racks shall have two L-shaped top angles. The base angles shall be pre-punched for attachment to the floor.
   c. Modular dimension width shall be compatible with EIA/ECA-310 standard, 19-inch panel mounting. Equipment mounting rails shall be punched on the front and rear flange with square-punched holes. Equipment mounting rails shall have marked and numbered rack-mount spaces (U), with the numbering starting at the bottom of the rack.
   d. UL Listed.
   e. Racks shall be black in color.
   f. Finish shall be manufacturer's standard, baked-polyester powder coat.
   g. Racks shall be provide with cage nuts and all necessary equipment-mounting hardware.

B. Freestanding Two-Post Racks:

1. Rack frame shall be welded steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Equipment space: 44U or 45U.
3. Load capacity: 1000 pounds (full load capacity shall be included in seismic certification).
4. Rack dimensions: 84”x24”x15” (HxWxD).
5. Bonding and grounding:
   a. Rack components bonded through welds.
   b. Masked ground connection points at the top and base of the rack.
   c. Provide attachment hardware for bonding equipment mounting rails to rack.
   d. Ground terminal block that accepts a minimum of two ground connections for bonding to the Secondary Bonding Busbar.
6. Accessories:
   a. Vertical cabling sections: Provide double-sided, front and rear cable management pathways with latches to organize and secure cables. Cable managers shall have large pass-through ports to allow transitions between front and rear pathways.
   b. Cable management fingers: Provide cable management fingers kits that are easily installed to the front and rear rack frame and that extend the full height of the rack.
   c. Vertical power strip mounting hardware kit: Provide mounting hardware for securely attaching vertical power strips and power distribution units (PDUs) to the rack or the back of a vertical cabling section.
   d. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   e. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
7. Manufacturers:
   a. ~~Chatsworth Products, Inc. SeismicFrame~~ APC NetShelter 2 Two-Post Rack
   b. Or approved equal.

C. Freestanding Four-Post Rack Cabinets:

1. Rack frame shall be welded and bolted steel and seismic-tested and certified to meet Network Equipment Building Systems (NEBS) Zone 4 requirements. Rack shall have two pairs of adjustable depth equipment mounting rails.
2. Provide rack cabinet with top and side panels and front and rear doors. Doors shall be perforated, removable, and reversible to open from the right or left. Provide keyed locking mechanisms on front and rear doors.
3. Equipment space: 43U.
4. Load capacity: 1500 pounds with 100 pound top load (load capacity shall be included in seismic certification).
5. Rack cabinet dimensions: 84”x24”x52” (HxWxD).
6. Bonding and grounding:

a. Equipment mounting rails, top panel, side panels, and doors electrically bonded to cabinet frame.
b. Ground lug at the top and base of the cabinet frame.

7. Accessories:
   a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
   b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
   c. Vertical dual PDU mounting hardware kit: Provide mounting hardware for securely attaching two PDUs to the cabinet frame.
   d. Air dam and seal kits: Provide top, bottom, and side baffles to block airflow around the sides and top of the equipment mounting space so that cold air passes through equipment and hot air does not recirculate. Provide manufacturer recommended seal and rail grommet kits to improve air seal.
   e. Filler panels: Seal unused rack space with easy, tool-less install filler panels.
   f. Provide anchor kit, raised floor support kit, and/or other manufacturer recommended hardware for meeting seismic certification installation requirements based on the application.
8. Manufacturers:
   a. ~~Chatsworth Products~~APC (Schneider Electric), Inc. ~~Z4 Series SeismicFrame Cabinet System~~NetShelter VX Seismic 42U Enclosure w/Sides
   b. Or approved equal.

D. Wall-Mount Rack Cabinets:
1. Rack frame shall be steel with two pairs of adjustable depth equipment mounting rails and wall-mounting hardware.
2. Rack cabinet shall have a hinged center section that allows the section to swing out from the rear section, allowing access to the rear of the rack frame. Rack cabinet shall have a front door with keyed locking mechanism. Rear section shall be lockable independently from the front door.
3. Rack cabinet shall include 120 VAC, filtered fan assembly that maintains the NEMA rating of the rack cabinet enclosure and provides cooling to the equipment installed within.
4. Enclosure rating: NEMA 12K
5. Equipment space: 19U.
6. Load capacity: 250 pounds.
7. Rack cabinet dimensions: 36”x24”x24” (HxWxD). Rear section shall have 5-inch depth, minimum, for receiving conduits.
8. Bonding and grounding:
   a. Protective grounding studs and grounding jumper wires that electrically bond the enclosure doors to the enclosure frame.
   b. Main protective grounding stud located inside the rear section.
   c. Grounding kit.
9. Accessories:

a. Vertical cable managers: Provide front and rear cable management pathways with cable rings to organize and secure cables.
b. Cable lashing brackets: Provide cable lashing brackets that accept tie wraps to secure cables to the bracket.
c. Provide manufacturer recommended mounting hardware for the installation.
d. Provide five spare fan assembly filters.

10. Manufacturers:
    a. ~~Great Lakes Case & Cabinet NEMA 12K Series Wall Mount~~Tripp-Lite SmartRack 26U UPS-Depth Wall-Mount, with Clear Acrylic Window
    b. Or approved equal.

E. Horizontal Cable Management for Racks
1. Horizontal cable management kits shall be installed on 19-inch wide industry standard racks above or below patch panels and switches, where specified, to organize patch cables.
2. Kits shall be available in single-sided and double-sided configuration at heights of 1U, 2U, and 3U.
3. Kits shall include covers that can be opened from the top and bottom or removed altogether.
4. Kits shall include top and bottom cable guide fingers to separate and organize patch cords.
5. Depth:
    a. Single-sided: 5 inches.
    b. Double-sided: 12 inches.
6. Color: Black.
7. Manufacturers:
    a. ~~Chatsworth Products, Inc. Universal~~ APC, Inc. NetShelter Horizontal Cable Manageement~~r~~
    b. Or approved equal.

2.04 POWER DISTRIBUTION UNITS

A. PDUs for Freestanding Racks:
1. PDUs shall be vertical, rack-mount, switched type with ability to turn individual outlets on and off and configure sequenced power-on processes. PDU shall include functionality for continuous power monitoring of the PDU and each outlet. Additional requirements include:
    a. Power input shall be one of the following, as specified on the Drawings:
        1) 120 VAC, single-phase, 30 A.
        2) 208 VAC, three-phase, 50 A.
    b. Power cord: Integral cord, 10-foot length minimum.
    c. Circuit protection: UL 489 Listed, single-pole or two-pole, hydraulic-magnetic breakers.
    d. Outlet quantity: 24.
    e. Outlet type: Coordinate outlet type requirements with Owner.

f. Include power cord retention tethers to secure straight power cords at outlets.
g. UL Listed.
h. Local LCD display for viewing total voltage, current, and power on PDU. Display shall provide alarm notifications.
i. Operating temperature: 32 to 149 degrees F.
j. Operating relative humidity: 5 to 95 percent, non-condensing.
k. Color: Black.
l. Network power monitoring and external connections:
    1) One 10/100/1000 Mbps RJ-45 Ethernet port.
    2) Two RJ-45 ports for providing linking connection to additional PDUs.
    3) Two USB ports for firmware updates.
    4) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.
        a) Power monitoring shall be provided for the PDU and each outlet.
        b) Support monitoring of up to 16 PDUs via one Ethernet connection and IP address.
        c) Support configuration for a backup, secondary Ethernet connection through an alternate linked PDU.
    5) Data logging functionality for recording data, events, and alarms.
m. Grounding and bonding:
    1) Grounded input plug.
    2) External ground connection with threaded attachment point.
    3) Provide manufacturer recommended grounding kit and accessories.
n. Manufacturer:
    1) ~~Chatsworth Products, Inc. Switched Pro eConnect PDU~~APC, Inc, Rack PDU
    2) Or approved equal.

2. Unless otherwise specified, provide two PDUs per freestanding rack. One PDU shall be powered from the building “A” bus UPS system; the other PDU shall be powered from the building “B” bus UPS system.
3. Coordinate rack mounting hardware and installation with rack manufacturer.

B. PDUs for Wall-Mounted Rack Cabinets:
1. PDUs shall be horizontal, rack-mount, with an integral automatic transfer switch (ATS) designed to automatically switch between primary and secondary power inputs based on availability and quality of the primary power source. Additional requirements include:
    a. Rack size: Standard 19-inch, 1U space.
    b. Power input: 120 VAC, single-phase, 16 A.
    c. Provide integral circuit breaker.
    d. Power cords: 10-foot length minimum with two NEMA 5-20P plugs.
    e. Outlet quantity: 10.
    f. Outlet type: NEMA 5-20R.
    g. UL Listed.

h. Local LCD display for viewing voltage and current on PDU. Display shall provide indication of primary or secondary power source availability and active status as well as alarm notifications.

i. Test button to manually force transfer between primary and secondary power sources.

j. Operating temperature: 32 to 122 degrees F.

k. Operating relative humidity: 5 to 90 percent, non-condensing.

l. Color: Black.

m. Network power monitoring and external connections:

1) One 10/100 Mbps RJ-45 Ethernet port.

2) Integral web server for remote monitoring of voltage, current, power, power factor, and energy via the Ethernet interface using a web browser.

n. Grounding and bonding:

1) Grounded input plug.

2) Provide manufacturer recommended grounding kit and accessories.

o. Accessories:

1) Provide cable restraint system consisting of cable management tray, mounting brackets, and tie wraps.

p. Manufacturer:

1) ~~Eaton eATS ePDU~~APC, Inc Rack PDU

2) Or approved equal.

2. Unless otherwise specified, one PDU power input shall be powered from the building "A" bus UPS system; the other PDU power input shall be powered from the building "B" bus UPS system.

2.05 PATCH PANELS

A. Category 6A/Class E_A Patch Panels:

1. Unshielded Twisted Pair (UTP):

a. Category 6A UTP patch panels shall be flat, steel, 110-type, and component-rated. Patch panels shall meet or exceed component performance requirements for Cat 6A, Class E_A for 10GBASE-T. Patch panels shall include conductor retention feature to simplify termination and a rear cable management bar. Port label holders shall be windowed to accept printable inserts. Provide reversible card for T568A and T568B wiring schemes. Additional requirements include:

1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.

2) Ports: 24 (1U) or 48 (2U)

3) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.

4) Insertion loss: 0.45 dB or less at 500 MHz.

5) UL Listed.

6) Color: Black.

7) Manufacturer:

a) Leviton eXtreme

b) Or approved equal.

2. Shielded Twisted Pair (STP):
   a. Category 6A STP patch panels shall be flat, shielded, and fabricated to accept shielded Cat 6A connectors. Patch panels shall include a stainless steel plate (for grounding continuity between connectors and patch panel), star washers, and grounding lug. Additional requirements include:
      1) Rack size: 19-inch, 1U or 2U spaces, as specified on Drawings.
      2) Ports: 24 (1U) or 48 (2U)
      3) Connectors: See connectors paragraph in this Section.
      4) Color: Black.
      5) Manufacturer:
         a) Leviton Atlas-X1 Shielded Flat QuickPort Patch Panel
      6) Or approved equal.

B. Fiber-Optic Patch Panels:
   1. Patch panels shall be modular, steel, with front and rear hinged and removeable covers. Patch panels shall accept 3 adapter plates or fiber splice modules per rack unit of space. Rear fiber cable management rings shall be stackable and adjustable. Patch panel shall have a sliding tray that slides forward and backward to provide front and rear access to bulkheads. Additional requirements include:
      a. Rack size: 19-inch, 1U or 2U space, as specified on Drawings.
      b. Fiber Splice Modules:
         1) Fiber pigtail fusion splice modules shall be fully enclosed to protect and organize heat-shrink fusion spliced fibers. Modules shall be pre-loaded with 3-meter, color-coded pigtail assembly. Modules shall be provided by the same manufacturer as the fiber-optic patch panel.
         2) Single-mode (OS2):
            a) Fiber-count: 12, 24, or 48 fibers per cassette~~24~~.
            b) Adapters: Duplex LC or ~~/UPC~~ ~~q~~Quad LC.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Blue.
            e) Maximum insertion loss: 0.35 dB.
            f) Return loss: > 55 dB.
         3) Multi-mode (OM3):
            a) Fiber-count: ~~12~~12 or 24.
            b) Adapters: LC duplex.
            c) Connector ferrule and adapter sleeve material: Zirconia ceramic.
            d) Adapter color: Aqua.
            e) Maximum insertion loss: 0.4 dB.
            f) Return loss: > 25 dB.
         4) Manufacturer:
            a) OCC RTSXU Rack Mount Sliding assembly with Splice Cassette Assembly ~~Leviton SDX Fiber Splice Module~~
            b) Or approved equal.
      ~~c. Fiber Adapter Plates:~~

1) ~~Fiber adapter plates shall be modular and adapters and plate shall be integrated. Adapter plates shall be provided by the same manufacturer as the fiber-optic patch panel.~~
2) ~~Multi-mode (OM1):~~
   a) ~~Fiber count: 1224.~~
   b) ~~Adapters: LC duplex~~
   c) ~~Adapter sleeve material: Zirconia ceramic.~~
   d) ~~Plate color: Beige.~~
3) ~~Manufacturer:~~
   a) ~~Leviton SDX Fiber Adapter Plate~~
   b) ~~Or approved equal.~~

d. ~~Color: Black.~~

e. ~~Manufacturer:~~
   1) ~~Leviton Opt-X 1000i~~
   2) ~~Or approved equal.~~

2.06 CONNECTORS

A. Category 6A/Class E_A Connectors:
   1. UTP:
      a. Connectors shall be component-rated and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the UTP patch panels. Additional requirements include:
         1) Conductor accommodation: 26 to 22-gauge, solid or stranded.
         2) Connector body material: Die-cast zinc.
         3) Spring-wire contacts: Gold-plated copper-based alloy.
         4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.
         5) Operating temperature: 14 to 140 degrees F.
         6) UL Listed.
         7) Color: Per application, see table below.
         8) Manufacturer:
            a) Leviton Atlas-X1 Cat 6A Component-Rated UTP QuickPort Connector
            b) Or approved equal.
   2. STP:
      a. Connectors shall be shielded, component-rated, and have a die-cast housing and an internal shutter. Connectors shall meet or exceed component performance requirements of Cat 6A, Class E_A for 10GBASE-T. Wiring shall be universal and support T568A and T568B wiring schemes and shall not require a specialized termination tool. Connectors shall be available in multiple colors and be supplied

with interchangeable descriptive tabs. Connectors shall be provided by the same manufacturer as the STP patch panels. Additional requirements include:

1) Conductor accommodation: 26 to 22-gauge, solid or stranded.
2) Connector body material: Die-cast zinc.
3) Spring-wire contacts: Gold-plated copper-based alloy.
4) Power over Ethernet (PoE+) compliance: IEEE 802.3at/bt from 15.4 to 100 W.
5) Operating temperature: 14 to 140 degrees F.
6) UL Listed.
7) Color: Per application, see table below.
8) Manufacturer:
   a) Leviton Atlas-X1 Cat 6A Component-Rated Shielded QuickPort Connector
   b) Or approved equal.

3. Connector Color Code:
   a. Provide connector colors per table below:

Connected Device(s)	Connector Color
Wireless access points (WAPs)	Light almond
Cameras, door controllers, access control panels, and other site security equipment	Dark red
VOIP telephones, general staff office data jacks, printers and shared office equipment, and other business LAN equipment	White
SCADA workstation data jacks and Area PLC slot 06 communications modules	Orange
Area PLC slot 05 communications modules	Brown
PLC slot 03 communications modules	Blue
IT office and workshop data jacks (except for those dedicated to SCADA workstations)	Purple
Power monitoring meters, power quality meters, energy management system (EMS) workstations, protective relays, UPSs, ATSs, and other EMS equipment	Yellow
HVAC control panels	Green

2.07 WALLPLATES

A. Provide wallplates that are flush-mount, fit standard NEMA openings, and are compatible with the connectors specified in this Section. Wallplates and connectors shall be by the same manufacturer. Wallplates shall be provided with identification windows that accept machine-printed inserts at the top and bottom so that each data jack has an individual identification window associated with it. Additional requirements include:

1. Material: For architecturally finished areas, provide high-impact, fire-retardant plastic wallplates rated UL 94V-0. For all other areas (including electrical rooms), provide stainless steel wallplates.
2. UL Listed.
3. Color: For platic wallplates, coordinate with Owner for color preference. Screws shall be the same color as the wallplate.
4. Provide single-gang or dual-gang wallplates based on quantities specified on the Drawings and the following:
   a. Single-gang: 1 or 2 data jacks.
   b. Dual-gang: 3 or 4 data jacks.

5. Manufacturer:
    a. Leviton QuickPort Wallplates with ID Windows
    b. Or approved equal.

2.08 LADDER RACK, SUPPORTS, AND ACCESSORIES

A. General:
1. The Drawings specify general requirements for location, width, and means of ladder rack installation. Contractor shall provide a detailed design of the ladder rack installation, including all necessary supports, splices, kits, and accessories based on the equipment provided under Section 27.
2. Ladder rack system shall conform to Category 6A requirements.
3. Ladder rack system shall be UL Classified for suitability as an equipment grounding conductor.
4. Ladder rack system color: Black.
5. Manufacturer:
    a. APC, Inc. ~~Chatsworth Products, Inc. Universal~~ NetShelter Cable Runway
    b. Or approved equal.

B. Ladder Rack:
1. Provide tubular steel ladder rack with cross members welded at intervals of 12 or fewer inches.
2. Load capacity: 130 lb/ft, or greater, with support every 5 feet.

C. Horizontal and Vertical 90-Degree Bends:
1. Provide tubular steel ladder rack 90-degree bends with cross members welded at roughly 23-degree increments. Bends shall be designed for conformance with Category 6A cable minimum bend radius requirements.

D. Ladder Rack Splices, Kits, and Accessories:
1. Provide T-junction splice kits, rack and cabinet elevation kits, mounting plates, support brackets, end caps, and accessories required for a complete ladder rack system that complies with manufacturer installation requirements and recommended best practices.

2.09 GROUNDING

A. Secondary Bonding Busbar:
1. For each server room and telecommunications closet, provide a UL Listed, 2-inch wide, 1/4-inch thick, copper Secondary Bonding Busbar kit with 1-inch offset stainless steel mounting brackets and 1 1/2-inch insulators. Busbars shall meet BICSI and TIA-607 standards and include antioxidant joint compound, UL Listed compression lugs, nuts, washers, and all necessary components.

B. Rack Bonding Busbar:
1. For each rack and cabinet, provide a horizontal or vertical Rack Bonding Busbar attached to the equipment mounting rails. Busbars shall meets BICSI and TIA-607 standards.

PART 3 EXECUTION

3.01 COORDINATION

A. Seismic Anchorage and Bracing: Sections 26 05 00 and 01 73 24

~~3.01~~3.02 INSTALLATION

A. General:
   1. Comply with BICSI TDMM for layout and installation of communications equipment rooms.
   2. Coordinate layout and installation of communications equipment with the Contractor and Owner's Representative.

B. Cables:
   1. Comply with TIA/EIA-568-C.2 standards for Category cable installations.
   2. Comply with TIA/EIA-568-C.3 standards for fiber-optic cable installations.
   3. Separation from EMI Sources:
      a. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
      b. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 5 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 12 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 24 inches.
      c. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
         1) Electrical equipment rating less than 2 kVA: A miminum of 2-1/2 inches.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 6 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 12 inches.
      d. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
         1) Electrical equipment rating less than 2 kVA: No requirement.
         2) Electrical equipment rating between 2 and 5 kVA: A minimum of 3 inches.
         3) Electrical equipment rating more than 5 kVA: A minimum of 6 inches.
   4. Bundle, lace, and train conductors without exceeding manufacturer minimum bending radius requirements for all Category and fiber-optic cabling, but not less than radii specified in BICSI ITSIM. Use lacing bars and distribution spools, as necessary.
   5. Provide minimum of 10-foot slack loops in server rooms for incoming/outgoing Category and fiber-optic cable to accommodate future modifications to the server room equipment arrangement. Use an extended or figure-8 loop configuration to alleviate cable stress.

6. Provide minimum of 18 inches of slack above work area installations for re-terminations and to accommodate future moves, adds, and changes.
7. No more than 50 Category cables shall be bundled together to limit damage to cables on the bottom of the bundle.
8. Use appropriate tools and adhere to manufacturer recommendations and requirements for all terminations. Terminate all conductors and fibers; no cable shall contain unterminated elements.
9. Do not install bruised, kinked, scored, deformed, or abraded cable. Remove and discard cable if damaged during installation and replace it with new cable.

C. Racks and Cable Management:
1. Assemble racks and cable management according to manufacturer's instructions. Verify that equipment mounting rails are sized properly for rack-mount equipment before attaching the rack to the floor.
2. All freestanding racks must be attached to the floor in four places using appropriate floor mounting anchors. When placed over a raised floor, threaded rods shall pass through the raised floor tile and be secured in the structural floor below per manufacturer recommendations.
3. In seismic areas, the rack shall have additional bracing as required by building codes and the recommendations of a licensed structural engineer.
4. Racks and cabinets shall be grounded to the Secondary Bonding Busbar using appropriate hardware provided by the Contractor. The ground shall meet local code requirements and shall be approved by the AHJ.
   a. Connections to the Secondary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug.
   b. Connections from the Secondary Bonding Busbar to the racks/cabinets shall be made at the Rack Bonding Busbar via irreversible compression-type connections.
5. Rack and cabinet frames shall be independently bonded to the Rack Bonding Busbar via irreversible compression-type connections.
6. Ladder rack may be attached to the topo of the rack to deliver cables to the rack. The rack should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.
7. The equipment load should be evenly distributed and uniform on the rack. Place large and heavy equipment toward the bottom of the rack. Secure all equipment to the rack with equipment mounting screws.
8. Distribute cables in the cable management hardware symmetrically to feed into each patch panel from left and right.

D. Patch Panels:
1. All patch panels shall be installed in the racks as specified on the Contract Drawings.
2. Each patch panel shall be attached to the rack using the rack screws supplied with the panel.
3. All patch panels shall be installed level and plum within the racks.
4. For each shielded Category cable patch panel, bond the patch panel to the Rack Bonding Busbar via a #6 AWG Unit Bonding Conductor. Connections to the Rack Bonding Busbar shall be made with UL listed two-hole lugs.

E. Ladder Rack:

1. Provide all components of the ladder rack system (ladder rack, bends, splices, supports, and accessories) from a single manufacturer.
2. Ladder rack shall be installed with side stringers facing down so that the ladder forms an inverted U-shape and so that welds between the stringers and cross members face away from cables.
3. Ladder rack shall be secured to the structural ceiling, building truss system, wall, floor, and/or the tops of equipment racks and cabinets using the manufacturer's recommended supports and appropriate installation hardware and methods as defined by local code or the AHJ.
4. Ladder rack splices shall be made in mid-span, not over a support, with the manufacturer's recommended splice hardware.
5. Ladder rack shall be supported every 5 feet or less in accordance with TIA-569. Ladder rack shall be supported within 2 feet of very splice and within 2 feet on both/all sides of every intersection. Support ladder rack within 2 feet on both sides of every change in elevation. Support ladder rack every two feet when attached vertically to a wall.
6. Leave a minimum of 12 inches between ladder rack and ceiling/building truss structure. Leave a minimum of 3 inches between ladder rack and the tops of equipment racks and cabinets. Multiple tiers of ladder rack shall be installed with a minimum clearance of 12 inches between each tier of ladder rack. When located above an acoustical drop ceiling, leave a minimum of 3 inches clearance between the top of the drop ceiling tiles and the bottom of the ladder rack.
7. Install rubber finishing caps on any exposed metal end rail or potential sharp point.
8. When installed under a raised floor, ladder rack shall be installed with a minimum 3-inch clearance between the top of the ladder rack and the bottom of the floor tiles or floor system stringers, whichever is lower in elevation. Maintain 3-inch clearance between ladder racks wherever ladder racks cross.
9. Within each server room, ladder rack should be bonded together, electrically continuous, and bonded to the Secondary Bonding Busbar, unless otherwise noted in the specifications and Contract Documents. Ladder rack and bends shall be bonded across each splice with a bonding kit. Ladder rack shall be bonded to the Secondary Bonding Busbar using an approved ground lug on the ladder rack and a minimum #6 AWG grounding wire or as recommended by the AHJ. Remove paint from the ladder rack where bonding/ground lugs contact the ladder rack so that the lug will contact bare metal. Use antioxidant joint compound in between the bare metal on the ladder rack ad ground lug. Verify continuity through the bonds at splices and intersections between individual ladder rack sections and bends and through the bond to the Secondary Bonding Busbar.
10. The quantity of cables within the ladder rack will not exceed a whole number value equal to 25 percent of the interior area of the ladder rack divided by the cross-sectional area of the cable, leaving space for future additions up to 50 percent fill. The interior area of ladder rack will be considered to be the width of the ladder rack multiplied by a height of 2 inches, unless cable retaining posts are added to the ladder rack. The interior area of ladder rack equipped with cable retaining posts will be considered to be the width of the ladder rack multiplied by a height of 6 inches. Actual cable fill for ladder rack that is not equipped with cable retaining posts will not exceed 2 inches in height. Actual cable fill for ladder rack equipped with cable retaining posts will not exceed 6 inches in height.

11. The combined weight of cables within the ladder rack will not exceed the stated load capacity of the ladder rack as stated in the manufacturer's product literature or load/design tables.
12. Cables (cable bundles) will be secured to the cross members of ladder rack with 3/4-inch wide reusable straps. Single-use cable ties and ties or straps narrower than 3/4-inches are not allowed. Straps are not required when ladder rack is equipped with cable retaining posts.
13. Use a radius drop to guide cables wherever cable exits overhead ladder rack to access a rack, cabinet, or wall-mounted rack.
14. Whenever possible, maintain a 2-foot separation between ladder rack used for communication cables and pathways for other utilities or building services.
15. The installer will provide touch-up paint color-matched to the finish on the ladder rack and will correct any minor cosmetic damage (chips, small scratches, etc.) resulting from normal handling during the installation process prior to delivery to the Owner. If a component is cosmetically damaged to the extent that correction in the field is against manufacturer recommendations, the component shall be replaced with a new component. If a component is physically damaged due to mishandling or modification during the installation process, it shall not be used as part of the ladder rack system.

~~3.02~~3.03 GROUNDING AND BONDING

A. Install the telecommunication grounding system per TIA-607 and BICSI TDMM standards.

B. Locate Secondary Bonding Busbar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch clearance behind the grounding bus bar.

C. Bond metallic equipment to the Secondary Bonding Busbar using no smaller than #6 AWG equipment grounding conductors.

D. Each Secondary Bonding Busbar shall be bonded to the building Primary Bonding Busbar. Connections of the Secondary Bonding Busbar to the Primary Bonding Busbar shall be made with an appropriate-size, UL listed, two-hole crimp style lug and appropriate gauge cable.

~~3.03~~3.04 IDENTIFICATION

A. Identify system components, wiring, and cabling per TIA/EIA-606-C for Administration Class 3 and Section 26 05 00 requirements.

B. Color-code voice and data service backboards, connections, covers, and labels.

C. Cable Schedule: Install in a prominent location in each server room and telecommunications closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for the Project.

D. Equipment nameplates are in accordance with 40 67 00.

3.05 ATTACHMENTS

A. 27 11 00 – Attachment A: Communications Equipment Rack Schedule

1. Description of headings in Communications Equipment Rack Schedule.

Field or Heading	Example	Comment or Description
Item	1	Unique schedule row number reference.
Area	16	Area number reference associated with equipment tag. See tagging on instrument legend sheets.
Loop Number	0011	Loop number reference associated with equipment tag. See tagging on instrument legend sheets.
Tag	NCE160011	Unique equipment tag. See tagging on instrument legend sheets.
Nameplate First Line	AREA 16	Text to engrave on first line of nameplate.
Nameplate Second Line	NETWORK CABINET	Text to engrave on second line of nameplate. None, if blank.
Nameplate Third Line		Text to engrave on third line of nameplate. None, if blank.
Nameplate Fourth Line		Text to engrave on fourth line of nameplate. None, if blank.
Rack Drawing(s)	I-00-6511	Reference to the typical rack layout and wiring diagram(s) that are relevant to the equipment.
Location Drawing		Reference to electrical plan drawing where equipment location is specified.
Application Notes		Optional, as required for clarification.

END OF SECTION

Communications Equipment Rack Schedule

Item	Area	Loop Number	Tag	Nameplate First Line	Nameplate Second Line	Nameplate Third Line	Nameplate Fourth Line	Rack Drawing(s)	Location Drawing	Network Diagram	Application Notes
	02	0011	NCE020011	NCE020011	AREA 02	ELECTRICAL ROOM	NETWORK CABINET	I-00-6511	E-02-1203	I-02-6101	
	21	0011	NCE210011	NCE210011	AREA 21	ELECTRICAL ROOM	NETWORK CABINET	I-00-6523	E-21-1201	I-21-6101	TO BE INSTALLED WITH RACK MOUNTED UPS (CCF 020)
	23	0011	NCE230011	NCE230011	AREA 23	ELECTRICAL ROOM	NETWORK CABINET	I-00-6511	E-23-1101	I-23-6102	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 034
Date: 10/11/2021
Description: Per Control Change Form #027: Cost for labor, equipment and material to add suspended electrical panel slab.

Skyline Electric (see attached back-up):	$0.00
Rocky Mountain Rebar (see attached back-up):	$2,282.95
Concrete Pumping (see attached back-up):	$375.00
Mark-up (5%):	$132.90
Gerber Labor, Equipment & Materials (see attached):	$10,412.11
Onsite Coordination & Management (see attached back-up):	$596.79
Bonds:	$140.51
Mark-up (15%):	$1,672.41
Total:	**$15,612.67**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $15,612.67 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-034 Anaerobic Suspended Slab For Electrical Panel-CC#027	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-034	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:	800 Central Valley Road, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Anaerobic Basin - Suspended Slab For Electrical Panel Including Equipment Pad	**1.00**	**LS**	**$13,666.85**	**$13,666.85**	**$15,612.67**	**$15,612.67**	**13.07%**
Gerber - Suspended Concrete Slab + Electrical Panel Pad	6.00	CY	$1,109.18	$6,655.10			
Concrete, Pumping Sub	6.00	CY	$62.50	$375.00			
Concrete Crew, 04 Men (6.75 MH/CY, 1.50 DY)	6.00	CY	$716.61	$4,299.67			
02 Foreman	13.50	HR	$120.14	$1,621.83			
03 Leadman	13.50	HR	$102.81	$1,387.89			
04 Skilled Labor	13.50	HR	$87.96	$1,187.42			
Truck, Pickup, 1 Ton	0.07	MO	$1,481.25	$102.53			
Concrete, 4000 PSI Engineered	6.18	CY	$171.92	$1,062.48			
Edge Forms	40.00	SF	$5.36	$214.50			
Waterstop,	40.00	LF	$7.24	$289.58			
Form Oil, Unitex Q2	2.00	GAL	$8.04	$16.09			
Lumber, Doug Fir, 02x06x12'	14.00	EACH	$12.71	$177.93			
Plywood, 3/4", 4'x8' Sheet	2.00	EACH	$53.63	$107.25			
Anchor Bolt For Lumber Ledger Board .5"x08" W/2 Nuts	30.00	EACH	$3.75	$112.61			
Gerber - Handrail, Aluminum	32.00	LF	$129.13	$4,132.01			
Labor Crew, 2 Man (75.00 LF/DY, 0.43 DY)	32.00	LF	$23.80	$761.70			
03 Leadman	3.84	HR	$102.81	$394.78			
04 Skilled Labor	3.84	HR	$87.96	$337.76			
Truck, Pickup, 1 Ton	0.02	MO	$1,481.25	$29.16			
Handrail, Aluminum, 3 Rail, Modular	32.00	LF	$82.58	$2,642.64			
Threaded Rod 316 SS, .5" X 06" W/ 2 Nuts & Washers	80.00	EACH	$4.02	$321.75			
Epoxy, Hilti, HIT Re 500 SD 16.9 OZ	6.00	EACH	$34.32	$205.92			
Shipping	1.00	LS	$200.00	$200.00			
Electrical Sub (No Cost)	1.00	LS	$0.00	$0.00			
Rebar - Sub	1.00	LS	$2,282.95	$2,282.95			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - Anaerobic Basin - Suspended Slab For Electrical Panel Including Equipment Pad continued)							
Gerber Management	1.00	LS	$596.79	$596.79			
17 Project Manager	1.00	HR	$176.15	$176.15			
19 Project Engineer	1.00	HR	$116.26	$116.26			
01 Superintendent	2.00	HR	$152.19	$304.38			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$5,526.46	40.44%
Equipment Owned:	$131.70	0.96%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,150.74	37.69%
Subcontracted:	$2,657.95	19.45%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$200.00	1.46%
Plug:	$0.00	0.00%
Direct Cost:	$13,666.85	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$13,666.85	87.54%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$140.51	0.90%
Total Overall Cost:	$13,807.36	88.44%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,805.31	11.56%
Total Margin:	$1,805.31	11.56%
Total Bid Price:	$15,612.67	

Shay Clark

From: James Bolander <James.Bolander@skyline.us>
Sent: Thursday, August 19, 2021 3:51 PM
To: Shay Clark
Cc: Brad Wilding
Subject: BNR - CCF027 No Cost Change for Suspended Slab

Shay,

I spoke with Brad and CCF027 is a no cost change for Skyline.

James Bolander
Project Engineer
1848 W 2300 S | West Valley City, UT 84119
c: 801.231.2809 | **t:** 801-972-3656
e: **james.bolander@skyline.us** | http://skyline.us
https://www.facebook.com/SkylineElectricCompany

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	8
JOB NAME:	CVWRF
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	May 7, 2021
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Added suspended slab in the Anarobic Basin at the electrical void per RFI 95

Total Cost $ 2,282.95

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.075	0.075	$ 115.49	$ 8.66
Project Manager	1	1.675	1.675	$ 76.56	$ 128.24
Detailer Straight Time	1	2.5	2.5	$ 57.24	$ 143.10
Detailer OT Premium	1	0	0	$ 21.19	$ -
Rebar Foreman Straight Time	1	2	2	$ 62.45	$ 124.90
Rebar Foreman OT Premium	1	0	0	$ 37.11	$ -
Rebar Journeyman Straight Time	2	2	4	$ 49.72	$ 198.88
Rebar Journeyman OT Premium	2	0	0	$ 29.47	$ -
				Sub Total	$ 603.78
				PD & Lodging	$ -
				Labor Total	$ 603.78

Materials

Description	Quantity	Unit Cost	Total
Rebar & Formsavers	1	$ 1,353.00	$ 1,353.00
		Material Total	$ 1,353.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 28.39	$ 28.39
		Total	$ 28.39

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 603.78
Material Total	$ 1,353.00
TE&C Total	$ 28.39
Delivery	$ -
Total Cost	$ 1,985.17
OH&P	$ 297.78

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	2,282.95
Credit Total	$	-
Grand Total	**$**	**2,282.95**

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

Purchase Orders MUST be addressed to:
Dant Clayton Corporation
1500 Bernheim Ln
Louisville, KY 40210

Gerber Const

TDC:	46796R CO4
DATE:	10.07.21
F.O.B.:	Louisville, KY
ALLOWED FREIGHT:	Job Site
ADDEN. REV'D:	NA
JOB:	CVWRF BNR Basins CC#30B
CITY:	Salt Lake City, UT

TUTTLE A Dant Clayton Division, is pleased to offer a handrail quotation for the above referenced project.
(**Per CC#30B - Addition of 32 LF rail @ Elect. Platform, & 5'-0" remov. rail mod.)**

TDC 8000 Friction Fit Sub-Assembled: 32 LF **$2,469**

Description: 4 Line Rail Mechanical Systems with 32 LF of F-type Kick Plate.
Materials: 1-1/2" Sch. 40 Rails and 1 1/2" Sch 80 Posts.
Finish: Arch. Class 1 Clear Anodized Finish, .7 Mil (M10C22A41).
Fasteners: ½" x 4-1/2" T304 Epoxy Anchors.
Mounts: TDC Standard Cast Bases.
Wall/Assist Brackets: N/A
Sub Assembled Rail: Will be shipped as fabricated posts. Hardware and stock lengths of pipe for cutting and assembly by others.

Terms: NET 30 days (Subject to credit approval). No retention.

Freight: Our quotation includes NO ADDITIONAL freight allowance for ( ) shipment to the job site in Salt Lake City, UT. Additional shipments, ***including partial shipments,*** will be made at your request, quoted, and a change order received prior to shipping.

Accepted: _____

Date: 10/8/2021

TUTTLE A Dant Clayton Division
Kelly Jo McAbee
email: kmcabee@tuttlerailings.com

This quote is only Valid within 14 Days from quoted date above, Contact the sales person above if beyond that date.

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

CLARIFICATIONS

Location: Salt Lake City, UT **TDC Quote:** 46796R CO4

Structures and Sheets	Toe Bd. Footage	Handrail Footage	Comments
Elect. Platform	32	32	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	
0	0	0	

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

TUTTLE
A DANT CLAYTON DIVISION
tuttlehandrailings.com

TERMS OF SALE

1.) A Purchase Order shall not result in a contract until acknowledged by Seller, which acceptance shall be subject only to the terms contained herein, or stated in acknowledgement, and Buyer hereby agrees to the terms contained herein.

2.) Prices quoted do not include freight or loading charges unless specifically stated otherwise. All prices are subject to increase in the cost of materials, parts or supplies and/or general wage increase, unless specifically stated otherwise. Unless otherwise stated, field measuring or installation are not included in this quotation.

3.) F.O.B. Point: Unless otherwise specifically stated, all orders will be F.O.B. FACTORY, Fishers, IN.

4.) Seller shall not be liable for failures or delay in shipping if failure or delay is due to ace of GOD, War, labor difficulties, accident, inability to obtain containers, raw materials or supplies, delay of failure to furnish Seller with plans, shop drawings, or required approvals from third persons, or any other causes of any kind whatever beyond Sellers control.

5.) Goods described herein shall be free of substantial defects in material and workmanship under normal use and service for a period of one (1) year from the date of Seller's shipment. EXCEPT for the foregoing, **SELLER MAKES NO WARRANTY EXPRESS OR IMPLIED, AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE FOREGOING WARRNTY IS HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM ANY AGREEMENT MADE BY ACCEPTANCE OF AN ORDER PURSUANT TO THIS QUOTATION.** Buyer's exclusive remedy for goods that do not conform to this contract shall be secure repair or replacement thereof. Seller shall not in any event be liable for consequential damages. Seller's maximum liability shall not in any case exceed the contract price for the goods claimed to be defective or unsuitable. In the event any material or components are covered by manufacturer's guarantee or warranty, Buyer's sole recourse shall be in accordance with such warranty which seller may assign to Buyer, and the provisions of the manufacturer's warranty or guarantee shall control with respect to such items.

6.) All technical advice, data, and recommendations supplied by Seller are furnished and intended only for use by persons who are responsible and possess the skills and knowledge to apply the information. Seller assumes no responsibility for the use of such information by Buyer, its employees, agents or subcontractors. Buyer shall assume all liability and expense which may arise out of the injury, sickness or deaths sustained by any individual or damage to, or destruction of, any property by reason of the use of equipment and materials furnished by Seller, and Buyer shall indemnify Seller and hold Seller harmless against and from any and all such claims, actions, damages and loss, including reasonable attorney's fees.

QUOTATION

TUTTLE
A DANT CLAYTON DIVISION
Fabricators of Non-Ferrous Metals

7.) If Seller is delayed in manufacture or shipment by causes beyond Seller's control or by the act or omission of Buyer, stated herein to compensate for costs to Seller because of such delay, and the time for delivering shall likewise be extended.

8.) Seller shall not be liable for any conflict between the goods described herein and the requirement of any law, code, ordinance, plans, specifications or other contract documents.

9.) Buyer hereby represents that he or she is solvent on the date for purchase. This sale is subject to approval of Buyer's credit. Seller may at any time decline to make any delivery except upon receipt of payment or security, or upon such terms and conditions as are satisfactory to Seller's credit department.

10.) Any contract of purchase resulting from this purchase shall be deemed to have entered into between the parties in the State of Indiana and shall be governed by the laws of such State.

11.) All contract terms between the Seller and Buyer are stated herein. If Buyer places an order with Seller relating to the materials identified herein, whether in writing or orally, Buyer's order, Seller's acceptance, and these terms of sale shall constitute the entire contract between Buyer and Seller.

12.) Seller shall recover reasonable attorney's fees and other costs necessarily incurred in the event that the Seller brings any actions to enforce this proposal or any resulting contract of sale against the Buyer. Buyer and Seller agree that in the event Seller commences litigation to collect amounts due hereunder, Seller shall be authorized to commence such action in Hamilton County, Indiana.

13.) All amounts and payments due from Buyer to Seller shall bear interest at the rate of 1-1/2% per month (18% per annum) from the date that payment is due until paid.

14.) Seller retains title to all goods herein until payment in full is received by Seller. To the extent applicable, Buyer grants to Seller a security interest in all goods described on this invoice and in the proceeds therefrom to secure payment of the purchase price and all liabilities hereinafter owing by Buyer including cost of collection and attorney's fees. Buyer authorizes Seller to file financing and continuation statements relating to the goods signed by Seller only. Seller shall have all remedies of a secured party available under Indiana law upon Buyer's default or when Seller shall find reasonable grounds for insecurity in Buyer's performance.

15.) In the event that Seller shall find reasonable grounds for insecurity in Buyer's performance, or upon Buyer's default, Buyer authorizes Seller to communicate with Buyer's contracting parties and secure payment of the goods by requesting the issuance of a joint check or by direct payment from such contracting party.

16.) LAMINATED GLASS NOTE: Please be aware if polished edges are required on tempered laminated glass with interlayer, finished edges may not align. This is due to all the fabrication being done on each piece before it is laminated and during the lamination process the pieces may shift creating a slight offset. See ASTM C 1172-03: Allowable tolerance up to 1/8" at all edges.

CHANGE CONTROL FORM 027
Anaerobic Basin Suspended Slab for Electrical Panels

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 05/12/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

The Contractor shall add a 12" elevated slab for electrical equipment mounting in the NW corner of the anaerobic basin and update guardrail as noted below.

For concrete detailing, use sim detail 9/S-17-4303. Equipment pads required at electrical equipment, see General Note 9/S-17-1005. Coordinate size and location of equipment pads with approved equipment submittal.

Furnish and install aluminum guardrail around slab and revise guardrail along gridline G to include a 5'-0" section of removable guardrail for equipment access. Curb shall be continuous at removable guardrail.

See attached construction sketches for additional information.
Revise the following anaerobic basin submittals:

- Concrete lift drawings
- Concrete reinforcing
- Aluminum guardrail

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

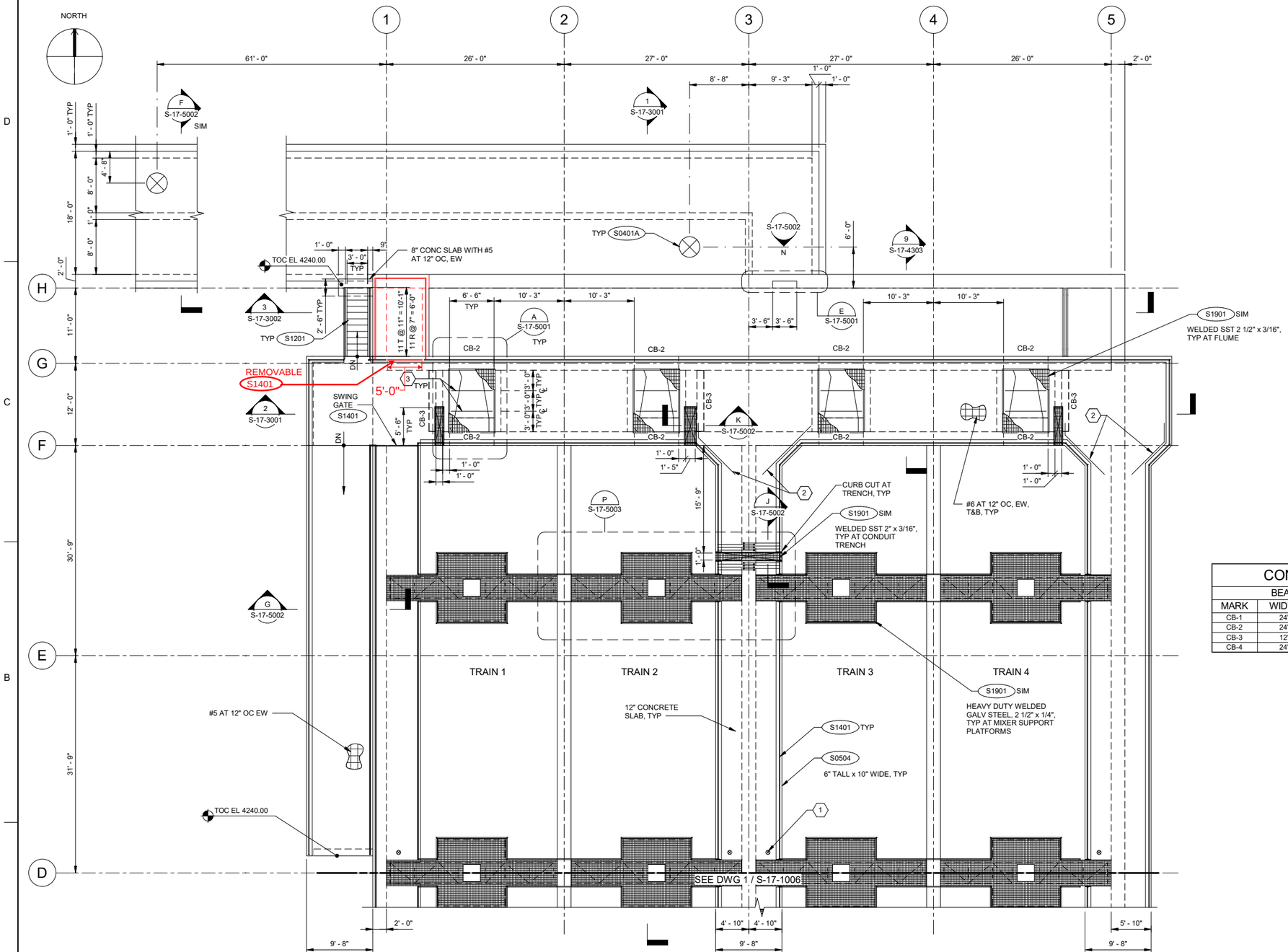
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

© 1997 Brown and Caldwell



UPPER PLAN NORTH

SCALE: 1/8" = 1'-0"

CONSTRUCTION SKETCH

GENERAL NOTES

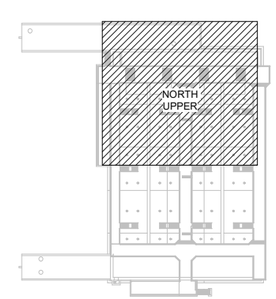
1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW / APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS, AND FRAMING SHOWN ARE ALUMINUM UNLESS NOTED OTHERWISE.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. CB-"X" CONCRETE BEAM, SEE THIS SHEET FOR SCHEDULE.
14. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.
15. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. ACTUATOR SLEEVE, SEE MECHANICAL, TYP
2. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS.
3. SST W8X15 GRATING SUPPORT BEAMS OVER FLUMES

CONCRETE BEAM SCHEDULE

	BEAM		REINFORCING		SHEAR
MARK	WIDTH	DEPTH	TOP	BOTTOM	ES
CB-1	24"	18"	(6) #9	(6) #9	#4 AT 8" OC
CB-2	24"	12"	(4) #7	(4) #7	#4 AT 12" OC
CB-3	12"	12"	(4) #6	(4) #6	#4 AT 12" OC
CB-4	24"	12"	(6) #9	(6) #9	#4 AT 4" OC



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

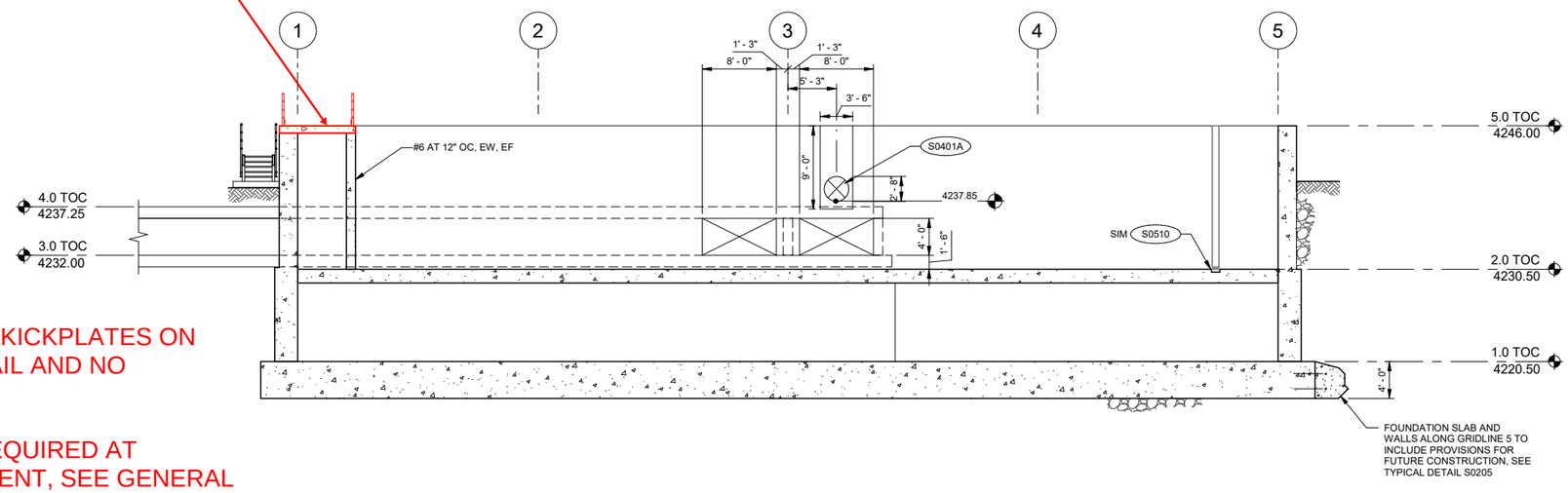
ANAEROBIC BASINS UPPER PLAN NORTH

DRAWING NUMBER
S-17-1005

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:45:52 AM

CONSTRUCTION SKETCH

12" CONCRETE SLAB WITH #6 AT 12" OC, EW, T&B, SEE DETAIL 9/S-17-4303 FOR SIM DETAIL AT SLAB

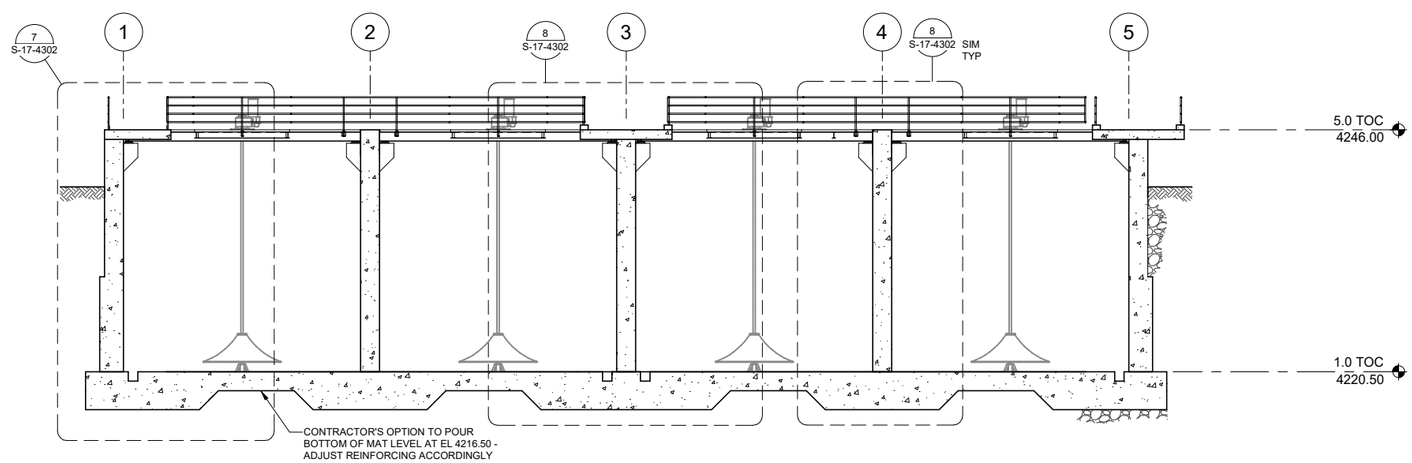


3 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"

NOTES:

1. SIM DETAIL TO HAVE KICKPLATES ON ALUMINUM GUARDRAIL AND NO CONCRETE CURBS.

2. EQUIPMENT PADS REQUIRED AT ELECTRICAL EQUIPMENT, SEE GENERAL NOTE 9/S-17-1005. COORDINATE SIZE AND LOCATION OF EQUIPMENT PADS WITH APPROVED EQUIPMENT SUBMITTAL.



4 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-17V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

ANAEROBIC BASINS SECTIONS 2

DRAWING NUMBER
S-17-3002

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt

Plot Date: 6/4/2020 11:45:56 AM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 031
Date: 9/3/2021
Description: Per Control Change Form #029: Cost for labor, equipment and material to make changes to the AIT cables in Area 17.

Skyline Electric (see attached back-up):	$34,458.55
Mark-up (5%):	$1,722.93
Onsite Coordination & Management (see attached back-up):	$2,864.28
Bonds:	$358.99
Mark-up (15%):	$483.49
Total:	**$39,888.24**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $39,888.24 will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-031 Area 17 AIT Cable Additions - CC#029	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-031	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, South Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Subcontactor Labor & Material	**1.00**	**UNIT**	**$34,458.55**	**$34,458.55**	**$36,562.64**	**$36,562.64**	**5.10%**
S Electrical Sub	1.00	LS	$34,458.55	$34,458.55			
D 02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$2,864.28**	**$2,864.28**	**$3,325.60**	**$3,325.60**	**15.00%**
01 Superintendent	9.00	HR	$157.26	$1,415.37			
19 Project Engineer	6.75	HR	$120.14	$810.91			
17 Project Manager	3.00	HR	$182.02	$546.06			
Truck, Pickup, 1 Ton	0.05	MO	$1,976.63	$91.94			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,772.34	7.43%
Equipment Owned:	$91.94	0.25%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$34,458.55	92.33%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$37,322.83	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$37,322.83	93.57%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$358.99	0.90%
Total Overall Cost:	$37,681.82	94.47%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,206.42	5.53%
Total Margin:	$2,206.42	5.53%
Total Bid Price:	$39,888.24	

Skyline ELECTRIC COMPANY

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:	8/17/2021		
Project:	BNR	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	James Bolander	Address:	815 E. 675 S.
Change Title:	**CCF029 - Area 17 AIT Cable Additions**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide material and labor for the addition of the following raceways, signal, and control cables for AIT170115, AIT170125, AIT170135, and AIT170145 that have been added to the cable schedules. 1" Ocal conduit is included from junction boxes to AIT's.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$7,678.90		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			250.06

LABOR FACTOR:

material handling	2.00%		5.0012
cleanup	3.00%		7.5018
safety	1.25%		3.12575
other factors	0.00%		0
other impact*			
cumulative Impact			

OT	overmanning	stacking	shift	Composite
0.00%	0.00%	0.00%	0.00%	0.00%

Tax $526.00

SUBTOTAL	loc 1 $ 8,204.90	loc 2 $ 0.00		265.69
			RATE: $	67.00
extension:			$	17,801.15

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$28.00	$90.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$25.00	$83.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$23.00	$78.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$49.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$44.00	$98.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	17,801.15

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$75.00	$0.00
project management	0	hrs@	$80.00	$0.00	Testing	0	hrs@	$75.00	$0.00
change estimating	0	hrs@	$80.00	$0.00	Shop Drawings / Submittals	0	hrs@	$80.00	$0.00
CAD coordination	0	hrs@	$80.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$80.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$356.02
change management	24	hrs@	$75.00	$1,800.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	4	hrs@	$75.00	$300.00	Pick-up Truck	8	dy@	$80.00	$640.00
as-builds	0	hrs@	$75.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	3,096.02

MATERIAL		from loc 1	$	8,204.90
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	3,096.02
LABOR		from loc 3	$	17,801.15
WARRANTEE	1.50%		$	436.53
BOND	1.44%		$	425.36
subtotal			$	29,963.96
OVERHEAD + PROFIT	15.00%		$	4,494.59
TOTAL CHANGE			$	34,458.55

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

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Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF 029: Area 17 AIT Cable Additions

Takeoff

17 Aug 2021 12:05:23

Item: Area 17 AIT Cable Additions

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**AIT170115 Signal & Control Cables**				
90361	**480.00**	FT	M	18/1PR	CNTRL CBL SHLD TWSTD PR	**0.7600**	364.80	0.0150	7.20
70060	**1,500.00**	FT	M	14	XHHW CU (STR)	0.2495	374.21	0.0150	22.50
10101	**160.00**	FT	M	1	PVC COATED GRC 40MIL	**6.0000**	960.00	0.1250	20.00
20254	**8.00**	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	26.6729	213.38	0.8600	6.88
490014	4.00	EA	M	1	GRC/PVC CTD (MYERS TYPE) HUB	**20.0000**	80.00	1.6500	6.60
	0.00								
	0.00				**AIT170125 Signal & Control Cables**				
90361	**500.00**	FT	M	18/1PR	CNTRL CBL SHLD TWSTD PR	**0.7600**	380.00	0.0150	7.50
70060	**1,500.00**	FT	M	14	XHHW CU (STR)	0.2495	374.21	0.0150	22.50
10101	**180.00**	FT	M	1	PVC COATED GRC 40MIL	**6.0000**	1,080.00	0.1250	22.50
20254	**8.00**	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	26.6729	213.38	0.8600	6.88
490014	4.00	EA	M	1	GRC/PVC CTD (MYERS TYPE) HUB	**20.0000**	80.00	1.6500	6.60
	0.00								
	0.00				**AIT170135 Signal & Control Cables**				
90361	**450.00**	FT	M	18/1PR	CNTRL CBL SHLD TWSTD PR	**0.7600**	342.00	0.0150	6.75
70060	**1,380.00**	FT	M	14	XHHW CU (STR)	0.2495	344.27	0.0150	20.70
10101	**160.00**	FT	M	1	PVC COATED GRC 40MIL	**6.0000**	960.00	0.1250	20.00
20254	6.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	26.6729	160.04	0.8600	5.16
490014	4.00	EA	M	1	GRC/PVC CTD (MYERS TYPE) HUB	**20.0000**	80.00	1.6500	6.60
	0.00								
	0.00				**AIT170145 Signal & Control Cables**				
90361	**460.00**	FT	M	18/1PR	CNTRL CBL SHLD TWSTD PR	**0.7600**	349.60	0.0150	6.90
70060	**1,410.00**	FT	M	14	XHHW CU (STR)	0.2495	351.76	0.0150	21.15
10101	120.00	FT	M	1	PVC COATED GRC 40MIL	**6.0000**	720.00	0.1250	15.00
20254	6.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	26.6729	160.04	0.8600	5.16
490014	4.00	EA	M	1	GRC/PVC CTD (MYERS TYPE) HUB	**20.0000**	80.00	1.6500	6.60

Item: Area 17 AIT Cable Additions

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
100142	24.00	EA	M	14	WIRE TERMINATION	0.3000	7.20	0.1800	4.32
100140	16.00	EA	M	18	WIRE TERMINATION	0.2500	4.00	0.1600	2.56
						Phase Totals:	**7,678.90**		**250.06**
						Job Totals:	**7,678.90**		**250.06**

CODALE
A Sonepar Company

** Quotation **

Send P/O To:
Codale Electric Supply, Inc.
5225 WEST 2400 SOUTH
SALT LAKE CITY, UT 84120-1264
Phone # : 801-975-7300

Bid #: S7509011
Page #: 1

Bid To:
SKYLINE ELECTRIC
PO BOX 26666
SALT LAKE CITY, UT 84126-0666

Phone # : 801-972-3656

Ship To:
SKYLINE ELE/ CVWRF B&R BASINS SS30B
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119

JOB: BNR

Bid-Date	Expr-Date	Writer	Salesman	Ship Via
08/17/21	09/16/21	Tyler Brown	Joseph Wice	103AM SLC SW

Qty	Description	Net Prc	Ext Prc
620	OCAL COND1-G 1-IN GRC GRAY PVC COATED CONDUIT GRC RIGID Pn: 3332071	543.130c	3367.41
62	OCAL CPL1-GNC 1" GRC PVC COATED COUPLING - NO CHARGE **ONLY SOLD WITH PVC CTD CONDUIT** Pn: 4277800	0.000ea	0.00
16	OCAL ELL1-G 1-IN 90DEG GRC PVC COATED ELBOW Pn: 1786119	18.330ea	293.28
16	OCAL HUB1-G 1-IN PVC COATED HUB GRAY Pn: 3332089	43.150ea	690.40
6000	14 XHHW STR CU BLACK 500' SPOOL N/S Item: Mfg Return Policy Applies Pn: 2558	230.780M	1384.68
2000	GENESIS 3214-55-12 18/2 1PR 18AWG SHIELDED WHITE CMP 911802SD 500FT REEL Pn: 594703	206.600M	413.20

Bid Total	6148.97
Sales tax	445.80
Bid Amount	6594.77

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All Sales subject to Codale's Terms and Conditions (T&C's) available at www.codale.com/terms. Price listed on this quotation are subject to change without notice beyond expiration date. Sales Tax is not included in any Bid. Payment terms are subject to approved credit. Prices are exclusive of applicable taxes unless noted.

CHANGE CONTROL FORM 029
Area 17 AIT cable additions

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/23/2021**	**CC#30B**

Originator: ☐ **Owner** ☐ **RPR** ☐ **Engineer** ☒ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

1. The attached list of signal cables for AIT170115, AIT170125, AIT170135, AIT170145 will be added to the cable schedules. Tray raceway and ductbank schedules will be updated accordingly and all will be reissued at a later date.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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Signal and control cables for 4 AIT's (AIT170115, AIT170125, AIT170135, AIT170145) have been added to the cable, raceway, and ductbank schedules. The following cables have been added to the schedules:

CBLS	17	0115		-A			INS	1PR #18SH	PLC169102A	AIT170115	RWYS160002-N	HH160002	RWYS160009-A	HH160009	RWYS170002-A	E-17-1203	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLS	17	0115		-A			INS	1PR #18SH	PLC169102A	AIT170115	HH170002	RWYS170001-A	JBX170001	RWYS170115-A		E-17-1203	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLS	17	0115		-B			INS	1PR #18SH	AIT170115	AE170115	RWYS170115-B					E-17-1203	TRANSMITTER TO ELEMENT (RFI #96)	
CBLS	17	0125		-A			INS	1PR #18SH	PLC169102B	AIT170125	RWYS160002-P	HH160002	RWYS160009-A	HH160009	RWYS170002-A	E-17-1203	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLS	17	0125		-A			INS	1PR #18SH	PLC169102B	AIT170125	HH170002	RWYS170001-A	JBX170001	RWYS170125-A		E-17-1203	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLS	17	0125		-B			INS	1PR #18SH	AIT170125	AE170125	RWYS170125-B					E-17-1203	TRANSMITTER TO ELEMENT (RFI #96)	
CBLS	17	0135		-A			INS	1PR #18SH	PLC169102A	AIT170135	RWYS160002-Q	HH160002	RWYS160009-A	HH160009	RWYS170002-A	E-17-1204	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLS	17	0135		-A			INS	1PR #18SH	PLC169102A	AIT170135	HH170002	RWYS170004-A	JBX170004	RWYS170135-A		E-17-1204	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLS	17	0135		-B			INS	1PR #18SH	AIT170135	AE170135	RWYS170135-B					E-17-1204	TRANSMITTER TO ELEMENT (RFI #96)	
CBLS	17	0145		-A			INS	1PR #18SH	PLC169102B	AIT170145	RWYS160002-R	HH160002	RWYS160009-A	HH160009	RWYS170002-A	E-17-1204	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLS	17	0145		-A			INS	1PR #18SH	PLC169102B	AIT170145	HH170002	RWYS170004-A	JBX170004	RWYS170145-A		E-17-1204	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLS	17	0145		-B			INS	1PR #18SH	AIT170145	AE170145	RWYS170145-B					E-17-1204	TRANSMITTER TO ELEMENT (RFI #96)	
CBLC	17	0115		-A			XHHW2	2#14, 1#14G	PLC169102A	AIT170115	RWYC160001-B	HH160001	RWYC160010-A	HH160010	RWYC170001-C	E-17-1103	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLC	17	0115		-A			XHHW2	2#14, 1#14G	PLC169102A	AIT170115	HH170001	RWYC170002-B	JBX170002	RWYC170115-A		E-17-1103	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLC	17	0125		-A			XHHW2	2#14, 1#14G	PLC169102B	AIT170125	RWYC160001-C	HH160001	RWYC160010-A	HH160010	RWYC170001-C	E-17-1103	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLC	17	0125		-A			XHHW2	2#14, 1#14G	PLC169102B	AIT170125	HH170001	RWYC170002-B	JBX170002	RWYC170125-A		E-17-1103	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLC	17	0135		-A			XHHW2	2#14, 1#14G	PLC169102A	AIT170135	RWYC160001-B	HH160001	RWYC160010-A	HH160010	RWYC170001-C	E-17-1104	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLC	17	0135		-A			XHHW2	2#14, 1#14G	PLC169102A	AIT170135	HH170001	RWYC170003-B	JBX170003	RWYC170135-A		E-17-1104	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	
CBLC	17	0145		-A			XHHW2	2#14, 1#14G	PLC169102B	AIT170145	RWYC160001-C	HH160001	RWYC160010-A	HH160010	RWYC170001-C	E-17-1104	TRANSMITTER TO PLC. CABLE CONTINUED BELOW (RFI #96)	
CBLC	17	0145		-A			XHHW2	2#14, 1#14G	PLC169102B	AIT170145	HH170001	RWYC170003-B	JBX170003	RWYC170145-A		E-17-1104	TRANSMITTER TO PLC. CABLE CONTINUED ABOVE (RFI #96)	

All conduit sizes for outdoor raceways listed above for AIT's will be 1"C.

Power cables for the AIT's were already included in the plan drawings, and cable, raceway, and ductbank schedules as a part of BNR design. The cable, raceway, and ductbank schedules will be reissued at a later time with the above cables included. A CCF will be created to add these cables to the schedules.

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

02/03/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 009_Network/Schedule/West Gate Updates, Flume Rebar Revisions, Baffle Wall Opening & Gate Removal, Anerobic Basin Slope, Additional Rebar AB Walkways, Additional Rebar ANB Walkways, Add Curb on AB Ramps, ANB Increased Effluent Slab Depth, ANB Concrete Wall Extension, Slope TD in AB Pipe Chase, Spray Fireproofing Removal, ANB Weir Wall Extension, and Revised AB Slide Gate Width

Dear Brandon,

Change Order 9 includes:

- Changes to the **network**, **schedule,** and updates for the **West Gate** per CCF031
- **Flume rebar revisions** per CCF038
- **Baffle wall opening and gate removal** per CCF039
- **Anerobic basin slope** per CCF044
- **Additional rebar in the aeration basin walkways** per CCF045
- **Additional rebar in the anerobic basin walkways** per CCF046
- **Add curb on the aeration basin ramps** per CCF047
- **Anerobic basin increased effluent slab depth** per CCF048
- **Anerobic basin concrete wall extension** per CCF049
- **Slope for the tank drain the aeration basin pipe chase** per CCF050
- **Spray fireproofing removal** per CCF051
- **Anerobic basin weir wall extension** per CCF052
- **Revised aeration basin gate widths** per CCF054

Network/Schedule/West Gate: Change control form 31 was issued to detail additions, changes and modifications required to the network infrastructure and cable & raceway schedules as requested by CVWRF. Included in this change were infrastructure provisions for the new West Gate that CVWRF will be installing. The Contractor is requesting **$29,627.20** and **3 days** for this work which is in line with our expectations.

Flume rebar revisions: Change control form 38 was issued to add rebar to the anerobic basin and aeration basin flumes. The required amount of rebar was inadvertently left out in the contract documents. The Contractor is requesting **$21,926.95** and **3 days** for this work. The pricing has been reviewed and is in line with our expectations for this scope.

Baffle wall opening and gate removal: Change control form 39 was issued to modify the baffle in the aeration basins to include a gap at the bottom to address potential issues caused by differential head pressure. This is in lieu of providing a blowout panel and

twelve slide gates. The Contractor is offering a credit of **($48,756.00)** for this change, which appears fair and reasonable.

Anerobic basin slope: Trench drains are present in each channel of the anerobic basin to assist with draining and cleaning activities. The floors were intended to slope toward these trench drains; but the requirement to slope the floors was inadvertently left out of the contract documents. The subgrade had been finished and formwork and rebar had already been partially installed by the time the error was caught. This required adding & modifying rebar and additional concrete to achieve the sloped floor. The Contractor is requesting **$30,607.85** and **2 days** to slope the floors in accordance with change control form 44. Pricing has been reviewed and appears in line with our expectations.

Additional rebar in the aeration basin walkways: The amount of rebar required to span the distance on the aeration basin walkways was inadvertently left out of the contract drawings. The rebar required to make the span was added in change control form 45. The Contractor is requesting **$15,706.66** and **1 day** for this work which is fair and reasonable.

Additional rebar in the anerobic basin walkways: The amount of rebar required to span the distance on the anerobic basin walkways was inadvertently left out of the contract drawings. The rebar required to make the span was added in change control form 46. The Contractor is requesting **$10,344.77** and **3 days** for this work which is fair and reasonable.

Add curb on the aeration basin ramps: Concrete curbing on the ramps of the aeration basin was inadvertently left out of the contract documents. Change control form 47 was issued to add the missing curb. The Contractor is requesting **$37,467.88** and **6 days** for this work which is in line with our expectations.

Anerobic basin increased effluent slab depth: The intermediate slab on the south end of the anaerobic basin was inadvertently called out as 12” thick. The design intent was an 18” thick slab at this location. Change control form 48 was issued to change the slab thickness from 12” to 18”. The Contractor is requesting **$10,270.91** and **2 days** for this work which appears fair and reasonable.

Anerobic basin concrete wall extension: A concrete wall extension was required from the top of the weir to the top concrete wall in the anerobic basin to meet the design intent. The Contractor is requesting **$3,710.74** and **1 day** to complete this work per change control form 49. Pricing has been reviewed and found to be fair and reasonable.

Slope for the tank drain the aeration basin pipe chase: Sloping of the 12” tank drain was inadvertently left out of the contract requirements. Change control form 50 was issued to slope the tank drain. The Contractor is requesting **$1,642.69** to complete this work which is in line with our expectations.

Spray fireproofing removal: Spray fireproofing is not required per the Fire Marshal. Change control form 51 was issued to remove the fireproofing from the contract. The Contractor is offering a credit of **($26,250.00)** which matches the quotation for this work.

Anerobic basin weir wall extension: A weir wall extension was required in the anerobic basin to meet the design intent. The Contractor is requesting **$9,241.62** and **2 days** to complete this work per change control form 52. Pricing has been reviewed and found to be fair and reasonable

Revised aeration basin gate widths: Widths of five gates need to be modified to meet the design intent. The Contractor is requesting $6,729.10 and 1 day for this work per change control form 54. Pricing has been reviewed and found to be in line with our expectations.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 9 is $102,270.37 and twenty-five (25) days.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 031 – Network/Schedule/West Gate w/Contractor Quotation
3. CCF 038 – Flume Rebar Revisions w/Contractor Quotation
4. CCF 039 – Baffle Wall and Gate Removal w/Contractor Quotation
5. CCF 044 – Anaerobic Basin Slope w/Contractor Quotation
6. CCF 045 – Additional Rebar AB Walkways w/Contractor Quotation
7. CCF 046 – Additional Rebar ANB Walkways w/Contractor Quotation

8. CCF 047 – Add Curb on AB Ramps w/Contractor Quotation
9. CCF 048 – ANB Increased Effluent Slab Thickness w/Contractor Quotation
10. CCF 049 – ANB Concrete Wall Extension Panels w/Contractor Quotation
11. CCF 050 – Slope for TD in AB Pipe Chase w/Contractor Quotation
12. CCF 051 – Spray Fireproofing Removal Panels w/Contractor Quotation
13. CCF 052 – ANB Weir Wall Extension w/Contractor Quotation
14. CCF 054 – Revised AB Slide Gate Width w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 09

Date of Issuance:	02/03/2022	Effective Date:	02/03/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 9 includes costs to:

- Changes to the network, schedule, and updates for the West Gate per CCF031
- Flume rebar revisions per CCF038
- Baffle wall opening and gate removal per CCF039
- Anerobic basin slope per CCF044
- Additional rebar in the aeration basin walkways per CCF045
- Additional rebar in the anerobic basin walkways per CCF046
- Add curb on the aeration basin ramps per CCF047
- Anerobic basin increased effluent slab depth per CCF048
- Anerobic basin concrete wall extension per CCF049
- Slope for the tank drain the aeration basin pipe chase per CCF050
- Spray fireproofing removal per CCF051
- Anerobic basin weir wall extension per CCF052
- Revised aeration basin gate widths per CCF054

Attachments:

1. CCF 031 – Network/Schedule/West Gate w/Contractor Quotation
2. CCF 038 – Flume Rebar Revisions w/Contractor Quotation
3. CCF 039 – Baffle Wall and Gate Removal w/Contractor Quotation
4. CCF 044 – Anaerobic Basin Slope w/Contractor Quotation
5. CCF 045 – Additional Rebar AB Walkways w/Contractor Quotation
6. CCF 046 – Additional Rebar ANB Walkways w/Contractor Quotation
7. CCF 047 – Add Curb on AB Ramps w/Contractor Quotation
8. CCF 048 – ANB Increased Effluent Slab Thickness w/Contractor Quotation
9. CCF 049 – ANB Concrete Wall Extension Panels w/Contractor Quotation
10. CCF 050 – Slope for TD in AB Pipe Chase w/Contractor Quotation
11. CCF 051 – Spray Fireproofing Removal Panels w/Contractor Quotation
12. CCF 052 – ANB Weir Wall Extension w/Contractor Quotation
13. CCF 054 – Revised AB Slide Gate Width w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price:	Original Contract Times: Substantial Completion: 1,491

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

$ 123,267,681.00	Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 8 : $261,569.11	[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 8 : Substantial Completion: 73 Ready for Final Payment: 73 Days
Contract Price prior to this Change Order: $ 123,529,250.11	Contract Times prior to this Change Order: Substantial Completion: 1,546 Ready for Final Payment: 1,636 days or dates
[Increase] [Decrease] of this Change Order: $102,270.37	[Increase] [Decrease] of this Change Order: Substantial Completion: 25 days Ready for Final Payment: 25 days days or dates
Contract Price incorporating this Change Order: $123,631,520.48	Contract Times with all approved Change Orders: Substantial Completion: 1,589 days Ready for Final Payment: 1,679 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 02/03/2022	Date 2/8/2022	Date 02/03/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 038
Date: 10/22/2021
Description: Per Control Change Form #031: Cost for labor, equipment and material to make electrical changes as noted in CCF #031.

Skyline Electric (see attached back-up):	$26,573.64
Mark-up (5%):	$1,328.69
Onsite Coordination & Management (see attached back-up):	$1,233.24
Bonds:	$266.64
Mark-up (15%):	$224.99
Total:	**$29,627.20**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $29,627.20 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-038 Network_Schedule_West Gate - CC#031	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-038	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor (Skyline)	**1.00**	**UNIT**	**$26,573.64**	**$26,573.64**	**$28,195.37**	**$28,195.37**	**5.10%**
S Electrical Sub	1.00	LS	$26,573.64	$26,573.64			
D 02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$1,233.24**	**$1,233.24**	**$1,431.83**	**$1,431.83**	**15.00%**
01 Superintendent	4.00	HR	$157.26	$628.99			
19 Project Engineer	2.00	HR	$120.14	$240.25			
17 Project Manager	2.00	HR	$182.02	$364.01			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,233.24	4.44%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$26,573.64	95.56%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$27,806.88	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$27,806.88	93.86%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$266.64	0.90%
Total Overall Cost:	$28,073.53	94.76%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,553.67	5.24%
Total Margin:	$1,553.67	5.24%
Total Bid Price:	$29,627.20	

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	10/22/2021		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JAMES BOLANDER	Address:	815 E 675 S
Change Title:	**CCF031 NETWORK, SCHEDULE & WEST GATE**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide all labor and materials listed per CCF031 West Gate Updates. See CCF031 Description scope and takeoff.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$3,646.73		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			214.34

LABOR FACTOR:

material handling		2.00%					4.2868
cleanup		3.00%					6.4302
safety		1.25%					2.67925
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $282.62	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 3,929.35	loc 2 $ 0.00		227.74
			RATE: $	67.00
extension:			$	15,258.33

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	15,258.33

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	24	hrs@	$77.00	$1,848.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$305.17
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	6	hrs@	$77.00	$462.00	Pick-up Truck	8	dy@	$80.00	$640.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	3,255.17

MATERIAL		from loc 1	$	3,929.35
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	3,255.17
LABOR		from loc 3	$	15,258.33
WARRANTEE	1.50%		$	336.64
BOND	1.44%		$	328.02
subtotal			$	23,107.51
OVERHEAD + PROFIT	15.00%		$	3,466.13
TOTAL CHANGE			$	26,573.64

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF031: Network, Schedule, and West Gate Updates

Takeoff

22 Oct 2021 10:34:29

Item: ADD

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**2. PROVIDE AND INSTALL PATCH PANEL FOP169000A**				
	0.00				**FOP169000A**				
31	2.00		M	24 FIBER	24 FIBER CASSETTE	280.0000	560.00	10.0000	20.00
1060228	1.00	EA	M	24 DSC	FIBER PATCH PNL W/METALLIC COUPLRS	162.0000	162.00	3.0000	3.00
1060034	3.00	EA	M	3M	FIBER OPTIC LC-TO-ST DUP SM PATCH CORD	25.0000	75.00	0.5000	1.50
1060400	2.00	EA	M	12-24 STRAND	FIBER OPTIC CABLE PREP LABOR-GEL FILLED	0.0000	0.00	3.9063	7.81
	0.00								
	0.00				**3. NO COST CHANGE - CBLF340102-C TERMINATE TO D INSTEAD OF A.**				
	0.00								
	0.00				**4. PROVIDE AND INSTALL PATCH PANEL FOP169000B**				
	0.00				**FOP169000A**				
31	2.00		M	24 FIBER	24 FIBER CASSETTE	280.0000	560.00	10.0000	20.00
1060228	1.00	EA	M	24 DSC	FIBER PATCH PNL W/METALLIC COUPLRS	162.0000	162.00	3.0000	3.00
1060034	3.00	EA	M	3M	FIBER OPTIC LC-TO-ST DUP SM PATCH CORD	25.0000	75.00	0.5000	1.50
1060400	2.00	EA	M	12-24 STRAND	FIBER OPTIC CABLE PREP LABOR-GEL FILLED	0.0000	0.00	3.9063	7.81
	0.00								
	0.00				**5. NO COST CHANGE - CBLF340102-C TERMINATE TO D INSTEAD OF A.**				
	0.00								
	0.00				**6. NO COST CHANGE - CCF020 CBLF220011BA-A AREA 22 NOT AREA 16 SCHEDULE**				
	0.00								
	0.00				**7. NO COST CHANGE - CBLF160011BA-A CHANGED TO SM FROM MM IN AREA 16 SCHEDULE.**				
	0.00								
	0.00				**8. NO COST CHANGE - PDI - 24DC POWER SUPPLY OWNER SUPPLIED**				
	0.00								

Item: ADD

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**9. NO COST CHANGE - PDI - NETWORK SWITCH OWNER SUPPLIED**				
	0.00								
	0.00				**10. NO COST CHANGE - CABLE HANGERS - VERTICAL & HORIZONTAL**				
	0.00								
	0.00				**11. FOP240011A TO BE 4RU FOP INSTEAD OF 2RU FOP**				
1060241	1.00	EA	M	72 ST	FIBER PATCH PNL W/METALLIC COUPLRS	265.0000	265.00	1.1719	1.17
	0.00								
	0.00				**12. NO COST CHANGE - OWNER PROVIDING CABLE MANAGEMENT IN RACK. TAGGING FOR SWITCHES AND PMM'S IN CAB109105B, MCC109105A, MCC109105B CORRECTED.**				
	0.00								
	0.00				**13. NO COST CHANGE - I/O CARD LANGUAGE AND CONFIGURATION.**				
	0.00								
	0.00				**14. ADD NC2 CABLE CBLD160011-A BETWEEN WORK TABLE AND NCE160011**				
10062	80.00	FT	M	2	PVC SCH 40	3.0594	244.75	0.1200	9.60
20005	3.00	EA	M	2	PVC SCH 40 90-DEG ELBOW	4.0209	12.06	0.7500	2.25
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**15. ADD NC2 CABLE CBLD160011-B BETWEEN WORK TABLE AND NCE160011**				
10062	80.00	FT	M	2	PVC SCH 40	3.0594	244.75	0.1200	9.60
20005	3.00	EA	M	2	PVC SCH 40 90-DEG ELBOW	4.0209	12.06	0.7500	2.25
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**16. ADD NC2 CABLE CBLD160011-C BETWEEN WORK TABLE AND NCE160011**				
10059	80.00	FT	M	1	PVC SCH 40	1.5847	126.78	0.0790	6.32
20002	3.00	EA	M	1	PVC SCH 40 90-DEG ELBOW	1.4509	4.35	0.3800	1.14
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00

Item: ADD

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**17. ADD NC2 CABLE CBLD160011-D BETWEEN WORK TABLE AND NCE160011**				
10059	80.00	FT	M	1	PVC SCH 40	1.5847	126.78	0.0790	6.32
20002	3.00	EA	M	1	PVC SCH 40 90-DEG ELBOW	1.4509	4.35	0.3800	1.14
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**18. ADD NC2 CABLE CBLD160011-E BETWEEN WORK TABLE AND NCE160011**				
10059	80.00	FT	M	1	PVC SCH 40	1.5847	126.78	0.0790	6.32
20002	3.00	EA	M	1	PVC SCH 40 90-DEG ELBOW	1.4509	4.35	0.3800	1.14
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**19. ADD NC2 CABLE CBLD160011-F BETWEEN WORK TABLE AND NCE160011**				
10059	80.00	FT	M	1	PVC SCH 40	1.5847	126.78	0.0790	6.32
20002	3.00	EA	M	1	PVC SCH 40 90-DEG ELBOW	1.4509	4.35	0.3800	1.14
40048	2.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	0.62	0.0180	0.04
1	100.00		M	NC2	NC2	1.6500	165.00	0.0200	2.00
2	2.00		M	RJ45-NC2	RJ45 - CAT6 SHIELDED	27.0000	54.00	0.5000	1.00
	0.00								
	0.00				**24. NO COST CHANGE - Cable for PMM169401, CBLD169401-A, added to area 16 cable schedule. Route cable from NCE160011 through**				
	0.00								
	0.00				**25. NO COST CHANGE - CBLD169402 CABLE ISN'T ON DRAWINGS, SHOULD BE BE FOR UPS169403, NOT UPS169402.**				
	0.00								
	0.00				**27. NO COST CHANGE - CBLD181241-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable**				
	0.00								

Item: ADD

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**28. NO COST CHANGE - Updated CBLD181441-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable**				
	0.00								
	0.00				**29. Install new 24-strand Single Mode fiber optic cable, CBLF000006-A, between new FOP330003A in NCE330003**				
	0.00				**COGEN TO WEST GATE WITH WRAPPED MANHOLES**				
3	1,400.00		M	FOSM	24 FIBER SM	2.0000	2,800.00	0.0800	112.00
31	2.00		M	24 FIBER	24 FIBER CASSETTE	280.0000	560.00	10.0000	20.00
1060400	2.00	EA	M	12-24 STRAND	FIBER OPTIC CABLE PREP LABOR-GEL FILLED	0.0000	0.00	3.9063	7.81
						Phase Totals:	**7,574.87**		**277.37**

Item: DELETE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**20. Delete NC2 Ethernet cable, CBLD169001A-C, between SWGR169001A and CAB169102B from cable schedule.**				
1020047	-119.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	0.3800	-45.22	0.0219	-2.60
	0.00								
	0.00				**21. Delete NC4 Ethernet cable, CBLD169001A-D, between SWGR169001A and PLC169001**				
	177.00				**NC4 - Cat 6A Shielded 600V rated Cable**				
1020047	-177.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	1.4500	-256.65	0.0219	-3.87
	0.00								
	-114.00				**22. Delete NC2 Ethernet cable, CBLD169001B-C, between SWGR169001A and CAB169102B from cable schedule.**				
1020047	-114.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	0.3800	-43.32	0.0219	-2.49
	0.00								
	0.00								
	-171.00				**23. Delete NC4 Ethernet cable, CBLD169001B-D, between SWGR169001B and PLC169001. This cable is internal**				
1020047	-171.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	1.4500	-247.95	0.0219	-3.74
	0.00								
	0.00				**24. NO COST CHANGE - Cable for PMM169401, CBLD169401-A, added to area 16 cable schedule. Route cable from NCE160011 through**				
	0.00								
	0.00				**25. NO COST CHANGE - CBLD169402 CABLE ISN'T ON DRAWINGS, SHOULD BE BE FOR UPS169403, NOT UPS169402.**				
	0.00								
	0.00				**26. Delete the cables in the table below. These are internal to the MCC and unscheduled.**				
	-2,300.00				**NC4 - Cat 6A Shielded 600V rated Cable**				
1020047	-2,300.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	1.4500	-3,335.00	0.0219	-50.31
	0.00								
	0.00				**27. NO COST CHANGE - CBLD181241-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable**				
	0.00								
	0.00				**28. NO COST CHANGE - Updated CBLD181441-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable**				

Phase Totals:	**-3,928.14**	**-63.02**
Job Totals:	**3,646.73**	**214.34**

Skyline Electric Company
1848 West 2300 South
West Valley City, UT 84119
Phone: 801-972-3656
Web: https://skyline.us

QUOTATION

Date:	09/30/2021
Quote #:	Q006N31H
Customer:	249973

2301 Patriot Blvd. Glenview, IL 60026

Customer
SKYLINE ELECTRIC COMPANY
P O BOX 26666
SALT LAKE CITY, UT 84125
James Bolander
Phone: 801-231-2809
Fax: --
Email: james.bolander@skyline.us

RFQ for BNR CCF031 OCC Fiber

Line	Quantity	Part Number and Description	UM	Unit Price	Extended Price
1	1400	OC-DX024KSLX9YP **DX024KSLX9YP** 24 STRAND INDOOR/OUTDOOR PLENUM SINGLEMODE FIBER *Part Availability: 14 Business Days*	EA	1.95	2,730.00

Quote Total: 2,730.00

TERMS	NET60
Freight Terms:	PPD/CHARGE
Shipment:	Inventory subject to prior sale.
Notes:	Order acceptance based on prior credit approval. Prices firm except for metals based on COMEX @$4.32/lb; aluminum @ $1.12/lb.
Currency:	USD

Please refer all inquiries to:

Derek Morgan
Phone: 801-994-7461
Mobile: --
Fax: --
derek.morgan@anixter.com

3775 West California Avenue
Suite 400
SALT LAKE CITY, UT 84104
US

Comments:

Quote valid for 30 days unless otherwise noted. Shipping tolerance +/- 10%

The impacts of COVID-19 cannot be reasonably determined at this time. This quote/proposal does not account for any potential adverse impacts COVID-19 may have on Anixter's performance or obligations herein. In the event of any delays or adverse impacts, Anixter reserves the right for an equitable adjustment of the delivery schedule and prices herein to offset the effects of COVID-19 delays, without fault or penalty of any kind.

BY ACCEPTING THIS QUOTE, YOU AGREE THAT THE TERMS AND CONDITIONS OF SALE PUBLISHED AT WWW.ANIXTER.COM/TERMSANDCONDITIONS ARE EXPRESSLY INCORPORATED INTO AND SHALL GOVERN THIS TRANSACTION.

QUOTATION

Date:	10/07/2021
Quote #:	Q006P7PK
Customer:	423297

Communications Supply Corp (a WESCO company)
Send Purchase Orders to Communications Supply Corp.
2301 Patriot Blvd. Glenview, IL 60026-8020

Customer
SKYLINE ELECTRIC COMPANY INC
PO BOX 26666
SALT LAKE CITY, UT 84126
James Bolander
Phone: (801)972-3656
Fax: --
Email: james.bolander@skyline.us

Central valley west gate

Line	Quantity	Part Number and Description	UM	Unit Price	Extended Price
1	2	728202 RTS1U-3APB CAB ASSY RTS1U OCC BLK SLIDING I CURRENTLY HAVE 4 OF THESE IN SEATTLE	EA	162.00	324.00
2	6	Non-Stock FSCS824QLCP SPL CASS 6-QLC SM SPL 24 FIB -- -- IN STOCK AT THE FACTORY	EA	279.00	1,674.00
3	6	Non-Stock D8LCUPC-LCUPC-3M FOJ LCUPC-LCUPC SM 3MTR DPX -- -- IN STOCK AT THE FACTORY	EA	9.50	57.00
4	1	9843320 RTS4U-12APB 4RU RACK WITH SLIDING TRAY, HOLDS 12 ADAPTER PLATES IN STOCK AT THE FACTORY	EA	265.00	265.00
5	1	310334 WMPV45E CABLE MGMT PANEL VERTICAL 45U 83"H X 4.9"W X 12"D FRONT/REARBLACK NETRUNNER ROHS I CURRENTLY HAVE 5 IN STOCK IN SLC	EA	235.00	235.00

The impacts of COVID-19 cannot be reasonably determined at this time. This quote/proposal does not account for any potential adverse impacts COVID-19 may have on Seller's performance or obligations herein. In the event of any delays or adverse impacts, Seller reserves the right for an equitable adjustment of the delivery schedule and prices herein to offset the effects of COVID-19 delays, without fault or penalty of any kind.

BY ACCEPTING THIS QUOTE, YOU AGREE THAT THE TERMS AND CONDITIONS OF SALE PUBLISHED AT WWW.WESCO.COM/TERMSOFSALE ARE EXPRESSLY INCORPORATED INTO AND SHALL GOVERN THIS TRANSACTION.

QUOTATION

Date:	10/07/2021
Quote #:	Q006P7PK
Customer:	423297

Communications Supply Corp (a WESCO company)
Send Purchase Orders to Communications Supply Corp.
2301 Patriot Blvd. Glenview, IL 60026-8020

Central valley west gate

Line	Quantity	Part Number and Description	UM	Unit Price	Extended Price
6	1	265136 WMPH2E CABLE MGMT DUCT HORIZONTAL 3.5HX20WX9D EXTD COVER-2 CLIPSBLACK, 2RMU ROHS I CURRENTLY HAVE 23 IN STOCK IN SLC	EA	73.00	73.00

Quote Total: 2,628.00

TERMS NET EO2M
Freight Terms: PPD/CHARGE
Shipment:
Notes:
Currency: USD

Please refer all inquiries to:

Brian Walters
Phone: 801-606-4317
Mobile: 801-529-2820
Fax: --
brian.walters@anixter.com

3210 South 900 West
SALT LAKE CITY, UT 84119
US

Comments:

Quote valid for 20 days from date of issue

The impacts of COVID-19 cannot be reasonably determined at this time. This quote/proposal does not account for any potential adverse impacts COVID-19 may have on Seller's performance or obligations herein. In the event of any delays or adverse impacts, Seller reserves the right for an equitable adjustment of the delivery schedule and prices herein to offset the effects of COVID-19 delays, without fault or penalty of any kind.

BY ACCEPTING THIS QUOTE, YOU AGREE THAT THE TERMS AND CONDITIONS OF SALE PUBLISHED AT WWW.WESCO.COM/TERMSOFSALE ARE EXPRESSLY INCORPORATED INTO AND SHALL GOVERN THIS TRANSACTION.

CHANGE CONTROL FORM 031
Network, Schedule, and West Gate Updates

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 8/13/2021**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

1) Contractor to note the cable and raceway schedules are updated with the following changes and will be issued at a later date.

2) Contractor to provide and install a fiber optic patch panel, FOP169000A, and three fiber optic patch cables in CAB169000A per Specification 40 67 00 and updated drawings E-16-7001, and I-34-6112. Terminate all strands of previously defined cable, CBLF340102-C, to new patch panel.

3) NC2 Cable, CBLF340102-C, between NCE160011 and NCE340102 shall be routed as previously identified, however, it will terminate at FOP340102D instead of FOP340102A in NCE340102. See drawing I-16-6101 and I-34-6111.

4) Contractor to provide and install a fiber optic patch panel, FOP169000B, and three fiber optic patch cables in CAB169000B per Specification 40 67 00 and updated drawings E-16-7001, and I-34-6114. Terminate all strands of previously defined cable, CBLF340102-J, to new patch panel.

5) NC2 Cable, CBLF340102-J, between NCE160011 and NCE340102 shall be routed as previously identified, however, it will terminate at FOP340102D instead of FOP340102A in NCE340102. See drawing I-16-6101 and I-34-6111.

6) Contractor to note cable, CBLF220011BA-A, will only show up in Area 22 and Site Area cable schedule, NOT in the Area 16 cable schedule as previously identified. Additionally, cable will be updated to Single Mode in Area 22 schedule to be consistent with Site Area schedule and CCF 020.

7) Contractor to note cable, CBLF160011BA-A, is changed to Single Mode fiber from Multimode Fiber in the Area 16 cable schedule. This was previously defined as a Single Mode cable in the site schedule and in CCF 020.

8) Contractor to install an OWNER PROVIDED 24VDC power supply in all field network panels. Contractor shall install at panel shop and include equipment in the UL 508A listing of the panel. Contractor to note, the size of the panel may need to be increased to accommodate power supply. See updated I-00-6521 attached.

9) Contractor to install an additional OWNER PROVIDED network switch in area PLC control panels, totaling two network switches in all area PLC panels. See updated typical drawings, I-00-6501 and I-00-6502.

10) Contractor to note revised typical wall-mount network cabinet drawing, I-00-6510, to replace all other typical wall-mount network cabinet drawings, I-00-6511 and I-00-6512. These are updated for clarity with the exception that these drawings specify contractor to mount all horizontal and vertical cable managers toward the front of the network racks and inset fiber and Ethernet patch panels so that the patch cables can be routed through the full depth of the cable management in front of the patch panels and equipment. Contractor to coordinate with client on preferred installation. See updated specification 27 00 11. For clarity, I-22-6101 and I-24-6101 are updated to depict the UPS in these racks previously defined in the specification and reference to I-00-6512.

11) FOP240011A to be a 4RU FOP instead of a 2RU FOP to accommodate all the fiber cables scheduled for termination. See revised I-24-6101 and updated specification 27 11 00.

12) Contractor to note tagging for switches and PMMs in CAB109105A, CAB109105B, MCC109105A, MCC109105B depicted on I-10-6101 is corrected to match cable schedule and other drawings.

13) Contractor to note attached modifications to Specification 26 29 23. Updates intended to clarify I/O card language and drive configuration responsibility.

14) Add NC2 Ethernet cable, CBLD160011-A, between Work Table and NCE160011 to cable schedule. Route from

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NCE160011 via new raceway, RWYD160011-A, to work table. Cable previously shown on I-16-6101.

15) Add NC2 Ethernet cable, CBLD160011-B, between Work Table and NCE160011 to cable schedule. Route from NCE160011 via new raceway, RWYD160011-A, to work table. Cable previously shown on I-16-6101.

16) Add NC2 Ethernet cable, CBLD160011-C, between Lab Bench and NCE160011 to cable schedule. Route from NCE160011 via new raceway, RWYD160011-B, to lab bench. Cable previously shown on I-16-6101.

17) Add NC2 Ethernet cable, CBLD160011-D, between Lab Bench and NCE160011 to cable schedule. Route from NCE160011 via new raceway, RWYD160011-B, to lab bench. Cable previously shown on I-16-6101.

18) Add NC2 Ethernet cable, CBLD160011-E, between SCADA Workstation and NCE160011 to cable schedule. Route from NCE160011 via new raceway, RWYD160011-A, to SCADA workstation. Cable previously shown on I-16-6101.

19) Add NC2 Ethernet cable, CBLD160011-F, between SCADA Workstation and NCE160011 to cable schedule. Route from NCE160011 via new raceway, RWYD160011-A, to SCADA workstation. Cable previously shown on I-16-6101.

20) Delete NC2 Ethernet cable, CBLD169001A-C, between SWGR169001A and CAB169102B from cable schedule. This cable is a duplicate to CBLD169102B-C. See revised E-16EB-1201.

21) Delete NC4 Ethernet cable, CBLD169001A-D, between SWGR169001A and PLC169001. This cable is internal to the switchgear and unscheduled.

22) Delete NC2 Ethernet cable, CBLD169001B-C, between SWGR169001B and CAB169102B from cable schedule. This cable is a duplicate to CBLD169102B-C. See revised E-16EB-1201.

23) Delete NC4 Ethernet cable, CBLD169001B-D, between SWGR169001B and PLC169001. This cable is internal to the switchgear and unscheduled.

24) Cable for PMM169401, CBLD169401-A, added to area 16 cable schedule. Route cable from NCE160011 through CTS160007 then to CTS160008 and then to MCC169401. PMM169401 was previously shown on E-16-7005 and has been added to E-16EB-1201, I-16-6101, I-16-6091, and "40 61 93.16 Process Control System Area 16 IO List" for clarity.

25) Delete NC2 Ethernet cable, CBLD169402-A, between NCE160011 and UPS169402. UPS169402 does not exist – this should have been UPS169403 on drawings. See revised I-16-6101

26) Delete the cables in the table below. These are internal to the MCC and unscheduled.

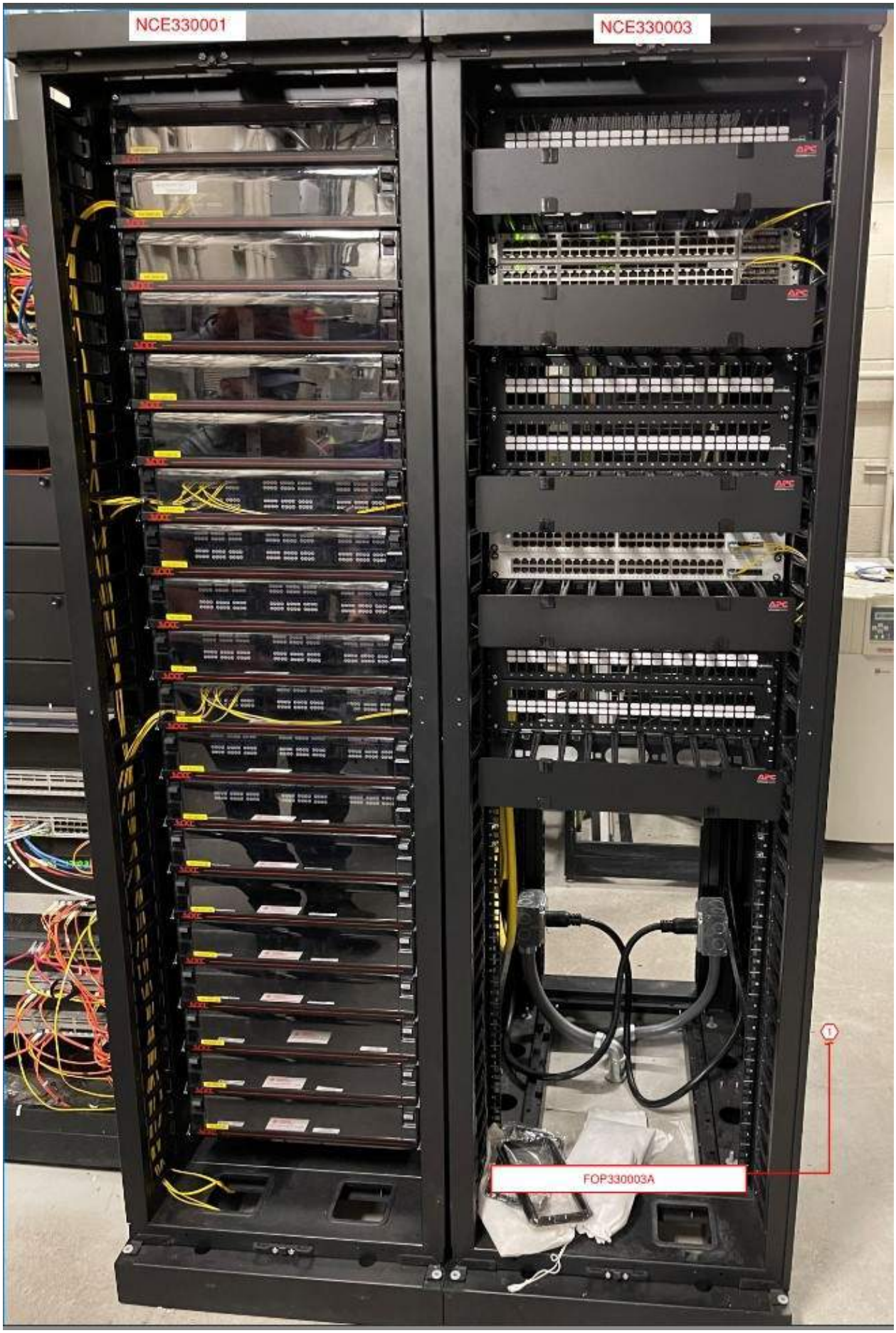
CBLD170111-A	CBLD170112-A	CBLD170113-A
CBLD170121-A	CBLD170122-A	CBLD170123-A
CBLD170131-A	CBLD170132-A	CBLD170133-A
CBLD170141-A	CBLD170142-A	CBLD170143-A
CBLD170211-A	CBLD170212-A	CBLD181131-A
CBLD181132-A	CBLD181131-A	CBLD181231-A
CBLD181232-A	CBLD181331-A	CBLD181332-A
CBLD181431-A	CBLD181432-A	

27) Updated CBLD181241-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable From" column. This matches how this cable is depicted on E-18-1206 and I-16-6101.

28) Updated CBLD181441-A on cable schedule to indicate "CAB180250" instead of "CAB180150" in the "Cable From" column. This matches how this cable is depicted on E-18-1210 and I-16-6101.

29) Install new 24-strand Single Mode fiber optic cable, CBLF000006-A, between new FOP330003A in NCE330003 and FOP000006A in C.V.W.R. ACCESS CONTROL WEST GATE ACP#1 panel, CAB000006. New CAB and fiber optic patch panel at new West Gate location provided by owner. FOP330003A in NCE330003 to be installed under CC30A contract, defined in CCF 025. This cable is depicted as Keynote 1 below. Route via CTS330201,

RWYF000006-A, CTS330105, CTS330104, RWYF000006-B, HH33010D, DB33010D, HH17001A, DB170001, HH160003, DB160016, HH180001, DB180002, HH180006, DB220004, HH220002, DB001402, HH001403, DB001403, HH001405, RWYF000006-A. See revised drawing, E-00-1014. Contractor shall use same fiber optic cable manufacturer and type that had been previously submitted and approved for this contract.



a)

30) Install new power feed cable, CBLP000006-A, between PNL229302 and new location of West Gate control cabinet (CAB000006). Route via DB220001, HH220001, DB001401, HH001404, DB001404, HH001406, and RWYP000006-A. See revised drawings, E-00-1014 and E-22-6001. Contractor shall use same cable manufacturer and type that had been previously submitted and approved for this contract.

Request for Proposal/Contractor Requested Change/Claim		
We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:		
	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 032
Date: 9/9/2021
Description: Per Control Change Form #038: Cost for labor, equipment and material to make changes flume rebar and waterstop.

Rocky Mountain Rebar (see attached back-up):	$1,593.07
Mark-up (5%):	$79.65
Gerber Labor, Equipment & Materials (see attached):	$16,970.43
Onsite Coordination & Management (see attached back-up):	$444.60
Bonds:	$197.34
Mark-up (15%):	$2,641.86
Total:	**$21,926.95**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $21,926.95 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-032 Flume Rebar Revisions-CC#038	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-032	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:	800 Central Valley Road, Salt Lake CIty, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Flume Rebar Revisions	**1.00**	**LS**	**$19,008.10**	**$19,008.10**	**$21,926.95**	**$21,926.95**	**14.17%**
Rebar - Sub Materials Only	1.00	LS	$1,593.07	$1,593.07			
Drill & Epoxy + Install Waterstop	1.00	LS	$16,970.43	$16,970.43			
Labor Crew, (Drill & Epoxy 576 Holes Total + Install Waterstop) (88.62 EACH/DY, 6.50 DY)	576.00	EACH	$19.15	$11,033.07			
03 Leadman	58.50	HR	$95.38	$5,579.54			
04 Skilled Labor	58.50	HR	$83.01	$4,855.95			
Truck, Pickup, 1 Ton	0.30	MO	$1,976.63	$597.58			
Simpson, SET XP Epoxy	20.00	EACH	$39.47	$789.36			
Waterstop, Hydrophilic, Hydrotite CJ-1020 2K (or equal) W/adheasive backing	800.00	LF	$6.44	$5,148.00			
Gerber Management	1.00	LS	$444.60	$444.60			
01 Superintendent	1.00	HR	$152.19	$152.19			
17 Project Manager	1.00	HR	$176.15	$176.15			
19 Project Engineer	1.00	HR	$116.26	$116.26			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$10,880.08	57.24%
Equipment Owned:	$597.58	3.14%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,937.36	31.24%
Subcontracted:	$1,593.07	8.38%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$19,008.10	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$19,008.10	86.69%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$197.34	0.90%
Total Overall Cost:	$19,205.44	87.59%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,721.51	12.41%
Total Margin:	$2,721.51	12.41%
Total Bid Price:	$21,926.95	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	13
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	August 16, 2021
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Revisions to the flume rebar details in the anarobic and the aerations basins per form 38. Cost impacts are due to the addition of a standard hook on the vertical bars and addition of a drilled and hooked bar at the top of the flume concrete to match the vertical bar size and spacing.

Total Cost $ 1,593.07

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0	0	$ 115.49	$ -
Project Manager	1	1.64	1.64	$ 76.56	$ 125.56
Detailer Straight Time	1	2	2	$ 57.24	$ 114.48
Detailer OT Premium	1	0.2	0.2	$ 21.19	$ 4.24
Rebar Foreman Straight Time	1	0	0	$ 62.45	$ -
Rebar Foreman OT Premium	1	0	0	$ 37.11	$ -
Rebar Journeyman Straight Time	2	0	0	$ 49.72	$ -
Rebar Journeyman OT Premium	2	0	0	$ 29.47	$ -
				Sub Total	$ 244.28
				PD & Lodging	$ -
				Labor Total	$ 244.28

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ 1,141.00	$ 1,141.00
		Material Total	$ 1,141.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ -	$ -
		Total	$ -

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 244.28
Material Total	$ 1,141.00
TE&C Total	$ -
Delivery	$ -
Total Cost	$ 1,385.28
OH&P	$ 207.79

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	1,593.07
Credit Total	$	-
Grand Total	**$**	**1,593.07**

CHANGE CONTROL FORM 038
Rebar revisions to Anaerobic and Aeration Basin Flumes

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 08/10/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

See attached construction sketches for clarifications regarding the Aeration basin and Anaerobic basin flume reinforcing and waterstop.

Revise/Coordinate the following Anaerobic & Aeration basin submittals as required:

- Concrete reinforcing

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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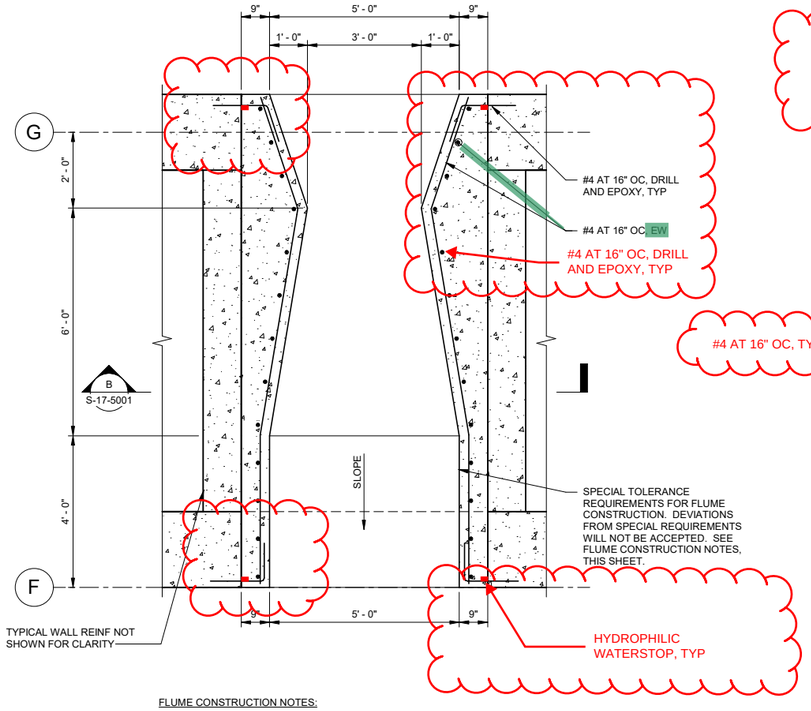
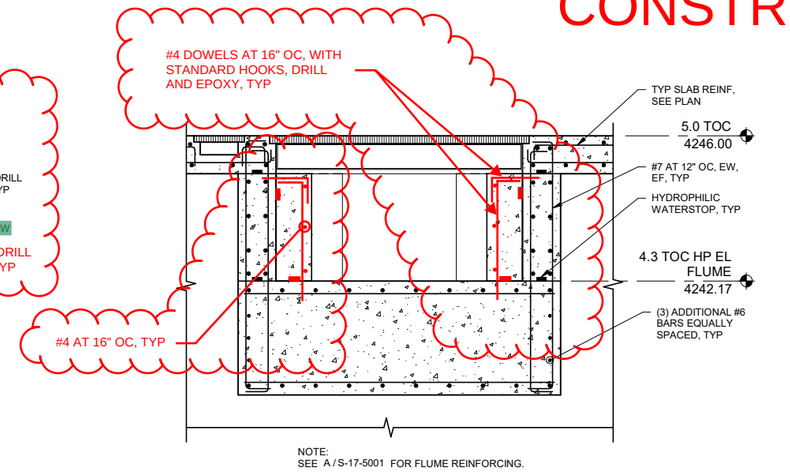
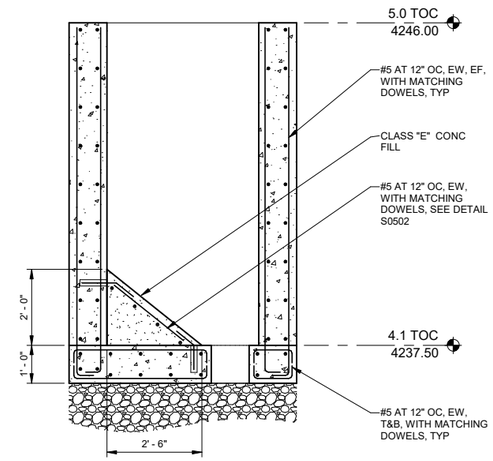
CONSTRUCTION SKETCH





NOTE:
SEE A / S-17-5001 FOR FLUME REINFORCING.



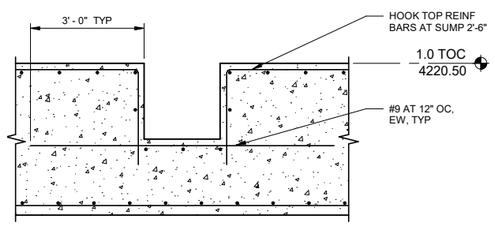
FLUME CONSTRUCTION NOTES:

1. PRE-FLUME-CONSTRUCTION MEETING WITH CONTRACTOR AND CONTRACTOR'S SUPERINTENDENT FOR CONCRETE INSTALLATION, AND CONSTRUCTION MANAGER REQUIRED PRIOR TO FLUME CONSTRUCTION.
2. SUBMIT FORMING SYSTEM FOR APPROVAL PRIOR TO FLUME CONSTRUCTION.
3. DEVELOP SINGLE REUSABLE STEEL FORMWORK SYSTEM TO BE USED FOR EACH OF 4 FLUMES FOR CONSISTENCY BETWEEN EACH INSTALLATION.
4. TOLERANCES FOR CONSTRUCTED FLUMES:
   a. VERTICAL SURFACES PLUMB TO COMMON VERTICAL PLANE WITHIN +/- 1/16-INCH OVER THE HEIGHT OF THE FLUME.
   b. HORIZONTAL SURFACES LEVEL TO COMMON HORIZONTAL PLANE WITHIN +/- 0.005-FOOT OVER THE LENGTH OF THE FLUME.
   c. INTERNAL DIMENSIONS WITHIN +/- 1/8-INCH.
   d. TOC FLUME ELEVATIONS FOR EACH OF 4 FLUMES WITHIN +/- 0.01-FOOT OF EACH OTHER.
5. SUBMIT SURVEYED DIMENSIONS AND ELEVATIONS OF CONSTRUCTED FLUMES FOR FINAL APPROVAL.

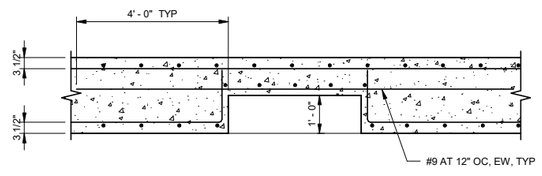
A S-17-1005 **FLUME PLAN**
SCALE: 1/2" = 1'-0"

B S-17-3001 **FLUME CROSS SECTION**
SCALE: 1/2" = 1'-0"

C S-17-1006 **SUMP DETAIL**
SCALE: 1/2" = 1'-0"



D S-17-1003 **DETAIL**
SCALE: 1/2" = 1'-0"



E S-17-1005 **DETAIL**
SCALE: 1/2" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER
FILENAME 151600-S-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

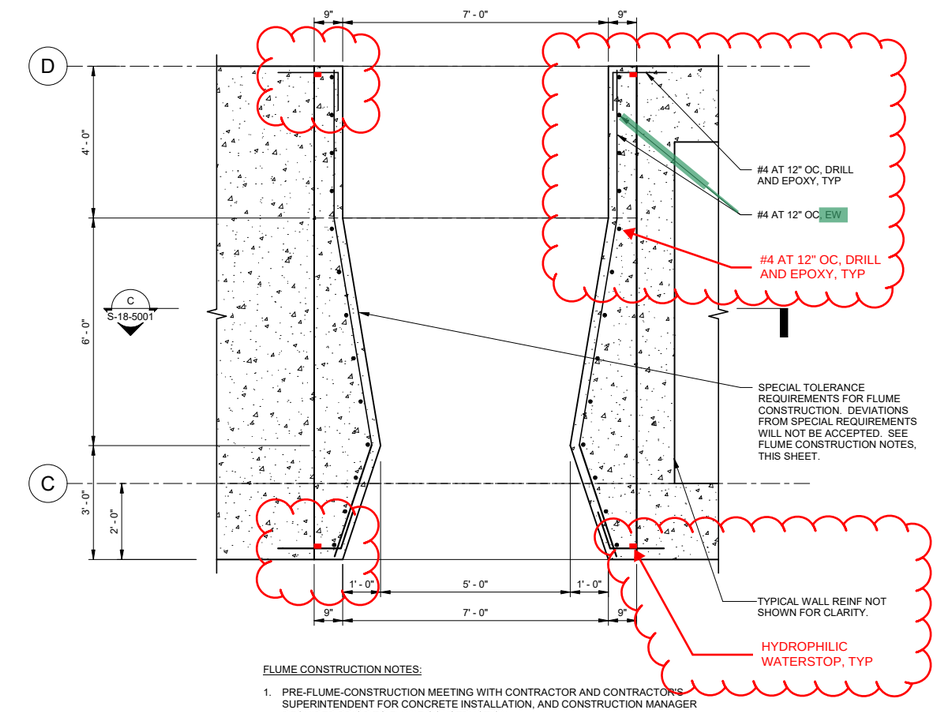
STRUCTURAL

ANAEROBIC BASINS DETAILS 1

DRAWING NUMBER
S-17-5001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:46:02 AM

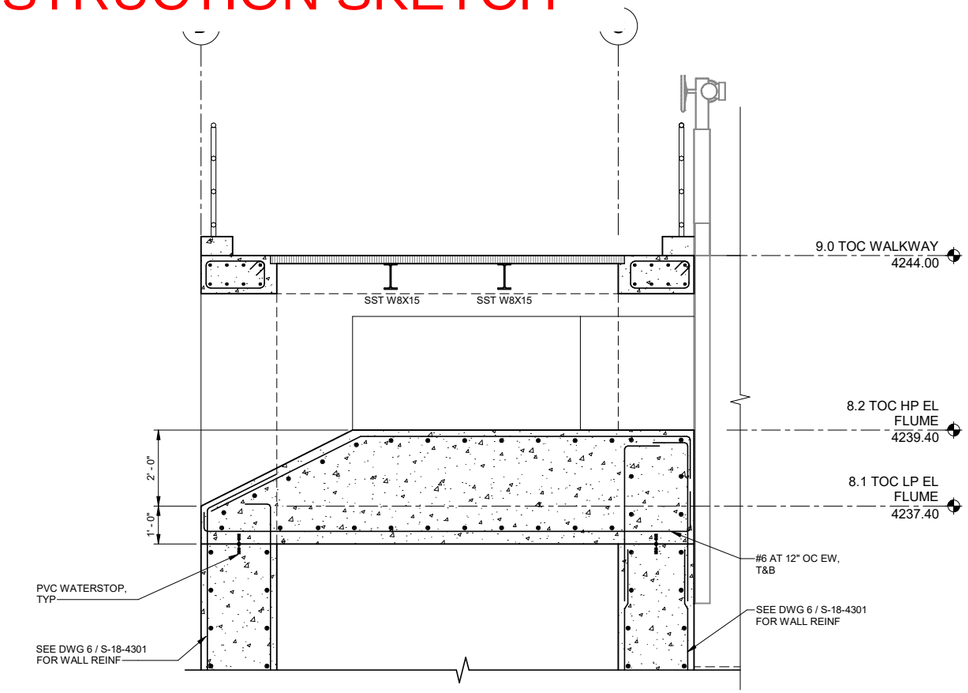
CONSTRUCTION SKETCH



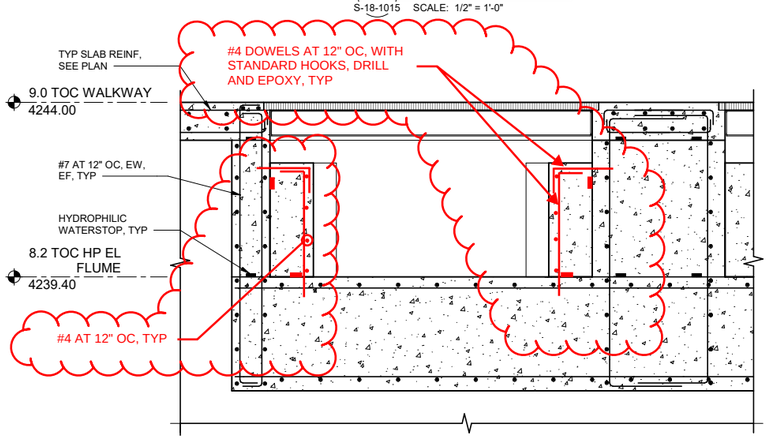
FLUME CONSTRUCTION NOTES:

1. PRE-FLUME-CONSTRUCTION MEETING WITH CONTRACTOR AND CONTRACTOR'S SUPERINTENDENT FOR CONCRETE INSTALLATION, AND CONSTRUCTION MANAGER REQUIRED PRIOR TO FLUME CONSTRUCTION.
2. SUBMIT FORMING SYSTEM FOR APPROVAL PRIOR TO FLUME CONSTRUCTION.
3. DEVELOP SINGLE REUSABLE STEEL FORMWORK SYSTEM TO BE USED FOR EACH OF 8 FLUMES FOR CONSISTENCY BETWEEN EACH INSTALLATION.
4. TOLERANCES FOR CONSTRUCTED FLUMES:
   a. VERTICAL SURFACES PLUMB TO COMMON VERTICAL PLANE WITHIN +/- 1/16-INCH OVER THE HEIGHT OF THE FLUME.
   b. HORIZONTAL SURFACES LEVEL TO COMMON HORIZONTAL PLANE WITHIN +/- 0.005-FOOT OVER THE LENGTH OF THE FLUME.
   c. INTERNAL DIMENSIONS WITHIN +/- 1/8-INCH.
   d. TOC FLUME ELEVATIONS FOR EACH OF 8 FLUMES WITHIN +/- 0.01-FOOT OF EACH OTHER.
5. SUBMIT SURVEYED DIMENSIONS AND ELEVATIONS OF CONSTRUCTED FLUMES FOR FINAL APPROVAL.

A S-18-1015 FLUME PLAN
SCALE: 1/2" = 1'-0"

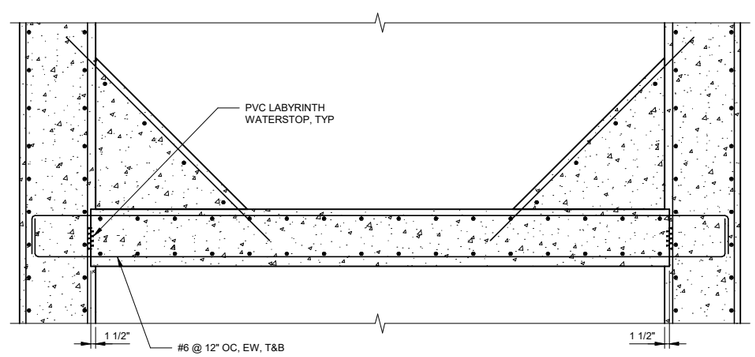


B S-18-3001 FLUME DETAIL
SCALE: 1/2" = 1'-0"

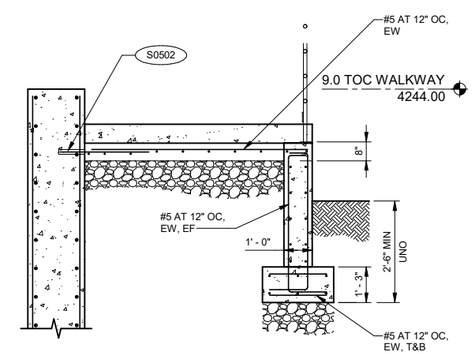


NOTE:
TYPICAL WALL REINF NOT SHOWN FOR CLARITY.

C S-18-5001 FLUME DETAIL
SCALE: 1/2" = 1'-0"



D S-18-3002 DETAIL
SCALE: 1/2" = 1'-0"



E S-18-1012 TYPICAL RAMP SECTION
SCALE: 3/8" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION BASINS DETAILS 1

DRAWING NUMBER
S-18-5001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:54 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 036
Date: 10/14/2021
Description: Per Control Change Form #039: Credit to remove Slide Gates, SGTE181101, SGTE181102, SGTE181103, SGTE181201, SGTE181202, SGTE181203, SGTE181301, SGTE181302, SGTE181303, SGTE181401, SGTE181402, and SGTE181403, from the Aeration Basin.

Golden Harvest Credit (see attached back-up):	-$42,300.00
Gerber Gate Install Credit (see attached back-up):	-$6,456.00
Total:	**-$48,756.00**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$48,756.00 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-036 Revise Opening In Baffle Walls Delete S-Gates CC#039	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-036	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Road, Slat Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Gate Credit (Golden Harvest)	**1.00**	**UNIT**	**($42,300.00)**	**($42,300.00)**	**($42,300.00)**	**($42,300.00)**	**0.00%**
(12) Slide Gates Credit	1.00	LS	($42,300.00)	($42,300.00)			
02 - Gerber Gate Install Credit	**1.00**	**UNIT**	**($6,456.00)**	**($6,456.00)**	**($6,456.00)**	**($6,456.00)**	**0.00%**
Gerber Gate Install Credit	12.00	UP	($538.00)	($6,456.00)			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	($42,300.00)	86.76%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	($6,456.00)	13.24%
Plug:	$0.00	0.00%
Direct Cost:	($48,756.00)	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	($48,756.00)	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	($48,756.00)	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	($48,756.00)	

Golden Harvest, Inc.
Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 4-CO

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: Joshua McGaughey @ 1-800-338-6238

PLEASE RESPOND TO:

GOBLE SAMPSON AND ASSOCIATES, INC
3500 SOUTH MAIN STREET, SUITE 200
SALT LAKE CITY, UT 84115

ATTN:

David Ritter
dritter@goblesampson.com

PHONE: 801-268-8790
FAX: 801-268-8792

DATE: May 12th 2020 **Rev-4-CO - August 9, 2021**
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

CHANGE ORDER

SPECIFICATION: 40 05 59.13 FABRICATED STAINLESS STEEL SLIDE GATE, 40 05 57.23-2 POWERED ACTUATORS

#	LOCATION	GATE	SIZE	TYPE	QTY	TOTAL
10	AERATION BASIN DRAINAGE CHANNELS	SGTE181101 SGTE181102 SGTE181103 SGTE181201 SGTE181202 SGTE181203 SGTE181301 SGTE181302 SGTE181303 SGTE181401 SGTE181402 SGTE181403	18" x 32"	MODEL GH-46ME TYPE 316L STAINLESS STEEL SLIDE GATE. NON-SELF-CONTAINED WALL MOUNTED FRAME. UHMW SEATS/ SEALS. TYPE 316 STAINLESS STEEL STEM WITH COLD ROLLED THREADS UHMW STEM GUIDE BUSHINGS. PEDESTAL MOUNTED HAND WHEEL OPERATOR. CLEAR STEM COVER WITH POSITION INDICATOR. STOP NUTS.	12	**DELETE THIS 12 GATES**
				CHANGE ORDER TO DELETE 12 GATES:	**12**	**$42,300.00**

1. Stainless steel anchor bolts are included for concrete mounted frames.
2. Epoxy adhesive by contractor.

CHANGE CONTROL FORM 039
Revise Opening in Baffle Wall and delete Slide Gates

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 08/16/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide 3.5-inch opening between Aeration Basin Slab and baffle wall for each train and each baffle wall to minimize the differential head pressure on the baffle wall instead of the specified blow out panels.

Delete slide gates SGTE 181101, 181102,181103, 181201, 181202,181203, 181301, 181302,181303, 181401, 181402, and 181403. A total of twelve (12) slide gates will be deleted.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 020
Date: 4/6/2021
Description: Per RFI #068 Response: Cost to increase to add 1% slope to Anaerobic Basin floor slab.

Rocky Mountain Rebar (see attached back-up):	$4,888.30
Concrete Pumping (see attached back-up):	$1,650.00
Mark-up (5%):	$326.92
Gerber Construction Material & Labor (see attached back-up):	$20,370.30
Bonds:	$275.47
Mark-up (15%):	$3,096.86
Total:	**$30,607.85**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $30,607.85 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-020 Anaerobic Basin Slope RFI#68	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-020	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Anaerobic Basin Slope RFI#68	**1.00**	**LS**	**$26,908.60**	**$26,908.60**	**$30,607.85**	**$30,607.85**	**12.59%**
Concrete, Cast-in-Place Small Structures	66.00	CY	$333.64	$22,020.30			
Concrete, Pumping Sub	66.00	CY	$25.00	$1,650.00			
Concrete Crew, 04 Men (1.64 MH/CY, 3.00 DY)	66.00	CY	$145.95	$9,632.75			
02 Foreman	27.00	HR	$107.76	$2,909.41			
03 Leadman	27.00	HR	$95.38	$2,575.17			
04 Skilled Labor	27.00	HR	$83.01	$2,241.21			
05 General Labor	27.00	HR	$70.63	$1,906.97			
Concrete, 4000 PSI Engineered	67.98	CY	$157.95	$10,737.54			
Rebar - Sub	1.00	LS	$4,888.30	$4,888.30			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$9,632.75	35.80%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$10,737.54	39.90%
Subcontracted:	$6,538.30	24.30%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$26,908.60	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$26,908.60	87.91%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$275.47	0.90%
Total Overall Cost:	$27,184.07	88.81%
Total Overhead:	$0.00	0.00%
Total Profit:	$3,423.78	11.19%
Total Margin:	$3,423.78	11.19%
Total Bid Price:	$30,607.85	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	6
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	February 11, 2021
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Additional detailing and install labor hours for the anaerobic basin slab top mat rebar due to a 1% slope being added towards the trench drains. Additional detailer hours were required to make the necessary adjustments to the mat rebar and standees. Additional install hours will be required due to additional labor for sloping and templating up the top mat rebar to the required slope. Rebar quantity impacts are negligible. Changes are per RFI 68

Total Cost $ 4,888.30

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.57	0.57	$ 115.49	$ 65.83
Project Manager	1	2.83	2.83	$ 76.56	$ 216.66
Detailer Straight Time	1	4	4	$ 57.24	$ 228.96
Detailer OT Premium	1	1	1	$ 21.19	$ 21.19
Rebar Foreman Straight Time	1	20	20	$ 62.45	$ 1,249.00
Rebar Foreman OT Premium	1	5	5	$ 37.11	$ 185.55
Rebar Journeyman Straight Time	2	20	40	$ 49.72	$ 1,988.80
Rebar Journeyman OT Premium	2	5	10	$ 29.47	$ 294.70
				Sub Total	$ 4,250.69
				PD & Lodging	$ -
				Labor Total	$ 4,250.69

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ -	$ -
		Material Total	$ -

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ -	$ -
		Total	$ -

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 4,250.69
Material Total	$ -
TE&C Total	$ -
Delivery	$ -
Total Cost	$ 4,250.69
OH&P	$ 637.60

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	4,888.30
Credit Total	$	-
Grand Total	**$**	**4,888.30**

RFI #68

Brown & Caldwell -Program Management
6975 Union Park Center, Suite 490
Salt Lake City, Utah 84047
Phone: +1 801 316 9832

Project: CC 30B - BNR Basins
800 West Central Valley Rd.
South Salt Lake City, Utah 84119
Phone: 8019739100

Anaerobic Basin Slope

TO: Dana Henshaw **(Brown & Caldwell -Program Management)** *(Response Required)*
Mike Kobe **(Brown & Caldwell -Program Management)**
Mark Hansen **(Brown & Caldwell -Program Management)**
Jon Harper **(Brown & Caldwell -Program Management)**
Neil Kunz **(Brown & Caldwell -Program Management)** *(Response Required)*

FROM: Jordon Miller **(Gerber Construction)**
STATUS: Closed on 02/05/21
DUE DATE: 01/25/2021
COST CODE:
SCHEDULE IMPACT:
SPEC SECTION:
REFERENCE:

DATE INITIATED: 01/14/2021
LOCATION:
PROJECT STAGE:
COST IMPACT:
DRAWING NUMBER:
LINKED DRAWINGS:
RECEIVED FROM:
COPIES TO:
Shay Clark **(Gerber Construction)**, Phil Duncan **(Gerber Construction)**, Neil Kunz **(Brown & Caldwell -Program Management)**, Jordon Miller **(Gerber Construction)**, Jeromie Miner **(Gerber Construction)**

Question from Jordon Miller (Gerber Construction) at 01:02 PM on 01/14/2021

Please confirm we are to add a 1% slope (1/8" per foot) to the Anaerobic Basin floors to drain towards the trench drains. Please note this will change the TOC elevations. If slope is desired please provide updated TOC elevations.

Official Response: **Dana Henshaw (Brown & Caldwell -Program Management)** *responded on Thursday, February 4th, 2021 at 4:00PM CST*
Slope is confirmed at the anaerobic basin, update top of concrete to 4220.75' along gridlines 2 and 4. See updated construction sketch for additional information.

Attachments:
RFI #68.1 Construction Sketch.pdf

All Replies:

Response from Dana Henshaw (Brown & Caldwell -Program Management) at 04:00 PM on 02/04/2021

Slope is confirmed at the anaerobic basin, update top of concrete to 4220.75' along gridlines 2 and 4. See updated construction sketch for additional information.

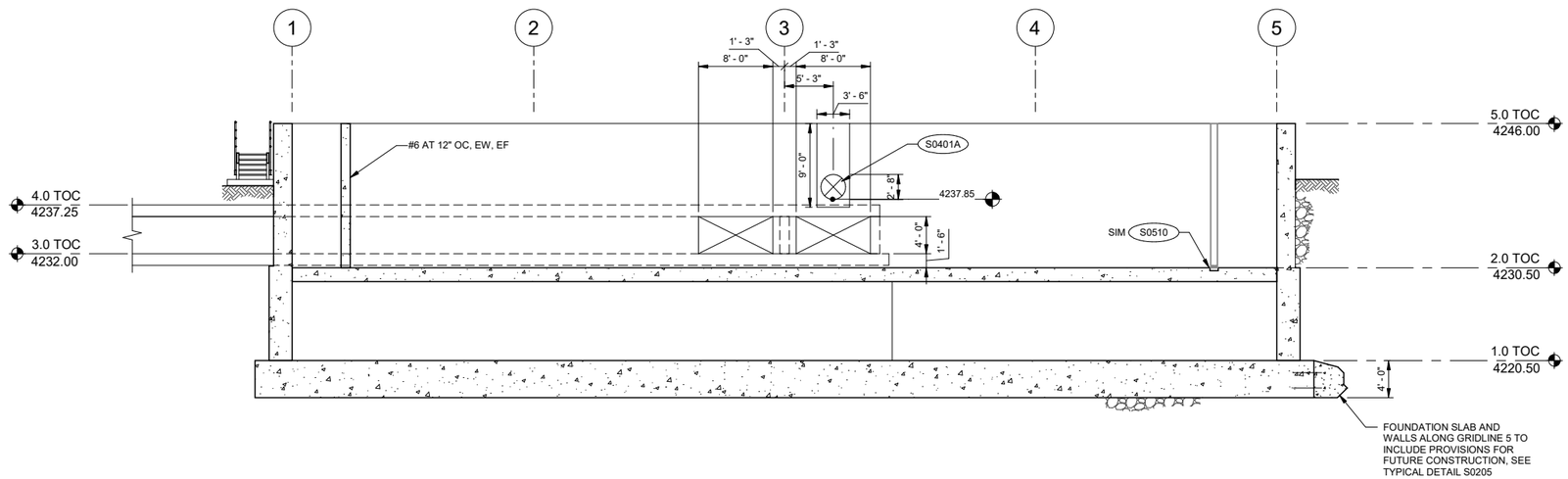
Attachments:
RFI #68.1 Construction Sketch.pdf

Response from Dana Henshaw (Brown & Caldwell -Program Management) at 03:31 PM on 01/25/2021

Slope is confirmed. Please see attached construction sketch for updated top of concrete elevations and updated reinforcing at foundation. Coordinate with concrete lift drawing and reinforcing shop drawing submittals and resubmit as required.

Attachments:
RFI #68 Construction Sketch.pdf

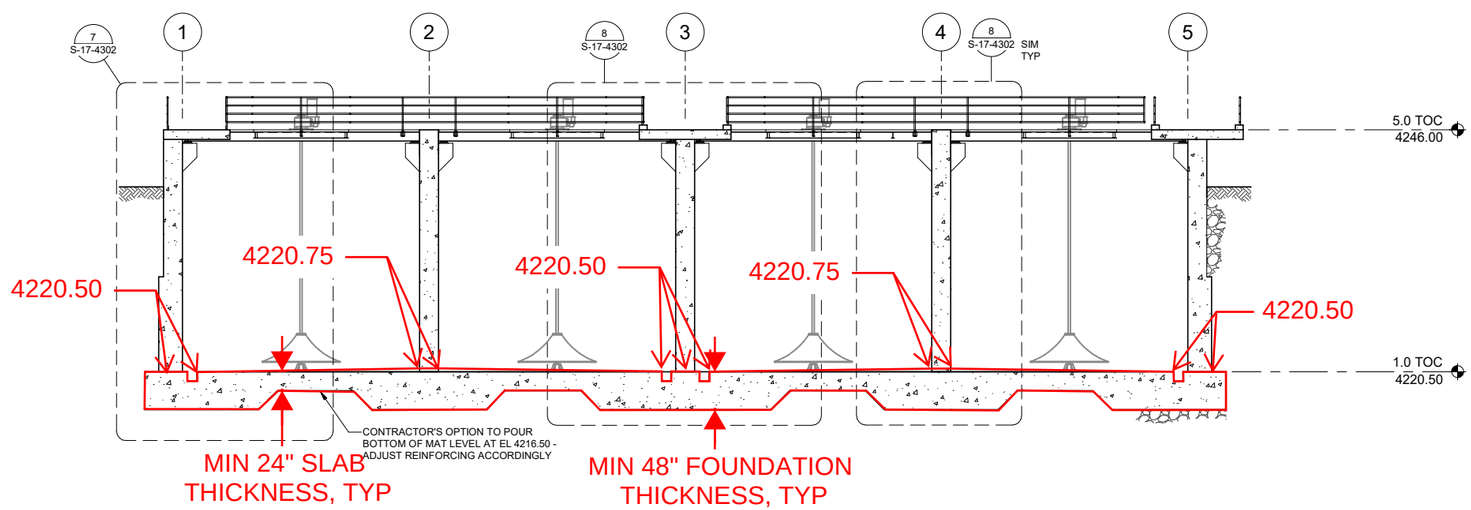
BY **DATE** **COPIES TO**



NOTES:

1. MAINTAIN ELEVATIONS SHOWN ON GRIDLINES 1-5.
2. UPDATE WATERSTOP PLACEMENT IN SLAB (ALONG GRIDLINES A, B, F, G, H) AS REQUIRED.

3 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"



4 SECTION
S-17-1001 SCALE: 1/8" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-17V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

ANAEROBIC BASINS SECTIONS 2

DRAWING NUMBER
S-17-3002

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:45:56 AM

CHANGE CONTROL FORM 044
Anaerobic Basin Floor Slope

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 04/06/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide pricing to slope the floors of the anaerobic basin per RFI068 response.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 044
Date: 1/7/2022
Description: Per Control Change Form #045: Cost for revisions to Aeration Basin suspended slab and walkway reinforcing.

Rocky Mountain Rebar (see attached back-up):	$14,022.94
Mark-up (5%):	$701.15
Onsite Coordination & Management (see attached back-up):	$713.05
Bonds:	$141.36
Mark-up (15%):	$128.16
Total:	**$15,706.66**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $15,706.66 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-044 Additional Rebar AB Walkways CC#45	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-044	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Additional Rebar For AB Walkways	**1.00**	**LS**	**$14,735.99**	**$14,735.99**	**$15,706.66**	**$15,706.66**	**5.57%**
Rebar - Sub	1.00	LS	$14,022.94	$14,022.94			
Gerber Management	1.00	LS	$713.05	$713.05			
01 Superintendent	2.00	HR	$152.19	$304.38			
20 Project Engineer	2.00	HR	$116.26	$232.52			
18 Project Manager	1.00	HR	$176.15	$176.15			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$713.05	4.84%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$14,022.94	95.16%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$14,735.99	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$14,735.99	93.82%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$141.36	0.90%
Total Overall Cost:	$14,877.35	94.72%
Total Overhead:	$0.00	0.00%
Total Profit:	$829.31	5.28%
Total Margin:	$829.31	5.28%
Total Bid Price:	$15,706.66	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	16 R1
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	January 7, 2022
ATTENTION:	Jeromie

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Revisions to the suspended slab and walkway reinforcing per Form 45 and shop drawing redline comments

Total Cost **$ 14,022.94**

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.5	0.5	$ 115.49	$ 55.09
Project Manager	1	2.6	2.6	$ 76.56	$ 200.05
Detailer Straight Time	1	9	9	$ 57.24	$ 515.16
Detailer OT Premium	1	0.9	0.9	$ 21.19	$ 19.07
Rebar Foreman Straight Time	1	23	23	$ 62.45	$ 1,436.35
Rebar Foreman OT Premium	1	2.3	2.3	$ 24.00	$ 55.20
Rebar Journeyman Straight Time	2	23	46	$ 49.72	$ 2,287.12
Rebar Journeyman OT Premium	2	2.3	4.6	$ 16.41	$ 75.49
				Sub Total	$ 4,643.53
				PD & Lodging	$ -
				Labor Total	$ 4,643.53

Materials

Description	Quantity	Unit Cost	Total
Rebar 7064 Lbs	1	$ 7,094.00	$ 7,094.00
		Material Total	$ 7,094.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 456.33	$ 456.33
		Total	$ 456.33

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 4,643.53
Material Total	$ 7,094.00
TE&C Total	$ 456.33
Delivery	$ -
Total Cost	$ 12,193.86
OH&P	$ 1,829.08

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	14,022.94
Credit Total	$	-
Grand Total	**$**	**14,022.94**

CHANGE CONTROL FORM 045
Additional Rebar for AB Walkways

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/12/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Add additional reinforcement for elevated platforms #6 Rebar at 6" OC East-West, T&B between Gridlines 9 and 10 per attached redlines to Drawings S-18-1014 and S-18-1015 and comments to Submittal 62.4 Shop Dwgs Aeration Basin Rebar Shop Dwgs, Drawing AER-SS-02.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

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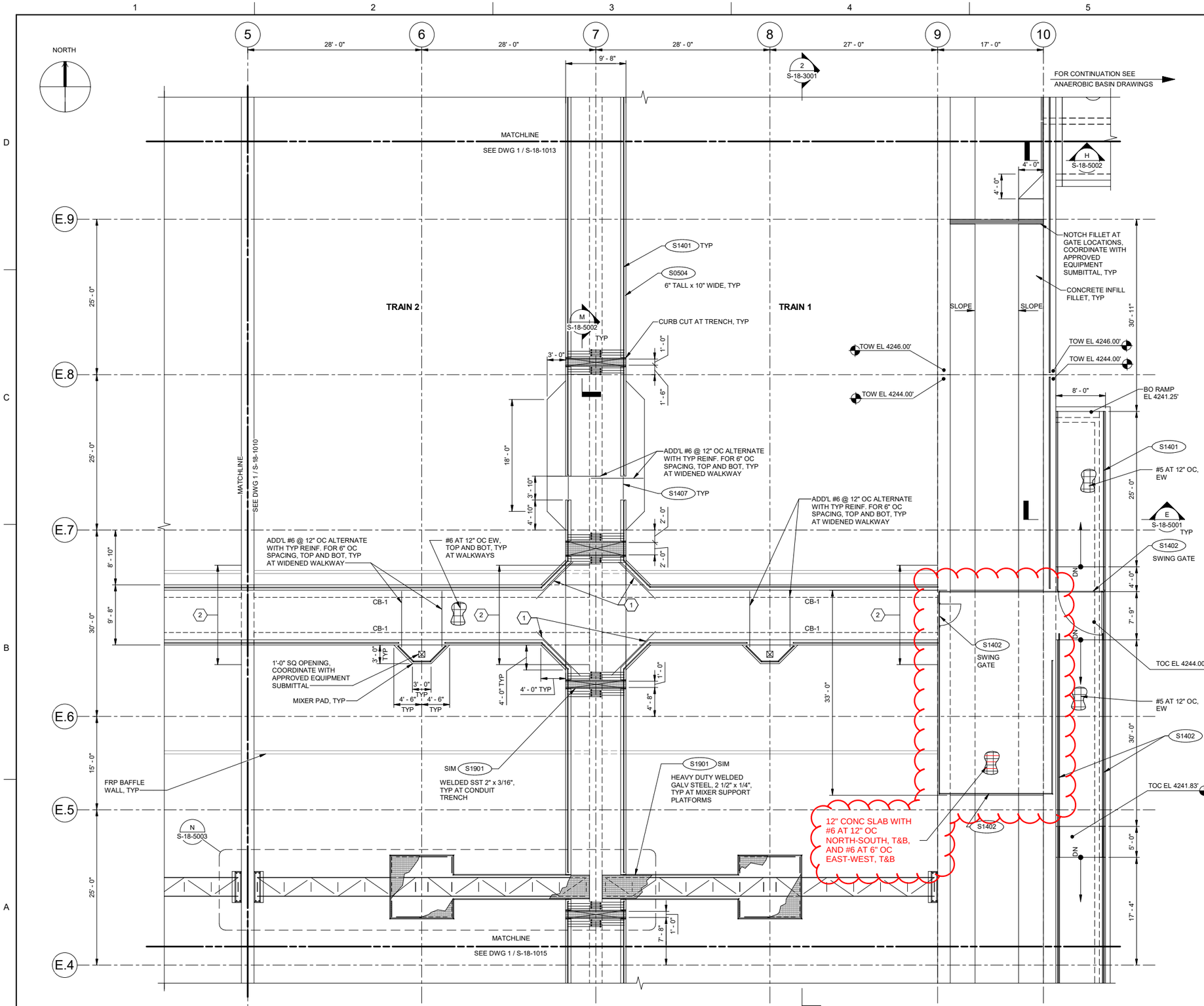
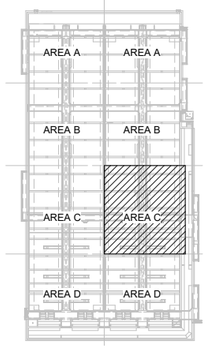


PLAN

SCALE: 1/8" = 1'-0"



Key Plan

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. CB-"X" CONCRETE BEAM, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
13. CC-"X" CONCRETE COLUMN, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
14. SLAB "X" CONCRETE SLAB, SEE S-18-6001 FOR REINFORCING SCHEDULE.
15. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
16. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT SUBMITTAL.
17. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS
2. ADDITIONAL VERTICAL WALL REINFORCING 8'-0" SOUTH TO 8'-0" NORTH OF CENTER OF WALKWAY (16'-0" TOTAL). ADDITIONAL #9 x FULL HEIGHT VERTICAL BARS AT 12" OC SPACING, EACH FACE, ALT WITH TYPICAL VERTICAL BARS FOR 6" SPACING. ALL VERTICAL BARS WITHIN SPECIFIED AREA TO BE HOOKED WITH STANDARD HOOKS AT TOP OF CB-1 BEAM.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA C UPPER PLAN

DRAWING NUMBER
S-18-1014

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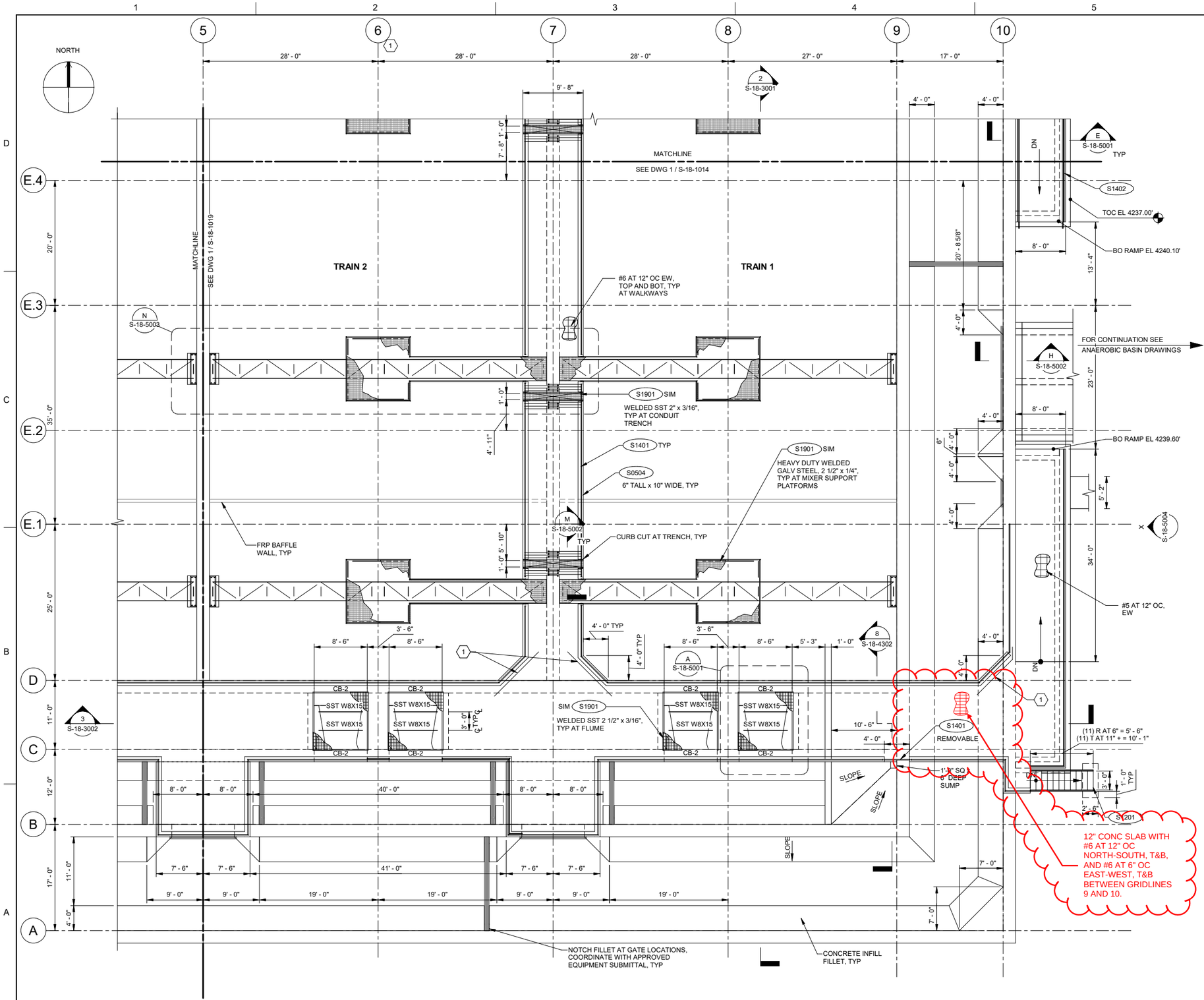
Plot Date: 6/4/2020 12:00:25 PM



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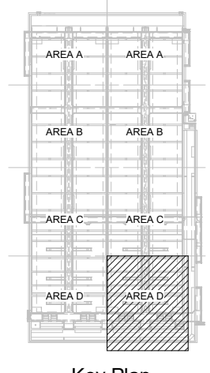

Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA D UPPER PLAN

DRAWING NUMBER
S-18-1015

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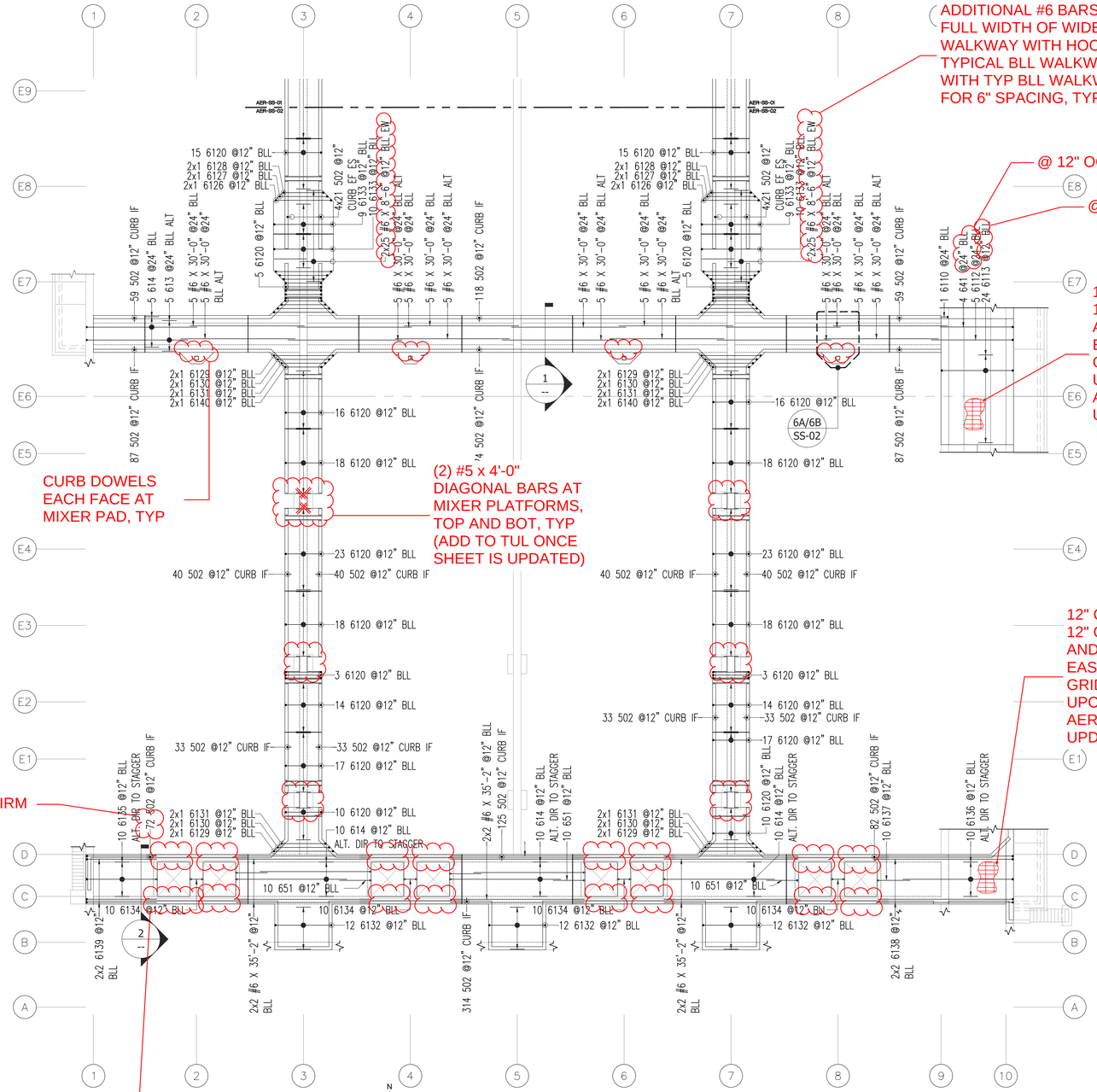
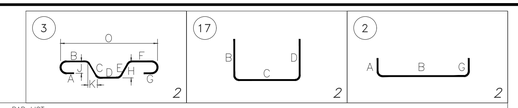
Plot Date: 6/4/2020 12:00:28 PM



AERATION BASIN - UPPER SLAB - BLL
REF: S-18-1003

6B SLAB DETAIL - TRIM

6A SLAB DETAIL
REF: S-18-1003
4 LOCATIONS



Drawing Sheet : AER-SS-02

BAR LIST

Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
501	32	#5	3'-8 ¾"	3		0'-10"	2'-10 ¾"					2'-1"		2'-0 ¾"	2'-10 ¾"	
502	1637	#5	2'-3 ¼"	17		1'-1 ¼"	1'-2"									
613	5	#6	27'-7"	2	1'-0"	26'-7"										
614	35	#6	30'-0"	2	1'-0"	29'-0"										
638	32	#6	4'-10"	2	1'-0"	3'-10"										
641	4	#6	20'-0"	2	1'-0"	19'-0"										
651	30	#6	9'-2"	2	1'-0"	8'-2"										
674	16	#6	11'-9"	2	1'-0"	9'-9"					1'-0"					
675	16	#6	12'-3"	2	1'-0"	10'-3"					1'-0"					
676	16	#6	12'-9"	2	1'-0"	10'-9"					1'-0"					
677	16	#6	13'-3"	2	1'-0"	11'-3"					1'-0"					
678	16	#6	13'-9"	2	1'-0"	11'-9"					1'-0"					
679	16	#6	14'-3"	2	1'-0"	12'-3"					1'-0"					
[illegible]	16	#6	14'-4"	2	1'-0"	12'-4"					1'-0"					
[illegible]	24	#6	11'-4"	2	1'-0"	10'-4"										
[illegible]	24	#6	1'-8"	2	1'-0"	0'-8"										
[illegible]	8	#6	6'-0 ½"	2	1'-0"	4'-0 ½"					1'-0"					
[illegible]	8	#6	5'-6 ½"	2	1'-0"	3'-6 ½"					1'-0"					
[illegible]	1	#6	3'-0"	2	1'-0"	2'-0"										
[illegible]	5	#6	22'-5"	2	1'-0"	21'-5"										
[illegible]	24	#6	20'-8"	2	1'-0"	18'-8"					1'-0"					
[illegible]	278	#6	11'-8"	17		1'-2"	9'-4"	1'-2"								
[illegible]	4	#6	12'-6"	2	1'-0"	10'-6"					1'-0"					
6127	4	#6	14'-6"	2	1'-0"	12'-6"					1'-0"					
6128	4	#6	16'-6"	2	1'-0"	14'-6"					1'-0"					
6129	8	#6	17'-10"	17		1'-2"	15'-6"	1'-2"								
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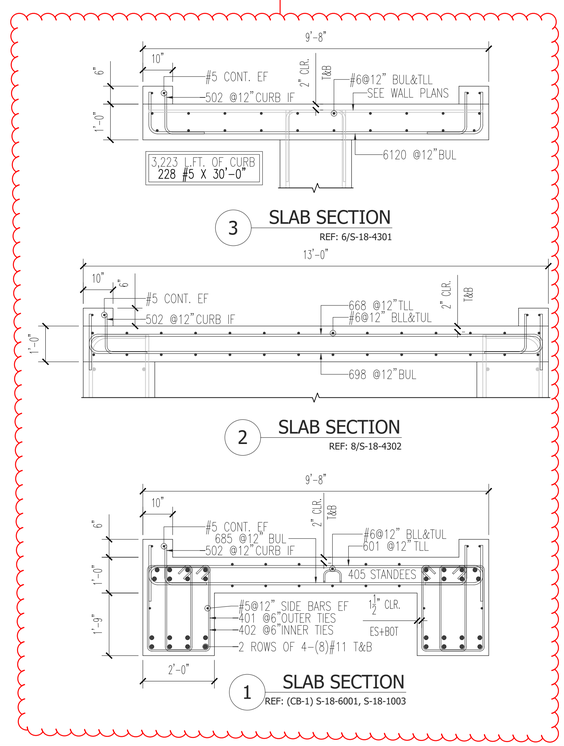
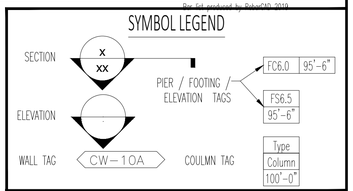
6131	8	#6	13'-10"	17		1'-2"	11'-6"	1'-2"								
6132	36	#6	17'-0"	17		1'-2"	14'-8"	1'-2"								
6133	38	#6	17'-4"	2	1'-0"	15'-4"					1'-0"					
6134	40	#6	5'-2"	2	1'-0"	3'-2"					1'-0"					
6135	10	#6	20'-5"	2	1'-0"	18'-5"					1'-0"					
6136	10	#6	29'-10"	2	1'-0"	28'-10"										
6137	10	#6	9'-6"	2	1'-0"	8'-6"										
6138	4	#6	36'-5"	2	1'-0"	35'-5"										
[illegible]	4	#6	19'-5"	2	1'-0"	18'-5"										
[illegible]	4	#6	11'-10"	17		1'-2"	9'-6"	1'-2"								

Bar list produced by RebarCAD 2019



SYMBOL LEGEND



ABBREVIATIONS LIST

ADDL	Additional	EXIST	Existing	STIR	Stirrup
ADJ	Adjacent	(E)	Existing	STK	Stock
ALT	Alternate	EXT	Exterior	SW	Short Way
@	At	FDN	Foundation	SHW	Shear Wall
B	Bottom	FF	Finish Floor	T	Top
BM	Beam	FLR	Floor	T&B	Top and Bottom
BOT	Bottom	FTG	Footing	TH	T-Head
BOF	Bottom of Footing	HOR	Horizontal	T1E	Thread one End
BTWN	Between	IF	Inside Face	T2E	Thread two Ends
BLL	Bottom Lower Layer	INT	Interior	TOC	Top of Concrete
BUL	Bottom Upper Layer	LL	Lower Layer	TOF	Top of Footing
CB	Corner Bar	LW	Long Way	TOM	Top of Masonry
CC	Center to Center	NF	Near Face	TOP	Top of Pier
CL	Center Line	NTS	Not to Scale	TOS	Top of Slab
CLR	Clear	OC	On Center	TOW	Top of Wall
CMU	Concrete Masonry Unit	OD	Outside Diameter	THRD	Threaded
COL	Column	OF	Outside Face	TLL	Top Lower Layer
CONC	Concrete	OPNG	Opening	TUL	Top Upper Layer
CONT	Continuous	PT	Post Tension	TYP	Typical
COR	Corner	QTY	Quantity	UNO	Unless Noted Otherwise
CTS	Cut to Suit	REINF	Reinforcing	VERT	Vertical
DIA	Diameter	SB	Support Bar	W/	With
DIAG	Diagonal	SOD	Slab on Deck	W/O	Without
DWG	Drawing	SOMD	Slab on Metal Deck	WWM	Welded Wire Mesh
DWLS	Dowels	SOG	Slab on Grade		
EA	Each	STAG	Stagger		
EF	Each Face	STD	Standard		
EL	Elevation				
EV	Elevator				
ELEV	Elevator				
EPOX	Epoxy				
EQ	Equal				
EQPT	Equipment				
ES	Each Side				
EW	Each Way				

THIS DRAWING TO BE USED FOR REBAR PLACEMENT ONLY AND NOT TO BE USED BY ANY OTHER TRADE. CONFIRM ALL DIMENSIONS WITH ARCHITECTURAL & STRUCTURAL DRAWINGS.

A/E: PLEASE CONFIRM ALL CLOUDED AREAS. IF CLOUDED IS NOT ANSWERED, THEN IT IS ASSUMED CORRECT AND WILL BE SEND OUT AS SUCH.

ALL REINFORCING BARS CONFORM TO ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.

REV	REVISION DESCRIPTION	DATE
0	FOR APPROVAL	09/10/21

ROCKY MOUNTAIN REBAR
1525 WEST STONE FIELD WAY
PLEASANT VIEW, UTAH 84404
801-866-7182

TITLE: UPPER SLAB
BOTTOM LOWER LAYER – SOUTH
PROJECT: CVWRF BNR BASINS
AERATION BASIN
CUSTOMER: GERBER CONSTRUCTION INC.
DRAWN BY ERIC A. LARSEN
DATE: 09/01/21
SHEET: 2 OF 9
JOB #: 0179
DWG #: AER-SS-02

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 037
Date: 10/22/2021
Description: Per Control Change Form #046: Cost for labor, equipment and material for additional reinforcing added to the Anaerobic Basin walkway slabs.

Rocky Mountain Rebar (see attached back-up):	$3,351.90
Mark-up (5%):	$167.60
Gerber Labor, Equipment & Materials (see attached):	$5,397.32
Onsite Coordination & Management (see attached back-up):	$444.60
Bonds:	$93.10
Mark-up (15%):	$890.25
Total:	**$10,344.77**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $10,344.77 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-037 Additional Rebar For ANB Walkways	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-037	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Additional Rebar For ANB Walkways	**1.00**	**LS**	**$9,193.82**	**$9,193.82**	**$10,344.77**	**$10,344.77**	**11.39%**
Gerber Management	1.00	LS	$444.60	$444.60			
17 Project Manager	1.00	HR	$176.15	$176.15			
19 Project Engineer	1.00	HR	$116.26	$116.26			
01 Superintendent	1.00	HR	$152.19	$152.19			
Rebar Sub	1.00	LS	$3,351.90	$3,351.90			
Rebar - Sub	1.00	LS	$3,351.90	$3,351.90			
Additional Gerber Work (Drill & Epoxy)	1.00	LS	$5,397.32	$5,397.32			
Labor Crew, 2 Man (0.50 LS/DY, 2.00 DY)	1.00	LS	$4,841.77	$4,841.77			
Truck, Pickup, 1 Ton	0.09	MO	$1,481.25	$136.71			
02 Foreman	18.00	HR	$120.14	$2,162.44			
05 General Labor [2]	18.00	HR	$70.63	$2,542.62			
Simpson Strong Tie Set XP	10.00	EACH	$39.47	$394.68			
Drill Bits & Misc	1.00	LS	$160.88	$160.88			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$5,149.66	56.01%
Equipment Owned:	$136.71	1.49%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$555.56	6.04%
Subcontracted:	$3,351.90	36.46%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$9,193.82	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$9,193.82	88.87%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$93.10	0.90%
Total Overall Cost:	$9,286.92	89.77%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,057.85	10.23%
Total Margin:	$1,057.85	10.23%
Total Bid Price:	$10,344.77	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	12
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	July 28, 2021
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Revised rebar spacing at the Anarobic basin platform, located at grid G-5. EOR shop drawing redline comments revised the spacing from 12" to 6". See returned shop drawing sheet ANA-S-11 & ANA-S-13 for details.

Total Cost $ 3,351.90

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.1	0.1	$ 115.49	$ 7.62
Project Manager	1	1.7	1.7	$ 76.56	$ 126.63
Detailer Straight Time	1	1.0	1.0	$ 57.24	$ 57.24
Detailer OT Premium	1	0.1	0.1	$ 21.19	$ 2.12
Rebar Foreman Straight Time	1	4.0	4.0	$ 62.45	$ 249.80
Rebar Foreman OT Premium	1	0.4	0.4	$ 37.11	$ 14.84
Rebar Journeyman Straight Time	2	4.0	8.0	$ 49.72	$ 397.76
Rebar Journeyman OT Premium	2	0.4	0.8	$ 29.47	$ 23.58
				Sub Total	$ 879.59
				PD & Lodging	$ -
				Labor Total	$ 879.59

Materials

Description	Quantity	Unit Cost	Total
Rebar 1942 Lbs	1	$ 1,998.00	$ 1,998.00
		Material Total	$ 1,998.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 37.10	$ 37.10
		Total	$ 37.10

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 879.59
Material Total	$ 1,998.00
TE&C Total	$ 37.10
Delivery	$ -
Total Cost	$ 2,914.69
OH&P	$ 437.20

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	3,351.90
Credit Total	$	-
Grand Total	**$**	**3,351.90**

CHANGE CONTROL FORM 046
Additional Rebar for ANB Walkways

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/12/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Add additional reinforcement for elevated platforms E-W reinforcing spacing revised from 12" to 6" on center per attached comments to Submittal 83.3 Show Dwgs Anaerobic Basin Rebar, Drawing ANA-S-11.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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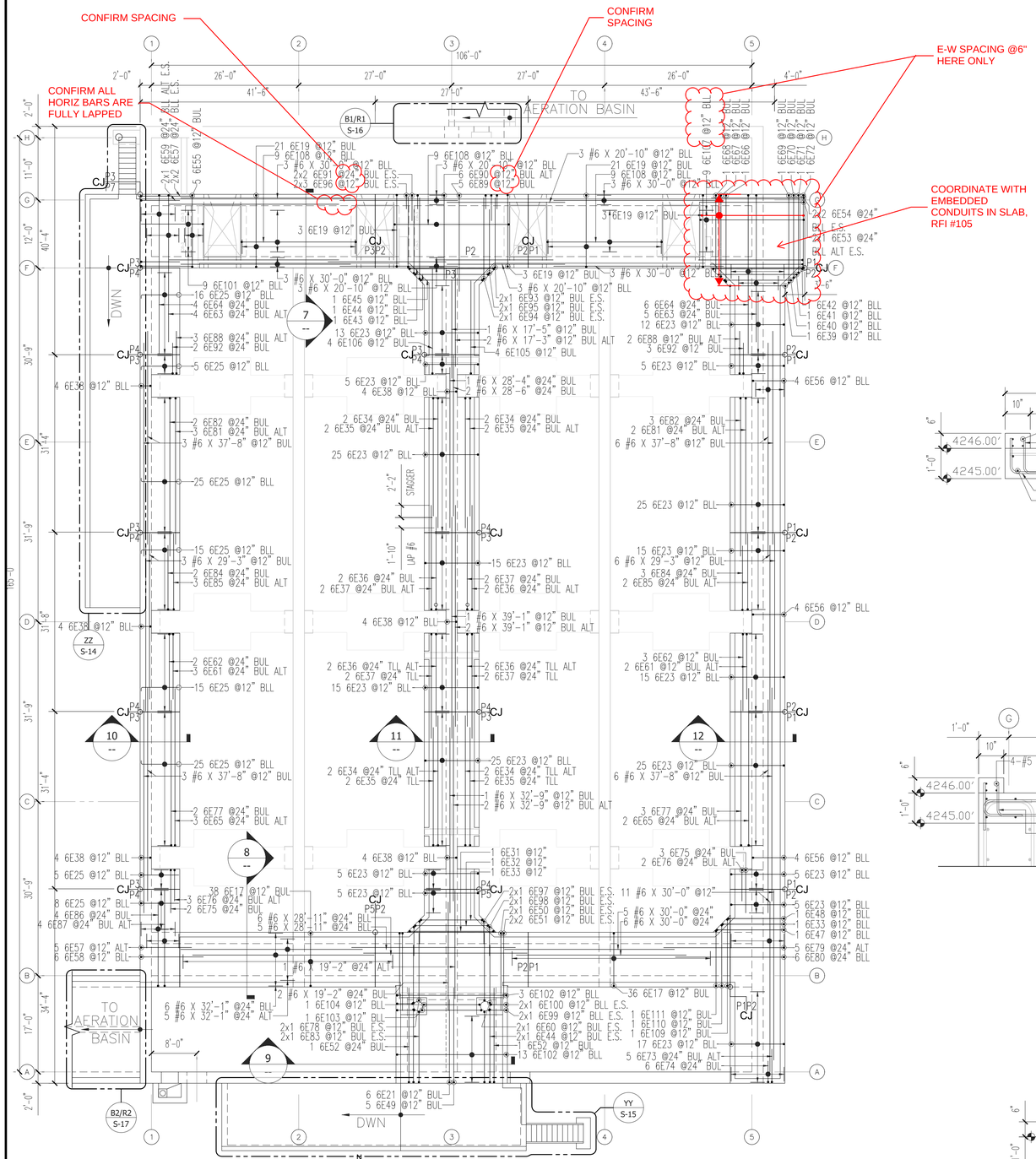
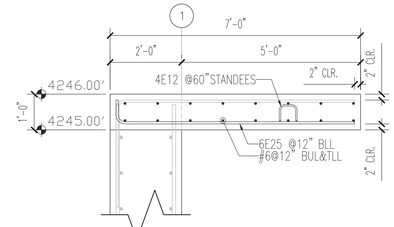
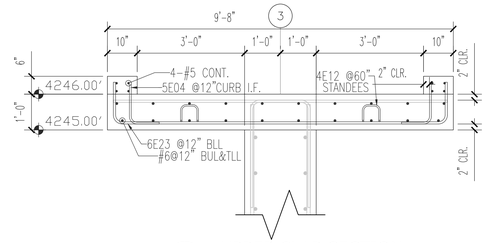


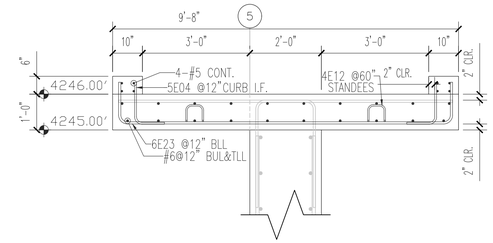
UPPER SLAB WALKWAY - BLL & BUL
REF: S-17-1005, S-17-1006



10 UPPER SLAB SECTION
REF: S-17-1005, S-17-1006, 7/S-17-4302

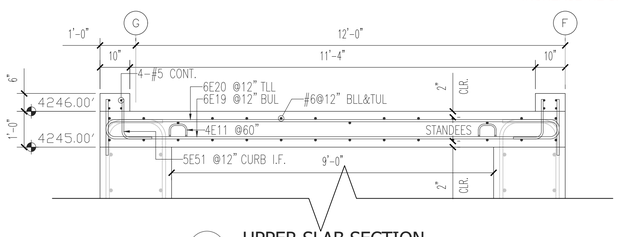


11 UPPER SLAB SECTION
REF: S-17-1005, S-17-1006, 8/S-17-4302



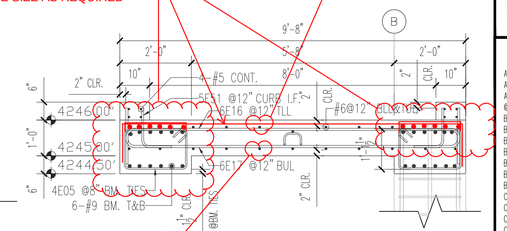
12 UPPER SLAB SECTION
REF: S-17-1005, S-17-1006, 8/S-17-4302

UPDATE REINFORCING PER SIM DETAIL Y/S-18-6001. FLIP MATS IN SLAB, RAISE PRIMARY REINFORCING IN BEAM AND INCREASE TIE SIZE AS REQUIRED



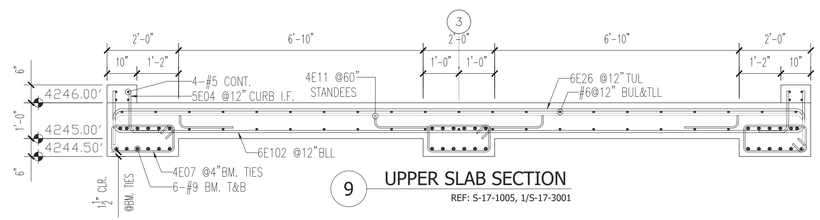
7 UPPER SLAB SECTION
REF: S-17-1005, 1/S-17-3001

FLIP MATS PER NOTE ABOVE



FLIP MATS PER NOTE ABOVE

8 UPPER SLAB SECTION
REF: S-17-1006, 1/S-17-3001



9 UPPER SLAB SECTION
REF: S-17-1005, 1/S-17-3001

SYMBOL LEGEND

SECTION — X / XX
ELEVATION
WALL TAG — CW—10A
PIER / FOOTING ELEVATION TAGS — FC6.0 95'-6" / FS6.5 95'-6"
COULMN TAG — Type / Column / 100'-0"

ABBREVIATIONS LIST

ADDL	Additional	EXIST	Existing	STIR	Stirrup
ADJ	Adjacent	(E)	Existing	STK	Stock
ALT	Alternate	EXT	Exterior	SW	Short Way
@	At	FDN	Foundation	SHW	Shear Wall
B	Bottom	FF	Finish Floor	T	Top
BM	Beam	FLR	Floor	T&B	Top and Bottom
BOT	Bottom	FTG	Footing	TH	T-Head
BOF	Bottom of Footing	HOR	Horizontal	T1E	Thread one End
BTWN	Between	IF	Inside Face	T2E	Thread two Ends
BLL	Bottom Lower Layer	INT	Interior	TOC	Top of Concrete
BUL	Bottom Upper Layer	LL	Lower Layer	TOF	Top of Footing
CB	Corner Bar	LW	Long Way	TOM	Top of Masonry
CC	Center to Center	NF	Near Face	TOP	Top of Pier
CL	Center Line	NTS	Not to Scale	TOS	Top of Slab
CLR	Clear	OC	On Center	TOW	Top of Wall
CMU	Concrete Masonry Unit	OD	Outside Diameter	THRD	Threaded
COL	Column	OF	Outside Face	TLL	Top Lower Layer
CONC	Concrete	OPNG	Opening	TUL	Top Upper Layer
CONT	Continuous	PT	Post Tension	TYP	Typical
COR	Corner	QTY	Quantity	UNO	Unless Noted Otherwise
CTS	Cut to Suit	REINF	Reinforcing	VERT	Vertical
DIA	Diameter	SB	Support Bar	W/	With
DIAG	Diagonal	SOD	Slab on Deck	W/O	Without
DWG	Drawing	SOMD	Slab on Metal Deck	WWM	Welded Wire Mesh
DWLS	Dowels	SOG	Slab on Grade		
EA	Each	STAG	Stagger		
EF	Each Face	STD	Standard		
EL	Elevation				
EV	Elevator				
ELEV	Elevator				
EPOX	Epoxy				
EQ	Equal				
EQPT	Equipment				
ES	Each Side				
EW	Each Way				

THIS DRAWING TO BE USED FOR REBAR PLACEMENT ONLY AND NOT TO BE USED BY ANY OTHER TRADE. CONFIRM ALL DIMENSIONS WITH ARCHITECTURAL & STRUCTURAL DRAWINGS.

A/E: PLEASE CONFIRM ALL CLOUDED AREAS. IF CLOUDED IS NOT ANSWERED, THEN IT IS ASSUMED CORRECT AND WILL BE SENT OUT AS SUCH.

ALL REINFORCING BARS CONFORM TO ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.

REV	REVISION DESCRIPTION	DATE
0	FOR APPROVAL	05/05/21

ROCKY MOUNTAIN REBAR
1525 WEST STONE FIELD WAY
PLEASANT VIEW, UTAH 84404
801-866-7182

TITLE: ANAEROBIC BASIN
UPPER LEVEL WALKWAYS – BLL & BUL
PROJECT: CVWRF BNR BASINS
CUSTOMER: GERBER CONSTRUCTION
DRAWN BY ERIC A. LARSEN
DATE: 12/07/20
JOB #: 0179
DWG #: ANA–S–11
SHEET

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 045
Date: 1/7/2022
Description: Per Control Change Form #047: Cost to add concrete curb on all Aeration Basin access ramps.

Rocky Mountain Rebar (see attached back-up):	$9,683.90
Concrete Pumping (see attached back-up):	$440.00
Mark-up (5%):	$506.20
Gerber Onsite Coordination & Management (see attached back-up):	$829.31
Gerber labor & Material (see attached back-up):	$22,170.68
Bonds:	$337.21
Mark-up (15%):	$3,500.58
Total:	**$37,467.88**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $37,467.88 will be added to the contract price, and an additional 6 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-045 Add Curb On AB Ramps CC#47	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-045	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Add Cub On AB Ramps (370 LF)	**1.00**	**LS**	**$33,123.89**	**$33,123.89**	**$37,467.88**	**$37,467.88**	**11.97%**
Rebar - Sub	1.00	LS	$9,683.90	$9,683.90			
Gerber Management	1.00	LS	$829.31	$829.31			
01 Superintendent	2.00	HR	$152.19	$304.38			
18 Project Manager	1.00	HR	$176.15	$176.15			
20 Project Engineer	3.00	HR	$116.26	$348.78			
Railing Modifications	1.00	LS	$784.00	$784.00			
Additional Cost For (2) Double Gates - 7' Opening	1.00	LS	$784.00	$784.00			
Concrete, Cast-in-Place Small Structures	8.00	CY	$2,728.34	$21,826.68			
Concrete, Pumping Sub	8.00	CY	$55.00	$440.00			
Concrete Crew, 04 Men (24.00 MH/CY, 5.33 DY)	8.00	CY	$2,334.73	$18,677.87			
03 Foreman	48.00	HR	$120.14	$5,766.50			
04 Leadman	48.00	HR	$102.81	$4,934.70			
05 Skilled Labor	48.00	HR	$87.96	$4,221.95			
06 General Labor	48.00	HR	$70.63	$3,390.16			
Truck, Pickup, 1 Ton	0.25	MO	$1,481.25	$364.56			
Concrete, 4000 PSI Engineered	8.24	CY	$193.05	$1,590.73			
Cure	5.00	GAL	$22.52	$112.61			
Form Oil, Unitex Q2	5.00	GAL	$8.04	$40.22			
Lumber, Misc.	1.00	LS	$965.25	$965.25			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$19,142.62	57.79%
Equipment Owned:	$364.56	1.10%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,492.81	10.54%
Subcontracted:	$10,123.90	30.56%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$33,123.89	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$33,123.89	88.41%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$337.21	0.90%
Total Overall Cost:	$33,461.10	89.31%
Total Overhead:	$0.00	0.00%
Total Profit:	$4,006.78	10.69%
Total Margin:	$4,006.78	10.69%
Total Bid Price:	$37,467.88	

TUTTLE
A DANT CLAYTON DIVISION

Fabricators of Non-Ferrous Metals

Quotation

Purchase Orders MUST be addressed to:
Dant Clayton Corporation
1500 Bernheim Ln
Louisville, KY 40210

Gerber Const

TDC:	46796R.3
DATE:	10.06.21
F.O.B.:	Fishers, IN
ALLOWED FREIGHT:	Job Site
ADDEN. REV'D:	NA
JOB:	CO3 add for dbl gates (7'-0" opngs)
CITY:	Salt Lake City, UT

TUTTLE A Dant Clayton Division, is pleased to offer a Change order for the above referenced project.
(additional cost for (2) Dbl- gates - 7'-0" opng.)

3000 Aluminum Welded 1 lot **$731**

Description: 2 ea. - additional gate leaves - to make (2) dble gates (7'-0" opening)
2 ea. - additional hinge sets
4 ea - cane bolts (for latching)

Note : Deletion of footage of rail, & addition of gates basically cancel out for materials. additional cost is for hinge sets, cane bolts, additional shop labor, (difference in shop labor to produce gates vs rail) & additional detailing time for revision of drawings.

Freight: Our quotation includes NO additional freight allowance for shipment to the job site. Additional shipments, ***including partial shipments*** , will be made at your request, quoted, and a change order received prior to shipping.

Accepted: _____

Date: 10/13/2021

TUTTLE A Dant Clayton Division
Kelly Jo McAbee
email: kmcabee@tuttlerailings.com

This quote is only Valid within 14 Days from quoted date above, Contact the sales person above if beyond that date.

TUTTLE
A DANT CLAYTON DIVISION
tuttlehandrailings.com

TERMS OF SALE

1.) A Purchase Order shall not result in a contract until acknowledged by Seller, which acceptance shall be subject only to the terms contained herein, or stated in acknowledgement, and Buyer hereby agrees to the terms contained herein.

2.) Prices quoted do not include freight or loading charges unless specifically stated otherwise. All prices are subject to increase in the cost of materials, parts or supplies and/or general wage increase, unless specifically stated otherwise. Unless otherwise stated, field measuring or installation are not included in this quotation.

3.) F.O.B. Point: Unless otherwise specifically stated, all orders will be F.O.B. FACTORY, Fishers, IN.

4.) Seller shall not be liable for failures or delay in shipping if failure or delay is due to ace of GOD, War, labor difficulties, accident, inability to obtain containers, raw materials or supplies, delay of failure to furnish Seller with plans, shop drawings, or required approvals from third persons, or any other causes of any kind whatever beyond Sellers control.

5.) Goods described herein shall be free of substantial defects in material and workmanship under normal use and service for a period of one (1) year from the date of Seller's shipment. EXCEPT for the foregoing, **SELLER MAKES NO WARRANTY EXPRESS OR IMPLIED, AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE FOREGOING WARRNTY IS HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM ANY AGREEMENT MADE BY ACCEPTANCE OF AN ORDER PURSUANT TO THIS QUOTATION.** Buyer's exclusive remedy for goods that do not conform to this contract shall be secure repair or replacement thereof. Seller shall not in any event be liable for consequential damages. Seller's maximum liability shall not in any case exceed the contract price for the goods claimed to be defective or unsuitable. In the event any material or components are covered by manufacturer's guarantee or warranty, Buyer's sole recourse shall be in accordance with such warranty which seller may assign to Buyer, and the provisions of the manufacturer's warranty or guarantee shall control with respect to such items.

6.) All technical advice, data, and recommendations supplied by Seller are furnished and intended only for use by persons who are responsible and possess the skills and knowledge to apply the information. Seller assumes no responsibility for the use of such information by Buyer, its employees, agents or subcontractors. Buyer shall assume all liability and expense which may arise out of the injury, sickness or deaths sustained by any individual or damage to, or destruction of, any property by reason of the use of equipment and materials furnished by

Seller, and Buyer shall indemnify Seller and hold Seller harmless against and from any and all such claims, actions, damages and loss, including reasonable attorney's fees.

7.) If Seller is delayed in manufacture or shipment by causes beyond Seller's control or by the act or omission of Buyer, stated herein to compensate for costs to Seller because of such delay, and the time for delivering shall likewise be extended.

8.) Seller shall not be liable for any conflict between the goods described herein and the requirement of any law, code, ordinance, plans, specifications or other contract documents.

9.) Buyer hereby represents that he or she is solvent on the date for purchase. This sale is subject to approval of Buyer's credit. Seller may at any time decline to make any delivery except upon receipt of payment or security, or upon such terms and conditions as are satisfactory to Seller's credit department.

10.) Any contract of purchase resulting from this purchase shall be deemed to have entered into between the parties in the State of Indiana and shall be governed by the laws of such State.

11.) All contract terms between the Seller and Buyer are stated herein. If Buyer places an order with Seller relating to the materials identified herein, whether in writing or orally, Buyer's order, Seller's acceptance, and these terms of sale shall constitute the entire contract between Buyer and Seller.

12.) Seller shall recover reasonable attorney's fees and other costs necessarily incurred in the event that the Seller brings any actions to enforce this proposal or any resulting contract of sale against the Buyer. Buyer and Seller agree that in the event Seller commences litigation to collect amounts due hereunder, Seller shall be authorized to commence such action in Hamilton County, Indiana.

13.) All amounts and payments due from Buyer to Seller shall bear interest at the rate of 1-1/2% per month (18% per annum) from the date that payment is due until paid.

14.) Seller retains title to all goods herein until payment in full is received by Seller. To the extent applicable, Buyer grants to Seller a security interest in all goods described on this invoice and in the proceeds therefrom to secure payment of the purchase price and all liabilities hereinafter owing by Buyer including cost of collection and attorney's fees. Buyer authorizes Seller to file financing and continuation statements relating to the goods signed by Seller only. Seller shall have all remedies of a secured party available under Indiana law upon Buyer's default or when Seller shall find reasonable grounds for insecurity in Buyer's performance.

15.) In the event that Seller shall find reasonable grounds for insecurity in Buyer's performance, or upon Buyer's default, Buyer authorizes Seller to communicate with Buyer's contracting parties and secure payment of the goods by requesting the issuance of a joint check or by direct payment from such contracting party.

ROCKY MOUNTAIN REBAR

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

CHANGE ORDER #:	17 R1
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	January 7, 2022
ATTENTION:	Jeromie

Added curb at ramp locations per Form 47

Total Cost $ 9,683.90

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.3	0.3	$ 115.49	$ 31.88
Project Manager	1	2.1	2.1	$ 76.56	$ 164.14
Detailer Straight Time	1	2	2	$ 57.24	$ 114.48
Detailer OT Premium	1	0.2	0.2	$ 21.19	$ 4.24
Rebar Foreman Straight Time	1	24	24	$ 62.45	$ 1,498.80
Rebar Foreman OT Premium	1	2.4	2.4	$ 24.00	$ 57.60
Rebar Journeyman Straight Time	2	24	48	$ 49.72	$ 2,386.56
Rebar Journeyman OT Premium	2	2.4	4.8	$ 16.41	$ 78.77
				Sub Total	$ 4,336.47
				PD & Lodging	$ -
				Labor Total	$ 4,336.47

Materials

Description	Quantity	Unit Cost	Total
Rebar 3981 Lbs	1	$ 3,902.00	$ 3,902.00
		Material Total	$ 3,902.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 182.32	$ 182.32
		Total	$ 182.32

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 4,336.47
Material Total	$ 3,902.00
TE&C Total	$ 182.32
Delivery	$ -
Total Cost	$ 8,420.78
OH&P	$ 1,263.12

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	9,683.90
Credit Total	$	-
Grand Total	**$**	**9,683.90**

CHANGE CONTROL FORM 047
Add Curb on AB Ramps

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/12/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Add concrete curb on all Aeration Basin access ramps, see attached redlined drawings S-18-1012, 1013, 1014, 1015, 1016, 1018 and 5001. Provide curb reinforcement as required per typical detail S0504.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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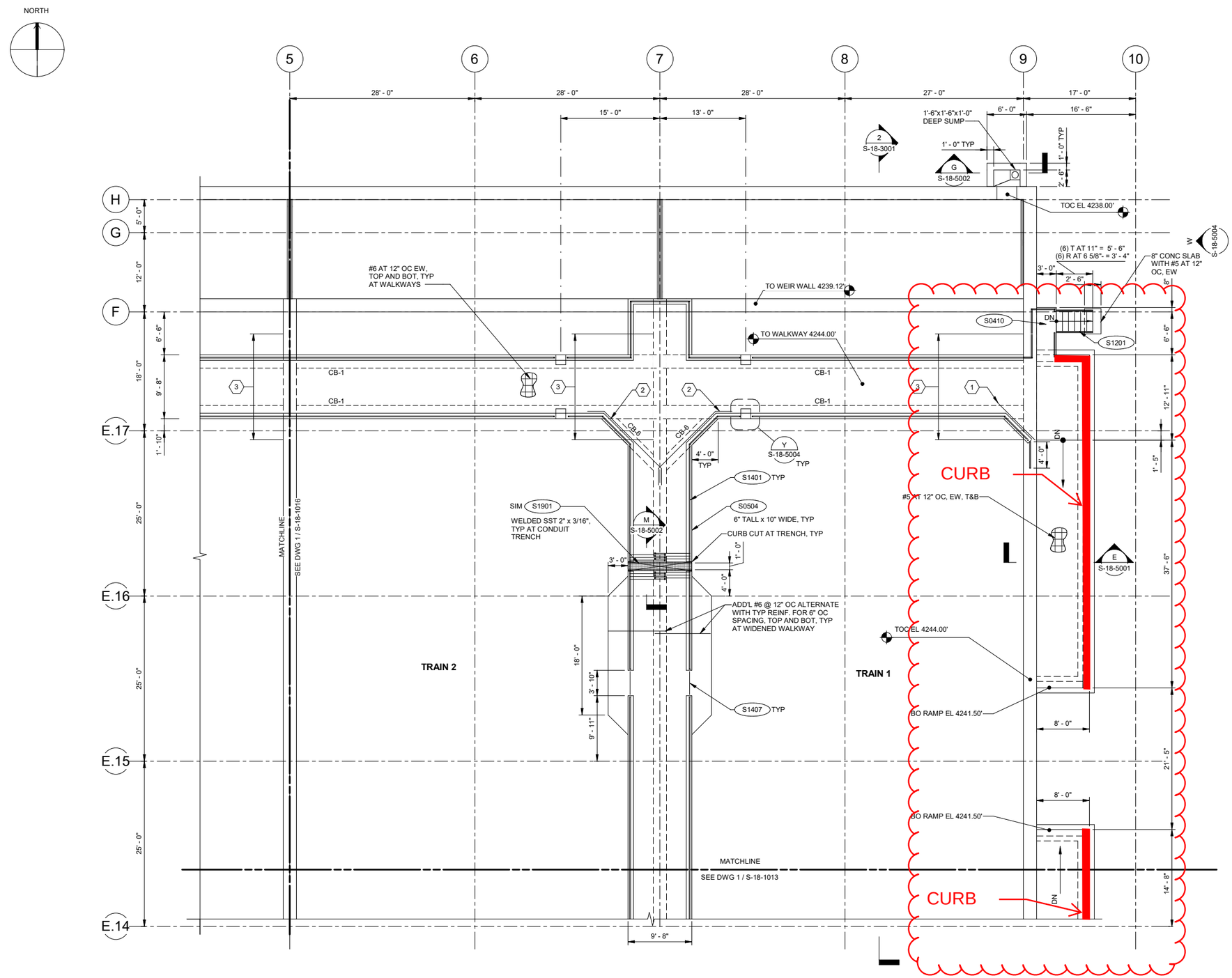

PLAN

SCALE: 1/8" = 1'-0"

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KEYNOTES:

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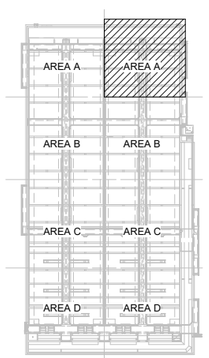
2. EXTEND CB-6 LONGITUDINAL REINFORCING ONE FULL LAP LENGTH INTO CB-1 AS SHOWN.
3. ADDITIONAL VERTICAL WALL REINFORCING 8'-0" SOUTH TO 8'-0" NORTH OF CENTER OF WALKWAY (16'-0" TOTAL). ADDITIONAL #9 x FULL HEIGHT VERTICAL BARS AT 12" OC SPACING, EACH FACE, ALT WITH TYPICAL VERTICAL BARS FOR 6" SPACING. ALL VERTICAL BARS WITHIN SPECIFIED AREA TO BE HOOKED WITH STANDARD HOOKS AT TOP OF CB-1 BEAM.



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18

BC PROJECT NUMBER
151600

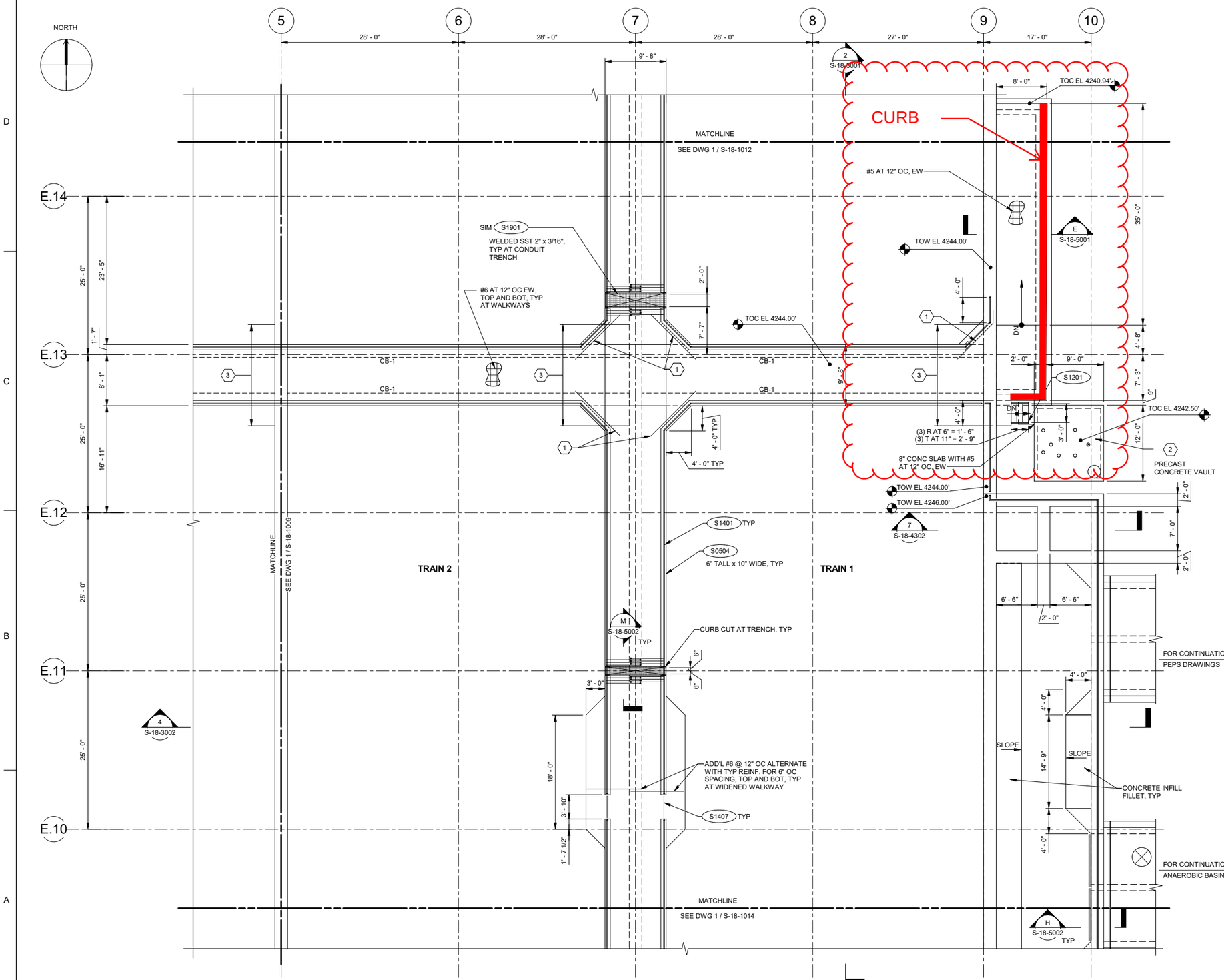
CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA A UPPER PLAN

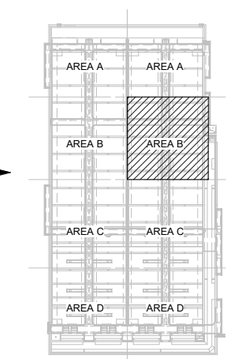
DRAWING NUMBER
S-18-1012

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:20 PM



PLAN

SCALE: 1/8" = 1'-0"



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KEYNOTES:

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2. PROVIDE PRECAST CONCRETE VAULT PER SPECIFICATION 03 46 11.
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Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA B UPPER PLAN

DRAWING NUMBER
S-18-1013

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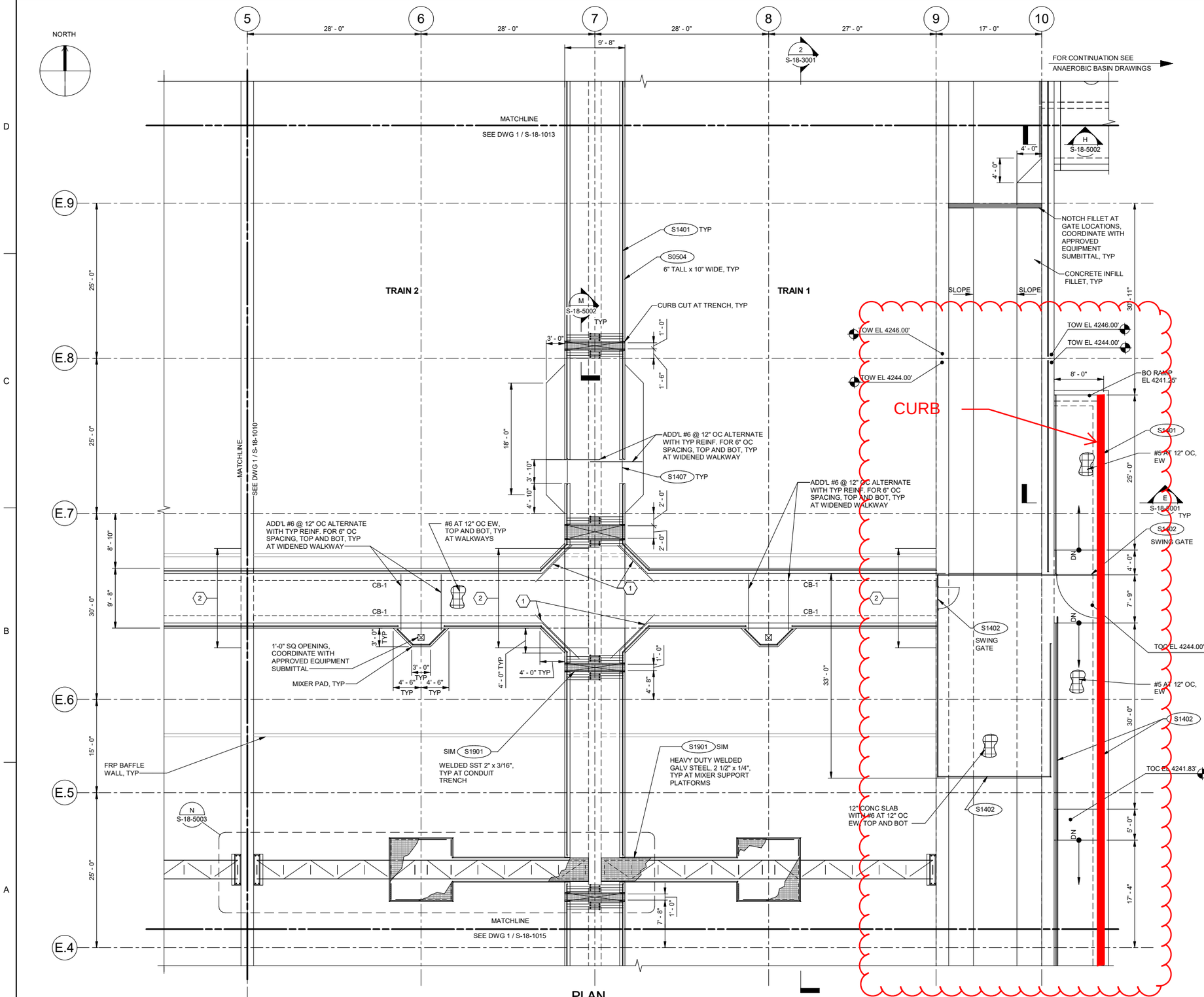
Plot Date: 6/4/2020 12:00:23 PM



PLAN

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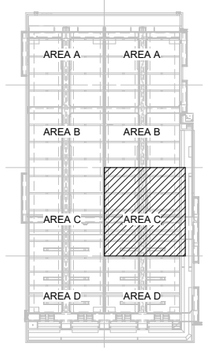


Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

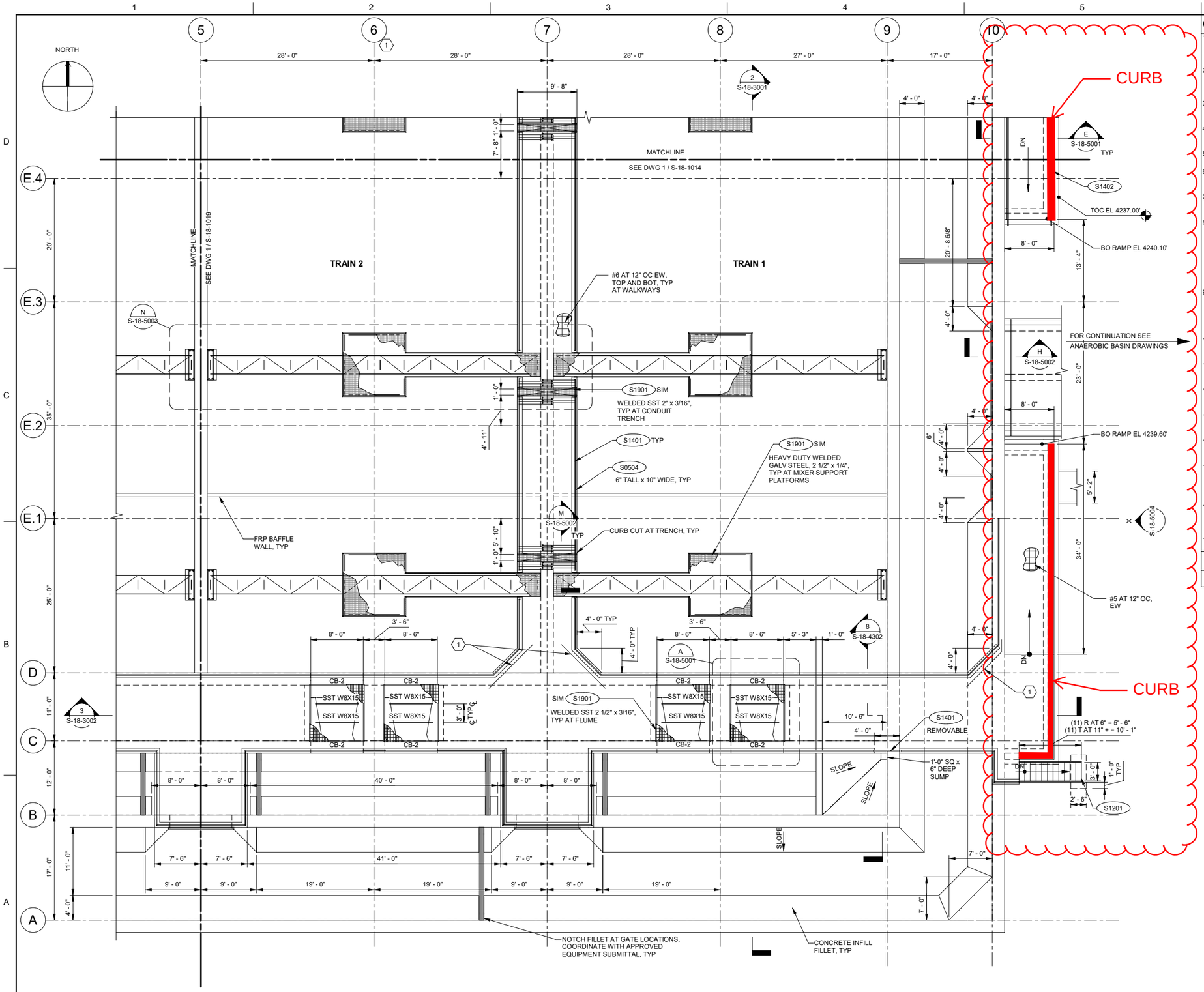
DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER
FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA C UPPER PLAN

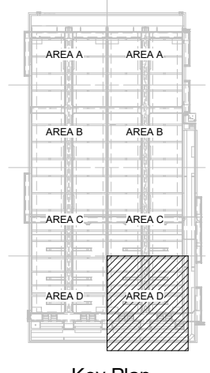
DRAWING NUMBER
S-18-1014

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:25 PM



PLAN

SCALE: 1/8" = 1'-0"



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Salt Lake City, UT

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CVWRF

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REVISIONS

REV	DATE	DESCRIPTION
1	08/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION BASINS TRAIN 1&2 AREA D UPPER PLAN

DRAWING NUMBER
S-18-1015

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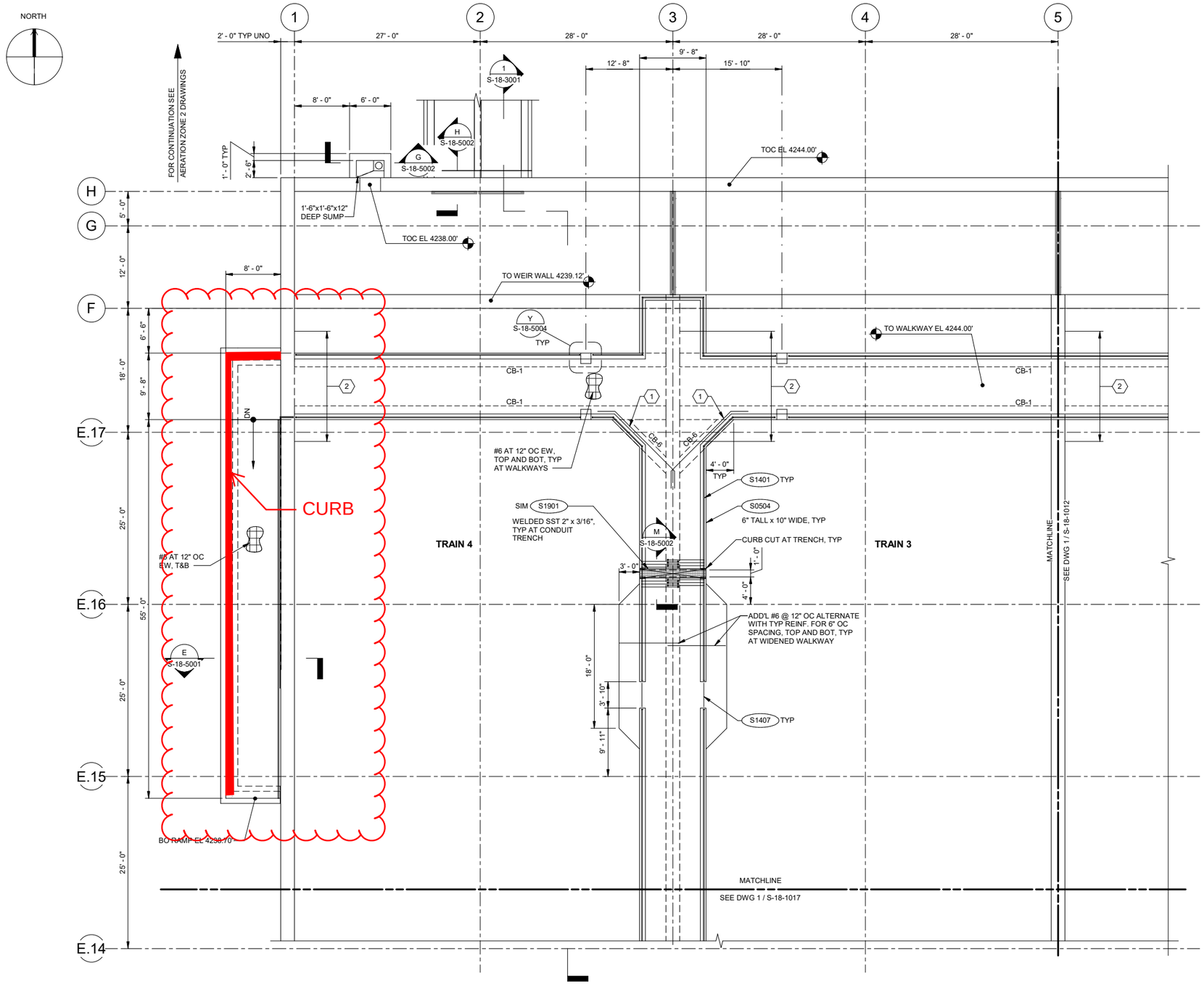
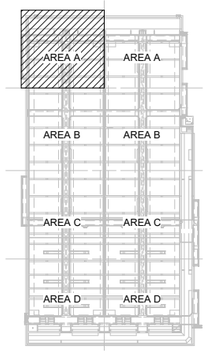


PLAN

SCALE: 1/8" = 1'-0"



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3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. CB-"X" CONCRETE BEAM, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
13. CC-"X" CONCRETE COLUMN, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
14. SLAB "X" CONCRETE SLAB, SEE S-18-6001 FOR REINFORCING SCHEDULE.
15. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
16. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT SUBMITTAL.
17. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. EXTEND CB-6 LONGITUDINAL REINFORCING ONE FULL LAP LENGTH INTO CB-1 AS SHOWN.
2. ADDITIONAL VERTICAL WALL REINFORCING 8'-0" SOUTH TO 8'-0" NORTH OF CENTER OF WALKWAY (16'-0" TOTAL). ADDITIONAL #9 x FULL HEIGHT VERTICAL BARS AT 12" OC SPACING, EACH FACE, ALT WITH TYPICAL VERTICAL BARS FOR 6" SPACING. ALL VERTICAL BARS WITHIN SPECIFIED AREA TO BE HOOKED WITH STANDARD HOOKS AT TOP OF CB-1 BEAM.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

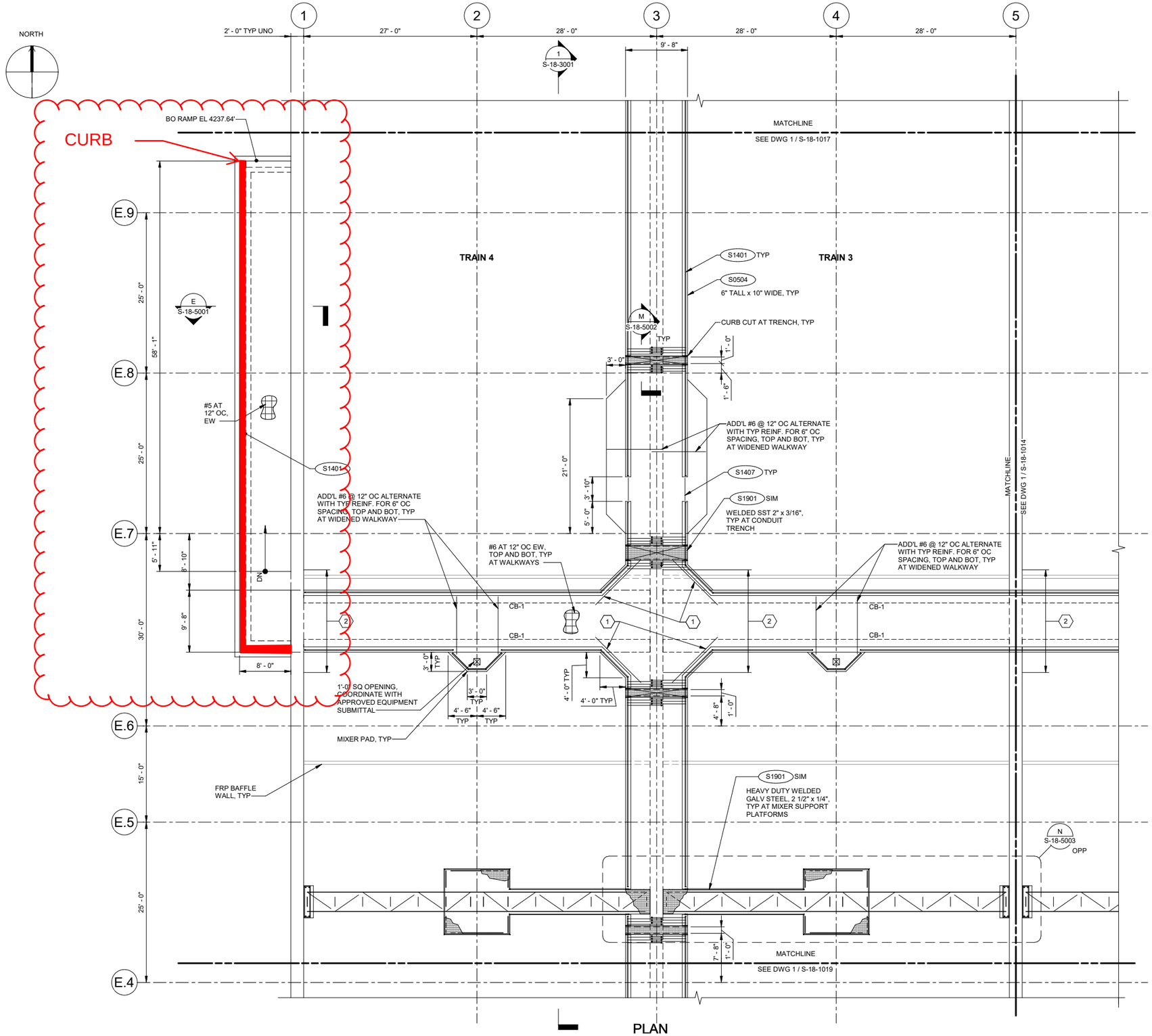
FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS TRAIN 3&4 AREA A UPPER PLAN

DRAWING NUMBER
S-18-1016

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:30 PM



PLAN

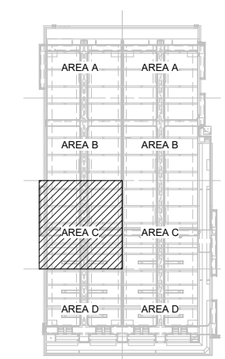
SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. CB-"X" CONCRETE BEAM, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
13. CC-"X" CONCRETE COLUMN, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
14. SLAB "X" CONCRETE SLAB, SEE S-18-6001 FOR REINFORCING SCHEDULE.
15. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
16. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT SUBMITTAL.
17. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS
2. ADDITIONAL VERTICAL WALL REINFORCING 8'-0" SOUTH TO 8'-0" NORTH OF CENTER OF WALKWAY (16'-0" TOTAL). ADDITIONAL #9 x FULL HEIGHT VERTICAL BARS AT 12" OC SPACING, EACH FACE, ALT WITH TYPICAL VERTICAL BARS FOR 6" SPACING. ALL VERTICAL BARS WITHIN SPECIFIED AREA TO BE HOOKED WITH STANDARD HOOKS AT TOP OF CB-1 BEAM.



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	03/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

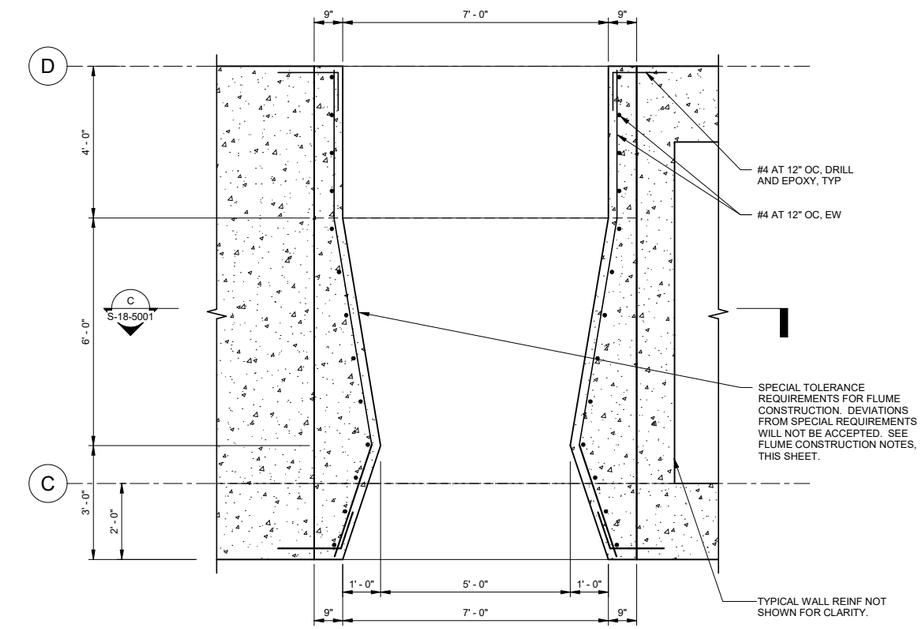
DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER
FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS TRAIN 3&4 AREA C UPPER PLAN

DRAWING NUMBER
S-18-1018

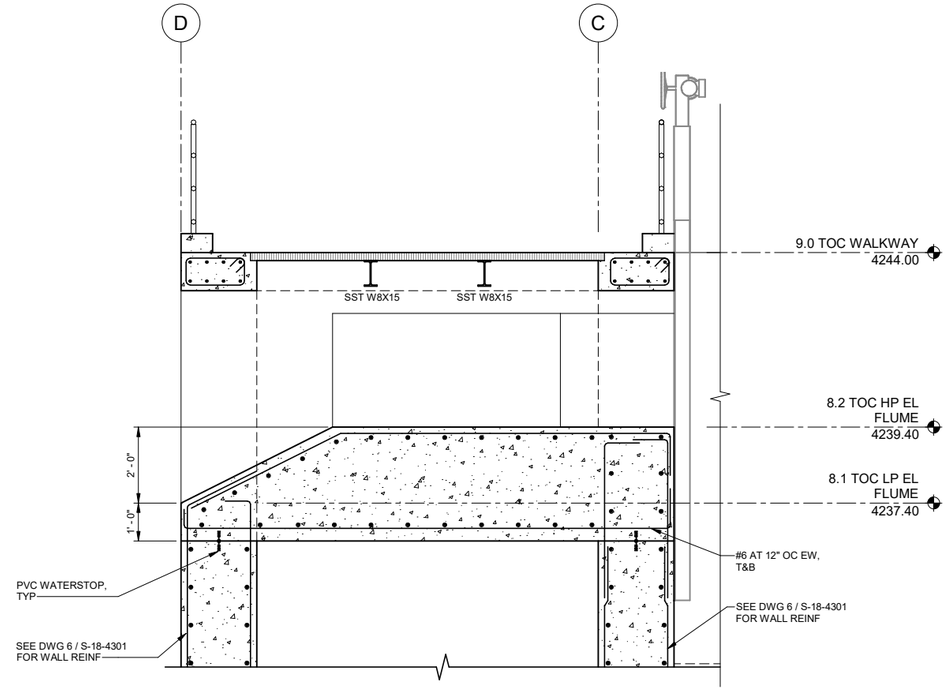
Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:35 PM



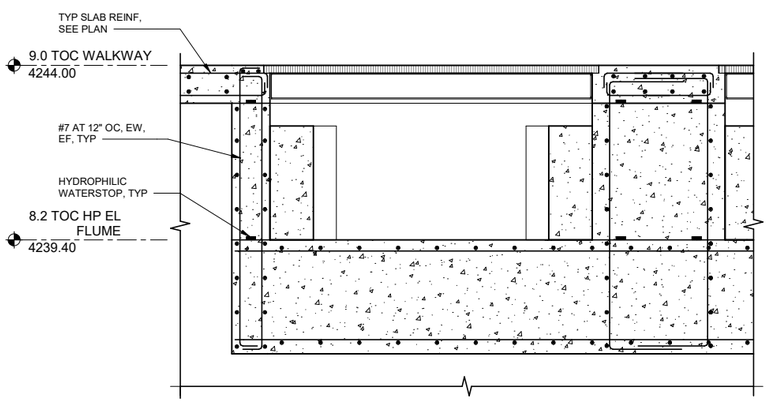
FLUME CONSTRUCTION NOTES:

1. PRE-FLUME-CONSTRUCTION MEETING WITH CONTRACTOR AND CONTRACTOR'S SUPERINTENDENT FOR CONCRETE INSTALLATION, AND CONSTRUCTION MANAGER REQUIRED PRIOR TO FLUME CONSTRUCTION.
2. SUBMIT FORMING SYSTEM FOR APPROVAL PRIOR TO FLUME CONSTRUCTION.
3. DEVELOP SINGLE REUSABLE STEEL FORMWORK SYSTEM TO BE USED FOR EACH OF 8 FLUMES FOR CONSISTENCY BETWEEN EACH INSTALLATION.
4. TOLERANCES FOR CONSTRUCTED FLUMES:
   a. VERTICAL SURFACES PLUMB TO COMMON VERTICAL PLANE WITHIN +/- 1/16-INCH OVER THE HEIGHT OF THE FLUME.
   b. HORIZONTAL SURFACES LEVEL TO COMMON HORIZONTAL PLANE WITHIN +/- 0.005-FOOT OVER THE LENGTH OF THE FLUME.
   c. INTERNAL DIMENSIONS WITHIN +/- 1/8-INCH.
   d. TOC FLUME ELEVATIONS FOR EACH OF 8 FLUMES WITHIN +/- 0.01-FOOT OF EACH OTHER.
5. SUBMIT SURVEYED DIMENSIONS AND ELEVATIONS OF CONSTRUCTED FLUMES FOR FINAL APPROVAL.

A S-18-1015 FLUME PLAN
SCALE: 1/2" = 1'-0"

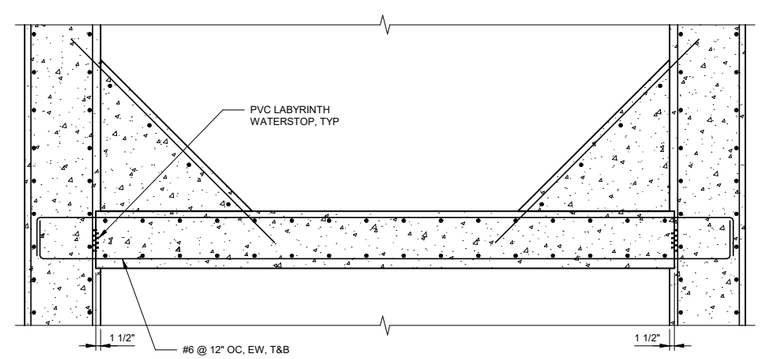


B S-18-3001 FLUME DETAIL
SCALE: 1/2" = 1'-0"

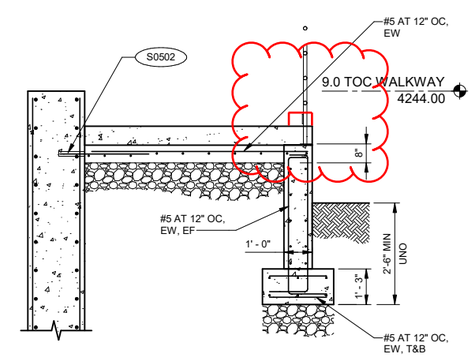


NOTE:
TYPICAL WALL REINF NOT SHOWN FOR CLARITY.

C S-18-5001 FLUME DETAIL
SCALE: 1/2" = 1'-0"



D S-18-3002 DETAIL
SCALE: 1/2" = 1'-0"



E S-18-1012 TYPICAL RAMP SECTION
SCALE: 3/8" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/12/2021	CCF 047 ADD CURB TO RAMP

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION BASINS DETAILS 1

DRAWING NUMBER
S-18-5001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:00:54 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 046
Date: 1/7/2022
Description: Per Control Change Form #048: Cost to revise the thickness of the suspended slab per this Change Control Form and RFI #114.

Rocky Mountain Rebar (see attached back-up):	$1,639.21
Concrete Pumping (see attached back-up):	$120.00
Mark-up (5%):	$87.97
Gerber Onsite Coordination & Management (see attached back-up):	$292.41
Gerber labor & Material (see attached back-up):	$6,940.14
Bonds:	$92.44
Mark-up (15%):	$1,098.74
Total:	**$10,270.91**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $10,270.91 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-046 ANB Increase Effluent Slab Depth CC#048	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-046	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - ANB Increase Effluent Slab Depth	**1.00**	**LS**	**$8,991.76**	**$8,991.76**	**$10,270.91**	**$10,270.91**	**13.06%**
Gerber Concrete	1.00	LS	$7,060.14	$7,060.14			
Concrete, Cast-in-Place Small Structures	30.00	CY	$235.34	$7,060.14			
Concrete, Pumping Sub	30.00	CY	$4.00	$120.00			
Concrete, 4000 PSI Engineered	30.90	CY	$171.92	$5,312.38			
Concrete Crew, 05 Men (0.60 MH/CY, 0.40 DY)	30.00	CY	$54.26	$1,627.76			
03 Foreman	3.60	HR	$120.14	$432.49			
04 Leadman	3.60	HR	$102.81	$370.10			
05 Skilled Labor	3.60	HR	$87.96	$316.65			
06 General Labor [2]	3.60	HR	$70.63	$508.52			
Rebar - Sub	1.00	LS	$1,639.21	$1,639.21			
Gerber Management	1.00	LS	$292.41	$292.41			
18 Project Manager	1.00	HR	$176.15	$176.15			
20 Project Engineer	1.00	HR	$116.26	$116.26			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,920.17	21.35%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,312.38	59.08%
Subcontracted:	$1,759.21	19.56%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$8,991.76	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$8,991.76	87.55%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$92.44	0.90%
Total Overall Cost:	$9,084.20	88.45%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,186.71	11.55%
Total Margin:	$1,186.71	11.55%
Total Bid Price:	$10,270.91	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	14
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	October 4, 2021
ATTENTION:	Jeromie

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Revised suspended slab thickness and detail per RFI 114. Original quantities were 4000 lbs of rebar and 27 install hours, new quantites are 4716 lbs of rebar and 32 install hour, for a net add of 716 lbs of rebar and 5 install hours. An additional 2 detailer hours are required to make the changes.

Total Cost $ 1,639.21

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.10	0.10	$ 115.49	$ 11.27
Project Manager	1	1.73	1.73	$ 76.56	$ 132.27
Detailer Straight Time	1	2.00	2.00	$ 57.24	$ 114.48
Detailer OT Premium	1	0.20	0.20	$ 21.19	$ 4.24
Rebar Foreman Straight Time	1	1.67	1.67	$ 62.45	$ 104.29
Rebar Foreman OT Premium	1	0.42	0.42	$ 24.00	$ 10.02
Rebar Journeyman Straight Time	2	1.67	3.34	$ 49.72	$ 166.06
Rebar Journeyman OT Premium	2	0.42	0.84	$ 16.41	$ 13.70
				Sub Total	$ 556.34
				PD & Lodging	$ -
				Labor Total	$ 556.34

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ 844.00	$ 844.00
		Material Total	$ 844.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 25.06	$ 25.06
		Total	$ 25.06

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 556.34
Material Total	$ 844.00
TE&C Total	$ 25.06
Delivery	$ -
Total Cost	$ 1,425.40
OH&P	$ 213.81

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	1,639.21
Credit Total	$	-
Grand Total	**$**	**1,639.21**

CHANGE CONTROL FORM 048
ANB Increase effluent slab depth

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 11/09/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Increase Anaerobic Basin effluent channel suspended slab depth between gridlines A and B shown on drawing S-17-3001 from 12" to 18" per RFI 114.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 041
Date: 1/7/2022
Description: Per Control Change Form #048: Cost to modify rebar and extend wall. Details per RFI #117.

Rocky Mountain Rebar (see attached back-up):	$2,148.40
Mark-up (5%):	$107.42
Gerber Concrete Labor & Equipment (see attached back-up):	$518.71
Gerber Onsite Coordination & Management (see attached back-up):	$713.05
Bonds:	$33.40
Mark-up (15%):	$189.76
Total:	**$3,710.74**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $3,710.74 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-041 ANB Concrete Wall Extension_CC#049	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-041	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - ANB Concrete Wall Extension	**1.00**	**LS**	**$3,380.16**	**$3,380.16**	**$3,710.74**	**$3,710.74**	**8.71%**
Rebar - Sub	1.00	LS	$2,148.40	$2,148.40			
Gerber Concrete Crew, 02 Men (4.00 LS/DY, 0.25 DY)	1.00	LS	$518.71	$518.71			
03 Foreman	2.25	HR	$120.14	$270.30			
04 Leadman	2.25	HR	$102.81	$231.31			
Truck, Pickup, 1 Ton	0.01	MO	$1,481.25	$17.09			
Gerber Management	1.00	LS	$713.05	$713.05			
01 Superintendent	2.00	HR	$152.19	$304.38			
18 Project Manager	1.00	HR	$176.15	$176.15			
20 Project Engineer	2.00	HR	$116.26	$232.52			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,214.67	35.94%
Equipment Owned:	$17.09	0.51%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$2,148.40	63.56%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,380.16	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,380.16	91.09%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$33.40	0.90%
Total Overall Cost:	$3,413.55	91.99%
Total Overhead:	$0.00	0.00%
Total Profit:	$297.19	8.01%
Total Margin:	$297.19	8.01%
Total Bid Price:	$3,710.74	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	18
JOB NAME:	CVWRF CC30B
JOB NUMBER:	0179
RMR PROJECT MANAGER:	Shane
DATE:	December 6, 2021
ATTENTION:	Jeromie

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

RFI 117 modifications at the gate guide block outs

Total Cost $ 2,148.40

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.0	0.0	$ 115.49	$ -
Project Manager	1	1.6	1.6	$ 76.56	$ 123.41
Detailer Straight Time	1	1.0	1.0	$ 57.24	$ 57.24
Detailer OT Premium	1	0.1	0.1	$ 21.19	$ 2.12
Rebar Foreman Straight Time	1	2.0	2.0	$ 62.45	$ 124.90
Rebar Foreman OT Premium	1	0.2	0.2	$ 24.00	$ 4.80
Rebar Journeyman Straight Time	2	2.0	4.0	$ 49.72	$ 198.88
Rebar Journeyman OT Premium	2	0.2	0.4	$ 16.41	$ 6.56
				Sub Total	$ 517.92
				PD & Lodging	$ -
				Labor Total	$ 517.92

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ 1,328.00	$ 1,328.00
		Material Total	$ 1,328.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 22.26	$ 22.26
		Total	$ 22.26

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 517.92
Material Total	$ 1,328.00
TE&C Total	$ 22.26
Delivery	$ -
Total Cost	$ 1,868.18
OH&P	$ 280.23

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	2,148.40
Credit Total	$	-
Grand Total	**$**	**2,148.40**

CHANGE CONTROL FORM 049
ANB Concrete wall extension

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 11/09/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide 2'-0 of wall extension from weir to top concrete wall ,extend #9 Vertical rebar with lap splice from weir wall to top of wall and #4 Closed ties @ 6" On Center per RFI 117 and attached sketch.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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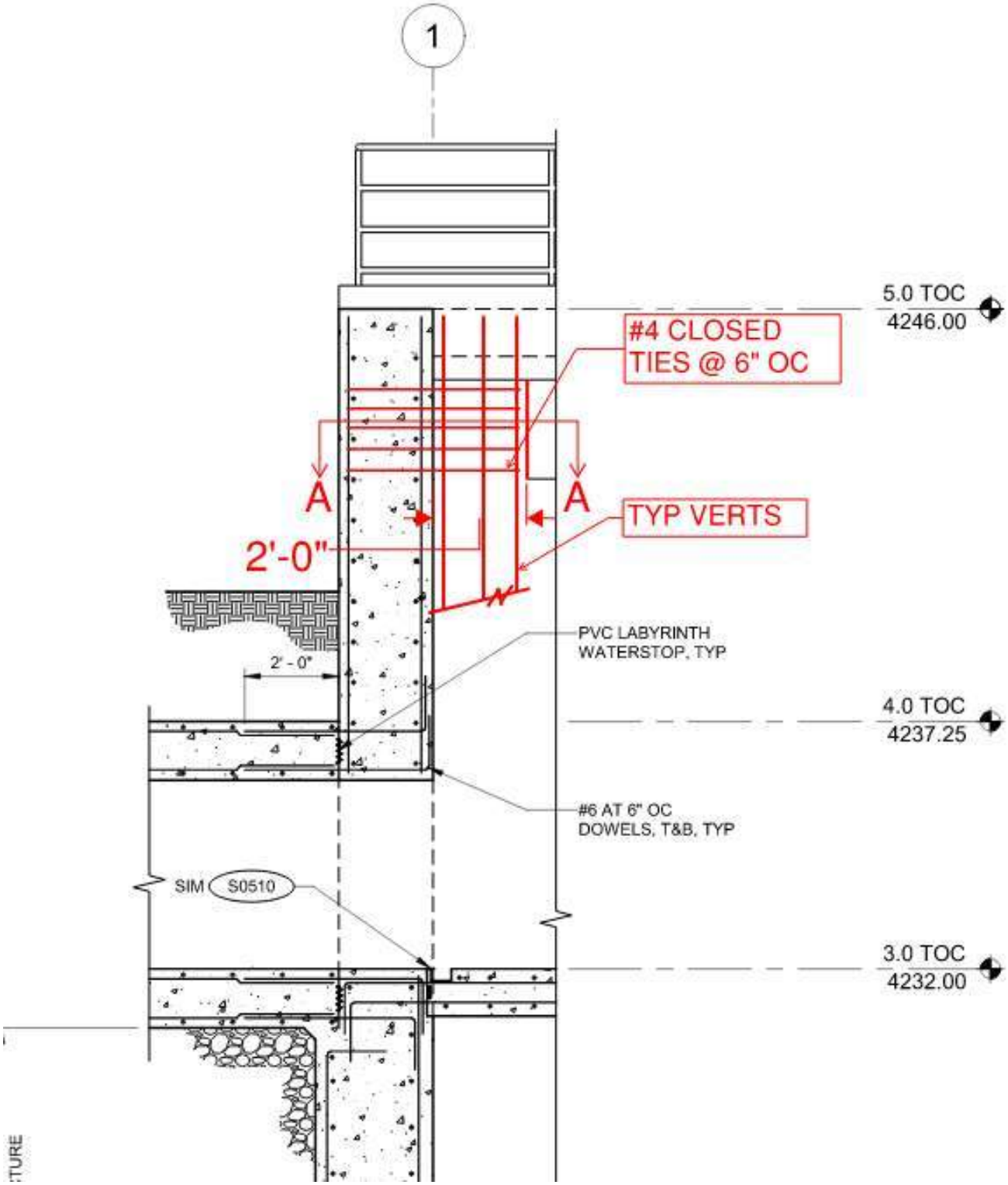
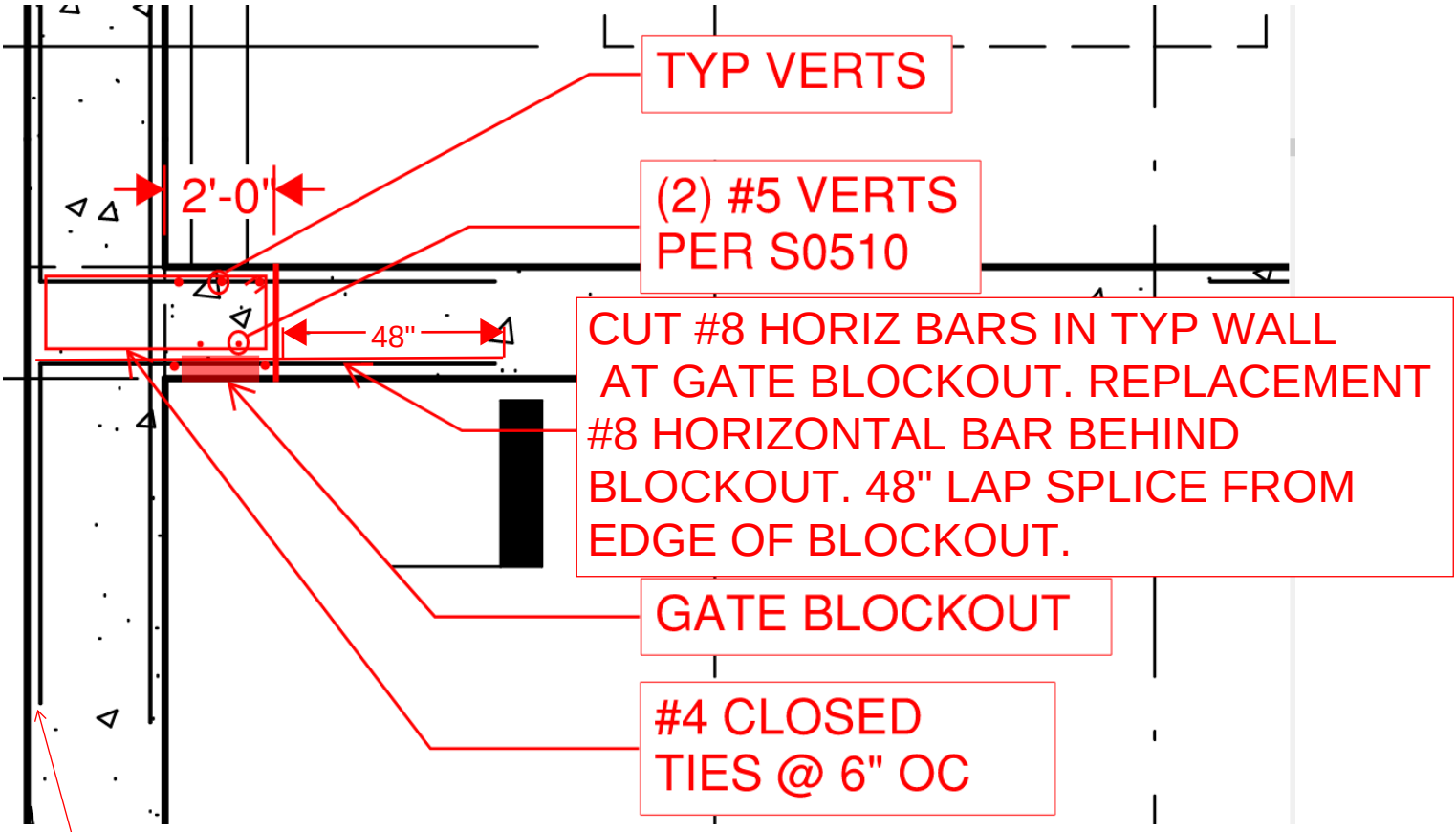
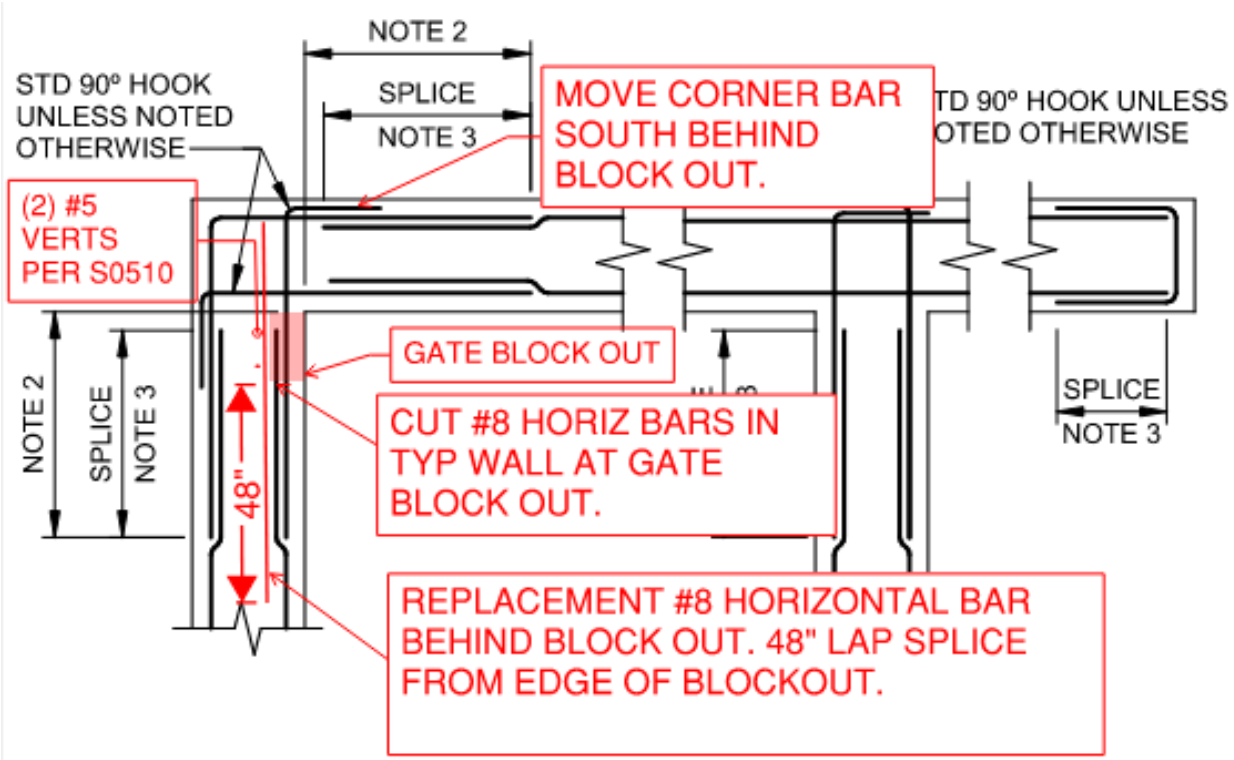


SNIP FROM 5/S-17-4301



SECTION A-A

MOVE CORNER BAR NORTH
BEHIND GATE BLOCK OUT


NOTE 2
SPLICE
NOTE 3
STD 90º HOOK
UNLESS NOTED
OTHERWISE
MOVE CORNER BAR
SOUTH BEHIND
BLOCK OUT.
TD 90º HOOK UNLESS
OTED OTHERWISE
(2) #5
VERTS
PER S0510
GATE BLOCK OUT
CUT #8 HORIZ BARS IN
TYP WALL AT GATE
BLOCK OUT.
NOTE 2
SPLICE
NOTE 3
48"
SPLICE
NOTE 3
REPLACEMENT #8 HORIZONTAL BAR
BEHIND BLOCK OUT. 48" LAP SPLICE
FROM EDGE OF BLOCKOUT.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 043
Date: 12/17/2021
Description: Per Control Change Form #050: Cost to adjust elevation of 12" TD line once already set to contract elevation.

Gerber Field Labor (see attached back-up)	$979.03
Gerber Onsite Coordination & Management (see attached back-up):	$434.62
Bonds:	$14.78
Mark-up (15%):	$214.26
Total:	**$1,642.69**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $1,642.69 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-043 Slope For TD In AB Pipe Chase - CC#050	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-043	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor	**1.00**	**UNIT**	**$979.03**	**$979.03**	**$1,137.65**	**$1,137.65**	**15.00%**
03 Foreman	3.00	HR	$120.14	$360.05			
05 Skilled Labor	3.00	HR	$87.96	$263.61			
06 General Labor	3.00	HR	$70.63	$211.67			
Excavator, Crawler, 135	3.00	HR	$47.90	$143.70			
D 02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$434.62**	**$434.62**	**$505.04**	**$505.04**	**15.00%**
01 Superintendent	2.00	HR	$157.26	$314.49			
20 Project Engineer	1.00	HR	$120.14	$120.12			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,269.94	89.83%
Equipment Owned:	$143.70	10.17%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$1,413.64	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$1,413.64	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$14.78	0.90%
Total Overall Cost:	$1,428.43	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$214.26	13.04%
Total Margin:	$214.26	13.04%
Total Bid Price:	$1,642.69	

CHANGE CONTROL FORM 050
Slope for TD in AB Pipe Chase

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 11/17/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The 12 " Tank Drain (TD) in the pipe chase, under the Aeration Zone 1 Collection Channel, was indicated in the construction documents to be installed without slope with a centerline elevation of 4219.83.

This change requests that the east end of the 12" TD, as it leaves the pipe chase, be lowered to a centerline elevation of approximately 4218.53. See P-18-1003 via the Procore Drawings tool.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 049
Date: 1/27/2022
Description: Per Control Change Form #051: Credit to remove spray on fireproofing.

H&H Fireproofing (see attached back-up):	-$26,250.00
Total:	**-$26,250.00**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$26,250.00 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-049 Spray Fireproofing Removal - CC#051	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-049	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Fireproofing Removal	**1.00**	**UNIT**	**($26,250.00)**	**($26,250.00)**	**($26,250.00)**	**($26,250.00)**	**0.00%**
S Fireproofing Sub	1.00	LS	($26,250.00)	($26,250.00)			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	($26,250.00)	100.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	($26,250.00)	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	($26,250.00)	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	($26,250.00)	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	($26,250.00)	

H&H Fireproofing, Inc.

1389 Center Drive #200
Park City, UT 84098
c: 435.640.6190
f: 866.446.1121
jd@hhfireproofing.com

Bid Form

Project:	**CVWRF C30B**
Date:	Tuesday, May 12, 2020
Spec Code(s):	078100 Spray-Applied Fireproofing
Addenda(s)	One thru Six
Submitted To:	Gerber Construction

We are pleased to submit our proposal to provide the necessary equipment, materials, labor and supervision to perform the trade scope defined in this bid.

Price

Item	Price
078100 Spray-Applied Fireproofing	$26,250.00
Total:	**$26,250.00**

Jamie Donovan
President, H&H Fireproofing, Inc.
jd@hhfireproofing.com
435.640.6190

Bid Document to be included in contracts based on bid scope offered herein

Utah License #: 249127-55501

Scope of Work

Fireproofing Material: GCP Z146 High Density Fireproofing

Included Items:	Sheet Ref:
Scope Description: Roof Assembly where Indicated	
Electrical Building	
Electrical room in RAS WAS Basin Building	
# Mobilizations: Two	
Extra Mobilization rate: $1500	
Clean-up and trash deposited in provided dumpster	

Excluded Items:
Heating, temporary enclosures, ventilation and winter protection not included
Repairs to fireproofing where damaged by others; patching is not included
Sales Tax
Responsibility of payment for special inspections
Intumescent fireproofing
Penetration and Joint Firestopping (Firewalls)

T&M Unit Pricing	Straight Time	Over Time
Labor Hours - Foreman	$55.00	$71.50
Labor Hours - Sprayer	$45.00	$58.50
Labor Hours - Gen. Laborer	$30.00	$39.00
Equipment - Fireproofing Pump	$22.50	NA
Material - Bagged Fireproofing	$28.50	NA

Bid Document to be included in contracts based on bid scope offered herein

Utah License #: 249127-55501

Terms and Conditions

UL and Code Interpretation

We propose to meet the hourly fire resistive requirements of the plans and specifications only. The applicability of these documents to local laws, statutes, building codes and regulations are solely the responsibility of the owner & architect.

Sequencing

We shall not be required to start work until the job is sufficiently ready for us to proceed in a continuous operation without any undue interference or delay from other crafts. Specifically,

a. Prior to the application of fireproofing, clips, hangers, support sleeves, and other attachments required to penetrate the fireproofing shall be in place.

b. Ducts, piping, equipment or other suspended matter which would interfere with application of the fireproofing materials shall not be positioned until the fireproofing work is complete.

c. Installation of wall framing MUST BE DEFERRED until fireproofing application is 100% complete.

d. Prior to the application of the fireproofing to the underside of metal floor decks, concrete work shall be complete.

e. Prior to fireproofing to the underside of metal roof decks, roof must be 100% complete and installed and all roof traffic shall be prohibited upon commencement of the fireproofing application until the fireproofing material is cured and fully dried.

Substrate Condition

Surfaces to receive fireproofing shall be free from any substance that would impair adhesion.

a. The substrates to receive application of fireproofing shall be satisfactory for direct spray application.

b. Structural steel shall be free of primers/paint, oils, grease, loose mill scale, dirt or other foreign substances which may impair proper adhesion.

c. Steel decks shall be free of rolling compounds, lubricates, incompatible paints or primers or other foreign substances which may impair proper adhesion.

Floor Access

Within the building, we require free and clear ingress/egress for movable scaffolds from the floor line to the area to be fireproofed. No installation that would restrict movement of our scaffolds, personnel or equipment or limit our uninterrupted application of fireproofing materials will be permitted. Clutter, debris and/or items stored on the floor must be located where they will not interfere with said application. Protection of these items is not the responsibility of this contractor.

Patch and Repair

All patching and repairing of fireproofing due to damage (intentional or unintentional) by others shall be completed by the fireproofing contractor and paid for by the general contractor.

Environment

The general contractor shall provide adequate ventilation and temperature for application of fireproofing in accordance with manufacturer's recommendations. If necessary for job progress, the general contractor shall provide enclosures with heat to maintain temperature and forced air ventilation until material is substantially dry.

Pump and Material Staging Requirements:

The general contractor will make available a permanent location for our mixing and pumping station for the duration of our activity. This site must:

a. Be convenient to the structure to establish a single station for centralized pumping of the fireproofing material.

b. Be able to accommodate (including access routes) truckload deliveries of material. Have ample space for trailer parking, material, and equipment storage.

c. Establish a permanent material riser location for the duration of the job, if needed.

d. Be suitable locations for priming and washing out of the material conveying system.

Utilities Needed:

GC to furnish all necessary light, power, heat, water and temporary enclosures where required, without charge.

a. A convenient and constant domestic water pressure source.

b. Have a minimum of (2) 110 volt 20 amp independent power service for the fireproofing operation.

Trash and Cleanup:

After completion of work in a designated area, equipment shall be removed and all exposed floor areas shall be left in a scraped-clean condition. We shall deposit debris in provided trash receptacles.

Bid Validity:

This proposal shall remain valid for sixty days after bid submission.

Special Inspection

Test results from inspection shall be provided to the fireproofing contractor at the completion of each floor/designated area.

Back Charges:

No back charges to our contract will be accepted unless previously agreed to by both parties in writing.

CHANGE CONTROL FORM 051
Spray Fire Proofing Removal

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 1/25/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide a deduct pricing proposal to remove spray fire proofing from the roofs of Area 16EB (Electrical Building) and Area 22 (RAS/WAS Basin). Please see attached drawings for updated roof details and change in building type from Type 1B to Type 2B for each facility.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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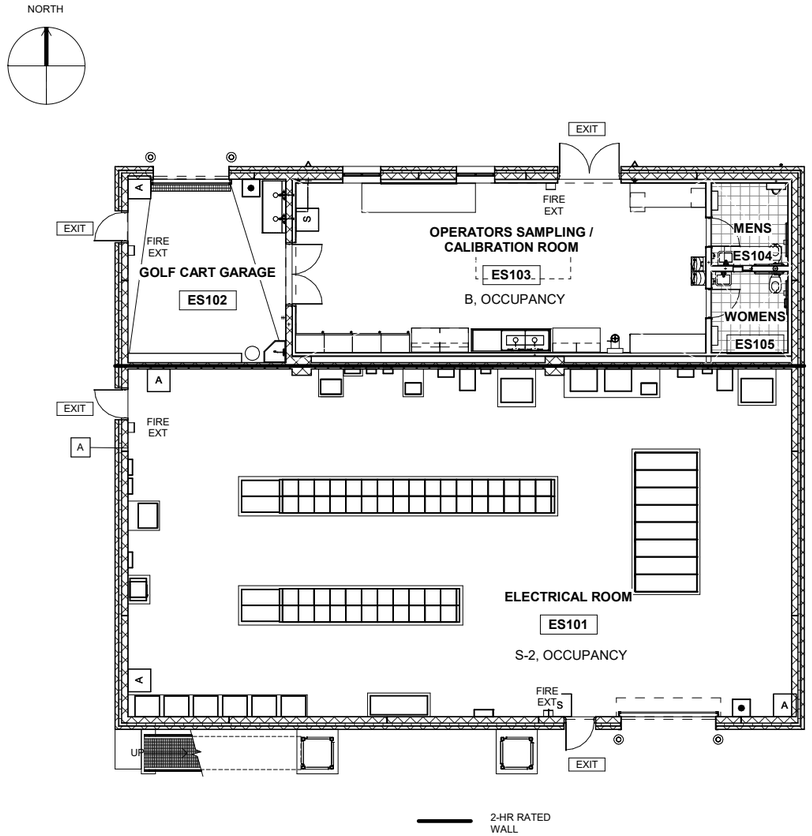


PLAN

SCALE: 1/8" = 1'-0"

ELECTRIC BUILDING- CODE SUMMARY

APPLICABLE CODES

BUILDING CODE:	2018 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE:	2017 INTERNATIONAL ELECTRICAL CODE
PLUMBING CODE:	2018 INTERNATIONAL PLUMBING CODE
MECHANICAL CODE:	2018 INTERNATIONAL MECHANICAL CODE
ENERGY CODE:	2018 INTERNATIONAL ENERGY CONSERVATION CODE
FIRE CODE:	2018 INTERNATIONAL FIRE CODE
ACCESSIBILITY CODE:	2018 INTERNATIONAL BUILDING CODE (ICC/ANSI A117.1-2009)

RISK CATEGORY: III WASTEWATER TREATMENT FACILILTY, IBC TABLE 1604.5

BUILDING OCCUPANCY

PER IBC CHAPTER 3

OCCUPANCY CLASSIFICATION GROUP	
B	IBC 304 BUSINESS / LABORATORY / TESTING
S-2	IBC 311.3 LOW HAZARD STORAGE / ELECTRICAL EQUIPMENT

BUILDING OCCUPANCY

PER IBC CHAPTER 5

IBC TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

ALLOWABLE # OF STORIES	ALLOWED	PROPOSED
	3	1

IBC TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY SEPARATION	ALLOWED	PROPOSED
NONSEPARATED: B OCCUPANCY	0 HOURS	2 HOURS

BUILDING CONSTRUCTION

CONSTRUCTION TYPE IBC TABLE 601	TYPE II-B

EXTERIOR WALL FIRE RESISTANCE BASED ON FIRE SEPARATION DISTANCE (TABLE 602)

EXTERIOR WALL LOCATION	DIST. TO PROPERTY LINE	FIRE RATING
NORTH	> 30'	0
EAST	> 30'	0
SOUTH	> 30'	0
WEST	> 30'	0

BUILDING AREA

PER IBC CHAPTER 5

ALLOWABLE AREAS FOR EACH PROPOSED OCCUPANCY

BASE ALLOWABLE FLOOR AREA (PER TABLE 506.2)

OCCUPANCY		ALLOWED	PROPOSED
B	NS	23,000 SF	1,606 SF
S-2		26,000 SF	2,706 SF
			TOTAL: 4,312 SF
AREA INCREASE FOR YARDS			0
AREA INCREASE FOR BUILDING SPRINKLERS			0

PROPOSED AREA OF BUILDING PER FLOOR			AREA (SF)
	LEVEL 1 (AT GRADE)		4,312 SF

OCCUPANT LOAD IBC TABLE 1004.5 MAX FLOOR AREA PER OCCUPANT

	RATIO	OCC. AREA	OCC. LOAD
ELECTRICAL RM	300 OCC LOAD FACTOR	2,706 SF	10 OCCUPANTS
SAMPLING RM	150 OCC LOAD FACTOR	1,606 SF	11 OCCUPANTS

IBC TABLE 601: FIRE-RISISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

	TYPE II-B
BUILDING ELEMENT FIRE RATING	ALLOWED
PRIMARY STRUCTURAL FRAME	0 HOURS
BEARING WALLS: EXT & INT	0 HOURS
NONBEARING WALLS INTERIOR	0 HOURS
FLOOR CONST AND ASSOC MEMBERS	0 HOURS
ROOF CONST AND ASSOC MEMBERS	0 HOUR

BUILDING FIRE SUPPRESSION, ALARM AND STANDPIPE SYSTEMS (CHAPTER 9)

	PROVIDED: YES / NO			REQUIRED / OPTIONAL (LIST OSSC SECTION(S)	TYPE / CLASS / AREAS OF COVERAGE:
SPRINKLER SYSTEM	13	13R	13D	NOT REQUIRED	
FIRE ALARM SYSTEM	YES, ENTIRE BUILDING				
STANDPIPE SYSTEM					

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

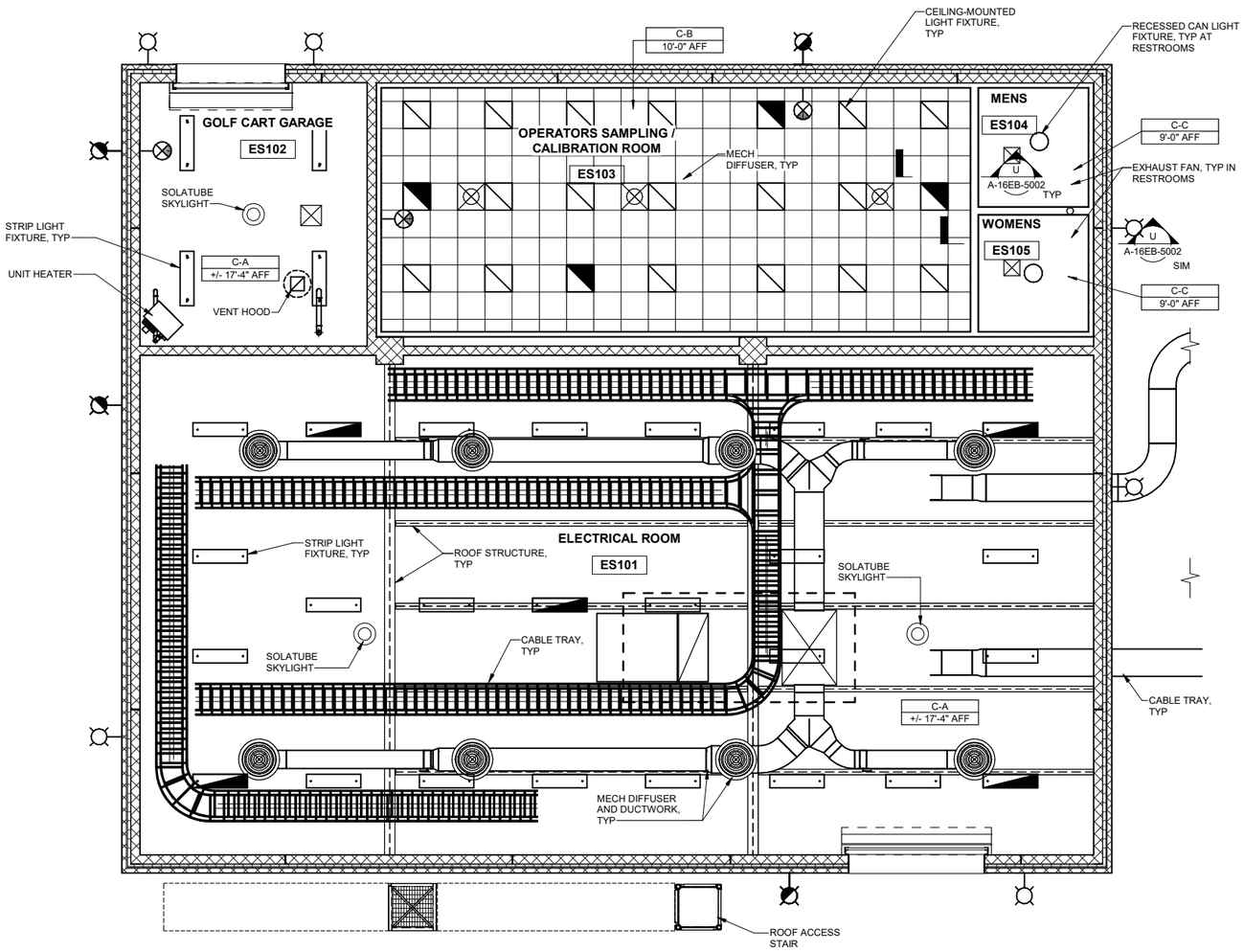
DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME 151600-S-16EBV18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BUILDING CODE SUMMARY

DRAWING NUMBER
A-16EB-1000

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-16EBV18.rvt
Plot Date: 12/22/2021 8:40:53 AM



PLAN

SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. FOR CEILING-MOUNTED MECHANICAL EQUIPMENT, SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
2. FOR CEILING-MOUNTED ELECTRICAL FIXTURES, SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
3. ALL AREAS SHOWN HAVE EXPOSED STRUCTURE ABOVE UNLESS NOTED OTHERWISE.

1

CEILING TYPES

1

C-A / HEIGHT	EXPOSED STRUCTURE , PAINTED, SEE FINISH SCHEDULE
C-B / HEIGHT	2'x2" SUSPENDED GRID ACCOUSTICAL CEILING SYSTEM, SEE DETAILS: U / A-16EB-5002 Y / A-16EB-5002 CC / A-16EB-5002
C-C / HEIGHT	SUSPENDED GYPSUM BOARD, PAINTED, SEE DETAILS: U / A-16EB-5002 Y / A-16EB-5002 CC / A-16EB-5002

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BLDG REFLECTED CLG PLAN

DRAWING NUMBER
A-16EB-1003

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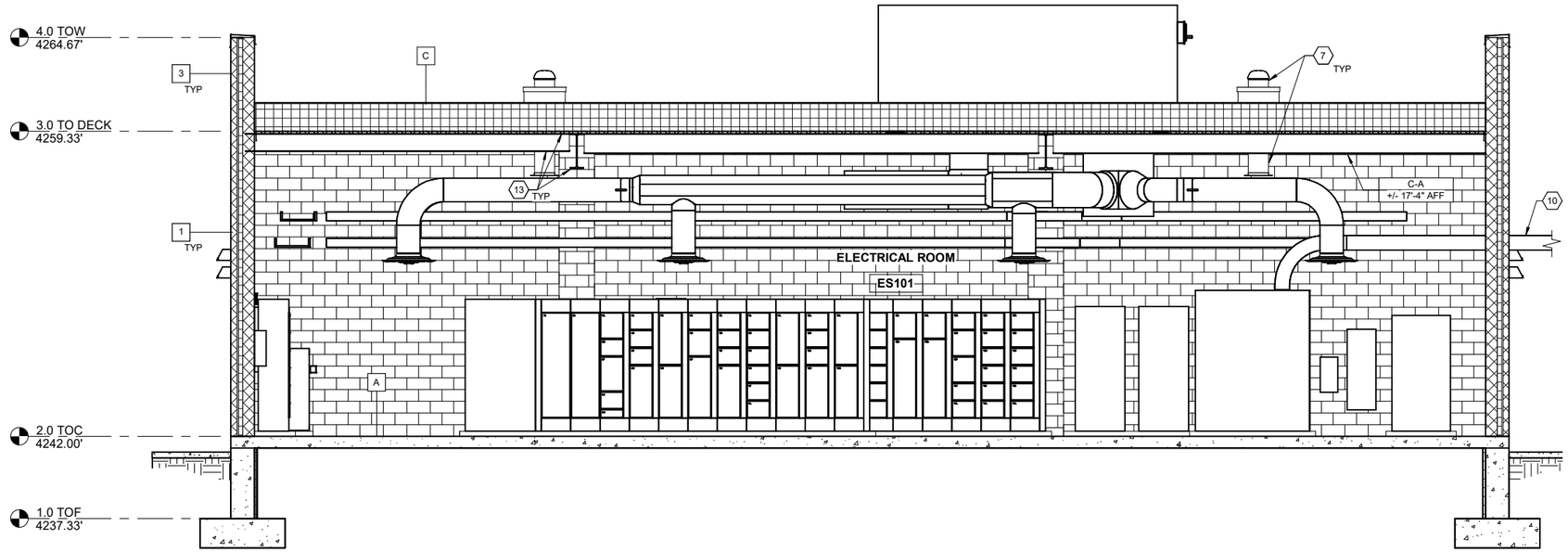
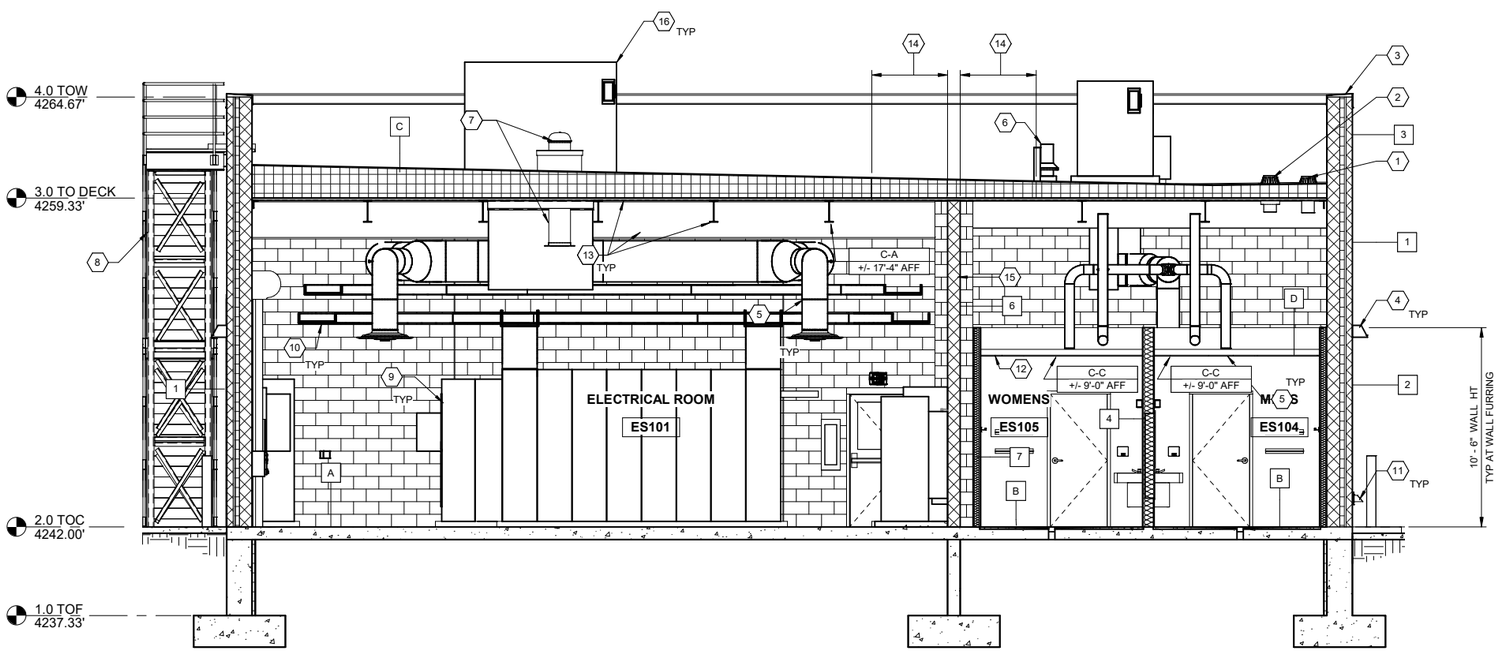


1 SECTION
A-16EB-1001 SCALE: 1/4" = 1'-0"



2 SECTION
A-16EB-1001 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. FOR WALL TYPES SCHEDULE SEE SHEET A-16EB-1001 .
2. FOR DECK TYPES SCHEDULE SEE SHEET --- .
3. FOR ROOM FINISH SCHEDULE, SEE SHEET A-16EB-6001.
4. FOR WINDOW SCHEDULE AND TYPE LEGEND, SEE SHEET A-16EB-6001 .
5. FOR DOOR SCHEDULE AND TYPE LEGEND, SEE SHEET A-16EB-6001 .
6. ALL DIMENSIONS ARE TO FACE OF STUD OR FACE OF MASONRY UNLESS NOTED OTHERWISE.
7. DOOR AND WINDOW IN MASONRY AND CONCRETE WALLS LOCATION DIMENSIONS ARE TO ROUGH OPENING UNLESS NOTED OTHERWISE.
8. FOR FLOOR SLOPING, STRUCTURAL COMPONENTS AND DETAILING, SEE STRUCTURAL DRAWINGS.
9. FOR ELECTRICAL, MECHANICAL, AND PROCESS MECHANICAL, SEE ASSOCIATED DRAWINGS.
10. ALL OFFICE FURNATURE, OFFICE EQUIPMENT, WAREHOUSE SHELVING, AND KITCHEN APPLIANCES TO BE OWNER-FURNISHED.
11. PROVIDE SOLID BLOCKING IN FRAMED WALLS FOR ALL WALL-MOUNTED EQUIPMENT AND FIXTURES.
12. FOR SITE WORK, INCLUDING BUT NOT LIMITTED TO WALKWAYS, DRIVES, BOLLARDS, AND EQUIPMENT PADS EXTERIOR TO THE BUILDING ENVOLOPE, SEE CIVIL DRAWINGS.

KEYNOTES:

1. ROOF DRAIN AND OVERFLOW DRAIN
2. OVERFLOW ROOF DRAIN
3. PARAPET WALL WITH STANDING SEAM ALUM COPING, CLEAR ANODIZED FINISH
4. WALL PACK LIGHT FIXTURE, SEE ELECTRICAL
5. HVAC MECH EQUIPMENT AND DUCTWORK
6. EXHAUST FAN ROOF VENT
7. 14" DIA SOLATUBE SKYLIGHT
8. ROOF ACCESS STAIR
9. ELECTRICAL EQUIPMENT
10. ELECTRICAL CABLE TRAYS
11. ROOF DRAIN RAIN SPOUT, BRASS
12. SUSPENDED GYPSUM BOARD CEILING
13. ROOF STRUCTURE, SEE STRUCTURAL
14. NO OPENINGS PERMITTED WITHIN 4' EITHER SIDE OF FIRE WALL
15. 2-HR FIRE-RATED WALL
16. ROOF MOUNTED MECHANICAL EQUIPMENT

DECK TYPES

A TYPICAL SLAB ON GRADE AT BASEMENT:
-CONCRETE SEALER, SEE ROOM SCHEDULE
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING

SLAB ON GRADE

B TYPICAL TILE FLOOR:
-TILE, SEE FINISH SCHEDULE
-SETTING GROUT, SLOPE TO DRAIN
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING

TILE FLOOR

C TYPICAL ROOF:
-SINGLE PLY PVC MEMBRANE ROOFING, FULLY ADHERED
-1/2" PROTECTION BOARD
-SLOPED RIGID INSULATION, R-38
-VAPOR BARRIER
-1/4" COVER BOARD
-METAL DECK, SEE STRUCTURAL
-STEEL BEAMS, SEE STRUCTURAL

TYPICAL ROOF

CEILING TYPES

C-A HEIGHT — EXPOSED STRUCTURE , PAINTED, SEE FINISH SCHEDULE

C-B HEIGHT — 2'x2" SUSPENDED GRID ACCOUSTICAL CEILING SYSTEM, SEE DETAILS:
U / A-16EB-5002 Y / A-16EB-5002
CC / A-16EB-5002

C-C HEIGHT — SUSPENDED GYPSUM BOARD, PAINTED, SEE DETAILS:
U / A-16EB-5002 Y / A-16EB-5002
CC / A-16EB-5002

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

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CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BUILDING SECTIONS 1

DRAWING NUMBER
A-16EB-3001

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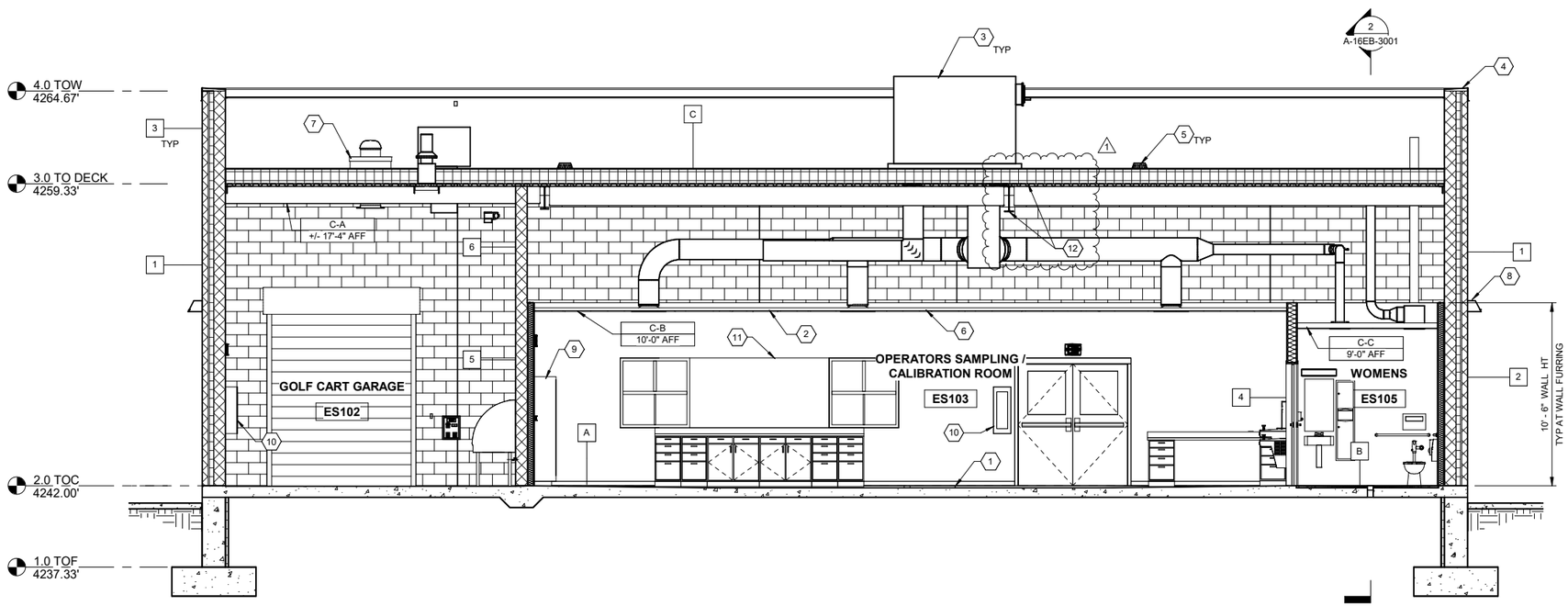

3 SECTION
A-16EB-1001 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. FOR WALL TYPES SCHEDULE SEE SHEET A-16EB-1001 .
2. FOR DECK TYPES SCHEDULE SEE SHEET --- .
3. FOR ROOM FINISH SCHEDULE, SEE SHEET A-16EB-6001.
4. FOR WINDOW SCHEDULE AND TYPE LEGEND, SEE SHEET A-16EB-6001 .
5. FOR DOOR SCHEDULE AND TYPE LEGEND, SEE SHEET A-16EB-6001 .
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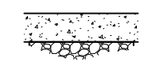
12. FOR SITE WORK, INCLUDING BUT NOT LIMITTED TO WALKWAYS, DRIVES, BOLLARDS, AND EQUIPMENT PADS EXTERIOR TO THE BUILDING ENVOLOPE, SEE CIVIL DRAWINGS.

KEYNOTES:

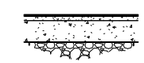
1. SEAL SURFACE OF CONCRETE FLOOR, TYP AT OPERATORS SAMPLING AREA
2. ACOUSTIC SUSPENDED CEILING SYSTEM
3. ROOF MOUNTED MECHANICAL EQUIPMENT
4. PARAPET WALL WITH STANDING SEAM ALUM COPING, CLEAR ANODIZED FINISH
5. OVERFLOW ROOF DRAIN
6. HVAC MECH EQUIPMENT AND DUCTWORK
7. 14" DIA SOLATUBE SKYLIGHT
8. WALL PACK LIGHT FIXTURE, SEE ELECTRICAL
9. 3' WIDE x 6' HIGH STORAGE CABINET WITH DOORS
10. WALL-MOUNTED FIRE EXTINGUISHER CABINET, SEE PLANS FOR LOCATIONS
11. TOOL PEG BOARD, 4'H x 8'L
12. ROOF STRUCTURE, SEE STRUCTURAL

DECK TYPES

A — TYPICAL SLAB ON GRADE AT BASEMENT:
-CONCRETE SEALER, SEE ROOM SCHEDULE
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING


SLAB ON GRADE

B — TYPICAL TILE FLOOR:
-TILE, SEE FINISH SCHEDULE
-SETTING GROUT, SLOPE TO DRAIN
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING


TILE FLOOR

C — TYPICAL ROOF:
-SINGLE PLY PVC MEMBRANE ROOFING, FULLY ADHERED
-1/2" PROTECTION BOARD
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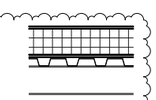
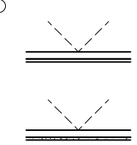
-VAPOR BARRIER
-1/4" COVER BOARD
-METAL DECK, SEE STRUCTURAL
-STEEL BEAMS, SEE STRUCTURAL


TYPICAL ROOF

CEILING TYPES

C-A / HEIGHT	EXPOSED STRUCTURE , PAINTED, SEE FINISH SCHEDULE
C-B / HEIGHT	2'x2" SUSPENDED GRID ACCOUSTICAL CEILING SYSTEM, SEE DETAILS: U / A-16EB-5002 Y / A-16EB-5002 CC / A-16EB-5002
C-C / HEIGHT	SUSPENDED GYPSUM BOARD, PAINTED, SEE DETAILS: U / A-16EB-5002 Y / A-16EB-5002 CC / A-16EB-5002



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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BUILDING SECTIONS 2

DRAWING NUMBER
A-16EB-3002

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-16EBV18.rvt
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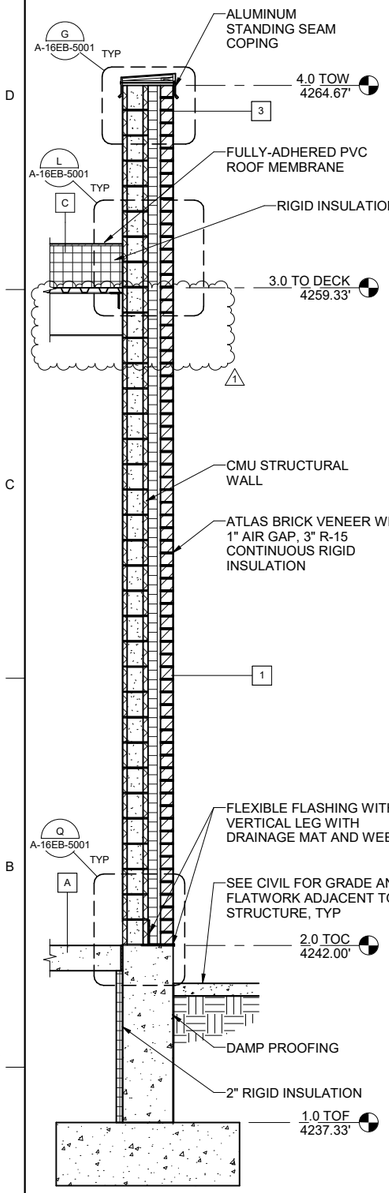
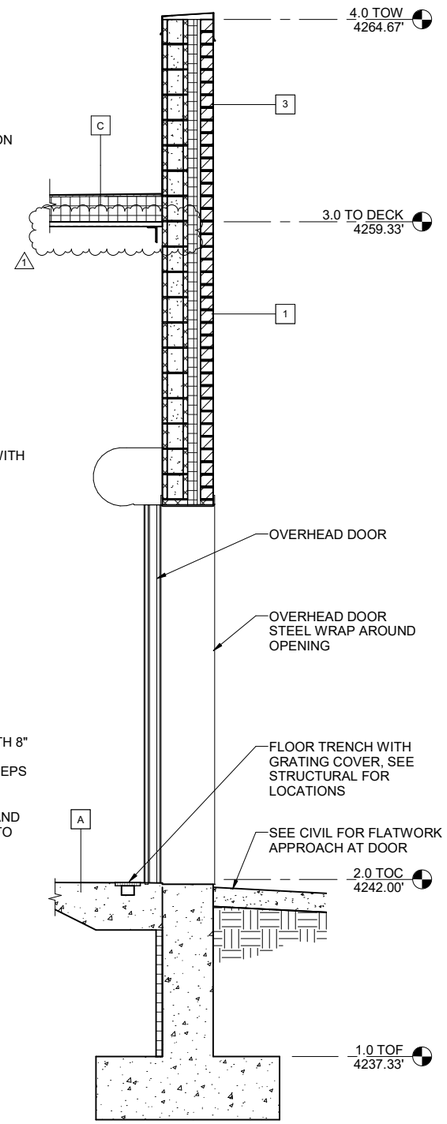


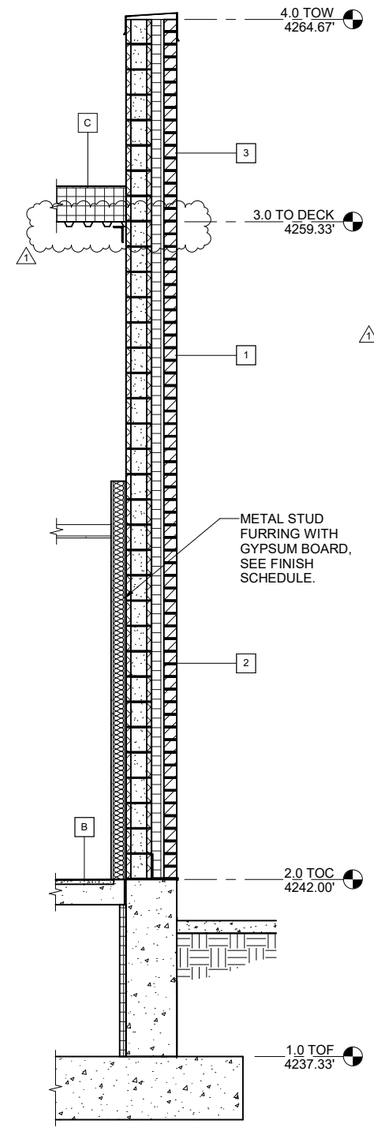
TYPICAL EXTERIOR WALL

A DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"



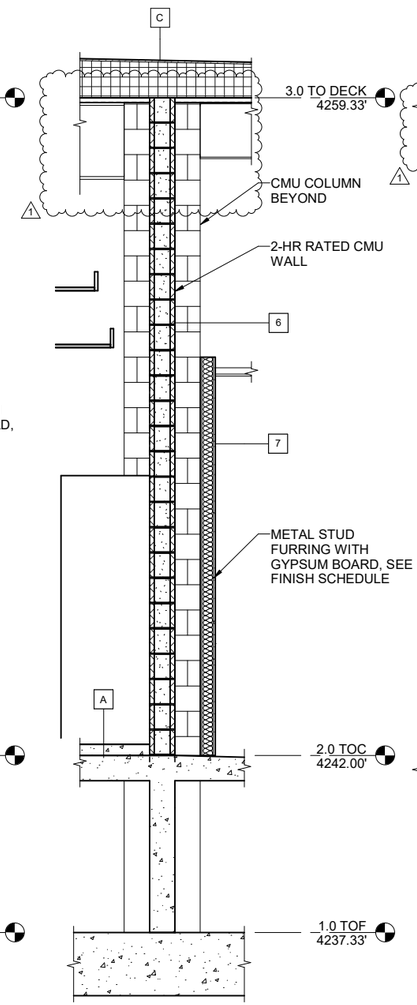
TYPICAL EXTERIOR WALL AT OH DOOR

B DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"



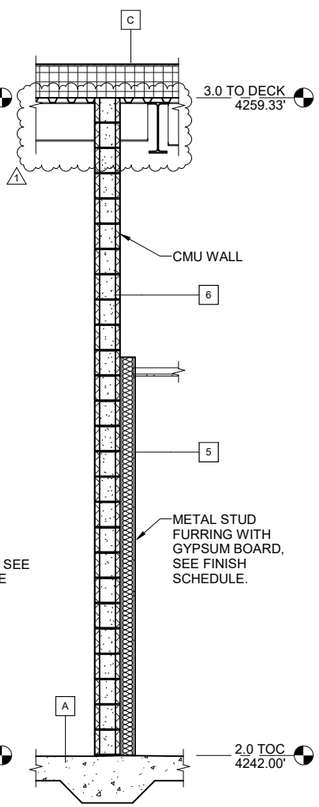
TYPICAL EXTERIOR WALL AT INTERIOR FURRING

C DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"



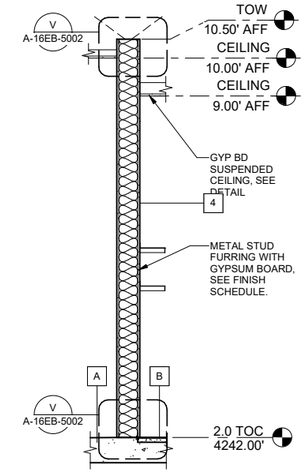
TYPICAL 1-HR RATED WALL

D DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"



TYPICAL INTERIOR WALL AND FURRING

E DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"



TYPICAL INTEROR PARTITION

F DETAIL
A-16EB-1001 SCALE: 1/2" = 1'-0"

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BUILDING ENLARGED WALL SECTIONS

DRAWING NUMBER
A-16EB-4301

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-16EBV18.rvt
Plot Date: 12/22/2021 8:42:44 AM

ROOM SCHEDULE

ROOM NAME	NUMBER	FLOOR	WALLS, WAINSCOT, BASES												CEILING		
			NORTH			EAST			SOUTH			WEST					
			WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	TYPE	HEIGHT	REMARKS
ELECTRICAL ROOM	ES101	SC-1	P-4			P-4			P-4			P-4			P-3	16'-0"	EXPOSED STRUCTURE, PAINTED
GOLF CART GARAGE	ES102	SC-1	P-4			P-4			P-4			P-4			P-3	16'-0"	EXPOSED STRUCTURE, PAINTED
OPERATORS SAMPLING / CALIBRATION ROOM	ES103	SC-1	P-4		RB-1	P-4		RB-1	P-4		RB-1	P-4		RB-1	ACT-1	10'-0"	SUSPENDED GRID CEILING
MENS	ES104	CT-1	CT-2 & CT-3			CT-2 & CT-3			CT-2 & CT-3			CT-2 7 CT-3			P-7	9'-0"	SUSPENDED GYPSUM BOARD, PAINTED
WOMENS	ES105	CT-1	CT-2 & CT-3			CT-2 & CT-3			CT-2 & CT-3			CT-2 7 CT-3			P-7	9'-0"	SUSPENDED GYPSUM BOARD, PAINTED

COLOR SCHEDULE

MARK	MATERIAL	MANUFACTURER	COLOR	STYLE NUMBER	FINISH REMARKS
EP-1	NON-SKID EPOXY FLOOR	SHERWIN WILLIAMS	GRAY		SEE SPECIFICATION 09 91 00
SC-1	CONCRETE FLOOR SEALER	SHERWIN WILLIAMS	CLEAR	RAIN GUARD FLOOR LOCK WITH MICO-LOC	SEE SPECIFICATION 09 91 00
SC-2	CONCRETE & MASONRY WALL SEALER	BASF	CLEAR	MASTER PROTECT H107	SEE SPECIFICATION 09 91 00
P-1	EPOXY PAINT EXTERIOR	SHERWIN WILLIAMS	ENDURING BRONZE	SW 7055	EXTERIOR TRIM
P-2	RAL POWDER COAT PAINT	RAL COLORS	BRONZE	RAL 8011	OVERHEAD COILING DOORS
P-4	PAINT INTERIOR	SHERWIN WILLIAMS	SHOJI WHITE	SW 7042	INTERIOR WALLS SERVICE AREAS
P-7	LATEX PAINT INTERIOR	SHERWIN WILLIAMS	EXTRA WHITE	SW 7006	ROOF DECK AND BEAMS CONCRETE
P-3	EPOXY PAINT INTERIOR	SHERWIN WILLIAMS	EXTRA WHITE	SW 7006	METAL ROOF DECK AND STRUCTURAL FRAMING - SEE SPECIFICATION 09-90-00 - SYSTEM: E-1, E-1-G
AN-1	ALUMINUM	SPECIAL-LITE	MEDIUM BRONZE	ANODIZED	DOOR FRAMES
AN-2	ALUMINUM		CLEAR	ANODIZED	WINDOW FRAMES AND PARAPET COPING
FRP-1	FRP	SPECIAL-LITE	BRONZE	PEBBLE FINISH	DOORS
CT-1	FLOOR PORCELAIN TILE	DALTILE (FEILD)	EXQUISITE	EQ13 MINK	2" X 4" MOSAIC
CT-2	WALL PORCELAIN TILE	DALTILE (FEILD)	EXQUISITE	EQ10 IVORY	12" X 24"
CT-3	WALL ACCENT BAND	DALTILE	EXQUISITE	EQ13 MINK	4" HIGH MOSAIC BAND AT 60" AFF
RB-1	RUBBER BASE BOARD	ROPPE	BURNT UMBER	P194	
ACT-1	ACOUSTICAL TILE	ARMSTRONG	WHITE	24" X 24" X 3/4" CORTEGA TEGULAR	
SS-1	COUNTERTOP	DURCON	BLACK ONYX		COUNTERTOPS
SS-2	WINDOW SILL	CORIAN	SAVANNAH		INTERIOR WINDOW SILL
PL-1	PLASTIC LAMINATE	WILSON ART	NEW AGE OAK	7938-38	CABINET FRONTS

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NUTRIENT REMOVAL
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SELECTOR

REVISIONS

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AT FULL SIZE

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FILENAME
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151600

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CC30B

ARCHITECTURAL
ANAEROBIC AND AERATION ELECTRICAL BUILDING SCHEDULES 2

DRAWING NUMBER
A-16EB-6002

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-16EBV18.rvt
Plot Date: 12/22/2021 8:43:50 AM

RAS ANOXIC BASIN - CODE SUMMARY

APPLICABLE CODES

BUILDING CODE:	2018 INTERNATIONAL BUILDING CODE
ELECTRICAL CODE:	2017 INTERNATIONAL ELECTRICAL CODE
PLUMBING CODE:	2018 INTERNATIONAL PLUMBING CODE
MECHANICAL CODE:	2018 INTERNATIONAL MECHANICAL CODE
ENERGY CODE:	2018 INTERNATIONAL ENERGY CONSERVATION CODE
FIRE CODE:	2018 INTERNATIONAL FIRE CODE
ACCESSIBILITY CODE:	2018 INTERNATIONAL BUILDING CODE (ICC/ANSI A117.1-2009)

RISK CATEGORY: III WASTEWATER TREATMENT FACILILTY, IBC TABLE 1604.5

BUILDING OCCUPANCY

PER IBC CHAPTER 3

OCCUPANCY CLASSIFICATION GROUP	
S-2 IBC 311 .3 LOW-HAZARD STORAGE / METAL PUMPS / ELECTRIC PANELS	

BUILDING OCCUPANCY

PER IBC CHAPTER 5

IBC TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

ALLOWABLE # OF STORIES	ALLOWED	PROPOSED
	3	1
	1	

IBC TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY SEPARATION	ALLOWED	PROPOSED
NONE	0 HOURS	0 HOURS

BUILDING CONSTRUCTION 1

CONSTRUCTION TYPE IBC TABLE 601	TYPE II-B

EXTERIOR WALL FIRE RESISTANCE BASED ON FIRE SEPARATION DISTANCE (TABLE 602)

EXTERIOR WALL LOCATION	DIST. TO PROPERTY LINE	FIRE RATING
NORTH	> 30'	0
EAST	> 30'	0
SOUTH	> 30'	0
WEST	> 30'	0

IBC TABLE 601: FIRE-RISISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

	1 TYPE II-B
BUILDING ELEMENT FIRE RATING	ALLOWED
PRIMARY STRUCTURAL FRAME	0 HOURS
BEARING WALLS: EXT & INT	0 HOURS
NONBEARING WALLS INTERIOR	0 HOURS
FLOOR CONST AND ASSOC MEMBERS	0 HOURS
ROOF CONST AND ASSOC MEMBERS	0 HOUR

BUILDING AREA

PER IBC CHAPTER 5

ALLOWABLE AREAS FOR EACH PROPOSED OCCUPANCY

BASE ALLOWABLE FLOOR AREA (PER TABLE 506.2)

OCCUPANCY	ALLOWED	PROPOSED
S-2	26,000 SF 1	3,453 SF
AREA INCREASE FOR YARDS		0
AREA INCREASE FOR BUILDING SPRINKLERS		0

PROPOSED AREA OF BUILDING PER FLOOR		AREA (SF)
BELOW GRADE(DRY PIT)		3,015 SF
LEVEL 1 (STAIR TOWER)		100 SF
LEVEL 1 (ELECTRICAL RM)		338 SF

OCCUPANT LOAD IBC TABLE 1004.5 MAX FLOOR AREA PER OCCUPANT

	RATIO	OCC. AREA	OCC. LOAD
BELOW GRADE (DRY PIT)	300 OCC LOAD FACTOR	3,015 SF	11 OCCUPANTS
LEVEL 1: (STAIR TOWER)	100 OCC LOAD FACTOR	100 SF	1 OCCUPANT
LEVEL 1: (ELECTRICAL RM)	300 OCC LOAD FACTOR	338 SF	2 OCCUPANTS

BUILDING FIRE SUPPRESSION, ALARM AND STANDPIPE SYSTEMS (CHAPTER 9)

	PROVIDED: YES / NO			REQUIRED / OPTIONAL (LIST OSSC SECTION(S)	TYPE / CLASS / AREAS OF COVERAGE:
SPRINKLER SYSTEM	13	13R	13D	NOT REQUIRED	
FIRE ALARM SYSTEM	YES, ENTIRE BUILDING				
STANDPIPE SYSTEM					

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Sandy, Utah 84092
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fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-22V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

RAS/WAS BASIN CODE SUMMARY

DRAWING NUMBER
A-22-0001

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
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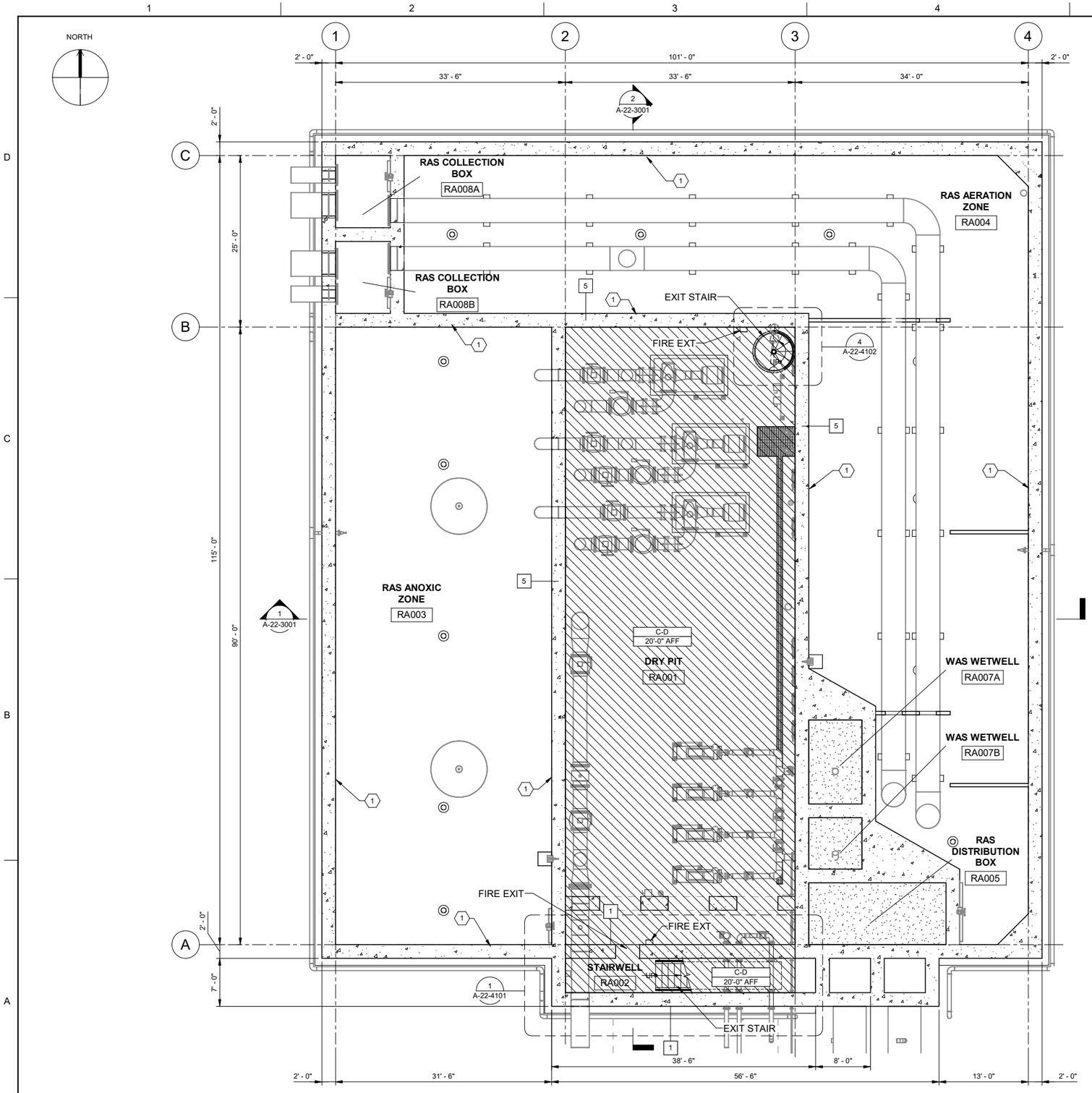

PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. FOR ROOM FINISH SCHEDULE, SEE SHEET A-22-6001.
2. FOR DOOR SCHEDULE AND TYPE LEGEND, SEE SHEET A-22-6001.
3. ALL DIMENSIONS ARE TO FACE OF STUD OR FACE OF MASONRY UNLESS NOTED OTHERWISE.
4. DOOR AND WINDOW IN MASONRY AND CONCRETE WALLS LOCATION DIMENSIONS ARE TO ROUGH OPENING UNLESS NOTED OTHERWISE.
5. FOR FLOOR SLOPING, STRUCTURAL COMPONENTS AND DETAILING, SEE STRUCTURAL DRAWINGS.
6. FOR ELECTRICAL, MECHANICAL, AND PROCESS MECHANICAL, SEE ASSOCIATED DRAWINGS.
7. PROVIDE SOLID BLOCKING IN FRAMED WALLS FOR ALL WALL-MOUNTED EQUIPMENT AND FIXTURES.
8. FOR SITE WORK, INCLUDING BUT NOT LIMITTED TO WALKWAYS, DRIVES, BOLLARDS, AND EQUIPMENT PADS EXTERIOR TO THE BUILDING ENVOLOPE, SEE CIVIL DRAWINGS.

KEYNOTES:

1 WATER PROOFING MEMBRANE AT ALL BASIN WALLS, SEE STRUCTURAL

WALL TYPES

1 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

2 BRICK VENEER ON STRUCTURAL CMU WALL:
-4" X 4" x 16" ATLAS BRICK VENEER, SEE EXTERIOR ELEVATIONS FOR STYLE, FINISH AND COLOR
-1" MIN AIR GAP
-3" RIGID INSULATION, R-15
-LIQUID APPLIED AIR BARRIER AT CMU
-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR PAINT

3 PARAPET: BRICK VENEER ON CMU WALL
-4" X 4" x 16" ATLAS BRICK VENEER, SEE EXTERIOR ELEVATIONS FOR STYLE, FINISH AND COLOR
-1" MIN AIR GAP
-3" RIGID INSULATION, R-15
-LIQUID APPLIED AIR BARRIER AT CMU WALL
-CMU WALL PER STRUCTURAL
-FULLY ADHERED PVC SINGLE-PLY ROOF MEMBRANE

4 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
-3" RIGID INSULATION, R-15
-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR FINISH

5 WET WELL / DRY PIT:
-WATER PROOFING MEMBRANE, SEE STRUCTURAL
-STRUCTURAL CONCRETE WALL, SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

WET WELL

CEILING TYPES

C-A HEIGHT	EXPOSED STRUCTURE, SEE SCHEDULE FOR FINISH
C-D HEIGHT	EXPOSED CONCRETE STRUCTURE 1 HOUR FIRE RATED WITH CLEAR SEALER

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-22V18

BC PROJECT NUMBER
151600

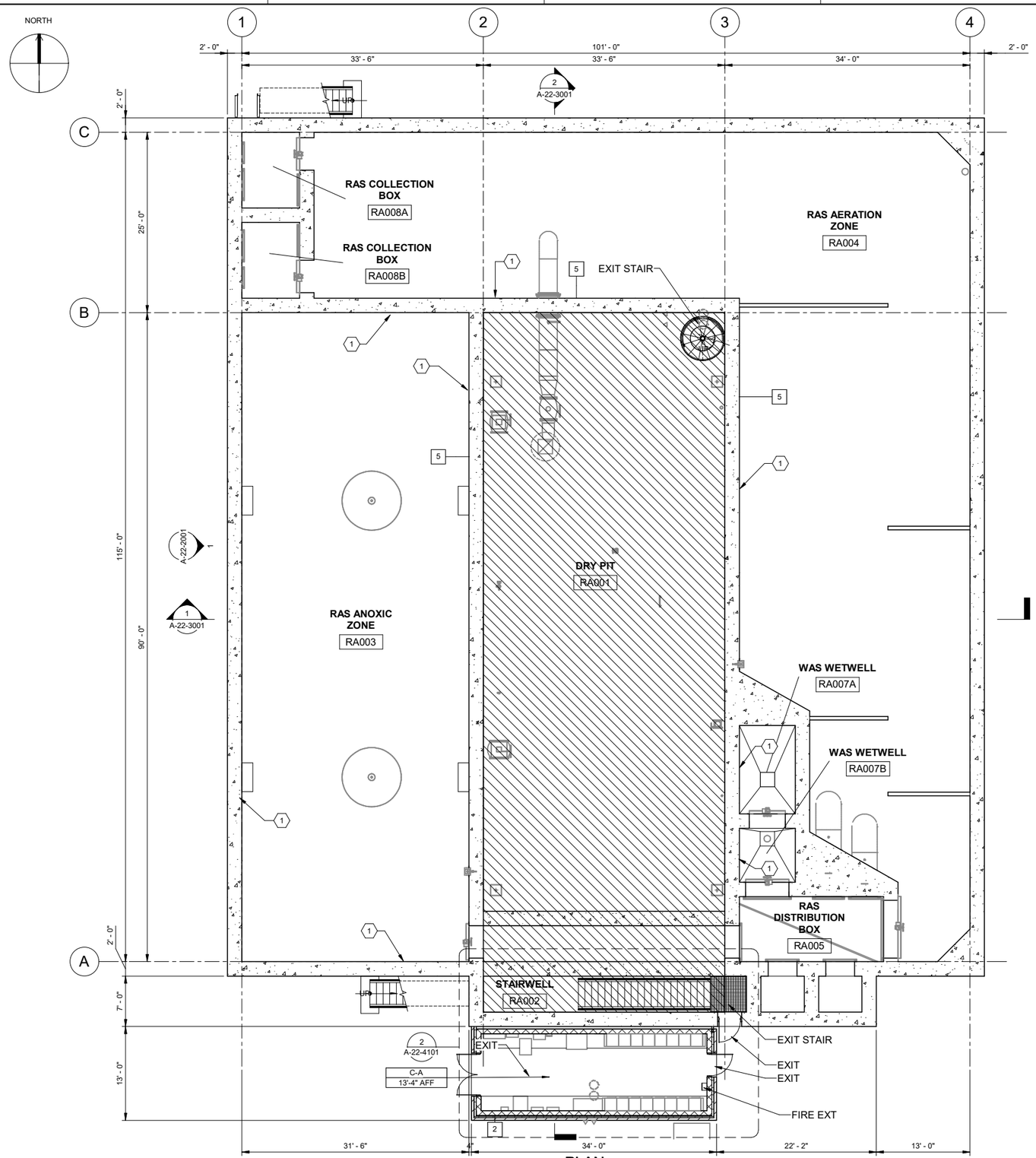
CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

RAS/WAS BASIN OVERALL LOWER PLAN ELEV 4227.00

DRAWING NUMBER
A-22-1001

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
Plot Date: 12/22/2021 8:59:01 AM



PLAN

SCALE: 1/8" = 1'-0"

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KEYNOTES:

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5 WET WELL / DRY PIT:
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-SEE FINISH SCHEDULE FOR INTERIOR SEALER

WET WELL

CEILING TYPES

C-A / HEIGHT — EXPOSED STRUCTURE, SEE SCHEDULE FOR FINISH

C-D / HEIGHT — EXPOSED CONCRETE STRUCTURE 1 HOUR FIRE RATED WITH CLEAR SEALER

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL
RAS/WAS BASIN OVERALL INTERMEDIATE PLAN AT CHANNELS ELEV 4238.50

DRAWING NUMBER
A-22-1002

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
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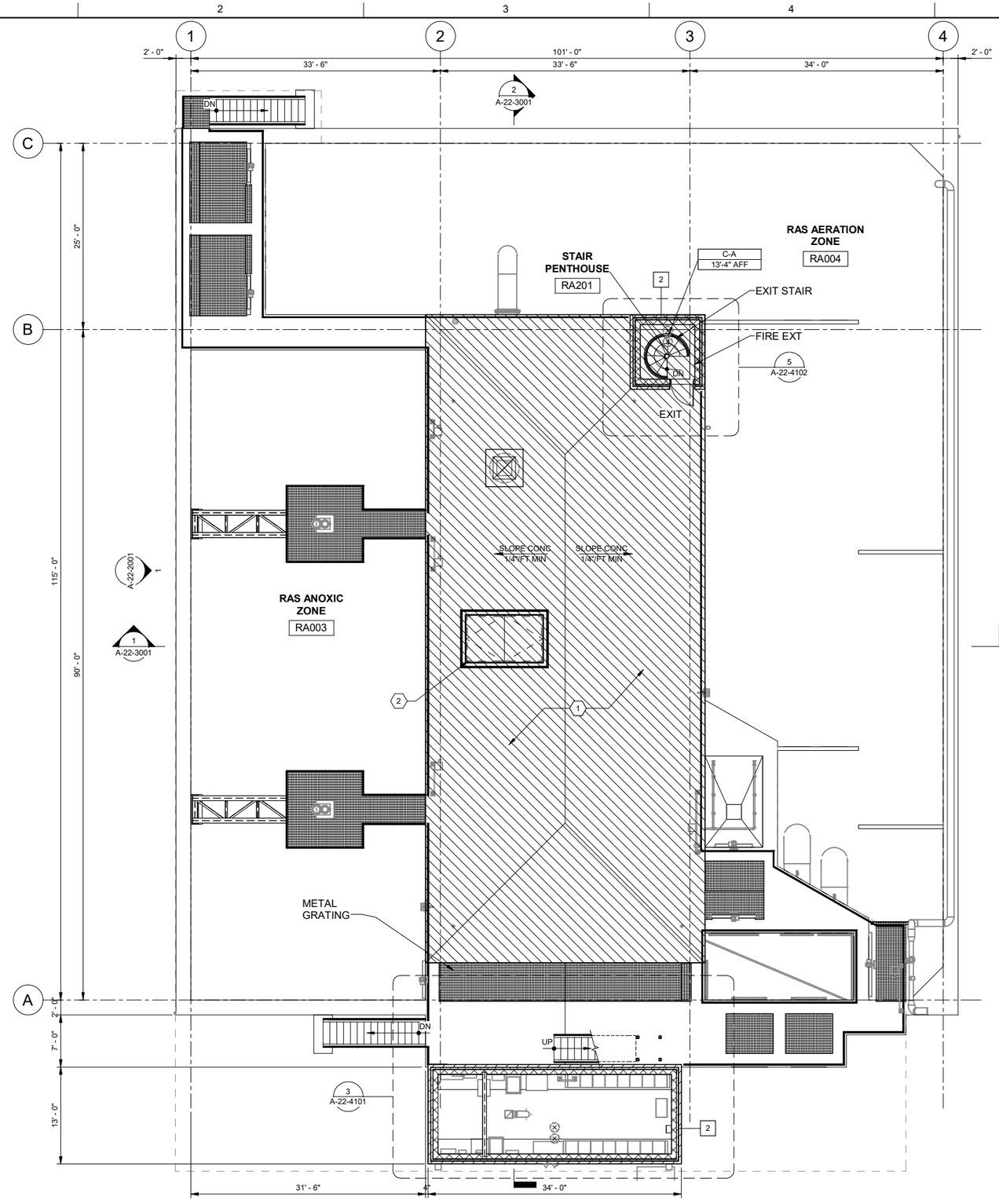

PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

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KEYNOTES:

1 LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID FINISH, SEE SPECIFICATION 07 56 00

2 EQUIPMENT HATCH, SEE STRUCTURAL

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-SEE FINISH SCHEDULE FOR INTERIOR FINISH

5 WET WELL / DRY PIT:
-WATER PROOFING MEMBRANE, SEE STRUCTURAL
-STRUCTURAL CONCRETE WALL, SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

WET WELL

CEILING TYPES

1

C-A / HEIGHT — EXPOSED STRUCTURE, SEE SCHEDULE FOR FINISH

C-D / HEIGHT — EXPOSED CONCRETE STRUCTURE 1 HOUR FIRE RATED WITH CLEAR SEALER

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-22V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

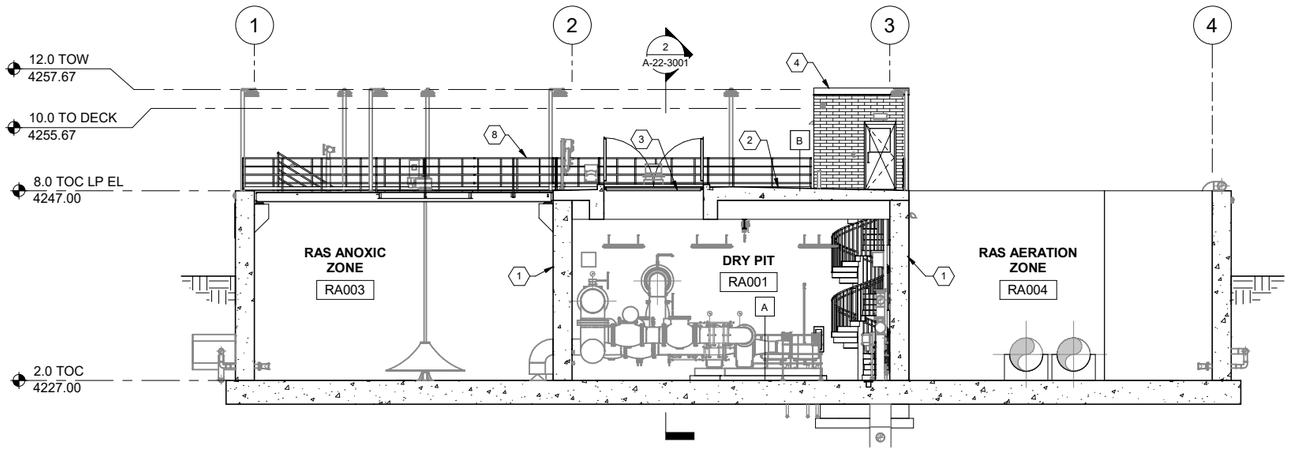
RAS/WAS BASIN OVERALL UPPER PLAN ELEV 4247.00

DRAWING NUMBER
A-22-1003

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
Plot Date: 12/22/2021 8:59:07 AM

KEYNOTES:

1. WATER PROOFING MEMBRANE AT ALL BASIN WALLS, SEE STRUCTURAL
2. LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID FINISH, SEE SPECIFICATION 07 56 00
3. EQUIPMENT HATCH, SEE STRUCTURAL
4. PARAPET WALL WITH STANDING SEAM ALUM COPING, CLEAR ANODIZED FINISH
5. SINGLE-PLY FULLY ADHERED PVC MEMBRANE SYSTEM OVER 1/2" PROTECTION BOARD, OVER R-38 RIGID INSUL, OVER STEEL DECK
6. ROOF DRAIN AND OVERFLOW DRAIN
7. ROOF-MOUNTED MECHANICAL EQUIPMENT, SEE MECHANICAL DRAWINGS
8. ALUMINUM GUARDRAIL, SEE STRUCTURAL



1 A-22-1001 SECTION
SCALE: 1/8" = 1'-0"

DECK TYPES

A TYPICAL SLAB ON GRADE AT BASEMENT:
-CONCRETE SEALER, SEE ROOM SCHEDULE
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING

SLAB ON GRADE

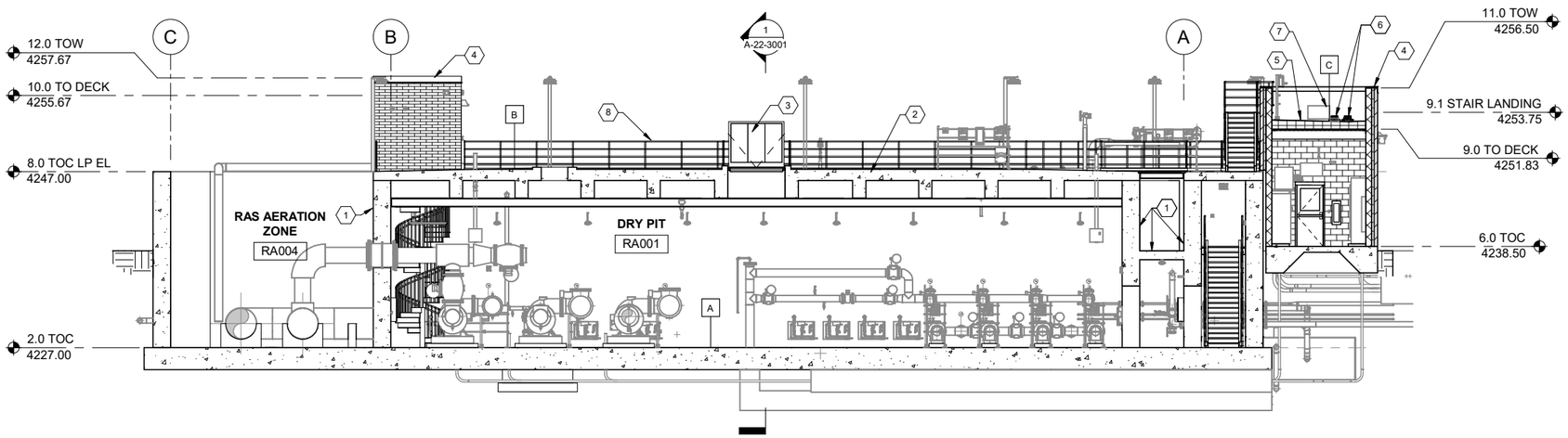
B DRYWELL ROOF SLAB: 1 HOUR RATED
-LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID SURFACE
-CONCRETE SLAB , SEE STRUCTURAL

DRYWELL ROOF

1

C TYPICAL ROOF:
-SINGLE PLY PVC MEMBRANE ROOFING, FULLY ADHERED
-1/2" PROTECTION BOARD
-SLOPED RIGID INSULATION, R-38
-VAPOR BARRIER
-1/4" COVER BOARD
-METAL DECK, SEE STRUCTURAL
-STEEL BEAMS, SEE STRUCTURAL

TYPICAL ROOF



2 A-22-1001 SECTION
SCALE: 1/8" = 1'-0"

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CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-22V18
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

RAS/WAS BASIN SECTIONS

DRAWING NUMBER
A-22-3001

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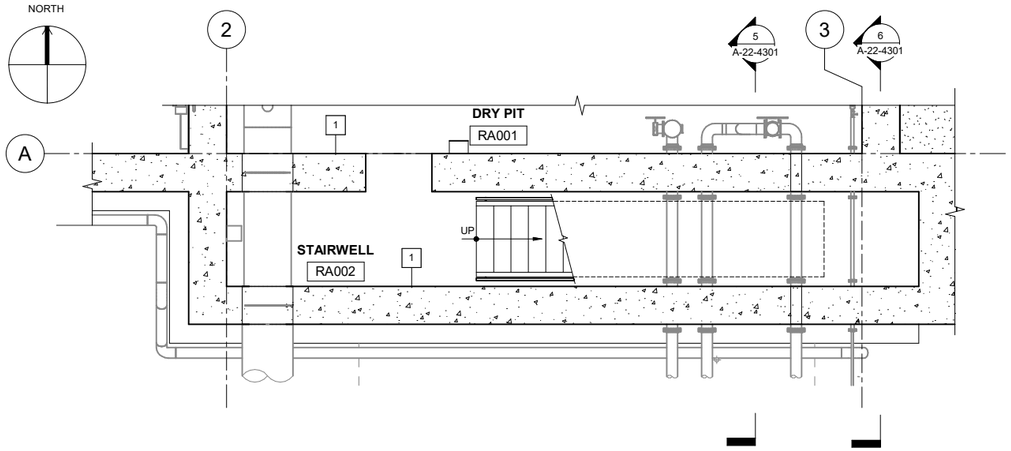
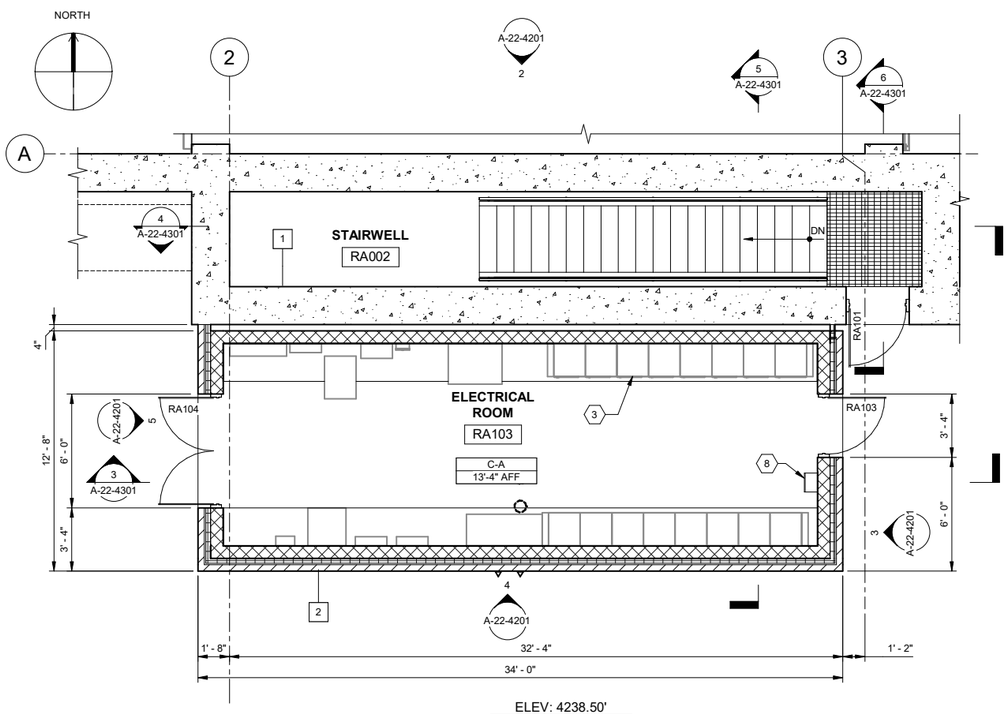


ELEV: 4227.00'

PLAN AT LOWER LEVEL

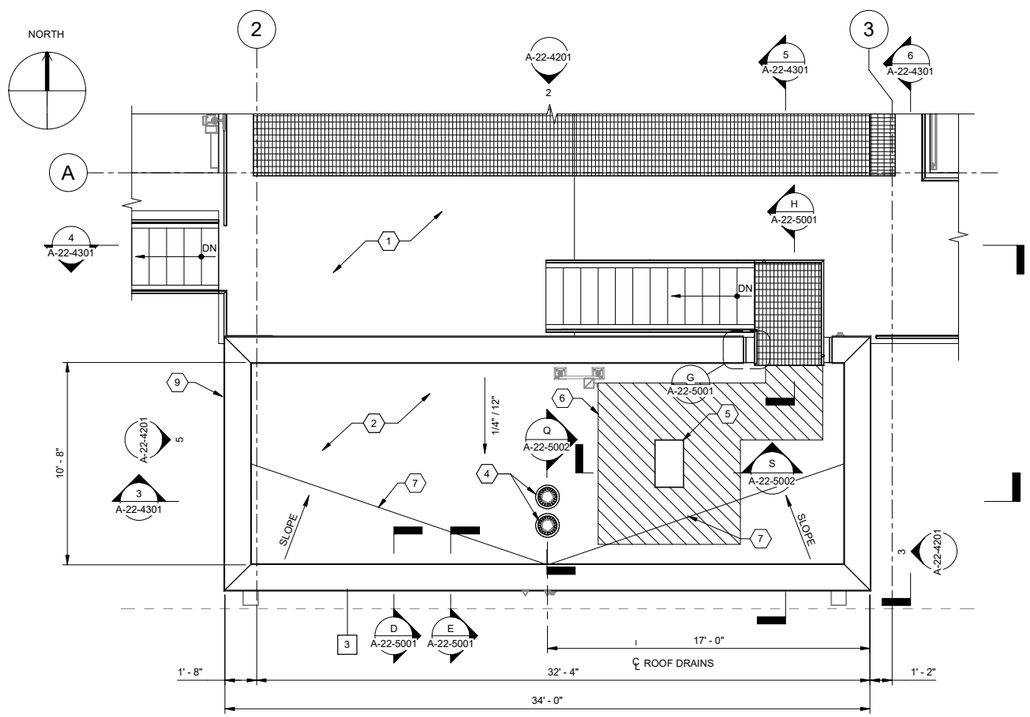
1 / A-22-1001 SCALE: 1/4" = 1'-0"



ELEV: 4238.50'

PLAN AT ELECTRICAL ROOM

2 / A-22-1002 SCALE: 1/4" = 1'-0"



ROOF PLAN

3 / A-22-1003 SCALE: 1/4" = 1'-0"

WALL TYPES

1 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR SEALER

2 BRICK VENEER ON STRUCTURAL CMU WALL:
-4" X 4" x 16" ATLAS BRICK VENEER, SEE EXTERIOR ELEVATIONS FOR STYLE, FINISH AND COLOR
-1" MIN AIR GAP
-3" RIGID INSULATION, R-15
-LIQUID APPLIED AIR BARRIER AT CMU
-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR PAINT

3 PARAPET: BRICK VENEER ON CMU WALL
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-CMU WALL PER STRUCTURAL
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4 STRUCTURAL CONCRETE WALL:
-SEE STRUCTURAL
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-CMU WALL PER STRUCTURAL
-SEE FINISH SCHEDULE FOR INTERIOR FINISH

5 WET WELL / DRY PIT:
-WATER PROOFING MEMBRANE, SEE STRUCTURAL
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WET WELL

GENERAL NOTES:

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KEYNOTES:

1. LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID FINISH, SEE SPECIFICATION 07 56 00
2. SINGLE-PLY FULLY ADHERED PVC MEMBRANE SYSTEM OVER 1/2" PROTECTION BOARD, OVER R-38 RIGID INSUL, OVER STEEL DECK
3. ELECTRICAL EQUIPMENT, SEE ELECTRICAL DRAWINGS
4. ROOF DRAIN AND OVERFLOW DRAIN
5. ROOF-MOUNTED MECHANICAL EQUIPMENT, SEE MECHANICAL DRAWINGS
6. SINGLE PLY WALKWAY MAT
7. TAPERED RIDID INSUL CRICKET, SLOPE 1/2"/FOOT, MIN
8. FIRE EXTINGUISHER CABINET
9. PARAPET WALL WITH STANDING SEAM ALUM COPING, CLEAR ANODIZED FINISH

CEILING TYPES

1 C-A / HEIGHT — EXPOSED STRUCTURE, SEE SCHEDULE FOR FINISH

C-D / HEIGHT — EXPOSED CONCRETE STRUCTURE 1 HOUR FIRE RATED WITH CLEAR SEALER

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REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

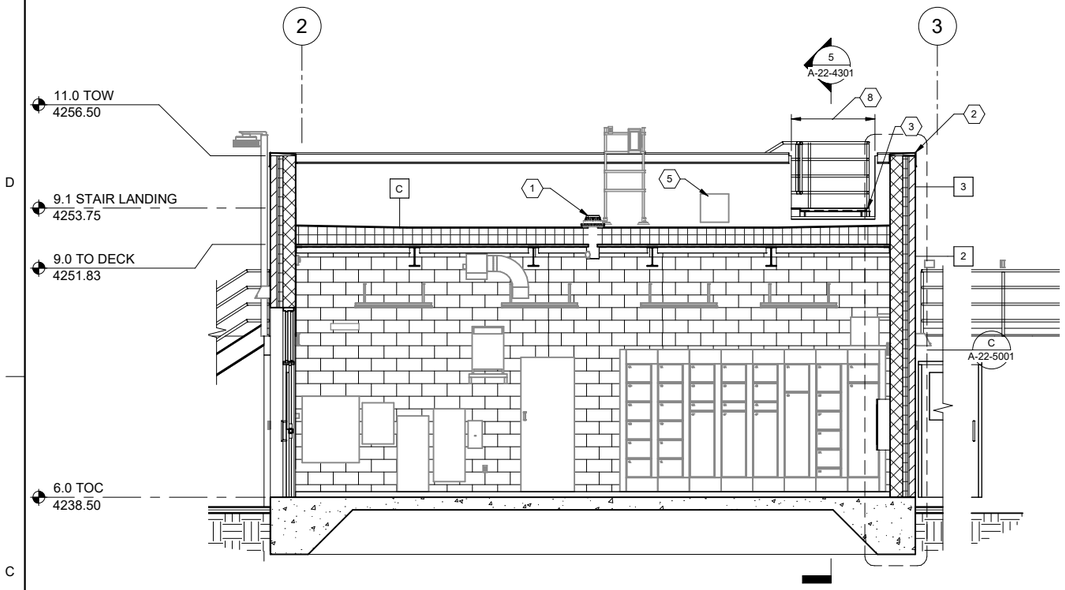
FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL

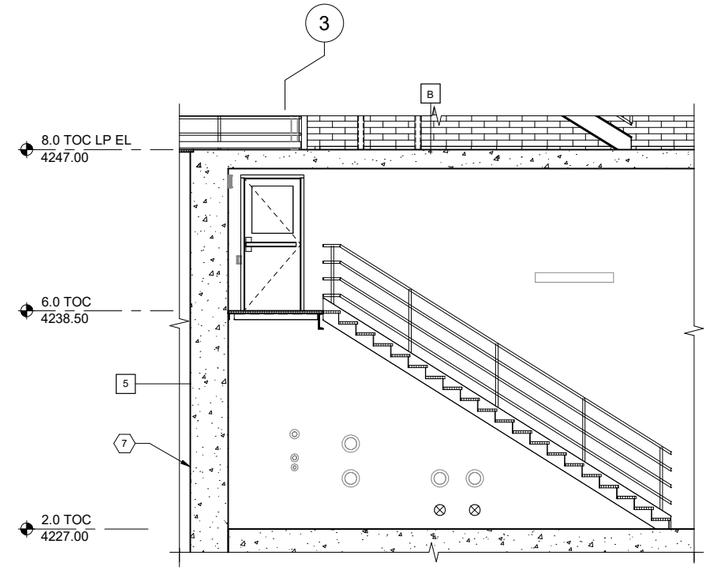
RAS/WAS BASIN ENLARGED ELECTRICAL ROOM FLOOR PLANS

DRAWING NUMBER
A-22-4101

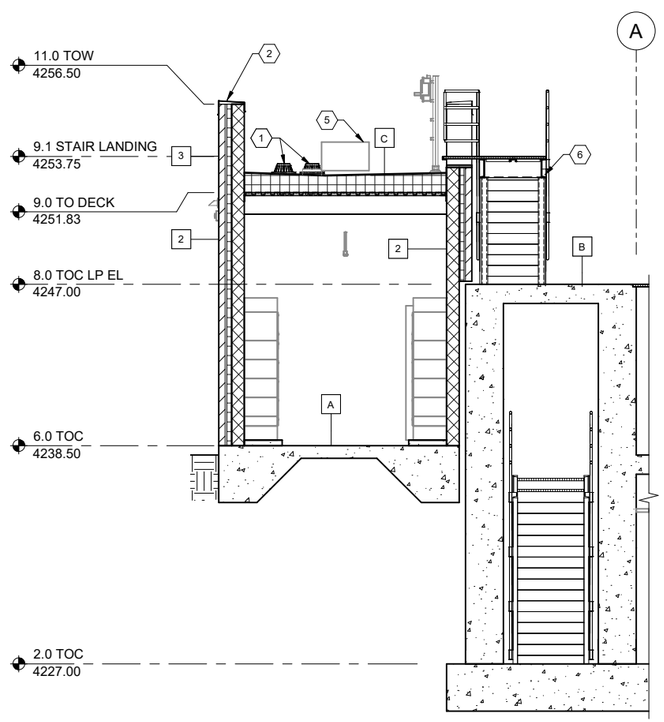
Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
Plot Date: 12/22/2021 8:59:20 AM



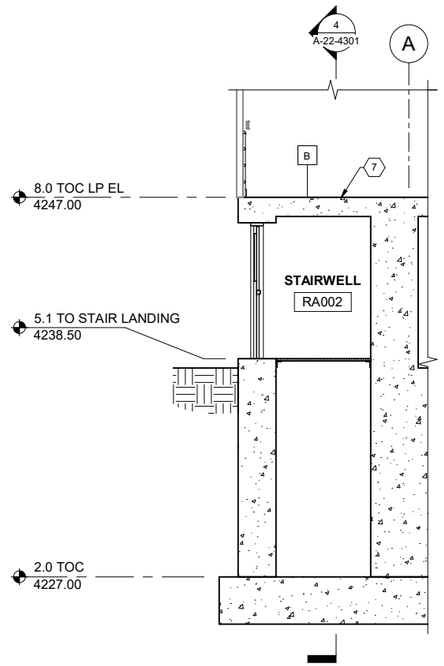
3 SECTION
A-22-4101 SCALE: 1/4" = 1'-0"



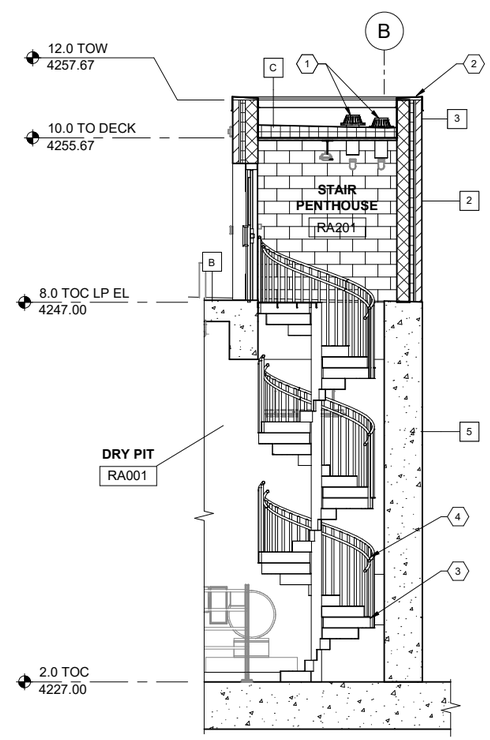
4 SECTION
A-22-4101 SCALE: 1/4" = 1'-0"



5 SECTION
A-22-4101 SCALE: 1/4" = 1'-0"



6 SECTION
A-22-4101 SCALE: 1/4" = 1'-0"



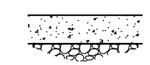
7 SECTION
A-22-4102 SCALE: 1/4" = 1'-0"

KEYNOTES:

1. ROOF DRAIN AND OVERFLOW DRAIN
2. PARAPET WALL WITH STANDING SEAM ALUM COPING, CLEAR ANODIZED FINISH
3. STAIR, SEE STRUCTURAL
4. 42" HIGH FACE-MOUNTED GUARDRAIL
5. ROOF MOUNTED MECHANICAL EQUIPMENT
6. ROOF ACCESS STAIR
7. LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID FINISH, SEE SPECIFICATION 07 56 00
8. PARAPET CUT AT ROOF ACCESS STAIR

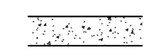
DECK TYPES

A TYPICAL SLAB ON GRADE AT BASEMENT:
-CONCRETE SEALER, SEE ROOM SCHEDULE
-CONCRETE SLAB , SEE STRUCTURAL FOR SPECIFICATIONS AND UNDER-SLAB WATERPROOFING



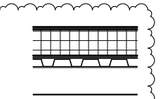
SLAB ON GRADE

B DRYWELL ROOF SLAB: 1 HOUR RATED
-LIQUID APPLIED ROOF MEMBRANE WITH NON-SKID SURFACE
-CONCRETE SLAB , SEE STRUCTURAL



DRYWELL ROOF

C TYPICAL ROOF:
-SINGLE PLY PVC MEMBRANE ROOFING, FULLY ADHERED
-1/2" PROTECTION BOARD
-SLOPED RIGID INSULATION, R-38
-VAPOR BARRIER
-1/4" COVER BOARD
-METAL DECK, SEE STRUCTURAL
-STEEL BEAMS, SEE STRUCTURAL



TYPICAL ROOF

1

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-22V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL

RAS/WAS BASIN ENLARGED BUILDING SECTIONS

DRAWING NUMBER
A-22-4301

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
Plot Date: 12/22/2021 8:59:31 AM

ROOM SCHEDULE

ROOM NAME	NUMBER	FLOOR	WALLS, WAINSCOT, BASES: NORTH WALL	NORTH WAINSCOT	NORTH BASE	EAST WALL	EAST WAINSCOT	EAST BASE	SOUTH WALL	SOUTH WAINSCOT	SOUTH BASE	WEST WALL	WEST WAINSCOT	WEST BASE	CEILING TYPE	CEILING HEIGHT	REMARKS
DRY PIT	RA001	SC-1	SC-2			SC-2			SC-2			SC-2			SC-2	20'-0"	EXPOSED CONCRETE STRUCTURE
STAIRWELL	RA002	SC-1	SC-2			SC-2			SC-2			SC-2			SC-2	20'-0"	EXPOSED CONCRETE STRUCTURE
ELECTRICAL ROOM	RA103	SC-1	P-4			P-4			P-4			P-4			P-3	13'-4"	ROOF DECK AND FRAMING PAINTED
STAIR PENTHOUSE	RA201	SC-1	P-4			P-4			P-4			P-4			P-3	13'-4"	ROOF DECK AND FRAIMING, PAINTED

1

COLOR SCHEDULE

wt	MATERIAL	MANUFACTURER	COLOR	STYLE NUMBER	REMARKS
SC-1	CONCRETE FLOOR SEALER	RAIN GUARD	CLEAR	RAIN GUARD FLOOR LOCK WITH MICRO-LOC	SEE SPECIFICATION 09 91 00
SC-2	CONCRETE & MASONRY WALL SEALER	BASF	CLEAR	MASTER PROTECT H107	SEE SPECIFICATION 09 91 00
P-1	EPOXY PAINT EXTERIOR	SHERWIN WILLIAMS	ENDURING BRONZE	SW 7055	EXTERIOR TRIM
P-3	EPOXY PAINT INTERIOR	SHERWIN WILLIAMS	EXTRA WHITE	SW 7006	INTERIOR ROOF DECK AND STRUCTURAL FRAMING - SEE SPECIFICATION 09 90 00: E-1,E-1-G
P-4	PAINT INTERIOR	SHERWIN WILLIAMS	SHOJI WHITE	SW 7042	INTERIOR WALLS SERVICE AREAS
AN-1	ALUMINUM	SPECIAL-LITE	MEDIUM BRONZE	ANODIZED	DOOR FRAMES
AN-2	ALUMINUM		CLEAR	ANODIZED	WINDOW FRAMES AND PARAPET COPING
FRP-1	FRP	SPECIAL-LITE	BRONZE	PEBBLE FINISH	DOORS & TRANSOM

1

A-DOOR SCHEDULE

NO	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR THICK.	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME WIDTH	FRAME HEIGHT	FRAME MAT	FRAME FIN	VIEW WIDTH	VIEW HEIGHT	VIEW MAT	TRANSOM THICK	TRANSOM MAT	TRANSOM FIN	SIDE LIGHT(S) MAT	SIDE LIGHT(S) FIN	RATING	HRDW GROUP	REMARKS	DOOR SIGNAGE QTY	RM NAME	ROOM NO.	DETAIL
RA101	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 2"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA		4	CARD READER, EXIT DOOR				
RA102	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 4"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA			CARD READER, EXIT DOOR				
RA103	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 4"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA		4	CARD READER, EXIT DOOR				
RA104	B	5' - 8"	7' - 0"	1 3/4"	FRP	FRP-1	F-2	6' - 0"	10' - 0"	ALUM	AN-1	2' - 2"	3' - 0"	G2	1 3/4"	FRP	FRP-1	NA	NA		2	PAIR OF DOORS WITH TRANSOM, EXIT DOOR				

GLAZING TYPES

G1 1" THICK INSULATING GLASS: 1/4" TINTED FLOAT GLASS EXTERIOR AND 1/4" CLEAR FLOAT GLASS INTERIOR WITH 1/2" AIR SPACE. TINT: PPG SOLARBAN 60 GRAY. LOW-E

G2 1" THICK INSULATING GLASS TEMPERED: 1/4" TINTED TEMPERED GLASS EXTERIOR AND 1/4" CLEAR TEMPERED GLASS INTERIOR WITH 1/2" AIR SPACE. TINT: PPG SOLARBAN 60 ,GRAY. LOW-E

G3 1/4" CLEAR TEMPERED GLASS

HW SET: 02
DOOR NUMBER: (INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING DOORS)

RA104

QTY		ITEM	MODEL NO.	FIN	MANUF
2	EA	CONT. HINGE	705	630	IVE
1	EA	REMOVABLE MULLION	KR4023	SP28	FAL
1	EA	PANIC HARDWARE	25-R-EO	630	FAL
1	EA	PANIC HARDWARE	25-R-L-NL-DANE	630	FAL
2	EA	MORTISE CYLINDER	20-059 X K510-730	626	SCH
2	EA	SURFACE CLOSER	4050 sCUSH TBWMS	689	LCN
1	EA	GASKETING	429AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
2	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
2	EA	KICK PLATE	10" X 2" LDW	630	IVE
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

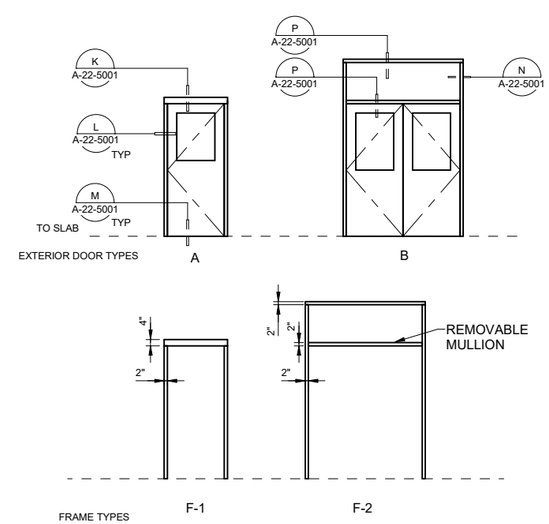
DOOR POSITION IS MONITORED BY SECURITY SYSTEM.

HW SET: 04
DOOR NUMBER: (INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING DOORS)

RA101 RA102 RA103

QTY		ITEM	MODEL NO.	FIN	MANUF
1	EA	CONT. HINGE	705	630	IVE
1	EA	PANIC HARDWARE	25-R-L-NL-DANE	630	FAL
1	EA	MORTISE CYLINDER	20-059 X K510-730	626	SCH
1	EA	ELECTRIC STRIKE	6030 FSE	630	VON
1	EA	SURFACE CLOSER	4050 CUSH TBWMS	689	LCN
1	EA	WALL STOP	FS18S	BLK	IVE
1	EA	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA	KICK PLATE	10" X 2" LDW	630	IVE
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	PIR REQUEST TO EXIT	SCANII	BLK	SCE
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	BY DIV 28		B/O

CARD IN. USER PRESENTS CREDENTIAL, ELECTRIC STRIKE KEEPER RELEASES, USER OPENS DOOR TO ENTER. DOOR POSITION IS MONITORED THROUGH SECURITY SYSTEM. MOTION DETECTOR IS REQUEST TO EXIT.



DOOR AND FRAME TYPES

SCALE: 1/4" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL

RAS/WAS BASIN SCHEDULES

DRAWING NUMBER
A-22-6001

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V18.rvt
Plot Date: 12/22/2021 8:59:37 AM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 047
Date: 1/7/2022
Description: Per Control Change Form #052: Cost to modify and extend weir wall in Anaerobic Basin.

Rocky Mountain Rebar (see attached back-up):	$985.71
Concrete Pumping (see attached back-up):	$75.00
Mark-up (5%):	$53.04
Gerber Onsite Coordination & Management (see attached back-up):	$444.60
Gerber labor & Material (see attached back-up):	$6,539.94
Bonds:	$83.17
Mark-up (15%):	$1,060.16
Total:	**$9,241.62**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $9,241.62 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-047 ANB Weir Wall Extension CC#52	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-047	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - ANB Weir Wall Extension	**1.00**	**LS**	**$8,045.25**	**$8,045.25**	**$9,241.62**	**$9,241.62**	**13.70%**
Gerber Concrete	1.00	LS	$6,614.94	$6,614.94			
Concrete, Cast-in-Place Small Structures	3.00	CY	$2,204.98	$6,614.94			
Concrete, Pumping Sub	3.00	CY	$25.00	$75.00			
Concrete Crew, 04 Men (18.00 MH/CY, 2.00 DY)	3.00	CY	$1,806.99	$5,420.97			
03 Foreman	18.00	HR	$120.14	$2,162.44			
04 Leadman	18.00	HR	$102.81	$1,850.51			
06 General Labor	18.00	HR	$70.63	$1,271.31			
Truck, Pickup, 1 Ton	0.09	MO	$1,481.25	$136.71			
Concrete, 4000 PSI Engineered	3.09	CY	$171.92	$531.24			
Steel Ply Forms	100.00	SF	$0.80	$80.44			
Lumber, Misc.	1.00	LS	$214.50	$214.50			
Epoxy	7.00	EACH	$41.83	$292.79			
Rebar - Sub	1.00	LS	$985.71	$985.71			
Gerber Management	1.00	LS	$444.60	$444.60			
01 Superintendent	1.00	HR	$152.19	$152.19			
18 Project Manager	1.00	HR	$176.15	$176.15			
20 Project Engineer	1.00	HR	$116.26	$116.26			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$5,728.86	71.21%
Equipment Owned:	$136.71	1.70%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,118.97	13.91%
Subcontracted:	$1,060.71	13.18%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$8,045.25	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$8,045.25	87.05%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$83.17	0.90%
Total Overall Cost:	$8,128.42	87.95%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,113.20	12.05%
Total Margin:	$1,113.20	12.05%
Total Bid Price:	$9,241.62	

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	20
JOB NAME:	CVWRF CC30B
JOB NUMBER:	179
RMR PROJECT MANAGER:	Shane
DATE:	January 3, 2022
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Modifications and extension of the weir wall per form 52.

Total Cost $ 985.71

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0	0	$ 115.49	$ -
Project Manager	1	1	1	$ 76.56	$ 76.56
Detailer Straight Time	1	0	0	$ 57.24	$ -
Detailer OT Premium	1	0	0	$ 21.19	$ -
Rebar Foreman Straight Time	1	1	1	$ 62.45	$ 62.45
Rebar Foreman OT Premium	1	0	0	$ 24.00	$ -
Rebar Journeyman Straight Time	2	1	2	$ 49.72	$ 99.44
Rebar Journeyman OT Premium	2	0	0	$ 16.41	$ -
				Sub Total	$ 238.45
				PD & Lodging	$ -
				Labor Total	$ 238.45

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ 597.00	$ 597.00
		Material Total	$ 597.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 21.69	$ 21.69
		Total	$ 21.69

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 238.45
Material Total	$ 597.00
TE&C Total	$ 21.69
Delivery	$ -
Total Cost	$ 857.14
OH&P	$ 128.57

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	985.71
Credit Total	$	-
Grand Total	**$**	**985.71**

CHANGE CONTROL FORM 052
ANB weir wall extension

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 12/14/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide wall extension from gridline 5 to 1'-0 past the existing gate frame between weir wall and concrete beam, CB-1, see attached sketch. Vertical rebar #9 at 12" on center each face. Epoxy dowels at new weir wall extension with 12" embedment, typical, into existing wall. Horizontal rebar #6 at 12" on center each face. Epoxy dowels at new weir wall extension with 12" embedment, typical, into existing wall with standard hooks at opposite end, typical.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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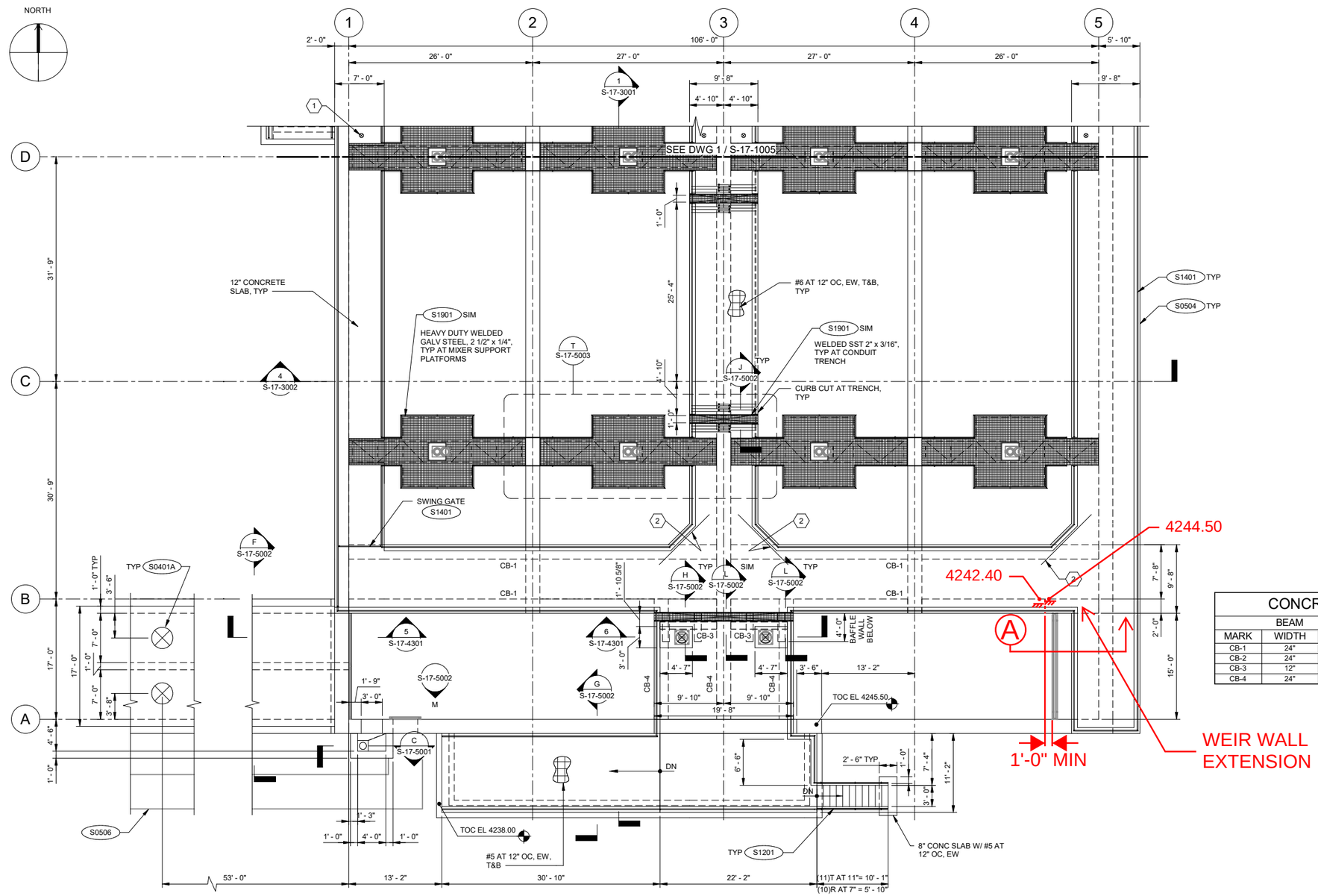
CCF 052 - CONSTRUCTION SKETCH



UPPER PLAN SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

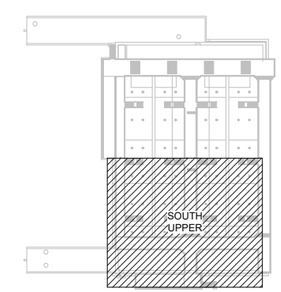
1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW / APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS, AND FRAMING SHOWN ARE ALUMINUM UNLESS NOTED OTHERWISE.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. CB-"X" CONCRETE BEAM, SEE THIS SHEET FOR SCHEDULE.
14. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.
15. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

KEYNOTES:

1. ACTUATOR SLEEVE, SEE MECHANICAL, TYP
2. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS.

CONCRETE BEAM SCHEDULE

	BEAM		REINFORCING		SHEAR
MARK	WIDTH	DEPTH	TOP	BOTTOM	ES
CB-1	24"	18"	(6) #9	(6) #9	#4 AT 8" OC
CB-2	24"	12"	(4) #7	(4) #7	#4 AT 12" OC
CB-3	12"	12"	(4) #6	(4) #6	#4 AT 12" OC
CB-4	24"	12"	(6) #9	(6) #9	#4 AT 4" OC



Key Plan

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

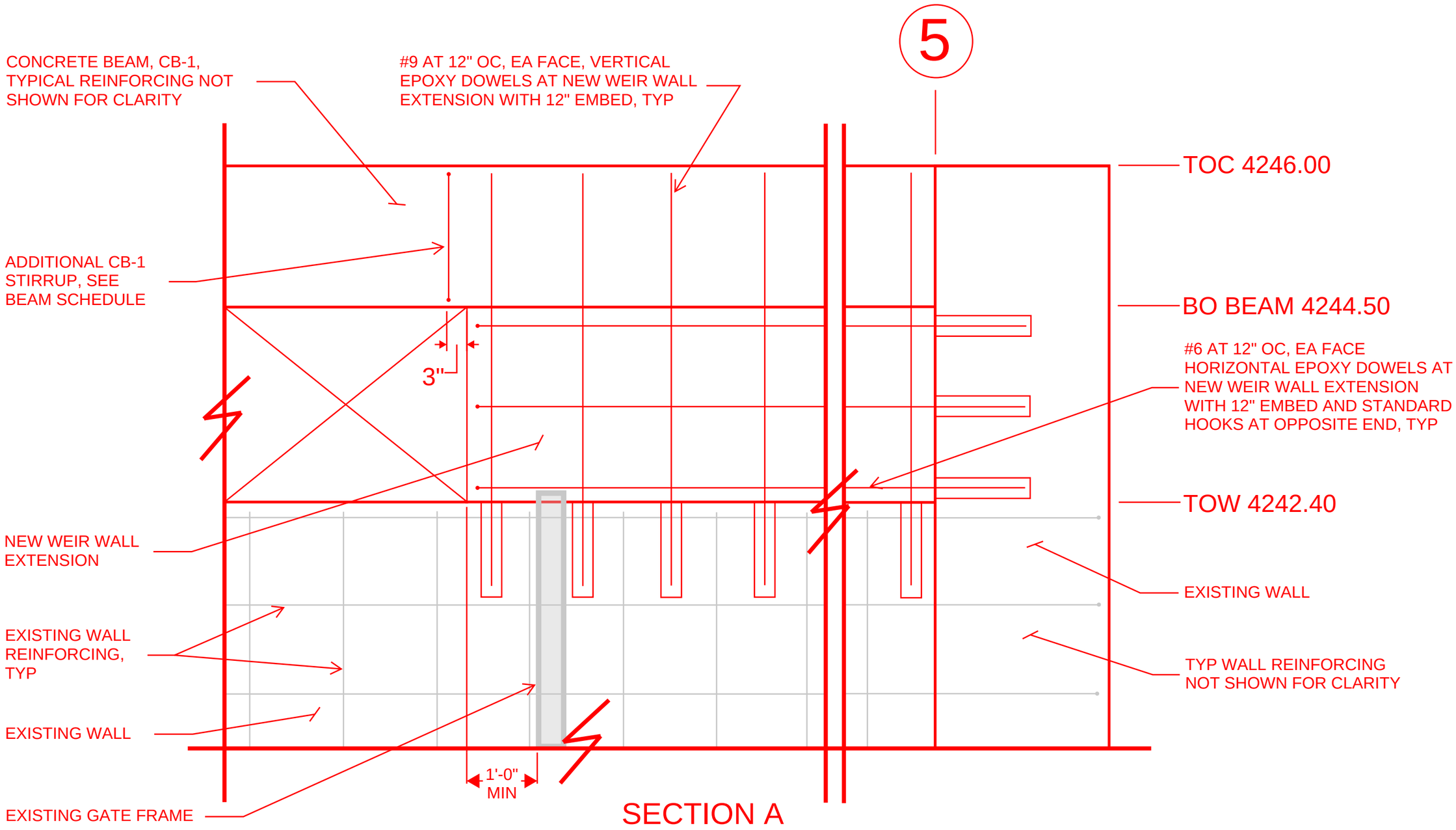
STRUCTURAL

ANAEROBIC BASINS UPPER PLAN SOUTH

DRAWING NUMBER
S-17-1006

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:45:54 AM

CCF 052 - CONSTRUCTION SKETCH



NOTES:
1. CONCRETE CURB, GUARDRAIL, AND WALKWAY NOT SHOWN FOR CLARITY.
2. LOCATE DOWELS TO MISS MAIN REINFORCING BARS, PRIOR TO DRILLING HOLES FIELD VERIFY AND MARK THE LOCATION OF EXISTING NEARBY REINFORCING BARS.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 048
Date: 1/19/2022
Description: Per Control Change Form #054: Cost for labor and material to modify the width on 5 bulkhead gates in the Aeration Basin.

Golden Harvest (see attached back-up):	$4,136.83
Gerber Onsite Coordination & Management (see attached back-up):	$1,654.00
Bonds:	$60.56
Mark-up (15%):	$877.71
Total:	**$6,729.10**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $6,729.10 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-048 Revise AB Slide Gate Width - CC#054	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-048	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gate Changes	**1.00**	**UNIT**	**$4,136.83**	**$4,136.83**	**$4,807.10**	**$4,807.10**	**15.00%**
(Golden Harvest) Gate Change	1.00	LS	$4,136.83	$4,136.83			
D 02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$1,654.00**	**$1,654.00**	**$1,922.00**	**$1,922.00**	**15.00%**
01 Superintendent	4.00	HR	$157.26	$628.42			
20 Project Engineer	4.00	HR	$120.14	$480.06			
18 Project Manager	3.00	HR	$182.02	$545.52			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,654.00	28.56%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$4,136.83	71.44%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$5,790.83	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$5,790.83	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$60.56	0.90%
Total Overall Cost:	$5,851.39	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$877.71	13.04%
Total Margin:	$877.71	13.04%
Total Bid Price:	$6,729.10	

Golden Harvest, Inc.
Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 5-CO

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: David Wise @ 1-800-338-6238

PLEASE RESPOND TO:

GOBLE SAMPSON AND ASSOCIATES, INC
3500 SOUTH MAIN STREET, SUITE 200
SALT LAKE CITY, UT 84115

ATTN:

David Ritter
dritter@goblesampson.com

PHONE: 801-268-8790
FAX: 801-268-8792

DATE: May 12th 2020 **CO-5 – December 27, 2021**
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

CHANGE ORDER

SPECIFICATION: 40 05 59.13 FABRICATED STAINLESS STEEL SLIDE GATE, 40 05 57.23-2 POWERED ACTUATORS

#	LOCATION	GATE	SIZE	TYPE	QTY	TOTAL
1	VARIES	180001,2	90" TO 96"	INCREASE 6" OF MATERIAL	2	**+$1,500.00**
		180005,6	90" TO 84"	DEDUCT 6" OF MATERIAL	2	**-$1,500.00**
		180007	32" TO 45"	INCREAST 13" OF MATERIAL, ADDED LABOR.	1	**+$950.00**
				ADDEND EXTRA LIFTER FOR 84" GATE	1	**+$1,950.00**
				REVISED THE STORGAGE RACK FOR EXTRA MATERIAL REQUIRED FOR 84" LOGS.	1	**+950.00**
				CHANGE ORDER TOTAL:	**7**	**$3,850.00**

NOTES:

1. Stainless steel anchor bolts are included for concrete mounted frames.
2. Epoxy adhesive by contractor.
3. **SALES TAX NOT INCLUDED IN PRICE.**
4. Mill finish on stainless steel/aluminum surfaces.

CHANGE CONTROL FORM 054
Revise AB Slide Gate Widths

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 12/22/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide the following gate revision per RFI 120.

Revise Gate 180001 and 180002 from 90" wide to 96" wide.

Revise Gate 180005 and 180006 from 90" wide to 84" wide.

Revise Gate 180007 from 32" high to 45".

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	

Proposed by:	**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

© 1997 Brown and Caldwell

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

05/10/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 010_RAS Selector FMT Elevation Change, Storm Drain Lift Stations, Revised TD Pump 2 & Foam Waste Pump Changes, RAS Selector MCC Conduit & Wire, RAS Selector Flowable Fill, STD & 1W Conflict, and Gate Frame Extension

Dear Brandon,

Change Order 10 includes:

- Changes to the **RAS Selector FMT Elevation** per CCF036.1
- **Storm Drain Lift Station** changes per CCF037
- **Revised TD Pump 2 and Foam Waste Pumps** pere CCF040
- **RAS Selector MCC Conduit and Wire** per CCF0053
- **RAS Selector Conduit Flowable Fill** per CCF059
- Resolving **STD & 1W Conflicts** per CCF061
- **Gate Frame Extension** per CCF066

RAS Selector FMT Elevation: Change control form 35 was issued to raise the elevation of the (2) 6" FMT pipes as they enter the South side of the RAS Selector to correct a high point in order to avoid potential airlock during operation. As construction progressed, the Contractor was able to lower the site piping which negated the need to use the new, raised penetrations, and the original (lower) penetrations and wall spools were utilized. Costs for coring holes through both walls for the raised locations and then patching the holes came back at **$11,908.91** and **2 days.** Pricing has been reviewed and is in line with our expectations for this scope.

Storm Drain Lift Stations: Change control form 37 was issued to detail changes and modifications required to revise the storm drain lift stations from individually fed remote control pumps to duplex packaged pump stations with relay based local control for Storm Drain Lift Stations 1, 2 & 3. The Contractor is requesting **$19,190.77** and **3 days** for this work. Pricing and backup were negotiated with the Contractor and appear fair and reasonable.

Revised TD Pump 2 and Foam Waste Pumps: In change control form 37, the following modifications wre made for operability purposes: Tank Drain Pump #2 (P181521) was changed from 1200gpm @ 12' to 600gpm @ 19', and Foam Waste Pumps P181521 & P181522 were changed from 1500gpm @25' to 600gpm @41'. If the pumps were left at the original design points, they could not be operated in tandem. The Contractor is requesting $**4,316.30** and **5 days** for this work. Pricing has been reviewed and is in line with our expectations for this scope.

RAS Selector MCC Conduit and Wire: Change control form 53 was issued to add (2) 3" conduits with (3) 500 MCN cables with 1/0 grounds per conduit to connect the tie breakers in MCC229101A & MCC229101B. This infrastructure was inadvertently left out of the Contract documents. The Contractor is requesting **$18,806.82** and **2 days** for this work. Pricing has been reviewed and appears fair and reasonable.

RAS Selector Conduit Flowable Fill: Change control form 54 was issued to place flowable fill around the conduit leaving the South side of the RAS Selector. The Contract documents called for Type B structural fill; however, with the number of conduits, backfilling with Type B was not feasible. The Contractor is requesting **$9,811.51** and **1 day** for this work. Pricing has been reviewed and is in line with our expectations for this scope.

STD & 1W Conflicts: Change order 7 included work to disconnect the existing storm drain from the vitro ditch on 3185 S near 900 W, and to modify the slope of the storm drain line near the parking island on 800 Central Valley Road. While performing this work, the Contractor found that the new or modified storm drain lines in both locations conflicted with existing potable water lines. It was necessary to raise the storm drain lines in both locations to avoid the conflict, which required modifying the storm drain inlet boxes, and placing flowable fill between the existing potable water line and the new/modified storm drain line. The Contractor is requesting **$5,644.51** and **2 days** for this work. Pricing has been reviewed and appears fair and reasonable.

Gate Frame Extension: Change control form 66 was issued to raise the frame for bulkhead gate GT180003. This was necessary as the wall near this gate was extended in a previous change order to isolate the Anerobic effluent channel for future construction, by isolating only (1) channel. The Contractor is requesting **$4,049.69** and **2 days**. Pricing has been reviewed and is in line with our expectations for this scope.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 10 is **$73,728.51** and **seventeen (17) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 036.1 – RAS Selector FMT Elevation Change w/Contractor Quotation
3. CCF 037 – Storm Drain Lift Stations w/Contractor Quotation
4. CCF 040 – Revise TD Pump 2 and Foam Waste Pumps w/Contractor Quotation
5. CCF 053 – RAS Selector MCC Conduit and Wire w/Contractor Quotation
6. CCF 059 – RAS Selector Conduit Flow Fill w/Contractor Quotation
7. CCF 061 – STD & 1W Conflict w/Contractor Quotation
8. CCF 066 – Gate Frame Extension w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 10

Date of Issuance:	05/10/2022	Effective Date:	05/10/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 10 includes:

- Changes to the RAS Selector FMT Elevation per CCF036.1
- Storm Drain Lift Station changes per CCF037
- Revised TD Pump 2 and Foam Waste Pumps pere CCF040
- RAS Selector MCC Conduit and Wire per CCF0053
- RAS Selector Conduit Flowable Fill per CCF059
- Resolving STD & 1W Conflicts per CCF061
- Gate Frame Extension per CCF066

Attachments:

1. CCF 036.1 – RAS Selector FMT Elevation Change w/Contractor Quotation
2. CCF 037 – Storm Drain Lift Stations w/Contractor Quotation
3. CCF 040 – Revise TD Pump 2 and Foam Waste Pumps w/Contractor Quotation
4. CCF 053 – RAS Selector MCC Conduit and Wire w/Contractor Quotation
5. CCF 059 – RAS Selector Conduit Flow Fill w/Contractor Quotation
6. CCF 061 – STD & 1W Conflict w/Contractor Quotation
7. CCF 066 – Gate Frame Extension w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 9: $363,839.48	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 9: Substantial Completion: 98 Ready for Final Payment: 98 Days
Contract Price prior to this Change Order: $ 123,631,520.48	Contract Times prior to this Change Order: Substantial Completion: 1,589 Ready for Final Payment: 1,679 days or dates
[Increase] [Decrease] of this Change Order:	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 17

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

$73,728.51	Ready for Final Payment: 17 days or dates
Contract Price incorporating this Change Order: $123,705,248.99	Contract Times with all approved Change Orders: Substantial Completion: 1,606 Ready for Final Payment: 1,696 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title Asst. General Manager	Title Project Manager
Date: 05/10/2022	Date 5/24/22	Date 5/11/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 035.1
Date: 3/15/2021
Description: Per Control Change Form #036.1: Cost for labor, equipment and material to change the FMT piping elevation.

A-Core Concrete Cutting (see attached back-up):	$5,872.00
Mark-up (5%):	$293.60
Gerber Labor, Equipment & Materials (see attached):	$3,567.29
Onsite Coordination & Management (see attached back-up):	$1,319.71
Bonds:	$107.18
Mark-up (15%):	$749.13
Total:	**$11,908.91**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $11,908.91 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-035 Elevation Change On FMT Lines At RAS Selector-CC#036	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-035	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jeromie Miner	**Phone:**	
Project Address:	800 Central Valley Road, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Elevation Change On FMT Lines At RAS Selector	**1.00**	**LS**	**$10,759.00**	**$10,759.00**	**$11,908.91**	**$11,908.91**	**9.60%**
S A-Core - Core New 10" Dia. Holes	1.00	LS	$5,872.00	$5,872.00			
D Gerber - Elevation Change FMT Lines	1.00	LS	$2,986.44	$2,986.44			
A-Core Support Crew, 2 Man (2.00 LS/DY, 0.50 DY)	1.00	LS	$1,045.25	$1,045.25			
02 Foreman	4.50	HR	$120.14	$540.61			
05 General Labor	4.50	HR	$70.63	$317.83			
Crane, RT, 30 Ton	0.10	WK	$1,868.13	$186.81			
Grouting Crew (4.00 LS/DY, 1.00 DY)	4.00	LS	$485.30	$1,941.19			
02 Foreman	9.00	HR	$120.14	$1,081.22			
05 Skilled Labor	9.00	HR	$87.96	$791.62			
Truck, Pickup, 1 Ton	0.05	MO	$1,481.25	$68.35			
Grout, Nonshrink	16.50	BAG	$18.44	$304.27			
Waterstop, Hydrophilic,	48.40	LF	$2.49	$120.55			
Xypex, Concentrate (60 lb Pail)	0.50	5GAL	$312.06	$156.03			
D Gerber Management	1.00	LS	$1,319.71	$1,319.71			
01 Superintendent	3.00	HR	$152.19	$456.57			
17 Project Manager	2.20	HR	$180.95	$398.10			
19 Project Engineer	4.00	HR	$116.26	$465.04			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,050.98	37.65%
Equipment Owned:	$68.35	0.64%
Equipment Rented:	$186.81	1.74%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$477.55	4.44%
Subcontracted:	$5,872.00	54.58%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$103.30	0.96%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$10,759.00	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$10,759.00	90.34%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$107.18	0.90%
Total Overall Cost:	$10,866.18	91.24%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,042.73	8.76%
Total Margin:	$1,042.73	8.76%
Total Bid Price:	$11,908.91	

ESTIMATE#: 8782
Revision#:
Change Order Request

A-Core Concrete Cutting, Inc|5360 S Riley Lane Murray, UT 84107|Phone# (801) 261-5552
Fax# (801) 268-1156|Toll Free# (800) 367-6201|License# 22 233312 5501
www.a-core.com

Customer

Name: GERBER CONSTRUCTION
Address: 815 EAST 675 SOUTH
LEHI, UT 84043
Phone#: (801) 407-2000
Contact Name: Phil Duncan **Phone#:** (435) 590-8251
Email: phild@1gerber.com

Quoted By

Name: Craig Rodgers **Date:** 10/6/2021
Phone#: (801) 455-8323
Email: craig@a-core.com
A-Core Job#:
Addenda:

Job Information

Job Name: RASWAS - FMT Line Relocation
RFQ#:
Customer PO#:
Job Location: Central Valley Sewer Treatment Plant 3200 S. 900 West
Project#:
Customer Job#:
City: Salt Lake City **State:** Utah
Bid Due Date: 10/6/2021

Scope Of Work

Quantity	Unit Type	Description of Work	Unit Price	Total
1	LS	CORE DRILL	$5,872.00	$5,872.00
4	ea	10" dia. x 24" thick concrete walls		
		Work is 100 feet from truck and 15 feet down in tank bay pit area between two walls 5 feet apart, drill 2 holes on each wall at waist height		
		drill 2 holes side x side 2 foot apart then turn around and drill 2 more holes on wall 5 ft. behind you in line with others.		
		Contractor to do all layout of holes prior to A-Core arriving on site		
		Wall will have 2 matts of #9 bar 6" on center - added diamond bit cost will occur		
		Contractor to provide access to work area via scissors lift - Crane - ladders etc. to help lower our equipment down into & out of tank		
2	ea	Trips / Days Travel / Mobs		
	per hr.	Any standby time waiting for access, layout, engineers decision, plant operations etc. will be charge any hourly rate of :	$200.00	
		Price includes getting in and out of work are with equipment, Drilling time, some extra diamond bit cost and Dailey Travel / Trips / Mob		

ESTIMATE#: 8782

Total	**$5,872.00**
Change Order Total	
Change Order Total + Total	

 ESTIMATE#: 8782

General Terms & Conditions

This document is to be accepted within 45 days; otherwise, price is subject to change.

- Protection of existing conditions by others.
- If we hit extra heavy amounts of rebar/steel or anything else unforeseen buried in the concrete that would cause excessive wear or damage to our diamond bits, blades or equipment, we will charge you accordingly for this.
- A-Core Inc. will not be responsible for repairs from cutting buried utilities or structures.
- Contractor is responsible for all layout of cut lines & holes.
- Overtime will be charged for work over 8 hrs per day, nights, after 5 pm and Saturdays
- Double time will apply for work on Sundays and holidays.
- If job does not start on start date, price will change.
- Any added work or change order work will not be done without signed and dated authorized change order, regardless of job schedule.
- Price subject to change if conditions and scope on job vary from this quotation
- If a bond is required there will be a 3% charge of the bond amount
- A-Core Payments terms are Net 30 or Net 45 with 0% retention
- Any dispute will be settled in a 72 hour period as not to hold up payment.
- A-Core reserves the right to have an escalation clause as part of this estimate
- THIS SUBCONTRACT IS CONTINGENT ON A LACK OF IMPACT BY THE CORONAVIRUS NATIONAL EMERGENCY. Given the existence of the coronavirus pandemic, A-Core will use its best efforts to staff and supply this project to meet the scheduled completion date. However, A-Core reserves its right to seek an excusable extension of time if A-Core or its subcontractors and suppliers are unable to maintain planned crew sizes due to the illness, supply shortages or governmental restraints on business, travel and/or assembly. To the extent that the project is suspended pursuant to the terms of the purchase order/subcontract, A-Core intends to seek additional costs associated with the suspension.

Job Exclusions

- All layout to be completed by contractor
- All shoring to be installed and provided by contractor (when applicable)
- X-Raying or scanning by contractor or can be provided by A-Core at an additional charge
- All traffic control, barricades, message boards etc. is to be provided by Contractor
- Any slurry/water control to be provided by & disposed of by Contractor
- Any standby time waiting for access, layout, traffic control, engineer's decision, plant operations, etc., will be charged at an hourly rate
- Contractor to provide all Blue staking & add A-Core Inc. as a duplicate permit holder/rental agreement
- Contractor to provide all access via scaffold,lifts, hoists, etc. to work areas when applicable

Special Instructions

Accepted By (Customer)

Signature:_____

Date:_____

A-Core Concrete Specialists

Signature:_____Craig Rodgers_____

Date:__10/6/2021_____

CHANGE CONTROL FORM 036.1
ELEVATION CHANGE ON FMT LINES ENTERING RAS SELECTOR

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 2/23/22**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Previously, CCF 36.0, 8/9/21. Raise the elevation of the two 6-inch FMT pipes by approximately 20" (from 4228 to 4229.67) as they enter the RAS Selector. See attached drawings.

Four holes were core drilled per CCF 36.0.

CCF 36.1, 2/23/22. Per RFI 123, the Contractor lowered the two fermentate lines, to run under the 54" RAS lines, and eliminated the high point and the need to raise the FMT lines. This change negated the need for the four core drilled holes. The Contractor shall revise the costs for this CCF, to include grouting of the four previously core drilled holes. The Contractor shall also revise the costs per RFI 123.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	

Proposed by:	**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 050.1
Date: 2/24/2022
Description: Per Control Change Form #037: Costs and credits associated with changes to Storm Drain Lift Stations.

Xylem (see attached back-up):	$32,648.50
Gerber Onsite Coordination Labor (see attached back-up):	$1,557.45
Bonds:	$357.73
Mark-up (15%):	$5,184.55
Skyline Electric (see attached back-up):	-$20,557.46
Total:	**$19,190.77**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $19,190.77 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-050 Storm Drain Lift Stations - CC#037	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-050	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Lift Station Changes (Xylem)	**1.00**	**UNIT**	**$32,648.50**	**$32,648.50**	**$37,938.44**	**$37,938.44**	**15.00%**
Lift Station Material Change	1.00	EACH	$32,648.50	$32,648.50			
D 02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$1,557.45**	**$1,557.45**	**$1,809.79**	**$1,809.79**	**15.00%**
01 Superintendent	3.00	HR	$157.26	$471.32			
18 Project Manager	3.00	HR	$182.02	$545.52			
20 Project Engineer	4.50	HR	$120.14	$540.61			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,557.45	4.55%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$32,648.50	95.45%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$34,205.94	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$34,205.94	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$357.73	0.90%
Total Overall Cost:	$34,563.68	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$5,184.55	13.04%
Total Margin:	$5,184.55	13.04%
Total Bid Price:	$39,748.23	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-050A Storm Drain Lift Stations - CC#037 (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-50A	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Changes (Skyline)	**1.00**	**UNIT**	**($20,557.46)**	**($20,557.46)**	**($20,557.46)**	**($20,557.46)**	**0.00%**
S Electrical Sub	1.00	LS	($20,557.46)	($20,557.46)			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	($20,557.46)	100.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	($20,557.46)	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	($20,557.46)	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	($20,557.46)	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	($20,557.46)	

Xylem Scope of Supply Change Per Gerber Construction's Change Form 037

Xylem intends to supply the equipment detailed in engineering specification section 43 25 50. Per Gerber Construction's Change Form 037, this section underwent changes which impacted the control panels and disconnect panels.

In addition to these changes, supply chains have been severely impacted since this project was originally quoted in May 2020. For example, from May 2020 to Jan 2022, the price for raw stainless steel increased by 67%. Given that the control panel enclosure must be made from stainless steel per the specifications, the cost of raw stainless steel directly correlates to the price increase of these control panels. Additionally, since the beginning of 2020, electronic components have increasingly become more expensive and scarce. In 2021, Schneider – a prominent drive manufacturer – increased their prices 6 times, some price increases were greater than 7%. Consequently, to fulfill the owner's request to price changes made to the design in today's market, these supply chain price increases impact this request.

In the table below, the control panels are grouped by their most expensive components. The cost difference between the originally quoted panels and the current quoted panels is notated under the "Net Change", where a negative value indicates a lesser cost.

	Description	**Net Change/Panel**
Lift Station #1 - Control Panel (Qty 1)	Enclosure	$5,426.98
	Drives	$3,798.88
	Misc. Electrical Components	$1,628.09
	Subtotal	$10,853.95
Lift Station #2 & #3 - Control Panels (Qty 2)	Enclosure	$5,388.87
	Drives	$3,772.21
	Misc. Electrical Components	$1,616.66
	Subtotal per panel	$10,777.74
***Disconnect Panels (Qty 3)**	Enclosure	$1,325.13
	100W Heater	$(750.00)
	Misc. Electrical Components	$(1,250.00)
	Subtotal per panel	$(674.87)
	Total	$30,384.82

*Please note that the control panel vendor was changed to acquire the highest quality product and the best price. The new vendor was able to supply the disconnect panels for a lesser cost.

Thank you.

Aaron Terry
Engineered Projects Rep. - Municipal
M: (208) 908.3296

Xylem – Flygt
2464 W 1500 S
Salt Lake City, UT 84104

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	11/30/2021		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF037 STORM DRAIN LIFT STATIONS**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide all labor and materials listed per CCF037. See CCF037 Description scope and takeoff.

Change conduit and wiring associated with changing pump stations from two feeds to one feed.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$2,252.59		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			-308.40

LABOR FACTOR:

material handling		2.00%					-6.168
cleanup		3.00%					-9.252
safety		1.25%					-3.855
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $174.58	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 2,427.17	loc 2 $ 0.00		-327.68
			RATE: $	67.00
extension:			$	-21,954.23

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	-21,954.23

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$77.00	$0.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		-$439.08
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	0	hrs@	$77.00	$0.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	-439.08

MATERIAL		from loc 1	$	2,427.17
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	-439.08
LABOR		from loc 3	$	-21,954.23
WARRANTEE	1.50%		$	-299.49
BOND	1.44%		$	-291.83
subtotal			$	-20,557.46
OVERHEAD + PROFIT	0.00%		$	0.00
TOTAL CHANGE			$	-20,557.46

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF037: Storm Drain Lift Stations

Takeoff

18 Nov 2021 13:45:12

Item: ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70060	3,300.00	FT	M	14	XHHW CU (STR)	0.3085	1,017.93	0.0150	49.50
500090	3,000.00	FT	M	2500#	MULE TAPE/HERCULINE PULL LINE	0.0800	240.00	0.0030	9.00
70064	2,736.00	FT	M	6.	XHHW CU (STR)	1.6554	4,529.10	0.0250	68.40
70063	912.00	FT	M	8	XHHW CU (STR)	1.1747	1,071.34	0.0225	20.52
						Phase Totals:	**6,858.37**		**147.42**

Item: DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70062	-7,296.00	FT	M	10	XHHW CU (STR)	0.2639	-1,925.76	0.0200	-145.92
70060	-20,660.00	FT	M	14	XHHW CU (STR)	0.1297	-2,680.02	0.0150	-309.90
						Phase Totals:	**-4,605.78**		**-455.82**
						Job Totals:	**2,252.59**		**-308.40**

CHANGE CONTROL FORM 037
Storm Drain Lift Station

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/12/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

General Description: Change from individually fed remote control pumps to duplex packaged pump station with relay based local control for Storm Drain Lift Station 1 (pumps P000011 and P000012 on P&ID I-00-6001), Storm Drain Lift Station 2 (pumps P000021 and P000022 on P&ID I-00-6002), and Storm Drain Lift Station 3 (pumps P000031 and P000032 on P&ID I-00-6003). Each station will be supplied with one 480V feeder to a control panel (CAB0000X0A) and disconnect panel (CAB0000X0B) with a single common alarm back to the PLC. The control panel will be on / off and lead / lag control of both pumps.
Drawing changes include oneline and elevation drawing removal of MCC "B" side feed to second pump, creating a spare breaker. Instead feeding entire packaged pump station from the MCC "A" side feeder. Cable schedules will be issued at a later date to reflect these changes.

Detailed Description:

1) Strom Drain Lift Station 1 (P&ID I-00-6001):
    a. Removed 7 I/O from RIO13A
    b. Removed 10 I/O from PLC139001
    c. Add 1 common alarm to PLC139001
    d. Removed CS000011
    e. Removed CS000012
    f. Add 1 control panel CAB000010A
    g. Add 1 control panel CAB000010B
    h. Wiring from CAB000010A to CAB000010B
    i. Wiring from CAB000010B to pumps and floats.
    j. Wiring from CAB000010A to leak sensor and temperature sensor
    k. 480VAC will be supplied to CAB000010A
    l. Retagged level floats to LSL, LSH, and LSHH respectively
    m. Identified piping reducer locations
2) Strom Drain Lift Station 2 (P&ID I-00-6002):
    a. Removed networked connection to PLC029001A
    b. Removed networked connection to PLC029001B
    c. Removed 3 I/O from PLC020001
    d. Add 1 common alarm to PLC020001
    e. Removed CS000021
    f. Removed CS000022
    g. Add 1 control panel CAB000020A
    h. Add 1 control panel CAB000020B
    i. Wiring from CAB000020A to CAB000020B
    j. Wiring from CAB000020B to pumps and floats.
    k. Wiring from CAB000020A to leak sensor and temperature sensor
    l. 480VAC will be supplied to CAB000020A
    m. Retagged level floats to LSL, LSH, and LSHH respectively
    n. Identified piping reducer locations
    o. Reduced pump discharge piping size from 6" to 4" diameter
    p. Reduced lift station discharge piping size from 8" to 6" diameter
3) Strom Drain Lift Station 3 (P&ID I-00-6003):

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a. Removed 2 networked connections to PLC220001
b. Removed 3 I/O from PLC220001
c. Add 1 common alarm to PLC220001
d. Removed CS000031
e. Removed CS000032
f. Add 1 common alarm to PLC139001
g. Add 1 control panel CAB000030A
h. Add 1 control panel CAB000030B
i. Wiring from CAB000030A to CAB000030B
j. Wiring from CAB000030B to pumps and floats.
k. Wiring from CAB000030A to leak sensor and temperature sensor
l. 480VAC will be supplied to CAB000030A
m. Retagged level floats to LSL, LSH, and LSHH respectively
n. Reduced pump discharge piping size from 6” to 4” diameter
o. Reduced lift station discharge piping size from 6” to 4” diameter

4) Updated process control descriptions 40 61 96 detailing new control requirements
5) Updated I/O list:
   a. Area 02 New (40 61 93.02)
   b. Area 13 Markup (40 61 93.13)
   c. Area 22 Markup (40 61 93.22)
6) New Control System Equipment Panels and Racks schedule:
   a. Area 00 (40 67 00.00)
7) Updated instrument list :
   a. Area 00 (40 70 93.00)
8) Updated Typical Motor Schematic Equipment Schedules to remove motors from list that are provided by vendor.
   a. E-13-7151 (removed)
   b. E-22-7151 (modified)
9) Updated electrical onelines E-XX-7001, E-XX-7002 and elevations E-XX-8001, E-XX-8002, E-22-3001, and E-22-3002 to remove second pump feed from B side MCC and modified feeder breaker to packaged pump station power from A side MCC.
10) Updated electrical site plans E-00-1006, E-00-1029, and E-00-1031 to indicate new equipment and cable tags.
11) Updated enlarged plan E-00-4001 to indicate new pump station layout with control panels and cable tags.
12) Cable schedule changes for Storm Drains LS 1, 2 and 3 can be found in the attached PDF. The cable schedule will be reissued at a later date.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

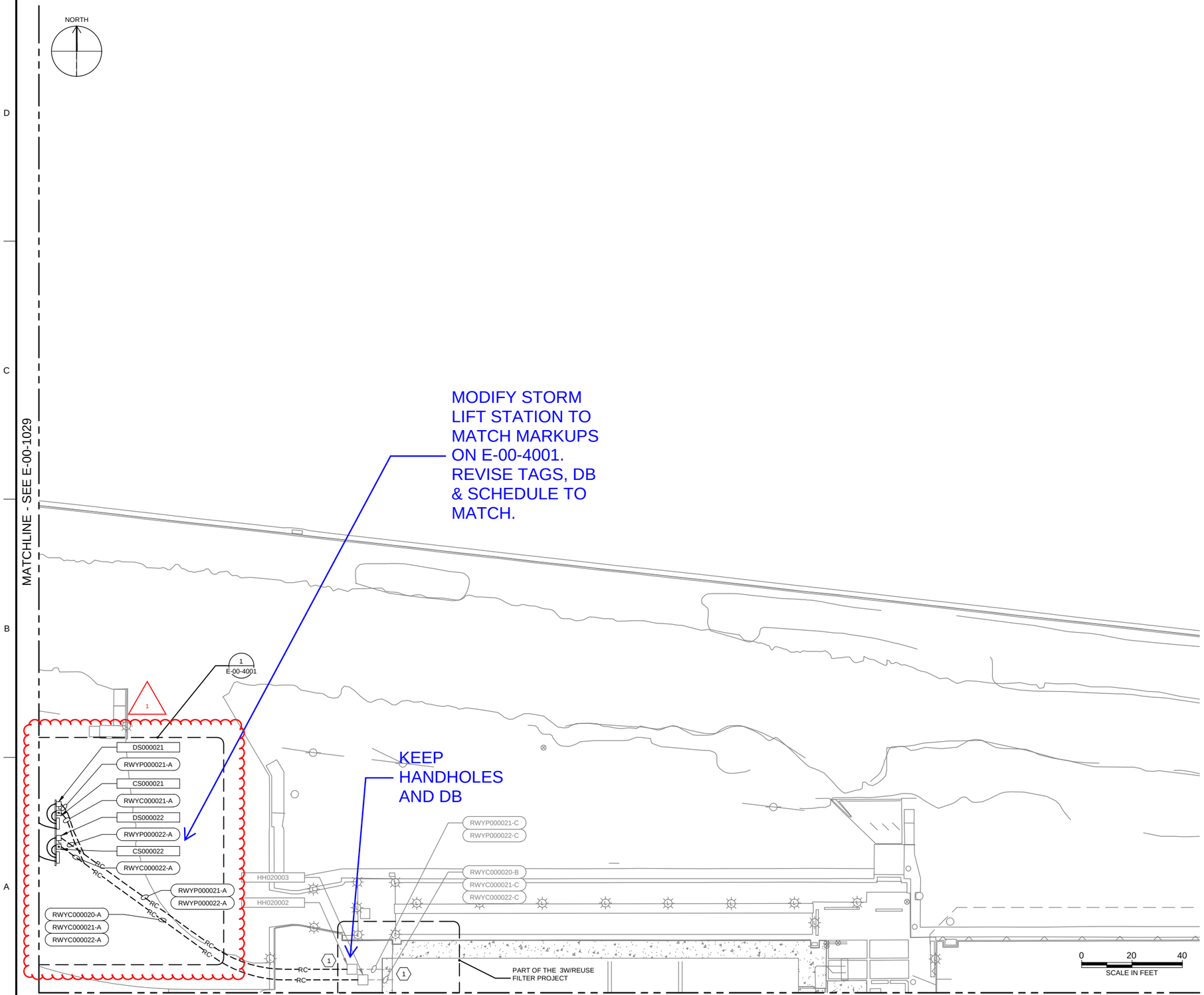
Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**

Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:



GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS, CC5F AND CC30B. REFERENCE SITE AREA 00 CABLE, RACEWAY, DUCTBANK AND MANHOLE SCHEDULES FOR CONTRACT DELINEATIONS AS WELL AS THE LISTED CONTRACT DOCUMENT NOTES FOR ADDITIONAL SCOPE DELINEATION.

KEYNOTES:

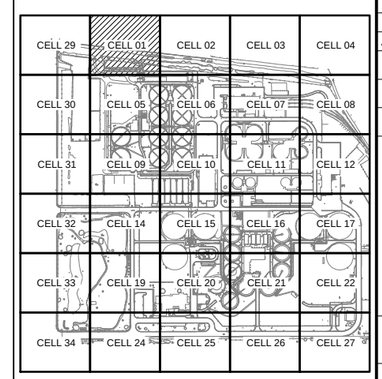
1 UNDER CC30B: RACEWAYS SHALL BE EXTENDED FROM HH (HAND-HOLE) LOCATION TO THEIR FINAL DESTINATION OF STORM WATER PUMP STATION FOR POWER AND CONTROL. REFERENCE 3W/ REUSE FILTER PROJECT CC5F DRAWINGS FOR RACEWAY STUB-UP LOCATIONS WITHIN BUILDING.

GENERAL NOTES:

3. AREA WITHIN ENTIRE STORM WATER PUMP STATION WETWELL ROOM OR SPACE IS CLASSIFIED AS CLASS I DIVISION 2 GROUP D PER NFPA 820. ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL BE APPROVED FOR THIS CLASSIFICATION PER NFPA 820.

1

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	8/10/21	CCF037

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

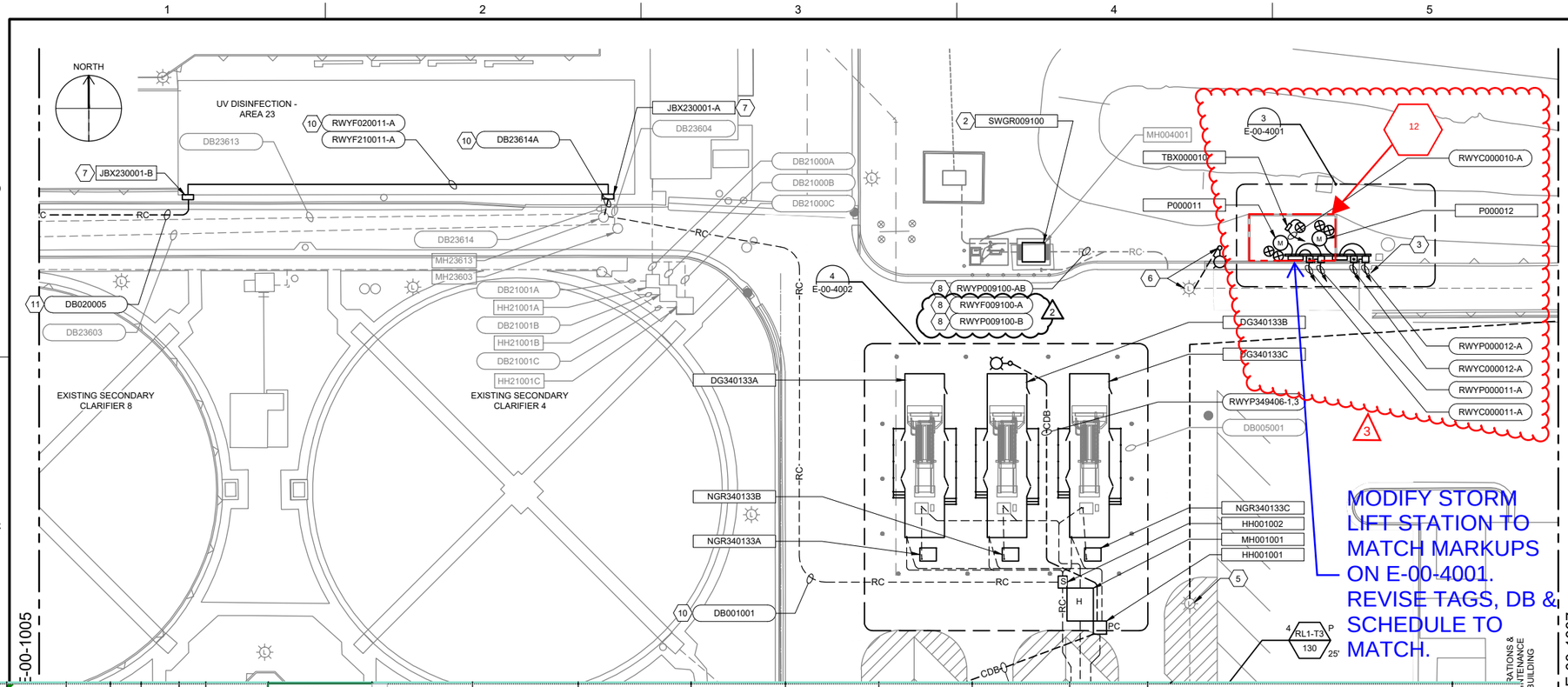
FILENAME
E-00-1001.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1001

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\000\BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1001.DWG PLOT DATE: 6/12/2020 11:04 AM CAD USER: BRYAN BRITTAIN



CBLC	00	0010		-A		XHHW2	2#14, 1#14G	B000010A	PLC131001	RWYC000010-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
~~CBLV~~	~~00~~	~~0010~~		~~-A~~		~~VENDOR~~	~~Special~~	~~LSL,M,H000010~~	~~TBX000010~~						~~E-00-4001~~	~~EXPOSED CABLE RUN. REFERENCE DETAIL E101~~ (CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLC~~	~~00~~	~~0011~~		~~-A~~		~~XHHW2~~	~~11#14, 1#14G~~	~~CS000011~~	~~MCC 13A~~	~~RWYC000011-A~~					~~E-00-4001~~	~~CABLE ALSO APPEARS IN 13 CABLE SCHEDULE~~ (CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLC~~	~~00~~	~~0011~~		~~-B~~		~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000011~~	~~CS000011~~	~~RWYC000011-B~~					~~E-00-4001~~	(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLM~~	~~00~~	~~0011~~		~~-A~~		~~VENDOR~~	~~Special~~	~~M000011~~	~~TBX000011~~						~~E-00-4001~~	~~EXPOSED CABLE RUN. REFERENCE DETAIL E5012~~ (CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
CBLP	00	0010		-A		XHHW2	3#6, 1#8G	CAB000010A	MCC 13A	RWYP000010-A					E-00-4001	CABLE ALSO APPEARS IN 13 CABLE SCHEDULE	CC30B
~~CBLP~~	~~00~~	~~0011~~		~~-B~~		~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000011~~	~~DS000011~~	~~RWYP000011-B~~					~~E-00-4001~~	(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
CBLF	**00**	**0011**	**BA**	**-A**		**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**INSTR1010**	**CTS100101**	**CTS100103**	**CTS100105**	**INSTR1010**	**E-00-1016**	**PLANT FIRE ALARM. CABLE CONTINUES ON SITE CABLE SCHEDULE. (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF	**00**	**0011**	**BA**	**-A**		**FOTSM**	**12 FiberSM**	**NCE100011**	**NCE000011**	**RWYF100011A-B**	**CTS000006B**	**RWYF000011BA-A**			**E-00-1016**	**CONTINUED FROM LINE ABOVE (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF	**00**	**0011**	**BA**	**-B**		**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**RWYF290011A-A**	**JBX000010**	**RWYF000010-A**	**CTS000002B**	**CTS000004B**	**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF	**00**	**0011**	**BA**	**-B**		**FOTSM**	**12 FiberSM**	**NCE290011**	**NCE000011**	**CTS000006B**	**RWYF000011BA-A**				**E-00-1016**	**PLANT FIRE ALARM (CCF 020 CHANGE ORDER PENDING)**	**CC30A**
CBLF	00	0011	BA	-C		FOTSM	12 FiberSM	NCE260011	NCE000011	RWYF260011-B	CTS000002B	CTS000004B	CTS000006B	RWYF000011BA-C	E-00-1016	PLANT FIRE ALARM. CABLE APPEARS IN SITE AND 26 CABLE SCHEDULES	CC30D
~~CBLC~~	~~00~~	~~0012~~		~~-A~~		~~XHHW2~~	~~11#14, 1#14G~~	~~CS000012~~	~~MCC 13B~~	~~RWYC000012-A~~					~~E-00-4001~~	~~CABLE ALSO APPEARS IN 13 CABLE SCHEDULE~~(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLC~~	~~00~~	~~0012~~		~~-B~~		~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000012~~	~~CS000012~~	~~RWYC000012-B~~					~~E-00-4001~~	(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLM~~	~~00~~	~~0012~~		~~-A~~		~~VENDOR~~	~~Special~~	~~M000012~~	~~TBX000012~~						~~E-00-4001~~	~~EXPOSED CABLE RUN. REFERENCE DETAIL E5012~~(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLP~~	~~00~~	~~0012~~		~~-A~~		~~XHHW2~~	~~3#10, 1#10G~~	~~DS000012~~	~~MCC 13B~~	~~RWYP000012-A~~					~~E-00-4001~~	~~CABLE ALSO APPEARS IN 13 CABLE SCHEDULE~~(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~
~~CBLP~~	~~00~~	~~0012~~		~~-B~~		~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000012~~	~~DS000012~~	~~RWYP000012-B~~					~~E-00-4001~~	(CCF 037 CHANGE ORDER PENDING)	~~CC30B~~

CBLC000010-A	XHHW2	6#14, 1#14G	TBX000010	PLC131001	RWYC000010-A
CBLV000010-A	VENDOR	Special	LSL,M,H000010	TBX000010	
CBLC000011-A	XHHW2	11#14, 1#14G	CS000011	MCC 13A	RWYC000011-A
CBLC000011-B	XHHW2	10#14, 1#14G	TBX000011	CS000011	RWYC000011-B
CBLM000011-A	VENDOR	Special	M000011	TBX000011	
CBLP000011-A	XHHW2	3#10, 1#10G	DS000011	MCC 13A	RWYP000011-A
CBLP000011-B	XHHW2	3#10, 1#10G	TBX000011	DS000011	RWYP000011-B
CBLC000012-A	XHHW2	11#14, 1#14G	CS000012	MCC 13B	RWYC000012-A
CBLC000012-B	XHHW2	10#14, 1#14G	TBX000012	CS000012	RWYC000012-B
CBLM000012-A	VENDOR	Special	M000012	TBX000012	
CBLP000012-A	XHHW2	3#10, 1#10G	DS000012	MCC 13B	RWYP000012-A
CBLP000012-B	XHHW2	3#10, 1#10G	TBX000012	DS000012	RWYP000012-B

GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. POWER OUTAGES REQUIRE TO REPLACE SWGR009100 AND NEW POWER CABLES TO SCBT330001A AND SCBT330001B SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER AND SEQUENCE OF CONSTRUCTION SPECIFICATION.
3. RACEWAYS IN DUCTBANKS IDENTIFIED ON THE DRAWINGS ARE LISTED IN SPECIFICATION 26 06 20.25.
4. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS, CC30A AND CC30B. REFERENCE SITE AREA 00 CABLE, RACEWAY, DUCTBANK AND MANHOLE SCHEDULES FOR CONTRACT DELINEATIONS AS WELL AS THE LISTED CONTRACT DOCUMENT NOTES FOR ADDITIONAL SCOPE DELINEATION.

KEY NOTES:

1 UNDER CC30A; EXISTING SECTIONALIZING CABINETS SCBT330001A AND SCBT330001B REFED FROM NEW SWITCHGEAR SWGR340133A AND SWGR340133B RESPECTIVELY. EXISTING CABLES FROM CABINETS TO ASSOCIATED SUBSTATIONS SUB21A AND SUB21B SHALL REMAIN INTACT. EXISTING CABLES FROM CABINETS TO EXISTING SWITCHGEAR SWGR MV133 SHALL BE REMOVED. CONTRACTOR TO INSTALL NEW CABLES BETWEEN THE CABINETS AND NEW SWITCHGEAR.

2 UNDER CC30A; EXISTING SWGR009100 TO BE REMOVED AND REPLACED WITH A NEW DIELECTRIC SWITCHGEAR (PROVIDED BY OWNER, AND INSTALLED BY CONTRACTOR). DISCONNECT EXISTING PRIMARY AND SECONDARY CABLES FROM EXISTING SWITCH AND RE-TERMINATE ON NEW SWITCHGEAR. REFERENCE DRAWING E-00-7011 FOR ADDITIONAL REQUIREMENTS.

3 UNDER CC30B; STORM WATER PUMP STATION RACEWAYS RWYC000010-A, RWYC000011-A, RWYP000011-A, RWYC000012-A AND RWYP000012-A SHALL BE ROUTED EXPOSED ALONG THE TUNNEL RAMP CONTAINMENT WALL FROM THE FIELD DEVICES TO THEIR DESTINATION IN THE OPERATIONS AND MAINTENANCE BUILDING. REFERENCE E-00-1007 FOR RAMP CONTINUATION INTO THE TUNNEL BELOW THE O&M BUILDING AND APPROXIMATE LOCATION OF MOTOR CONTROL CENTERS AND PLC CABINET.

4 UNDER CC30A; MANHOLES AND HANDHOLES WITHIN THE CONCRETE RAMP FROM THE BUILDING TO ASPHALT SHALL BE PROVIDED WITH CAST-IN-PLACE GRADE ADJUSTMENT RISERS. LIDS SHALL BE BROUGHT TO 1-INCH ABOVE FINISHED RAMP ELEVATION WITH THE CONCRETE SLOPING AWAY FROM THE LID TO AVOID RUNOFF DRAINAGE INTO THE MANHOLE/HANDHOLE.

5 UNDER CC30A; EXISTING ROADWAY LUMINAIRE AND POLE BASE TO BE REMOVED. EXISTING RACEWAY SHALL REMAIN TO GREATEST EXTENT POSSIBLE TO RECONNECT REMAINING LUNIMAIRES. REMOVE CONDUCTORS FROM THE LUMINAIRES BEING REMOVED TO THE NEXT ADJACENT ROADWAY LUMINAIRE, REFERENCE E-00-1007 FOR ADDITIONAL LUMINAIRE LOCATIONS. SPLICE THE EXISTING RACEWAYS TOGETHER TO PROVIDE A COMPLETE RACEWAY BETWEEN THE EXISTING LUMINAIRES TO REMAIN. PROVIDE NEW CONDUCTORS BETWEEN THE REMAINING LUMINAIRES OF THE SAME SIZE AND QUANTITY AND RECONNECT TO MAINTAIN THE EXISTING POWER CIRCUITRY.

6 UNDER CC30A; EXISTING ROADWAY LUMINAIRE TO BE RELOCATED. REMOVE CONDUCTORS BACK TO THE ADJACENT TUNNEL RAMP LUMINAIRE. REMOVE EXISTING POLE BASE AND PROVIDE A NEW POLE BASE IN NEW LOCATION EXTENDING THE EXISTING RACEWAY TO THE NEW LOCATION. PROVIDE NEW CONDUCTORS BETWEEN THE RELOCATED LUMINAIRE TO THE ADJACENT TUNNEL RAMP LUMINAIRE OF THE SAME SIZE AND QUANTITY AND RECONNECT TO MAINTAIN THE EXISTING POWER CIRCUITRY.

7 UNDER CC5F; DUCT BANK RACEWAYS SHALL BE BROUGHT ABOVE GRADE ON THE EXTERIOR OF THE BUILDING AND TERMINATED IN NEW THE JUNCTION BOX. JUNCTION BOX SHALL BE MOUNTED A MINIMUM OF 48 INCHES ABOVE GRADE. RACEWAYS BETWEEN JUNCTION BOXES SHALL BE ROUTED INTERNAL TO THE BUILDING.

8 UNDER CC30A; EXTEND EXISTING DUCT BANK RACEWAY FROM WHERE IT STUBS UP AND ROUTE IT TO SWGR009100.

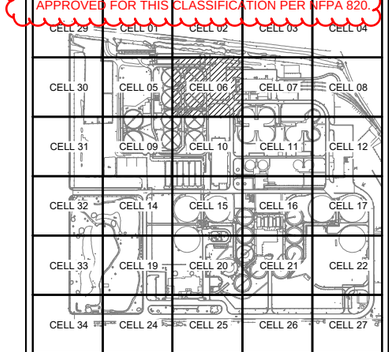
9 UNDER CC30A; ROUTE LIGHTING CONDUIT BELOW HAND HOLE, AND MANHOLE FUTURE DUCT BANK EXTENSION ELEVATION TO THE NORTH.

10 INSTALLED UNDER CC30A.

~~11 INSTALLED UNDER CC5F.~~

KEY PLAN

12 ~~AREA WITHIN ENTIRE STORM WATER PUMP STATION WETWELL ROOM OR SPACE IS CLASSIFIED AS CLASS I DIVISION 2 GROUP B PER NFPA 820. ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL BE APPROVED FOR THIS CLASSIFICATION PER NFPA 820.~~



Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30A BLOWER BUILDING

REVISIONS

REV	DATE	DESCRIPTION
1	01/07/21	CHANGE CONTROL FORM 008
2	07/2021	CHANGE CONTROL FORM 025
3	8/10/21	CCF037

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1006.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

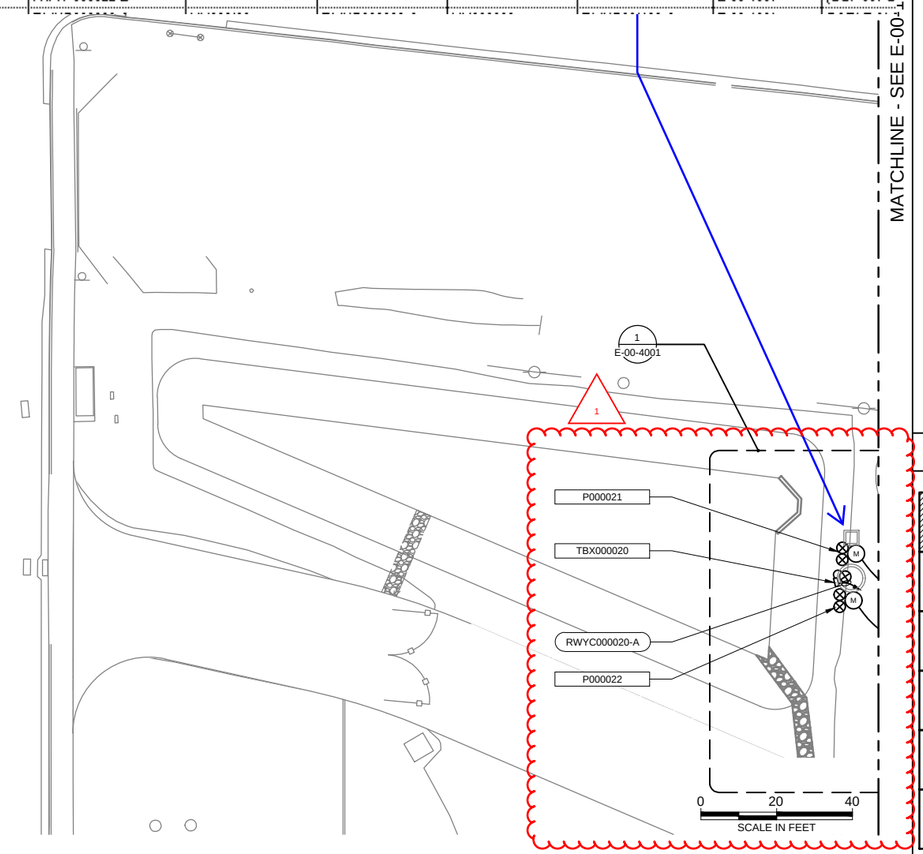
ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1006

CBLC000020-A	XHHW2	6#14, 1#14G	TBX000020	PLC020001	RWYC000020-A	HH020003	RWYC000020-B			E-00-4001
CBLV000020-A	VENDOR	Special	LSL,M,H000020	TBX000020						E-00-4001
CBLC000021-A	XHHW2	11#14, 1#14G	CS000021	MCC029001A	RWYC000021-A	HH020003	RWYC000021-C			E-00-4001
CBLC000021-B	XHHW2	10#14, 1#14G	TBX000021	CS000021	RWYC000021-B					E-00-4001
CBLM000021-A	VENDOR	Special	M000021	TBX000021						E-00-4001
CBLP000021-A	XHHW2	3#10, 1#10G	DS000021	MCC029001A	RWYP000021-A	HH020002	RWYP000021-C			E-00-4001
CBLP000021-B	XHHW2	3#10, 1#10G	TBX000021	DS000021	RWYP000021-B					E-00-4001
CBLC000022-A	XHHW2	11#14, 1#14G	CS000022	MCC029001B	RWYC000022-A	HH020003	RWYC000022-C			E-00-4001
CBLC000022-B	XHHW2	10#14, 1#14G	TBX000022	CS000022	RWYC000022-B					E-00-4001
CBLM000022-A	VENDOR	Special	M000022	TBX000022						E-00-4001
CBLP000022-A	XHHW2	3#10, 1#10G	DS000022	MCC029001B	RWYP000022-A	HH020002	RWYP000022-C			E-00-4001
CBLP000022-B	XHHW2	3#10, 1#10G	TBX000022	DS000022	RWYP000022-B					E-00-4001

CBLC	00	0020		-A			XHHW2	2#14, 1#14G	CAB000020A	PLC020001	RWYC000020-A	HH020003	RWYC000020-B			E-00-4001	CABLE ALS
~~CBLV~~	~~00~~	~~0020~~		~~-A~~			~~VENDOR~~	~~Special~~	~~LSL,M,H000020~~	~~TBX000020~~						~~E-00-4001~~	~~EXPOSED (~~ CHANGE O
CBLX	00	0020		-A			PULLROPE	PULLROPE	CAB000020A	MCC029001A	RWYX000020-A	HH020003	RWYX000020-B			E-00-4001	CABLE ALS CHANGE O
~~CBLC~~	~~00~~	~~0021~~		~~-B~~			~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000021~~	~~CS000021~~	~~RWYC000021-B~~					~~E-00-4001~~	(CCF 037 C
~~CBLM~~	~~00~~	~~0021~~		~~-A~~			~~VENDOR~~	~~Special~~	~~M000021~~	~~TBX000021~~						~~E-00-4001~~	~~EXPOSED (~~ CHANGE O
CBLP	00	0020		-A			XHHW2	3#10, 1#10G	CAB000020A	MCC029001A	RWYP000020-A	HH020002	RWYP000020-B			E-00-4001	CABLE ALS CHANGE O
~~CBLP~~	~~00~~	~~0021~~		~~-B~~			~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000021~~	~~DS000021~~	~~RWYP000021-B~~					~~E-00-4001~~	(CCF 037 C
CBLX	00	0020		-B			PULLROPE	PULLROPE	CAB000020A	MCC029001B	RWYX000020-C	HH020003	RWYX000020-D			E-00-4001	CABLE ALS CHANGE O
~~CBLC~~	~~00~~	~~0022~~		~~-B~~			~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000022~~	~~CS000022~~	~~RWYC000022-B~~					~~E-00-4001~~	(CCF 037 C
~~CBLM~~	~~00~~	~~0022~~		~~-A~~			~~VENDOR~~	~~Special~~	~~M000022~~	~~TBX000022~~						~~E-00-4001~~	~~EXPOSED (~~ CHANGE O
CBLX	00	0020		-C			PULLROPE	PULLROPE	CAB000020A	MCC029001B	RWYX000020-A	HH020002	RWYX000020-B			E-00-4001	CABLE ALS CHANGE O
~~CBLP~~	~~00~~	~~0022~~		~~-B~~			~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000022~~	~~DS000022~~	~~RWYP000022-B~~					~~E-00-4001~~	(CCF 037 C



GENERAL NOTES:

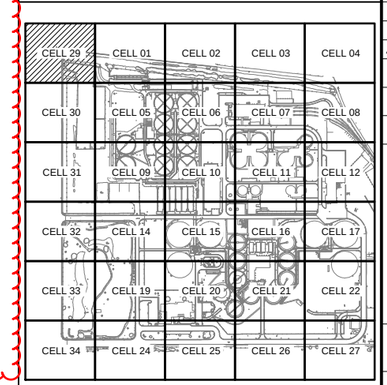
1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.

2. AREA WITHIN ENTIRE STORM WATER PUMP STATION WETWELL ROOM OR SPACE IS CLASSIFIED AS CLASS I DIVISION 2 GROUP D PER NFPA 820. ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL BE APPROVED FOR THIS CLASSIFICATION PER NFPA 820.

3. SEE DRAWING E-00-4001 FOR DETAILS OF STORM DRAIN LIFT STATION.

1

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	8/10/21	CCF037

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1029.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1029

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1029.DWG PLOT DATE: 6/12/2020 11:42 AM CAD USER: BRYAN BRITTAIN

CBLC	00	0030		-A			XHHW2	2#14, 1#14G	CAB000030A	CAB220001	RWYC000030-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A	E-00-4001	CABLE AL CHANGE (
CBLC	00	0030		-A			XHHW2	2#14, 1#14G	CAB000030A	CAB220001	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002	E-00-4001	CONITNUE PENDING)
CBLC	00	0030		-A			XHHW2	2#14, 1#14G	CAB000030A	CAB220001	RWYC220001-A					E-00-4001	CONITNUE PENDING)
~~CBLV~~	~~00~~	~~0030~~		~~-A~~			~~VENDOR~~	~~Special~~	~~LSL,M,H000030~~	~~TBX000030~~						~~E-00-4001~~	~~EXPOSED~~ CHANGE (
~~CBLC~~	~~00~~	~~0031~~		~~-A~~			~~XHHW2~~	~~11#14, 1#14G~~	~~CS000031~~	~~MCC229101A~~	~~RWYC000031-A~~	~~HH003102~~	~~RWYC000902-A~~	~~HH000902~~	~~RWYC001406-A~~	~~E-00-4001~~	~~CABLE AL~~ CHANGE (
~~CBLC~~	~~00~~	~~0031~~		~~-A~~			~~XHHW2~~	~~11#14, 1#14G~~	~~CS000031~~	~~MCC229101A~~	~~HH001406~~	~~RWYC001404-A~~	~~HH001404~~	~~RWYC220002-A~~	~~HH220002~~	~~E-00-4001~~	~~CONTINUE~~ PENDING)
~~CBLC~~	~~00~~	~~0031~~		~~-A~~			~~XHHW2~~	~~11#14, 1#14G~~	~~CS000031~~	~~MCC229101A~~	~~RWYC229101A-C~~					~~E-00-4001~~	~~CONTINUE~~ PENDING)
~~CBLC~~	~~00~~	~~0031~~		~~-B~~			~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000031~~	~~CS000031~~	~~RWYC000031-B~~					~~E-00-4001~~	(CCF 037 (
~~CBLM~~	~~00~~	~~0031~~		~~-A~~			~~VENDOR~~	~~Special~~	~~M000031~~	~~TBX000031~~						~~E-00-4001~~	~~EXPOSED~~ CHANGE (
CBLP	00	0030		-A			XHHW2	3#10, 1#10G	CAB000030A	MCC229101A	RWYP000031-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A	E-00-4001	CABLE AL CHANGE (
CBLP	00	0031		-A			XHHW2	3#10, 1#10G	DS000031	MCC229101A	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001	E-00-4001	CONTINUE PENDING)
CBLP	00	0031		-A			XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP229101A-E					E-00-4001	CONTINUE PENDING)
~~CBLP~~	~~00~~	~~0031~~		~~-B~~			~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000031~~	~~DS000031~~	~~RWYP000031-B~~					~~E-00-4001~~	(CCF 037 (
~~CBLC~~	~~00~~	~~0032~~		~~-A~~			~~XHHW2~~	~~11#14, 1#14G~~	~~CS000032~~	~~MCC229101B~~	~~RWYC000032-A~~	~~HH003102~~	~~RWYC000902-A~~	~~HH000902~~	~~RWYC001406-A~~	~~E-00-4001~~	~~CABLE AL~~ CHANGE (
~~CBLC~~	~~00~~	~~0032~~		~~-A~~			~~XHHW2~~	~~11#14, 1#14G~~	~~CS000032~~	~~MCC229101B~~	~~HH001406~~	~~RWYC001404-A~~	~~HH001404~~	~~RWYC220002-A~~	~~HH220002~~	~~E-00-4001~~	~~CONTINUE~~ PENDING)
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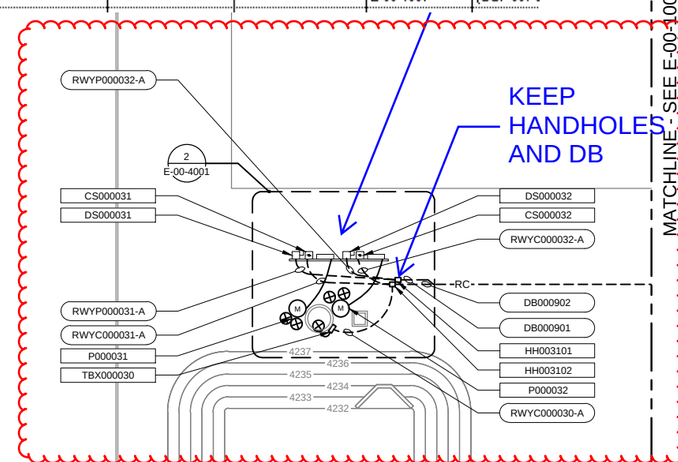
~~CBLC~~	~~00~~	~~0032~~		~~-B~~			~~XHHW2~~	~~10#14, 1#14G~~	~~TBX000032~~	~~CS000032~~	~~RWYC000032-B~~					~~E-00-4001~~	(CCF 037 (
~~CBLM~~	~~00~~	~~0032~~		~~-A~~			~~VENDOR~~	~~Special~~	~~M000032~~	~~TBX000032~~						~~E-00-4001~~	~~EXPOSED~~ CHANGE (
~~CBLP~~	~~00~~	~~0032~~		~~-A~~			~~XHHW2~~	~~3#10, 1#10G~~	~~DS000032~~	~~MCC229101B~~	~~RWYP000032-A~~	~~HH003101~~	~~RWYP000901-A~~	~~HH000901~~	~~RWYP001405-A~~	~~E-00-4001~~	~~CABLE AL~~ CHANGE (
~~CBLP~~	~~00~~	~~0032~~		~~-A~~			~~XHHW2~~	~~3#10, 1#10G~~	~~DS000032~~	~~MCC229101B~~	~~HH001405~~	~~RWYP001403-A~~	~~HH001403~~	~~RWYP220001-E~~	~~HH220001~~	~~E-00-4001~~	~~CONTINUE~~ PENDING)
~~CBLP~~	~~00~~	~~0032~~		~~-A~~			~~XHHW2~~	~~3#10, 1#10G~~	~~DS000032~~	~~MCC229101B~~	~~RWYP229101B-E~~					~~E-00-4001~~	~~CONTINUE~~ PENDING)
~~CBLP~~	~~00~~	~~0032~~		~~-B~~			~~XHHW2~~	~~3#10, 1#10G~~	~~TBX000032~~	~~DS000032~~	~~RWYP000032-B~~					~~E-00-4001~~	(CCF 037 (



MATCHLINE - SEE E-00-1009

CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC000030-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002
CBLC000030-A	XHHW2	6#14, 1#14G	TBX000030	CAB220001	RWYC220001-A				
CBLV000030-A	VENDOR	Special	LSL,M,H000030	TBX000030					
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC000031-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002
CBLC000031-A	XHHW2	11#14, 1#14G	CS000031	MCC229101A	RWYC229101A-C				
CBLC000031-B	XHHW2	10#14, 1#14G	TBX000031	CS000031	RWYC000031-B				
CBLM000031-A	VENDOR	Special	M000031	TBX000031					
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP000031-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001
CBLP000031-A	XHHW2	3#10, 1#10G	DS000031	MCC229101A	RWYP229101A-E				
CBLP000031-B	XHHW2	3#10, 1#10G	TBX000031	DS000031	RWYP000031-B				
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC000032-A	HH003102	RWYC000902-A	HH000902	RWYC001406-A
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	HH001406	RWYC001404-A	HH001404	RWYC220002-A	HH220002
CBLC000032-A	XHHW2	11#14, 1#14G	CS000032	MCC229101B	RWYC229101B-C				
CBLC000032-B	XHHW2	10#14, 1#14G	TBX000032	CS000032	RWYC000032-B				
CBLM000032-A	VENDOR	Special	M000032	TBX000032					
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP000032-A	HH003101	RWYP000901-A	HH000901	RWYP001405-A
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	HH001405	RWYP001403-A	HH001403	RWYP220001-E	HH220001
CBLP000032-A	XHHW2	3#10, 1#10G	DS000032	MCC229101B	RWYP229101B-E				
CBLP000032-B	XHHW2	3#10, 1#10G	TBX000032	DS000032	RWYP000032-B				

20 40
IN FEET

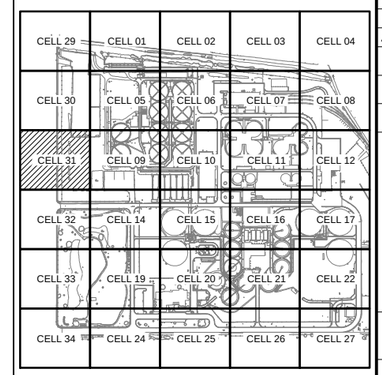
MATCHLINE - SEE #########

GENERAL NOTES:

1. REFERENCE C-00-1001 FOR AREA FACILITY LOCATION ON SITE.
2. AREA WITHIN ENTIRE STORM WATER PUMP STATION WETWELL ROOM OR SPACE IS CLASSIFIED AS CLASS I DIVISION 2 GROUP D PER NFPA 820. ALL DEVICES AND CIRCUITRY IN THIS AREA SHALL BE APPROVED FOR THIS CLASSIFICATION PER NFPA 820.
3. SEE DRAWING E-00-4001 FOR LOCATION OF STORM DRAIN LIFT STATION.

1

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	8/10/21	CCF037

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. BRITTAIN
DRAWN: B. BRITTAIN
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-00-1031.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ELECTRICAL SITE PLAN

DRAWING NUMBER
E-00-1031

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-00-1031.DWG PLOT DATE: 6/12/2020 11:43 AM

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	00	0020	UA000020	STORM DRAIN LIFT STATION 2 COMMON ALARM	I-00-6002	40 61 96-3.04	PLC020001	DI	24 VDC	03	NOTES	NOTES	I1001, DET. A	CC30B: CCF 037. PLC INSTALLED DURING 3W (CC05) PROJECT. VERIFY AVAILABLE I/O POINT

Process Control System Input/Output List

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	13		EAH13AB	MCC 13A SPD FAULT	I-13-6091	40 61 96	PLC139001	DI	24 VDC	01	08	00	I1001, DET. C	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	13		JA13AB	MCC 13A POWER MONITORING METER POWER OK	I-13-6091	40 61 96	PLC139001	DI	24 VDC	01	08	01	I1001, DET. C	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	13		UIA13A	MCC 13A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-13-6091	40 61 96	PLC139001	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-13-6091	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	13		UIA13B	MCC 13B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-13-6091	40 61 96	PLC139001	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-13-6091	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	13		EAH13BB	MCC 13B SPD FAULT	I-13-6091	40 61 96	RIO13A	DI	24 VDC	01	09	00	I1001, DET. C	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	13		JA13BB	MCC 13B POWER MONITORING METER POWER OK	I-13-6091	40 61 96	RIO13A	DI	24 VDC	01	09	01	I1001, DET. C	EXISTING MODULE, VERIFY SPARE POINTS. CC30A.
	00	0010	UA000010	STORM DRAIN LIFT STATION 1 COMMON ALARM	I-00-6001	40 72 00	PLC130001	DI	24 VDC	03	NOTES	NOTES	I1001, DET. A	CC30B: CCF 037. PLC INSTALLED DURING BNR (CC30B) PROJECT. VERIFY AVAILABLE I/O POINT
	~~13~~	~~0010~~	~~LCL000010~~	~~STORM DRAIN LIFT STATION 1 LOW CONTROL LEVEL~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0010~~	~~LCM000010~~	~~STORM DRAIN LIFT STATION 1 MID CONTROL LEVEL~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0010~~	~~LAH000010~~	~~STORM DRAIN LIFT STATION 1 LEVEL ALARM HIGH~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~MAH000012~~	~~STORM DRAIN LIFT STATION 1 PUMP 2 LEAK ALARM~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~YL000012A~~	~~STORM DRAIN STATION 1 PUMP 2 RUNNING~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~EI000012B~~	~~STORM DRAIN LIFT STATION 1 PUMP 2 AUTO~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~TAH000012~~	~~STORM DRAIN STATION 1 PUMP 2 HIGH TEMPERATURE ALARM~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~YA000012~~	~~STORM DRAIN STATION 1 PUMP 2 FAIL~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~EI000012A~~	~~STORM DRAIN LIFT STATION 1 PUMP 2 HAND~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~MAH000011~~	~~STORM DRAIN LIFT STATION 1 PUMP 1 LEAK ALARM~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~YL000011A~~	~~STORM DRAIN STATION 1 PUMP 1 RUNNING~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~EI000011B~~	~~STORM DRAIN LIFT STATION 1 PUMP 1 AUTO~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~TAH000011~~	~~STORM DRAIN STATION 1 PUMP 1 HIGH TEMPERATURE ALARM~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~YA000011~~	~~STORM DRAIN STATION 1 PUMP 1 FAIL~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~EI000011A~~	~~STORM DRAIN LIFT STATION 1 PUMP 1 HAND~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DI~~	~~24VDC~~				~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0011~~	~~HS000011A~~	~~STORM DRAIN LIFT STATION 1 PUMP 1 START/STOP~~	~~I-00-6001~~	~~40 61 96~~	~~RIO13A~~	~~DO~~	~~24VDC~~				~~I1001, DET. B~~	REMOVED DURING CC30B: CCF 037
	~~13~~	~~0012~~	~~HS000012A~~	~~STORM DRAIN LIFT STATION 1 PUMP 2 START/STOP~~	~~I-00-6001~~	~~40 61 96~~	~~PLC139001~~	~~DO~~	~~24VDC~~				~~I1001, DET. B~~	REMOVED DURING CC30B: CCF 037

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	22	0010	UIA220010	AREA 22 FIRE ALARM CONTROL PANEL FIRE ALARM ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (FACP)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	8901	UIA228901	AREA 22 HVAC CONTROL PANEL ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (HVAC)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9101	UIA229101A	MCC229101A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9101	UIA229101B	MCC229101B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9201	UIA229201	ATS229201 RAS-WAS STATION ATS ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (ATS)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9301	UIA229301	UPS229301 UNINTERRUPTIBLE POWER SUPPLY	I-22-6091	40 61 96	NCE220011	ETHERNET (UPS)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	3020	EI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE IN AUTO	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	00	I1001, DET. A	
	22	3020	EY223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE IN HAND	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	01	I1001, DET. A	
	22	3020	YA223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE FAULT	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	02	I1001, DET. A	
	22	3020	ZIO223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE OPENED	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	03	I1001, DET. A	
	22	3020	ZIC223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE CLOSED	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	04	I1001, DET. A	
	22	3105	YA223105	RAS ANOXIC ZONE TSS FAULT	I-22-6002	40 61 96	PLC220001	DI	24 VDC	03	01	08	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	UA229301	UPS229301 MAJOR FAULT (BREAK)	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	14	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	ZAC229301	UPS229301 DO-1 ON BYPASS	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	15	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	ZLC229301	UPS229301 DO-2 ON INVERTER	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	16	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	YL229301A	UPS229301 DO-3 BATTERY OPERATIONAL	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	17	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	YL229301B	UPS229301 DO-4 CONVERTER OPERATIONAL	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	18	I1001, DET. A	CC30B ADDENDUM 2
	22	9301	EAL229301	UPS229301 DO-5 BATTERY LOW VOLTAGE	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	19	I1001, DET. A	CC30B ADDENDUM 2
	22	9201	IAH229301	UPS229301 DO-6 OVERLOAD	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	20	I1001, DET. A	CC30B ADDENDUM 2
	~~22~~	~~9201~~	~~JI229201B~~	~~ATS229201 SECONDARY SOURCE AVAILABLE~~	~~I-22-6091~~	~~40 61 96~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~01~~	~~21~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	~~22~~	~~9201~~	~~YI229201A~~	~~ATS229201 IN PRIMARY SOURCE POSITION~~	~~I-22-6091~~	~~40 61 96~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~01~~	~~22~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	22	9201	ZLH229201	ATS229201 NORMAL POWER	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	23	I1001, DET. A	CC30B ADDENDUM 2
	22	9101	JA229101A	MCC229101A POWER MONITORING METER POWER OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	24	I1001, DET. A	
	22	9101	EAH229101AB	MCC229101A SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	25	I1001, DET. A	
	22	9101	YA229101AB	MCC229101A NETWORK SWITCH NET229101AB FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	26	I1001, DET. A	
	22	9101	EA229101AC	MCC229101A NETWORK SWITCH NET229101AB 24 VDC POWER SUPPLY DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	27	I1001, DET. A	
	22	0001	YA220001A	AREA 22 PLC PANEL NETWORK SWITCH NET220001A FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	28	I1001, DET. A	
	22	0001	EAH220001	AREA 22 PLC PANEL SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	29	I1001, DET. A	
	22	0001	EA220001A	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	30	I1001, DET. A	
	22	0001	JA220001	AREA 22 PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	31	I1001, DET. A	
	22	3131	EI223131	WAS WET WELL SLIDE GATE IN AUTO	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	00	I1001, DET. A	
	22	3131	EY223131	WAS WET WELL SLIDE GATE IN HAND	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	01	I1001, DET. A	
	22	3131	YA223131	WAS WET WELL SLIDE GATE FAULT	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	02	I1001, DET. A	
	22	3131	ZIO223131	WAS WET WELL SLIDE GATE OPENED	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	03	I1001, DET. A	
	22	3131	ZIC223131	WAS WET WELL SLIDE GATE CLOSED	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	04	I1001, DET. A	
	00	0030	UA000030	STORM DRAIN LIFT STATION 3 COMMON ALARM	I-00-6003	40 72 00	PLC220001	DI	24 VDC	03	02	05	I1001, DET. A	ADDED DURING CC30B: CCF 037
	~~00~~	~~0030~~	~~LCM000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL CONTROL MEDIUM~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~05~~	~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~00~~	~~0030~~	~~LAH000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL ALARM HIGH~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~06~~	~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	~~00~~	~~0030~~	~~LCL000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL CONTROL LOW~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~07~~	~~I1001, DET. A~~	REMOVED DURING CC30B: CCF 037
	22	3160	YA223160	WAS AND FOAM WASTE DISCHARGE TSS FAULT	I-22-6007	40 61 96	PLC220001	DI	24 VDC	03	02	08	I1001, DET. A	CC30B ADDENDUM 2
	22	9101	JA229101B	MCC229101B POWER MONITORING METER POWER OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	24	I1001, DET. A	
	22	9101	EAH229101BB	MCC229101B SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	25	I1001, DET. A	
	22	9101	YA229101BB	MCC229101B NETWORK SWITCH NET229101BB FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	26	I1001, DET. A	
	22	9101	EA229101BC	MCC229101B NETWORK SWITCH NET229101BB 24 VDC POWER SUPPLY DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	27	I1001, DET. A	
	22	0001	EA220001B	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	30	I1001, DET. A	
	22	3020	ZI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE POSITION	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA	03	03	00	I1003, DET. A	
	22	3020	WI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE TORQUE	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA	03	03	01	I1003, DET. A	
	22	3030	LI223030	RAS DISTRIBUTION BOX LEVEL	I-22-6001	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	03	02	I1003, DET. A	
	22	3105	AI223105	RAS ANOXIC ZONE TSS	I-22-6002	22-6002A	PLC220001	AI	4 - 20 mA	03	03	03	I1003, DET. B	
	22	3121	PI223121	ANAEROBIC RAS TRANSFER PUMPS DISCHARGE PRESSURE	I-22-6004	22-6003A	PLC220001	AI	4 - 20 mA (HART)	03	03	04	I1003, DET. A	
	22	3120	FI223120	ANAEROBIC RAS TRANSFER PUMPS FLOW	I-22-6004	22-6003A	PLC220001	AI	4 - 20 mA (HART)	03	03	05	I1003, DET. A	
	22	3020	FI223020	RAS AERATION DIFFUSER AIRFLOW	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA (HART)	03	03	06	I1003, DET. A	
	22	0001	EI220001A	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-22-6091	40 61 96	PLC220001	AI	4 - 20 mA	03	03	07	I1003, DET. A	
	22	3131	ZI223131	WAS WET WELL SLIDE GATE POSITION	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA	03	04	00	I1003, DET. A	
	22	3131	WI223131	WAS WET WELL SLIDE GATE TORQUE	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA	03	04	01	I1003, DET. A	
	22	3132	PI223132	WAS WET WELL LEVEL	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	04	02	I1003, DET. A	
	22	3159	FI223159	WAS AND FOAM WASTE DISCHARGE FLOW	I-22-6007	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	04	03	I1003, DET. A	
	22	3160	AI223160	WAS AND FOAM WASTE DISCHARGE TSS	I-22-6007	22-6005A	PLC220001	AI	4 - 20 mA	03	04	04	I1003, DET. B	
	22	3190	LI223190	RAS/WAS STATION SUMP LEVEL TRANSMITTER 1 LEVEL	I-22-6008	22-6008A	PLC220001	AI	4 - 20 mA (HART)	03	04	05	I1003, DET. A	
	22	0001	EI220001B	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-22-6091	40 61 96	PLC220001	AI	4 - 20 mA	03	04	07	I1003, DET. A	
	22	3131	ZC223131	WAS WET WELL SLIDE GATE POSITION COMMAND	I-22-6005	22-6005A	PLC220001	AO	4 - 20 mA	03	05	00	I1004, DET. A	
	22	3020	ZC223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE POSITION COMMAND	I-22-6001	22-6001A	PLC220001	AO	4 - 20 mA	03	05	01	I1004, DET. A	
	22	3133	ZCO223133	WAS WET WELL SPRAY WATER SOLENOID VALVE OPEN COMMAND	I-22-6005	22-6005A	PLC220001	DO	24 VDC	03	08	00	I1001, DET. B	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	22	9301	HS229301	UPS229301 REMOTE BYPASS	I-22-6091	40 61 96	PLC220001	DO	24 VDC	03	08	01	I1001, DET. B	CC30B ADDENDUM 2
	22	3101	UCIA223101	RAS ANOXIC ZONE MIXER 1 ETHERNET DATA EXCHANGE	I-22-6002	22-6002A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	22	3102	UCIA223102	RAS ANOXIC ZONE MIXER 2 ETHERNET DATA EXCHANGE	I-22-6002	22-6002A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	22	3111	UCIA223111	ANAEROBIC RAS TRANSFER PUMP 1 ETHERNET DATA EXCHANGE	I-22-6003	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3112	UCIA223112	ANAEROBIC RAS TRANSFER PUMP 2 ETHERNET DATA EXCHANGE	I-22-6003	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3113	UCIA223113	ANAEROBIC RAS TRANSFER PUMP 3 ETHERNET DATA EXCHANGE	I-22-6004	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3141	UCIA223141	WAS PUMP 1 ETHERNET DATA EXCHANGE	I-22-6006	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3142	UCIA223142	WAS PUMP 2 ETHERNET DATA EXCHANGE	I-22-6006	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3151	UCIA223151	WAS FOAM WASTE PUMP 1 ETHERNET DATA EXCHANGE	I-22-6007	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3152	UCIA223152	WAS FOAM WASTE PUMP 2 ETHERNET DATA EXCHANGE	I-22-6007	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3191	UCIA223191	RAS/WAS STATION SUMP PUMP 1 ETHERNET DATA EXCHANGE	I-22-6008	22-6008A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	22	3192	UCIA223192	RAS/WAS STATION SUMP PUMP 2 ETHERNET DATA EXCHANGE	I-22-6008	22-6008A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	22	8001	UCIA228001	DRY WELL EXHAUST FAN ETHERNET DATA EXCHANGE			PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	ADDED AFTER BNR MCC SUBMITTAL

SECTION 40 61 96.02

AREA 02 PLC PROCESS CONTROL DESCRIPTIONS (CCF 037)

PART 1–GENERAL

1.01 SUMMARY

A. This Section provides the integrated automation control descriptions for processes controlled by the Area 02 PLC (Utility Water Filtration) introduced or modified by the CVWRF Biological Nutrient Removal Design project. The control descriptions include the specific equipment operational function requirements. Refer to Section 40 61 96 for common function requirements.

B. The Owner will provide all programmable logic controller (PLC) and process control system (PCS) based software modifications to incorporate the controls indicated within this Section. This Section is provided as Information Only for the Contractor. Note that CVWRF programming standards supersede the written descriptions indicated herein.

PART 2 PRODUCTS

2.01 CONTROLSPECS

A. The PCS automation control sequences are located at the end of this Section in Part 3.

PART 3 EXECUTION

3.01 GENERAL

A. The CONTROLSPECs are for reference in the modification of the process controller and supervisory control and data acquisition (SCADA) software programs in support of the new equipment installed under this project.

3.02 TESTS AND INSPECTION

A. Requirements: Section 40 61 21.

3.03 CONTROLSPECS

A. CONTROLSPECs start on next page.

3.04 CONTROLSPEC 13-6001A: STORM DRAIN LIFT STATION 2 (CCF 037)

A. System Overview:
   1. The Storm Drain Lift Station 2 contains two constant speed pumps that operate in an alternating lead/lag sequence based on drain level to pump storm pond water from the storm drain to the headworks.
   2. Each pump is equipped with temperature and moisture sensors for motor protection.

B. References:
   1. P&IDs: I-00-6002.

C. Equipment:

1. Pumps:

Equipment Tag	Description
P00002#	Storm Drain Lift Station 2 Pump #

= Replace with 1 through 2 to create unique tag/description for each pump.

2. Instruments:

Equipment Tag	Description
LSL/LSM/LSH000020	Storm Drain Lift Station 2 Level Float Switch
ME00002#	Storm Drain Lift Station 2 Pump # Moisture Detection Sensor
TSH00002#	Storm Drain Lift Station 2 Pump # Motor High Temperature Switch

= Replace with 1 through 2 to create unique tag/description for each pump.

D. Control: (CCF 037)

1. Storm Drain Lift Station 2 Pumps:

a. MCC Manual: None

~~1) MCC manual control of the pumps can be enabled by setting the motor starter overload relay HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pumps can be started and stopped via the overload relay HIM.~~

~~2) Under normal operating conditions, the overload relay HIM is set to remote. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.~~

b. Field Manual:

1) The ~~local control station~~vendor supplied local control panel near the Storm Drain Lift Station 2 has a HOA selector switch. ~~When the overload relay HIM is set to REMOTE, field manual control is enabled as described below.~~

a) When the HOA is placed in HAND, the pump starts and runs continuously.

b) When the HOA is placed in OFF, the pump stops.

c) When the HOA is placed in AUTO, ~~SCADA control is enabled~~field automatic control is enabled.

c. Field Automatic: ~~None.~~

~~d. SCADA Manual:~~

~~1) When the overload relay HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.~~

~~2) When SCADA Manual control is selected, the operator can manually start and stop the pump.~~

~~e. SCADA Automatic:~~

1) When ~~SCADA~~ Field Automatic control is selected, the pumps are controlled based on storm drain level as follows:

a) The pumps run in a lead/lag operational sequence set by the operator at the ~~HMI~~local control panel. ~~If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence assumes its role.~~

b) When the level in the storm drain reaches or exceeds the lead pump start level set point, the lead pump starts.

c) If the level in the storm drain reaches or exceeds the lag pump start level set point, the lag pump starts.

d) When the level in the storm drain reaches or falls below the stop level set point, all running pumps stop.

e) Each time the stop level is reached and pumps are stopped, the lead pump and lag pump automatically exchange roles.

~~f.~~d. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the overload relay ~~HIM~~. These interlocks are active in ~~MCC~~ manual, field manual, and ~~SCADA~~ field automatic control modes:

(1) Overload relay fault.

(2) Motor high temperature.

(3) Motor leak.

2) Software Interlocks: None.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:

~~1.~~ Hardwired:

~~2.~~1. ~~Storm Drain Lift Station 2 level.~~ None. (CCF 037)

~~3.~~2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:

1. Hardwired: ~~None.~~Pump station common fault (CCF 037)

~~2.~~ Network:

~~a. Storm Drain Lift Station 2 Pump 1 through 2:~~

~~1) Leak~~

~~3.~~2. ~~Motor high temperature.~~None. (CCF 037)

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:

1. None.

END OF SECTION

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SECTION 40 61 96.13

AREA 13 PLC PROCESS CONTROL DESCRIPTIONS (CCF 037)

PART 1–GENERAL

1.01 SUMMARY

A. This Section provides the integrated automation control descriptions for processes controlled by the Area 13 PLC (Maintenance Building) introduced or modified by the CVWRF Biological Nutrient Removal Design project. The control descriptions include the specific equipment operational function requirements. Refer to Section 40 61 96 for common function requirements.

B. The Owner will provide all programmable logic controller (PLC) and process control system (PCS) based software modifications to incorporate the controls indicated within this Section. This Section is provided as Information Only for the Contractor. Note that CVWRF programming standards supersede the written descriptions indicated herein.

PART 2 PRODUCTS

2.01 CONTROLSPECS

A. The PCS automation control sequences are located at the end of this Section in Part 3.

PART 3 EXECUTION

3.01 GENERAL

A. The CONTROLSPECs are for reference in the modification of the process controller and supervisory control and data acquisition (SCADA) software programs in support of the new equipment installed under this project.

3.02 TESTS AND INSPECTION

A. Requirements: Section 40 61 21.

3.03 CONTROLSPECS

A. CONTROLSPECs start on next page.

3.04 CONTROLSPEC 13-6001A: STORM DRAIN LIFT STATION 1

A. System Overview:
   1. The Storm Drain Lift Station 1 contains two constant speed pumps that operate in an alternating lead/lag sequence based on drain level to pump storm pond water from the storm drain to the headworks.
   2. Each pump is equipped with temperature and moisture sensors for motor protection.

B. References:
   1. P&IDs: I-00-6001.

C. Equipment:

1. Pumps:

Equipment Tag	Description
P00001#	Storm Drain Lift Station 1 Pump #

= Replace with 1 through 2 to create unique tag/description for each pump.

2. Instruments:

Equipment Tag	Description
LSL/LSM/LSH000010	Storm Drain Lift Station 1 Level Float Switch
ME00001#	Storm Drain Lift Station 1 Pump # Moisture Detection Sensor
TSH00001#	Storm Drain Lift Station 1 Pump # Motor High Temperature Switch

= Replace with 1 through 2 to create unique tag/description for each pump.

D. Control: (CCF 037)

1. Storm Drain Lift Station 1 Pumps:

~~a.~~ MCC Manual:

~~1) MCC manual control of the pumps can be enabled by setting the motor starter overload relay HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pumps can be started and stopped via the overload relay HIM.~~

~~2) Under normal operating conditions, the overload relay HIM is set to remote. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.~~

~~b.~~a. ~~Active overload relay faults can be manually reset via a reset button on the overload relay HIM.~~ None

~~c.~~b. Field Manual:

1) The ~~local control station~~vendor supplied local control panel near the Storm Drain Lift Station 1 has a HOA selector switch. ~~When the overload relay HIM is set to REMOTE, field manual control is enabled as described below.~~

a) When the HOA is placed in HAND, the pump starts and runs continuously.

b) When the HOA is placed in OFF, the pump stops.

c) When the HOA is placed in AUTO, ~~SCADA~~ field automatic control is enabled.

~~d.~~ Field ~~Automatic: None.~~

~~e. SCADA Manual:~~

~~f. When the overload relay HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.~~

~~g. When SCADA Manual control is selected, the operator can manually start and stop the pump.~~

~~h.~~c. ~~SCADA~~ Automatic:

1) When ~~SCADA~~ Field Automatic control is selected, the pumps are controlled based on storm drain level as follows:

a) The pumps run in a lead/lag operational sequence set by the operator at the ~~HMI~~local control panel. ~~If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence~~

~~assumes its role. When the level in the storm drain reaches or exceeds the lead pump start level set point, the lead pump starts.~~

b) When the level in the storm drain reaches or exceeds the lead pump start level set point, the lead pump starts.

c) If the level in the storm drain reaches or exceeds the lag pump start level set point, the lag pump starts.

d) When the level in the storm drain reaches or falls below the stop level set point, all running pumps stop.

e) Each time the stop level is reached and pumps are stopped, the lead pump and lag pump automatically exchange roles.

~~i.~~d. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the overload relay ~~HIM~~. These interlocks are active in ~~MCC~~ manual, field manual, and ~~SCADA~~ field automatic control modes:

(1) Overload relay fault.

(2) Motor high temperature.

(3) Motor leak.

2) Software Interlocks: None.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:

~~1.~~ Hardwired:

~~2.~~1. ~~Storm Drain Lift Station 1 level.~~ None. (CCF 037)

~~3.~~2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:

1. Hardwired: ~~None~~Pump station common fault. (CCF 037)

~~2.~~ Network:

~~a. Storm Drain Lift Station 1 Pump 1 through 2:~~

~~1) Leak~~

~~3.~~2. ~~Motor high temperature.~~None. (CCF 037)

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:

1. None.

END OF SECTION

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SECTION 40 61 96.22

AREA 22 PLC PROCESS CONTROL DESCRIPTIONS (CCF 037)

PART 1–GENERAL

1.01 SUMMARY

A. This Section provides the integrated automation control descriptions for processes controlled by the Area 22 PLC (RAS/WAS Area) introduced or modified by the CVWRF Biological Nutrient Removal Design project. The control descriptions include the specific equipment operational function requirements. Refer to Section 40 61 96 for common function requirements.

B. The Owner will provide all programmable logic controller (PLC) and process control system (PCS) based software modifications to incorporate the controls indicated within this Section. This Section is provided as Information Only for the Contractor. Note that CVWRF programming standards supersede the written descriptions indicated herein.

PART 2 PRODUCTS

2.01 CONTROLSPECS

A. The PCS automation control sequences are located at the end of this Section in Part 3.

PART 3 EXECUTION

3.01 GENERAL

A. The CONTROLSPECs are for reference in the modification of the process controller and supervisory control and data acquisition (SCADA) software programs in support of the new equipment installed under this project.

3.02 TESTS AND INSPECTION

A. Requirements: Section 40 61 21.

3.03 CONTROLSPECS

A. CONTROLSPECs start on next page.

3.04 CONTROLSPEC 22-6001A: RAS AERATION AND DISTRIBUTION

A. System Overview:

1. The RAS Splitting Header is a passive hydraulic header that combines discharge flows from the East and West RAS Pump Stations and splits the flow between the Primary Effluent Head Box and the RAS Anoxic Zone. The RAS flow passes through a classifying selector where it is continuously aerated and foam and scum are separated from the RAS via a scum baffle.

B. References:

1. P&IDs: I-22-6001

C. Equipment:

1. Gates and Valves:

Equipment Tag	Description
FCV223020	RAS Aeration Diffuser Airflow Control Valve

2. Instruments:

Equipment Tag	Description
FE/FIT223020	RAS Aeration Diffuser Airflow Sensor/Transmitter

D. Control:

1. RAS Aeration Diffuser Airflow Control Valve:
   a. Field Manual:
      1) The local control station at the valve actuator has a local/off/remote (LOR) selector switch and open/stop/close (OSC) controls. Field manual control is enabled as described below.
         a) When the LOR is placed in LOCAL, the valve can be opened, closed, or stopped mid-travel via the OSC controls.
         b) When the LOR is placed in OFF, valve travel is stopped and the valve position is maintained.
         c) When the LOR is placed in REMOTE, SCADA control is enabled.
   b. Field Automatic: None.
   c. SCADA Manual:
      1) When the actuator LOR is set to REMOTE, SCADA control is enabled. The operator can then manually adjust the valve position via the SCADA HMI.
   d. SCADA Automatic:
      1) When SCADA Automatic control is selected, the airflow demand for the RAS Aeration Diffuser is set by the operator at the SCADA HMI.
      2) This airflow demand becomes the target set point for the airflow control loop. At 5- to 15-second intervals, the airflow control loop calculates the airflow control valve position required to maintain the airflow demand as described in the Calculations paragraph below. The airflow control valve is then modulated to the calculated position.
   e. Interlocks:
      1) Hardwired Interlocks:

a) The following are hardwired interlocks active in field manual and SCADA control modes:

(1) Valve actuator fault causes the valve to maintain its current position.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:

1. Hardwired:
   a. RAS Aeration Diffuser Airflow Control Valve:
      1) In AUTO.
      2) In HAND.
      3) Torque.
      4) Position.
      5) Full closed.
      6) Full open.
   b. RAS Aeration Diffuser airflow.
2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:

1. Hardwired:
   a. RAS Aeration Diffuser Airflow Control Valve fault.
2. Network: None.

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:

1. General:
   a. The deadband, gain, and damping coefficient values used in these calculations shall be determined during commissioning. The damping coefficient is set between 0 and 1 so that the change in valve position when the basin is overaerated is less than the change in these values when the basin is underaerated, which will reduce hunting oscillations.
   b. Parameters used in the valve position calculations are operator adjustable per equipment.
2. The RAS Aeration Diffuser Airflow Control Valve is calculated as follows:
   a. At operator adjustable intervals (default of 5 to 15 seconds), the airflow measurement read by the flow transmitter on the dropleg associated with the valve is compared with the calculated airflow demand for the associated diffuser:

      $Error_{Airflow} = Q_{Airflow\ Measured} - Q_{Airflow\ Demand}$
   b. The change in position for the valve is then calculated based on the error resulting from this comparison:
      1) If the error falls within an operator adjustable deadband:

         $\Delta\%Open = 0$
      2) Otherwise, if the airflow measurement is below the calculated airflow demand:

         $\Delta\%Open = Error_{Airflow} \times Gain_{Airflow}$

3) Otherwise, if the airflow measurement is above the calculated airflow demand:

$$\Delta\%Open = Damping\ Coefficient_{Airflwo} \times Error_{Airflow} \times Gain_{Airflow}$$

c. The new valve position is then calculated based on the calculated change in position:

$$\%\mathrm{Open}_{New} = \%\mathrm{Open}_{Current} + \Delta\%Open$$

d. Finally, the new valve position is compared with minimum and maximum position set points for the valve and limited to those boundary conditions:

1) If the new valve position falls below the minimum valve position set point:

$$\%Open_{New} = \%Open_{Position\ Minimum\ SP}$$

2) If the new valve position rises above the maximum valve position set point:

$$\%Open_{New} = \%Open_{Position\ Maximum\ SP}$$

e. Otherwise, the calculated new valve position remains unchanged.

3.05 CONTROLSPEC 22-6002A: RAS ANOXIC ZONE

A. System Overview:

1. The RAS Anoxic Zone receives RAS flow that has passed under a scum baffle in the RAS Distribution Box. The RAS Anoxic Zone is equipped with two hyperboloid mixers that run continuously under normal operating conditions, allowing the RAS to denitrify before being pumped to the Anaerobic Zone by the Anaerobic RAS Transfer Pump Station. The zone is also equipped with a TSS probe for process monitoring.

B. References:

1. P&IDs: I-22-6002.

C. Equipment:

1. Mixers:

Equipment Tag	Description
MX22310#	RAS Anoxic Zone Mixer #

= Replace with 1 through 2 to create unique tag/description for each mixer.

2. Instruments:

Equipment Tag	Description
AE/AIT223105	RAS Anoxic Zone TSS Sensor/Transmitter

D. Control:

1. RAS Anoxic Zone Mixers:
   a. MCC Manual:
      1) MCC manual control of the mixer can be enabled by setting the motor starter overload relay HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the mixer can be started and stopped via the overload relay HIM.
      2) Under normal operating conditions, the overload relay HIM is set to REMOTE. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.
      3) Active overload relay faults can be manually reset via a reset button on the overload relay HIM.
   b. Field Manual:
      1) The local control station near the mixer has a HOA selector switch. When the overload relay HIM is set to REMOTE, field manual control is enabled as described below.
         a) When the HOA is placed in HAND, the mixer starts and runs continuously.
         b) When the HOA is placed in OFF, the mixer stops.
         c) When the HOA is placed in AUTO, SCADA control is enabled.
   c. Field Automatic: None.
   d. SCADA Manual:
      1) When the overload relay HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then manually start and stop the mixer via the SCADA HMI.
   e. SCADA Automatic: None.

f. Interlocks:
   1) Hardwired Interlocks:
      a) The following hardwired interlocks stop the mixer and prohibit starting until reset via the overload relay HIM. These interlocks are active in MCC manual, field manual, and SCADA control modes:
         (1) Overload relay fault.
   2) Software Interlocks: None.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:
   1. Hardwired:
      a. RAS Anoxic Zone TSS.
   2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:
   1. Hardwired: None.
   2. Network: None.

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:
   1. None.

3.06 CONTROLSPEC 22-6003A: ANAEROBIC RAS TRANSFER PUMPS

A. System Overview:
   1. Three anaerobic RAS transfer pumps draw from the RAS Anoxic Zone and discharge to the Anaerobic Distribution Channel.
   2. The pumps are controlled by variable frequency drives which adjust motor speed to maintain a RAS flow set point, as measured by a flow meter on the discharge header.
   3. Each pump is equipped with a temperature sensor for motor protection and a seal water flow switch and check valve limit switch for pump protection.

B. References:
   1. P&IDs: I-22-6003, I-22-6004.

C. Equipment:
   1. Pumps:

Equipment Tag	Description
P22311#	Anaerobic RAS Transfer Pump #

= Replace with 1 through 3 to create unique tag/description for each pump.

   2. Instruments:

Equipment Tag	Description
FE/FIT223120	Anaerobic RAS Transfer Pump Flow Sensor/Transmitter
PE/PIT223121	Anaerobic RAS Transfer Pump Discharge Pressure Transmitter
FSL22311#	Anaerobic RAS Transfer Pump # Seal Water Low Flow Switch
TSH22311#	Anaerobic RAS Transfer Pump # Motor High Temperature Switch
ZSC22311#	Anaerobic RAS Transfer Pump # Check Valve Limit Switch

= Replace with 1 through 3 to create unique tag/description for each pump.

D. Control:
   1. Anaerobic RAS Transfer Pumps:
      a. MCC Manual:
         1) MCC manual control of the pump can be enabled by setting the VFD HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pump can be started and stopped and have its speed adjusted via the VFD HIM.
         2) Under normal operating conditions, the VFD HIM is set to REMOTE. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.
         3) Active VFD faults can be manually reset via a reset button on the VFD HIM.
      b. Field Manual:
         1) The local control station near the pump has a HOA selector switch, speed potentiometer, and speed indicator. The speed indicator displays the pump speed as a percentage of the pump's maximum speed. When the VFD HIM is set to REMOTE, field manual control is enabled as described below.
            a) When the HOA is placed in HAND, the pump starts and runs continuously. Operators can adjust the pump speed via the potentiometer.
            b) When the HOA is placed in OFF, the pump stops.

c) When the HOA is placed in AUTO, SCADA control is enabled.

c. Field Automatic: None.

d. SCADA Manual:

1) When the VFD HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.

2) When SCADA Manual control is selected, the operator can manually start and stop the pump and manually adjust the pump speed via the SCADA HMI.

e. SCADA Automatic:

1) When SCADA Automatic control is selected, the pump speed is modulated to match an operator-adjustable RAS flow target. The pump control sequence is described below:

a) The operator enters a desired RAS flow rate set point.

b) The pumps run in a lead/lag/standby operational sequence set by the operator at the HMI. If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence assumes its role.

c) A single PID-type control loop controls starting and stopping of the pumps and adjusts pump speeds to maintain the RAS flow rate set point:

(1) If the lead pump is running at 95% speed or greater for an operator-adjustable time delay, the lag pump starts and ramps up in speed until both pumps are operating at the same speed. The speeds of both pumps are then modulated together, as a unit, to maintain the flow rate set point.

(2) If the duty and standby pumps are ever running at minimum speed for an operator adjustable time delay, the lag pump ramps to a stop while the duty pump continues to have its speed modulated to maintain the flow rate set point.

f. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the VFD HIM. These interlocks are active in MCC manual, field manual, and SCADA control modes:

(1) VFD fault.

(2) Motor high temperature.

(3) Seal water low flow.

(4) Check valve failure to open upon pump start or closure during pump operation.

2) Software Interlocks:

a) The following are PLC logic interlocks active in SCADA control:

(1) If an out-of-range alarm on the anaerobic RAS transfer pumps flow transmitter is active, the pumps shall maintain their current speed until the signal returns.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:
   1. Hardwired:
      a. Anaerobic RAS Transfer Pumps flow.
      b. Anaerobic RAS Transfer Pumps discharge pressure.
   2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:
   1. Hardwired: None.
   2. Network:
      a. Anaerobic RAS Transfer Pumps 1 through 3:
         1) Seal water low flow.
         2) Motor high temperature.
         3) Check valve closed (low flow).

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:
   1. None.

3.07 CONTROLSPEC 22-6005A: WAS PUMPING

A. System Overview:

1. The WAS pump station consists of two pairs of variable-speed pumps that draw from two separate wet wells. The lead/lag WAS pumps draw from the first wet well that is connected directly to the classifying selector. The duty/standby WAS foam waste pumps draw from a downward-sloping wet well that can be isolated from the process by an electrically actuated slide gate. All four pumps discharge WAS to solids treatment.
2. Under normal operations, the WAS pump(s) discharge a desired daily mass of sludge waste as calculated from WAS discharge flow and TSS measurements.
3. Under normal operations, the WAS foam waste pumps operate in an alternating duty/standby configuration based on the downward-sloping wet well level as measured by a pressure transmitter on the WAS foam waste pumps suction line. The duty pump starts at the start level set point and continues running until the level has been drawn down to the low level set point, at which point the duty pump continues to run for an operator adjustable time delay before stopping. The duty pump then exchanges roles with the standby pump.
4. While the duty WAS foam waste pump is running, the duty WAS pump(s) speed is temporarily reduced to maintain the WAS discharge flow rate measured when the duty WAS foam waste pump was last called to run.
5. As an alternative operating mode, one of the WAS foam waste pumps can be manually configured to operate as a standby WAS pump.
6. Each pump is equipped with a temperature sensor for motor protection and a seal water flow switch and check valve limit switch for pump protection.
7. The WAS Wet Well Slide Gate is used to divert accumulated scum and foam in the RAS Distribution Box to the WAS Wet Well. During normal operations, the slide gate is lowered slightly below the RAS Distribution Box level to allow for any scum and foam riding on the surface to pour into the WAS Wet Well.
8. The downward-sloping WAS Wet Well is equipped with a utility water spray valve that is opened to spray down the wet well surfaces and facilitate discharging residual scum and foam buildup.

B. References:

1. P&IDs: I-22-6005, I-22-6006, I-22-6007.

C. Equipment:

1. Pumps:

Equipment Tag	Description
P22314#	WAS Pump #
P22315#	WAS Foam Waste Pump #

= Replace with 1 through 2 to create unique tag/description for each pump.

2. Gates and Valves:

Equipment Tag	Description
SGTE223131	WAS Wet Well Slide Gate
SV223133	WAS Wet Well Spray Valve

3. Instruments:

Equipment Tag	Description
AE/AIT223160	WAS Pump Discharge TSS Probe/Transmitter
FE/FIT223159	WAS Pump Discharge Flow Sensor/Transmitter
LE/LT223030	RAS Distribution Box Level Sensor/Transmitter
LE/LT223132	WAS Wet Well Level Sensor/Transmitter
FSL22314#	WAS Pump # Seal Water Low Flow Switch
TSH22314#	WAS Pump # Motor High Temperature Switch
ZSC22314#	WAS Pump # Check Valve Limit Switch
FSL22315#	WAS Foam Waste Pump # Seal Water Low Flow Switch
TSH22315#	WAS Foam Waste Pump # Motor High Temperature Switch
ZSC22315#	WAS Foam Waste Pump # Check Valve Limit Switch

= Replace with 1 through 2 to create unique tag/description for each pump.

D. Control:

1. WAS Pumps:

a. MCC Manual:

1) MCC manual control of the pump can be enabled by setting the VFD HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pump can be started and stopped and have its speed adjusted via the VFD HIM.

2) Under normal operating conditions, the VFD HIM is set to REMOTE. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.

3) Active VFD faults can be manually reset via a reset button on the VFD HIM.

b. Field Manual:

1) The local control station near the pump has a HOA selector switch, speed potentiometer, and speed indicator. The speed indicator displays the pump speed as a percentage of the pump's maximum speed. When the VFD HIM is set to REMOTE, field manual control is enabled as described below.

a) When the HOA is placed in HAND, the pump starts and runs continuously. Operators can adjust the pump speed via the potentiometer.

b) When the HOA is placed in OFF, the pump stops.

c) When the HOA is placed in AUTO, SCADA control is enabled.

c. Field Automatic: None.

d. SCADA Manual:

1) When the VFD HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.

2) When SCADA Manual control is selected, the operator can manually start and stop the pump and manually adjust the pump speed via the SCADA HMI.

e. SCADA Automatic:

1) When SCADA Automatic control is selected, the pump speed is modulated to match an operator-adjustable daily sludge waste mass target set point. The pump control sequence is described below:

a) The operator enters a desired daily sludge waste mass target set point.

b) The pumps run in a lead/lag or lead/lag/standby operational sequence set by the operator at the HMI. If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence assumes its role.

(1) Lead/lag operation uses the designated two WAS pumps, with the WAS pump station bypass valve being manually closed.

(2) Lead/lag/standby operation requires that manual valves have been configured to allow the #1 WAS foam waste pump to operate as a standby WAS pump. When selecting a WAS foam waste pump to operate as a standby WAS pump at the HMI, the operator is prompted to confirm that manual valves have been configured accordingly. WAS foam waste pump #2 is then automatically selected as duty for the WAS foam waste pump station control. See below.

c) A single PID-type control loop controls starting and stopping of the pumps and adjusts pump speeds to achieve a target sludge waste mass discharge rate that is continually calculated based on WAS discharge flow and TSS measurements, as described in the Calculations paragraph below.

(1) If the lead pump is running at 95% speed or greater for an operator-adjustable time delay, the lag pump starts and ramps up in speed until both pumps are operating at the same speed. The speeds of both pumps are then modulated together, as a unit, to maintain the target sludge waste mass discharge rate.

(2) If the lead and lag pumps are ever running at minimum speed for an operator adjustable time delay, the lag pump ramps to a stop while the duty pump continues to have its speed modulated to maintain the target sludge waste mass discharge rate.

d) This PID-type control loop is temporarily suspended when a WAS foam waste pump is called to run. When a WAS foam waste pump is called to run, the last WAS discharge flow measurement becomes a temporary combined WAS discharge flow set point. A single PID-type control loop then adjusts the WAS pump speed(s) to maintain the combined WAS discharge flow set point, maintaining constant WAS flow to sludge thickening. When all running WAS foam waste pumps are stopped, the WAS pumps return to their previous PID-type control loop based on the target sludge waste mass discharge rate.

f. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the VFD HIM. These interlocks are active in MCC manual, field manual, and SCADA control modes:

(1) VFD fault.

(2) Motor high temperature.

(3) Seal water low flow.

(4) Check valve failure to open upon pump start or closure during pump operation.

2) Software Interlocks:

a) The following are PLC logic interlocks active in SCADA control:

(1) If an out-of-range alarm on the WAS discharge flow or TSS measurement is active, the pumps shall maintain their current speed until the signal returns.

(2) A WAS Holding Tank high level alarm (see Section 40 61 96.26 CONTROLSPEC 26-6025A) stops running WAS pumps and prohibits starting until the alarm clears.

2. WAS Foam Waste Pumps and WAS Wet Well Spray Valve:

a. MCC Manual:

1) MCC manual control of the pump can be enabled by setting the VFD HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pump can be started and stopped and have its speed adjusted via the VFD HIM.

2) Under normal operating conditions, the VFD HIM is set to REMOTE. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.

3) Active VFD faults can be manually reset via a reset button on the VFD HIM.

b. Field Manual:

1) WAS Foam Waste Pumps:

a) The local control station near the pump has a HOA selector switch, speed potentiometer, and speed indicator. The speed indicator displays the pump speed as a percentage of the pump's maximum speed. When the VFD HIM is set to REMOTE, field manual control is enabled as described below.

(1) When the HOA is placed in HAND, the pump starts and runs continuously. Operators can adjust the pump speed via the potentiometer.

(2) When the HOA is placed in OFF, the pump stops.

(3) When the HOA is placed in AUTO, SCADA control is enabled.

2) Spray Valve:

a) The spray valve may be opened and closed via manual operator.

c. Field Automatic: None.

d. SCADA Manual:

1) WAS Foam Waste Pumps:

a) When the VFD HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.

b) When SCADA Manual control is selected, the operator can manually start and stop the pump and manually adjust the pump speed via the SCADA HMI.

2) Spray Valve:

a) The operator can manually open and close the spray valve via the SCADA HMI.

e. SCADA Automatic:

1) When SCADA Automatic control is selected, the pumps and spray valve are controlled based on WAS Wet Well level as follows:

a) The pumps run in an alternating duty/standby operational sequence set by the operator at the HMI. If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence assumes its role.

b) The duty pump has an operator-adjustable start and low level set point. When the level in the WAS Wet Well reaches or exceeds the start level set point, the duty pump starts. The pump then continues to run until the WAS Wet Well level reaches or drops below the pump's low level set point, at which point the pump continues to run for an operator adjustable time delay before stopping. The duty pump then exchanges roles with the standby pump.

c) When the WAS pump station is selected to be in the lead/lag/standby control mode and either WAS pump is faulted, the WAS foam waste pump #1 speed setpoint is controlled to match the lead WAS pump speed.

d) The spray valve has an operator-adjustable level set point that is set between the start and low level set points for the duty pump. When the WAS Wet Well level reaches or drops below this level set point, the spray valve is opened. The spray valve remains open until the duty pump has stopped and an operator-adjustable time delay has expired.

f. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the VFD HIM. These interlocks are active in MCC manual, field manual, and SCADA control modes:

(1) VFD fault.

(2) Motor high temperature.

(3) Seal water low flow.

(4) Check valve failure to open upon pump start or closure during pump operation.

2) Software Interlocks:

a) The following are PLC logic interlocks active in SCADA control:

(1) If an out-of-range alarm on the WAS Wet Well level measurement is active, all running pumps stop until the alarm clears.

(2) A WAS Holding Tank high level alarm (see Section 40 61 96.26 CONTROLSPEC 26-6025A) stops running WAS foam waste pumps and prohibits starting until the alarm clears.

(3) If the WAS pump station is selected to be in Lead/Lag/Standby control mode (see above), then the WAS foam pump station pump #2 is automatically selected as duty and the duty / standby rotation operation is inhibited.

3. WAS Wet Well Slide Gate:

a. Field Manual:

1) The local control station at the slide gate actuator has a local/off/remote (LOR) selector switch and open/stop/close (OSC) controls. Field manual control is enabled as described below.

a) When the LOR is placed in LOCAL, the gate can be lowered, raised, or stopped mid-travel via the OSC controls.

b) When the LOR is placed in OFF, gate travel is stopped and the gate position is maintained.

c) When the LOR is placed in REMOTE, SCADA control is enabled.

b. Field Automatic: None.

c. SCADA Manual:

1) When the actuator LOR is set to REMOTE, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.

2) When SCADA Manual is selected, the operator can then manually lower and raise the gate position via the SCADA HMI.

3) Initiate Scum and Foam Wasting:

a) As an alternative to manually controlling the slide gate and spray valve from SCADA, the operator may initiate a single scum and foam wasting operation via the HMI when the actuator LOR is set to REMOTE and SCADA Manual. When initiated, SCADA controls the scum and foam wasting operation as follows:

(1) The slide gate is lowered to an operator-adjustable level set point that is set to a specified distance below the current RAS Distribution Box level measurement when the scum and foam wasting operation is initiated. The slide gate maintains this position for an operator-adjustable time delay before returning to a fully raised position.

(2) When the slide gate is lowered, the spray valve is opened and remains open until the slide gate returns to its raised position and an additional operator-adjustable time delay expires. After this time delay, the spray valve is closed.

d. SCADA Automatic:

1) When the SCADA Automatic is selected, the operator may select between continuous or intermittent control modes.

a) In continuous control mode, the slide gate is automatically positioned to maintain an operator-adjustable level set point that is set to a specified distance below the current RAS Distribution Box level measurement.

b) In intermittent control mode, the operator may schedule scum and foam wasting operations at a regular operator-adjustable frequency. SCADA controls each scum and foam wasting operation as described in the SCADA Manual paragraph above.

e. Interlocks:

1) Hardwired Interlocks:

a) The following are hardwired interlocks active in field manual and SCADA control modes:

(1) Slide gate actuator fault causes the gate to fail in the fully raised position.

2) Software Interlocks:

a) The following are PLC logic interlocks active in SCADA control:

(1) If an out-of-range alarm on the RAS Distribution Box level transmitter is active, SCADA Manual and SCADA Automatic gate positioning defaults to the fully raised position until the signal returns.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:
   1. Hardwired:
      a. WAS Wet Well Slide Gate:
         1) In AUTO.
         2) In HAND.
         3) Torque.
         4) Position.
         5) Full closed (raised).
         6) Full open (lowered).
      b. RAS Distribution Box level.
      c. WAS Wet Well level.
      d. WAS Pumps discharge flow.
      e. WAS Pumps discharge TSS.
   2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:
   1. Hardwired: None.
   2. Network:
      a. WAS Pumps 1 through 2:
         1) Seal water low flow.
         2) Motor high temperature.
         3) Check valve closed (low flow).
      b. WAS Foam Waste Pumps 1 through 2:
         1) Seal water low flow.
         2) Motor high temperature.
         3) Check valve closed (low flow).
   3. Derived:
      a. High WAS Wet Well level.

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:
   1. The sludge waste mass discharge rate is calculated as follows:
      a. The WAS Pumps discharge TSS measurement is converted from g/L to lb/gal.
      b. Sludge waste mass discharge rate (lb/minute) is then determined by multiplying converted TSS measurement by the WAS pumps discharge flow rate (gal/minute):

         $Q_{Sludge\ Waste} = TSS_{WAS\ Pumps\ discharge}$ x $Q_{WAS\ Pumps\ discharge(GPM)}$
   2. The daily sludge waste mass discharged is calculated by totalizing the sludge waste mass discharge rate, resetting the total once per day at an operator-designated time.

3. The target sludge waste mass discharge rate is calculated as follows:
   a. The remaining sludge waste mass to meet the daily sludge waste mass discharge target set point is calculated:

      $$lb_{Sludge\ Waste\ Remaining} = SP_{Daily\ Sludge\ Waste\ Mass\ Discharge\ Target} - lb_{Daily\ Sludge\ Waste\ Mass\ Discharged}$$

   b. The target sludge waste mass discharge rate is then determined by dividing the remaining sludge waste mass (in pounds) by the time remaining (in minute):

      $$Q_{Sludge\ Waste\ Target} = \frac{lb_{Sludge\ Waste\ Remaining}}{t_{Remaining}}$$

4. The slide gate actuator percentage open position measurement is converted to an elevation measurement corresponding to the top of the slide gate across its range of travel. This value is displayed at the SCADA HMI.
5. The difference in elevation between the RAS Distribution Box level measurement and the top of the slide gate elevation is calculated and displayed at the SCADA HMI and used as the control reference for the gate position control.
6. For each basin type, Aeration Zone 1 (X), Aeration Zone (Y), and Ana?? (Z), the total number of basins is individually summed providing a total number for each zone.
7. The daily waste mass or WAS flow setpoint is calculated based upon the WAS daily waste mass, which is calculated based upon the number of basins in service, the secondary clarifier distribution channel (MLSS) TSS analyzer (AIT-192701B) in milligrams per liter, the WAS flow meter (FIT-223159) in MGD, the RAS Anoxic TSS analyzer (AIT-223160), the plant effluent flow meter (FT-??) in MGD, and the effluent TSS analyzer (AIT-??) in milligrams per liter. Sludge Retention Time (SRT) is operator entered at the HMI.

   $$\text{Q Setpoint}_{WAS} = \left(\frac{MLSS \times (XAB1\ Train \times 3.69 Mgal + YAB2\ Train \times 0.785\ Mgal) + RAS\ TSS \times \text{Z}ANA\ Train 0.501 Mgal)}{SRT(days) \times WAS\ TSS(\frac{mg}{L})}\right) - \left(\frac{Effluent\ Flow\ mgd \times Effluent TSS\left(\frac{mg}{L}\right)}{WAS\ TSS\left(\frac{mg}{L}\right)}\right)$$

3.08 CONTROLSPEC 22-6008A: RAS/WAS STATION SUMP PUMPS

A. System Overview:
   1. The RAS/WAS Station contains two constant speed sump pumps that operate in an alternating lead/lag sequence based on sump level to pump wash down water from the sump to the RAS classifying selector.
   2. Each pump is equipped with temperature and moisture sensors for motor protection.

B. References:
   1. P&IDs: I-22-6008.

C. Equipment:
   1. Pumps:

Equipment Tag	Description
P22319#	RAS/WAS Station Sump Pump #

= Replace with 1 through 2 to create unique tag/description for each pump.

2. Instruments:

Equipment Tag	Description
LIT223190	RAS/WAS Station Sump Level Transmitter
ME22319#	RAS/WAS Station Sump Pump # Moisture Detection Sensor
TSH22319#	RAS/WAS Station Sump Pump # Motor High Temperature Switch

= Replace with 1 through 2 to create unique tag/description for each pump.

D. Control:

1. RAS/WAS Station Sump Pumps:
   a. MCC Manual:
      1) MCC manual control of the pump can be enabled by setting the motor starter overload relay HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pump can be started and stopped via the overload relay HIM.
      2) Under normal operating conditions, the overload relay HIM is set to REMOTE. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.
      3) Active overload relay faults can be manually reset via a reset button on the overload relay HIM.
   b. Field Manual:
      1) The local control station near the pump has a HOA selector switch. When the overload relay HIM is set to REMOTE, field manual control is enabled as described below.
         a) When the HOA is placed in HAND, the pump starts and runs continuously.
         b) When the HOA is placed in OFF, the pump stops.
         c) When the HOA is placed in AUTO, SCADA control is enabled.
   c. Field Automatic: None.
   d. SCADA Manual:
      1) When the overload relay HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then manually start and stop the pump via the SCADA HMI.
   e. SCADA Automatic:
      1) When SCADA Automatic control is selected, the pumps are controlled based on sump level as follows:
         a) The pumps run in a lead/lag operational sequence set by the operator at the HMI. If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is skipped in the operational sequence and the next pump in the sequence assumes its role.
         b) When the level in the sump reaches or exceeds an operator-adjustable lead pump start level set point, the lead pump starts.
         c) If the level in the sump reaches or exceeds an operator-adjustable lag pump start level set point, the lag pump starts.
         d) When the level in the sump reaches or falls below an operator-adjustable stop level set point, all running pumps stop.

e) Each time the stop level is reached and pumps are stopped, the lead pump and lag pump automatically exchange roles.

f. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the vendor package control panel. These interlocks are active in field manual and field automatic control modes:

(1) Overload relay fault.

(2) Motor high temperature.

(3) Motor leak.

2) Software Interlocks:

a) The following are PLC logic interlocks active in SCADA control:

(1) If an out-of-range alarm on the sump level measurement is active, all running pumps stop until the alarm clears.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:

1. Hardwired:

a. RAS/WAS Station Sump level.

2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:

1. Hardwired: None.

2. Network:

a. RAS/WAS Station Sump Pumps 1 through 2:

1) Leak.

2) Motor high temperature.

3. Derived:

a. RAS/WAS Station Sump high level.

G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:

1. None.

3.09 CONTROLSPEC 22-6009A: STORM DRAIN LIFT STATION 3 (CCF 037)

A. System Overview:

1. The Storm Drain Lift Station 3 contains two constant speed pumps that operate in an alternating lead/lag sequence based on drain level to pump storm pond water from the storm drain to the headworks.

2. Each pump is equipped with temperature and moisture sensors for motor protection.

B. References:

1. P&IDs: I-00-6003.

C. Equipment:

1. Pumps:

Equipment Tag	Description
P00003#	Storm Drain Lift Station 3 Pump #

= Replace with 1 through 2 to create unique tag/description for each pump.

2. Instruments:

Equipment Tag	Description
LSL/LSM/LSH000030	Storm Drain Lift Station 3 Level Float Switch
ME00003#	Storm Drain Lift Station 3 Pump # Moisture Detection Sensor
TSH00003#	Storm Drain Lift Station 3 Pump # Motor High Temperature Switch

= Replace with 1 through 2 to create unique tag/description for each pump.

D. Control: (CCF 037)

1. Storm Drain Lift Station 3 Pumps:

a. MCC Manual: None

~~0) MCC manual control of the pumps can be enabled by setting the motor starter overload relay HIM LOCAL/REMOTE setting to LOCAL. While in LOCAL the pumps can be started and stopped via the overload relay HIM.~~

~~0) Under normal operating conditions, the overload relay HIM is set to remote. This enables field manual control via the local control station or SCADA control, as specified in the paragraphs below.~~

~~0) Active overload relay faults can be manually reset via a reset button on the overload relay HIM.~~

~~e.~~b. Field Manual:

1) The ~~local control station~~vendor supplied local control panel near the pump has a HOA selector switch. ~~When the overload relay HIM is set to REMOTE, field manual control is enabled as described below.~~

a) When the HOA is placed in HAND, the pump starts and runs continuously.

b) When the HOA is placed in OFF, the pump stops.

c) When the HOA is placed in AUTO, ~~SCADA~~ field automatic control is enabled.

~~f.~~c. Field Automatic: ~~None.~~

~~f. SCADA Manual:~~

~~2) When the overload relay HIM is set to REMOTE and the local control station HOA is placed in AUTO, SCADA control is enabled. The operator can then select between SCADA Manual or SCADA Automatic control of the pump at the SCADA HMI.~~

~~3) When SCADA Manual control is selected, the operator can manually start and stop the pump.~~

~~f. SCADA Automatic:~~

~~5)~~1) When ~~SCADA~~ Field Automatic control is selected, the pumps are controlled based on storm drain level as follows:

a) The pumps run in a lead/lag operational sequence set by the operator at the local control panel~~HMI~~. ~~If SCADA Automatic control is not enabled for a pump or the pump fails to run when it is called to operate, that pump is~~

~~skipped in the operational sequence and the next pump in the sequence assumes its role.~~

b) When the level in the storm drain reaches or exceeds the lead pump start level set point, the lead pump starts.

c) If the level in the storm drain reaches or exceeds the lag pump start level set point, the lag pump starts.

d) When the level in the storm drain reaches or falls below the stop level set point, all running pumps stop.

e) Each time the stop level is reached and pumps are stopped, the lead pump and lag pump automatically exchange roles.

~~g.~~d. Interlocks:

1) Hardwired Interlocks:

a) The following hardwired interlocks stop the pump and prohibit starting until reset via the overload relay ~~HIM~~. These interlocks are active in ~~MCC~~ manual, field manual, and ~~SCADA~~ field automatic control modes:

(1) Overload relay fault.

(2) Motor high temperature.

(3) Motor leak.

2) Software Interlocks: None.

E. Monitoring: In addition to the common statuses specified in Section 40 61 96, the following statuses are continually monitored and displayed at SCADA HMI:

1. Hardwired: None. (CCF 037)

~~. Storm Drain Lift Station 3 level.~~

~~3.~~2. Network: None.

F. Alarming: In addition to the common alarms specified in Section 40 61 96, the following alarms are continually monitored and displayed at SCADA HMI:

1. Hardwired: ~~None.~~Pump station common fault. (CCF 037)

2. Network: None. (CCF 037)

~~. Storm Drain Lift Station 3 Pump 1 through 2:~~

~~0) Leak~~

~~0) Motor high temperature.~~

~~J.~~G. Calculations: In addition to the common calculations specified in Section 40 61 96, the following calculations are provided within the PLC logic:

1. None.

END OF SECTION

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Process Control System Panel Schedule

Item	Area	Loop Number	Tag	Nameplate First Line	Nameplate Second Line	Nameplate Third Line	PID/Network Diagram	NEMA Rating	Features per Section 40 67 00	Panel Layout Drawing	Panel Wiring Diagram	Location Drawing	Application Notes
	00	0010	CAB000010A	STORM DRAIN	LIFT STATION 1	CONTROL CABINET	I-00-6001	---	---	---	---	E-00-1006	CC30B: CCF 037 VENDOR SUPPLIED
	00	0010	CAB000010B	STORM DRAIN	LIFT STATION 1	POWER CABINET	I-00-6001	---	---	---	---	E-00-1006	CC30B: CCF 037 VENDOR SUPPLIED
	00	0020	CAB000020A	STORM DRAIN	LIFT STATION 2	CONTROL CABINET	I-00-6002	---	---	---	---	E-00-1001	CC30B: CCF 037 VENDOR SUPPLIED
	00	0020	CAB000020B	STORM DRAIN	LIFT STATION 2	POWER CABINET	I-00-6002	---	---	---	---	E-00-1001	CC30B: CCF 037 VENDOR SUPPLIED
	00	0030	CAB000030A	STORM DRAIN	LIFT STATION 3	CONTROL CABINET	I-00-6003	---	---	---	---	E-00-1031	CC30B: CCF 037 VENDOR SUPPLIED
	00	0030	CAB000030B	STORM DRAIN	LIFT STATION 3	POWER CABINET	I-00-6003	---	---	---	---	E-00-1031	CC30B: CCF 037 VENDOR SUPPLIED

Process Control System Instrument List

Item	Area	Loop Number	Tag	Description	P&ID	Specification	INSTRUSPEC Symbol	Instrument Type	Power Requirement	Size	Calibration Range	Set Point	Installation Detail	Equipment Vendor Provided	Application Notes
	00	0010	LSH000010	STORM DRAIN LIFT STATION 1 HIGH LEVEL SWITCH	I-00-6001	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0010	**LSHH000010**	**STORM DRAIN LIFT STATION 1 HIGH HIGH LEVEL SWITCH**	I-00-6001	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	**CC30B: CCF 037**
	00	0010	LSL000010	STORM DRAIN LIFT STATION 1 LOW LEVEL SWITCH	I-00-6001	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0011	ME000011	STORM DRAIN LIFT STATION 1 PUMP 1 MOISTURE DETECTION SENSOR	I-00-6001		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0011	TSH000011	STORM DRAIN LIFT STATION 1 PUMP 1 MOTOR HIGH TEMPERATURE SWITCH	I-00-6001		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	
	00	0012	ME000012	STORM DRAIN LIFT STATION 1 PUMP 2 MOISTURE DETECTION SENSOR	I-00-6001		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0012	TSH000012	STORM DRAIN LIFT STATION 1 PUMP 2 MOTOR HIGH TEMPERATURE SWITCH	I-00-6001		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	
	00	0020	LSH000020	STORM DRAIN LIFT STATION 2 HIGH LEVEL SWITCH	I-00-6002	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0020	**LSHH000020**	**STORM DRAIN LIFT STATION 2 HIGH HIGH LEVEL SWITCH**	I-00-6002	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	**CC30B: CCF 037**
	00	0020	LSL000020	STORM DRAIN LIFT STATION 2 LOW LEVEL SWITCH	I-00-6002	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0021	ME000021	STORM DRAIN LIFT STATION 2 PUMP 1 MOISTURE DETECTION SENSOR	I-00-6002		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0021	TSH000021	STORM DRAIN LIFT STATION 2 PUMP 1 MOTOR HIGH TEMPERATURE SWITCH	I-00-6002		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	
	00	0022	ME000022	STORM DRAIN LIFT STATION 2 PUMP 2 MOISTURE DETECTION SENSOR	I-00-6002		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0022	TSH000022	STORM DRAIN LIFT STATION 2 PUMP 2 MOTOR HIGH TEMPERATURE SWITCH	I-00-6002		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	
	00	0030	LSH000030	STORM DRAIN LIFT STATION 3 HIGH LEVEL SWITCH	I-00-6003	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0030	**LSHH000030**	**STORM DRAIN LIFT STATION 3 HIGH HIGH LEVEL SWITCH**	I-00-6003	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	**CC30B: CCF 037**
	00	0030	LSL000030	STORM DRAIN LIFT STATION 3 LOW LEVEL SWITCH	I-00-6003	40 72 00	LFS	FLOAT SWITCH	N/A	N/A	N/A		I6101	NO	
	00	0031	ME000031	STORM DRAIN LIFT STATION 3 PUMP 1 MOISTURE DETECTION SENSOR	I-00-6003		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0031	TSH000031	STORM DRAIN LIFT STATION 3 PUMP 1 MOTOR HIGH TEMPERATURE SWITCH	I-00-6003		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	
	00	0032	ME000032	STORM DRAIN LIFT STATION 3 PUMP 2 MOISTURE DETECTION SENSOR	I-00-6003		N/A	MOISTURE DETECTION SENSOR	N/A	N/A	N/A	N/A	N/A	YES	
	00	0032	TSH000032	STORM DRAIN LIFT STATION 3 PUMP 2 MOTOR HIGH TEMPERATURE SWITCH	I-00-6003		N/A	MOTOR HIGH TEMPERATURE SWITCH	N/A	N/A	N/A	N/A	N/A	YES	

SECTION 43 25 50

PACKAGED WASTEWATER LIFT STATION

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies a pre-packaged lift station that will include a fiberglass wet well/valve vault, submersible pumps, controls, piping, valves and all other appurtenances as described in this specification.
2. The lift station will be designed to pump stormwater runoff from the WWTF site.
3. The station shall utilize constant speed submersible pumps suitable for pumping fluids containing solids up to three inches in diameter.
4. Pumps will be installed in a wet-pit configuration.
5. Pump units shall be complete with motor, inlet nozzle, discharge fitting, guide bar and brackets, chain and cable hooks and other accessories as specified.
6. Manufacturers proposing to furnish equipment specified under this section shall be required to affix an Underwriter's Laboratories (UL) label attesting to the compliance of that assembled equipment under the PACKAGED PUMP SYSTEMS (QCZJ) UL Listing Category. This label shall be inclusive of the entire station with enclosure so as to demonstrate compliance with the National Electrical Code requirements for working clearances and wiring procedures. Equipment manufactured without this third party certification label or equipment manufactured by an outside source or "brokered equipment" defined as systems not assembled on the premises of the named manufacturer by that company's employees will not be considered as equal.
7. Equipment shall additionally conform to the requirements of Section 43 23 03 with the exception that provisions of Section 43 23 03-1.05 and Section 43 23 03-1.07 do not apply unless specifically called out in this project specification.

B. Type:

1. Pumps shall be of the heavy-duty, submersible, vertical shaft, centrifugal nonclog type, suitable for pumping fluids containing solids. The pumps shall be designed for continuous or cyclic operation under submerged, partially submerged or totally dry condition without damage to the pump and motor. Special attention shall be devoted to the shaft design to limit deflection under all operating conditions, as specified in this section.

C. Equipment List:

Item	Equipment Number
Lift Station 1 - Pump 1	P000011
Lift Station 1 - Pump 2	P000012
Lift Station 2 - Pump 1	P000021
Lift Station 2 - Pump 2	P000022

Item	Equipment Number
Lift Station 3 – Pump 1	P000031
Lift Station 3 – Pump 2	P000032

1.02 RELATED SECTIONS

A. This section contains specific references to the following related sections. Additional related sections may apply that are not specifically listed below.
   1. Section 43 23 03 General Requirements for Centrifugal and Axial Flow Pumping
   2. Section 43 05 11 General Requirements for Equipment
   3. Section 43 05 13 Rigid Equipment Mounts
   4. Section 43 05 21 Common Motor Requirements for Equipment

1.03 REFERENCES

A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. References shall be as listed in Section 43 23 03.

1.04 DEFINITIONS

A. Terminology used in this section conforms to the following definitions:
   1. Equipment Pad: concrete foundation (block or slab) supporting and elevating equipment mounts above the supporting structural floor slab or local grade
   2. Mounting Pads: thickened or raised areas of baseplates and soleplates where the feet or mounting surfaces of mounted equipment and drivers rest on the baseplate or soleplate

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. See Section 01 12 16: Work Sequence.

B. Unit Responsibility:
   1. Assign unit responsibility, as specified in Section 43 05 11, to the manufacturer of the packaged wastewater lift station provided for all equipment and accessories under this section. Have all mechanical equipment components, at least, of this entire equipment assembly furnished by the pump's manufacturer. Provide a completed, signed, and notarized Certificate of Unit Responsibility (Form 43 05 11-C, Section 01 99 90).

1.06 SUBMITTALS

A. Action Submittals:

1. Procedures: Section 01 33 00.
2. Submittals shall conform to the requirements of Section 43 23 03. A copy of this Section, addendum updates included, along with the sections listed below shall be submitted with each paragraph check-marked to indicate compliance or marked to indicate requested deviations.

    a. This Section (43 25 50)
    b. Section 43 05 11 – General Requirements for Equipment
    c. Section 43 05 13 – Rigid Equipment Mounts
    d. Section 43 05 21 – Common Motor Requirements for Equipment
    e. Section 43 23 03 – General Requirements for Centrifugal and Axial Flow Pumping Equipment
3. The specification copies shall be complete with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check-marks (☐) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated and, therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
4. A copy of the contract document control diagrams and process and instrumentation diagrams relating to the submitted equipment, with addendum updates that apply to the equipment in this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.
5. Unit Responsibility Certification form (Form 43 05 11-C) attesting that unit responsibility has been assigned in accordance with the requirements of this Section and Section 43 05 11. No other submittal material will be reviewed until the certificate has been found in conformance with this requirement.
6. Predicted pump performance curves for each condition point specified showing head, power, efficiency, and NPSH3 on the ordinate plotted against capacity on the abscissa. All curves shall clearly display the specified operating conditions, POR and the manufacturer's limits for the AOR.
7. Drawings showing general dimensions and confirming the size of pumps, motors, drives and specified appurtenances; piping connections; construction details of

equipment (including bearings and bearing isolators); wiring diagrams; and weight of equipment.

8. Manufacturer's data including materials of construction and equipment weight.
9. Motor Data Form 43 05 21 -A.
10. Proof of service of previously installed units of similar size and configuration in wet wells of the type specified in this Section.
11. Written factory tests report, as specified in paragraph 2.10.
12. Shaft deflection calculations.
13. Anchorage calculations and required documentation.
14. Cooling system calculations.
15. Anti-flotation calculations for the wet well/valve vault.
16. Manufacturer’s operation and maintenance information in accordance with Section 01 78 23.
17. Installation Forms in accordance with Section 43 05 11.
18. 5-Year warrantee in accordance with paragraph 1.09.
19. Testing Forms in accordance with Section 01 99 90.
20. Field discharge connection leakage test in accordance with paragraph 3.02.

B. Informational Submittals:
   1. NOT USED

C. Closeout Submittals:
   1. Operating and maintenance submittals:
      a. Procedures: Section 01 78 23.
   2. Spare parts:
      a. Procedures: Section 43 05 11. Provide the following spare parts for each model and size of pump furnished for this Section:
      b. One complete set of all gaskets and seals
      c. Two complete sets of all bearings
      d. Two complete sets of mechanical seals
      e. Two complete sets of discharge connection sealing devices
      f. One removable cable seal chamber cap with cable length as required in this Section.
      g. If oil-filled motor is furnished, provide spare oil in sufficient quantity to allow for one-time flushing and replacement of coolant for all installed pumps.
      h. One complete spare pump

1.07 QUALITY ASSURANCE

A. Critical Speeds: Critical Speeds shall be in accordance with Section 43 23 03-1.04.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Procedures: Section 01 66 00

B. Block shaft and prevent damage to bearings during shipment

1.09 WARRANTY

A. Manufacturer shall warrant all products of its manufacture to be free from defects in material and factory workmanship for a period of one year from substantial completion provided the product is properly installed, serviced and operated under normal conditions according to the manufacturer's instructions. Other warranties, as put forth by original equipment manufacturers, shall prevail when such equipment is used.

Major components which fail to perform or prove defective in service during the warranty period and are determined by the manufacturer to have failed because of defect in workmanship or materials shall be replaced, repaired or satisfactorily modified by the manufacturer F.O.B. factory or authorized warranty service station. The warranty shall not assume responsibility for removal, reinstallation or freight.

B. Provide a Special 5-Year Warranty. The manufacturer shall warranty the pumps provided under this section against defects in materials and workmanship for 5 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The following candidate manufacturers are capable of producing packaged pumping systems that will satisfy the requirements of this Section. The manufacturer's standard product may require modification to conform to specified requirements:

1. PumpTech, Inc
2. Approved Equal

2.02 PUMPS

A. Type: Heavy-duty, submersible, vertical shaft, centrifugal nonclog type, suitable for pumping fluids containing raw unscreened wastewater or stormwater containing solids.

B. PERFORMANCE/DESIGN CRITERIA

1. Service Conditions:

Description	

Equipment number	P000011 P000012 P000021 P000022 P000031 P000032
Area exposure	Per Section 01 11 80
Fluid type	Unscreened stormwater containing up to 1,000 mg per liter of suspended solids consisting of organic and inorganic materials, grit, petroleum products, grease and debris from site surface runoff.
Fluid temperature	32 to 80 degrees F

C. Operating Conditions:

1. The performance requirements presented in tabular form below are intended to describe the results of hydraulic calculations developed using a mathematical modeling program specifically developed for the purpose. The model was intentionally used to develop the limits of expected extremes in variation of static head, coefficients for pipeline resistance and turbulence losses through fittings and valves.
2. Equipment furnished under this section shall be fully suitable for continuous operation at any specified condition or any condition lying between the extremes of the operating conditions specified in the following table. The total head in the information below is the total system head at the operating capacity, essentially a summation of the head of the two pumps at that capacity. The notes presented at the end of the table are intended to be complimentary to the information presented in the table.
3. Table of Operating Conditions:

Operating Condition	Value	Value	Value
Equipment number	P000011 P000012	P000021 P000022	P000031 P000032
Condition A [1,4]			
Capacity, gpm	524	239	291
Total head, feet	23	14	13
NPSHA, feet	30.1	30.1	30.1
Condition B [2,4]			
Capacity, gpm	578	254	302
Total head, feet	19	14	12
NPSHA, feet	30.1	30.1	30.1
Condition C [3,4]			
Capacity, gpm	498	212	269
Total head, feet	25	15	13.5
NPSHA, feet	30.1	30.1	30.1

Notes:

1. *Condition A shall be taken as the rated, continuous-duty operating condition. Performance at the rated condition shall be guaranteed in accordance with Section 43 23 03. Condition A has been selected to obtain the rated pumping capacity for the installation. It is not intended that the pumps be selected for maximum efficiency at Condition A. Pumps furnished under this section shall be selected to achieve Condition A performance, and also shall operate continuously without objectionable vibration or cavitation at the head specified under Condition B. Condition A may be located in the Allowable Operating Region as established by the pump manufacturer in accordance with ANSI/HI 9.6.3 and published in the manufacturer's published application data for the specific model proposed for this application.*
2. *Condition B head is presented to indicate operating conditions when the pump is operating against minimum anticipated system head, assuming a hypothetical head-capacity curve. Condition B shall be used for pump selection. Condition B shall be located within the Allowable Operating Region as established by the pump manufacturer in accordance with ANSI/HI 9.6.3 and listed in the manufacturer's published application data for the specific model proposed for this application. Pumps with head-capacity curves steeper than that assumed will produce somewhat less flow at somewhat lower head. The reverse will occur with pumps having a shallower head-capacity curve. NPSHA, as listed for Condition B is calculated on a pumped flow of 590 gpm.*
3. *Condition C is the anticipated continuous duty maximum head condition. Pumps furnished under this specification shall be capable of sustained (24 hours per day) operation at this condition within the requirements set forth in Section 43 23 03. Condition C shall be located within the Allowable Operating Region as established by the pump manufacturer in accordance with ANSI/HI 9.6.3 and listed in the manufacturer's published application data for the specific model proposed for this application.*
4. *Total head in the above tabulation is the algebraic difference between the discharge head and suction head as defined in ANSI/HI 1.1 through 1.6. Net positive suction head available (NPSHA) in the above*
5. *Final design head to be confirmed and coordinated with other construction packages during the submittal phase by the Engineer.*

D. Design Requirements:

Item	Value		
Equipment number	P000011 P000012	P000021 P000022	P000031 P000032
Rigid sphere, inches diameter (min.), capable of passing through the pump from inlet to discharge (Impeller Alternate 1/Alternate 2)	3	3	3
Minimum efficiency at best efficiency point (BEP) at maximum speed, percent [1]	54	56	56
Piping connection size, inches, minimum			
Pump inlet	4	3	3
Pump discharge	4	3	3
Operating speed, rpm, maximum	1800	1200	1200
Operating speed, constant or variable	Constant	Constant	Constant
Approximate pump suction centerline elevation, feet,	4228	4228	4228
Motor			
Horsepower	6	3	3
Type	Submersible	Submersible	Submersible
Inverter duty	Yes	Yes	Yes
Space heater	No	No	No
Over temperature protection	Yes	Yes	Yes
Moisture sensors	Yes	Yes	Yes
Operating speed, rpm, maximum	1800	1200	1200
Voltage/Phase	480 VAC, 3 Phase	480 VAC, 3 Phase	480 VAC, 3 Phase

Notes:

1. *The minimum acceptable efficiency at best efficiency point (BEP) at the speed required to achieve the performance specified under Condition Points A and B. The minimum acceptable efficiency is not necessarily required to be associated with any operating condition specified in paragraph 2.03 Operating Conditions.*
2. *The inlet velocity shall not exceed 4 feet per second at Condition Point A as specified in this Section. A suction nozzle, fitted with a flared inlet, will be required to reduce the suction velocity to 4.0 feet per second or less, and the nozzle length must exceed the difference between the inlet and outlet diameter of the nozzle. It is preferred that the suction nozzle be a standard US or metric ductile iron flange-to-flare fitting*

2.03 MATERIALS

A. Materials specified are considered the minimum acceptable for the purposes of durability, strength, and resistance to erosion and corrosion. The Contractor may propose alternative materials for the purpose of providing greater strength or to meet required

stress limitations. However, alternative materials must provide at least the same qualities as those specified for the purpose.

B. Provide materials of construction in accordance with the following table:

Component	Material
Pump and motor casing Rated head < 100 feet Rated head > 100 feet	 Cast iron, ASTM A48, Class 30 or 35 Cast ductile iron, ASTM A 536, Class 65-45-12
Discharge elbow	Cast iron, ASTM A48, Class 30 or 35
Inlet nozzle and bell	Cast Iron, ASTM A48, Class 30 or 35 or forged steel
Impeller	ASTM A-48 Class 35B. Cast duplex stainless steel, ASTM A744 or European standard 1.4474, or Cast duplex stainless steel, ASTM A890 Grade 1B, or Hard Chrome Iron ASTM A532-IIIA
Motor and pump shaft	Stainless steel, ASTM A276 Type 329, 403, 416, 420 or ASTM A479 Type 403, 431 or AISI 420.
Wearing Plate	ASTM A-48, Class 35B Cast Iron or Stainless steel, ASTM A276 Series 440B or Cast duplex stainless steel, ASTM A890 Grade 1B or 5A
External bolts and nuts	Stainless steel, ASTM A276 Type 316
Guide bar brackets	Stainless steel, ASTM A276 Type 316
Anchor bolts	Stainless steel, ASTM A276 Type 316
Guide rails, lifting assemblies	Stainless steel, ASTM A276 Type 316

2.04 COMPONENTS

A. General:

1. The motor and rotating parts shall be removable from the motor end of the pump. All motor mating surfaces where watertight sealing is required shall be machined and fitted with nitrile O-rings. The pump shall be fitted with a dynamically balanced nonclog impeller designed to pass coarse solids and stringy materials. The pump shall be listed by Factory Mutual or Underwriters Laboratory as conforming in all respects to the requirements in UL 1207.

B. Casing:

1. The volute casing shall be a one-piece casting with a center discharge nozzle. The volute shall be designed for efficient conversion of kinetic to potential energy and shall have clear passageways designed to pass the solid sphere specified in this Section. The solids passing capability of the furnished equipment will be subjected to a field test in accordance with paragraph 3.03.

2. The cutwater shall be specifically designed for use in fluids with stringy solids and rags. The volute casting shall be specifically designed to bear the loads associated with removal and placement of the pump when submerged or exposed and to withstand the loads imposed by the operations specified in this Section. The discharge nozzle shall be not less than the diameter specified in this Section and shall be reinforced for the loads imposed by the specified conditions of service. The nozzle flange face shall be designed to mate with the discharge fitting specified in this Section. The volute casing shall be drilled and tapped or otherwise fitted with an inlet nozzle conforming to the requirements specified in this Section.

C. Shaft:

1. The pump shaft shall be turned, ground and polished, of proportions suitable for use in the specified application. The shaft shall be of sufficient section to limit deflection at the shaft seal to not more than 0.05 mm when the pump is operating at any continuous-duty point defined by the envelope of conditions specified in this Section. The method for calculating shaft deflection shall be as established in Section 43 23 03. Additionally, under no circumstances shall the distance from the lower bearing and the hub of the impeller exceed two times the diameter of the shaft. The documentation required under Section 43 23 03 shall be included as a submittal.

D. BEARINGS:

1. Bearings shall be heavy-duty, oil lubricated or permanently greased lubricated anti-friction type double shielded and factory sealed. Bearings shall be designed for an L-10 rating life of at least 50,000 hours at any operating condition specified in this Section. Loads for radial bearing calculations shall be calculated in accordance with this Section. Bearings isolators in accordance with 43 23 03 are not required for submersible pumps.

E. Impeller:

1. The impeller shall be of the semi-open, non-clogging, single vane design, meeting the Ten State Standards requirement for minimum solids passage size of 3 inches. The impeller shall be capable of passing a minimum of 3.1 inch diameter spherical solids as are commonly found in waste water. The impeller shall have a slip fit onto the motor shaft and drive key, and shall be securely fastened to the shaft by a stainless steel bolt which is mechanically prevented from loosening by a positively engaged ratcheting washer assembly. The head of the impeller bolt shall be effectively recessed within the impeller bore to prevent disruption of the flow stream and loss of hydraulic efficiency. The impeller shall be dynamically balanced to the ISO 10816 standard to provide smooth vibration free operation. Impeller designs which do not meet the Ten State Standards requirement for 3 inch solids passage size, those that rely on retractable impeller designs to pass 3 inch solids, or those that rely on fins or pins protruding into the suction path to assist in the handling of fibrous material shall not be considered equal

F. Mechanical Seals:

1. Each pump shall be equipped with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in a

lubricant reservoir that hydro-dynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary industrial duty silicon-carbide seal ring and one rotating industrial duty silicon-carbide seal ring. The stationary ring of the primary seal shall be installed in a seal holding plate of gray cast iron (ASTM A-48, Class 35B). The seal holding plate shall be equipped with swirl disruption ribs to prevent abrasive material from prematurely wearing the seal plate. The upper, secondary seal unit, located between the lubricant chamber and motor housing, shall contain one stationary industrial duty silicon-carbide seal ring, and one rotating one rotating industrial duty silicon-carbide seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall not require routine maintenance, or adjustment, and shall not be dependent on the direction of rotation for proper sealing. Each pump shall be provided with a lubricant chamber for the shaft sealing system which shall provide superior heat transfer and maximum seal cooling. The lubricant chamber shall be designed to prevent overfilling, and to provide lubricant expansion capacity. The drain and inspection plug shall have a positive anti-leak seal, and shall be easily accessible from the outside of the pump. The seal system shall not rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. Lubricant in the chamber shall be environmentally safe non toxic material.

2. Seal Protection: The primary mechanical seal shall be protected from interference by particles in the waste water, including fibrous materials, by an active Seal Protection System integrated into the impeller. The back side of the impeller shall be equipped with a sinusoidal cutting ring, forming a close clearance cutting system with the lower submersible motor housing or seal plate. This sinusoidal cutting ring shall spin with the pump impeller providing a minimum of 75 shearing actions per pump revolution. Large particles or fibrous material which attempt to lodge behind the impeller, or wrap around the mechanical seal shall be effectively sheared by the active cutting system into particles small enough the prevent interference with the mechanical seal. The Seal Protection System shall operate whenever the pump operates, and shall not require adjustment or maintenance in order to function. Submersible pump designs which do not incorporate an active cutting system to protect the primary mechanical seal shall not be considered acceptable for wastewater service.

G. MOTOR:

1. The pump motor shall be a premium efficiency, squirrel-cage induction, shell type design, housed in an oil-filled, watertight chamber, NEMA B type with a service factor of 1.15 based upon nameplate rating. The manufacturer shall furnish an unqualified warranty guaranteeing (full replacement at no cost to the Owner) the performance of the motors furnished under this project for a period of five years when operating under the specified conditions.
2. The premium efficiency motor shall meet efficiency standards in accordance with IEC 60034-30, level IE3 and NEMA Premium. Motor rating tests shall be conducted in accordance with IEC 60034-2-1 requirements and shall be certified accurate and correct by a third-party certifying agency. A certificate shall be available upon request.

3. The stator winding and stator leads shall be insulated with moisture resistant Class H insulation, which shall be rated at a temperature of 180 degrees C. Motor shall be provided with thermal sensors to protect the motor from excessive heating. Thermal sensors shall be as specified in this Section. The temperature rise of the motor shall not be in excess of that specified in NEMA MG-1 for class B insulating materials when operating continuously under load.
4. Motors shall be Factory Mutual or UL listed in accordance with UL 674 and 1207 for Class I, Group D hazardous atmospheres.
5. The motor shall be designed for continuous duty in air and in 95-degree Fahrenheit water, capable of sustaining a minimum of 15 starts per hour.
6. The cable entry system shall consist of a submersible plug assembly which allows the cable be easily disconnected from the pump for service or replacement. Cable sealing shall be accomplished by a Nitrile compression grommet with both cylindrical and conical sealing surfaces, flanked by a stainless steel washer and an integrated strain relief. A brass (C3604) compression nut shall be threaded into to the cast iron (ASTM A-48, Class 35B) cable plug housing, compressing the grommet ID to the cable while the grommet OD seals against the bore of the cable entry housing. Cable conductors shall be terminated in copper pin connectors which are separated and retained by a circular pin retainer fabricated from high dielectric strength Polyamid (30% GF). Each pin shall pass through its own hole in the pin retainer, maintaining perfect alignment with the mating pins in the motor body. The corresponding motor body pin assembly shall be manufactured from high dielectric strength Polyamid (30% GF), with copper connector pins. The pin assembly shall be sealed with an o-ring to prevent water entry into the motor, and retained in the motor housing bore via a retaining ring. Attachment of the plug assembly to the motor shall engage the corresponding copper pins, creating a complete circuit between the motor and cable. The plug assembly shall be fastened with stainless steel fasteners, and shall be sealed by an o-ring.
7. The cable plug and sealed entry system as part of the motor shall be FM and CSA approved for use in NEC Class I, Division I, Groups C & D hazardous locations. The system shall be anti wicking by design, and shall prevent any water that enters the cable through damage to the jacket from entering the motor. Cable entry designs which utilize potting compounds to provide a water tight seal, or those which do not allow the cable to be easily changed in the field shall not be considered equal.

H. COOLING SYSTEM:

1. The motor shall be capable of operating, completely submerged, partially submerged, or unsubmerged. For unsubmerged (dry pit) applications, an integrated oil cooling system shall be utilized to enhance heat transfer, and allow the motor to operate at full rated power continuously without the need for de-rating or reduced duty cycle. No external coolant supply or external cooling jacket shall be required for dry pit applications. The motor shall have a NEMA Class A temperature rise for submerged service, and class B rise for dry pit service, providing cool operation under all operating conditions
2. The cooling system shall not employ the pumped fluid to directly cool the motor through wastewater passageways incorporated into the motor shell.
3. The system shall be designed to prevent clogging by virtue of dimensions and configuration and shall be specifically configured to maintain motor temperatures within conservative limits.

I. Temperature Sensors:
1. The stator shall be equipped with three thermal sensors embedded in the end coils of the stator winding (one sensor in each stator phase). These shall be wired to the specified motor protection relay for motor protection.

J. Moisture Detection:
1. Provide motors with a moisture detection system.
   a. A primary moisture detector shall be provided in the stator housing leakage chamber.
   b. A second moisture detector shall be located in the motor junction box or inspection chamber.
2. All moisture detectors shall be wired to the motor junction box for connection to the specified motor protection relay.
3. Moisture detectors shall be either mechanical float switch or capacitance probe type as recommended by the manufacturer.

K. Motor Protection Relay:
1. Provide motor protection relay to protect motor from high temperature and moisture.
2. During normal pump operation, the temperature switch shall be closed and the leakage switch shall be normally open. Sensor circuit shall operate on 12 or 24 VDC feed from the main relay body. The relay shall be provided with LEDs to indicate status of relay on face for leakage, temperature, and supply voltage.
3. Latch detection of open temperature switch. An external reset shall be required to clear alarm. Retain relay state during power failures for temperature.
4. Moisture detection shall auto reset.
5. Power supply shall be 120 VAC.
6. Provide one SPDT contact for remote over-temperature alarming. Provide one SPDT contact for remote moisture detection alarming.
7. Relay shall be UL or UR approved, suited for panel installation.

8. Relay shall be mounted inside the associated pump's motor controller panel. Mounting shall be DIN rail mount or back panel mount. Coordinate to provide relay for installation at the shop where the associated motor controller is being fabricated. Coordinate size, wiring, and mounting of the relay into the motor controller.
9. Relay manufacturer shall be Xylem-Flygt, ATC Diversified Electronics, Dwyer, Solzer CA462 or approved substitute.

L. Cables:
1. Cable:
   a. The pump shall have one cable. The cable design shall be suitable for installation in a municipal wastewater pumping station. The cable length shall not exceed the product manufacturer's recommended length. The Contractor shall be responsible for determining the length of cable required to wire the motors and sensors from the wet well to the terminal boxes. The Contractor shall provide additional cable length for slack to allow the pumps to be removed from the wet well. The length of cable for slack shall be based on the pump manufacturer's recommendation.
2. Cable Seal:
   a. The cable entry system shall consist of a submersible plug assembly which allows the cable be easily disconnected from the pump for service or replacement. Cable sealing shall be accomplished by a Nitrile compression grommet with both cylindrical and conical sealing surfaces, flanked by a stainless steel washer and an integrated strain relief. A brass (C3604) compression nut shall be threaded into to the cast iron (ASTM A-48, Class 35B) cable plug housing, compressing the grommet ID to the cable while the grommet OD seals against the bore of the cable entry housing. Cable conductors shall be terminated in copper pin connectors which are separated and retained by a circular pin retainer fabricated from high dielectric strength Polyamid (30% GF). Each pin shall pass through its own hole in the pin retainer, maintaining perfect alignment with the mating pins in the motor body. The corresponding motor body pin assembly shall be manufactured from high dielectric strength Polyamid (30% GF), with copper connector pins. The pin assembly shall be sealed with an o-ring to prevent water entry into the motor, and retained in the motor housing bore via a retaining ring. Attachment of the plug assembly to the motor shall engage the corresponding copper pins, creating a complete circuit between the motor and cable. The plug assembly shall be fastened with stainless steel fasteners, and shall be sealed by an o-ring.
   b. The cable plug and sealed entry system as part of the motor shall be FM and CSA approved for use in NEC Class I, Division I, Groups C & D hazardous locations. The system shall be anti wicking by design, and shall prevent any water that enters the cable through damage to the jacket from entering the motor. Cable entry designs which utilize potting compounds to provide a water tight seal, or those which do not allow the cable to be easily changed in the field shall not be considered equal.
3. Cable Disconnection:

a. The pump shall be designed such that power/ control cable can be removed from the pump motor without breaking the cable seal. The power/ control cable shall be sealed to a removable motor cable plug that shall be universally mateable to the same manufacturer's pump series. The pump shall be able to be removed from the wet well and disconnected from the cable by removing the motor cable plug.

M. TERMINAL BOXES: A terminal box shall be provided for each submersible pump. Cords from the pumps shall be connected to the terminal boxes with plugs. The contractor shall terminate submersible cables into plugs to mate up with receptacles located in the terminal boxes per this section.

1. Boxes, Plugs, and Receptacles:
   a. Class I, Division 1, Group D.
   b. Water tight.
   c. The receptacle/plug shells shall be machined from Stainless Steel type 316.
   d. See the drawings for information about boxes, conduits, and cords.
   e. Terminals per specification Section 26 05 33.
2. Pump terminal box:
   a. Contain a ground stud bonded to the enclosure and support four #8 AWG crimped one hole standard barrel terminal lugs.
   b. Box shall have two receptacles/plugs on the bottom. One receptacle/plug for motor power and one receptacle/plug for motor sensors.
3. Acceptable plug/receptacle manufacturers:
   a. Vantage Technologies
   b. Or approved substitute

N. Pump Discharge Connection Seal:

1. The connection between the pump discharge connection shall be fitted with a means of sealing. The seal shall have a replaceable dynamic seal to affect a complete closure between the pump discharge flange and the mating connection on the anchor fitting described in this Section. Leakage through the seal shall not exceed 1.5 percent of the flow specified for Condition Point A when operating at pump shutoff head and not more than 1 percent of total pump flow at Condition Point B. The seal shall be subject to field test for acceptance in accordance with the requirements of this Section.
2. The dynamic type of seal shall affect a seal meeting the requirements of this paragraph using the head developed by the pump when in operation to expand the sealing device, which may be of metallic or elastomeric construction, against the inner contours of the discharge fitting. The design of the seal shall incorporate features to protect the integrity of the seal during the pump removal/setting process.

O. Pump Anchorage, Guide System and Access Cover:

1. The pump shall be provided with a guide system to allow easy removal of the pump without entering the wet well. The guide rail system may be of either the single or

dual rail type. The discharge connection shall be bolted to the structure as indicated and shall serve as a lower attachment for the guide rails. The discharge connection shall be either horizontal or elbow discharge type, as indicated. The anchorage system shall be designed to transmit the forces specified in this Section safely to the structure. Calculations and supporting documentation justifying the support design shall be provided with the submittals required under Section 43 23 03.

2. The pump and guide rail system shall be designed to automatically connect the pump to the discharge piping when lowered into place on the discharge connection. The design shall be non-sparking and shall conform to UL requirements for installation in a location classified in accordance with NFPA 70, Article 500 for Class 1, Group D, Division 1 locations. The pump shall be easily removable for inspection or service, requiring no bolts, nuts, or other fastenings to be removed for this purpose, and no need for personnel to enter the pump wet well or sump. Sealing of the pumping unit to the discharge connection shall be accomplished by a simple linear downward motion of the pump with the entire weight of the pumping unit guided to and pressing tightly against the discharge connections. No portion of the pump shall bear directly on the floor of the sump and no rotary motion of the pump shall be required for sealing. Guide bars provided for directing the pump into position or for removing the pump for maintenance shall steer the pump into proper contact with the discharge elbow. Once the pump has been positioned on its support fitting at the discharge fitting, the guide bar system shall not be required for pump support.
3. Access frames and covers furnished by the Contractor shall be as specified in Section 08 31 20 and as shown on drawings. Hardware and miscellaneous attachments shall all be constructed out of ASTM A276, Type 316 stainless steel. Dielectric isolation shall be provided for dissimilar metals.

P. Accessories

1. Pumps shall be provided with lifting chains, guide bars, upper guide bar brackets, intermediate guide bar brackets, cable holder assemblies, safety chain hook assemblies, discharge elbow connections, metric to english pipe increaser, anchor bolts, and all other accessories necessary to complete the installation as specified. All connecting hardware and miscellaneous attachments shall be constructed out of ASTM A276, Type 316 stainless steel. Dielectric isolation shall be provided for dissimilar metals.

2.05 WET WELL AND VALVE VAULT

A. Manufacturer shall provide an integrated wet well and valve vault constructed of fiberglass.

B. Unless otherwise indicated, the plastic terminology used in this specification shall be in accordance with the definitions given in American Society for Testing and Materials (ASTM) designations D3753-99. Other methods of manufacturing shall not be acceptable.

C. The resin used shall be of a commercial grade and shall be evaluated as a laminate by test or determined by previous service to be acceptable for the environment. The resins used may contain the minimum amount of fillers or additives required to improve handling properties. Up to 5% by weight of thixotropic agent that will not interfere with visual inspection may be added to the resin for viscosity control. Resins may contain pigments and dyes by agreement between fabricator and engineer, recognizing that such additions may interfere with visual inspection of laminate quality.

D. The reinforcing material shall be a commercial grade of glass fiber having a coupling agent that will provide a suitable bond between the glass reinforcement and the resin.

E. The laminate shall consist of an inner surface, an interior layer, and an exterior layer of laminate body.

F. The inner surface shall be free of cracks and crazing with a smooth finish and with an average of not over two pits per square foot, providing the pits are less than 1/8" in diameter with not over 1/32" deep and are covered with sufficient resin to avoid exposure of inner surface fabric. Some waviness shall be permissible as long as the surface is smooth and free of pits. A White GelCoat shall be the finishing surface for the interior of the Wet Well / Valve Vault. Other coatings or colors are not acceptable.

G. Interior Layer – a minimum of 0.100 inch of the laminate next to the inner surface shall be reinforced with not less than 20 percent nor more than 30 percent by weight of noncontinuous glass strands having fiber lengths from 0.5 to 2.0 inches.

H. Exterior Layer – the exterior layer of body of laminate shall be of construction suitable for the service intended and contain sufficient glass by weight to provide the aggregate strength necessary to meet the tensile and flexural requirements. The exterior surface shall be relatively smooth with no exposed fibers or sharp projections. Handwork finish is acceptable, but enough resin shall be present to prevent fiber show.

I. The Wet Well / Valve Vault must be designed to withstand wall collapse based on the assumption of hydrostatic type loading by backfill with a density of 120 lb./ft.^{3}. The tank wall laminate must be constructed to withstand or exceed two times the actual imposed loading on any depth of basin.

J. The Wet Well shall incorporate an integral Hopper Bottom design that directs solids into the center of the wet well and into the suction of the pumps.

K. The Wet Well bottom shall be constructed by vacuum infusing 3" 2 lb/ft^3 polyurethane or polyisoyanurate foam board that is precision cut to the proper diameter of the wet well diameter. The foam board will be bagged and injected with resin to complete the vacuum infusing process. A composite stud plate will then be infused to the base to insure a leak proof installation of the discharge elbow studs. A 3" exterior anti-floatation ring will be part of the vacuum infused base. This will also allow anchor blots to secure the tank to the contractor supplied concrete pad.

L. The Valve Vault bottom shall have a 2 deg slope toward the wet well. A PVC drain from the valve vault back to the wet well shall be installed complete with a “P” trap and check valve that allows water to flow from the valve vault to the wet well but not back into the valve vault.

M. The width of the first layer of joint overlay shall be 12 inch minimum. Successive layers shall uniformly increase in width to form a smooth contour laminate that is centered on the joint ± ½ inch. A highly filled resin paste may be placed in the crevices between joined pieces leaving a smooth surface for lay-up. The cured resin surface of the parts to be joined shall be roughened to expose glass fiber. This roughened area shall extend beyond the lay-up areas so that no reinforcement is applied to an unprepared surface. Surfaces shall be clean and dry before lay-up. The entire roughened area shall be coated with resin after joint overlay is made.

N. The finished laminate shall be as commercially practicable from visual defects such as foreign inclusions, dry spots, air bubbles, pinhole, dimples, and delamination. The surfaces shall be relatively smooth; hand finish is acceptable, with no exposed fibers or sharp projections.

O. The top flange shall be molded using RTM, Vacuum Bagging or other closed molded processes. The top flange shall be bonded to the basin with a suitable structrural adhesive or wirh polyester resin and glass fiber reinfordcement. The top flange shall be a minimum of 3inches wide.

P. Cover: Cover shall be a minimum of .25-inch Aluminum Diamond Plate for all Wet Wells up to 7 ft diameter and .375 inch for all Wet Wells 8 ft diameter and over. Cover shall be designed to support a uniform live load of 125 pounds per square foot with a safety factor of three. The Cover shall have an outside diameter of 1 in minimum over the diameter of the top flange of the fiberglass wet well / valve vault. The cover shall be secured to the basin with stainless steel bolts, flat washers, lock washers and nuts. Two rows of ¼” x ½” Butyl Tape shall be applied, one on each side of the cover bolts and between the basin and aluminum cover to prevent foreign materials from entering the wet well / valve vault. A 6-inch hole shall be cut in the cover toward the back side of the Wet Well. This is to allow the pump cords, transducer, and float cords to be easily brought out of wet well and into the control panel. If panel is to be remote mounted, the 6-inch hole will be eliminated.

Q. Access Hatches: Access Hatches shall be provided for entrance into the wet well and valve vault. The hatches shall have aluminum diamond plate (non-skid) surface, ASTM A276, Type 316SS hardware, padlock pin with flush locking mechanism, lockable hinged safety grating panel and 300 psf load rating. The grating panel is powder coated the color “safety orange”. Safety Grating is only required on the wet well hatch. Wet well hatch shall be sized and located appropriately to allow pumps to be placed in and removed from the wet well safely and in direct alignment with the guide rail system. The doors shall be provided with stainless steel hinges and lifting handle and shall open to 90 degrees and lock automatically in that position with hold open arms. The frame shall include upper attachments for the guide rails and attachments for the lifting chain and

power cable. Hatch material other than hardware shall be T-6061 aluminum. Access hatches shall carry a lifetime warranty against defects in material and or workmanship.

R. Valve Vault Ladder: In Valve Vaults 5ft or deeper, provide an OSHA approved round rung ladder with "Ladder Up" safety extension.

2.06 PIPING AND VALVES

A. All pipe and fittings shall be ductile iron pipe meeting ASTM A48 material specifications. All piping shall be flanged in accordance with ANSI B16.1. Each pump discharge pipe shall be the same diameter as the discharge of the pump and shall remain that diameter until it exits the tank. A common flanged discharge line shall leave the valve box at the elevation specified on the engineered drawings.

B. Plug valves: Provide per Section 40 05 62.16

C. Check valves: Provide per Section 40 05 65.09

D. Bypass Cross: A ductile iron cross shall be installed in the Valve Vault of equal size as the discharge piping to incorporate a pig launch / bypass system. A 45-deg. fitting pointed upward followed by a plug valve and male Cam Loc fitting shall be installed on the backside of the cross. This shall allow for "pigging" the entire discharge main during routine maintenance or bypass pumping in emergency situations.

2.07 EQUIPMENT AND SYSTEM CONTROLS

A. For each station, a duplex pump control panel shall be provided as per specification drawings and shall have as a minimum, main disconnect switch, standard motor starters, digital level control system with submersible level transducer.

B. COMPONENTS: Components shall be provided as listed below.
   1. Enclosure shall be UL Type 4X stainless steel with pad-lockable 3-point latch. A swing out inner door shall be provided.
   2. A GFCI convenience receptacle shall be provided. Receptacle shall be industrial grade, 120V 20A.
   3. Control panel shall have a thermostatically controlled heater with fan. Heater package shall be Hoffman DAH1002A or approved equal.
   4. Main disconnect switch shall be UL98 listed and sized to handle full load amps of the panel, with pad-lockable door interlocking handle.
   5. UL 508e type combination starters (for 20HP and below) each with
      a. IEC type combination starter
      b. Adjustable class 10 bi-metallic ambient compensated overloads
      c. Minimum short circuit capacity rating of 42kAIC.
      d. Pad-lockable door handle for locking out each pump individually.
      e. Starters shall be Schneider Electric or approved equal.
   6. Motor starters for greater than 20HP each with

a. Circuit Breaker with full voltage NEMA type non-reversing contactor.
b. Adjustable class 10 bi-metallic ambient compensated overloads
c. Shall be Schneider Electric/Square D type or approved equal.

7. Control power transformer with primary fuse protection.
8. An HOA selector switch, RUN indicator, HIGH TEMPERATURE indicator, SEAL LEAK indicator and hour meter shall be provided for each pump. All pilot devices shall be UL Type 4X rated, 22mm type manufactured by Square D or equal. The indicators shall be long life LED type.
9. An alarm horn shall be provided and mounted on the side of the panel. Horn shall be Federal Signal model 350 or equal with a minimum sound level of 100 db. A silence pushbutton shall be located on the inner door.
10. An alarm light shall be mounted on the top of the panel and shall be red polycarbonate and UL Type 4X rated.
11. Control relays shall be provided as shown on plan drawings and shall be blade type, with indicator lights. Relays shall be IDEC or approved equal.
12. Analog 4-20mA loops shall be provided with fuse protection.
13. Intrinsically Safe Barriers provided for all control wiring such as Submersible Transducers, Floats and other low voltage devises.

C. WIRE ENDS: All wire ends shall be finished with crimped ferrules to prevent strands from splaying.

D. UL LISTING: The panel shall be manufactured in the USA by a UL698A registered shop and provided with a UL 698A label for Industrial Control Panels Relating to Hazardous (Classified) Locations. A plastic laminated copy of the wiring diagram shall be attached to the inside of the panel door with waterproof adhesive.

E. LEVEL CONTROLLER: The lift station control system shall include a digital level controller (DLC). The DLC shall, as a minimum, consist of a microprocessor with I/O and a color touch screen operator interface panel. The DLC shall be an integrated system and factory programmed to start, stop and sequence the pumps based on the relationship between the user accessible set points on the interface panel and the analog input from the level transducer.

1. The DLC shall be an industrial type controller designed for harsh environments and a standard catalog item of a manufacturer with at least five years' experience in manufacturing micrologic level controllers. The DLC shall be rated for a minimum of 0-50 C operating temperature.
2. The digital level controller shall be mounted on the control panel door and shall include:
   a. 12" 800 x 600 pixel TFT resistive touch screen
   b. System processor and memory
   c. 8GB micro SD card for alarm and data logging, and configuration backup.
   d. (2) RS232/RS485 serial ports supporting Modbus protocol.
   e. Ethernet port

f. (1) CANBus port
g. (1) Mini USB port
h. (3) 4-20 mA inputs
i. (18) 24 VDC digital inputs
j. (15) 5A relay contact outputs rated for up to 230 VAC
k. (1) PT100 temperature input
l. (4) 4-20 mA analog outputs

3. The DLC shall have pull-apart terminals so that the controller can be easily replaced without disconnecting or disturbing any wiring from the unit.

F. DIGITAL INPUT AND OUTPUTS: Inputs shall be provided for each pump to include moisture in motor, motor over-temperature, pump starter auxiliary contact to confirm pump operation when called, redundant high and low float switch and HOA Auto position to confirm the pump is available. Outputs shall be provided for each pump run command, out-of-service indicator for each pump, alarm horn, alarm dome light and general fault contact.

G. CONFIGURATION: The DLC shall have the following minimum configuration capabilities, all accessible by simply enabling them by touching a button in a user-friendly setup wizard:

1. Simplex, duplex, triplex or quadraplex operation – system shall automatically adjust all screens and functions for the number of pumps in the system.
2. Constant speed.
3. Pump down or pump up mode
4. 0-10V or 4-20ma level sensor input
5. User scalable level sensor range and units, with offset

H. MONITORING AND SET POINTS: The level controller shall be designed with easy to navigate screens that will allow user access to the following functions and data:

1. Level display – in tenths of a foot
2. Number of pumps called
3. Pump status (Running, Stopped, Called, Failed, Out-of-service) for each pump
4. HOA selector (in controller to allow remote control of the pumps) for each pump
5. Run hour meter for each pump – minimum 100,000.00 hours (hundredths resolution)
6. Number of starts counter for each pump
7. Alternation status
8. Alternation mode selector (Automatic, time clock, or manual)
9. Lead pump start and stop set point
10. Lag pump start and stop set point
11. High- and low-level alarm set point
12. Restart lockout time delay

I. ALARM CONFIGURATION:

1. The DLC shall have alarm configuration screens for each of the following alarm conditions:
   a. High level – level sensor
   b. Low level – level sensor
   c. Seal failure
   d. High motor temperature
   e. No Flow
   f. Smart starter or Eaton Insight fault
   g. High level – redundant float switch
   h. Low level – redundant float switch
   i. Transducer failure

2. Each alarm condition shall have touch buttons that enable or disable each of the above alarm conditions individually to:
   a. Enable/disable alarm condition
   b. Shutdown pumps
   c. Manual or Auto reset
   d. Turn on the horn output
   e. Turn on the alarm light output
   f. Flash the alarm light
   g. Turn on the general fault contact
   h. Send email and/or text message
   i. Adjust time delay
3. All enabled alarms shall be recorded in the DLC alarm history log and in an alarm handler that provide data regarding time of alarm, active or not, and number of same faults since last time cleared.

J. PASSWORD PROTECTION: All set points shall be password protected with two levels of passwords.

K. TEST MODE: There shall be a test mode function that provides simulation of rising and falling level in order to operate all outputs and confirm proper operation of the pumps. The test mode can be exited by the user at any time and will automatically revert to normal operation after five minutes to prevent accidentally leaving the unit in test mode.

L. FAULT DATA LOGGING: Fault logging shall be provided with a screen that gives access to the past 1000 fault conditions, complete with date and time stamp. The system data log shall log any alarm condition that is enabled.

M. TREND GRAPH AND HISTORY: The DLC shall have a trend graph that automatically saves liquid level, motor speed and number of pumps running data at one second interval to a file on an SD card. A new file shall be automatically created at the beginning of each

month. A minimum of 64 months of data shall be stored and can be retrieved by the DLC for on screen display in real time, or history mode.

1. A Windows based software utility shall be available, at no additional charge, which can copy the file to a PC and display the data on the PC screen in graphical format (trend chart).
2. This trend data shall serve the purpose of providing data regarding peak flow periods, system efficiency, and pump run times and duration.

N. PUMP RUN DATA LOGGING: The DLC shall log every pump run event. The log shall record the start time, stop time and run duration, complete with date stamp, every time the pump runs. The log shall record a minimum of 10 years of data based on a frequency of 30 seconds between events.

O. MANUFACTURER: The digital level controller shall be PUMP Vision as manufactured by California Motor Controls, Inc. or pre-approved equal.

P. COMMUNICATIONS

1. SERIAL PORT: The DLC shall have a serial port that can be configured, with simple menus on the screen touch, for the following configurations:
2. RS232 programming mode
3. ETHERNET PORT: The DLC shall have an Ether net port that simultaneously provides TCP/IP socket, Modbus IP slave socket, and HTTP socket. Touch screens shall be provided for setting IP address, Gateway address, password, Modbus network ID and email SMTP server configuration.
4. DDE SERVER: A DDE .dll shall be available, at no additional charge, which allows the owner to configure a customized Excel spreadsheet that displays data from any register within the DLC.

Q. SEQUENCE OF OPERATION

1. CONSTANT SPEED OPERATION: Provide H-O-A selector switch. Inputs are provided and programmed into the DLC for a contact of the AUTO position of the selector switch. When the H-O-A is place into the HAND position, the DLC will be bypassed and the pump should run.
   a. If the contact to the H-O-A selector switch is in the OFF position and input of the DLC is not closed, the DLC sets the status of that pump to Out-Of-Service. When the H-O-A is placed into the AUTO position, the pump is available to run as instructed by the DLC.
2. CONSTANT SPEED MANUAL OPERATION: Touching the HAND, OFF or AUTO buttons on the Pump Status page will select the mode of operation.
   a. Touching the HAND button will start the pump in manual mode.
   b. This “soft” H-O-A is provided in the DLC to enable remote operation of the pumps, either through the Remote Access system, DDE program, through the Web Server system.

3. CONSTANT SPEED AUTOMATIC OPERATION: The pumps are available for automatic run when the AUTO selector switch input is enabled, and the "soft" H-O-A is in the AUTO mode.
    a. The analog level signal is converted to tenths of feet and that value is compared to the start and stop set points that are entered into the system by the user. On rising level, when the level is equal to or greater than the lead pump start set point, the lead pump will start. If the level continues to rise beyond the start lag pump set point, the lag pump will start. If there are more than two pumps, rising level will start the additional pumps in sequence. On falling level, the pumps will sequence off as the level drops below the respective stop set points.
    b. The start and stop sequence is reverse when the controller is configured for pump up (fill).
4. ALTERNATION OF PUMPS (Constant and/or Variable Speed)
    a. The pump alternation mode is set by the user. Automatic, time clock and manual modes are available.
        1) Automatic mode—the pumps will alternate after each pumping cycle.
        2) Time clock—the pumps will alternate daily at the time set by the user.
        3) Manual—the pumps will not alternate. The lead pump is selected by the user

R. Sections 40 61 13 and 40 67 00 specify control system requirements.

2.08 ACCESSORIES

A. TRANSFER SWITCH: Station shall be equipped with a NEMA 3R, fused transfer switch with high visibility handle and nameplate with on/off/on indication, clear line terminal shields, generous wiring room that meets or exceeds NEC wire bending space requirements, side hinges and rated for 60/70^{0} C wire connection through 200 amps.

B. GENERATOR RECEPTACLE: Stations equipped with a transfer switch will also come equipped with a user specified heavy duty circuit breaking receptacle. Receptacle shall be mounted on the outside of the pump station and will be equipped with a weatherproof spring door. It shall be placed at a 45deg angle. Appleton part number ADR1034P4RS.

C. GAUGES: Qty 3) 4.5 inch glycerin filled discharge Gauges, 1 common and 1 for each pump. Gauges will be installed at a 45deg angle on the discharge piping so they are visible from outside the valve vault. Each gauge shall have an isolation valve and screen to prevent clogging.

D. CORD HANGERS: A Stainless Steel cord hanger shall be mounted under the cover but with in arms reach from the wet well access hatch. It should also be located as far from the invert as possible.

E. STAINLESS STEEL HOOKS: Shall be welded to the back side of the cord cage to provide a place to hang the cord

F. PANEL STAND: The Control Panel, and any additional accessories such as Transfer Switch, shall be mounted on a stand constructed of 2", 304 Stainless Steel square

tubing or Angle. The panel stand is to be mounted on the cover of the Wet Well or on a concrete slab poured by the contractor.

G. WIRING/CONDUIT: All control or accessory wiring entering, exiting, or to the door controls, shall terminate on a terminal block mounted on the back panel, except for main service breakers or approved disconnect and motor power wires which shall be wired continuously between the motor and the starter overload block. All conduit and connectors inside the station are to be U.L. listed and installed in accordance with N.E.C. standard. Conduit shall be either E.M.T. or liquid tight, flexible non-metallic type. All current carrying wire and conduit shall be properly sized in accordance with N.E.C.

H. LEVEL SENSORS**:** The primary automatic pump cycling is to be controlled by a Keller Americas Inc. LevelRat, UL approved, intrinsically safe submersible transducer, or approved equal. It shall be ready for use in hazardous locations when connected to a proper barrier. The submersible transducer is designed to measure the height of the liquid above it's position in the tank referenced to atmospheric pressure. The sensor shall be specifically designed to provide 0.5% BR TEB accuracy for level indication in grease-laden environments commonly found in lift stations serving commercial concerns. The sensor shall have dual output options; analog outputs (4…20mA, 0…5VDC, or 0…10VDC) plus one digital (RS485) for level ranges from 0…5ftWC to 0…100ftWC.

1. Qty, 2) Optical Floats switches will be provided as a redundant back up to the Submersible Transducer specified above. In the event of a catastrophic failure of the primary level sensor, a high level and low level Optical Float are provided to operate the system until the primary sensor has been restored. Neither Mercury or Mechanical Float Switches will be acceptable. The Optical Floats shall be constructed as follows.
2. The floats shall use fiber optic cable to transmit a beam of light from a transmitter in the control panel to the float where the beam makes and breaks depending on the tilt of the float. The receiver in the control panel shall detect the presence or absence of light and operate a relay in the receiver. The float shall have no electrical components or metallic wires that could cause arcs and sparks in an explosive atmosphere.
3. The float switch shall be mercury and lead free and shall be made of all safe, recyclable materials. The float switch housing shall be polypropylene. It shall be a simple robust device designed for many years of dependable service. The beam eclipser shall be stainless steel in an inert non-toxic dampening fluid that prevents chatter due to wave action. The viscosity of the fluid shall not change significantly over the range of –50 to +155F (-45 to +70C). The transceivers (transmitter and receiver combination) shall be dual din rail mounted units capable of connection to 2 floats. Provide one dual transceiver for every 2 floats. The fiber optic cable shall be custom made for the float and shall consist of dual plastic fibers with an overall specially blended PVC sheath for flexibility. No special tools or experience shall be required for connection of the optical cable to the transceivers. The cable shall be connected and sealed at the float housing using a double seal method that will prevent water from entering the float even if the outer sheath is damaged. The float color shall be two tone with the lighter color on the dome for easier viewing underwater when tilted up.

4. The transceivers shall operate in ambient temperatures of –15 to +130F (-25 to +55C). The transceivers shall operate at 12 VDC and shall be protected against accidental polarity reversal. The system shall operate in the visible and infrared light region with wavelengths between 400 and 1200 nm. The output relays in the receivers shall have the capability of being connected normally open or normally closed. The transceivers shall have a green led power-on light and red led lights on each channel indicating that the light beam is being received – float tilted up. The floats shall operate in liquid temperatures of +32 to +130F (0 to +55C). The floats shall have an ambient air standby operating temperature rating of –15 to +155C (-25 to +70C).
5. The float switches and transceivers shall be the Optical Float® level detection system by Cox Research and Technology, Inc., Baton Rouge, La. The dual transceivers shall be model TR2, and the floats shall be Opti-Float® model F1.

2.09 FINISHES

A. Pumps shall be supplied with a factory applied coating system per Section 09 90 00 designed for use in wastewater applications and suited for continuous immersion.

B. Touch up any coating damage as result of shipping, handling and installation. Provide factory or coating manufacturuer approved touch up kits and follow manufacturuers recommendations to make touch-ups.

2.10 SOURCE QUALITY CONTROL

A. Provide non-witnessed factory testing at a location in the Continental United States and in accordance with Section 43 23 03-1.06

B. Submit factory testing results report in accordance with Section 43 23 03.

C. Hydrostatic tests:
   1. Factory-test all pressure-sustaining parts in accordance with Section 43 23 03.

D. Performance and NPSH tests:
   1. Subject each pump to performance and NPSH testing in accordance with Section 43 23 03 to verify the full range of operating condition

E. Motor tests:
   1. First check impeller, motor rating, and electrical connections for compliance with the specifications
   2. Subject all motor circuits to electrical resistance tests to confirm functionality

PART 3 EXECUTION

3.01 EQUIPMENT INSTALLATION

A. Install all equipment in accordance with manufacturers recommendations.

B. Procedure: Per Section 43 05 13

C. Provide a completed Form 01 45 20-A, Section 01 99 90, for each equipment installation

3.02 FIELD QUALITY CONTROL

A. Wet Well Hydrostatic Test:

1. Contractor shall perform a hydrostatic test of the wet well/valve vault to document the tanks do not have any leakage. Following installation, the wet well shall be filled with water, either potable or plant effluent, and the water surface elevation shall be accurately measured to the nearest 1/16th of an inch. After at least twenty-four hours, there shall be no measurable difference in the water surface level. This will consitutue passing the hydrostatic test. If the level changes, the hydrostatic test has failed and shall be repeated until it passes.
2. Contractor is responsible for all costs associated with performing all hydrostatic testing, retesting and repair of any leaks. Any repairs to the FRP tanks shall be performed in strict accordance with manufacturer recommendations.
3. All hydrostatic testing shall be performed in the presence of the Engineer and/or Construction Manager.

B. Static Solid Pass Test:

1. Upon arrival and before installation in the project, each pump shall be given a solids pass test. The test shall consist of inserting a rigid ball of the diameter specified in paragraph 2.02.E in the pump discharge opening. The Contractor shall demonstrate that the ball will pass clear though the pump to the inlet bell with no force other than the weight of the ball used to demonstrate compliance with the requirements of this Section.

C. Manufacturer Services:

1. On-Site Inspections and Training: Provide a factory-trained manufacturer's representative at the Site for the following activities. Specified durations do not include travel time to or from the Site.
   a. Installation Inspections: Assist, supervise, and inspect the Contractor's activities during installation. Provide 8 inspection hours for all three lift staion. Provide a completed Form 43 05 11-A, Section 01 99 90.
   b. Component Test Phase Inspections: Assist, supervise, and inspect the Contractor's activities during the system test phase specified in Section 01 45 20 and this Section. Provide 4 inspection hours for each lift station.
   c. System Test Phase Inspections: Assist, supervise, and inspect the Contractor's activities during the system test phase specified in Section 01 45 20. Provide 4 inspection hours for each lift station.
   d. Operational Test Phase Inspections: Assist, supervise, and inspect the Contractor's activities during the operational test phase specified in Section 01 45 20 Provide 4 inspection hours for each lift station.

e. Training Sessions: Procedures Section 01 79 00. Provide a minimum of 4 hours classroom training for each training session. Conduct two training sessions, one training session per week on two consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Certify completion of training on Form 43 05 11-B, Section 01 99 90.

3.03 SYSTEMS START UP

A. Procedures: Section 01 45 20.

B. Preoperational (factory) testing; See paragraph 2.10.

END OF SECTION

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 051.1
Date: 2/17/2022
Description: Per Control Change Form #040: Costs and credits associated with changes to the Tank Drain and Foam Waste Pumps.

Xylem Pump Changes (see attached back-up):	$2,977.71
Gerber Onsite Coordination Labor (see attached back-up):	$736.74
Bonds:	$38.85
Mark-up (15%):	$563.00
Total:	**$4,316.30**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $4,316.30 will be added to the contract price, and an additional 5 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-051 Revise TD Pump 2 & Foam Waste Pumps - CC#040	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-051	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Pump Changes	**1.00**	**UNIT**	**$2,977.71**	**$2,977.71**	**$3,460.18**	**$3,460.18**	**15.00%**
Xylem Pump Changes	1.00	EACH	$2,977.71	$2,977.71			
D 02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$736.74**	**$736.74**	**$856.12**	**$856.12**	**15.00%**
01 Superintendent	2.00	HR	$157.26	$314.49			
20 Project Engineer	2.00	HR	$120.14	$240.25			
18 Project Manager	1.00	HR	$182.02	$182.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$736.74	19.83%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,977.71	80.17%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,714.46	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,714.46	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$38.85	0.90%
Total Overall Cost:	$3,753.30	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$563.00	13.04%
Total Margin:	$563.00	13.04%
Total Bid Price:	$4,316.30	

Xylem Scope of Supply Change Per Gerber Construction's Change Form 040

Xylem intends to supply the equipment detailed in engineering specification section 43 23 80.13. Per Gerber Construction's Change Form 040, this section underwent changes which reduced the flow condition (flow and head) for pumps P181512, P181521, and P181522. Consequently, this impacted the equipment in Xylem's scope in the following ways:

- Reduced P181512 pump motor size from 7.5HP to 5.5HP,
- Reduced P181521 and P181522 pump motor size from 15HP to 10HP, and
- Generally reduced the size of pumps P181512, P181521, and P181522 accessories.

In addition to these changes, supply chains have been severely impacted since originally quoted. Many of the raw materials used in our equipment have increased by as much as 300%. While we have made efforts to reduce manufacturing costs, some costs are needing to be passed on.

These costs changes to Xylem's scope of supply are associated with the following:

1. Price increase since original quote in early 2020.
2. Vendor increased prices.
3. Impacted by motor size reduction detailed above.

As shown in the table below, the equipment in Xylem's scope of supply is shown and its associated cost difference between what was original quoted and today's pricing. This cost difference is notated as the "Net Change", where a negative value indicates a lesser cost. The column "Reason #" refers to one of the three cost change explanations noted above.

	Description	Qty	Net Change	Reason #
P181511	Pumps	2	$5,628.00	1
P181512	Pumps	2	$960.40	1, 3
P181521/22	Pumps	3	($15,051.60)	1, 3
Accessories	2" Guide Rails	240'	$6,929.76	2
	3" Guide Rails	80'	$4,299.84	2
	Chain Fitting Kits	4	$247.00	1
	Discharge Connections	4	($1,547.50)	1
	Grip Eye Unit	1	$12.00	1
	Hardware Kit	4	$142.00	1
	Intermediate Guide Bar Bracket	4	$209.00	1
	Lifting Chain	127.5	$384.54	2
	MiniCAS	4	$188.00	1

	MiniCAS socket	4	$20.00	1
	Safety Hook	4	($81.00)	1
	Upper Guide Bar Bracket	4	($22.00)	1
Spare Parts	Sliding Bracket	2	$343.50	1
	Basic Repair Kits	3	($1,886.00)	1
	Entrance Covers	2	$189.00	1
Testing	Hydro testing	7	($990.00)	1
	Performance Testing	7	$104.00	1
Calculations	Seismic Calculations	3	$360.00	2
Warranty	Extended Warranty	7	$1,269.48	1
	Freight		$1,068.00	2
		Total	**$2,776.42**	

Thank you.

Aaron Terry
Engineered Projects Rep. - Municipal
M: (208) 908.3296

Xylem – Flygt
2464 W 1500 S
Salt Lake City, UT 84104

CHANGE CONTROL FORM 040
Revise Tank Drain Pump 2 and Foam Waste Pumps

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 09/17/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Revise design points for Tank Drain Pump 2 (P181512) and Foam Waste Pumps (P181521, P181522) as described in the comments to Submittal 154.

Revise design point for P181512 to 600 gpm at 19 ft TDH.

Revise design point for P181521 and P181522 to 600 gpm at 41 ft TDH.

Other pump design requirements set forth in Section 43 23 80.13 remain unchanged.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 052
Date: 2/1/2022
Description: Per Control Change Form #053: Cost for labor and material to install (2) 3" conduits with (3) 500MCM, w 1/0 gnd, per conduit between MCC229101A and MCC229101B tie-breakers.

Skyline Electric (see attached back-up):	$16,417.02
Mark-up (5%):	$820.85
Gerber Onsite Coordination & Management (see attached back-up):	$1,195.04
Bonds:	$169.26
Mark-up (15%):	$204.65
Total:	**$18,806.82**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $18,806.82 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-052 RAS Selector MCC Conduit And Wire - CC#053	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-052	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor	**1.00**	**UNIT**	**$16,417.02**	**$16,417.02**	**$17,419.31**	**$17,419.31**	**5.10%**
S Electrical Sub	1.00	LS	$16,417.02	$16,417.02			
D 02 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$1,195.04**	**$1,195.04**	**$1,387.51**	**$1,387.51**	**15.00%**
01 Superintendent	3.00	HR	$157.26	$471.32			
20 Project Engineer	3.00	HR	$120.14	$360.05			
18 Project Manager	2.00	HR	$182.02	$363.68			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,195.04	6.79%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$16,417.02	93.21%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$17,612.06	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$17,612.06	93.65%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$169.26	0.90%
Total Overall Cost:	$17,781.32	94.55%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,025.50	5.45%
Total Margin:	$1,025.50	5.45%
Total Bid Price:	$18,806.82	

-QUOTATION-

BNR CC30B
CCF053 Ras Selector MCC Conduit and Wire

February 1, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes as directed within Change Control Form 053 that pertain to CC30B.

Scope includes:

- **Install (2) 3" Conduits with (3) 500 MCM, w 1/0 gnd, per conduit between MCC229101A & MCC229101B tie-break**

Please contact me with any questions.

Price: $ 16417.02

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:			
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Jeremy Jones	Address:	815 E 675 S
Change Title:	**CCF 053 Ras Selector MCC Conduit and Wire**	City/State/Zip:	Lehi/Utah/84043

Change Description:

Install (2) 3" conduits with (3) 500 MCM, w 1/0 gnd, per conduit between MCC229101A & MCC229101B tie-breakers per CCF053.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$7,252.99		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			66.27

LABOR FACTOR:

material handling		2.00%					1.3254
cleanup		3.00%					1.9881
safety		1.25%					0.828375
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $562.11	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 7,815.10	loc 2 $ 0.00		70.41
			RATE: $	67.00
extension:			$	4,717.60

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	4,717.60

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	10	hrs@	$77.00	$770.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$94.35
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	3	hrs@	$77.00	$231.00	Pick-up Truck	2	dy@	$80.00	$160.00
as-builds	1	hrs@	$77.00	$77.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	1,332.35

MATERIAL		from loc 1	$	7,815.10
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,332.35
LABOR		from loc 3	$	4,717.60
WARRANTEE	1.50%		$	207.98
BOND	1.44%		$	202.65
subtotal			$	14,275.67
OVERHEAD + PROFIT	15.00%		$	2,141.35
TOTAL CHANGE			$	16,417.02

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF053: RAS selector MCC Conduit and Wire

Takeoff

13 Jan 2022 15:26:04

Item: BASE BID

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10064	60.00	FT	M	3	PVC SCH 40	7.3000	438.00	0.1375	8.25
70078	120.00	FT	M	500	XHHW CU (STR)	22.7401	2,728.81	0.0770	9.24
70078	120.00	FT	M	500	XHHW CU (STR)	22.7401	2,728.81	0.0770	9.24
70069	80.00	FT	M	1/0	XHHW CU (STR)	5.2485	419.88	0.0400	3.20
40050	2.00	EA	M	QUART	PVC (GLUE) CEMENT	7.8986	15.80	0.2400	0.48
30291	8.00	EA	M	3	PVC FEMALE ADAPTER	4.3151	34.52	0.6200	4.96
390502	2.00	FT	M	16 GA	STEEL TIE WIRE	0.1323	0.26	0.0750	0.15
240003	30.00	FT	M	1 5/8" x 1 5/8"H	U-STRUT SGL-CHNL 12G STD GRN	1.3523	40.57	0.1525	4.58
20259	4.00	EA	M	3	GRC/PVC COATED 90-DEG ELBOW	187.8667	751.47	2.7500	11.00
30303	4.00	EA	M	3	PVC END BELLS	6.4400	25.76	0.3700	1.48
390092	3.00	EA	M	2 WAY 3"	MULTI DUCT SPACER TEMPLATE	7.0000	21.00	0.3000	0.90
240045	8.00	EA	M	3	STRUT CLAMP	1.5983	12.79	0.0625	0.50
240171	8.00	EA	M	P1325GR	U-STRUT CORNER 4 HOLES	2.5655	20.52	0.0300	0.24
100159	12.00	EA	M	500	WIRE TERMINATION	1.1000	13.20	0.9300	11.16
100151	2.00	EA	M	1/0	WIRE TERMINATION	0.8000	1.60	0.4500	0.90
						Phase Totals:	**7,252.99**		**66.27**
						Job Totals:	**7,252.99**		**66.27**

CHANGE CONTROL FORM 053
RAS Selector MCC Conduit and Wire

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 12/22/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Install (2) 3" Conduits with (3) 500 MCM, w 1/0 gnd, per conduit between MCC229101A & MCC229101B tie-breakers.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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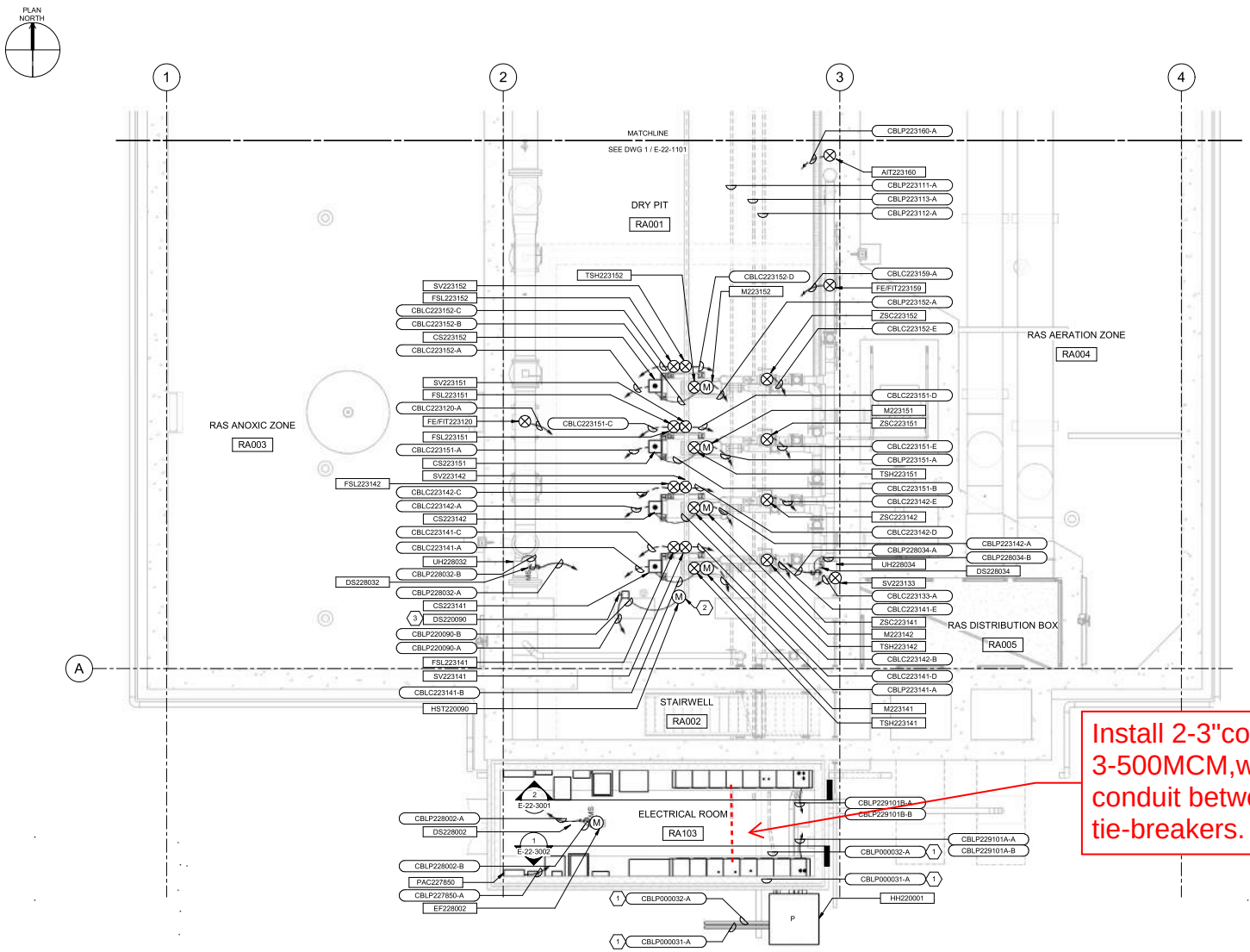
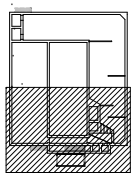


PLAN
SCALE: 3/16" = 1'-0"

Install 2-3"conduits with 3-500MCM,w 1/0 gnd per conduit between MCC tie-breakers.



Key Plan

GENERAL NOTES:

1. CONDUITS LEAVING THE BUILDING AND ROUTED THROUGH HANDHOLES SHALL BE ROUTED BELOW BUILDING FOOTING OR BETWEEN REBAR.

KEYNOTES:

1. CIRCUIT TO STORM DRAIN LIFT STATION. SEE DWG E-00-1031.
2. HOIST FOR AREA 22 PUMPS. SEE STRUCTURAL DRAWINGS FOR DETAILS AND EXACT LOCATION.
3. MOUNT HOIST DISCONNECT ON DRY PIT WALL AT 4'-6" AFF.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

RAS/WAS BASIN POWER AND CONTROL PLAN 2

DRAWING NUMBER
E-22-1102

Path: BIM 360://151600 - CVWRF Nutrients/151600-E-22V18.rvt
Plot Date: 6/12/2020 8:32:55 AM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 054
Date: 3/4/2022
Description: Per Control Change Form #059: Cost & credit to change Type B backfill material to Flowable Fill around conduits under RAS/WAS electrical building to elevation 4226.50'

Skyline Electric (see attached back-up):	$2,281.91
Mark-up (5%):	$114.10
Gerber Labor, Material & Equipment (see attached back-up):	$6,733.67
Gerber Onsite Coordination & Management (see attached back-up):	$1,076.00
Bonds:	$103.46
Mark-up (15%):	$1,186.97
Type B Backfill Credit (see attached back-up):	-$1,684.60
Total:	**$9,811.51**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $9,811.51 will be added to the contract price, and an additional 1 calendar days will be added to the contract.
Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-054 RAS Selector Conduit Flow Fill - CC#059	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-054	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor (Skyline)	**1.00**	**UNIT**	**$2,281.91**	**$2,281.91**	**$2,422.91**	**$2,422.91**	**5.10%**
Electrical Sub	1.00	LS	$2,281.91	$2,281.91			
D 02 - Gerber Material & Labor	**1.00**	**UNIT**	**$6,733.67**	**$6,733.67**	**$7,823.12**	**$7,823.12**	**15.00%**
Concrete, Flowable Fill	30.00	CY	$175.47	$5,263.98			
Concrete Crew, 03 Men (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$1,399.05	$1,399.05			
03 Foreman	4.50	HR	$120.14	$540.61			
04 Leadman	4.50	HR	$102.81	$462.63			
05 Skilled Labor	4.50	HR	$87.96	$395.81			
Concrete Conveyor,	3.00	HR	$23.55	$70.65			
D 03 - Gerber Onsite Coordination Labor	**1.00**	**UNIT**	**$1,076.00**	**$1,076.00**	**$1,250.08**	**$1,250.08**	**15.00%**
01 Superintendent	3.00	HR	$157.26	$471.74			
20 Project Engineer	2.00	HR	$120.14	$240.25			
18 Project Manager	2.00	HR	$182.02	$364.01			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,475.04	24.53%
Equipment Owned:	$70.65	0.70%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,263.98	52.16%
Subcontracted:	$2,281.91	22.61%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$10,091.58	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$10,091.58	87.78%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$103.46	0.90%
Total Overall Cost:	$10,195.04	88.68%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,301.07	11.32%
Total Margin:	$1,301.07	11.32%
Total Bid Price:	$11,496.11	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-054A (Credit) RAS Selector Conduit Flow Fill - CC#059	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-054A	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor & Equipment	**1.00**	**UNIT**	**$1,684.61**	**$1,684.61**	**$1,684.60**	**$1,684.60**	**-0.00%**
Backfill Crew, Medium (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$1,684.61	$1,684.61			
Excavator, Crawler, 220	4.00	HR	$66.50	$266.00			
Loader, 5 Yard (Volvo 150)	4.00	HR	$70.03	$280.10			
03 Foreman	4.50	HR	$101.94	$458.72			
05 Skilled Labor	4.50	HR	$71.75	$322.90			
07 Operator	4.50	HR	$79.31	$356.89			

Credit

-QUOTATION-

BNR CC30B
CCF059 Ras Selector Conduit Flowable Fill

February 28, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes as directed within Change Control Form 059 that pertain to CC30B.

Scope includes: Additional rebar, labor for installing rebar and labor for observing pour.

Please contact me with any questions.

Price: $ 2281.91

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:			
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF059 Ras Selector Conduit Flowable Fill**	City/State/Zip:	Lehi, UT 84043

Change Description:

Additional rebar, labor for rebar installation, and observation of concrete pour.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$297.88		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			20.00

LABOR FACTOR:

material handling		2.00%					0.4
cleanup		3.00%					0.6
safety		1.25%					0.25
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $23.09	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 320.97	loc 2 $ 0.00		21.25
			RATE: $	67.00
extension:			$	1,423.75

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	1,423.75

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	1	hrs@	$77.00	$77.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$28.48
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	1	hrs@	$77.00	$77.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	182.48

MATERIAL		from loc 1	$	320.97
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	182.48
LABOR		from loc 3	$	1,423.75
WARRANTEE	1.50%		$	28.91
BOND	1.44%		$	28.17
subtotal			$	1,984.27
OVERHEAD + PROFIT	15.00%		$	297.64
TOTAL CHANGE			$	2,281.91

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF059: Ras Selector Conduit Flowable Fill

Takeoff

28 Feb 2022 10:40:27

Item: BASE BID

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
390499	300.00	FT	M	#4	STEEL REBAR	0.6500	195.00	0.0333	10.00
160588	2.00	EA	M	CARTRIDGE (8.5 OZ)	CONCRETE DOWL EPOXY (1-PART)	51.4400	102.88	1.0000	2.00
2	1.00		M		CONCRETE POUR	0.0000	0.00	8.0000	8.00
						Phase Totals:	**297.88**		**20.00**
						Job Totals:	**297.88**		**20.00**

Skyline Electric Company
1848 West 2300 South
West Valley City, UT 84119
Phone: 801-972-3656
Web: https://skyline.us

CHANGE CONTROL FORM 059
RAS Selector Conduit Flowable Fill

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/15/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide pricing to place flowable fill around the conduit leaving the south end of the RAS Selector, up to 4226.50. Note, flowable fill is only for the conduit between the dry pit and the electrical room. Reinforced concrete encased conduit is still required as indicated on the drawings for ductbank in this area.

Provide a credit for placement and compaction of type B material in this area.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**

© 1997 Brown and Caldwell

RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 057
Date: 3/24/2022
Description: Per Control Change Form #061: Cost for additional labor, materials and equipment to raise STD line to cross the 1W line.

Gerber Labor and Material (see attached back-up):	$3,379.83
Gerber Onsite Coordination & Management (see attached back-up):	$1,477.63
Bonds:	$50.80
Mark-up (15%):	$736.25
Total:	**$5,644.51**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $5,644.51 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-057 STD &1W Conflict - CC#061	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-057	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Phillip Duncan	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor And Material	**1.00**	**UNIT**	**$3,379.83**	**$3,379.83**	**$3,927.46**	**$3,927.46**	**15.00%**
Excavation Crew, Small (1.33 UNIT/DY, 1.50 DY)	2.00	UNIT	$1,429.49	$2,858.98			
05 Skilled Labor	13.50	HR	$87.96	$1,187.42			
03 Foreman	13.50	HR	$120.14	$1,621.83			
Hand Held Chop Saws	6.00	HR	$8.29	$49.73			
Grout, Nonshrink	8.00	BAG	$20.93	$167.45			
Concrete, Flowable Fill	2.00	CY	$176.70	$353.40			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$1,477.63**	**$1,477.63**	**$1,717.05**	**$1,717.05**	**15.00%**
01 Superintendent	4.50	HR	$157.26	$707.68			
20 Project Engineer	3.00	HR	$120.14	$360.40			
18 Project Manager	2.25	HR	$182.02	$409.55			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,286.89	88.25%
Equipment Owned:	$49.73	1.02%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$460.85	9.49%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$60.00	1.24%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,857.46	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,857.46	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$50.80	0.90%
Total Overall Cost:	$4,908.26	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$736.25	13.04%
Total Margin:	$736.25	13.04%
Total Bid Price:	$5,644.51	

CHANGE CONTROL FORM 061
Storm Drain & 1W Conflicts

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 03/02/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Change Order 7 included work to disconnect the existing storm drain from the vitro ditch on 3185 S near 900 W, and to modify the slope of the storm drain line near the parking island on 800 Central Valley Road. While performing this work, it was found that the new or modified storm drain lines in both locations conflicted with the existing potable water lines. It is necessary to raise the storm drain lines in both locations to avoid the conflict, which will require modifying the storm drain inlet boxes, and placing flowable fill between the existing potable water line and the new/modified storm drain lines.

Please provide pricing for this changed condition.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 056
Date: 3/24/2022
Description: Per Control Change Form #066: Cost to change Bulkhead Gate GT180003 frame height.

Golden Harvest (see attached back-up):	$1,549.30
Gerber Labor and Material (see attached back-up):	$1,198.97
Gerber Onsite Coordination & Management (see attached back-up):	$736.74
Bonds:	$36.45
Mark-up (15%):	$528.23
Total:	**$4,049.69**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $4,049.69 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-056 Gate Frame Extension - CC#066	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-056	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Gate Extension (Golden Harvest)	**1.00**	**UNIT**	**$1,549.30**	**$1,549.30**	**$1,800.33**	**$1,800.33**	**15.00%**
Gate Extension	1.00	LS	$1,549.30	$1,549.30			
02 - Gerber Construction Labor & Materials	**1.00**	**UNIT**	**$1,198.97**	**$1,198.97**	**$1,393.24**	**$1,393.24**	**15.00%**
Mechanical Crew, 2 Man (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$936.42	$936.42			
03 Foreman	4.50	HR	$120.14	$540.61			
05 Skilled Labor	4.50	HR	$87.96	$395.81			
Grout, Nonshrink,	2.00	BAG	$20.93	$41.86			
Epoxy, Hilti, HIT Re 500 SD 16.9 OZ	1.00	EACH	$45.83	$45.83			
Drill, Concrete 3/4"	0.10	WK	$61.50	$6.15			
Truck, Pickup, 1 Ton	0.02	MO	$2,301.00	$53.51			
Manlift, 30' Scissor Lift	4.00	HR	$28.80	$115.20			
03 - Gerber Construction Onsite Coordination	**1.00**	**UNIT**	**$736.74**	**$736.74**	**$856.12**	**$856.12**	**15.00%**
20 Project Engineer	2.00	HR	$120.14	$240.25			
01 Superintendent	2.00	HR	$157.26	$314.49			
18 Project Manager	1.00	HR	$182.02	$182.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,673.16	48.01%
Equipment Owned:	$174.86	5.02%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,571.99	45.11%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$65.00	1.87%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,485.02	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,485.02	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$36.45	0.90%
Total Overall Cost:	$3,521.46	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$528.23	13.04%
Total Margin:	$528.23	13.04%
Total Bid Price:	$4,049.69	

Golden Harvest, Inc.
Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 CO-6

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: Joshua McGaughey @ 1-800-338-6238

PLEASE RESPOND TO:

Gerber Construction
815 East 675 South
Lehi, UT 84043

ATTN:
Phil Duncan
phild@1gerber.com

CELL: 801-380-0083
OFFICE: 801-407-2027

DATE: **March 16, 2022**
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

SCOPE

SPECIFICATION: 40 05 59. 23 FABRICATED STEEL BULKHEAD GATES AND FRAMES						
Dwg #18		TAG # GT180003	180" x 138"	INCREASING THE GATE FRAME FROM 138.0 TO 168.0. REVISED DRAWINGS	**1**	
				CHANGE ORDER TOTAL	**1**	**$1,400.00**

NOTES:

1. Stainless steel anchor bolts are included for concrete mounted frames.	3. **SALES TAX NOT INCLUDED IN PRICE.**
2. Epoxy adhesive by contractor.	4. Mill finish on stainless steel surfaces.

CHANGE CONTROL FORM 066
Gate Frame Extension

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 03/15/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Extend Bulkhead Gate GT180003 frame to the top of the Anaerobic Basin wall on the south side and the top of the curb wall on the north side, see attached sketch. The invert elevation of the frame shall be 4232.00 and the top of the frame elevation shall be 4246.00 on the south side and 4246.50 on the north side.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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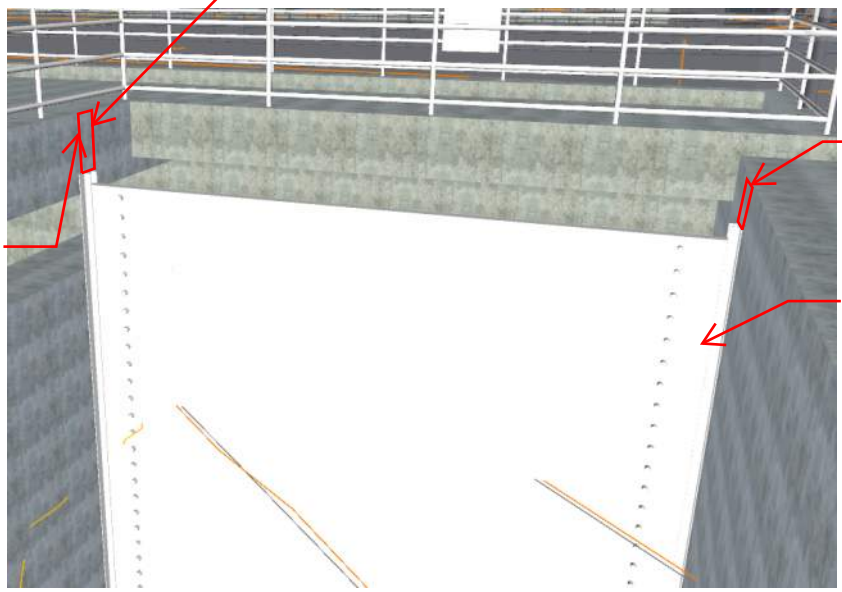
Extend gate to top of curb, elev 4246.50.
Extend frame to top of wall, elev 4246.00.
Extend frame to top of curb wall, elev 4246.50.
Bulkhead Gate GT180003.

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

07/20/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 011_Utility Revisions (West side of TFEC), Substation Relay Replacement, Welding Receptacles, Tnemec Paint on Ceilings, Low Voltage Switchgear PLC Modifications, and Invent Mixer Sales Tax

Dear Brandon,

Change Order 11 includes:

- **Utility Revisions (West side of TFEC)** per CCF033
- **Substation Relay Replacement** changes per CCF042
- **Welding Receptacle** changes and additions per CCF055.1
- **Tnemec Paint on Ceilings** per CCF065
- **Low Voltage Switchgear PLC** additions and modifications per CVWRF
- **Invent Mixer Sales Tax**

Utility Revisions (West side of TFEC): During construction it was discovered that the existing 30-inch air line, that was to be repurposed as a casing for the 12-inch WAS line, the three 6-inch Fermentate (FMT) lines, the two 6-inch Pumped Drains, the 4-inch 3WLP and the 2”-inch 3WHP, is higher and at an elevation that would require the addition of air release valves on the utilities.

After this discovery and to avoid installing air release valves, BC prepared and issued this CCF 33 with the WAS line installed in the 30-inch air line alignment.

This change includes:

- Installing the 12-inch WAS line in the pipe chase from the RAS Selector to the west side of the Trickling Filter Effluent Channel (TFEC),
- Utilizing the 30” A line under the TFEC,
- Installing the WAS line to a connection provided by CC 30D, Thickening and Straining; prior to reaching the tunnel,
- Installing three 6-inch Fermentate lines similar to the WAS line,
- Connecting the 6-inch PD East line to the WAS line,
- Revising the 6-inch PD West line to extend further east to a connection provided by CC 30D, Thickening and Straining,
- Deleting the 2” 1W service to the RAS Selector,
- Deleting the 30” casing for the utilities from the TFEC to the tunnel.

This change also incorporates progress made on the site piping on Thickening and Straining project. The Contractor is requesting **$19,210.04** and **5-days** to complete this work. Pricing was pre-negotiated and is in line with our expectations.

Substation Relay Replacement: The Contractor proposed substituting a GE Multilin 845 relay in place of the specified GE Multilin T60 relay which required additional changes necessary to support the proposed substitution. These changes were provided at no addition cost. Also Included in this change: CCF 042 was issued to address discrepancies between the Contract cable schedule and Contract plan drawings. Several additional raceways, cables, and underground conduit was added to the Contract as part of CCF 042. The Contractor is requesting **$39,312.22** and **3-days** to complete this work. Pricing has been reviewed in detail and appears fair and reasonable.

Welding Receptacles: CCF 055 was issued detailing changes required to the welding receptacles on this project and their associated electrical infrastructure. The Contract documents inadvertently called out 100amp receptacles. Changes include removal of one (1) 200amp NEMA 4x 3phase 600V switch, the addition of (5) 60amp breakers, (3) 60amp fuses, and one (1) 60amp NEMA 4x 3phase 600V switch. The Contractor is requesting **$11,083.83** (negotiated down from $26,078.37) and **3-days** to complete this work. Note, the previously purchased 100amp breakers will be turned over to CVWRF.

Tnemec Paint on Ceilings: Spray fireproofing was removed from the Contract via CCF 51 & change order 9 for a credit of ($26,250.00). There was a slight change in costs between Tnemec 115 and the specified Sherwin Williams paint that was inadvertently left out of the Contractor's CCF 051 pricing. The Contractor is requesting **$676.35** to use Tnemec paint. Note, using Tnemec paint negates the requirement to sand blast (brush blast) the galvanized steel surfaces prior to applying the coating system. Blasting would have been required for the Sherwin Williams coating system.

Low Voltage Switchgear PLC: The Contractor is requesting **$56,761.35** and **14-days** to provide CVWRF's preferred PLC components. Pricing has been reviewed and is in line with similar changes on other projects.

Invent Mixer Sales Tax: Sales tax was not included in the negotiated price from Invent that was listed on the Bid Schedule. Tax and bond fees totaling will be added to the Contract with this change order. Tax: **$60,494.00.** Bonds: **$594.39**. Total: **$61,043.39**.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 11 is **$188,087.18** and **twenty-five (25) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 033_West Utility Revisions w/Contractor Quotation
3. CCF 042_Substation Relay Replacement w/Contractor Quotation
4. CCF 055_Welding Receptacles w/Contractor Quotation
5. CCF 065_Tnemec Paint on Ceilings w/Contractor Quotation
6. PCO 060_LV Switchgear PLC
7. PCO 061_Invent Mixers Sales Tax

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 11

Date of Issuance:	07/20/2022	Effective Date:	07/20/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 11 includes:

- Utility Revisions (West side of TFEC) per CCF033
- Substation Relay Replacement changes per CCF042
- Welding Receptacle changes and additions per CCF055.1
- Tnemec Paint on Ceilings per CCF065
- Low Voltage Switchgear PLC additions and modifications per CVWRF
- Invent Mixer Sales Tax

Attachments:

1. CCF 033_West Utility Revisions w/Contractor Quotation
2. CCF 042_Substation Relay Replacement w/Contractor Quotation
3. CCF 055_Welding Receptacles w/Contractor Quotation
4. CCF 065_Tnemec Paint on Ceilings w/Contractor Quotation
5. PCO 060_LV Switchgear PLC
6. PCO 061_Invent Mixers Sales Tax

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 10 : $437,567.99	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 10 : Substantial Completion: 115 Ready for Final Payment: 115 Days
Contract Price prior to this Change Order: $ 123,705,248.99	Contract Times prior to this Change Order: Substantial Completion: 1,606 Ready for Final Payment: 1,714 days or dates
[Increase] [Decrease] of this Change Order:	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 25

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

$188,087.18	Ready for Final Payment: 25 days or dates
Contract Price incorporating this Change Order: $123,893,336.17	Contract Times with all approved Change Orders: Substantial Completion: 1,631 days Ready for Final Payment: 1,739 days days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 07/20/2022	Date 7/21/2022	Date 07/20/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 040
Date: 11/8/2021
Description: Per Control Change Form #033: Cost for material, labor and equipment for changes to the utility bundle as detailed in Change Control Form #033. The change order is only for the west side of the TFEC. The east side of the TFEC will be priced in a future Proposed Change Order.

Gerber Concrete Labor, Material & Equipment (see attached back-up):	$20,062.71
Bonds:	$209.82
Mark-up (15%):	$3,040.87
Gerber Concrete Labor, Material & Equip. CREDIT (see attached back-up):	($4,103.36)
Total:	**$19,210.04**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $19,210.04 will be added to the contract price, and an additional 5 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-040 Utility Revision CC#033	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-40	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
02 - Utility Revisions (West Side Of Channel)	**1.00**	**LS**	**$20,062.71**	**$20,062.71**	**$23,313.40**	**$23,313.40**	**15.00%**
12" WAS Line	1.00	LS	$11,091.13	$11,091.13			
Pipe, HDPE, 12" Fitting (90 Degree)	3.00	EACH	$778.56	$2,335.68			
Pipe, HDPE, 12" Fitting (45 Degree)	3.00	EACH	$778.56	$2,335.68			
Pipe, HDPE, 12" Fitting (Tee)	1.00	EACH	$609.46	$609.46			
Pipe, HDPE, 12" (Electro Fusion Coupler)	1.00	EACH	$293.23	$293.23			
Pipe, HDPE, 6" X 12" Eccentric Reducer	1.00	EACH	$831.33	$831.33			
Pipe, HDPE 12"	110.00	LF	$19.29	$2,122.27			
Pipe Crew, HDPE Welding (1.00 LS/DY, 1.00 DY)	1.00	LS	$2,563.48	$2,563.48			
Forklift, Telescoping, 8,000 Lb	8.00	HR	$19.63	$157.00			
HDPE Fusion Machine, 4"-12"	1.00	DY	$400.00	$400.00			
02 Foreman	9.00	HR	$120.14	$1,081.22			
03 Leadman	9.00	HR	$102.81	$925.26			
(3) 6" FMT Lines	1.00	LS	$8,971.58	$8,971.58			
Pipe, HDPE, 6" Fitting (90 Degree)	8.00	EACH	$131.30	$1,050.43			
Pipe, HDPE, 6" Fitting (45 Degree)	6.00	EACH	$131.30	$787.82			
Pipe, HDPE, 6" Fitting (Electro Fusion Coupler)	3.00	EACH	$76.96	$230.87			
Pipe, HDPE 6"	360.00	LF	$4.93	$1,775.50			
Pipe Crew, HDPE Welding (0.50 LS/DY, 2.00 DY)	1.00	LS	$5,126.95	$5,126.95			
Forklift, Telescoping, 8,000 Lb	16.00	HR	$19.63	$314.00			
HDPE Fusion Machine, 04"-12"	2.00	DY	$400.00	$800.00			
02 Foreman	18.00	HR	$120.14	$2,162.44			
03 Leadman	18.00	HR	$102.81	$1,850.51			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$6,019.43	30.00%
Equipment Owned:	$471.00	2.35%
Equipment Rented:	$1,200.00	5.98%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$12,372.28	61.67%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$20,062.71	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$20,062.71	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$209.82	0.90%
Total Overall Cost:	$20,272.53	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$3,040.87	13.04%
Total Margin:	$3,040.87	13.04%
Total Bid Price:	$23,313.40	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-040 Utility Revision CC#033	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-40	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
02 - Utility Revisions (West Side Of Channel)	**1.00**	**LS**	**$4,103.36**	**$4,103.36**	**$4,103.36**	**$4,103.36**	**0.00%**
6" PD East Line To The WAS	1.00	LS	$1,543.04	$1,543.04			
Pipe, HDPE, 6" Fitting (90 Degree)	1.00	EACH	$131.06	$131.06			
Pipe, HDPE, 6" Fitting (45 Degree)	2.00	EACH	$131.06	$262.12			
Pipe, HDPE 6"	60.00	LF	$4.92	$295.37			
Pipe Crew, HDPE Welding (3.00 LS/DY, 0.33 DY)	1.00	LS	$854.49	$854.49			
Forklift, Telescoping, 8,000 Lb	2.67	HR	$19.63	$52.33			
HDPE Fusion Machine, 04"-12"	0.33	DY	$400.00	$133.33			
02 Foreman	3.00	HR	$120.14	$360.41			
03 Leadman	3.00	HR	$102.81	$308.42			
Delete 2" 1W (Credit)	1.00	LS	$2,560.32	$2,560.32			
Pipe Materials (Credit)	1.00	EACH	$536.25	$536.25			
Pipe Crew, Medium, 4 Man (70.00 LF/DY, 1.00 DY)	70.00	LF	$28.92	$2,024.07			
Compactor, Jumping Jack	8.00	HR	$8.10	$64.80			
Excavator, Crawler, 220	8.00	HR	$66.50	$532.00			
04 Skilled Labor	9.00	HR	$87.96	$791.62			
05 General Labor	9.00	HR	$70.63	$635.66			

CREDIT

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,096.10	51.08%
Equipment Owned:	$649.13	15.82%
Equipment Rented:	$133.33	3.25%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,224.80	29.85%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,103.36	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,103.36	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$4,103.36	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	$4,103.36	

Mark Hansen

From: Mark Hansen
Sent: Monday, November 8, 2021 12:18 PM
To: Shay Clark
Cc: Neil Kunz; Jeromie Miner; Jeromie Miner; Phillip Duncan; Allen Gerber; Brandon Heidelberger
Subject: RE: Change Control #033_Rev1 (West Side)
Attachments: PCO 040 - Cost Detail With Pricing (Portrait)(Cost) - WEST SIDE ONLY.pdf; PCO 040 - Cost Detail With Pricing (Portrait)(Credit) - WEST SIDE ONLY.pdf; Form 033_Rev1_Utility Revisions per RFI 90.pdf

Shay,

Both the pricing for the additional work and the credit for the revisions have been reviewed and approved for the **West side piping only**. Please feel free to proceed for the total of $19,210.04.

Once we have processed Change Order 007 (currently waiting on Gerber(Skyline) for revised pricing of CCF035), I will capture these costs in Change Order 008.

Thank you,

Mark Hansen
Manager, Construction Services
Brown and Caldwell
T 801.316.9830 | C 801.367.6680 | MHansen@brwncald.com

From: Shay Clark <Shayc@1gerber.com>
Sent: Monday, November 8, 2021 11:53 AM
To: Mark Hansen <MHansen@BrwnCald.com>
Cc: Neil Kunz <Nkunz@BrwnCald.com>; Jeromie Miner <jm@1gerber.com>; Jeromie Miner <jm@1gerber.com>; Phillip Duncan <phild@1gerber.com>; Allen Gerber <ag@1gerber.com>
Subject: Change Control #033_Rev1 (West Side)

Mark,

I have attached the Proposed Change Order and Proposed Credit for the adjusted piping per Change Control Form #033-Rev1 for the west side of the PE channel. As discussed in our meeting this morning this cost and credit is only for the west side of the PE channel. We will get the price changes for the east side in the next couple weeks, but if we can get approval on the west side today it will let us move forward with this work.

Also, per our discussion this morning, the (2) 14” SS pipe sleeves and the (6) 8” SS pipe sleeves for these pipes will be supplied by others and turned over to Gerber Construction.

Please review and respond regarding the direction you would like Gerber Construction to proceed.

Thanks,

Shay Clark
Project Manager
Phone: 801-407-2027
Cell: 801-380-0083
Office Hours: M-F 8-5
GERBER CONSTRUCTION
815 East 675 South
Lehi, UT 84043
Email: shayc@1gerber.com

CHANGE CONTROL FORM 033
Utility Revisions per RFI 90
11/4/21 Revision

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 11/4/2021**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

During construction it was discovered that the existing 30-inch air line, that was to be repurposed as a casing for the 12-inch WAS line, the three 6-inch Fermentate (FMT) lines, the two 6-inch Pumped Drains, the 4-inch 3WLP and the 2”-inch 3WHP, is higher and at an elevation that would require the addition of air release valves on the utilities.

After this discovery and to avoid installing air release valves, BC prepared and issued this CCF 33 on 10/11/21 with the WAS line installed in the 30-inch air line alignment. The some of the CAD drawings were updated at that time based on using the 30-inch air line alignment.

BC and Gerber Construction reviewed the October issue and have created this revision with the 12” WAS line and 3 FMT lines installed in the pipe chase below the Anaerobic Basin Collection Channel. The CAD drawings have not been updated to show the pipe chase alignment, the markups reflect this change in the alignment to the pipe chase.

In general this change includes;

1. Installing the 12-inch WAS line;
    a. in the pipe chase from the RAS Selector to the west side of the Trickling Filter Effluent Channel (TFEC)
    b. utilizing the 30” A line under the TFEC
    c. installing the WAS line to a connection provided by CC 30D, Thickening and Straining, prior to reaching the tunnel.
2. Installing three 6-inch Fermentate lines similar to the WAS line.
3. Connecting the 6-inch PD East line to the WAS line.
4. Revising the 6-inch PD West line to extend further east to a connection provided by CC 30D, Thickening and Straining.
5. Deleting the 2” 1W service to the RAS Selector.
6. Deleting the 30” casing for the utilities from the TFEC to the tunnel.

This change also incorporates progress made on the site piping on Thickening and Straining project.

Asphalt replacement is not required. Recycled concrete shall be used for pavement patching.

The attached drawings indicate the general arrangement of this change. The Contractor is responsible for determining the materials required for this change.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**

© 1997 Brown and Caldwell

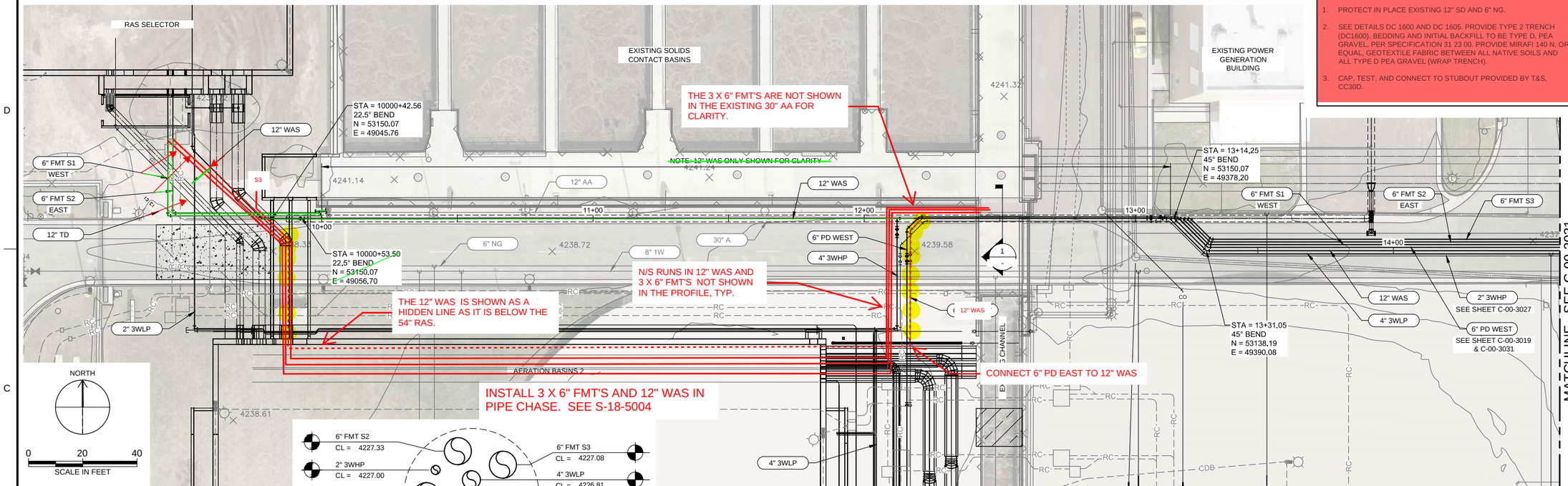
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

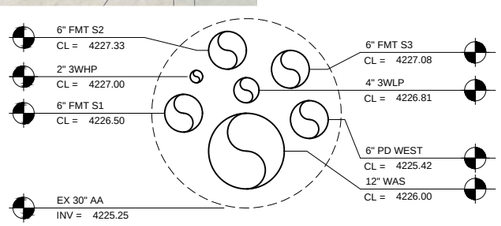
Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

KEY NOTES:

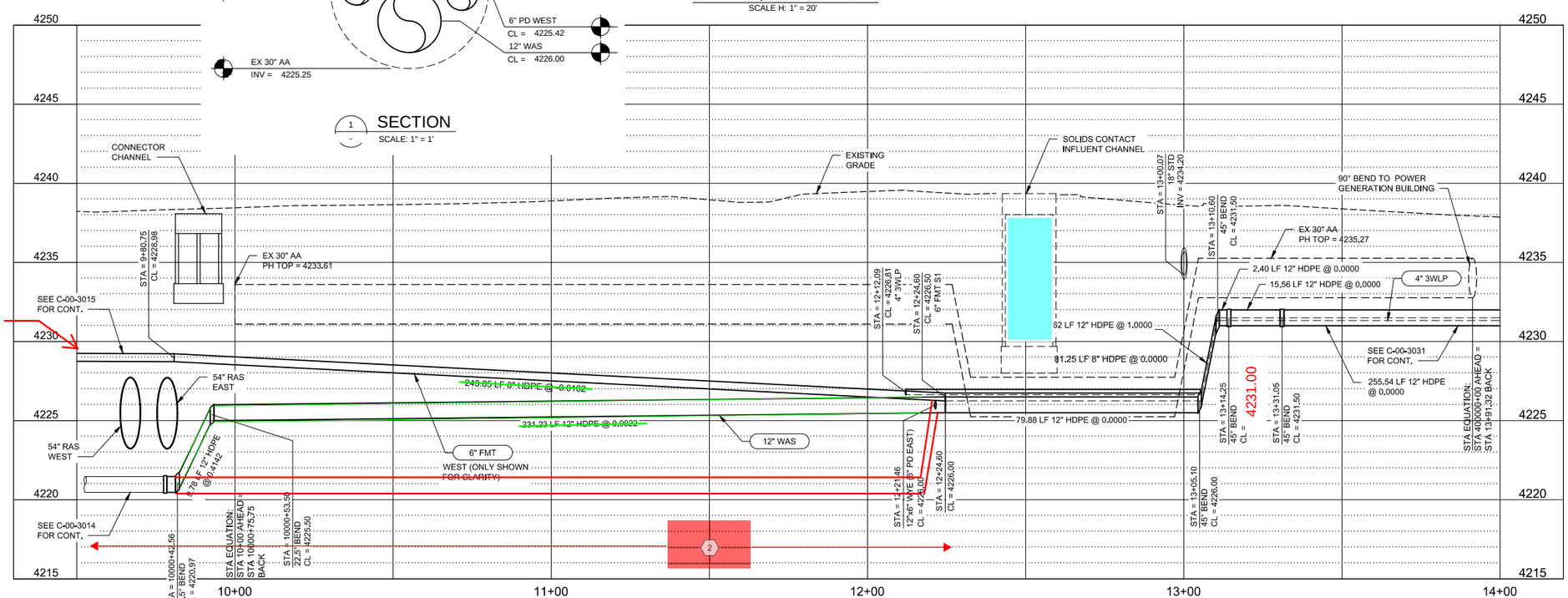
1. PROTECT IN PLACE EXISTING 12" SD AND 6" NG.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).
3. CAP, TEST, AND CONNECT TO STUBOUT PROVIDED BY T&S, CC30D.





12" WAS, 6" FMTs PLAN

SCALE H: 1" = 20'



12" WAS, 6" FMTs PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/4/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3031A.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

SITE PIPING PLAN AND PROFILE 12" WAS, 6" FMTs

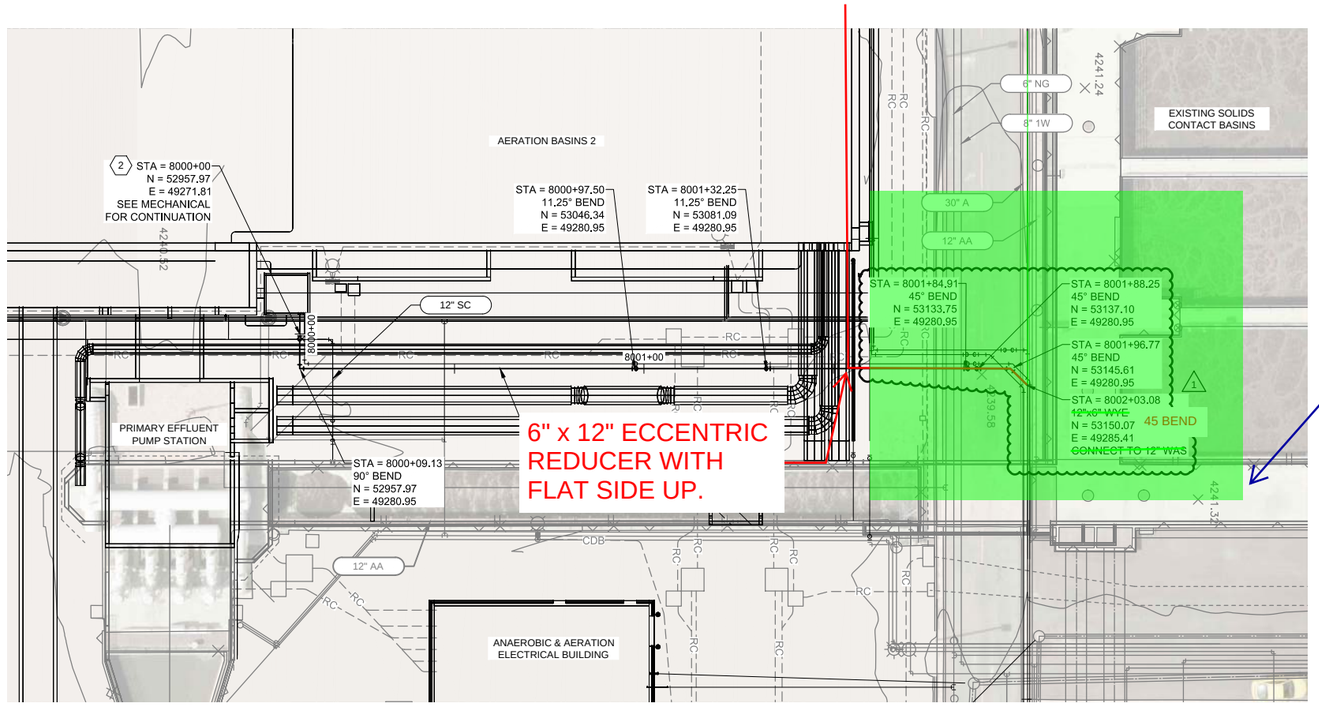
1

DRAWING NUMBER
C-00-3031A

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3031A.DWG PLOT DATE: 9/30/2020 CAD USER: DAVID DAVIDSE
CVWRF_NW.sld
CVWRF_NE.sld
CVWRF_SW.sld

NORTH

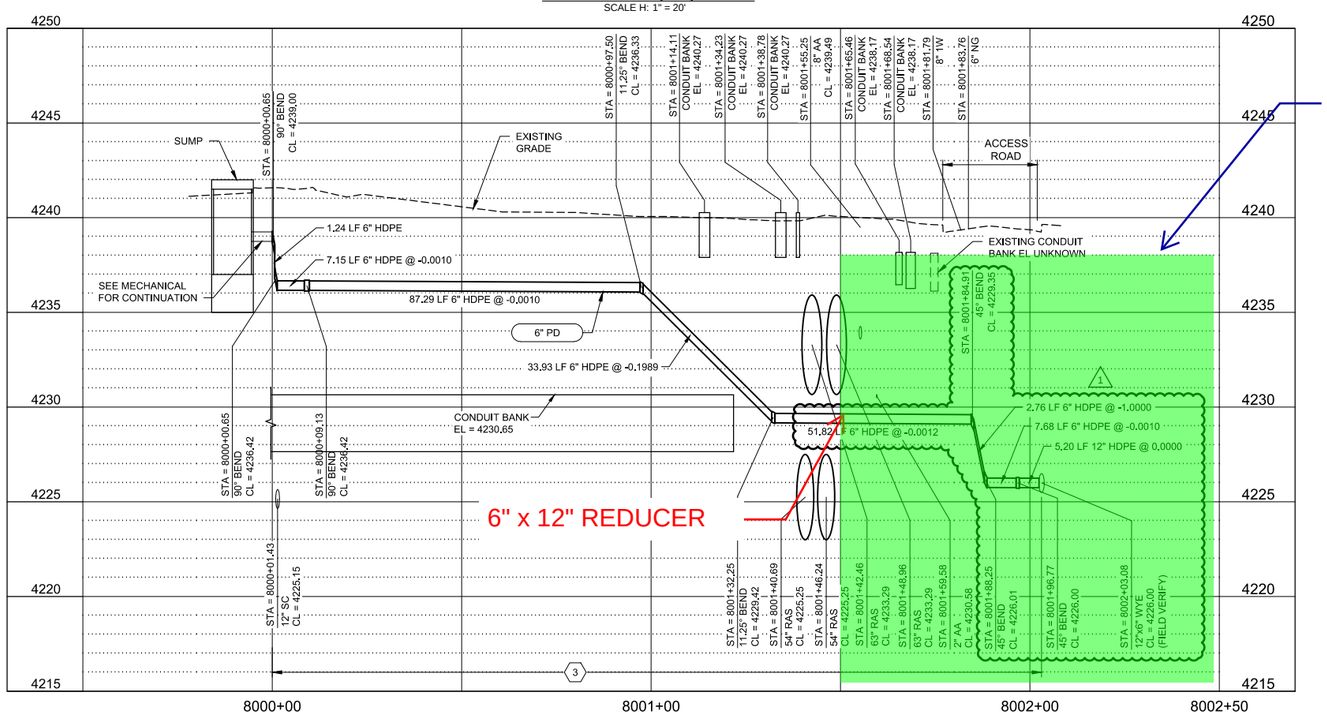
0 20 40
SCALE IN FEET



REV TO 12" AND
MOVE TO WAS
SHEET

6" PD EAST (SC) PLAN

SCALE H: 1" = 20'



REV TO 12" AND
MOVE TO WAS
SHEET

6" PD EAST (SC) PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A
FOR 12" WAS

KEY NOTES:

1. ~~INSERT 6" PD EAST INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.~~
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/4/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3018.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

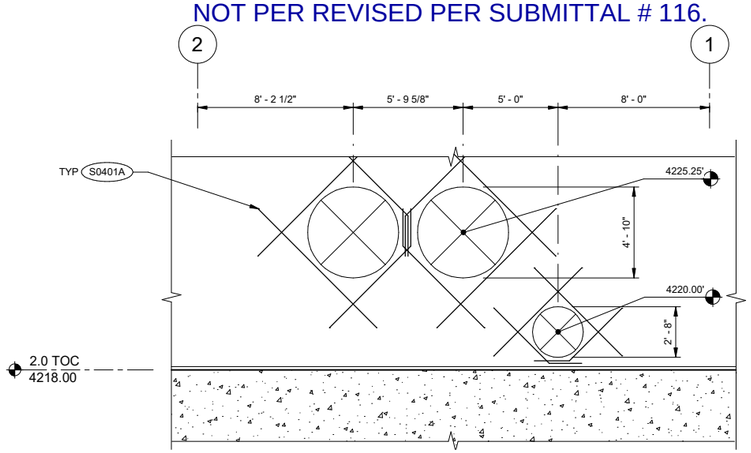
CIVIL

SITE PIPING PLAN
AND PROFILE - 6" PD
EAST (SC)

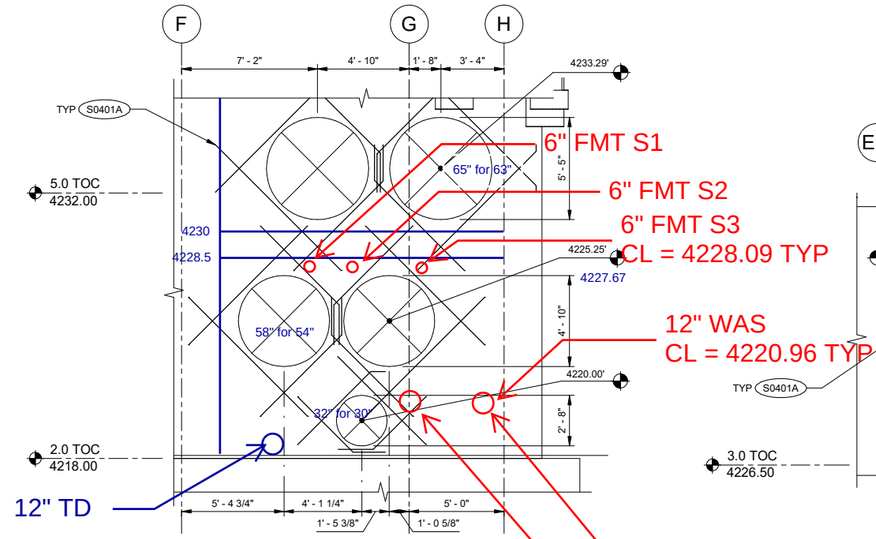
DRAWING NUMBER
C-00-3018

Path: C:\USERS\DDAVID\SE\BCPWD2160759 FILENAME: C-00-3018.DWG PLOT DATE: 9/29/2021 USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_SE.sd
CVWRF_SW.sd

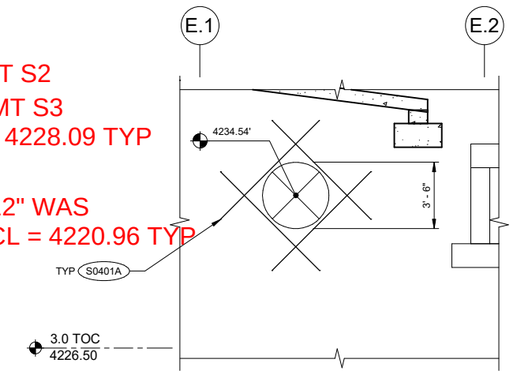
NOT CURRENT.
NOT PER REVISED PER SUBMITTAL # 116.



LOOKING SOUTH (V) DETAIL
S-18-1001 SCALE: 1/4" = 1'-0"

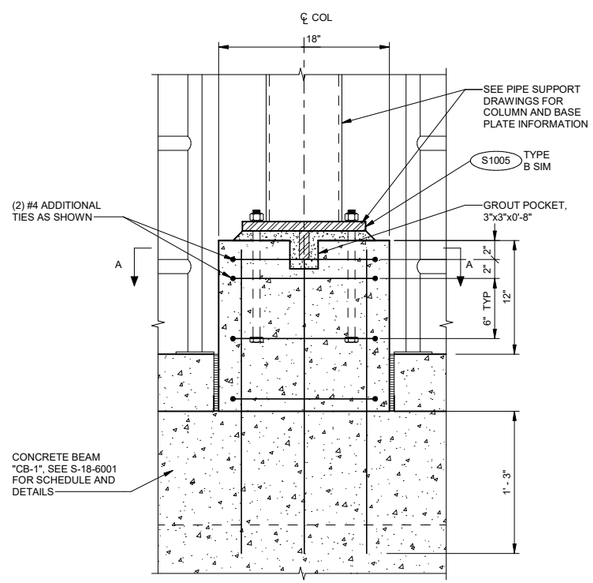


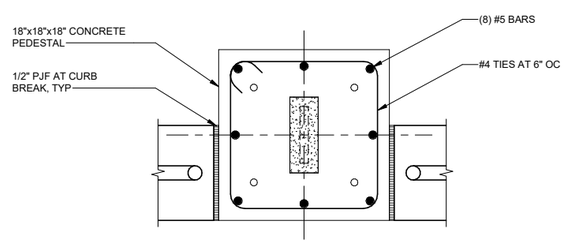
(W) DETAIL
S-18-1001 SCALE: 1/4" = 1'-0"



(X) DETAIL
S-18-1002 SCALE: 1/4" = 1'-0"

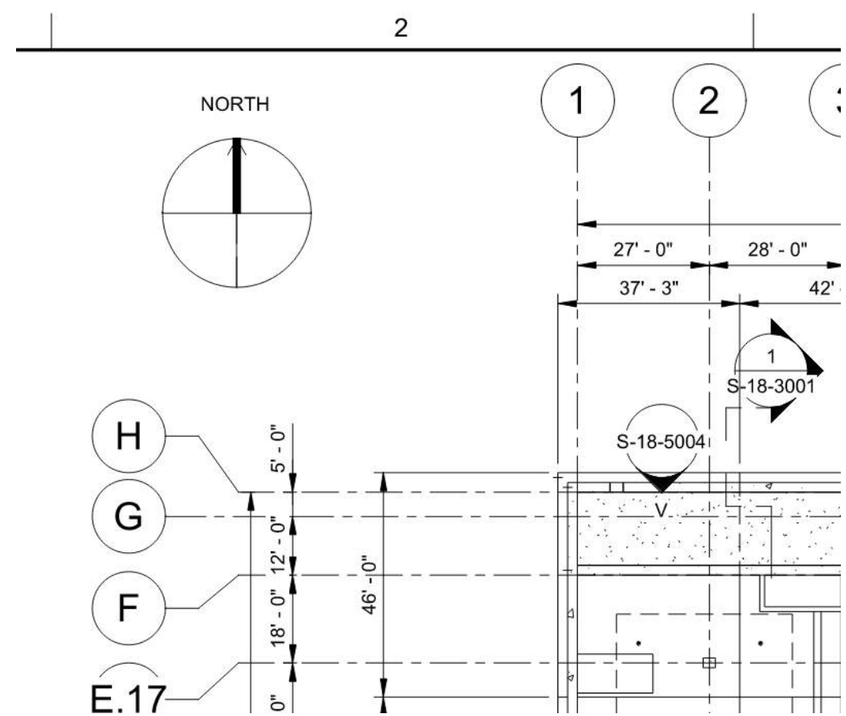
VIEW 1). LOOKING NORTH TO THE RAS SELECTOR AT THE WEST END OF THE PIPE CHASE
VIEW 2). LOOKING WEST FROM THE EAST END OF THE PIPE CHASE





SECTION A-A

(Y) PEDESTAL DETAIL
S-18-1012 SCALE: 1 1/2" = 1'-0"



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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
	11/4/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

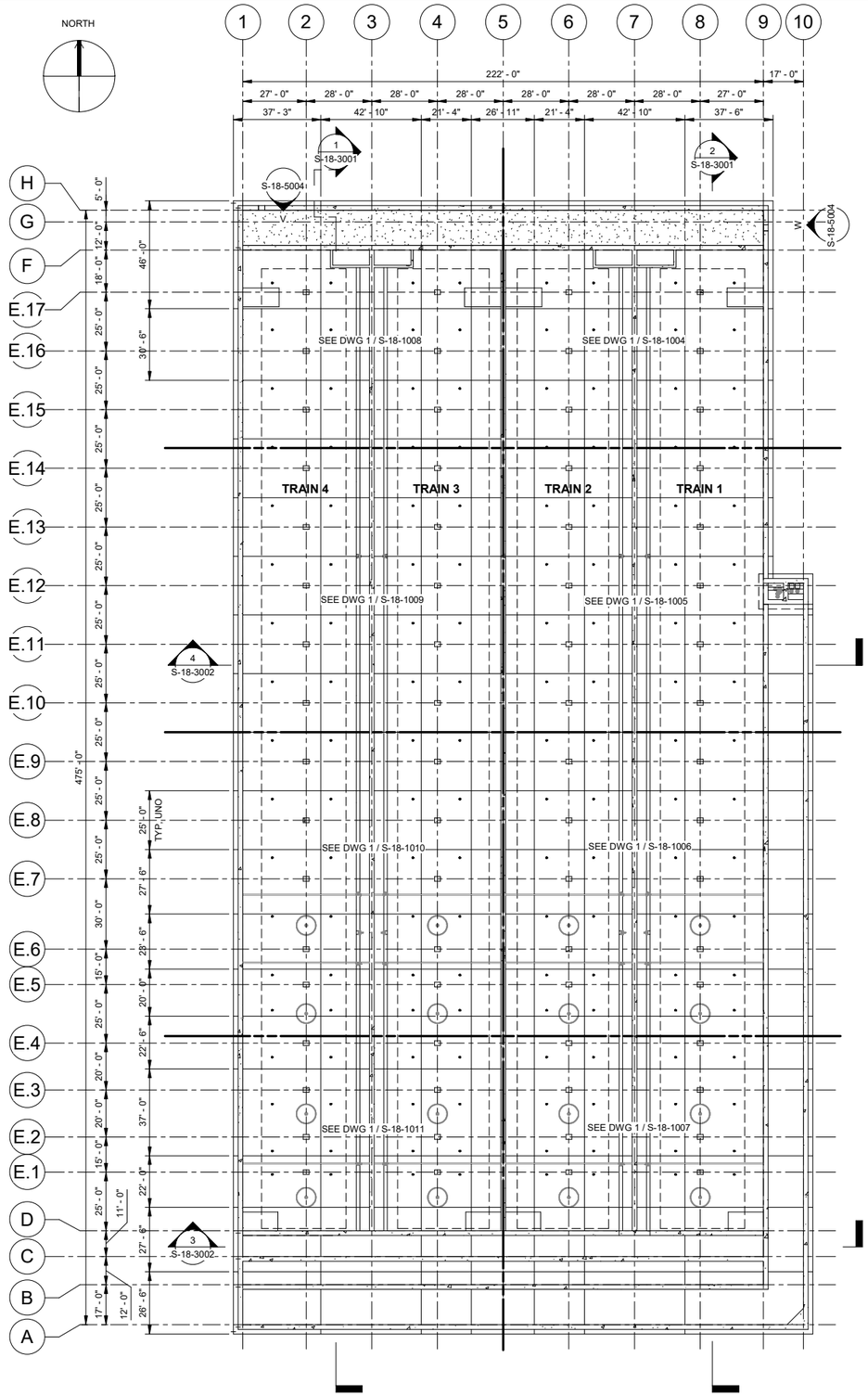
DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER
FILENAME 151600-S-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

AERATION BASINS DETAILS 4

DRAWING NUMBER
S-18-5004

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt
Plot Date: 6/4/2020 12:01:07 PM



PLAN

SCALE: 1" = 30'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. CB-"X" CONCRETE BEAM, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
13. CC-"X" CONCRETE COLUMN, SEE S-18-6001 FOR SCHEDULE AND DETAILS.
14. SLAB "X" CONCRETE SLAB, SEE S-18-6001 FOR REINFORCING SCHEDULE.
15. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
16. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT SUBMITTAL.
17. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

DESIGN CRITERIA

1. FOR GENERAL DESIGN CRITERIA AND GENERAL NOTES SEE S-00-0001 AND S-00-0002.
2. ADDITIONAL DESIGN CRITERIA:
   A. WALKWAYS & MIXER PLATFORMS (FOR FOOT TRAFFIC ONLY)..... 100 PSF
   B. WALKWAYS (FOR GOLF CART ACCESS)..... 300 PSF
   C. SEISMIC DESIGN CRITERIA - BASIN
      RISK CATEGORY..... III
      SEISMIC IMPORTANCE FACTOR..... 1.25
      SITE CLASS..... D
      SEISMIC DESIGN CATEGORY..... D
      ANALYSIS PROCEDURE USED.....
      .....LIQUID CONTAINING STRUCTURE ACI 350
      R_i..... 2.96
      R_c..... 1.00
      BASE SHEAR..... 10,420 KIPS

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

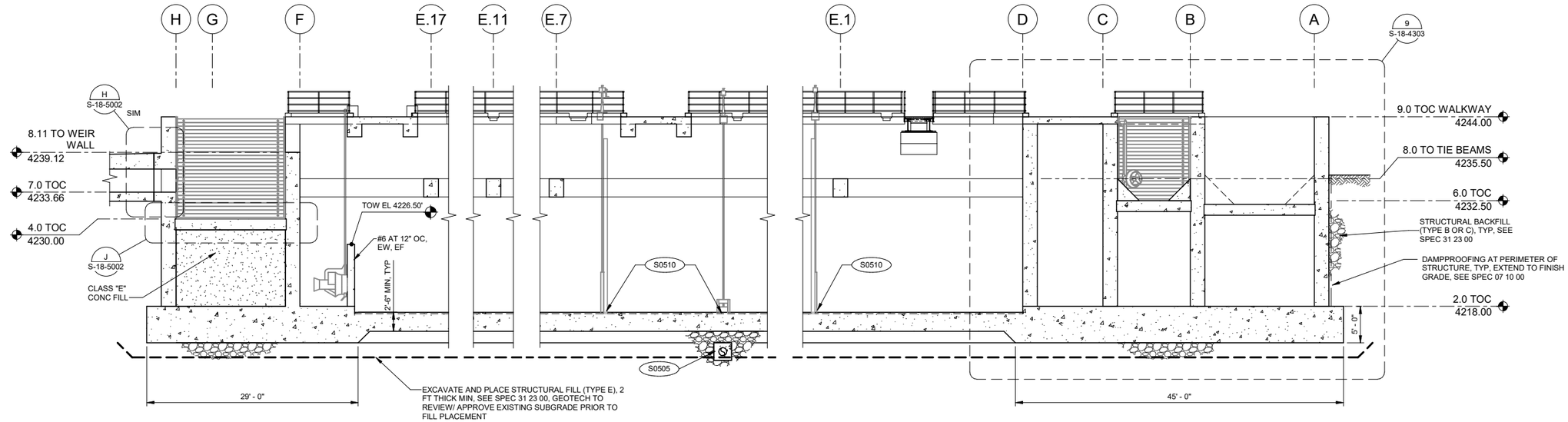
STRUCTURAL

AERATION BASINS OVERALL FOUNDATION PLAN

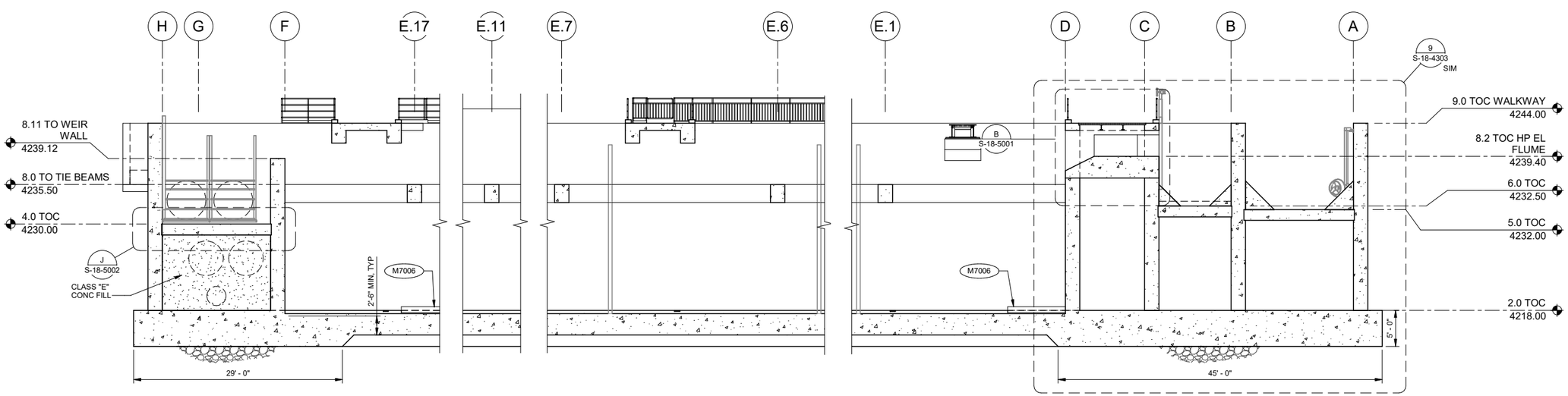
DRAWING NUMBER
S-18-1001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt

Plot Date: 6/4/2020 11:59:58 AM



1 S-18-1001 SECTION
SCALE: 1/8" = 1'-0"



2 S-18-1001 SECTION
SCALE: 1/8" = 1'-0"

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-18V18
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

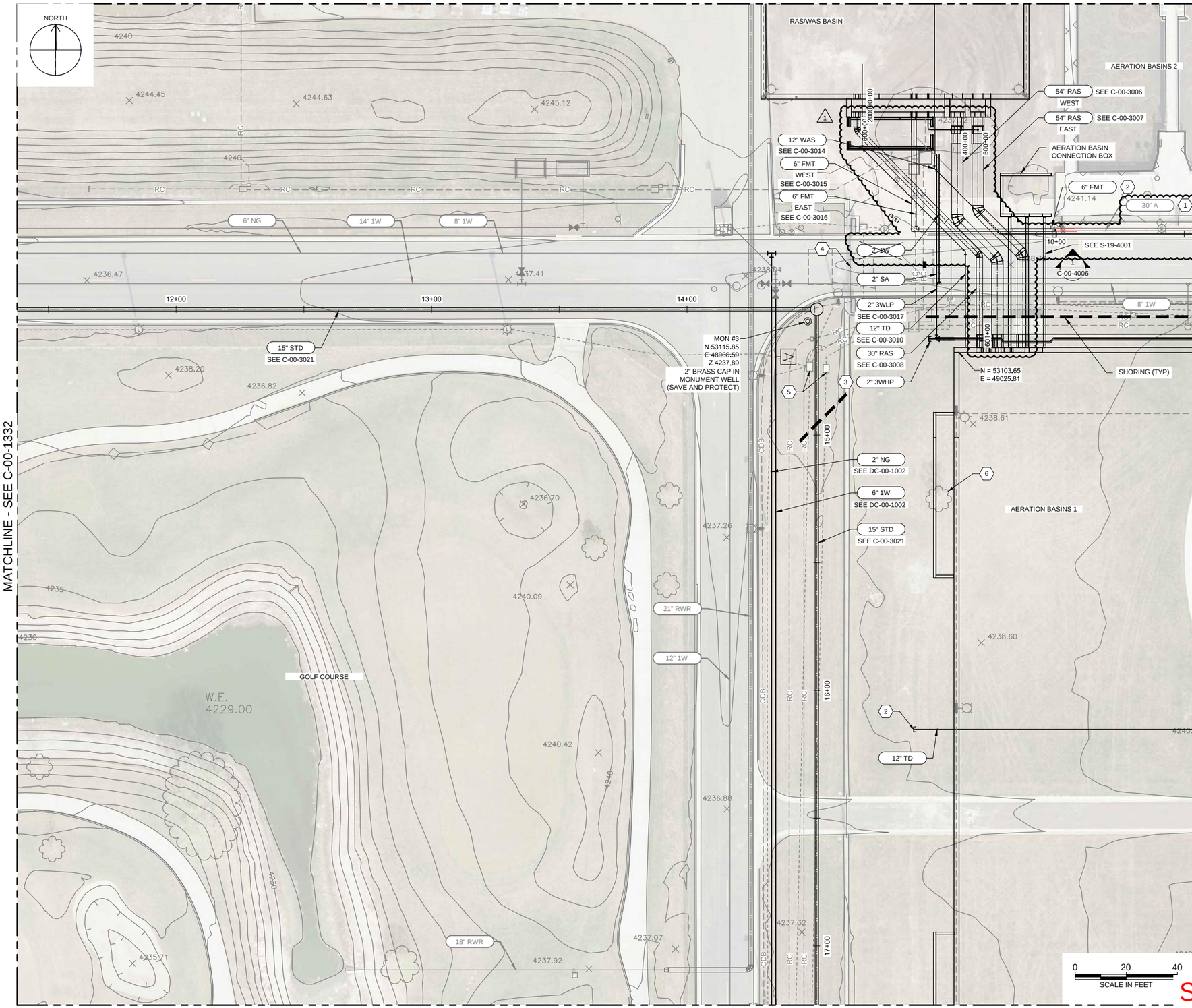
AERATION BASINS SECTIONS 1

DRAWING NUMBER
S-18-3001

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-18V18.rvt

Plot Date: 6/4/2020 12:00:40 PM

MATCHLINE - SEE C-00-1309



MATCHLINE - SEE C-00-1332

MATCHLINE - SEE C-00-1315

MATCHLINE - SEE C-00-1319

SEE C-00-3031A FOR 12" WAS AND 3 X FMT

GENERAL NOTES:

1. LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. PROTECT ALL EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. VERIFY ALL LOCATIONS AND ELEVATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.

KEY NOTES:

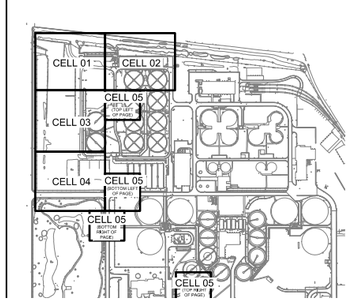
1. ~~SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:~~
   ~~12" WAS;~~
   ~~6" FMT TO S1;~~
   ~~6" FMT TO S2;~~
   ~~6" FMT TO FUTURE S3.~~
2. CAP FOR FUTURE USE.
3. CAP 3' BELOW GRADE FOR FUTURE USE.
4. PROTECT EXISTING GATE SYSTEM IN PLACE.
5. TO BE DEMOLISHED. SEE ELECTRICAL.
6. REMOVE TREE.

LEGEND:

EXISTING

NEW

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-1314.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

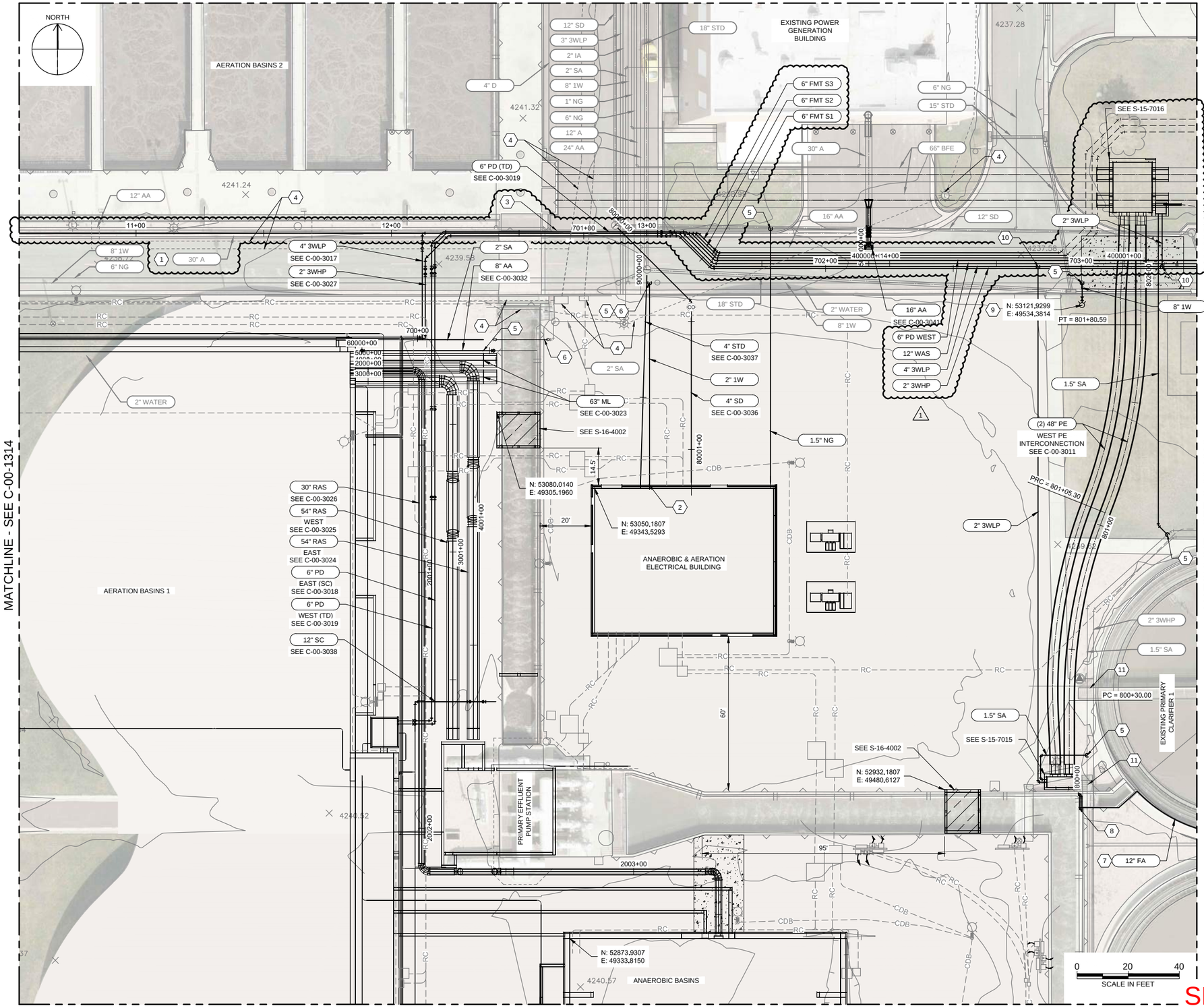
CIVIL

SITE PIPING PLAN - AERATION BASIN 1 NORTHWEST

DRAWING NUMBER
C-00-1314

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-1314.DWG PLOT DATE: 10/7/2021 CAD USER: DAVID DAVIDSE
CVWRF_NW.stl
CVWRF_NE.stl
CVWRF_SW.stl

MATCHLINE - SEE C-00-1310



MATCHLINE - SEE C-00-1314

MATCHLINE - SEE C-00-1316

MATCHLINE - SEE C-00-1320

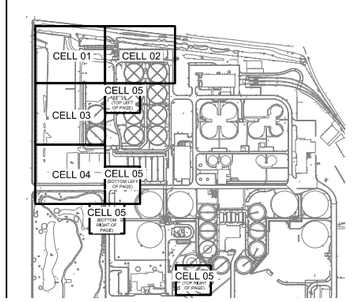
GENERAL NOTES:

1. LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. PROTECT ALL EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. VERIFY ALL LOCATIONS AND ELEVATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. CONTRACTOR SHALL PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR DESIGN AND INSPECTION OF THE FOUL AIR DUCT SUPPORTS. FINAL LAYOUT AND DETAILING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY ENGINEER. SUBMITTAL SHALL INCLUDE DRAWINGS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH. CONTRACTOR TO COORDINATE DESIGN WITH SPECIFICATIONS 01 33 00, 01 73 24, 05 10 00 AND 23 30 33.

KEY NOTES:

1. ~~SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:~~
   ~~12" WAS;~~
   ~~6" FMT TO S1;~~
   ~~6" FMT TO S2;~~
   ~~6" FMT TO FUTURE S3;~~ 1
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. ~~SEE DETAIL D/C-00-5003. SLIPLINE EXISTING 30" A WITH:~~
   ~~12" WAS;~~
   ~~6" FMT TO S1;~~
   ~~6" FMT TO S2;~~
   ~~6" FMT TO FUTURE S3;~~
   ~~2" 3WHP;~~
   ~~4" 3WLP;~~
   ~~2 X 6" PD.~~ 1
4. PROTECT IN PLACE. SEE ELECTRICAL.
5. CONNECT TO EXISTING. SEE GENERAL SITE PIPING NOTES 8 AND 9.
6. PROVIDE 2" AWWA C509 ISOLATION VALVE.
7. INSTALL 12" FA TO CLARIFIER 1 TOP OF WALL EL 4243.0 (CONTRACTOR TO VERIFY). INSTALL PIPE SUPPORT EVERY 10 FT.
8. CONNECT 12" FA TO EXISTING 12" AA. SEE PROCESS FOR CONTINUATION.
9. INSTALL FIRE HYDRANT PER DETAIL DC 1865.
10. INSTALL 4"x4"x2" 3WLP TEE.
11. REMOVE AND REPLACE EXISTING STAIRS.

KEY PLAN:



SEE C-00-3031A FOR 12" WAS AND 3 X FMT

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-1315.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

CIVIL

SITE PIPING PLAN - AREA 16

DRAWING NUMBER
C-00-1315

Path: C:\USERS\DDAVID\SE\BCPWD2160759 FILENAME: C-00-1315.DWG PLOT DATE: 10/7/2021 USER: DAVID DAVIDSE
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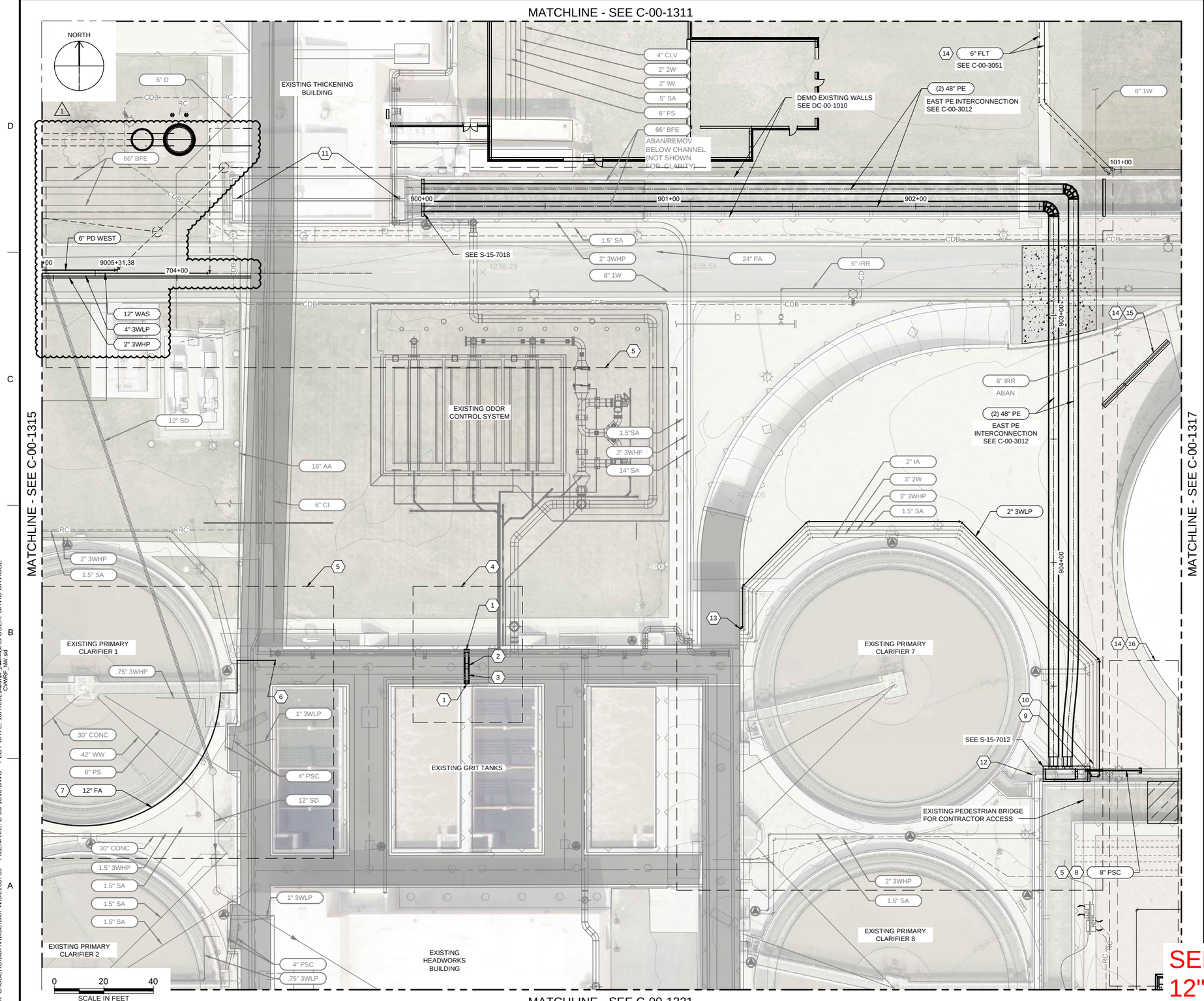
CVWRF_NE.sd
CVWRF_SW.sd



SEE C-00-3031A FOR 12" WAS AND 3 X FMT

GENERAL NOTES:

1. LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION.
2. PROTECT ALL EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. VERIFY ALL LOCATIONS AND ELEVATIONS AND TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. CONTRACTOR SHALL PROVIDE PROFESSIONAL ENGINEERING SERVICES FOR DESIGN AND INSPECTION OF THE FOUL AIR DUCT SUPPORTS. FINAL LAYOUT AND DETAILING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY ENGINEER. SUBMITTAL SHALL INCLUDE DRAWINGS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH. CONTRACTOR TO COORDINATE DESIGN WITH SPECIFICATIONS 01 33 00, 01 73 24, 05 10 00 AND 23 30 33.

KEY NOTES (CC10B):

1. CONTRACTOR TO WIDEN EXISITNG OPENING IN GRIT CHANNEL SLAB TO BE FLUSH WITH CHANNEL WALLS.
2. AFTER COMPLETION OF DEMOLITION WORK, CONTRACTOR TO INSTALL (2) 6'-9" WIDE X 9'-0" TALL SST FACE-MOUNTED STOP GATES, WITH A CENTER COLUMN BETWEEN. CENTER COLUMN TO BE DESIGNED BY THE CONTRACTOR AND SHALL PROVIDE SUPPORT TO MOUNT THE NEW STOP GATE FRAMES. SEE SPECIFICATION SECTION 40 05 59 FOR MORE INFORMATION. SEE B/C-00-5001 FOR ADDITIONAL INFORMATION.
3. INSTALL NEW ALUM COVER PLATE AT STOP GATES, SEE STANDARD DETAILS S1801, AND S1804 FOR MORE INFORMATION.
4. CC10B

KEY NOTES (CC30B):

5. CC30B
6. INSTALL 12"x24" REDUCER. CONNECT 12" FA TO EXISTING 24" FA AT EL 4255.33'.
7. INSTALL 12" FA TO CLARIFIER 1 TOP OF WALL EL 4243.0 (CONTRACTOR TO VERIFY). INSTALL PIPE SUPPORT EVERY 10 FT.
8. CAP FOR FUTURE USE.
9. CONNECT EXISTING 1.5" SA TO UTILITY STATION. SEE PROCESS FOR CONTINUATION.
10. REMOVE AND RELOCATE EXISTING 2" IA, 3" 3W, 3" 3WHP, AND 1.5" SA.
11. PROTECT IN PLACE EXISTING SIPHON STRUCTURE AND TELESCOPING VALVES.
12. REMOVE EXISTING STAIRS, SEE STRUCTURAL.
13. CORE DRILL EXISTING TUNNEL WALL, EXTEND PIPING INTO TUNNEL AND CAP WITH BLIND FLANGE. PROVIDE LINK SEAL OR EQUAL PER M1104.

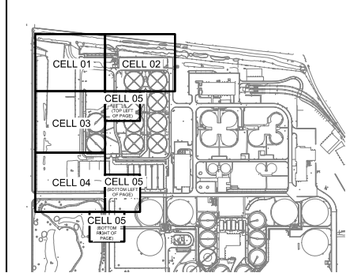
KEY NOTES (CC30E):

14. CC30E.
15. PROVIDE JERSEY BARRIER TO PROTECT EXPOSED (2) 8" FLT PIPES.
16. SEE C-00-4008 FOR SSN SITE PIPING PLAN.

LEGEND:

- EXISTING TUNNEL
- EXISTING
- NEW

KEY PLAN:



Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30E SIDESTREAM NITROGEN REMOVAL

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CC30B CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY
FILENAME C-00-1316.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30A

CIVIL

SITE PIPING PLAN - EAST CONNECTOR

DRAWING NUMBER
C-00-1316

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-1316.DWG PLOT DATE: 10/7/2021 CAD USER: DAVID DAVIDSE
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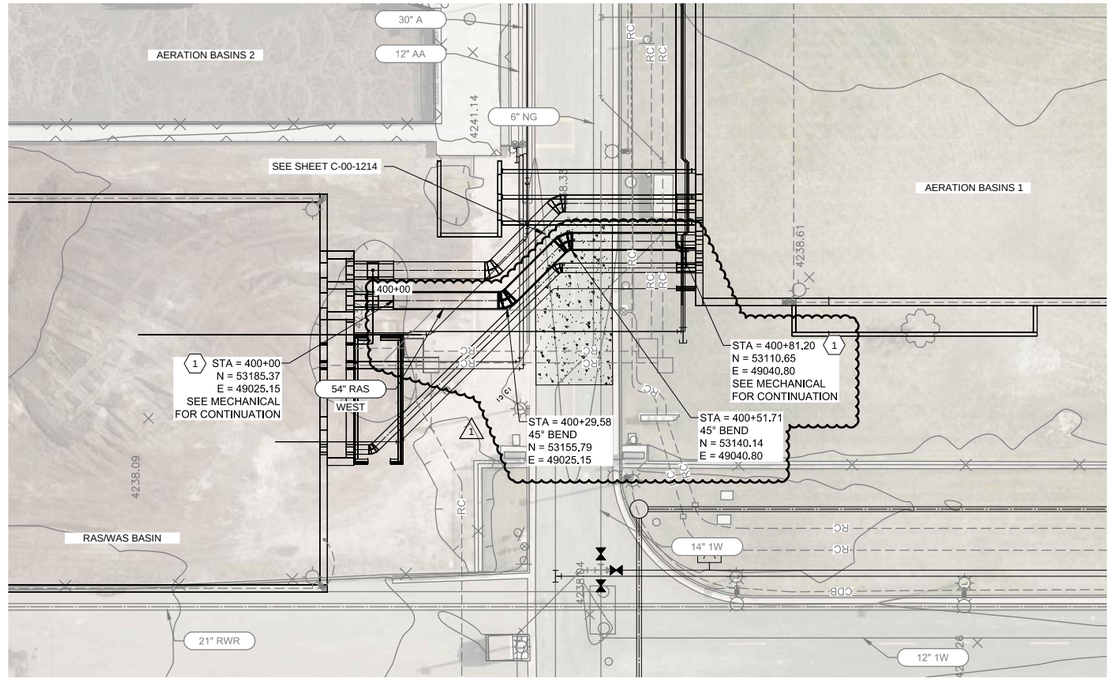
CVWRF_NW.sd
CVWRF_SE.sd
CVWRF_SW.sd

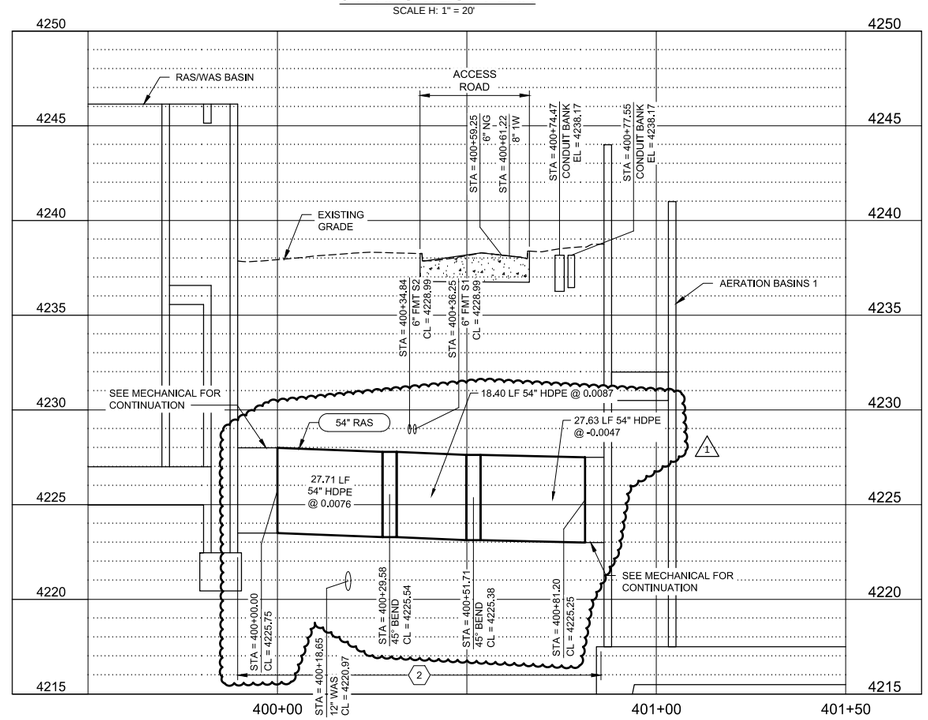
NORTH

0 20 40
SCALE IN FEET



54" RAS WEST PLAN

SCALE H: 1" = 20'



54" RAS WEST PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3006.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

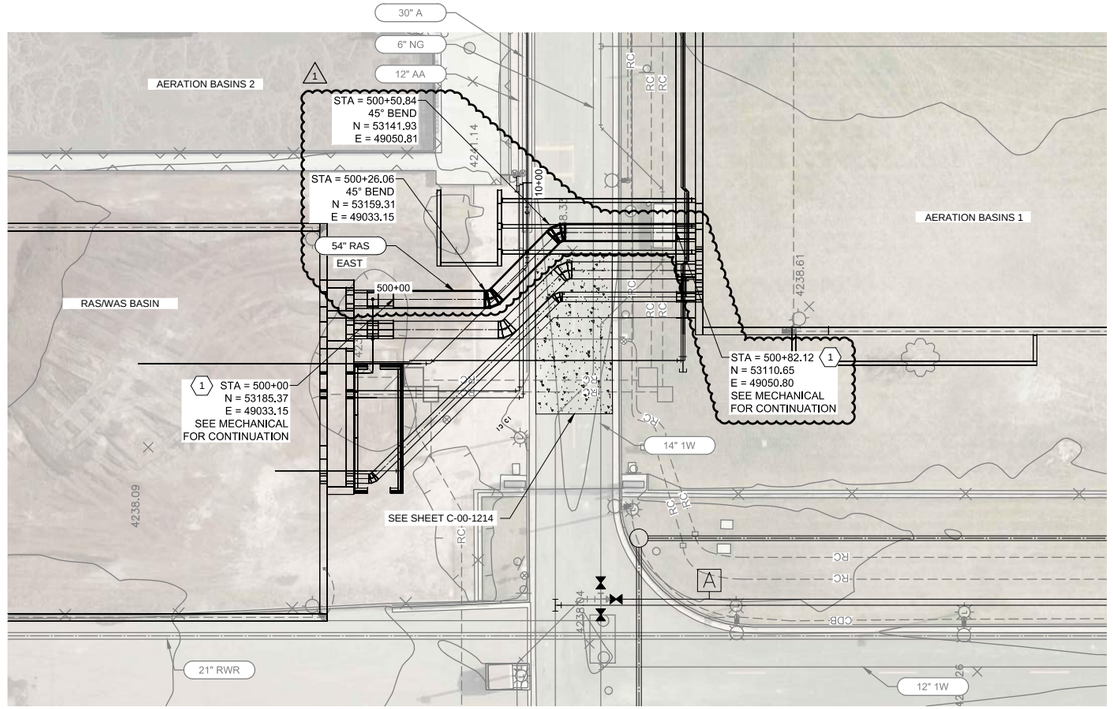
SITE PIPING PLAN AND PROFILE - 54" RAS WEST FROM SELECTOR TO PIPE CHASE

DRAWING NUMBER
C-00-3006

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3006.DWG PLOT DATE: 9/29/2021 CAD USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_SW.sd

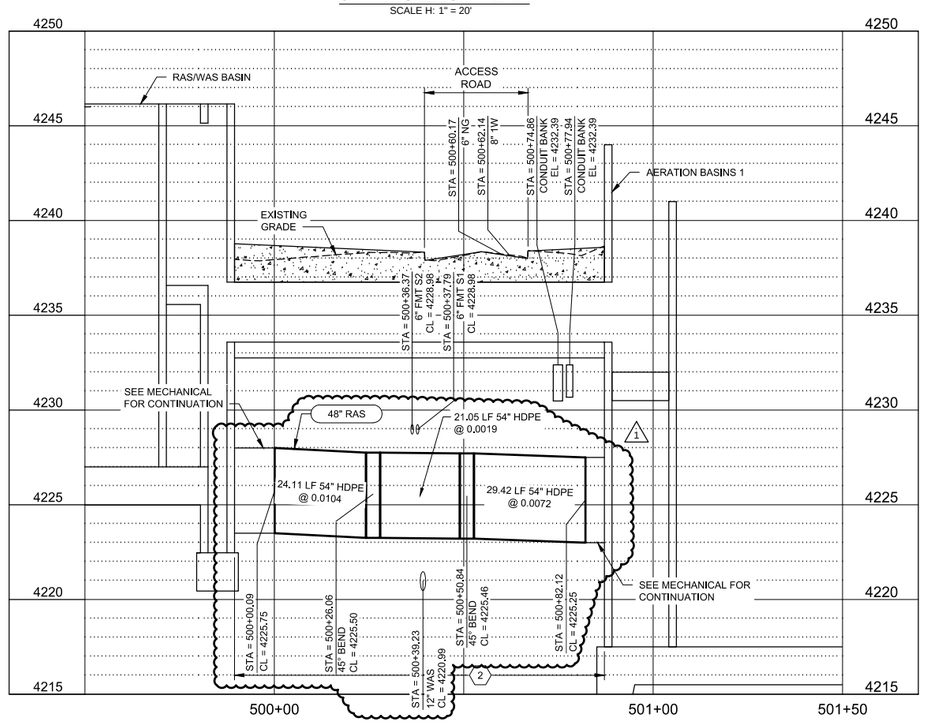
NORTH

0 20 40
SCALE IN FEET



54" RAS EAST PLAN

SCALE H: 1" = 20'



54" RAS EAST PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3007.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

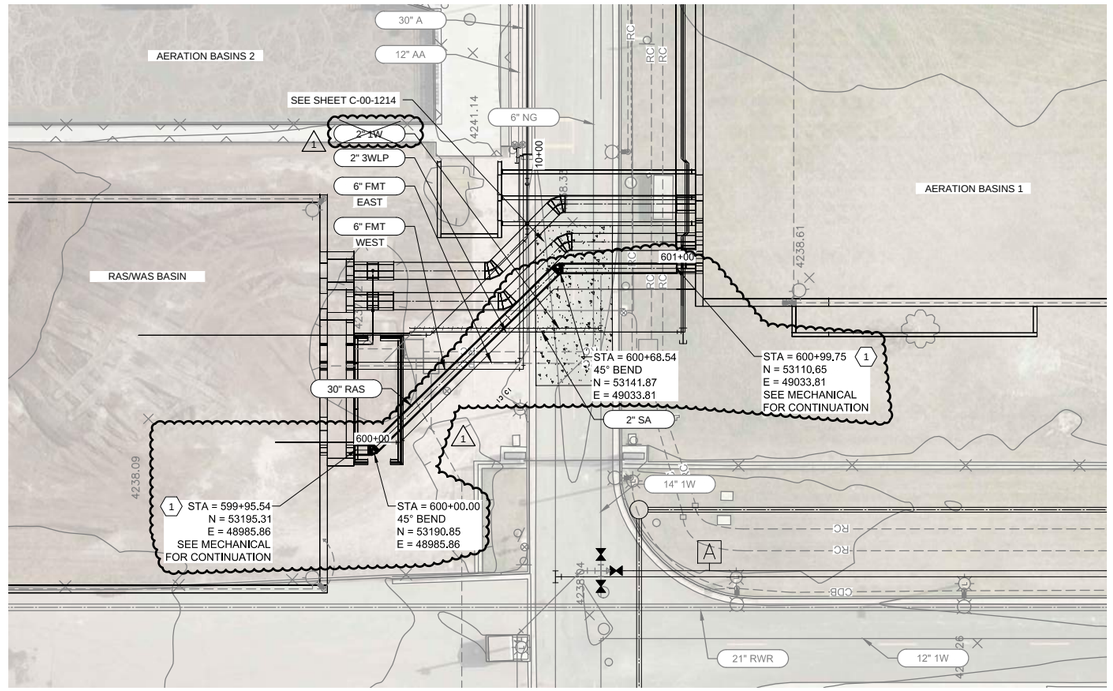
SITE PIPING PLAN AND PROFILE - 54" RAS EAST FROM SELECTOR TO PIPE CHASE

DRAWING NUMBER
C-00-3007

Path: C:\USERS\DDAVID\SE\BCPWD2160759 FILENAME: C-00-3007.DWG PLOT DATE: 9/29/2021 CVWRF_NW.sld CVWRF_NE.sld CVWRF_SW.sld CVWRF_SE.sld LAST USER: DAVID DAVIDSE

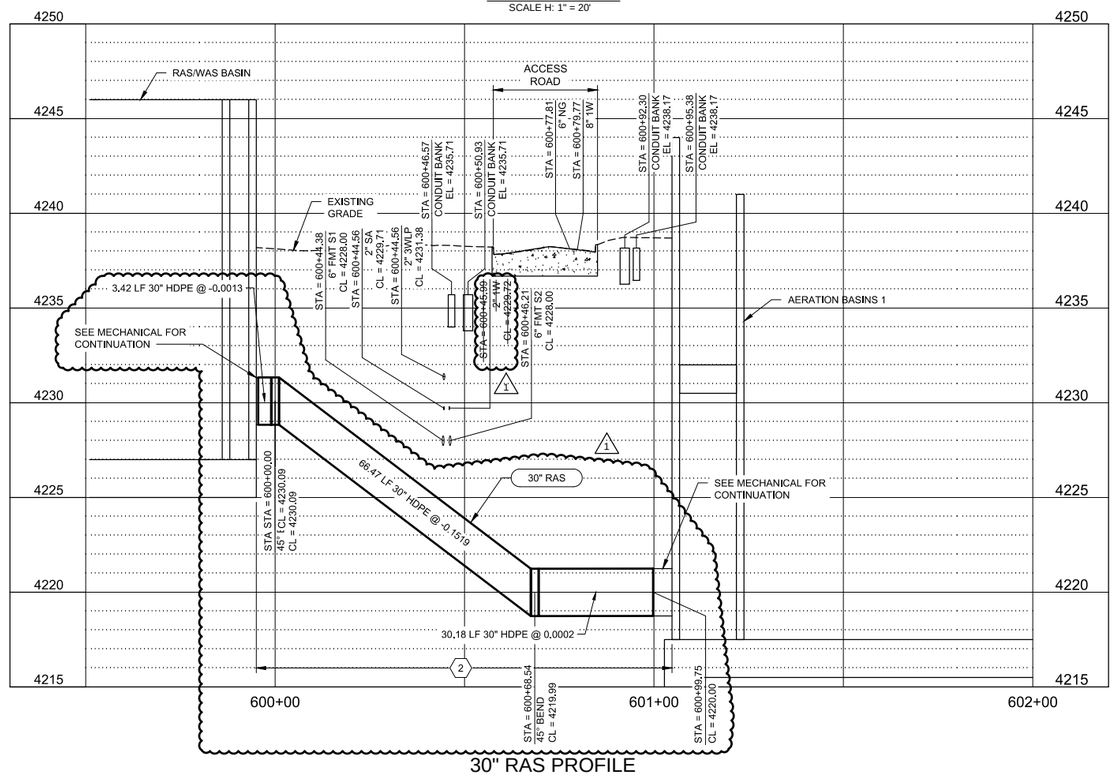
NORTH

0 20 40
SCALE IN FEET



30" RAS PLAN

SCALE H: 1" = 20'



30" RAS PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3008.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

CIVIL

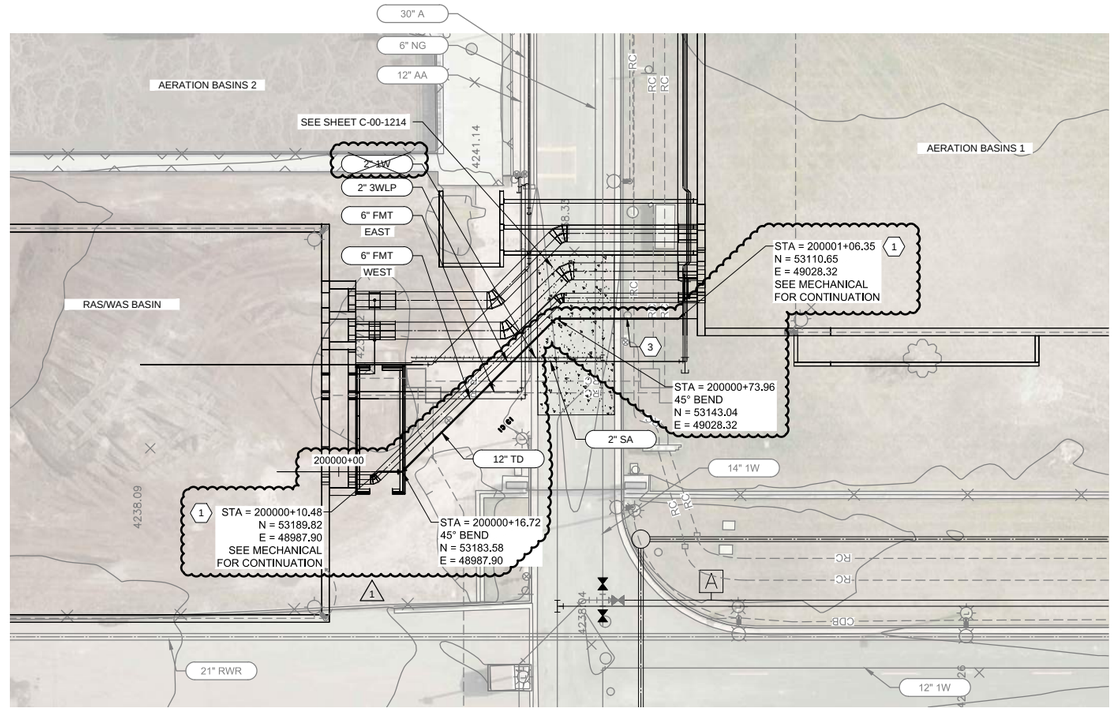
SITE PIPING PLAN
AND PROFILE - 30"
RAS FROM
SELECTOR TO PIPE
CHASE

DRAWING NUMBER
C-00-3008

Path: C:\USERS\DAVIDSE\BCPWD2160759 FILENAME: C-00-3008.DWG PLOT DATE: 10/7/2021 LAYOUT: C-00-3008 USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_AMF.sd

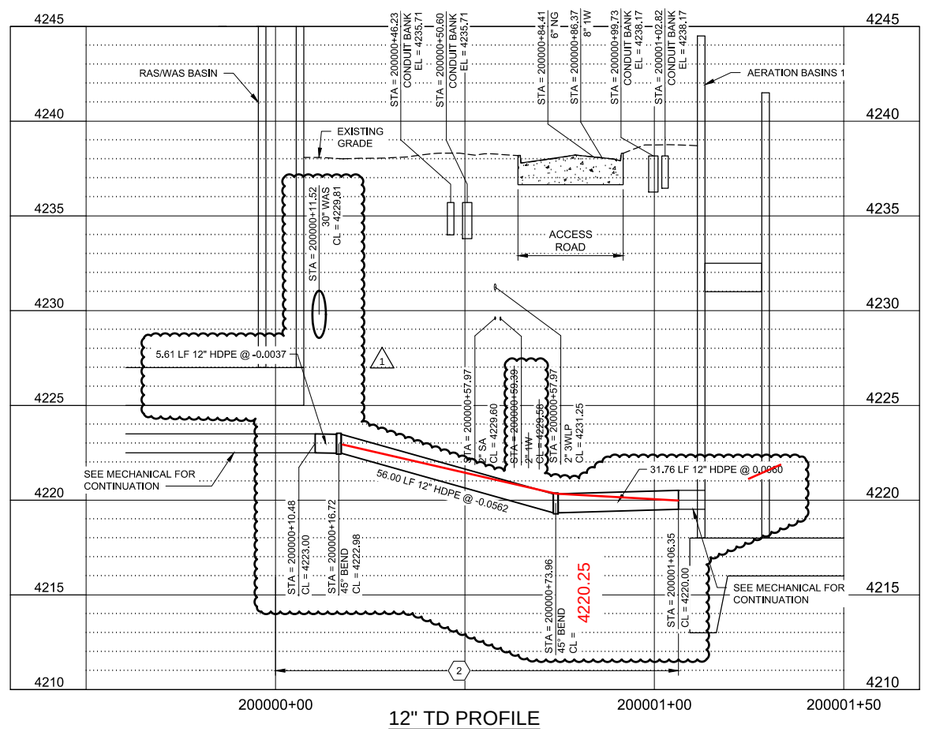
NORTH

0 20 40
SCALE IN FEET



12" TD PLAN

SCALE H: 1" = 20'



12" TD PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).
3. REMOVE AND REPLACE SIGNAGE.

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: D. DAVIDSE
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3010.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

CIVIL

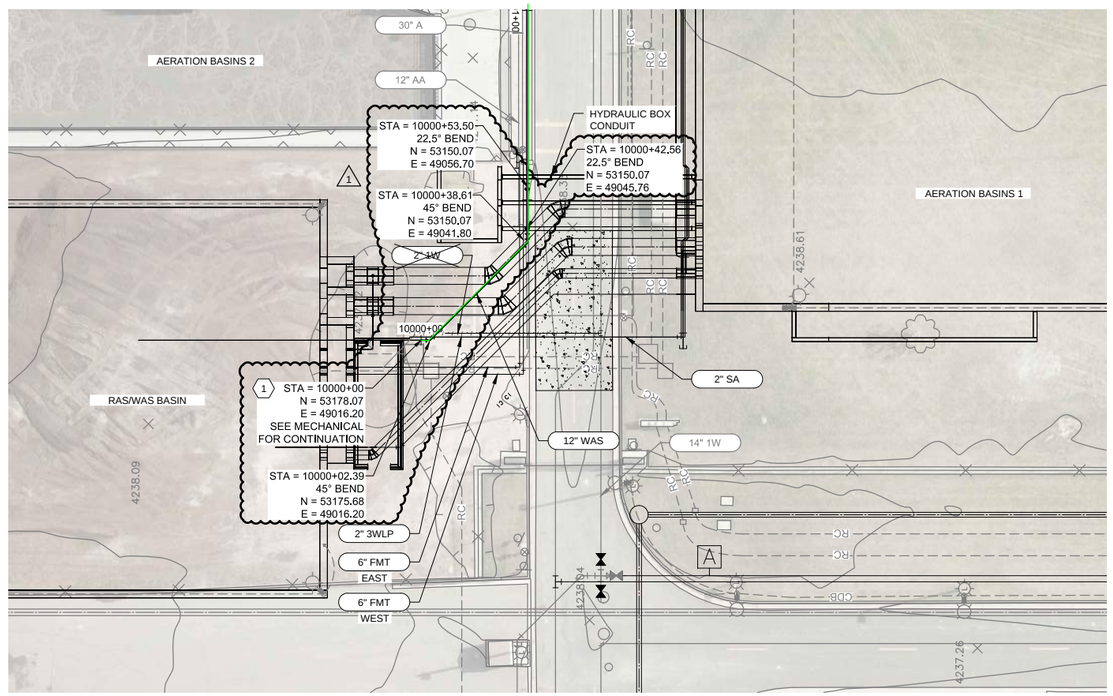
SITE PIPING PLAN
AND PROFILE - 12"
TD FROM AREA 22
TO AREA 18

DRAWING NUMBER
C-00-3010

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3010.DWG PLOT DATE: 10/7/2021 10:07 AM CAD USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_SE.sd

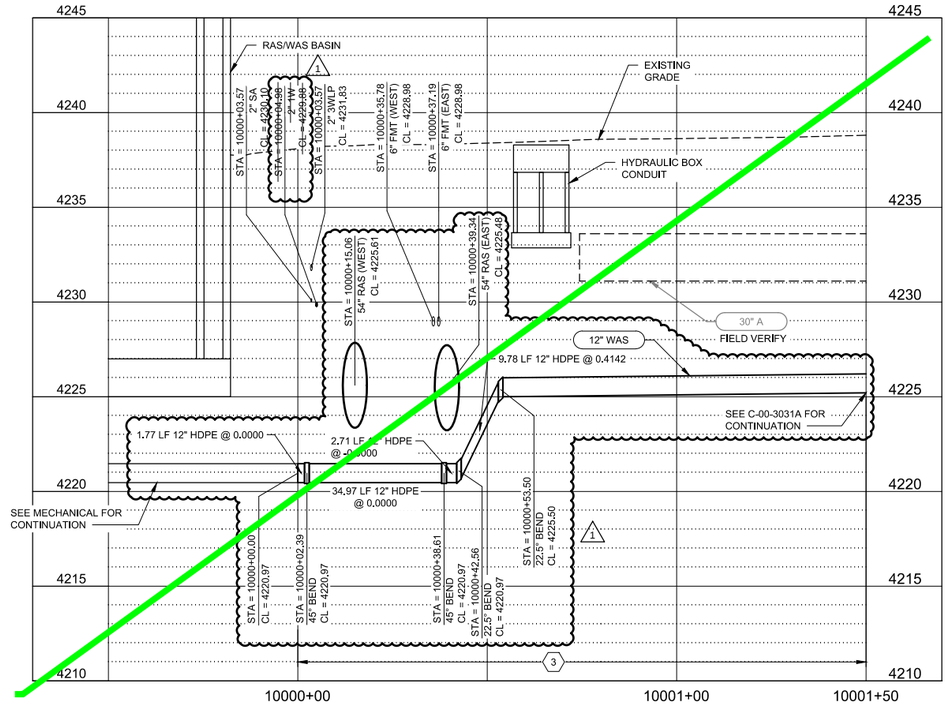
NORTH

0 20 40
SCALE IN FEET



12" WAS PLAN

SCALE H: 1" = 20'



12" WAS PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. INSERT 12" WAS INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	9/29/21	REV PER SUBMITTAL #166
	11/4/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3014.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

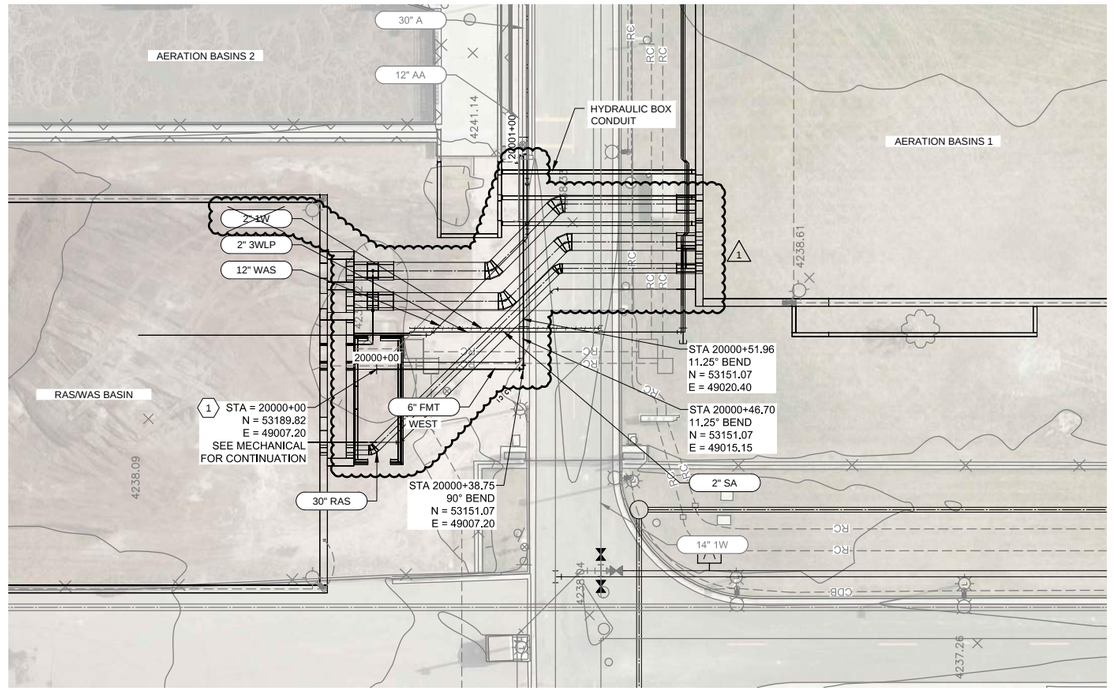
CIVIL
SITE PIPING
PLAN AND
PROFILE -
12" WAS

DRAWING NUMBER
C-00-3014

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3014.DWG PLOT DATE: 10/7/2021 10:08 AM CAD USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_SE.sd

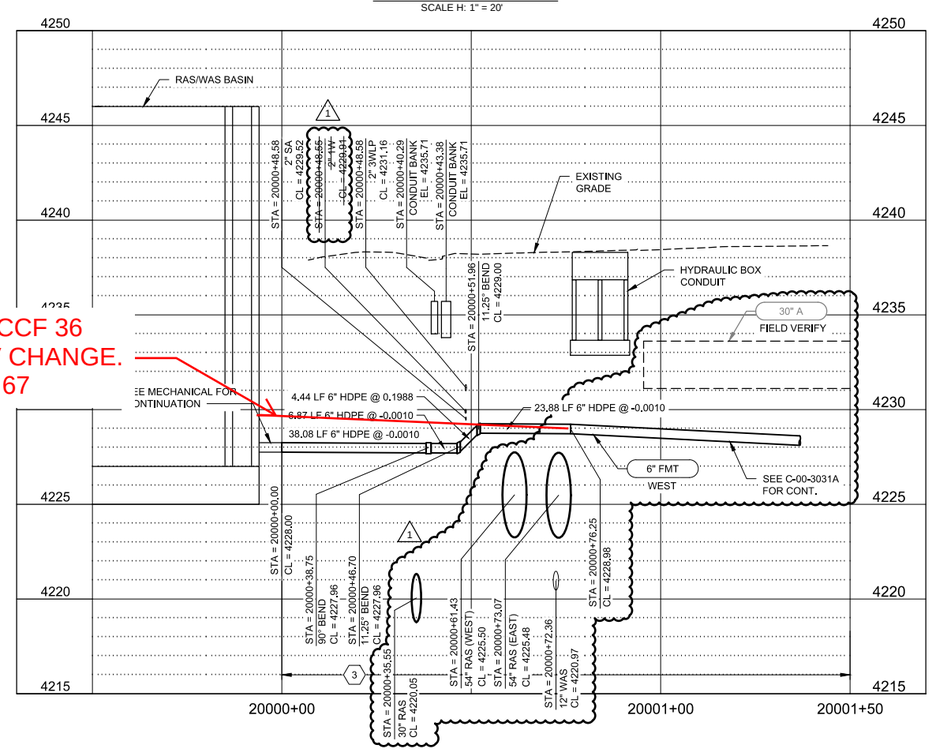
NORTH

0 20 40
SCALE IN FEET



6" FMT WEST PLAN

SCALE H: 1" = 20'



REV PER CCF 36
FMT ELEV CHANGE.
CL = 4229.67

6" FMT WEST PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. ~~INSERT 6" FMT INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.~~
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3015.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

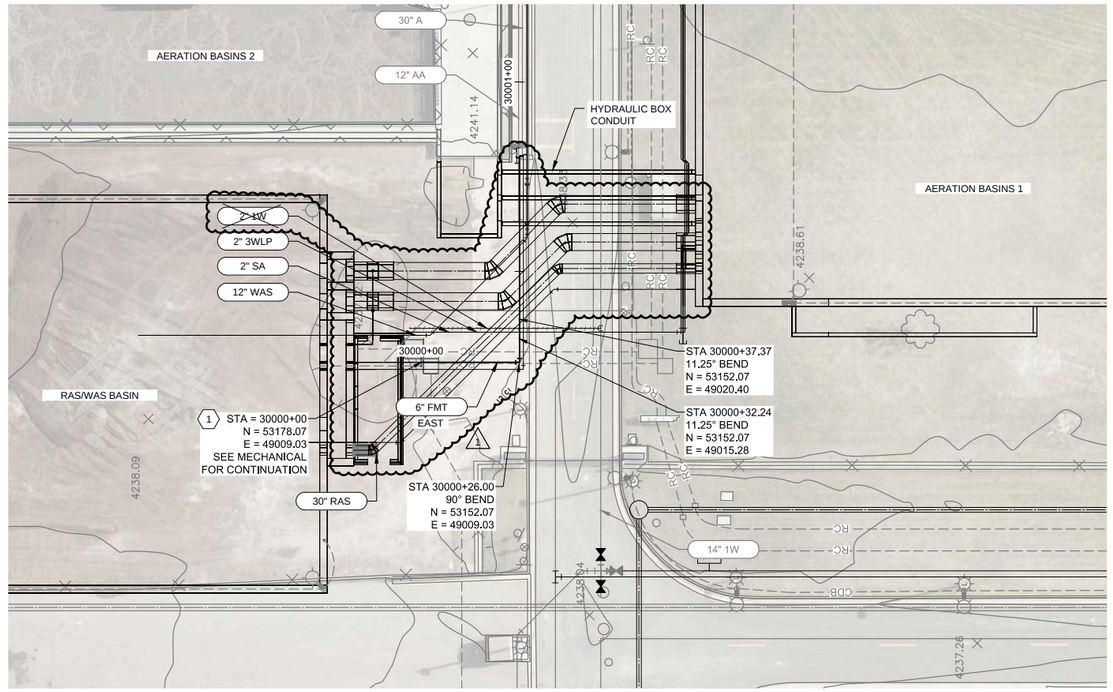
CIVIL
SITE PIPING PLAN AND PROFILE - 6" FMT WEST

DRAWING NUMBER
C-00-3015

Path: C:\USERS\DDAVID\SE\BCPWD2160759 FILENAME: C-00-3015.DWG PLOT DATE: 10/7/2021 LOAD USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_SW.sd

NORTH

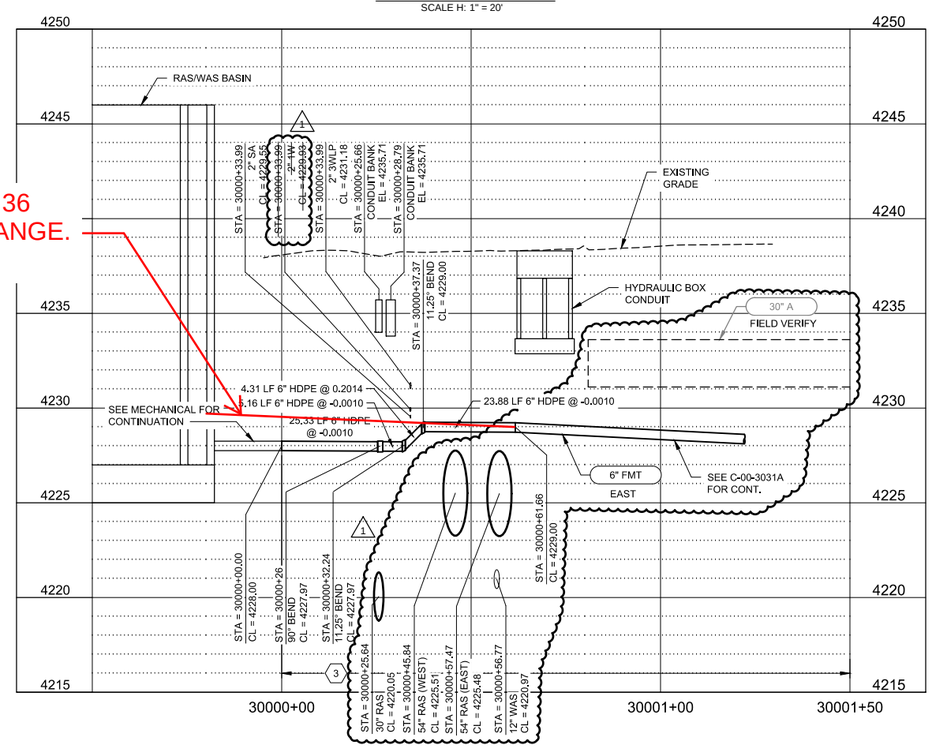
0 20 40
SCALE IN FEET



6" FMT EAST PLAN

SCALE H: 1" = 20'

REV PER CCF 36
FMT ELEV CHANGE.
CL = 4229.67



6" FMT EAST PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR
12" WAS AND 3 X FMT

KEY NOTES:

1. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
2. ~~INSERT 6" FMT INTO EXISTING 30"A. UTILIZE 30" A AS A UTILITY CONDUIT.~~
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3016.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

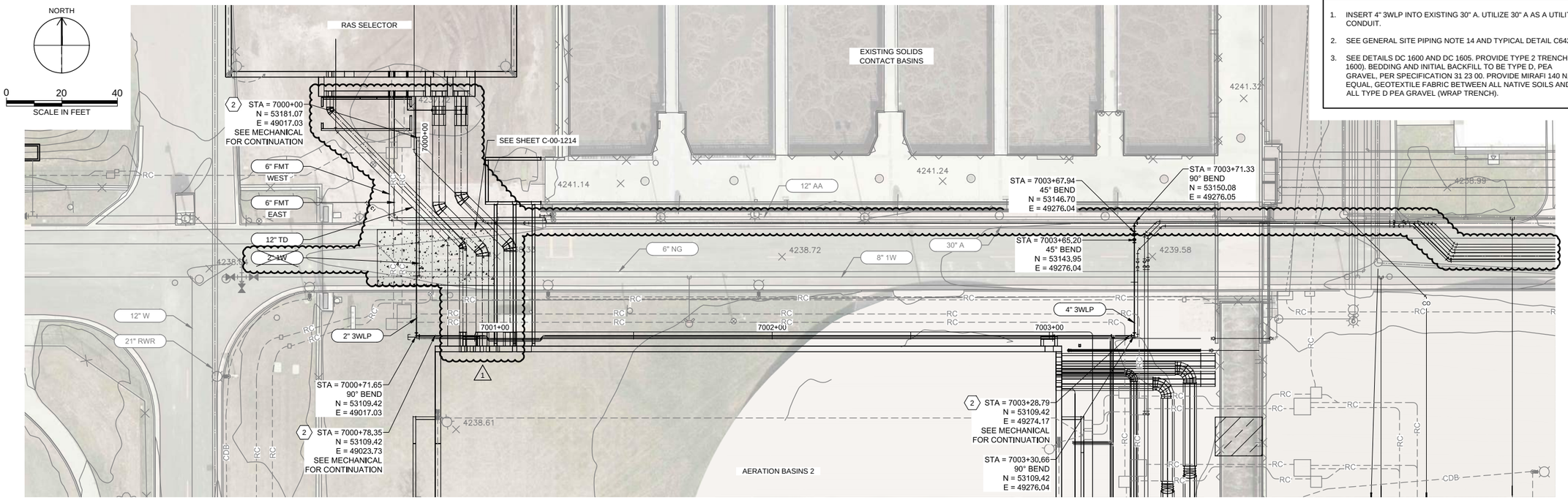
CIVIL
SITE PIPING PLAN AND PROFILE - 6" FMT EAST

DRAWING NUMBER
C-00-3016

Path: C:\USERS\DDAVI\DSE\BCPW\D2160759 FILENAME: C-00-3016.DWG PLOT DATE: 10/7/2021 LOAD USER: DAVID DAVIDSE
CVWRF_NW.sd
CVWRF_NE.sd
CVWRF_SW.sd

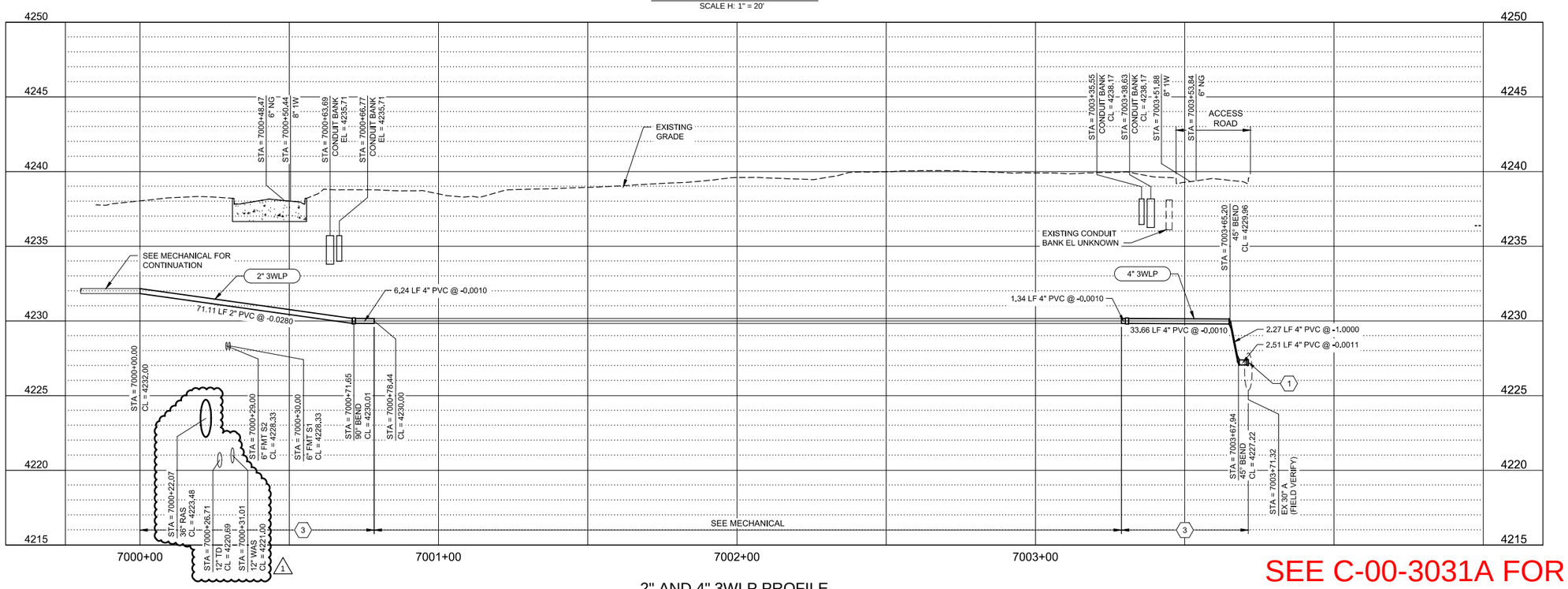
KEY NOTES:

1. INSERT 4" 3WLP INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).



2" AND 4" 3WLP PLAN

SCALE H: 1" = 20'



2" AND 4" 3WLP PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR 12" WAS AND 3 X FMT

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3017.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

CIVIL

SITE PIPING PLAN AND PROFILE - 2" AND 4" 3WLP

DRAWING NUMBER
C-00-3017

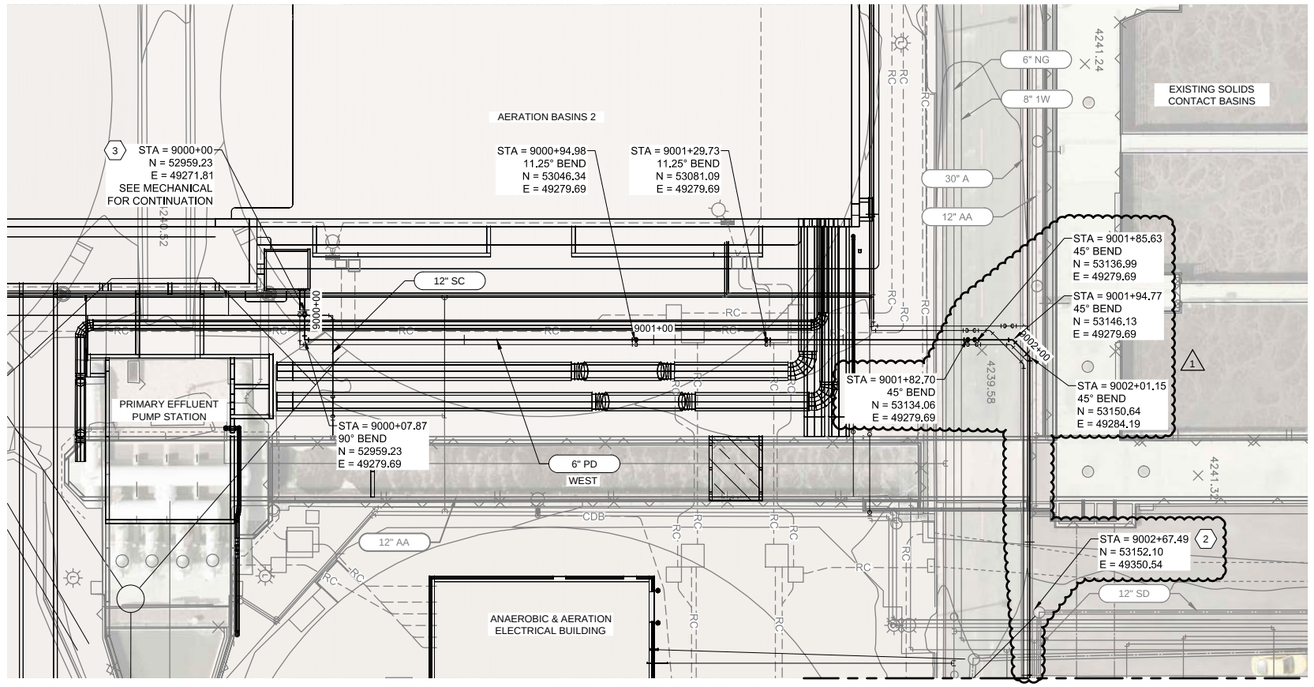
Path: C:\USERS\DDAVID\SE\BCPWD2160759 FILENAME: C-00-3017.DWG PLOT DATE: 10/7/2021 USER: DAVID DAVIDSE
CVWRF_NW.sld
CVWRF_NE.sld
CVWRF_SW.sld

KEY NOTES:

1. ~~INSERT 6" PD EAST INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.~~
2. ROUTE THE 6" PD (TD) TO EXIT THE EXISTING 30" A. CONNECT TO EXISTING MANHOLE PER APWA PLAN 433 PIPE DROP ALTERNATE 2.
3. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
4. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC 1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).

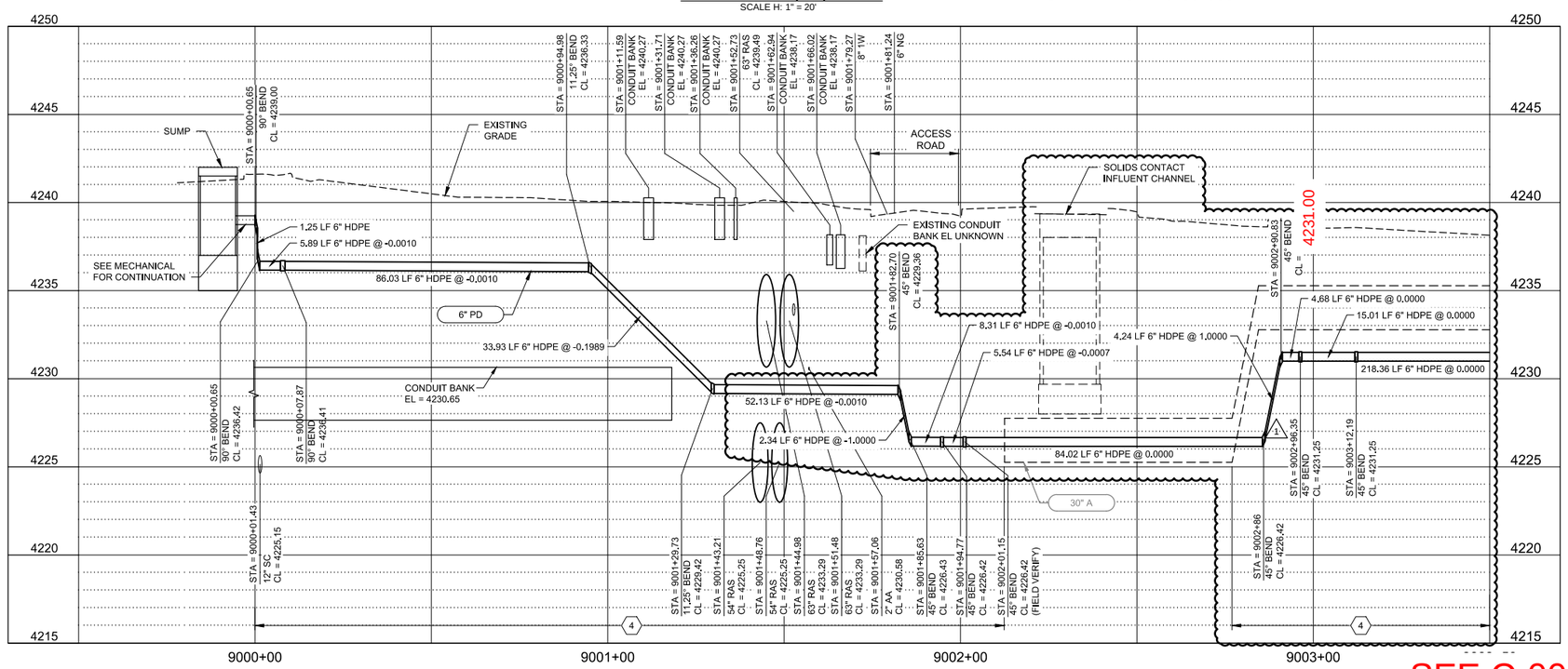
NORTH

0 20 40
SCALE IN FEET



6" PD WEST (TD) PLAN
SCALE H: 1" = 20'

MATCHLINE - SEE C-00-3031



6" PD WEST (TD) PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR 12" WAS AND 3 X FMT

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: E. OSWALD
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3019.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

SITE PIPING PLAN AND PROFILE - 6" PD WEST (TD)

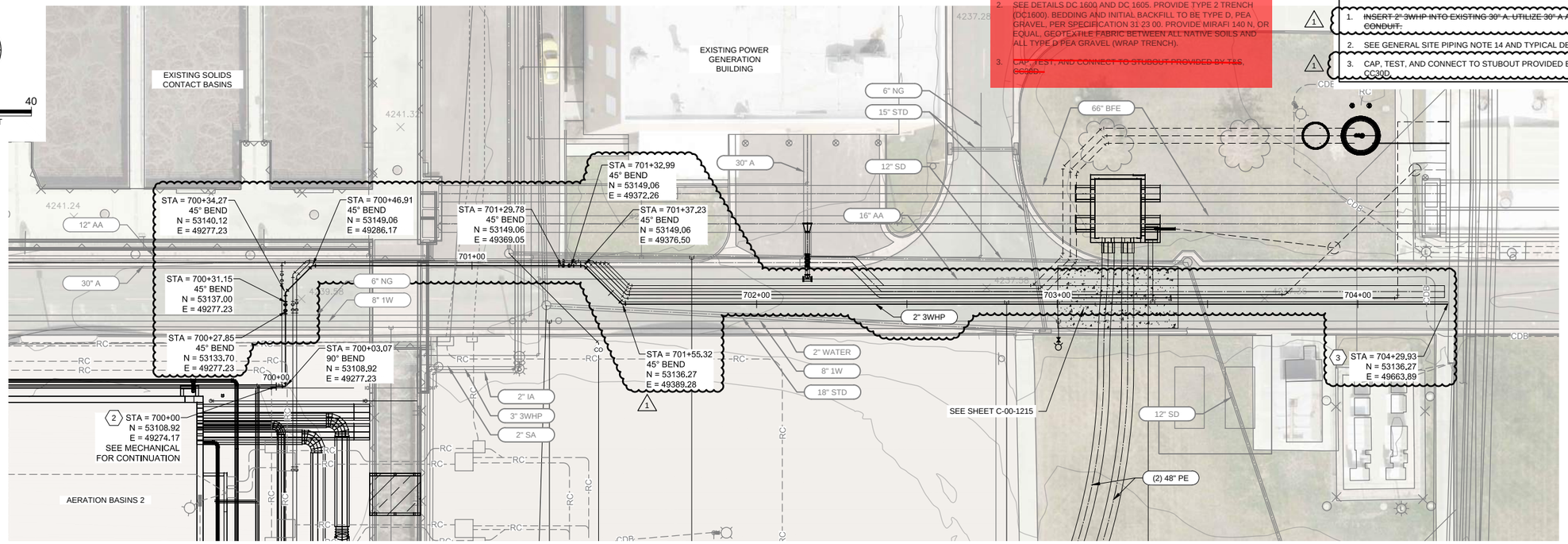
DRAWING NUMBER
C-00-3019

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3019.DWG PLOT DATE: 9/29/2021 3:06:56 PM BY: DAVID USER: DAVID DAVIDSE
CVWRF_NW.dwg
CVWRF_NE.dwg
CVWRF_SW.dwg

1. ~~PROTECT IN PLACE EXISTING 12" SD AND 6" NG.~~
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).
3. ~~CAP, TEST, AND CONNECT TO STUBOUT PROVIDED BY T&S, CC30D.~~

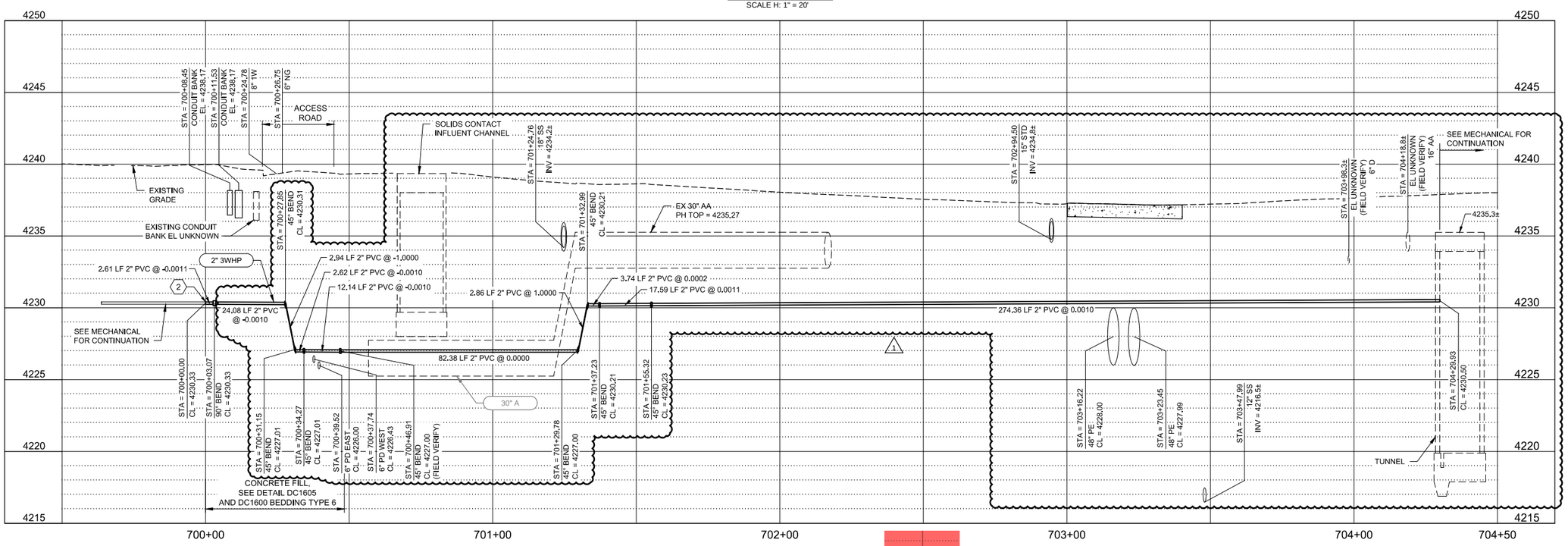
KEY NOTES:

1. ~~INSERT 2" 3WHP INTO EXISTING 30" A. UTILIZE 30" A AS A UTILITY CONDUIT.~~
2. SEE GENERAL SITE PIPING NOTE 14 AND TYPICAL DETAIL C6423.
3. CAP, TEST, AND CONNECT TO STUBOUT PROVIDED BY T&S, CC30D.



2" 3WHP PLAN

SCALE H: 1" = 20'



2" 3WHP PROFILE

SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR 12" WAS AND 3 X FMT

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: D. DAVIDSE
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME C-00-3027.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

CIVIL

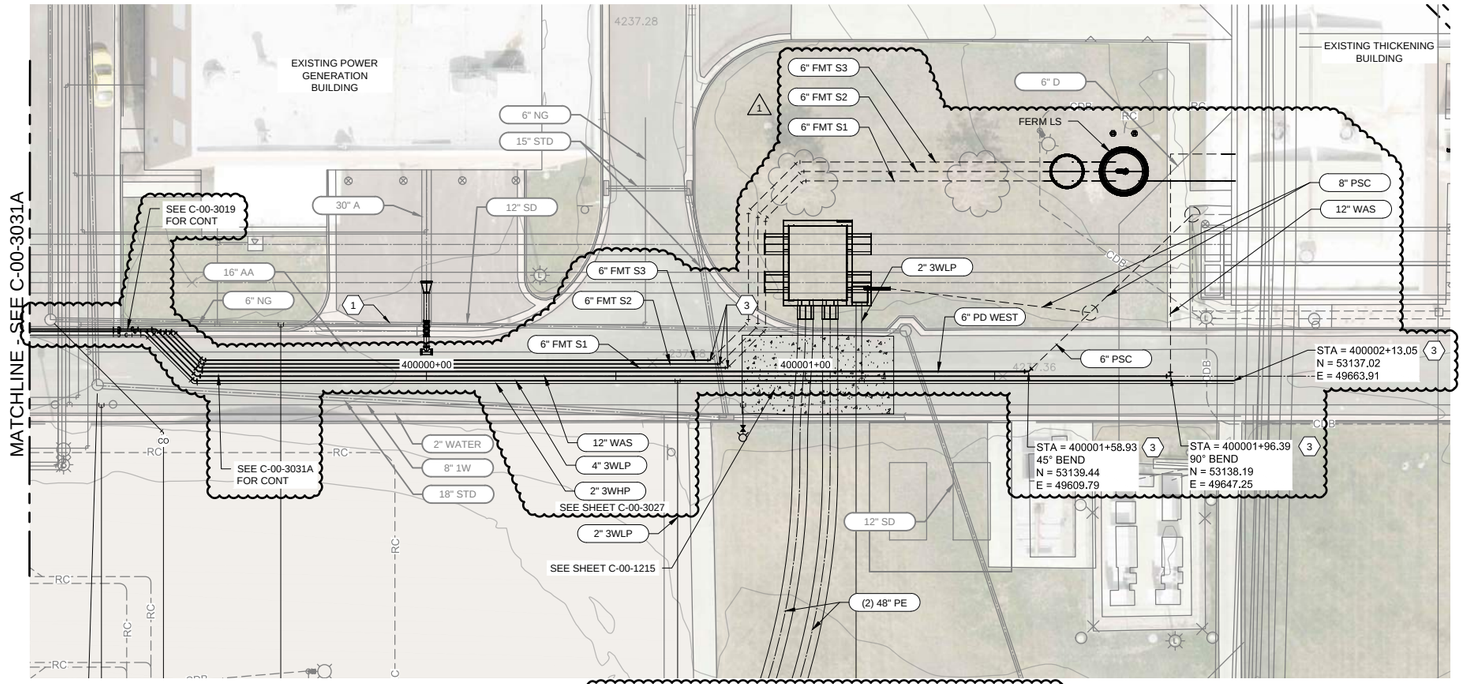
SITE PIPING PLAN PROFILE - 2" 3WHP

DRAWING NUMBER
C-00-3027

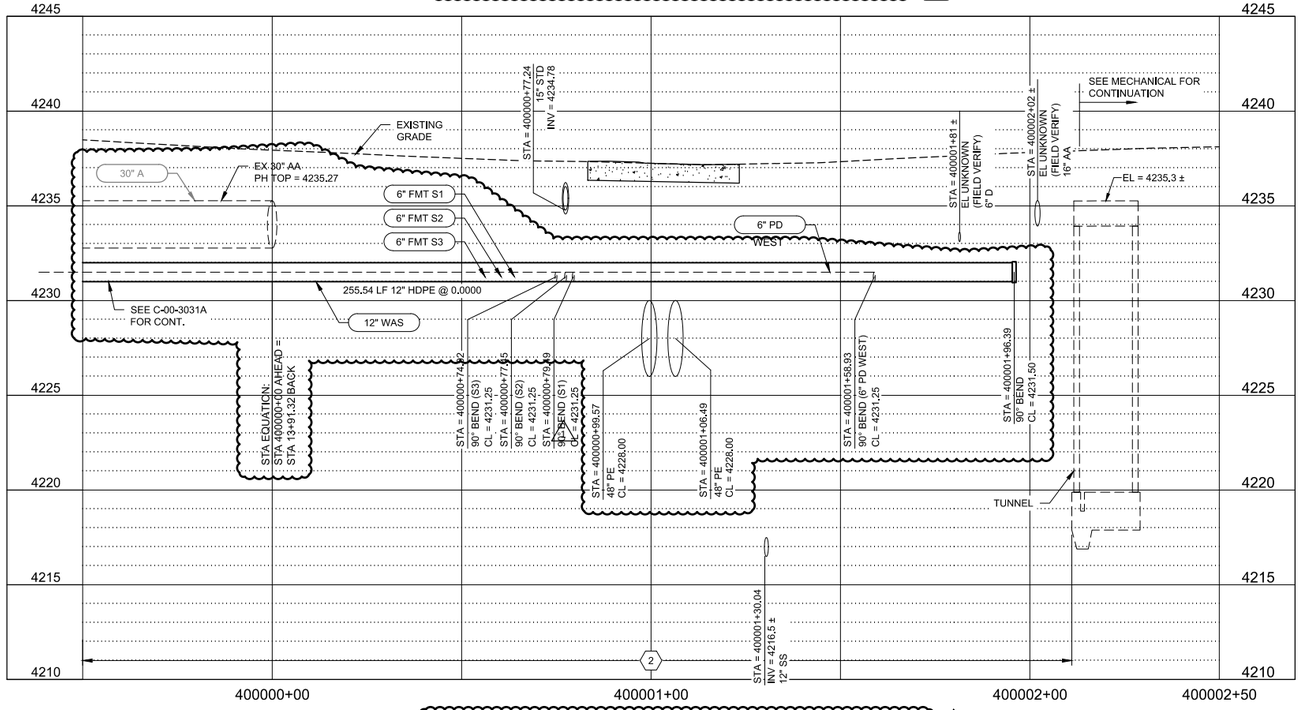
Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3027.DWG PLOT DATE: 9/29/2021 CVWRF_NW.sld CVWRF_NE.sld CVWRF_SW.sld CVWRF_SE.sld DRAWN USER: DAVID DAVIDSE

NORTH

0 20 40
SCALE IN FEET



12" WAS, 6" FMTs, 6" PD WEST & 4" 3WLP PLAN
SCALE H: 1" = 20'



12" WAS, 6" FMTs, 6" PD WEST, & 4" 3WLP PROFILE
SCALE H: 1" = 20'
V: 1" = 4'

SEE C-00-3031A FOR 12" WAS AND 3 X FMT

KEY NOTES:

1. PROTECT IN PLACE EXISTING 12" SD AND 6" NG.
2. SEE DETAILS DC 1600 AND DC 1605. PROVIDE TYPE 2 TRENCH (DC1600). BEDDING AND INITIAL BACKFILL TO BE TYPE D, PEA GRAVEL, PER SPECIFICATION 31 23 00. PROVIDE MIRAFI 140 N, OR EQUAL, GEOTEXTILE FABRIC BETWEEN ALL NATIVE SOILS AND ALL TYPE D PEA GRAVEL (WRAP TRENCH).
3. CAP, TEST, AND CONNECT TO STUBOUT PROVIDED BY T&S, CC30D.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	10/11/21	CCF 33 UTILITY BUNDLE

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. YOO
DRAWN: D. DAVIDSE
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-3031.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B
CIVIL

SITE PLAN AND PROFILE - 12" WAS, 6" FMTS, 6" PD WEST, 4" 3WLP

DRAWING NUMBER
C-00-3031

Path: C:\USERS\DDAVIDSE\BCPWD2160759 FILENAME: C-00-3031.DWG PLOT DATE: 9/30/2021 USER: DAVID DAVIDSE

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 058
Date: 5/6/2022
Description: Per Control Change Form #042: Cost for changes related to the Substation Relay Replacement.

Skyline Electric (see attached back-up):	$32,149.30
Mark-up (5%):	$1,607.47
Gerber Labor and Equipment (see attached back-up):	$3,066.69
Gerber Onsite Coordination & Management (see attached back-up):	$1,410.32
Bonds:	$353.81
Mark-up (15%):	$724.63
Total:	**$39,312.22**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $39,312.22 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-058 Substation Relay Replacement CC#042	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-058	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Electrical Subcontractor (Skyline)	**1.00**	**UNIT**	**$32,149.30**	**$32,149.30**	**$34,113.92**	**$34,113.92**	**5.10%**
Electrical Sub	1.00	LS	$32,149.30	$32,149.30			
02 - Gerber 60' Of Wider Duct Bank	**1.00**	**UNIT**	**$3,066.69**	**$3,066.69**	**$3,560.77**	**$3,560.77**	**15.00%**
Excavation Crew, Medium (3.00 UNIT/DY, 0.33 DY)	1.00	UNIT	$1,355.72	$1,355.72			
05 Skilled Labor	3.00	HR	$92.89	$278.66			
Loader, 5 Yard (Volvo 150)	2.67	HR	$81.28	$216.73			
Excavator, Crawler, 220	2.67	HR	$74.00	$197.33			
07 Operator	3.00	HR	$98.45	$295.34			
03 Foreman	3.00	HR	$122.55	$367.66			
Backfill Crew, Medium (3.00 UNIT/DY, 0.33 DY)	1.00	UNIT	$1,496.92	$1,496.92			
Excavator, Crawler, 220	2.67	HR	$74.00	$197.33			
Loader, 5 Yard (Volvo 150)	2.67	HR	$81.28	$216.73			
Compactor, Trench, 32"	2.67	HR	$43.85	$116.93			
Compactor, Jumping Jack	2.67	HR	$9.10	$24.27			
05 Skilled Labor	3.00	HR	$92.89	$278.66			
07 Operator	3.00	HR	$98.45	$295.34			
03 Foreman	3.00	HR	$122.55	$367.66			
Truck, Pickup, 1 Ton	0.09	MO	$2,301.00	$214.05			
03 - Gerber Onsite Management	**1.00**	**UNIT**	**$1,410.32**	**$1,410.32**	**$1,637.53**	**$1,637.53**	**15.00%**
01 Superintendent	2.00	HR	$168.40	$336.77			
20 Project Engineer	4.00	HR	$150.82	$603.20			
18 Project Manager	2.00	HR	$181.68	$363.32			
Truck, Pickup, 1 Ton	0.05	MO	$2,301.00	$107.02			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,186.61	8.70%
Equipment Owned:	$1,290.40	3.52%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$32,149.30	87.78%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$36,626.31	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$36,626.31	93.17%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$353.81	0.90%
Total Overall Cost:	$36,980.12	94.07%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,332.10	5.93%
Total Margin:	$2,332.10	5.93%
Total Bid Price:	$39,312.22	

-QUOTATION-

BNR CC30B
CCF042 SUBSTATION RELAY REPLACEMENT

April 16, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes need involving CCF042 Substation relay replacement.

Scope includes: Providing and installing additional raceways, cables, and underground conduit materials as directed.

Please contact me with any questions.

Price: $ 32,149.30

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	4/16/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF042 SUBSTATION RELAY REPLACEMENT**	City/State/Zip:	Lehi, UT 84043

Change Description:

Providing and installing additional raceways, cables, and underground conduit materials as directed.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$10,648.08		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			210.58

LABOR FACTOR:

material handling		2.00%					4.2116
cleanup		3.00%					6.3174
safety		1.25%					2.63225
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $825.23	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL loc 1 $ 11,473.31 loc 2 $ 0.00 223.74

RATE: $ 67.00

extension: $ 14,990.66

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	14,990.66

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	1	hrs@	$77.00	$77.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$299.81
change management	1	hrs@	$77.00	$77.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$77.00	$154.00	Pick-up Truck	1	dy@	$80.00	$80.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	687.81

MATERIAL		from loc 1	$	11,473.31
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	687.81
LABOR		from loc 3	$	14,990.66
WARRANTEE	1.50%		$	407.28
BOND	1.44%		$	396.85
subtotal			$	27,955.91
OVERHEAD + PROFIT	15.00%		$	4,193.39
TOTAL CHANGE			$	32,149.30

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF042: Substation transformer Relay replacement

Takeoff

Vendor: Target **Labor Level:** LABOR 2 **16 Apr 2022 8:30:34**

Item: BASE BID
└**Phase:** Deductive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**2- DELETE CBLP169000A-C**				
70061	-150.00	FT	M	12	XHHW CU (STR)	0.1761	-26.42	0.0175	-2.63
	0.00				**3- DELETE CBLP169000B-A**				
70061	-240.00	FT	M	12	XHHW CU (STR)	0.1761	-42.26	0.0175	-4.20
	0.00				**19- DELETECBLP169000A-B**				
70063	-160.00	FT	M	8	XHHW CU (STR)	0.4390	-70.24	0.0225	-3.60
70062	-80.00	FT	M	10	XHHW CU (STR)	0.2639	-21.11	0.0200	-1.60
						Phase Totals:	**-160.03**		**-12.03**

Item: BASE BID
└**Phase:** Additive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**8- ADD CBLP169000B-B**				
70061	150.00	FT	M	12	XHHW CU (STR)	0.3370	50.55	0.0175	2.63
	0.00				**9- ADD CBLC169000A-A**				
70060	1,900.00	FT	M	14	XHHW CU (STR)	0.2364	449.16	0.0150	28.50
	0.00				**9- ADD RWYC169000A-A**				
10062	100.00	FT	M	2	PVC SCH 40	4.0476	404.76	0.1000	10.00
20257	2.00	EA	M	2	GRC/PVC COATED 90-DEG ELBOW	83.6300	167.26	1.5000	3.00
10117	10.00	FT	M	2	PVC COATED GRC 40MIL	24.1028	241.03	0.2250	2.25
490017	2.00	EA	M	2	GRC/PVC CTD (MYERS TYPE) HUB	202.7700	405.54	2.2000	4.40
30301	1.00	EA	M	2	PVC END BELLS	4.4659	4.47	0.2800	0.28
	0.00				**10- ADD CBLC169000B-A**				
70060	1,900.00	FT	M	14	XHHW CU (STR)	0.2364	449.16	0.0150	28.50
	0.00				**10- ADD RWYC169000B-A**				
10062	100.00	FT	M	2	PVC SCH 40	4.0476	404.76	0.1000	10.00

Item: BASE BID
└**Phase:** Additive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
20257	2.00	EA	M	2	GRC/PVC COATED 90-DEG ELBOW	83.6300	167.26	1.5000	3.00
10117	10.00	FT	M	2	PVC COATED GRC 40MIL	24.1028	241.03	0.2250	2.25
490017	2.00	EA	M	2	GRC/PVC CTD (MYERS TYPE) HUB	202.7700	405.54	2.2000	4.40
30301	1.00	EA	M	2	PVC END BELLS	4.4659	4.47	0.2800	0.28
	0.00				**11- ADD CBLC169000A-B**				
70060	250.00	FT	M	14	XHHW CU (STR)	0.2364	59.10	0.0150	3.75
	0.00				**11- ADD RWYC169000A-B**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**12- ADD CBLC169000B-B**				
70060	250.00	FT	M	14	XHHW CU (STR)	0.2364	59.10	0.0150	3.75
	0.00				**12- ADD RWYC169000B-B**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**13- ADD CBLC169000A-C**				
70060	250.00	FT	M	14	XHHW CU (STR)	0.2364	59.10	0.0150	3.75
	0.00				**13- ADD RWYC169000A-C**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**14- ADD CBLC169000B-C**				
70060	250.00	FT	M	14	XHHW CU (STR)	0.2364	59.10	0.0150	3.75
	0.00				**14- ADD RWYC169000B-C**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**15- ADD CBLC169000A-D**				
70062	200.00	FT	M	10	XHHW CU (STR)	0.4875	97.50	0.0200	4.00

Item: BASE BID
└**Phase:** Additive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**15- ADD RWYC169000A-D**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**16- ADD CBLC169000B-D**				
70062	200.00	FT	M	10	XHHW CU (STR)	0.4637	92.74	0.0200	4.00
	0.00				**16- ADD RWYC169000B-D**				
10059	50.00	FT	M	1	PVC SCH 40	2.1370	106.85	0.0650	3.25
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
	0.00				**17- ADD CBLP169000A-D**				
70061	240.00	FT	M	12	XHHW CU (STR)	0.3370	80.88	0.0175	4.20
	0.00				**17- ADD RWYP169000A-D**				
10059	80.00	FT	M	1	PVC SCH 40	2.1370	170.96	0.0650	5.20
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
180076	1.00	EA	M	15/1	BOLT-ON BREAKER	0.0000	0.00	0.4000	0.40
	0.00				**18- ADD CBLP169000B-D**				
70061	240.00	FT	M	12	XHHW CU (STR)	0.3187	76.49	0.0175	4.20
	0.00				**18- ADD RWYP169000A-D**				
10059	80.00	FT	M	1	PVC SCH 40	2.1370	170.96	0.0650	5.20
20254	2.00	EA	M	1	GRC/PVC COATED 90-DEG ELBOW	39.7000	79.40	0.8600	1.72
10114	10.00	FT	M	1	PVC COATED GRC 40MIL	14.1876	141.88	0.1250	1.25
30298	1.00	EA	M	1	PVC END BELLS	2.5523	2.55	0.2000	0.20
180076	1.00	EA	M	15/1	BOLT-ON BREAKER	0.0000	0.00	0.4000	0.40
	0.00				**19- ADD CBLP169000A-B**				
70061	240.00	FT	M	12	XHHW CU (STR)	0.3370	80.88	0.0175	4.20
	0.00				**20- CHANGE BREAKER**				
180076	1.00	EA	M	15/1	BOLT-ON BREAKER	0.0000	0.00	0.4000	0.40
	0.00				**21- CHANGE BREAKER**				
180076	1.00	EA	M	15/1	BOLT-ON BREAKER	0.0000	0.00	0.4000	0.40

Item: BASE BID
└**Phase:** Additive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**ALL MIS MATERIALS**				
40048	4.00	OZ	M	OUNCE	PVC (GLUE) CEMENT	0.3107	1.24	0.0150	0.06
390499	680.00	FT	M	#4	STEEL REBAR	0.5500	374.00	0.0300	20.40
390502	4.00	FT	M	16 GA	STEEL TIE WIRE	12.3400	49.36	0.0750	0.30
390090	20.00	EA	M	10 WAY 2"	MULTI DUCT SPACER TEMPLATE	30.0000	600.00	0.3000	6.00
390536	6.00	YD	M	3000#	CONCRETE ENCASEMENT	175.0000	1,050.00	0.3750	2.25
290647	2.00	EA	M	12 x 12	WIREWAY 3 FT N4X S-STEEL	950.0000	1,900.00	0.8250	1.65
						Phase Totals:	**10,808.12**		**222.60**
						Job Totals:	**10,648.08**		**210.58**

CHANGE CONTROL FORM 042
Substation-Transformers Relay Replacement

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 03/15/2022**	**CC30B**

Originator: ☐ **Owner** ☐ **RPR** ☐ **Engineer** ☒ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☒**Field Order** ☒**Contractor Requested Change** ☐**Claim**

Description of Change

Contractor has indicated intent to substitute a GE Multilin 845 for the specific GE Multilin T60 relay located in CAB169000A and CAB169000B at the substations. Engineer expects substitution will receive an acceptable review disposition upon resubmittal. Reference CC30A: RFI-118.

The proposed GE Multilin 845 is not an equal to the GE Multilin T60. In preparing the modifications for this relay replacement, additional changes were identified. The changes for the substations will include:

1. Contractor shall replace the GE Multilin T60 with the follow GE Multilin 845 part number: 845-E-P5-H5-G5-L-N-N-A-A-N-G-A-P-T-B-3E-S-N-A-N, subject to Eaton/Cooper verification with internal design requirements.
2. Delete CBLP169000A-C from PNL169302 to RLY169000A as indicated on drawing, E-16-7001 and E-16EB-6004. Terminate remaining UPS power cable to 24VDC Power Supply as indicated on E-16-7001. RWYP169000A-C will become an installed spare.
3. Delete CBLP169000B-A from PNL169403 to RLY169000B as indicated on drawing, E-16-7001 and E-16EB-6004. Terminate remaining UPS power cable to 24VDC Power Supply as indicated on E-16-7001. RWYP169000B-A will become an installed spare.
4. Delete one fiber optic patch cable from the Power Management port on RLY169000A and FOP169000A. Delete the corresponding cable from FOP340102D in NCE340102 to Standby Power System Network. The two remaining ports on the relay shall be configured for PRP connected to the Protection Relay Network according to design. See drawing E-16-7001 and I-34-6112. Internal fiber optic patch cables are unscheduled.
5. Delete one fiber optic patch cable from the Power Management port on RLY169000B and FOP169000B. Delete the corresponding cable from FOP340102D in NCE340102 to Standby Power System Network. The two remaining ports on the relay shall be configured for PRP connected to the Protection Relay Network according to design. See drawing E-16-7001 and I-34-6114. Internal fiber optic patch cables are unscheduled.
6. Delete three sets of CTs from the line side of the Primary Switch to RLY169000A and replace with one set (one CT per phase) of CTs on the load side of the primary switch fuse to RLY169000A as indicated on drawing E-16-7001.
7. Delete three sets of CTs from the line side of the Primary Switch to RLY169000B and replace with one set (one CT per phase) of CTs on the load side of the primary switch fuse to RLY169000B as indicated on drawing E-16-7001.
8. Cables CBLP169000A-C and CBLP169000B-B are shown on the contract cable schedule but not on a plan drawing. Cables CBLX169000A-C and CBLP169000B-B have been added to plan drawing E-16EB-1101. Note: CBLX169000A-C was previously CBLP169000A-C on the contract cable schedule.
9. Cable CBLC169000A-A is shown on plan drawing E-16EB-1101 but not on the contract cable schedule. Add cable CBLC169000A-A to the contract cable schedule. RWYC169000A-A to be a 2” conduit and contain 18#14 & 1#14 ground. Raceway from area 16 PLC to A-BUS substation control cabinet, CAB160001 to CAB169000A.
10. Cable CBLC169000B-A is shown on plan drawing E-16EB-1101 but not on the contract cable schedule. Add cable CBLC169000B-A to the contract cable schedule. RWYC169000B-A to be a 2” conduit and contain 18#14 & 1#14 ground. Raceway from area 16 PLC to B-BUS substation control cabinet, CAB160001 to CAB169000B.
11. Cable CBLC169000A-B is shown on plan drawing E-16EB-1101 but not on the contract cable schedule. Add cable CBLC169000A-B to the contract cable schedule. RWYC169000A-B to be a 1” conduit and contain 4#14 & 1#14G.

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Raceway from A-BUS BNR low voltage switchgear primary breaker (CB-319001A-1) to A-BUS substation control cabinet (RLY319000A - TRIP), SWGR340133A to CAB169000A.

12. Cable CBLC169000B-B is shown on plan drawing E-16EB-1101 but not on the contract cable schedule. Add cable CBLC169000B-B to the contract cable schedule. RWYC169000B-B to be a 1" conduit and contain 4#14 & 1#14G. Raceway from B-BUS BNR low voltage switchgear primary breaker (CB-319001B-1) to B-BUS substation control cabinet (RLY319000B - TRIP), SWGR340133B to CAB169000B.
13. Cable CBLC169000A-C has been added to plan drawing E-16EB-1101. Add cable CBLC169000A-C to the contract cable schedule. RWYC169000A-C to be a 1" conduit and contain 4#14 & 1#14G. Raceway from A-BUS BNR low voltage switchgear arc flash detection relay to A-BUS substation transformer vacuum fault interrupter, SWGR340133A to SUB169000A.
14. Cable CBLC169000B-C has been added to plan drawing E-16EB-1101. Add cable CBLC169000B-C to the contract cable schedule. RWYC169000B-C to be a 1" conduit and contain 4#14 & 1#14G. Raceway from B-BUS BNR low voltage switchgear arc flash detection relay to B-BUS substation transformer vacuum fault interrupter, SWGR340133B to SUB169000B.
15. Cable CBLC169000A-D has been added to plan drawing E-16EB-1101. Add cable CBLC169000A-D to the contract cable schedule. RWYC169000A-D to be a 1" conduit and contain 3#10 & 1#10G. Raceway from A-BUS BNR low voltage switchgear to A-BUS substation control cabinet (RLY319000A - 50P-2), SWGR340133A to CAB169000A.
16. Cable CBLC169000B-D has been added to plan drawing E-16EB-1101. Add cable CBLC169000B-D to the contract cable schedule. RWYC169000B-D to be a 1" conduit and contain 3#10 & 1#10G. Raceway from B-BUS BNR low voltage switchgear to B-BUS substation control cabinet (RLY319000A - 50P-2), SWGR340133B to CAB169000B.
17. Cable CBLP169000A-D has been added to plan drawing E-16EB-1101. Add cable CBLP169000A-D to the contract cable schedule. RWYP169000A-D to be a 1" conduit and contain 2#12 & 1#12G. Raceway from BNR UPS Panel A to A side secondary termination chamber heater, PNL169403 to SUB169000A. SUB169000A secondary heater circuit breaker to change from 40amp, 1 pole to a 15amp, 1 pole as indicated on drawing E-16EB-6004.
18. Cable CBLP169000B-D has been added to plan drawing E-16EB-1101. Add cable CBLP169000B-D to the contract cable schedule. RWYP169000B-D to be a 1" conduit and contain 2#12 & 1#12G. Raceway from BNR UPS Panel B to B side secondary termination chamber heater, PNL169302 to SUB169000B. SUB169000B secondary heater circuit breaker to change from 40amp, 1 pole to a 15amp, 1 pole as indicated on drawing E-16EB-6004.
19. Cable CBLP169000A-B to change from 2#8 & 1#10G to 2#12 & 1#12G on the contract cable schedule.
20. SUB169000A PRIMARY HEATER circuit breaker to change from 20amp, 1 pole to a 15amp, 1 pole as indicated on drawing E-16EB-6004.
21. SUB169000B PRIMARY HEATER circuit breaker to change from 20amp, 1 pole to a 15amp, 1 pole as indicated on drawing E-16EB-6004.

In addition, Contract Drawing E-16EB-1101 was revised due to BNR RFI 132 response. This added cable tag feeders from SWGR169001A & B to MCCs 169101A & B and 169102A & B.

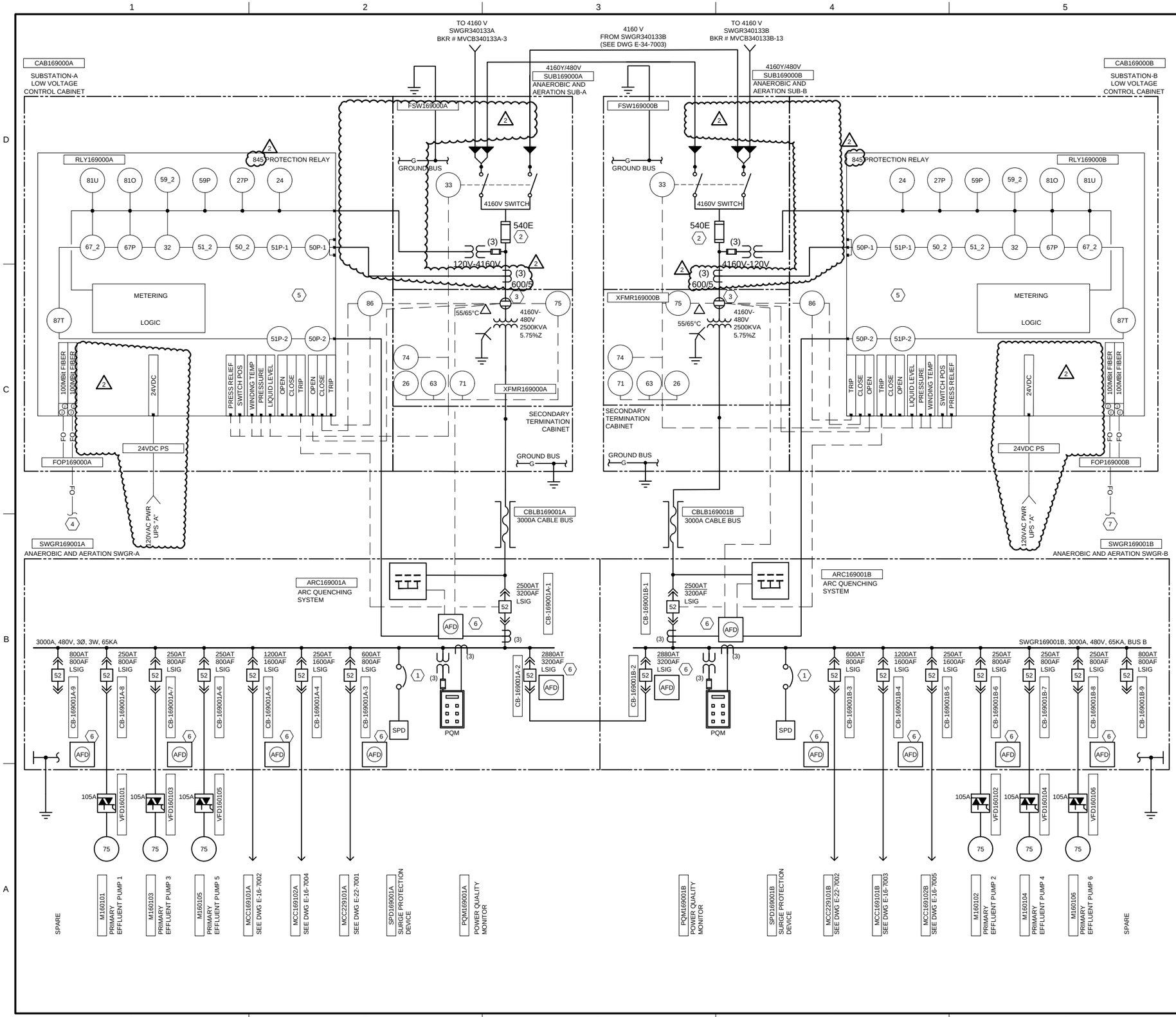
We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	

Proposed by:	Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection	Date:
Owner Signature ☐ Accepts Proposal ☐ Rejects Proposal	Date:

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	Date:
Authorized by Owner:	Date:
Accepted by Contractor:	Date:

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR: Mark Hansen	Date: 03/15/2022
Accepted by Contractor:	Date:



GENERAL NOTES :

1. ALL BREAKER SETTINGS SHALL BE SET PER THE SHORT CIRCUIT AND COORDINATION STUDY.
2. LISTED PROTECTIVE DEVICE NUMBERS ARE IN ACCORDANCE WITH ANSI STANDARD C37.2.
3. SUBMIT MANUFACTURES SHOP DRAWINGS OF SWITCHGEAR TO CVWRF FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
4. FOR CLARITY NOT ALL DEVICES ARE SHOWN. SEE SPECIFICATION SECTIONS 26 13 26, 26 11 16.13, AND 26 13 19.

KEYNOTES :

1. BREAKER RATING SHALL BE PER SPD MANUFACTURER'S RECOMMENDATION.
2. MANUFACTURER SHALL CONFIRM SIZE FUSES AND CT.
3. TRANSFORMER VACUUM FAULT INTERRUPTER AND INTERNAL DISCONNECT. SEE SPEC SECTION 26 11 16.13 FOR DETAILS.
4. SEE AREA AND PROTECTIVE RELAY NETWORK INTERCONNECTION DIAGRAM I-16-6101 AND I-34-6112 FOR DETAILED INTERCONNECTION ROUTING.
5. CONFIGURE CT POLARITY AND RELAY INPUTS TO INCLUDE SUBSTATION AND CABLE BUS IN DIFFERENTIAL ZONE OF PROTECTION.
6. DETAILED WIRING FOR ARC FLASH DETECTION (AFD) RELAY AND LIGHT SENSOR (NOT SHOWN FOR CLARITY) PROVIDED BY MANUFACTURER. (1) AFD PER 2 CIRCUIT BREAKERS.
7. SEE AREA AND PROTECTIVE RELAY NETWORK INTERCONNECTION DIAGRAM I-16-6101 AND I-34-6114 FOR DETAILED INTERCONNECTION ROUTING.

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2021	CC30B: CCF 031
2	09/2021	CC30B: CCF 042

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7001.DWG

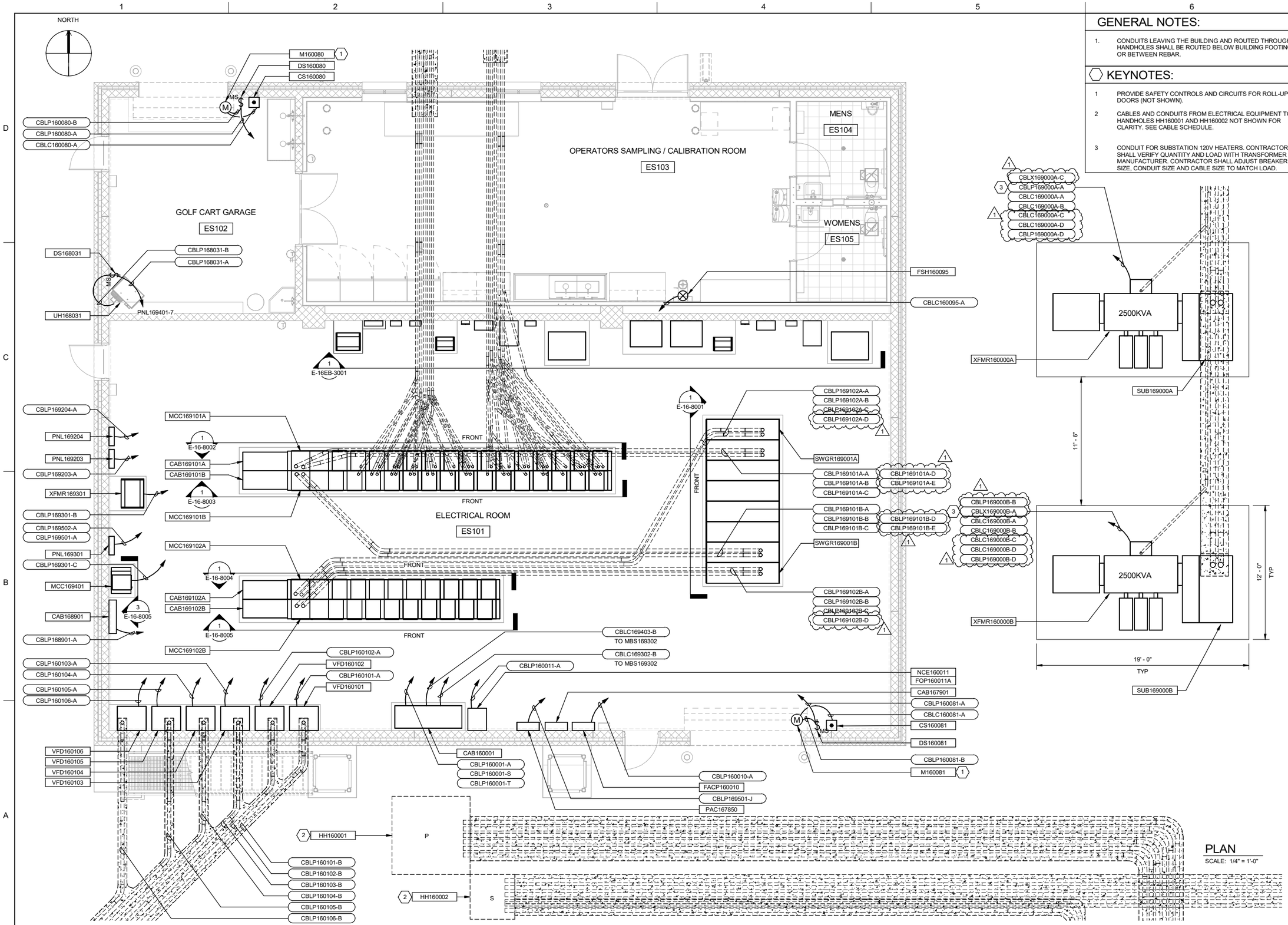
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
ANAEROBIC AND AERATION SWITCHGEAR ONE LINE SWGR169001

DRAWING NUMBER
E-16-7001

Path: C:\BCPW\D2160813 FILENAME: E-16-7001.DWG PLOT DATE: 2/2/2022 7:48 AM CAD USER: BAMBANG NURSUWITO



PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. CONDUITS LEAVING THE BUILDING AND ROUTED THROUGH HANDHOLES SHALL BE ROUTED BELOW BUILDING FOOTING OR BETWEEN REBAR.

KEYNOTES:

1. PROVIDE SAFETY CONTROLS AND CIRCUITS FOR ROLL-UP DOORS (NOT SHOWN).
2. CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.
3. CONDUIT FOR SUBSTATION 120V HEATERS. CONTRACTOR SHALL VERIFY QUANTITY AND LOAD WITH TRANSFORMER MANUFACTURER. CONTRACTOR SHALL ADJUST BREAKER SIZE, CONDUIT SIZE AND CABLE SIZE TO MATCH LOAD.

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6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	01/11/22	CC30B: CCF 042

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

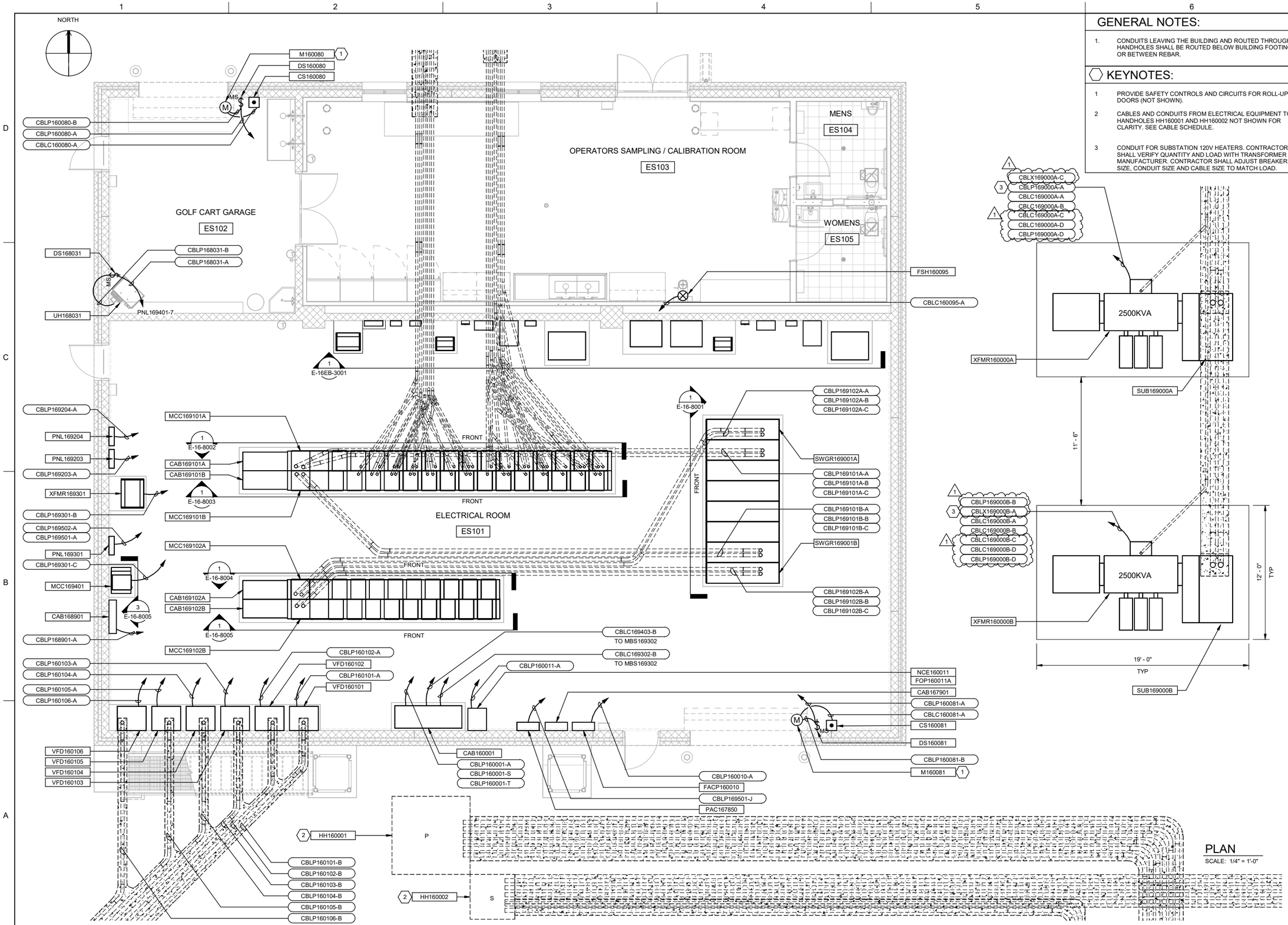
ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL ROOM POWER AND CONTROL PLAN

DRAWING NUMBER
E-16EB-1101

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16EBV21.rvt

Plot Date: 2/9/2022 11:05:33 AM



PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. CONDUITS LEAVING THE BUILDING AND ROUTED THROUGH HANDHOLES SHALL BE ROUTED BELOW BUILDING FOOTING OR BETWEEN REBAR.

KEYNOTES:

1. PROVIDE SAFETY CONTROLS AND CIRCUITS FOR ROLL-UP DOORS (NOT SHOWN).
2. CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.
3. CONDUIT FOR SUBSTATION 120V HEATERS. CONTRACTOR SHALL VERIFY QUANTITY AND LOAD WITH TRANSFORMER MANUFACTURER. CONTRACTOR SHALL ADJUST BREAKER SIZE, CONDUIT SIZE AND CABLE SIZE TO MATCH LOAD.

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Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	01/11/22	CC30B: CCF 042
A	02/28/20	CC30B ADDENDUM 2

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-16EBV18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL ROOM POWER AND CONTROL PLAN

DRAWING NUMBER
E-16EB-1101

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16EBV21.rvt
Plot Date: 2/2/2022 7:21:52 AM

PNL169302

VOLTAGE: 208Y/120V
3-PHASE
4-WIRE
REMARKS: UPS POWER PANEL B

RATING: 100A
MAIN DISCONNECT: 100A CIRCUIT BREAKER
AIC: 18 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				0.60			2	20/1	NET169102BB
		3					0.60		4	20/1	NET169102BC
		5							6	20/1	SPARE
NET169101BB	20/1	7	0.60			1.00			8	20/1	RLY169000 PWR SUB169000B
NET169101BC	20/1	9		0.60			1.18		10	15/1	SUB169000B SECONDARY HEATER
NET169101BD	20/1	11			0.60			0.30	12	20/1	SWGR169001B
CAB160001	20/1	13	1.50			0.30			14	20/1	SWGR169001B
AIT170135	20/1	15		0.70			1.50		16	20/1	DED REC UPS COUNTER
AIT170145	20/1	17			0.70			0.70	18	20/1	AIT181341
HTT170250 (NOTE 2)	20/1	19	0.10			0.70			20	20/1	AIT181441
PQM169001B	20/1	21		0.30			0.10		22	20/1	HTT160250 (NOTE 2)
PEPS 2 MPR160102	20/1	23			0.70			0.30	24	20/1	PMM169101B
PEPS 6 MPR160106	20/1	25	0.70			0.30			26	20/1	PMM169102B
NCE160011	20/1	27		0.20			0.70		28	20/1	PEPS 4 MPR160104
CAB169101B	20/1	29			1.20			1.20	30	20/1	CAB169102B
SUB169000B PRIMARY HEATER	15/1	31	1.18						32	20/1	SPARE
SPARE	20/1	33							34	20/1	SPARE
Future Space	1	35							36	1	Future Space
Future Space	1	37							38	1	Future Space
Future Space	1	39							40	1	Future Space
Future Space	1	41							42	1	Future Space

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	4.08	1.90	3.30
LOAD SUBTOTAL, RIGHT (kVA):	2.90	4.08	2.50
LOAD TOTAL (kVA):	6.98	5.88	5.70
TOTAL AMPS PER PHASE (A):	48.30	64.12	55.79

CODES:		CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H	= HVAC LOADS	3.00	kVA	100	%	3.75	kVA
K	= KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L	= LIGHTING LOADS	0.00	kVA	125	%	0.00	kVA
LM	= LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M	= OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC	= NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R	= GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S	= DEDICATED RECEPTACLES	0.00	kVA	100	%	0.00	kVA
Z	= MISC. OR APPLIANCES	17.20	kVA	100	%	21.50	kVA
	TOTALS:	20.20	kVA			25.25	kVA

NOTES:

1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

2. PROVIDE GFEP TYPE BREAKER WITH 30mA TRIP SETTINGS ON HEAT TRACE CIRCUITS.

PNL169403

VOLTAGE: 208Y/120V
3-PHASE
4-WIRE
REMARKS: UPS POWER PANEL A

RATING: 100A
MAIN DISCONNECT: 100A CIRCUIT BREAKER
AIC: 18 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				1.44			2	20/1	FIRE ALARM (NOTE 2)
		3					0.40		4	20/1	FACP160010
		5						0.60	6	20/1	NET169102AB
NET169101AB	20/1	7	0.60			0.60			8	20/1	NET169102AC
NET169101AC	20/1	9		0.60			1.18		10	15/1	SUB169000A SECONDARY HEATER
NET169101AD	20/1	11			0.60			0.30	12	20/1	SWGR169001A
RLY169000 PWR SUB169000A	20/1	13	1.00			0.30			14	20/1	SWGR169001A
SPARE	20/1	15					1.50		16	20/1	DED RCPT, UPS COUNTER
CAB160001	20/1	17			1.50			0.70	18	20/1	AIT181141
AIT170115	20/1	19	0.70			0.70			20	20/1	AIT181241
AIT170125	20/1	21		0.70			0.10		22	20/1	HTT181550 (NOTE 3)
HTT181651 (NOTE 3)	20/1	23			0.10			0.30	24	20/1	PMM169101A
HTT181652 (NOTE 3)	20/1	25	0.10			0.30			26	20/1	PMM169102A
PQM169001A	20/1	27		0.30			0.30		28	20/1	PMM169401
PEPS 1 MPR160101	20/1	29			0.70			0.70	30	20/1	PEPS 3 MPR160103
PEPS 5 MPR160105	20/1	31	0.70			0.20			32	20/1	NCE160011
SUB169000A PRIMARY HEATER	15/1	33		1.18					34	20/1	SPARE
CAB169101A	20/1	35			1.20				36	20/1	SPARE
CAB169102A	20/1	37	1.20						38	20/1	SPARE
Future Space	1	39							40	1	Future Space
Future Space	1	41							42	1	Future Space

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	4.30	2.78	4.10
LOAD SUBTOTAL, RIGHT (kVA):	3.54	3.48	2.60
LOAD TOTAL (kVA):	7.84	6.26	6.70
TOTAL AMPS PER PHASE (A):	65.28	65.78	55.79

CODES:		CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H	= HVAC LOADS	0.00	kVA	100	%	0.00	kVA
K	= KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L	= LIGHTING LOADS	0.00	kVA	125	%	0.00	kVA
LM	= LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M	= OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC	= NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R	= GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S	= DEDICATED RECEPTACLES	0.00	kVA	100	%	0.00	kVA
Z	= MISC. OR APPLIANCES	22.44	kVA	100	%	28.05	kVA
	TOTALS:	22.44	kVA			28.05	kVA

NOTES:

1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

2. FIRE ALARM CIRCUIT, LOCKABLE IN THE ON POSITION.

3. PROVIDE GFEP TYPE BREAKER WITH 30mA TRIP SETTINGS ON HEAT TRACE CIRCUITS.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	09/2021	CC30B: CCF 042

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16EB-6004.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
ANAEROBIC AND AERATION ELECTRICAL UPS PANEL SCHEDULES

DRAWING NUMBER
E-16EB-6004

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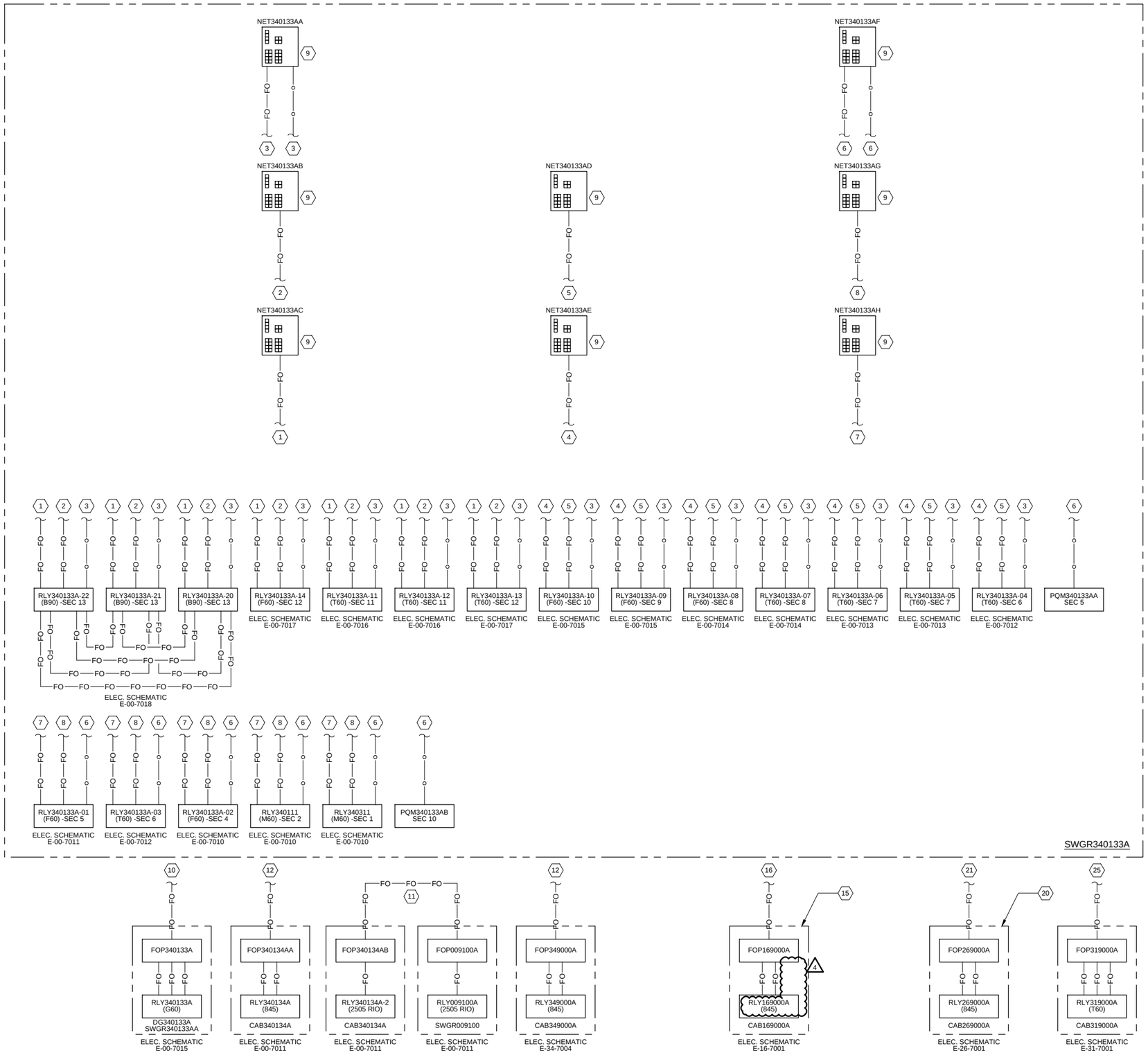


GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES. CABLES SHOWN INTERNAL TO SWITCHGEAR ARE SWITCHGEAR MANUFACTURER PROVIDED EQUIPMENT. REFER TO SECTION 26 XX XX.

2. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 2.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 2.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 2.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 2.4. JACKET COLOR FOR CABLES CONNECTING TO TPP340101C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

4. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

5. FOR MANUFACTURER CABLING REFER TO SPECIFICATION 26 13 26

6. FOR PATCH PANEL EQUIPMENT REFER TO SPECIFICATION 40 67 00.

KEYNOTES (CC30A):

1 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AC.

2 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AB.

3 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AA.

4 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AE.

5 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AD.

6 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AF.

7 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AH.

8 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133AG.

9 FOR ADDITIONAL NETWORK SWITCH CONNECTIONS. SEE DRAWING I-34-6111.

10 INSTALL FIBER PATCH CABLE BETWEEN RELAY AND FOP. ROUTE 12 FIBER MULTI-MODE CABLE TO FOP340102B IN NCE340102.

11 INSTALL NEW FOP340134A AND FOP009100A. ROUTE NEW 12 FIBER MULTI-MODE CABLE FROM CAB340134A TO SWGR009100. INSTALL MULTI-MODE FIBER PATCH CABLE BETWEEN FOP AND RELAY ON BOTH ENDS.

12 ROUTE ONE 12-FIBER MULTI-MODE CABLE TO FOP340102C IN NCE340102. SEE DRAWING I-34-6111. PATCH CABLES PROVIDED BY SWGR MANUFACTURER.

KEYNOTES (CC30B):

15 INSTALLED AS PART OF BNR BASINS/PEPS/RAS SELECTOR CONSTRUCTION PACKAGE CC30B.

16 ROUTE ONE 12-FIBER MULTI-MODE CABLE TO FOP160011D IN NCE160011. SEE DRAWING I-16-6101. PATCH CABLES PROVIDED BY SUBSTATION MANUFACTURER.

KEYNOTES (CC30D):

20 INSTALLED AS PART OF THICKENING/STRAINING CONSTRUCTION PACKAGE CC30D.

21 ROUTE ONE 12 FIBER MULTI-MODE CABLE TO FOP260011D IN NCE260011. SEE DRAWING I-26-6101. PATCH CABLES PROVIDED BY SUBSTATION MANUFACTURER.

KEYNOTES (CC30E):

25 ROUTE ONE 12-FIBER MULTI-MODE CABLE TO FOP310011D IN NCE310011. SEE DRAWING I-31-6101. PATCH CABLES PROVIDED BY SUBSTATION MANUFACTURER.

LEGEND:

— —— —— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO——FO— FIBER-OPTIC CABLE

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	07/2021	CC30A: CCF 025
A	07/2021	CC30E: ADDENDUM 1
2	08/2021	CC30B: CCF 031
3	12/2021	CC30A: CCF 032
4	01/2022	CC30B: CCF 042

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. WESTERBERG
DRAWN: K. WESTERBERG
CHECKED: C. WILSON
CHECKED:
APPROVED: J. COX

FILENAME
I-34-6112.DWG

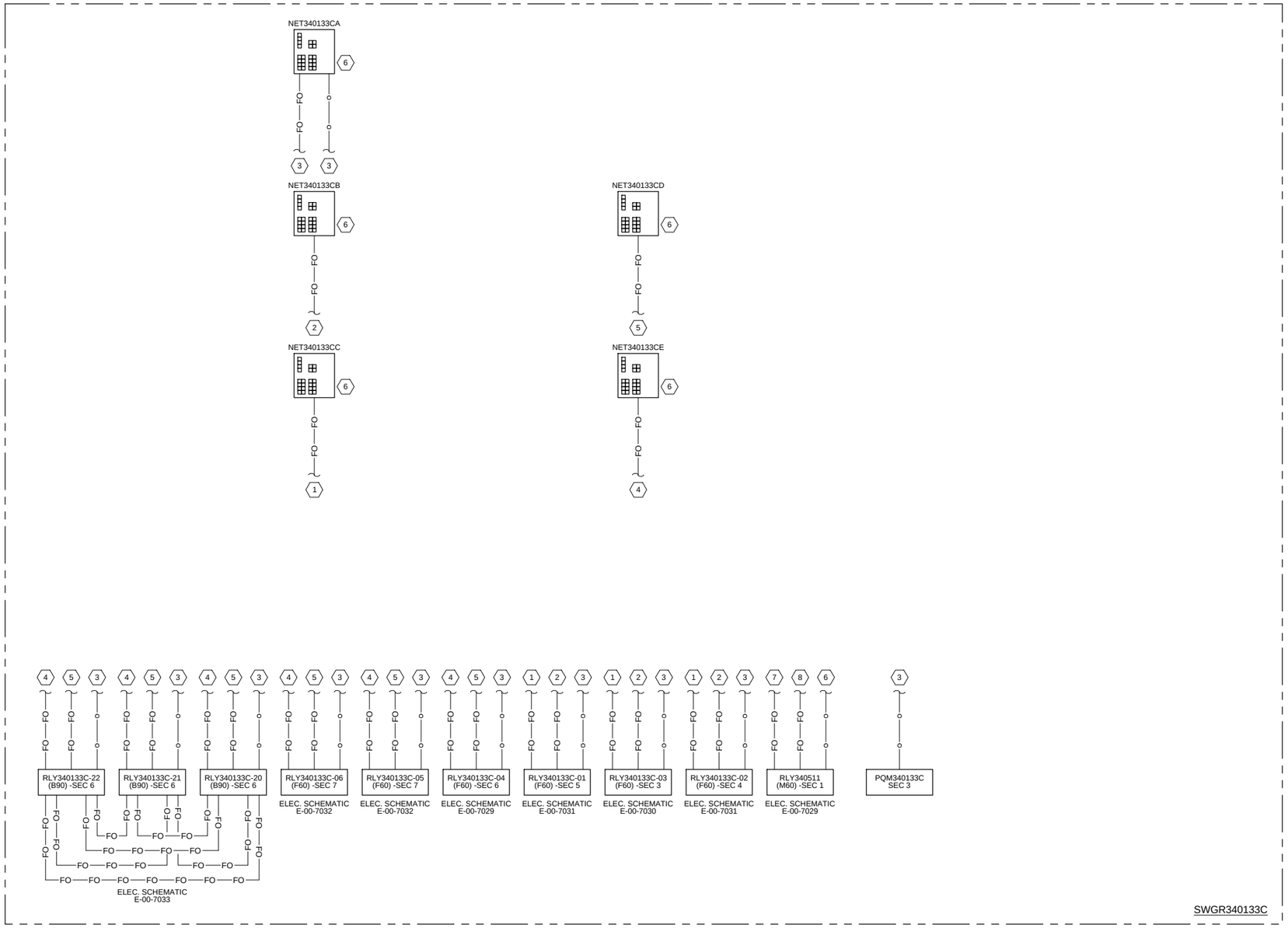
BC PROJECT NUMBER
151600

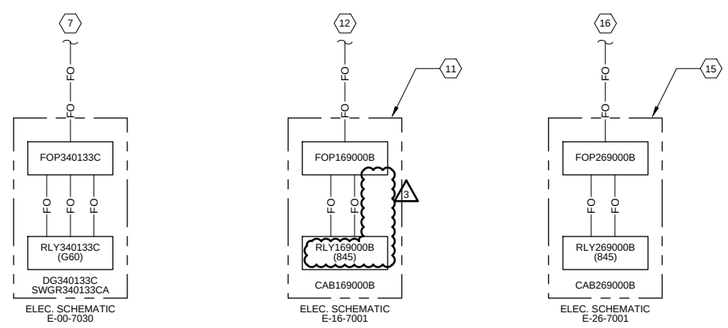
CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
SWGR340133A RELAY NETWORK DIAGRAM

DRAWING NUMBER
I-34-6112

Path: C:\USERS\KWESTERBERG\BCPW\D2160651 FILENAME: I-34-6112.DWG PLOT DATE: 1/19/2022 9:23 AM CAD USER: KEN WESTERBERG





GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES. CABLES SHOWN INTERNAL TO SWITCHGEAR ARE SWITCHGEAR MANUFACTURER PROVIDED EQUIPMENT. REFER TO SECTION 26 XX XX.

2. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 2.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 2.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 2.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 2.4. JACKET COLOR FOR CABLES CONNECTING TO TPP340101C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

4. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

5. FOR MANUFACTURER CABLING REFER TO SPECIFICATION 26 13 26.

6. FOR PATCH PANEL EQUIPMENT REFER TO SPECIFICATION 40 67 00.

KEYNOTES (CC30A):

1 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133CC.

2 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133CB.

3 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133CA.

4 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133CE.

5 ROUTE FROM SYSTEM NETWORK CONNECTION TO NET340133CD.

6 FOR ADDITIONAL NETWORK SWITCH CONNECTIONS. SEE DRAWING I-34-6111.

7 INSTALL FIBER PATCH CABLE BETWEEN RELAY AND FOP. ROUTE 12 FIBER MULTI-MODE CABLE TO FOP340102B IN NCE340102.

KEYNOTES (CC30B):

11 INSTALLED AS PART OF BNR BASINS/PEPS/RAS SELECTOR CONSTRUCTION PACKAGE CC30B.

12 ROUTE ONE 12-FIBER MULTI-MODE CABLE TO FOP160011D IN NCE160011. SEE DRAWING I-16-6101. PATCH CABLES PROVIDED BY SUBSTATION MANUFACTURER.

KEYNOTES (CC30D):

15 INSTALLED AS PART OF THICKENING/STRAINING CONSTRUCTION PACKAGE CC30D.

16 ROUTE ONE 12 FIBER MULTI-MODE CABLE TO FOP260011D IN NCE260011. SEE DRAWING I-26-6101. PATCH CABLES PROVIDED BY SUBSTATION MANUFACTURER.

LEGEND:

— ——— ——— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO——FO— FIBER-OPTIC CABLE

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	07/2021	CC30A: CCF 025
2	08/2021	CC30B: CCF 031
3	01/2022	CC30B: CCF 042

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. WESTERBERG
DRAWN: K. WESTERBERG
CHECKED: C. WILSON
CHECKED:
APPROVED: J. COX

FILENAME
I-34-6114.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
SWGR340133C RELAY NETWORK DIAGRAM

DRAWING NUMBER
I-34-6114

Path: C:\USERS\KWESTERBERG\BCPW\D2160651 FILENAME: I-34-6114.DWG PLOT DATE: 1/19/2022 9:25 AM CAD USER: KEN WESTERBERG

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 053.1
Date: 6/21/2022
Description: Per Control Change Form #055: Cost for labor and material to make welding receptacle changes.

Skyline Electric (see attached back-up):	$8,666.00
Mark-up (5%):	$433.30
Gerber Onsite Coordination & Management (see attached back-up):	$1,625.92
Bonds:	$99.75
Mark-up (15%):	$258.86
Total:	**$11,083.83**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $11,083.83 will be added to the contract price, and an additional 3 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-053 Welding Receptacle - CC#055	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-053	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor (Skyline)	**1.00**	**UNIT**	**$8,666.00**	**$8,666.00**	**$9,195.89**	**$9,195.89**	**5.10%**
S Electrical Sub	1.00	LS	$8,666.00	$8,666.00			
D 02 - Gerber Construction Onsite Coordination	**1.00**	**UNIT**	**$1,625.92**	**$1,625.92**	**$1,887.94**	**$1,887.94**	**15.00%**
01 Superintendent	4.00	HR	$157.26	$628.42			
18 Project Manager	3.00	HR	$182.02	$545.52			
20 Project Engineer	3.00	HR	$120.14	$360.05			
Truck, Pickup, 1 Ton	0.05	MO	$1,976.63	$91.94			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,533.99	14.90%
Equipment Owned:	$91.94	0.89%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$8,666.00	84.20%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$10,291.92	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$10,291.92	92.86%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$99.75	0.90%
Total Overall Cost:	$10,391.68	93.76%
Total Overhead:	$0.00	0.00%
Total Profit:	$692.15	6.24%
Total Margin:	$692.15	6.24%
Total Bid Price:	$11,083.83	

-QUOTATION-

BNR CC30B
CCF055 WELDING RECEPTACLES

June 15, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes as directed within Change Control Form 055 that pertain to CC30B.

Scope includes: Changes to breaker sizes feeding welding receptacles, associated wiring, and associated disconnect changes.

Please contact me with any questions.

Price: $ 8666.00

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	6/15/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	Jeremy Jones	Address:	815 E 675 S
Change Title:	**CCF 055 Welding Receptacles**	City/State/Zip:	Lehi/Utah/84043

Change Description:

Change breakers feeding welding receptacles from 110A to 60A.
Changes associated with wiring to welding disconnects
Remove 1- 200A disconnect and add 1- 60A disconnect

**Note the 110A breakers will be given to CVWRF after changed to 60A

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$8,660.00		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			-47.20
LABOR FACTOR:			
material handling 2.00%			-0.944
cleanup 3.00%			-1.416
safety 1.25%			-0.59
other factors 0.00%			0
other impact* OT 0.00% / overmanning 0.00% / stacking 0.00% / shift 0.00% / Composite 0.00%	Tax $671.15		
cumulative Impact			0.00
SUBTOTAL	loc 1 $ 9,331.15	loc 2 $ 0.00	-50.15
		RATE:	$ 67.00
extension:			$ -3,360.05

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	-3,360.05

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	10	hrs@	$77.00	$770.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$100.00
FIELD					Tools & Equipment		2% of Labor Dollars		-$67.20
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	4	hrs@	$77.00	$308.00	Pick-up Truck	2	dy@	$80.00	$160.00
as-builds	1	hrs@	$77.00	$77.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	1,347.80

MATERIAL		from loc 1	$	9,331.15
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,347.80
LABOR		from loc 3	$	-3,360.05
WARRANTEE	1.50%		$	109.78
BOND	1.44%		$	106.97
subtotal			$	7,535.66
OVERHEAD + PROFIT	15.00%		$	1,130.35
TOTAL CHANGE			$	8,666.00

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: **6/14/2022**

Direct: 801-233-5460

Revision 1

JOB NAME: **CVWRF CC30B BNR**
Attn: Jeremy

Item	Qty.	Description	Notes
		ADD	
	1	DH362FWK316W2 60A/F/3P/600V/N4X SWITCH	$3,513.00/EA
	3	60A/600V FUSES	$32.00/EA
	5	FD3060 3P/60A BREAKER	$1,125.00/EA
		DEDUCT	
	-1	DH364UWK316W2 200A/NF/3P/600V/N4X SWITCH	($1,374.00)

TOTAL $7,860.00 ADDER

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF055: Welding Receptacles

Takeoff

15 Jun 2022 7:58:10

Item: ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70065	6,000.00	FT	M	4.	XHHW CU (STR)	1.9200	11,520.00	0.0275	165.00
70063	2,000.00	FT	M	8	XHHW CU (STR)	0.7300	1,460.00	0.0225	45.00
1	5.00		M		Breaker install	0.0000	0.00	2.0000	10.00
						Phase Totals:	**12,980.00**		**220.00**

Item: DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
70068	-6,000.00	FT	M	1.	XHHW CU (STR)	1.8100	-10,860.00	0.0362	-217.20
70064	-2,000.00	FT	M	6.	XHHW CU (STR)	0.6600	-1,320.00	0.0250	-50.00
						Phase Totals:	**-12,180.00**		**-267.20**
						Job Totals:	**800.00**		**-47.20**

Skyline Electric Company
1848 West 2300 South
West Valley City, UT 84119
Phone: 801-972-3656
Web: https://skyline.us

CHANGE CONTROL FORM 055
Welding Receptacles

Owner: Central Valley Water Reclamation Facility	**Project: BNR/PEPS/RAS Selector**	
Contractor: Gerber Construction	**Date: 1/20/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☐ **Engineer** ☒ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

During review of RFI #126, clarification and correction was required for the welding receptacles in four locations in the electrical building, anaerobic, and aeration basins. Changes to the design in the Contract Documents and cable schedules were required. The welding receptacle circuit breakers in each panel are changing from 110A/3P to 60A/3P. Correspondingly, the cables are also changing to match the change in amperage. A keynote is placed on the plan drawings to clarify intent. Details are included on the following drawings. Cable schedules will be reissued at a later date to reflect this CCF.

E-16EB-6001:

- PNL169203
  - Ckt 31, 33, 35/3P for WRCP186001: Change breaker size to 60A/3P. Load to remain the same.
  - Updated feeder cable CBLP186001-A size to 3#4, 1#8G in cable schedule. Conduit size to remain the same.
  - Ckt 26, 28, 30/3P for WRCP176001: Change breaker size to 60A/3P. Load to remain the same.
  - Updated feeder cable CBLP176001-A size to 3#4, 1#8G in cable schedule. Conduit size to remain the same.
  - Ckt 32, 34, 36/3P for WRCP186002: Change breaker size to 60A/3P. Load to remain the same.
  - Updated feeder cable CBLP186002-A size to 3#4, 1#8G in cable schedule. Conduit size to remain the same.
- PNL169204
  - Ckt 25, 27, 29/3P for WRCP166001: Change breaker size to 60A/3P. Load to remain the same.
  - Updated feeder cable CBLP166001-A size to 3#4, 1#8G in cable schedule. Conduit size to remain the same.
- Plan drawing changes to E-16-1101, E-17-1103, E-18-1104, and E-18-1107 with revised symbol and keynote.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

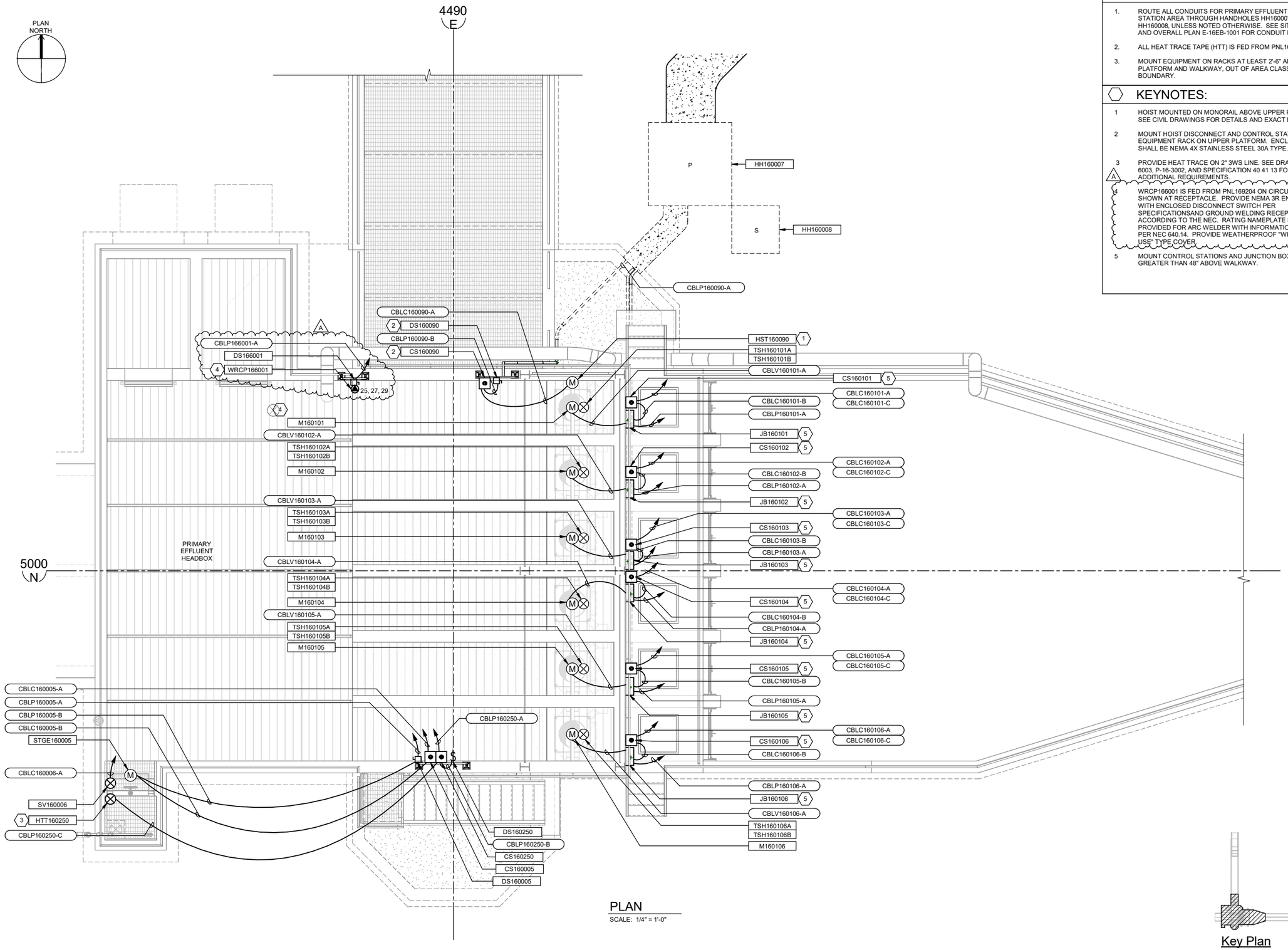
	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**

© 1997 Brown and Caldwell

Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

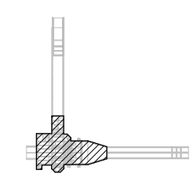
Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:



PLAN

SCALE: 1/4" = 1'-0"



Key Plan

GENERAL NOTES:

1. ROUTE ALL CONDUITS FOR PRIMARY EFFLUENT PUMP STATION AREA THROUGH HANDHOLES HH160007 AND HH160008, UNLESS NOTED OTHERWISE. SEE SITE PLANS AND OVERALL PLAN E-16EB-1001 FOR CONDUIT ROUTING.
2. ALL HEAT TRACE TAPE (HTT) IS FED FROM PNL169402.
3. MOUNT EQUIPMENT ON RACKS AT LEAST 2'-6" ABOVE PLATFORM AND WALKWAY, OUT OF AREA CLASSIFICATION BOUNDARY.

KEYNOTES:

1. HOIST MOUNTED ON MONORAIL ABOVE UPPER PLATFORM. SEE CIVIL DRAWINGS FOR DETAILS AND EXACT LOCATION.
2. MOUNT HOIST DISCONNECT AND CONTROL STATION ON EQUIPMENT RACK ON UPPER PLATFORM. ENCLOSURES SHALL BE NEMA 4X STAINLESS STEEL 30A TYPE.
3. PROVIDE HEAT TRACE ON 2" 3WS LINE. SEE DRAWING I-16-6003, P-16-3002, AND SPECIFICATION 40 41 13 FOR ADDITIONAL REQUIREMENTS.
4. A WRCP166001 IS FED FROM PNL169204 ON CIRCUITS SHOWN AT RECEPTACLE. PROVIDE NEMA 3R ENCLOSURE WITH ENCLOSED DISCONNECT SWITCH PER SPECIFICATIONSAND GROUND WELDING RECEPTACLE ACCORDING TO THE NEC. RATING NAMEPLATE SHALL BE PROVIDED FOR ARC WELDER WITH INFORMATION LISTED PER NEC 640.14. PROVIDE WEATHERPROOF "WHILE IN USE" TYPE COVER.
5. MOUNT CONTROL STATIONS AND JUNCTION BOXES NO GREATER THAN 48" ABOVE WALKWAY.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-16V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

PRIMARY EFFLUENT PUMP STATION POWER AND CONTROL PLAN

DRAWING NUMBER
E-16-1101

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16V18.rvt
Plot Date: 12/29/2021 3:34:14 PM

PNL169203

VOLTAGE: 480V
3-PHASE
3-WIRE
REMARKS: 480V PNL FOR MCC169101A

RATING: 400A
MAIN DISCONNECT: 400A CIRCUIT BREAKER
AIC: 35 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				0.32			2	20/3	FCV181321
		3					0.32		4		
		5						0.32	6		
SGTE170220	20/3	7	0.32			0.32			8	20/3	FCV181322
		9		0.32			0.32		10		
		11			0.32			0.32	12		
FCV181121	20/3	13	0.32			0.32			14	20/3	FCV181323
		15		0.32			0.32		16		
		17			0.32			0.32	18		
FCV181122	20/3	19	0.32			0.32			20	20/3	SGTE181611
		21		0.32			0.32		22		
		23			0.32			0.32	24		
FCV181123	20/3	25	0.32			16.60			26	60/3	WRCP176001
		27		0.32			16.60		28		
		29			0.32			16.60	30		
WRCP186002	60/3	31	16.60			16.60			32	60/3	WRCP186001
		33		16.60			16.60		34		
		35			16.60			16.60	36		
WRCP186003	60/3	37	16.60						38	20/3	SPARE
		39		16.60					40		
		41			16.60				42		

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	34.48	34.48	34.48
LOAD SUBTOTAL, RIGHT (kVA):	34.48	34.48	34.48
LOAD TOTAL (kVA):	68.96	68.96	68.96
TOTAL AMPS PER PHASE (A):	188.94	188.94	188.94

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	0.00	kVA	100	%	0.00	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	0.00	kVA	125	%	0.00	kVA
LM = LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M = OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S = DEDICATED RECEPTACLES	0.00	kVA	100	%	0.00	kVA
Z = MISC. OR APPLIANCES	157.08	kVA	100	%	157.08	kVA
TOTALS:	157.08	kVA			157.08	kVA

NOTES:

1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.
2. PROVIDE MAIN CIRCUIT BREAKER WITH ADJUSTABLE TRIP UNIT. TRIP UNIT TO INCLUDE INSTANTANEOUS TRIP FUNCTION.

PNL169204

VOLTAGE: 480V
3-PHASE
3-WIRE
REMARKS: 480V PNL FOR MCC169101B

RATING: 225A
MAIN DISCONNECT: 150A CIRCUIT BREAKER
AIC: 35 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				0.32			2	20/3	SGTE181621
		3					0.32		4		
		5						0.32	6		
FCV181221	20/3	7	0.32			0.32			8	20/3	FCV181421
		9		0.32			0.32		10		
		11			0.32			0.32	12		
FCV181222	20/3	13	0.32			0.32			14	20/3	FCV181422
		15		0.32			0.32		16		
		17			0.32			0.32	18		
FCV181223	20/3	19	0.32			0.32			20	20/3	FCV181423
		21		0.32			0.32		22		
		23			0.32			0.32	24		
WRCP166001	60/3	25	16.60						26	20/3	SPARE
		27		16.60					28		
		29			16.60				30		
SPARE	20/3	31							32	20/3	SPARE
		33							34		
		35							36		
SPARE	20/3	37							38	3	Future Space
		39							40		
		41							42		

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	17.56	17.56	17.56
LOAD SUBTOTAL, RIGHT (kVA):	1.28	1.28	1.28
LOAD TOTAL (kVA):	18.84	18.84	18.84
TOTAL AMPS PER PHASE (A):	67.98	67.98	67.98

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	0.00	kVA	100	%	0.00	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	0.00	kVA	125	%	0.00	kVA
LM = LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M = OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S = DEDICATED RECEPTACLES	0.00	kVA	100	%	0.00	kVA
Z = MISC. OR APPLIANCES	56.52	kVA	100	%	56.52	kVA
TOTALS:	56.52	kVA			56.52	kVA

NOTES:

1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

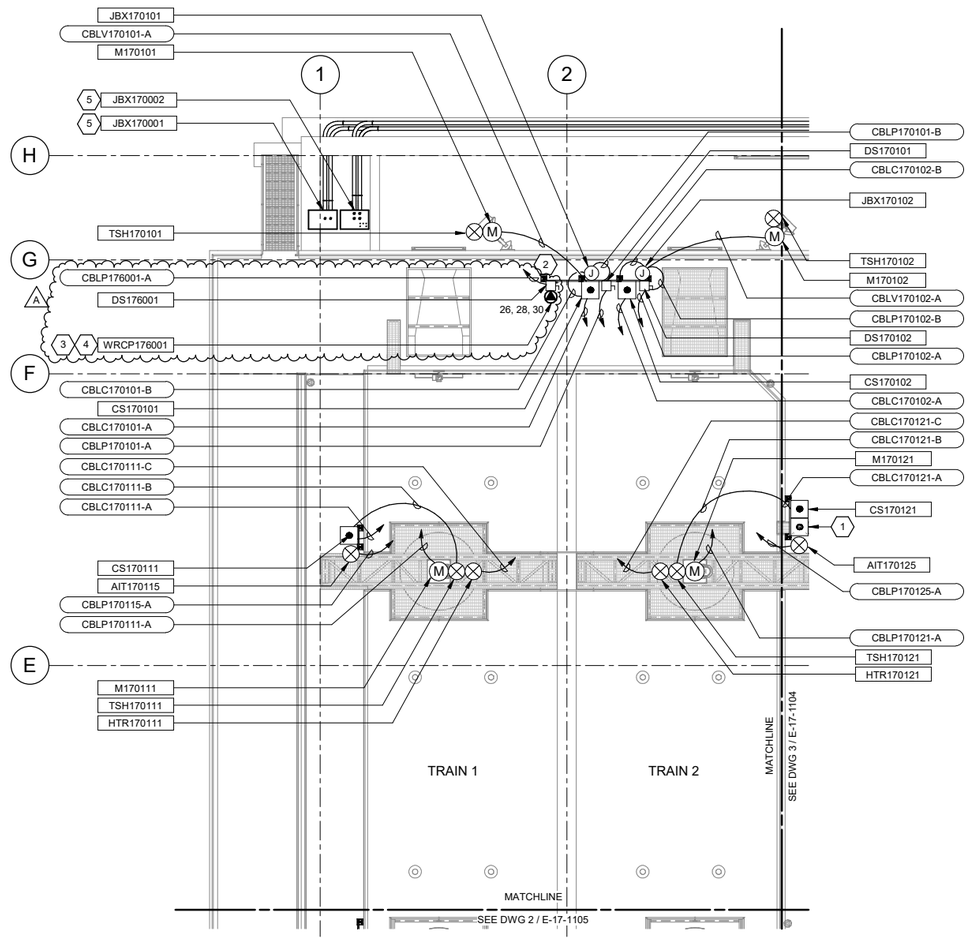
FILENAME
E-16EB-6001.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30D

ELECTRICAL
ANAEROBIC AND AERATION ELECTRICAL 480V PANEL SCHEDULES 1

DRAWING NUMBER
E-16EB-6001

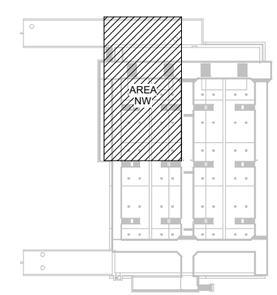
Path: C:\BCPW\D2160813 FILENAME: E-16EB-6001.DWG PLOT DATE: 1/20/2022 1:59 PM CAD USER: JEREMY J. MILLER

NORTH



PLAN

SCALE: 1/8" = 1'-0"



Key Plan

GENERAL NOTES:

1. CIRCUIT ALL AIT INSTRUMENTS TO PNL169501, UNLESS NOTED OTHERWISE.

KEYNOTES:

1. SEE SHEET E-17-1104 FOR INFORMATION PERTAINING TO CS170131.
2. PROVIDE TYPICAL WELDING UTILITY STATION INCLUDING 120V RECEPTACLE, 480V WELDING RECEPTACLE, 2" PLANT WATER, AND UTILITY COMPRESSED AIR MOUNTED ON EQUIPMENT RACK. SEE DETAIL E4001.
3. WELDING RECEPTACLE ENCLOSURE SHALL BE NEMA 3R WITH ENCLOSED DISCONNECT SWITCH PER SPECIFICATIONS. RATING NAMEPLATE SHALL BE PROVIDED FOR ARC WELDER WITH INFORMATION LISTED PER NEC 640.14. CIRCUIT WELDING RECEPTACLE TO PNL169203 ON CIRCUIT SHOWN.
4. GROUND WELDING RECEPTACLE ACCORDING TO THE NEC.
5. ALL CONDUITS FOR EQUIPMENT AND INSTRUMENTS IN THE ANAEROBIC AND AERATION BASINS SHALL BE ROUTED VIA JUNCTION BOXES. JUNCTION BOXES SHALL BE NEMA 4X, FREESTANDING ENCLOSURE WITH LEGS. SIZES SHOWN ON THE PLAN DRAWINGS ARE ESTIMATED BASED ON PROPOSED ROUTING OF CONDUITS. CONTRACTOR SHALL BE RESPONSIBLE TO SIZE ALL JUNCTION BOXES PER NEC 314. FOR BID PURPOSES, ASSUME MINIMUM SIZE FOR POWER JUNCTION BOX TO BE 3'W X 3'D' X 5'H AND MINIMUM SIZE FOR SIGNAL JUNCTION BOX TO BE 2'W X 3'D' X 5'H.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

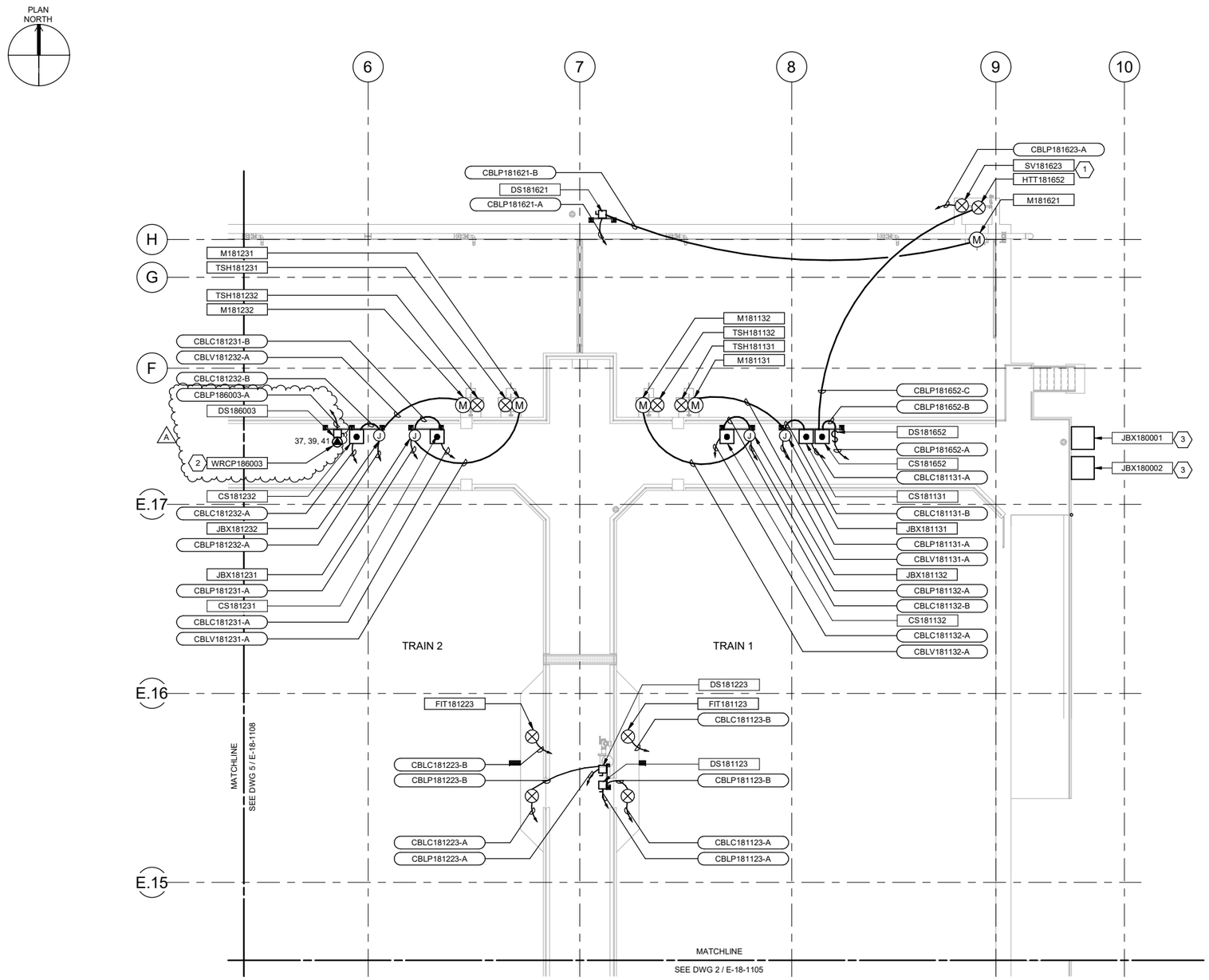
FILENAME 151600-E-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

ANAEROBIC BASIN TRAIN 1 & 2 NORTH POWER AND CONTROL PLAN

DRAWING NUMBER
E-17-1103

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-17V21.rvt
Plot Date: 12/30/2021 1:23:59 PM



PLAN

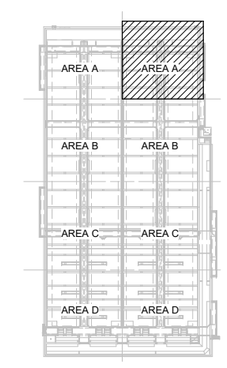
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. ALL HEAT TRACE TAPE (HTT) IS POWERED FROM PNL169501.

KEYNOTES:

1. PROVIDE HEAT TRACE ON 2" 3WS LINE. SEE DRAWING I-18-6042, P-18-1015, AND SPECIFICATION 40 41 13 FOR ADDITIONAL REQUIREMENTS.
2. WELDING RECEPTACLE ENCLOSURE SHALL BE NEMA 3R WITH ENCLOSED DISCONNECT SWITCH PER SPECIFICATIONS. RATING NAMEPLATE SHALL BE PROVIDED FOR ARC WELDER WITH INFORMATION LISTED PER NEC 340.14. PROVIDE "WHILE IN USE" TYPE WEATHERPROOF COVER. CIRCUIT WELDING RECEPTACLE TO PNL169301 ON CIRCUITS SHOWN AT RECEPTACLE. GROUND WELDING RECEPTACLE ACCORDING TO NEC.
3. ALL CONDUITS FOR EQUIPMENT AND INSTRUMENTS IN THE ANAEROBIC AND AERATION BASINS SHALL BE ROUTED VIA JUNCTION BOXES. JUNCTION BOXES SHALL BE NEMA 4X, FREESTANDING ENCLOSURE WITH LEGS. SIZES SHOWN ON THE PLAN DRAWINGS ARE ESTIMATED BASED ON PROPOSED ROUTING OF CONDUITS. CONTRACTOR SHALL BE RESPONSIBLE TO SIZE ALL JUNCTION BOXES PER NEC 314. FOR BID PURPOSES, ASSUME MINIMUM SIZE FOR POWER JUNCTION BOX TO BE 3'W X 3'D' X 5'H AND MINIMUM SIZE FOR SIGNAL JUNCTION BOX TO BE 2'W X 3'D' X 5'H.



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

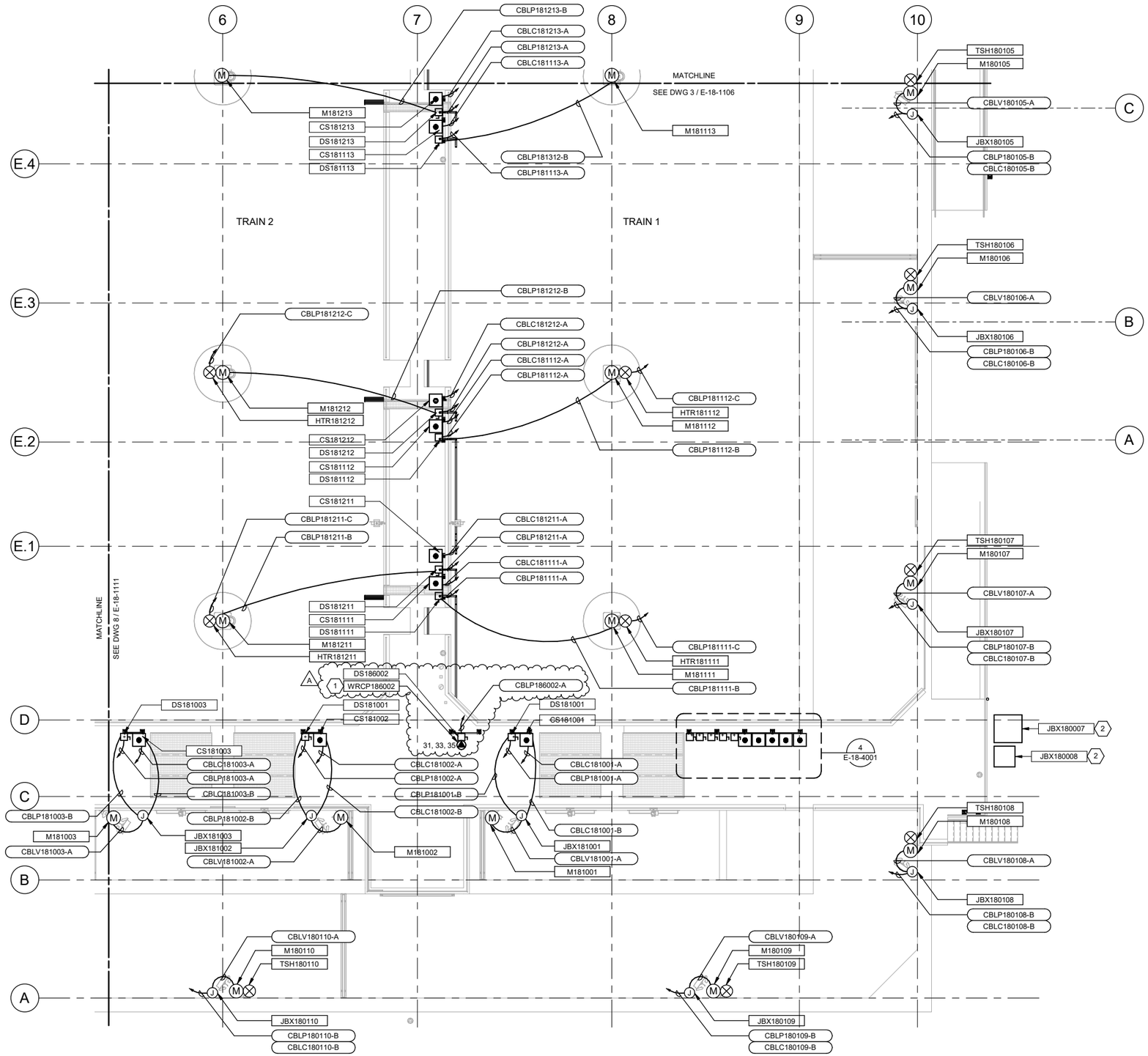
ELECTRICAL

AERATION BASINS TRAIN 1 & 2 AREA A POWER AND CONTROL PLAN

DRAWING NUMBER
E-18-1104

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-18V21.rvt

Plot Date: 12/29/2021 3:39:32 PM

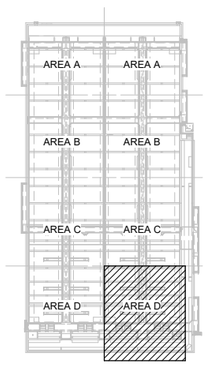


PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES:

1. WELDING RECEPTACLE ENCLOSURE SHALL BE NEMA 3R WITH ENCLOSED DISCONNECT SWITCH PER SPECIFICATIONS. RATING NAMEPLATE SHALL BE PROVIDED FOR ARC WELDER WITH INFORMATION LISTED PER NEC 340.14. PROVIDE "WHILE IN USE" TYPE WEATHERPROOF COVER. CIRCUIT WELDING RECEPTACLE TO PNL169301 ON CIRCUITS SHOWN AT RECEPTACLE. GROUND WELDING RECEPTACLE ACCORDING TO NEC.
2. ALL CONDUITS FOR EQUIPMENT AND INSTRUMENTS IN THE ANAEROBIC AND AERATION BASINS SHALL BE ROUTED VIA JUNCTION BOXES. JUNCTION BOXES SHALL BE NEMA 4X, FREESTANDING ENCLOSURE WITH LEGS. SIZES SHOWN ON THE PLAN DRAWINGS ARE ESTIMATED BASED ON PROPOSED ROUTING OF CONDUITS. CONTRACTOR SHALL BE RESPONSIBLE TO SIZE ALL JUNCTION BOXES PER NEC 314. FOR BID PURPOSES, ASSUME MINIMUM SIZE FOR POWER JUNCTION BOX TO BE 3'W X 3'D' X 5'H AND MINIMUM SIZE FOR SIGNAL JUNCTION BOX TO BE 2'W X 3'D' X 5'H.



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

AERATION BASINS TRAIN 1 & 2 AREA D POWER AND CONTROL PLAN

DRAWING NUMBER
E-18-1107

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-18V21.rvt

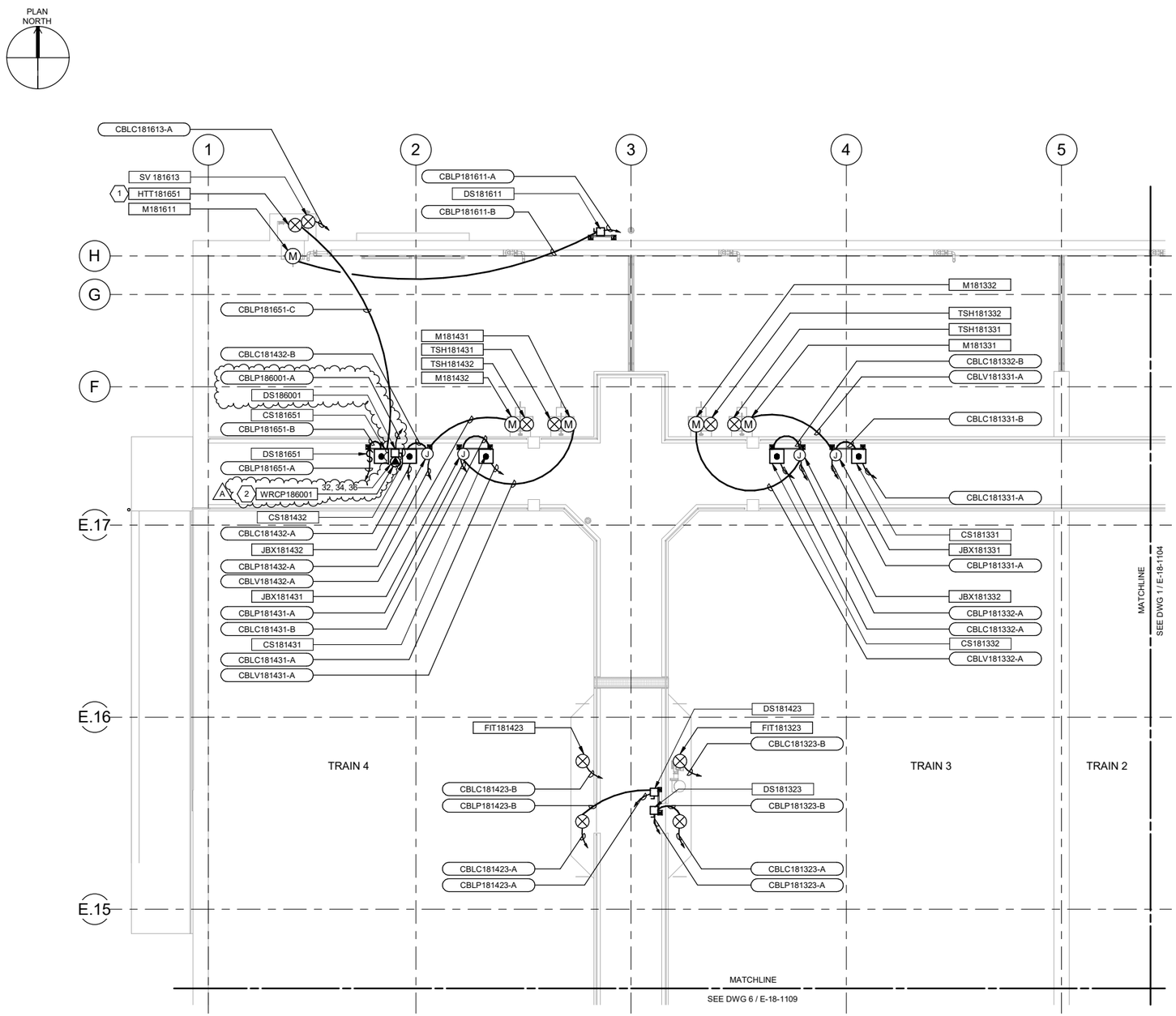
Plot Date: 12/29/2021 3:39:35 PM

GENERAL NOTES:

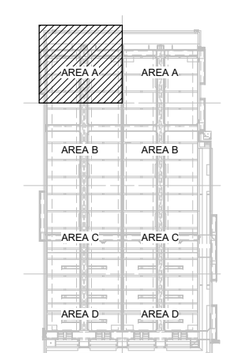
1. ALL HEAT TRACER TAPE (HTT) IS POWERED FROM PNL169402.

KEYNOTES:

1. PROVIDE HEAT TRACE ON 2" 3WS LINE. SEE DRAWING I-18-6042, P-18-1015, AND SPECIFICATION 40 41 13 FOR ADDITIONAL REQUIREMENTS.
2. WELDING RECEPTACLE ENCLOSURE SHALL BE NEMA 3R. RATING NAMEPLATE SHALL BE PROVIDED FOR ARC WELDER WITH INFORMATION LISTED PER NEC 340.14. PROVIDE "WHILE IN USE" TYPE WEATHERPROOF COVER. CIRCUIT WELDING RECEPTACLE TO PNL169301 ON CIRCUITS SHOWN AT RECEPTACLE. GROUND WELDING RECEPTACLE ACCORDING TO NEC.



PLAN
SCALE: 1/8" = 1'-0"



Key Plan

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

BID ISSUE

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
A	12/29/21	CCF 055

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-18V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

AERATION BASINS TRAIN 3 & 4 AREA A POWER AND CONTROL PLAN

DRAWING NUMBER
E-18-1108

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-18V21.rvt
Plot Date: 1/11/2022 2:10:16 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 055
Date: 3/24/2022
Description: Per Control Change Form #065: Cost to change coatings on areas that are now not receiving fireproofing. The coating was changed in Change Control Form #051 but was never priced in that proposed change order. This proposed change order is the cost difference between the original specified coating and the new coating specified in Change Control Form #065.

Orion Construction (see attached back-up):	$175.00
Mark-up (5%):	$8.75
Gerber Onsite Coordination & Management (see attached back-up):	$422.27
Bonds:	$6.08
Mark-up (15%):	$64.25
Total:	**$676.35**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $676.35 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-055 Tnemec Paint On Ceilings CC#065	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-055	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Coating Subcontractor (Orion Construction)	**1.00**	**UNIT**	**$175.00**	**$175.00**	**$185.80**	**$185.80**	**5.10%**
Painting Sub	1.00	LS	$175.00	$175.00			
02 - Gerber Construction Onsite Coordination	**1.00**	**UNIT**	**$422.27**	**$422.27**	**$490.55**	**$490.55**	**15.00%**
20 Project Engineer	2.00	HR	$120.14	$240.25			
18 Project Manager	1.00	HR	$182.02	$182.02			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$422.27	70.70%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$175.00	29.30%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$597.27	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$597.27	88.31%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$6.09	0.90%
Total Overall Cost:	$603.35	89.21%
Total Overhead:	$0.00	0.00%
Total Profit:	$73.00	10.79%
Total Margin:	$73.00	10.79%
Total Bid Price:	$676.35	

Orion Construction, LC

Painting and Coating Contractors

March 17, 2022

Gerber Construction Company
Shay Clark
815 East 675 South
Lehi, Utah 84043

Project: CVWRF BNR Project CC #30B

Shay,

The following is the lump sum proposal for labor and materials for the elimination of the fire proofing topcoat and the addition Tnemec Series 115 for the exposed roof structure per CC #30B. The deduction of the originally specified coatings is $20,802.00 and the add for Series 115 is $20,977.00 for a net add of $175.00.

The lump sum cost is an add of $175.00

Respectfully Submitted,

Orion Construction, LC

George E. Hatfield
Managing Partner

9802 North 5740 West – Highland, Utah 84003-9198 - (801) 763-8999
Fax (801) 763-8998 - Mobile (801) 680-8999

CHANGE CONTROL FORM 065
Tnemec on Roof Deck and Framing

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 3/16/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a deductive proposal to provide Tnemec Series 115 system in lieu of Sherwin Williams epoxy on roof decks and framing of Area 16EB (Electrical Building) and Area 22 (RAS/WAS Basin). Please see attached drawings for updated color schedules.

Attachments: A-16EB-6002 and A-22-6001

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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ROOM SCHEDULE

ROOM NAME	NUMBER	FLOOR	WALLS, WAINSCOT, BASES												CEILING		1
			NORTH			EAST			SOUTH			WEST					
			WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	TYPE	HEIGHT	REMARKS
ELECTRICAL ROOM	ES101	SC-1	P-4			P-4			P-4			P-4			P-3	16'-0"	EXPOSED STRUCTURE, PAINTED
GOLF CART GARAGE	ES102	SC-1	P-4			P-4			P-4			P-4			P-3	16'-0"	EXPOSED STRUCTURE, PAINTED
OPERATORS SAMPLING / CALIBRATION ROOM	ES103	SC-1	P-4		RB-1	P-4		RB-1	P-4		RB-1	P-4		RB-1	ACT-1	10'-0"	SUSPENDED GRID CEILING
MENS	ES104	CT-1	CT-2 & CT-3			CT-2 & CT-3			CT-2 & CT-3			CT-2 7 CT-3			P-7	9'-0"	SUSPENDED GYPSUM BOARD, PAINTED
WOMENS	ES105	CT-1	CT-2 & CT-3			CT-2 & CT-3			CT-2 & CT-3			CT-2 7 CT-3			P-7	9'-0"	SUSPENDED GYPSUM BOARD, PAINTED

COLOR SCHEDULE

MARK	MATERIAL	MANUFACTURER	COLOR	STYLE NUMBER	FINISH REMARKS
EP-1	NON-SKID EPOXY FLOOR	SHERWIN WILLIAMS	GRAY		SEE SPECIFICATION 09 91 00
SC-1	CONCRETE FLOOR SEALER	SHERWIN WILLIAMS	CLEAR	RAIN GUARD FLOOR LOCK WITH MICO-LOC	SEE SPECIFICATION 09 91 00
SC-2	CONCRETE & MASONRY WALL SEALER	BASF	CLEAR	MASTER PROTECT H107	SEE SPECIFICATION 09 91 00
P-1	EPOXY PAINT EXTERIOR	SHERWIN WILLIAMS	ENDURING BRONZE	SW 7055	EXTERIOR TRIM
P-2	RAL POWDER COAT PAINT	RAL COLORS	BRONZE	RAL 8011	OVERHEAD COILING DOORS
P-4	PAINT INTERIOR	SHERWIN WILLIAMS	SHOJI WHITE	SW 7042	INTERIOR WALLS SERVICE AREAS
2 P-7	LATEX PAINT INTERIOR	SHERWIN WILLIAMS	EXTRA WHITE	SW 7006	ROOF DECK AND BEAMS CONCRETE
P-3	TNEMIC SERIES 115 SYSTEM	TNEMIC	EXTRA WHITE	MATCH SHERWIN WILLIAMS COLOR: SW 7006	METAL ROOF DECK AND STRUCTURAL FRAMING
1 AN-1	ALUMINUM	SPECIAL-LITE	MEDIUM BRONZE	ANODIZED	DOOR FRAMES
AN-2	ALUMINUM		CLEAR	ANODIZED	WINDOW FRAMES AND PARAPET COPING
FRP-1	FRP	SPECIAL-LITE	BRONZE	PEBBLE FINISH	DOORS
CT-1	FLOOR PORCELAIN TILE	DALTILE (FEILD)	EXQUISITE	EQ13 MINK	2" X 4" MOSAIC
CT-2	WALL PORCELAIN TILE	DALTILE (FEILD)	EXQUISITE	EQ10 IVORY	12" X 24"
CT-3	WALL ACCENT BAND	DALTILE	EXQUISITE	EQ13 MINK	4" HIGH MOSAIC BAND AT 60" AFF
RB-1	RUBBER BASE BOARD	ROPPE	BURNT UMBER	P194	
ACT-1	ACOUSTICAL TILE	ARMSTRONG	WHITE	24" X 24" X 3/4" CORTEGA TEGULAR	
SS-1	COUNTERTOP	DURCON	BLACK ONYX		COUNTERTOPS
SS-2	WINDOW SILL	CORIAN	SAVANNAH		INTERIOR WINDOW SILL
PL-1	PLASTIC LAMINATE	WILSON ART	NEW AGE OAK	7938-38	CABINET FRONTS

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51
2	3/15/22	CC30B CCF 65

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME
151600-S-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ARCHITECTURAL
ANAEROBIC AND
AERATION
ELECTRICAL
BUILDING
SCHEDULES 2

DRAWING NUMBER
A-16EB-6002

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-16EBV21.rvt
Plot Date: 3/16/2022 11:01:06 AM

ROOM SCHEDULE

ROOM NAME	NUMBER	FLOOR	WALLS, WAINSCOT, BASES												CEILING		REMARKS
			NORTH			EAST			SOUTH			WEST					
			WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	WALL	WAINSCOT	BASE	TYPE	HEIGHT	
DRY PIT	RA001	SC-1	SC-2			SC-2			SC-2			SC-2			SC-2	20'-0"	EXPOSED CONCRETE STRUCTURE
STAIRWELL	RA002	SC-1	SC-2			SC-2			SC-2			SC-2			SC-2	20'-0"	EXPOSED CONCRETE STRUCTURE
ELECTRICAL ROOM	RA103	SC-1	P-4			P-4			P-4			P-4			P-3	13'-4"	ROOF DECK AND FRAMING PAINTED
STAIR PENTHOUSE	RA201	SC-1	P-4			P-4			P-4			P-4			P-3	13'-4"	ROOF DECK AND FRAIMING, PAINTED

1

COLOR SCHEDULE

wt	MATERIAL	MANUFACTURER	COLOR	STYLE NUMBER	REMARKS
SC-1	CONCRETE FLOOR SEALER	RAIN GUARD	CLEAR	RAIN GUARD FLOOR LOCK WITH MICRO-LOC	SEE SPECIFICATION 09 91 00
SC-2	CONCRETE & MASONRY WALL SEALER	BASF	CLEAR	MASTER PROTECT H107	SEE SPECIFICATION 09 91 00
					1
P-1	EPOXY PAINT EXTERIOR	SHERWIN WILLIAMS	ENDURING BRONZE	SW 7055	EXTERIOR TRIM
P-3	TNEMIC SERIES 115 SYSTEM	TNEMIC	EXTRA WHITE	MATCH SHERWIN WILLIAMS COLOR: SW 7006	INTERIOR ROOF DECK AND STRUCTURAL FRAMIN 2
P-4	PAINT INTERIOR	SHERWIN WILLIAMS	SHOJI WHITE	SW 7042	INTERIOR WALLS SERVICE AREAS
AN-1	ALUMINUM	SPECIAL-LITE	MEDIUM BRONZE	ANODIZED	DOOR FRAMES
AN-2	ALUMINUM		CLEAR	ANODIZED	WINDOW FRAMES AND PARAPET COPING
FRP-1	FRP	SPECIAL-LITE	BRONZE	PEBBLE FINISH	DOORS & TRANSOM

A-DOOR SCHEDULE

NO	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR THICK.	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME WIDTH	FRAME HEIGHT	FRAME MAT	FRAME FIN	VIEW WIDTH	VIEW HEIGHT	VIEW MAT	TRANSOM THICK	TRANSOM MAT	TRANSOM FIN	SIDE LIGHT(S) MAT	SIDE LIGHT(S) FIN	RATING	HRDW GROUP	REMARKS	DOOR SIGNAGE QTY	DOOR SIGNAGE RM NAME	DOOR SIGNAGE ROOM NO.	DOOR SIGNAGE DETAIL
RA101	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 2"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA		4	CARD READER, EXIT DOOR				
RA102	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 4"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA			CARD READER, EXIT DOOR				
RA103	A	3' - 0"	7' - 0"	1 3/4"	FRP	FRP-1	F-1	3' - 4"	7' - 4"	ALUM	AN-1	2' - 2"	2' - 6"	G2				NA	NA		4	CARD READER, EXIT DOOR				
RA104	B	5' - 8"	7' - 0"	1 3/4"	FRP	FRP-1	F-2	6' - 0"	10' - 0"	ALUM	AN-1	2' - 2"	3' - 0"	G2	1 3/4"	FRP	FRP-1	NA	NA		2	PAIR OF DOORS WITH TRANSOM, EXIT DOOR				

GLAZING TYPES

G1 1" THICK INSULATING GLASS: 1/4" TINTED FLOAT GLASS EXTERIOR AND 1/4" CLEAR FLOAT GLASS INTERIOR WITH 1/2" AIR SPACE. TINT: PPG SOLARBAN 60 GRAY. LOW-E

G2 1" THICK INSULATING GLASS TEMPERED: 1/4" TINTED TEMPERED GLASS EXTERIOR AND 1/4" CLEAR TEMPERED GLASS INTERIOR WITH 1/2" AIR SPACE. TINT: PPG SOLARBAN 60 ,GRAY. LOW-E

G3 1/4" CLEAR TEMPERED GLASS

HW SET: 02
DOOR NUMBER: (INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING DOORS)

RA104

QTY		ITEM	MODEL NO.	FIN	MANUF
2	EA	CONT. HINGE	705	630	IVE
1	EA	REMOVABLE MULLION	KR4023	SP28	FAL
1	EA	PANIC HARDWARE	25-R-EO	630	FAL
1	EA	PANIC HARDWARE	25-R-L-NL-DANE	630	FAL
2	EA	MORTISE CYLINDER	20-059 X K510-730	626	SCH
2	EA	SURFACE CLOSER	4050 sCUSH TBWMS	689	LCN
1	EA	GASKETING	429AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
2	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
2	EA	KICK PLATE	10" X 2" LDW	630	IVE
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

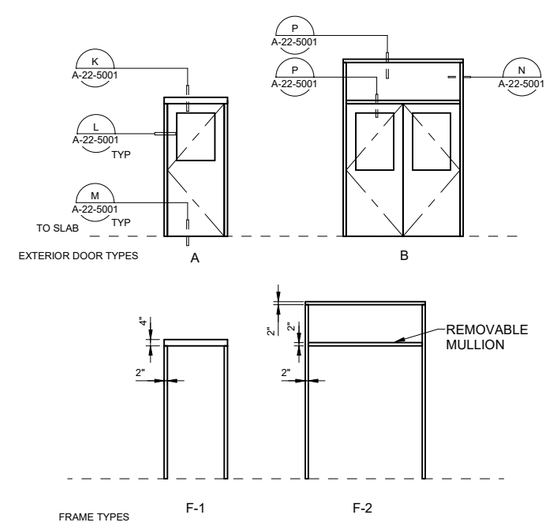
DOOR POSITION IS MONITORED BY SECURITY SYSTEM.

HW SET: 04
DOOR NUMBER: (INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING DOORS)

RA101 RA102 RA103

QTY		ITEM	MODEL NO.	FIN	MANUF
1	EA	CONT. HINGE	705	630	IVE
1	EA	PANIC HARDWARE	25-R-L-NL-DANE	630	FAL
1	EA	MORTISE CYLINDER	20-059 X K510-730	626	SCH
1	EA	ELECTRIC STRIKE	6030 FSE	630	VON
1	EA	SURFACE CLOSER	4050 CUSH TBWMS	689	LCN
1	EA	WALL STOP	FS18S	BLK	IVE
1	EA	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA	KICK PLATE	10" X 2" LDW	630	IVE
1	EA	CREDENTIAL READER	BY DIV 28		B/O
1	EA	PIR REQUEST TO EXIT	SCANII	BLK	SCE
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	BY DIV 28		B/O

CARD IN. USER PRESENTS CREDENTIAL, ELECTRIC STRIKE KEEPER RELEASES, USER OPENS DOOR TO ENTER. DOOR POSITION IS MONITORED THROUGH SECURITY SYSTEM. MOTION DETECTOR IS REQUEST TO EXIT.



DOOR AND FRAME TYPES

SCALE: 1/4" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

THALMANN ARCHITECT
2 Pepperwood Pointe
Sandy, Utah 84092
Cell: 801-647-8043
Office: 801-572-1997
fltarch@xmission.com

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	12/7/21	CC30B CCF 51
2	3/15/22	CC30B CCF 65

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: F. THALMANN
DRAWN: T. BOUFFARD
CHECKED: D. CRAWFORD
CHECKED:
APPROVED: F. THALMANN

FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ARCHITECTURAL

RAS/WAS BASIN SCHEDULES

DRAWING NUMBER
A-22-6001

Path: BIM 360://151600 - Central Valley Nutrients/151600-S-22V21.rvt
Plot Date: 3/16/2022 11:26:00 AM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 060
Date: 7/19/2022
Description: Per Skyline Electric's Quotation dated May 18, 2022: Cost for changes in Low Voltage Switchgear PLC.

Skyline Electric (see attached back-up):	$50,736.83
Mark-up (5%):	$2,536.85
Gerber Onsite Coordination & Management (see attached back-up):	$2,521.90
Bonds:	$510.85
Mark-up (15%):	$454.92
Total:	**$56,761.35**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $56,761.35 will be added to the contract price, and an additional 14 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-060 Low Voltage Switchgear PLC	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-060	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Added Electrical (Skyline)	**1.00**	**UNIT**	**$50,736.83**	**$50,736.83**	**$53,833.34**	**$53,833.34**	**5.10%**
Electrical Sub	1.00	LS	$50,736.83	$50,736.83			
02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$2,521.90**	**$2,521.90**	**$2,928.01**	**$2,928.01**	**15.00%**
01 Superintendent	4.50	HR	$168.40	$757.81			
20 Project Engineer	4.50	HR	$150.82	$678.67			
18 Project Manager	4.50	HR	$181.68	$817.56			
Truck, Pickup, 1 Ton	0.05	MO	$2,301.00	$107.02			
Truck, Pickup, 3/4 Ton	0.09	MO	$1,729.00	$160.84			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,254.04	4.23%
Equipment Owned:	$267.86	0.50%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$50,736.83	95.26%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$53,258.73	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$53,258.73	93.83%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$510.85	0.90%
Total Overall Cost:	$53,769.58	94.73%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,991.77	5.27%
Total Margin:	$2,991.77	5.27%
Total Bid Price:	$56,761.35	

-QUOTATION-

BNR CC30B
SWITCHGEAR ADDITIONAL COSTS

May 18, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

This change order request is to address additional clarifications provided on the PLC based transfer controller that were not part of Eaton's base bid. The following items were discovered in discussion with the end customer:
- Only two network cards in each CPU rack were specified in spec section 26 23 00, four network cards are needed.
- The model of the hot-standby processor was not included in spec section 26 23 00.
- The backplane model was not included in spec section 26 23 00.
- The PLC rack power supply model was not included in spec section 26 23 00.
- Additional CPU memory was not included in spec section 26 23 00.

Scope includes:
Hardware Changes:
- REPLACE (qty.2) BMEXBP0400 with (qty.2) BMEXBP0602
- REPLACE (qty.2) BMEH582040 with (qty.2) BMEH586040
- REPLACE (qty.2) BMXCPS2000 with (qty.4) BMXCPS4022 .
- REPLACE (qty.2) 490NAC0100 with (qty.2) 490NAC0201
- ADD (qty.4) BMENUA0100
- ADD (qty.2) BMXRMS004GPF

Please contact me with any questions.

Price: $ 50,736.83

Best regards,

Jeremy Jones

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	5/18/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**SWITCHGEAR ADDITIONAL COSTS**	City/State/Zip:	Lehi, UT 84043

Change Description:

Hardware Changes:
- REPLACE (qty.2) BMEXBP0400 with (qty.2) BMEXBP0602
- REPLACE (qty.2) BMEH582040 with (qty.2) BMEH586040
- REPLACE (qty.2) BMXCPS2000 with (qty.4) BMXCPS4022 .
- REPLACE (qty.2) 490NAC0100 with (qty.2) 490NAC0201
- ADD (qty.4) BMENUA0100
- ADD (qty.2) BMXRMS004GPF

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$39,625.00		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			0.00

LABOR FACTOR:

material handling		2.00%					0
cleanup		3.00%					0
safety		1.25%					0
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $3,070.94	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 42,695.94	loc 2 $ 0.00		0.00
			RATE: $	67.00
extension:			$	0.00

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	0.00

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$77.00	$0.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$0.00
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$77.00	$154.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	154.00

MATERIAL		from loc 1	$	42,695.94
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	154.00
LABOR		from loc 3	$	0.00
WARRANTEE	1.50%		$	642.75
BOND	1.44%		$	626.29
subtotal			$	44,118.98
OVERHEAD + PROFIT	15.00%		$	6,617.85
TOTAL CHANGE			$	50,736.83

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Eaton PSC Project Change Order (CO) Request

PROJECT NAME	CVWRF – CC30B		
LOCATION OF WORK	Salt Lake City, UT		
CUSTOMER NAME	Central Valley Water Reclamation Facility	**PROJECT NUMBER #**	MSL0010325
CHANGE ORDER REQUESTOR	Greg Hand	**PSCU PROPOSAL NUMBER #**	PSCU3687MSH
PROJECT MANAGER	Aaron Farmer	**CHANGE ORDER #**	MSL0010325_CO#1
CUST. CONTACT NAME		**DATE OF REQUEST**	4/6/2022

PROJECT CHANGE ORDER DETAILS	
CHANGE ORDER DESCRIPTION/ Reason	This change order request is to address additional clarifications provided on the PLC based transfer controller that were not part of Eaton's base bid. The following items were discovered in discussion with the end customer: - Only two network cards in each CPU rack were specified in spec section 26 23 00, four network cards are needed. - The model of the hot-standby processor was not included in spec section 26 23 00. - The backplane model was not included in spec section 26 23 00. - The PLC rack power supply model was not included in spec section 26 23 00. - Additional CPU memory was not included in spec section 26 23 00.

CHANGE ORDER FINANCIAL IMPACT		
ITEM	**DESCRIPTION**	**DOLLARS**

1	Hardware Changes:
	- REPLACE (qty.2) BMEXBP0400 with (qty.2) BMEXBP0602
	  o Note: Upgrading to a larger CPU backplane to accommodate more NOC cards. Also note that we were unable to go to the 10 slot / dual power supply backplane as there is not physically enough room width wise in low voltage switchgear to mount the larger backplane.
	- REPLACE (qty.2) BMEH582040 with (qty.2) BMEH586040
	  o Note: Upgrading to a CPU that can support more NOC cards
	- REPLACE (qty.2) BMXCPS2000 with (qty.4) BMXCPS4022
	  o Note: upgrading to dual power supplies.
	- REPLACE (qty.2) 490NAC0100 with (qty.2) 490NAC0201
	  o Note: Upgrade to fiber SFP for the hot-standby CPU link.
	- ADD (qty.4) BMENUA0100
	  o Note: Addition of OPC UA Cards. One OPC UA card for connection to Plant SCADA and one OPC UA card for connection to the Local OIT.
	- ADD (qty.2) BMXRMS004GPF
	  o Note: Addition of SD Memory Card to CPU's	

Once a signed Change Order has been received by Eaton's project manager, a meeting will be scheduled to finalize scope and schedule discussions. The approval/rejection status and project implementation details will be reviewed, and the project engineering efforts can move forward.
Should the Change Order request be rejected, this meeting will facilitate a discussion about the reasons and next steps in either continuing or dis-continuing work on the project, which will be finalized and agreed upon between Eaton and our Customer.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: 4/22/2022

Direct: 801-233-5460

Revision

JOB NAME: **CVWRF CC30B BNR BASINS**
Attn: Jeremy

Item	Qty.	Description	Notes
		Eaton PSC Project Change Order **Change to LVA**	
	1	**Material Total**	
		See attached BOM	

TOTAL $39,625.00

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 061
Date: 7/19/2022
Description: Cost to add sales tax to Invent Environmental pre-negotiated contract amount of $812,000.00. Gerber Construction has agreed to charge for the bond amount on the sales tax and not charge mark-up.

Invent Mixer- Sales Tax (see attached back-up):	$60,494.00
Bonds:	$594.39
Total:	**$61,043.39**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $61,04339 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-061 Invent Mixers Sales Tax	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-061	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Invent Mixers Sales Tax	**1.00**	**UNIT**	**$60,494.00**	**$60,494.00**	**$61,043.39**	**$61,043.39**	**-0.00%**
Taxes	1.00	LS	$60,494.00	$60,494.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$60,494.00	100.00%
Plug:	$0.00	0.00%
Direct Cost:	$60,494.00	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$60,494.00	99.10%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$549.39	0.90%
Total Overall Cost:	$61,043.39	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	-0.00%
Total Margin:	$0.00	-0.00%
Total Bid Price:	$61,043.39	

Mark Hansen

From: Brandon Heidelberger <HeidelbergerB@cvwrf.org>
Sent: Wednesday, July 13, 2022 3:54 PM
To: Shay Clark; Mark Hansen
Cc: Justin Thompson; Justin Zollinger; Phil Heck; Mark Nielsen; Jeromie Miner
Subject: RE: Invent Environmental Sales Tax - BNR

Shay,

Let's run this through the contract per CO as outlined. Mark can you please prepare the CO for signature ($60,494.00 sales tax + $549.30 bond amt).

Thank you

Brandon Heidelberger, P.E.
Assistant General Manager
Central Valley Water Reclamation Facility
800 W. Central Valley Road
Salt Lake City, Utah 84119
T 801.973.9100 Ext. 173 | C 801.706.3966
heidelbergerb@cvwrf.org

From: Shay Clark <Shayc@1gerber.com>
Sent: Wednesday, July 13, 2022 3:49 PM
To: Brandon Heidelberger <HeidelbergerB@cvwrf.org>
Cc: Justin Thompson <jt@1gerber.com>; Justin Zollinger <ZollingerJ@cvwrf.org>; Phil Heck <HeckP@cvwrf.org>; Mark Hansen <MHansen@BrwnCald.com>; Mark Nielsen <mn@1gerber.com>; Jeromie Miner <jm@1gerber.com>
Subject: RE: Invent Environmental Sales Tax - BNR

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Brandon,

As an additional follow-up to my below email. Justin Thompson (Gerber Controller) let me know that we would need a letter from Central Valley (if CV paid the sales tax) stating that they had paid the sales tax. This would be needed in case Gerber Construction was audited in the future. We would need this to verify that the sales tax was paid, just not by Gerber Construction.

Thanks,

Shay Clark

Project Manager
Phone: 801-407-2027
Cell: 801-380-0083
Office Hours: M-F 8-5
GERBER CONSTRUCTION
815 East 675 South
Lehi, UT 84043
Email: shayc@1gerber.com

From: Shay Clark
Sent: Wednesday, July 13, 2022 2:36 PM
To: 'Brandon Heidelberger' <HeidelbergerB@cvwrf.org>
Cc: Justin Thompson <jt@1gerber.com>; Justin Zollinger <ZollingerJ@cvwrf.org>; Phil Heck <HeckP@cvwrf.org>; Mark Hansen <MHansen@BrwnCald.com>; Mark Nielsen <mn@1gerber.com>; Jeromie Miner <jm@1gerber.com>
Subject: RE: Invent Environmental Sales Tax - BNR

Brandon,

I have looked at this with Mark Nielson (Project Principal) and Jeremy Miner. We can add the sales tax to our contract by change order without any mark-up, but we will need to recuperate the bond on the additional money. The bond on the tax amount of $60,494.00 would be $549.30. Let me know how you would like to proceed.

Thanks,

Shay Clark
Project Manager
Phone: 801-407-2027
Cell: 801-380-0083
Office Hours: M-F 8-5
GERBER CONSTRUCTION
815 East 675 South
Lehi, UT 84043
Email: shayc@1gerber.com

From: Brandon Heidelberger <HeidelbergerB@cvwrf.org>
Sent: Wednesday, July 13, 2022 11:41 AM
To: Shay Clark <Shayc@1gerber.com>
Cc: Justin Thompson <jt@1gerber.com>; Justin Zollinger <ZollingerJ@cvwrf.org>; Phil Heck <HeckP@cvwrf.org>; Mark Hansen <MHansen@BrwnCald.com>
Subject: RE: Invent Environmental Sales Tax - BNR

Hi Shay,

I left you a voicemail on this. In short, sales tax was not included in the negotiated price from Invent that was listed on the Bid Schedule. Our preference would be to cover sales tax through our contract with Gerber via a change order. Is it

possible to do this without the contractor markups? Otherwise, we will likely have Invent invoice CVWRF separately for sales tax.

Thank you

Brandon Heidelberger, P.E.
Assistant General Manager
Central Valley Water Reclamation Facility
800 W. Central Valley Road
Salt Lake City, Utah 84119
T 801.973.9100 Ext. 173 | C 801.706.3966
heidelbergerb@cvwrf.org

From: Shay Clark <Shayc@1gerber.com>
Sent: Thursday, July 7, 2022 4:54 PM
To: Mark Hansen <MHansen@BrwnCald.com>
Cc: Justin Thompson <jt@1gerber.com>; Brandon Heidelberger <HeidelbergerB@cvwrf.org>
Subject: Invent Environmental Sales Tax - BNR

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Mark,

Per our phone conversation I have attached the 2 invoices from Invent Environmental where they are charging sales tax above the original contracted amount of $812,000.00 negotiated by Central Valley prior to the bid. Let me know how this get resolved with them so I can get the most recent payment approved in our system for payment. If you have any questions please reach out to me.

Thanks,

Shay Clark
Project Manager
Phone: 801-407-2027
Cell: 801-380-0083
Office Hours: M-F 8-5
GERBER CONSTRUCTION
815 East 675 South
Lehi, UT 84043
Email: shayc@1gerber.com

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

08/09/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 012_Lighting Control Panel Revisions, RAS Selector Sump Modifications, Grating at Gate Openings, Aeration Basin 2 Walls-to-Connector Box, and Fermentate Valves

Dear Brandon,

Change Order 12 includes:

- **Lighting Control Panel Revisions** per CCF060
- **RAS Selector Sump Modifications** per CCF073
- **Grating at Gate Openings** per CCF074
- **AB 2 Wall to Connector Box** rebar & water stop additions per CCF077
- **FMT Valve** changes per CCF083

Lighting Control Panel Revisions: RFI 040 and RFI 129 were issued requesting clarification on which panels are lighting control panels. During investigation, it was found that two lighting control panels were inadvertently left out of the Contract documents, and one lighting control panel needed to be upgraded to a lighting master panel to meet the design intent. CCF060 was issued detailing the required changes and additions. Changes and additions include electrical raceway and cable additions as well as feeder panel and breaker additions. The Contractor is requesting **$140,442.12** and **14 days** to complete this change. Pricing has been reviewed in detail and is in line with our expectations for this scope.

RAS Selector Sump Modifications: Contract drawings indicated a submersible pump in the RAS Selector sump. The Contract specifications and CVWRF preference require vertical sump pumps. To meet the design intent, CCF 073 was issued to add a painted carbon steel baseplate with 6” aluminum grating on the front edge of the baseplate for mounting the vertical RAS Selector sump pump. The Contractor is requesting **$8,630.16** and **2 days** to complete this work. Pricing has been reviewed and appears fair and reasonable.

Grating at Gate Openings: During construction, it was found that modifications to the grating around three gates will be required to cover opening inadvertently left open on the Contract drawings. CCF 074 was issued detailing the addition of aluminum grating around gates GT223002, GT223001, and SGTE223031. The Contractor is requesting

$12,454.26 and **2 days** for this work. Pricing has been reviewed and is in line with our expectations for this scope.

AB 2 Wall to Connector Box: During construction, it was found that future SCT (now AB 2) expansion provisions (i.e., existing rebar) were not present as shown on the record drawings. CCF 077 was issued to add the missing rebar tying the two structures together. The Contractor is requesting **$4,647.06** and **2 days** to complete this work. Pricing is in line with our expectations.

FMT Valve: The Contract documents required lined and coated, 6” cast iron, AWWA C517 full port plug valves. As FMT is pH ~4.5, lined cast iron is susceptible to corrosion as the liner wears out. CCF 083 was issued to change the valve material, type, and size (due to cost differences) to 4” schedule 80 CPVC ball valves which are not susceptible to corrosion in this installation. The Contractor is requesting **$8,065.19** and **2 days** to complete this work. Pricing has been reviewed and appears fair and reasonable. Note, the originally specified valves have been purchased and are on site. The Contractor will turn the original valves over to CVWRF.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 12 is **$174,238.81** and **twenty-two (22) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 060 w/Contractor Quotation
3. CCF 073 w/Contractor Quotation
4. CCF 074 w/Contractor Quotation
5. CCF 077 w/Contractor Quotation
6. CCF 083 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 12

Date of Issuance:	08/09/2022	Effective Date:	08/09/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 12 includes:

- Lighting Control Panel Revisions per CCF060
- RAS Selector Sump Modifications per CCF073
- Grating at Gate Openings per CCF074
- AB 2 Wall to Connector Box rebar & water stop additions per CCF077
- FMT Valve changes per CCF083

Attachments:

1. CCF 060 w/Contractor Quotation
2. CCF 073 w/Contractor Quotation
3. CCF 074 w/Contractor Quotation
4. CCF 077 w/Contractor Quotation
5. CCF 083 w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 11: $625,655.17	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 11: Substantial Completion: 140 Ready for Final Payment: 140 Days
Contract Price prior to this Change Order: $ 123,893,336.17	Contract Times prior to this Change Order: Substantial Completion: 1,631 Ready for Final Payment: 1,739 days or dates
[Increase] [Decrease] of this Change Order: $174,238.81	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 22 Ready for Final Payment: 22 days or dates
Contract Price incorporating this Change Order:	Contract Times with all approved Change Orders:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

$124,067,574.98

Substantial Completion: 1,653
Ready for Final Payment: 1,761
days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General Manager	Title Project Manager
Date: 08/09/2022	Date 8/10/2022	Date 08/10/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 059
Date: 6/6/2022
Description: Per Control Change Form #060: Cost for changes related to lighting control panels.

Skyline Electric (see attached back-up):	$127,258.86
Mark-up (5%):	$6,362.94
Gerber Onsite Coordination & Management (see attached back-up):	$4,775.94
Bonds:	$1,154.79
Mark-up (15%):	$889.61
Total:	**$140,442.14**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $140,442.14 will be added to the contract price, and an additional 14 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-059 Lighting Control Panel Revisions - CC#060	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-059	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor (Skyline)	**1.00**	**UNIT**	**$127,258.86**	**$127,258.86**	**$134,901.77**	**$134,901.77**	**5.09%**
S Electrical Sub	1.00	LS	$127,258.86	$127,258.86			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$4,775.94**	**$4,775.94**	**$5,540.37**	**$5,540.37**	**15.00%**
01 Superintendent	9.00	HR	$168.40	$1,515.62			
20 Project Engineer	9.00	HR	$150.82	$1,357.34			
18 Project Manager	9.00	HR	$181.68	$1,635.13			
Truck, Pickup, 1 Ton	0.05	MO	$2,301.00	$107.02			
Truck, Pickup, 3/4 Ton	0.09	MO	$1,729.00	$160.84			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,508.08	3.41%
Equipment Owned:	$267.86	0.20%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$127,258.86	96.38%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$132,034.80	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$132,034.80	94.01%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$1,154.79	0.82%
Total Overall Cost:	$133,189.59	94.84%
Total Overhead:	$0.00	0.00%
Total Profit:	$7,252.55	5.16%
Total Margin:	$7,252.55	5.16%
Total Bid Price:	$140,442.14	

-QUOTATION-

BNR CC30B
LIGHTING PANEL REVISIONS

May 31, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes need involving CCF060 Lighting Panel Revisions

Scope includes:
Changing Panel 169502 from an expansion panel to a Master panel
Provide lighting Panel 169303 (previously not shown in drawings and changed from 208Y/120 to 480Y/277 on equipment list)
Installation of lighting panel 169303 (previously not shown in drawings)
Providing and installation of feeder conduit and wire to lighting Panel 169303 (previously not shown in drawings)
Providing additional 100A feeder breaker for panel 169303
Installation of 100A Breaker
Providing new Lighting Panel 229302
(Panel was previously specified as a regular panelboard and was submitted in panelboards, approved, released and received)
Providing Panel 169501
(Panel was excluded from panelboards submittal because it was previously specified as a lighting control panelboard)

Please contact me with any questions.

Price: $ 127,258.86

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	5/31/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**LIGHTING PANEL REVISIONS**	City/State/Zip:	Lehi, UT 84043

Change Description:

Changing Panel 169502 from an expansion panel to a Master panel
Provide lighting Panel 169303 (previously not shown in drawings and changed from 208Y/120 to 480Y/277 on equipment list)
Installation of lighting panel 169303 (previously not shown in drawings)
Providing and installation of feeder conduit and wire to lighting Panel 169303 (previously not shown in drawings)
Providing additional 100A feeder breaker for panel 169303
Installation of 100A Breaker
Providing new Lighting Panel 229302
(Panel was previously specified as a regular panelboard and was submitted in panelboards, approved, released and received)
Providing Panel 169501
(Panel was excluded from panelboards submittal because it was previously specified as a lighting control panelboard)

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$98,370.97		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			16.17

LABOR FACTOR:

material handling		2.00%					0.3234
cleanup		3.00%					0.4851
safety		1.25%					0.202125
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $7,623.75	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 105,994.72	loc 2 $ 0.00		17.18
			RATE: $	67.00
extension:			$	1,151.10

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	1,151.10

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$77.00	$0.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		$23.02
change management	2	hrs@	$77.00	$154.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$77.00	$154.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	331.02

MATERIAL		from loc 1	$	105,994.72
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	331.02
LABOR		from loc 3	$	1,151.10
WARRANTEE	1.50%		$	1,612.15
BOND	1.44%		$	1,570.88
subtotal			$	110,659.88
OVERHEAD + PROFIT	15.00%		$	16,598.98
TOTAL CHANGE			$	127,258.86

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: **5/25/2022**

Direct: 801-233-5460

Revision

JOB NAME: **CVWRF CC30B BNR**
Attn: Jeremy

Item	Qty.	Description	Notes
		CCF060 CHANGE	
PNL169501	**1**	**Panel Board**	**$6,881.00**
PNL169502	**1**	**Pow-R-Command Panel**	**$29,433.00**
PNL169303	**1**	**Pow-R-Command Panel**	**$29,888.00**
PNL229302	**1**	**Pow-R-Command Panel**	**$30,241.00**
PNL169301	**1**	**3P 100A Breaker**	**$922.00**

TOTAL $97,365.00

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF 060: Lighting Panel Revisions

Takeoff

25 May 2022 10:58:15

Item: BASE BID
└**Phase:** Additive

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10004	10.00	FT	M	1 1/2	GRC	9.6090	96.09	0.1120	1.12
90581	75.00	FT	M	2/4	TRAY CABLE THHN CU	11.2600	844.50	0.0620	4.65
240029	10.00	FT	M	1 5/8" x 1 5/8"H	U-STRUT CHNL SGL-12G SLOT GALV	5.7762	57.76	0.1525	1.53
240042	4.00	EA	M	1 1/2	STRUT CLAMP	1.9057	7.62	0.0500	0.20
160609	8.00	EA	M	3/8 -16	LEAD ANCHOR	0.0000	0.00	0.2100	1.68
	0.00				**Codale/Eaton quote**				
3	1.00		M		Lighting Panel changes	97,365.0000	97,365.00	0.0000	0.00
4	1.00		M		Panel 169303 Install labor	0.0000	0.00	4.0000	4.00
6	1.00		M		100A breaker install	0.0000	0.00	2.0000	2.00
7	1.00		M		Panel 169303 Wire terminations	0.0000	0.00	1.0000	1.00
						Phase Totals:	**98,370.97**		**16.17**
						Job Totals:	**98,370.97**		**16.17**

Detail Bill of Material

Project Name:	CVWRF CC30B BNR BASINS	**Negotiation No:**	SL110406X0K2
General Order No:	MSL0010325	**Alternate No:**	R005
	CCF060 LIGHTING CONTROL		

Item No.	Qty	Product	Description
085I	1	Panelboards	42 Circuits, 225A, Fully Rated, 208Y/120V 3Ph 4W, Tin Plated Copper Bus, 18kAIC, 225A, Main Lugs Only[Bottom Fed], Surface Mounted

Catalog No P1A225LB42TH12
Designation PNL169501

Qty	List of Materials
1	225A, Main Lugs Only
4	1P QBHW Branch Provision Only
7	20A, 1P QBHGFT Branch Breaker, GFCI - 5mA
1	20A, 1P QBHGFEP Branch Breaker, GFCI - 30mA
25	20A, 1P QBHW Branch Breaker
2	30A, 1P QBHW Branch Breaker
1	30A, 3P QBHW-H Branch Breaker
1	SPD Factory Cable Connected to 30A Branch Breaker
1	Surge Protective Device, 120 kA SPD Series - Standard w/ Surge Counter
1	Tin-Plated Copper Main Bus, 225 Amps
1	Std. Bolted Al Ground Bar (Al/Cu Cable)
1	Panel Nameplate - Black with White Letters
1	Circuit Directory - Metal Frame with Plastic Cover
1	Type 12 Enclosure: LWPQ2048

Item No.	Qty	Product	Description
086I	1	Panelboards	42 Circuits, 100A, Fully Rated, 208Y/120V 3Ph 4W, Tin Plated Copper Bus, 65kAIC, 100A, Main Lugs Only[Bottom Fed], Surface Mounted

Catalog No WI:P13A100LB42TH12
Designation PNL169502

Qty	List of Materials
1	100A, Main Lugs Only
1	Pow-R-Command 2000E w/ System Controller, Dual BCB Assembly, Display
1	30A, 3P GHB Branch Breaker
4	20A, 1P GHQRD Branch Breaker
5	20A, 2P GHQRDEL Branch Breaker
1	SPD Factory Cable Connected to 30A Branch Breaker
1	Surge Protective Device, 120 kA SPD Series - Standard w/ Surge Counter
1	PXBCM Advanced + Energy (Main and Branch Devices), 42 Circuit
1	Tin-Plated Copper Main Bus, 100 Amps
1	Std. Bolted Al Ground Bar (Al/Cu Cable)
1	Panel Nameplate - Black with White Letters
1	Circuit Directory - Metal Frame with Plastic Cover
1	Type 12 Enclosure: LWPQ2872

Project Name: CVWRF CC30B BNR BASINS
General Order No: MSL0010325
CCF060 LIGHTING CONTROL
Negotiation No: SL110406X0K2
Alternate No: R005

Item No.	Qty	Product	Description
087I	1	Panelboards	42 Circuits, 100A, Fully Rated, 480Y/277V 3Ph 4W, Tin Plated Copper Bus, 14kAIC, 100A, 3P FD Main Breaker[Bottom Fed], Surface Mounted

Catalog No WI:P13D100BB42TH12
Designation PNL169303

Qty	List of Materials
1	100A, 3P FD Main Breaker
1	Pow-R-Command 2000E w/ System Controller, Dual BCB Assembly, Display
10	20A, 1P GHQRD Branch Breaker
1	20A, 2P GHQRD Branch Breaker
1	30A, 3P GHB Branch Breaker
1	SPD Factory Cable Connected to 30A Branch Breaker
1	Surge Protective Device, 120 kA SPD Series - Standard w/ Surge Counter
1	PXBCM Advanced + Energy (Main and Branch Devices), 42 Circuit
1	Tin-Plated Copper Main Bus, 100 Amps
1	Std. Bolted Al Ground Bar (Al/Cu Cable)
1	Panel Nameplate - Black with White Letters
1	Circuit Directory - Metal Frame with Plastic Cover
1	Type 12 Enclosure: LWPQ2872

Item No.	Qty	Product	Description
088I	1	Panelboards	42 Circuits, 100A, Fully Rated, 208Y/120V 3Ph 4W, Tin Plated Copper Bus, 65kAIC, 100A, Main Lugs Only[Top Fed], Surface Mounted

Catalog No WI:P13A100LT42TH12
Designation PNL229302

Qty	List of Materials
1	100A, Main Lugs Only
1	Pow-R-Command 2000E w/ System Controller, Dual BCB Assembly, Display
17	20A, 1P GHQ Branch Breaker
1	15A, 2P GHB Branch Breaker
1	30A, 3P GHB Branch Breaker
12	20A, 1P GHQRD Branch Breaker
5	15A, 1P GHQ Branch Breaker
1	SPD Factory Cable Connected to 30A Branch Breaker
1	Surge Protective Device, 120 kA SPD Series - Standard w/ Surge Counter
1	PXBCM Advanced + Energy (Main and Branch Devices), 42 Circuit
1	Tin-Plated Copper Main Bus, 100 Amps
1	Std. Bolted Al Ground Bar (Al/Cu Cable)
1	Panel Nameplate - Black with White Letters
1	Circuit Directory - Metal Frame with Plastic Cover
1	Type 12 Enclosure: LWPQ2872

Detail Bill of Material

Project Name:	CVWRF CC30B BNR BASINS	**Negotiation No:**	SL110406X0K2
General Order No:	MSL0010325	**Alternate No:**	R005
	CCF060 LIGHTING CONTROL		

Item No.	Qty	Product	Description
089	1	MCCB SERIES C	TYPE FD BREAKER 3P 100A 600VAC MAX 18K AIC

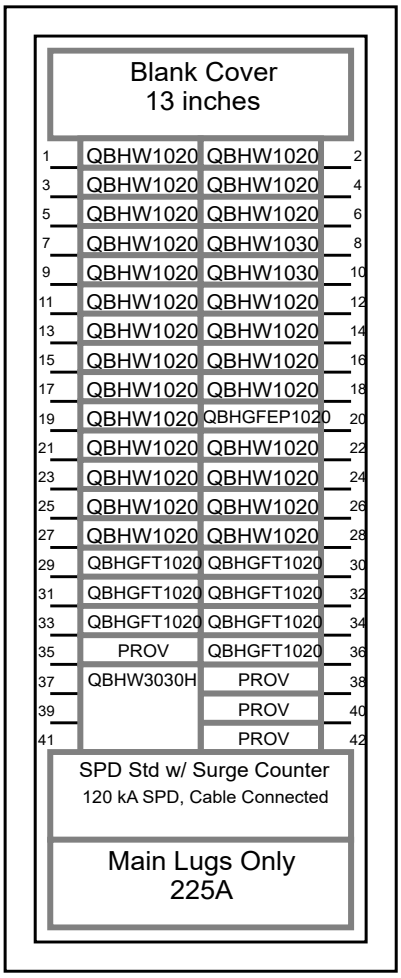
Catalog No	FD3100
Designation	PNL169301

Qty	List of Materials
1	TYPE FD BREAKER 3P 100A 600VAC MAX 18K AIC

Eaton Selling Policy 25-000 applies.

All orders must be released for manufacture within 90 days of date of order entry. If approval drawings are required, drawings must be returned approved for release within 60 days of mailing. If drawings are not returned accordingly, and/or if shipment is delayed for any reason, the price of the order will increase by 1.0% per month or fraction thereof for the time the shipment is delayed.

Seller shall not be responsible for any failure to perform, or delay in performance of, its obligations resulting from the COVID-19 pandemic or any future epidemic, and Buyer shall not be entitled to any damages resulting thereof.



General Information **(Section 1 of 1)**

Service Voltage: 208Y/120V 3Ph 4W **Enclosure:** Type 12
Bus Rating & Type: 225A Tin Plated Copper **Neutral Rating:** 225A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 18k A.I.C. Fully Rated

Main Device Type: Main Lugs Only - Bottom Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: LWPQ2048
Trim: Standard Trim (Includes Trim)

Surface Mounted

Box Dimensions: 48.00" [1219.2mm]H x 20.00" [508.0mm]W x 6.5" [165.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 6.0" [152.4mm] Right = 6.0" [152.4mm]

Panel ID Nameplate: **(1) PNL169501**
Type: Plastic, adhesive-backed **(2) BASINS/PEPS/RAS SELECTOR**
Color: Black with White Letters **(3) FED FROM XFMR169402**

UL *****Non-Interchangeable Main Device*****

Trim Lock: T-Handle Lock Assembly
Circuit Directory: Metal Frame with Plastic Cover
SPD Factory Cable Connected to 30A Branch Breaker
Painted Box:ANSI 61
Seismic Label (IBC/CBC Seismic Qualified).
Heat Loss - Watts (Est.) = 109
Weight - lbs (Est.) = 146
Wire shall be based on the ampacity of 75°C rated conductors unless otherwise indicated.

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
7	1	20	QBHGFT	100	18
1	1	20	QBHGFEP	100	18
25	1	20	QBHW	100	18
2	1	30	QBHW	100	18
1	3	30	QBHW-H	100	18
4	1		PROV		

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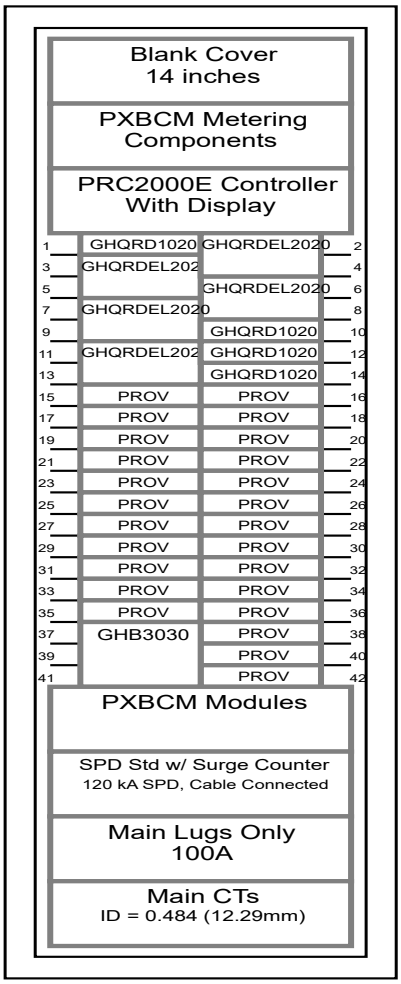
PREPARED BY: AARON FARMER	DATE: 5/24/2022		**Eaton**		
APPROVED BY	DATE		JOB NAME: CVWRF CC30B BNR BASINS		
			DESIGNATION: PNL169501		
VERSION: 1.0.0.54			TYPE: PRL1a	DRAWING TYPE: Customer Approval	
NEG-ALT Number: SL110406X0K2-R005	REVISION: 0	DWG SIZE: A	G.O.: MSL0010325	ITEM: 085I	SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage: 208Y/120V 3Ph 4W **Enclosure:** Type 12
Bus Rating & Type: 100A Tin Plated Copper **Neutral Rating:** 100A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 65k A.I.C. Fully Rated

Main Device Type: Main Lugs Only - Bottom Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: LWPQ2872
Trim: Complete Enclosure (Includes Trim)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 28.00" [711.2mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 10.0" [254.0mm] Right = 10.0" [254.0mm]

Panel ID Nameplate: **(1) PNL169502**
Type: Plastic, adhesive-backed **(2) BASINS/PEPS/RAS SELECTOR**
Color: Black with White Letters **(3) FED FROM PNL169402**

UL *****Non-Interchangeable Main Device*****

Trim Lock: T-Handle Lock Assembly
Circuit Directory: Metal Frame with Plastic Cover
SPD Factory Cable Connected to 30A Branch Breaker
Painted Box:ANSI 61
Seismic Label (IBC/CBC Seismic Qualified).
Heat Loss - Watts (Est.) =
PXBCM Branch Circuit CT ID is 0.484 (12.29mm).
For PXBCM, cable sizing for 100A Branch Devices is limited to a maximum of #2 copper.

Device Modifications:

Ref #	Description

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
5	2	20	GHQRDEL	100	65
4	1	20	GHQRD	100	65
1	3	30	GHB	100	65
25	1		PROV		

Notes:

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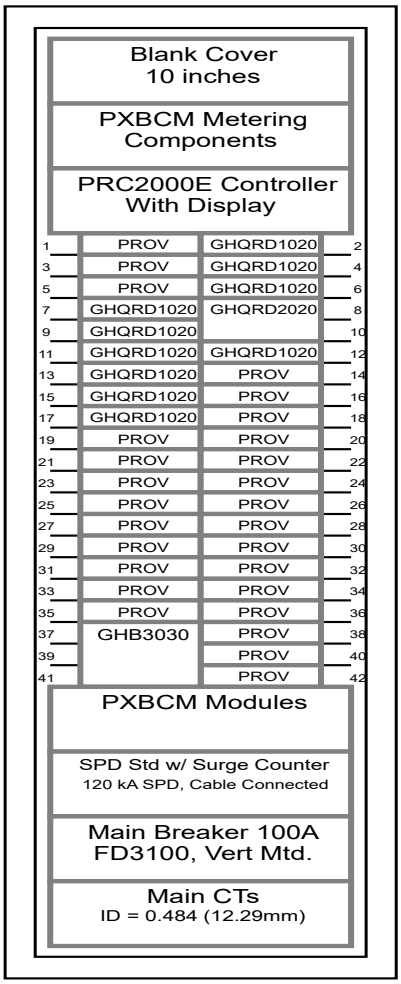
PREPARED BY: AARON FARMER	DATE: 5/24/2022	**Eaton**	
APPROVED BY	DATE	JOB NAME: CVWRF CC30B BNR BASINS	
		DESIGNATION: PNL169502	
VERSION: 1.0.0.54		TYPE: PRC2000E	DRAWING TYPE: Customer Approval
NEG-ALT Number: SL110406X0K2-R005	REVISION: 0 / DWG SIZE: A	G.O.: MSL0010325	ITEM: 086I / SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage: 480Y/277V 3Ph 4W **Enclosure:** Type 12
Bus Rating & Type: 100A Tin Plated Copper **Neutral Rating:** 100A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 14k A.I.C. Fully Rated

Main Device Type: Main Breaker - Bottom Cable Entry
Main Terminals: Mechanical - (1) #14-1/0 (Cu/Al)
Neutral Terminals: Mechanical - (1) #14-1/0 (Cu/Al)
Box Catalog No.: LWPQ2872
Trim: Complete Enclosure (Includes Trim)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 28.00" [711.2mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 10.0" [254.0mm] Right = 10.0" [254.0mm]

Panel ID Nameplate: **(1) PNL169303**
Type: Plastic, adhesive-backed **(2) 480Y/277V 3Ph 4W**
Color: Black with White Letters **(3) FED FROM PNL169402**

UL *****Non-Interchangeable Main Device*****

Trim Lock: T-Handle Lock Assembly
Circuit Directory: Metal Frame with Plastic Cover
SPD Factory Cable Connected to 30A Branch Breaker
Painted Box:ANSI 61
Main Circuit Breaker Trip Type: Thermal-Magnetic.
Seismic Label (IBC/CBC Seismic Qualified).
Heat Loss - Watts (Est.) =
PXBCM Branch Circuit CT ID is 0.484 (12.29mm).
For PXBCM, cable sizing for 100A Branch Devices is limited to a maximum of #2 copper.

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
10	1	20	GHQRD	100	14
1	2	20	GHQRD	100	14
1	3	30	GHB	100	14
27	1		PROV		

Main Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	100	FD	100	14

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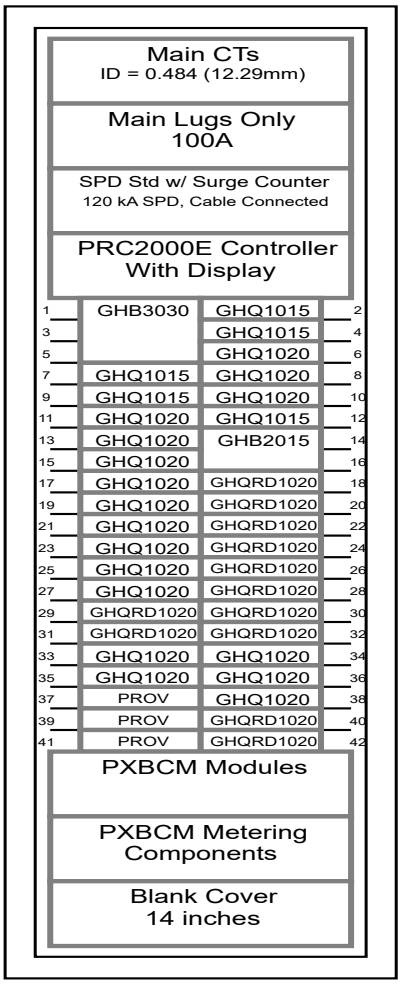
PREPARED BY: AARON FARMER	DATE: 5/24/2022	**Eaton**	
APPROVED BY	DATE	JOB NAME: CVWRF CC30B BNR BASINS	
		DESIGNATION: PNL169303	
VERSION: 1.0.0.54		TYPE: PRC2000E	DRAWING TYPE: Customer Approval
NEG-ALT Number: SL110406X0K2-R005	REVISION: 0 / DWG SIZE: A	G.O.: MSL0010325	ITEM: 087I / SHEET: 1 of 1



General Information **(Section 1 of 1)**

Service Voltage: 208Y/120V 3Ph 4W **Enclosure:** Type 12
Bus Rating & Type: 100A Tin Plated Copper **Neutral Rating:** 100A
Ground Bar: Std. Bolted Aluminum, Al or Cu cable
S.C. Rating: 65k A.I.C. Fully Rated

Main Device Type: Main Lugs Only - Top Cable Entry
Main Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Neutral Terminals: Mechanical - (1) #6-300 kcmil (Cu/Al)
Box Catalog No.: LWPQ2872
Trim: Complete Enclosure (Includes Trim)

Surface Mounted

Box Dimensions: 72.00" [1828.8mm]H x 28.00" [711.2mm]W x 5.75" [146.1mm]D
Min. Gutter Size: Top = 5.5" [139.7mm] Bottom = 5.5" [139.7mm]
Left = 10.0" [254.0mm] Right = 10.0" [254.0mm]

Panel ID Nameplate: **(1) PNL229302**
Type: Plastic, adhesive-backed **(2) BASINS/PEPS/RAS SELECTOR**
Color: Black with White Letters **(3) FED FROM PNL169402**

UL *****Non-Interchangeable Main Device*****

Trim Lock: T-Handle Lock Assembly
Circuit Directory: Metal Frame with Plastic Cover
SPD Factory Cable Connected to 30A Branch Breaker
Painted Box:ANSI 61
Seismic Label (IBC/CBC Seismic Qualified).
Heat Loss - Watts (Est.) =
PXBCM Branch Circuit CT ID is 0.484 (12.29mm).
For PXBCM, cable sizing for 100A Branch Devices is limited to a maximum of #2 copper.

Device Modifications:

Ref #	Description

Notes:

Branch Devices

Qty	Poles	Trip	Frame	Amps	kAIC
1	3	30	GHB	100	65
12	1	20	GHQRD	100	65
5	1	15	GHQ	100	65
1	2	15	GHB	100	65
17	1	20	GHQ	100	65
3	1		PROV		

The information on this document is created by Eaton Corporation. It is disclosed in confidence and it is only to be used for the purpose in which it is supplied.

PREPARED BY: AARON FARMER	DATE: 5/24/2022		**Eaton**		
APPROVED BY	DATE		JOB NAME: CVWRF CC30B BNR BASINS		
			DESIGNATION: PNL229302		
VERSION: 1.0.0.54			TYPE: PRC2000E	DRAWING TYPE: Customer Approval	
NEG-ALT Number: SL110406X0K2-R005	REVISION: 0	DWG SIZE: A	G.O.: MSL0010325	ITEM: 088I	SHEET: 1 of 1

CHANGE CONTROL FORM 060
Lighting Panel Revisions

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 3/15/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☒**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

This CCF is in response to RFI questions 040 and 129 regarding which panels are lighting control panels.

Lighting Controls Specification 26 09 26-1.01.B Equipment list has been updated to reflect changes made per this CCF:

- Equipment number PNL169301 has been changed to PNL169303.
- PNL169502 has changed from an expansion to a master panel.

Panelboards Specification 26 24 16-1.03.B Equipment list has been updated to reflect changes made per this CCF:

- Equipment number PNL169502 has been changed to PNL169402.
- PNL169403 UPS A panelboard has been added.
- PNL229201 480V panelboard has been added.
- Panel Name for PNL169301 has been revised.

Section 2.01 Manufacturers name has been updated to reflect Eaton manufacturer change in name from Clipper Power Visor SPD to Eaton SPD series.

The following Contract Drawings have been modified to reflect these changes and are included in this CCF: E-16EB-1101, E-16EB-6002, E-16EB-6005, and E-16-7006.

TO and FROM locations in Cable and Conduit Schedules will be updated to reflect equipment numbering changes for panelboards. The following cable and conduit will be provided:

Cable Schedules will be reissued at a later date.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection		Date:
Owner Signature ☐Accepts Proposal ☐ Rejects Proposal		Date:

Work Change Directive

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You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	Date:
Authorized by Owner:	Date:
Accepted by Contractor:	Date:

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR: Mark Hansen	Date: 03/15/2022
Accepted by Contractor:	Date:

SECTION 26 09 26

LIGHTING CONTROLS ~~(ADDENDUM 4)~~

PART 1 GENERAL

1.01 SUMMARY

A. This section specifies lighting control. The equipment includes the following:

1. Intelligent panelboards with remotely controlled and non-remotely controlled circuit breakers and branch circuit power monitoring.
2. Light control switches and buttons, sensors, and other equipment required to control the luminaires.

B. Equipment List

Equipment Number	Name	Controller Type
PNL169~~35~~031 (~~ADDENDUM 4~~CCF 059)	PNL169~~35~~031 ANAEROBIC AND AERATION ~~208Y~~480Y/277~~120~~V PANELBOARD LIGHTING CONTROL	Master
PNL169502 ~~(ADDENDUM 4)~~	PNL169502 ANAEROBIC AND AERATION 208Y/120V PANELBOARD LIGHTING CONTROL	~~Expansion~~Master
PNL229302 (CCF 057)	PNL229302 RAS/WAS BASIN 208Y/120V PANELBOARD LIGHTING CONTROL	Master

1.02 REFERENCES

A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE	Institute of Electrical and Electronic Engineers
NEMA	National Electrical Manufacturing Association
NFPA 70	National Electrical Code (NEC)
UL 50	Cabinets and Boxes
UL 67	Underwriters Laboratories, Electric Panelboards
UL 489	Molded-Case Circuit Breakers and Circuit Breaker Enclosures
UL 1449	Surge Suppression Devices
UL 916	Energy Management System

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Time-Current Characteristics Curves for circuit breakers.
5. Interrupting rating of the panelboard, and circuit breakers.
6. Circuit breaker rating and placement for each panelboard (panelboard schedules).
7. Panelboard outline plan and elevation drawings with clearance requirements, Elevation drawing including the quantity, location, and rating of circuit breakers with each panelboard.
8. Lighting Control Drawings:
   a. Drawings and diagrams shall use a system of numbering for wires, equipment, and devices. The numbering shall follow the numbering in the Contract Documents if a number is available.

b. Plan drawing of all areas where the LCS is used. The plan drawings shall show all LCS equipment including panelboards, input devices, light fixtures, and any other equipment associated with the LCS.
c. Wiring diagrams showing all components including panelboards, light fixtures, input devices, push buttons, switches, sensors, power supplies, communications wiring details, etc. Wiring diagrams shall show each component; typicals shall not be used.
d. Riser diagram showing all circuiting including input devices, light fixtures, field devices to panelboards, power sources, cable types, cable tray and raceways.
e. Network diagram showing the network connection of panelboards, cable types, cable tray and raceways.
f. Elevation of pilot device enclosures showing size, NEMA rating, nameplate and escutcheon engraving, and dimensions.

9. Installation details for light switch enclosures, motion detectors, and any other input devices.
10. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
11. Field test plan
12. Field test results
13. Operations and Maintenance information per section 01 78 23, and including the following:
    a. Software program electronic application files
    b. Software application and license.
    c. Software instructions.
    d. Lighting Control Drawings

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturers' standard equipment or products will comply with the requirements of this Section. Candidate manufacturers include:
    1. Eaton Pow-R-Command PRC2000E Panelboard
    2. Square D Powerlink NF3500G4 Panelboard
    3. Lyntec Smart RPC Lighting Breaker Control Panelboard
    4. Hubbell LX Networked Breaker Control Lighting Control Panelboard

2.02 APPROVED EQUALGENERAL

A. The LCS logic shall be in a microprocessor-based controller except where discrete occupancy sensors are specified on the drawings. Power to loads shall be switched with remotely operated circuit breakers mounted to a UL 67 listed lighting panelboard interior and enclosed in a UL 50 listed panelboard enclosure. The circuit breakers shall provide overcurrent protection.

B. See the drawings and schedules for the circuit breaker assignments in panelboards, the LCS logic for controlling the loads, and the switch and sensor types.

2.03 PANELBOARD ARRANGEMENT AND CONSTRUCTION

A. The front of the panel shall have concealed trim clamps and hinges. The locks shall be flush with cylinder tumbler-type with spring loaded door pulls. The fronts shall not be removable with doors in the locked position. Panelboard locks shall be keyed alike.

B. Gutter space shall be provided on all sides of the breaker assembly to neatly connect and arrange incoming wiring.

C. Panelboard shall be composed of individually mounted circuit breakers designed to be removable without disturbing other breakers.

D. A directory holder with clear plastic plate and metal frame shall be mounted on the inside of the door.

E. BUS
   1. Bus shall be tin-plated copper and shall have current ratings as shown on the panelboard schedules, sized in accordance with UL 67. Ratings shall be determined by temperature rise test.
   2. The minimum bus size shall be 100 amperes. Panel fault withstand rating shall be not less than the interrupting rating of the smallest circuit breaker in the panel. Series rating is prohibited.
   3. Panelboards shall be provided with a separate ground bus and, where specified, with a full capacity neutral bus. The neutral bus shall be mounted on insulated stand-offs.

2.04 CIRCUIT BREAKERS

A. Common Requirements
   1. Bolt on.
   2. Molded case.
   3. Rated 120/208V and 120/240V Alternating Current: Minimum interrupting current rating of 14,000A (symmetrical) at 240 VAC.

B. Remotely Operated Circuit Breakers:
   1. Motor or solenoid operated.
   2. Handle operator that shall mechanically open the power switching device contacts when moved to the OFF position and disable the contacts from being remotely closed.

3. Manual override switch to enable or disable the remote operation of the device and allow breaker handle to fully control the On/Off state of the breaker. Override shall fully disengage remote operation of the breaker mechanism.
4. Visible flag that clearly indicates the status of the circuit breaker contacts with the panel trim installed. Flag shall indicate ON, OFF, and TRIPPED circuit breaker states. The visible flag shall be mechanical in nature, directly tied to the circuit breaker mechanism, and shall be provided in addition to any status indicator supplied by the system electronics.
5. Switching endurance rating of 200,000 open/close/open remote operations.

C. Remotely Operated Circuit Breakers for Emergency Lighting:
1. Contain both a remotely operated breaker and a manually operated breaker.
2. Comply with NEC 700. Both circuits are electrically tied to the same source via a common connection that receives its supply from the panelboard bus.

D. Other Types
1. GFCI, GFEP, lockable, or other types as depicted on the Drawings or Schedules.

2.05 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:
1. High-energy parallel design for IEEE C62.41 and C62.45 category C
2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses
3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)
4. Form C dry contacts
5. UL 1449
6. 5-year warranty

C. Surge Capacity: 120 kA minimum surge capacity per phase.

D. Mounting: SPD shall be connected directly to the panelboard bus between the main and branch bus section. Provide and additional 18 inches maximum addition

F. Eaton SPD Series or approved equal.

2.06 MASTER LIGHTING CONTROL PANELS

A. Panels identified on the panel schedule as master panels shall contain both a power supply module and controller in the indicated spaces. Master panels provide power and control for operating and monitoring remotely operated branch circuit breakers connected to control busses located in master and slave panelboards. One power supply module and controller shall support up to eight control busses.

B. Master panels shall contain a nameplate label, located on the panel trim, indicating its designation, automation level network address, and the designations and addresses of all associated slave panels.

C. A power supply module shall be furnished to provide control power for the operation of the remotely operated circuit breakers, controller, bus system and low voltage inputs. Power module(s) shall connect directly to the panel interior and receive line voltage from the panel bus. Power module(s) shall be internally self-protected and operate within a range of –15 percent to +10 percent of its nominal line voltage rating.

D. The controller shall operate whenever voltage is within the power supply operating range. In the event of incoming power outage, the controller shall automatically halt execution in a safe manner. Upon return of power, the controller shall automatically reboot and return to normal system operation.

E. The controller shall include the following:
   1. Integral keypad and LCD front panel for local setup. Front panel setup shall permit local input setup and creation of time schedules without requiring separate PC-based software or hand-held loader devices.
   2. RS232 serial communications interface to permit local connection to personal computer without having to remove panel trim.
   3. Nonvolatile memory to retain all setup and configurations.
   4. Sixteen terminals configurable for either 16 two-wire inputs, 8 three-wire inputs, or 8 two-wire inputs with status feedback for pilot LEDs. All configurations shall allow either momentary or maintained control devices to be attached without providing any external control power.
   5. Ethernet port for connection to the control system network using Modbus TCP over Ethernet IP/TCP. Ethernet address will be assigned by the Construction Manager.
   6. An auxiliary control power source for powering external control devices such as occupancy sensors and low voltage photo sensors, as indicated on drawings.
   7. Programmable input timers to permit timed override periods.
   8. Adjustable blink notice.
   9. Ability to log and display remotely operated breaker on-time.
   10. Ability to log events including changes to breaker state, input state, zone state, schedule periods, and bus operational status.
   11. Means for setting initial Ethernet parameters via a local operator interface without having to employ special software or configuration tools.
   12. Capability for accepting downloadable firmware so that the latest production features may be added in the future without replacing the module.
   13. Time scheduler shall provide, at minimum, the following:
      a. Sixteen independent schedules, each having 24 time periods.
      b. Clock configurable for 12-hour (a.m./p.m.) or 24-hour format.
      c. Schedule periods settable to the minute.
      d. A 365-day calendar, with automatic daylight saving and leap year adjustments.
      e. Day-of-week, day-of-month, day-of-year with one-time or repeating capability.
      f. Thirty-two special date periods with ability to nest different periods within other periods.

g. Astronomical tracker to automatically adjust sunrise and sunset times throughout the year.

14. Controller inputs shall be connected to external devices as shown on the Drawings and Schedules. Inputs capable of providing the following capabilities':
    a. Configurable for NORMALLY OPEN, NORMALLY CLOSED, two-wire maintained toggle, two-wire momentary toggle, two-wire momentary ON, two-wire momentary OFF, or three-wire momentary operation.
    b. Inputs shall also be capable of operating in conjunction with a building automation system to provide blink notice operation.
    c. Capable of assigning timers to inputs for local override operation. Timers type shall include timed on and off delay capabilities. Time increments shall be settable between 5 minutes to 18 hours.
    d. An input synchronization service shall be provided to synch inputs with other inputs, zones, time schedules, or remote sources. This synchronization service shall be used to control input state, input inhibit mode (enable/disable), or sync timers (enable/disable).
15. Controllers shall have the capability of configuring either local or remote sources in an AND, OR, or LAST EVENT configuration. Sources shall include, but not be limited to, inputs, time schedules, or status. Up to four sources shall be permitted in a custom configurable logic arrangement.
16. Zone priorities shall be assignable to each zone such that the particular zone shall have priority over other zones. Zones priorities shall be capable of forcing all breakers in the zone to an On state or Off state, depending on the particular configuration.
17. Each master panel controller shall have the capability of communicating to another panel controller in a peer-to-peer configuration.
    a. Each input connected to the controller shall be capable of controlling any branch circuit connected to any other controller.
    b. A schedule programmed in one controller shall be capable of controlling any branch circuit connected to any other controller.
18. Each panel controller shall incorporate a time synchronization service to update controller clock to a network time server. Time serve shall incorporate both a primary and secondary source. Update interval shall be settable from 1 to 24 hours.
19. Panel controllers shall incorporate a web-enabled server for displaying information over a standard web browser. Web-accessible information shall include:
    a. A secure, password-protected login screen for modifying operational parameters to ensure only authorized access. Password administration shall be accessible to authorized users via web page interface.
    b. Separate web pages for each panel with the arrangement of breakers on the page matching the physical appearance of the panel. Panel status pages shall also include breaker name tags, pole configuration, location in panel, and actual contact state (ON/OFF/TRIPPED/MANUAL) for the master panel and each associated slave panel. The web page shall also provide the ability to observe breaker on-time and blink information in real time.
    c. Panel summary showing panels connected to the controller.
    d. Controller summary showing controller diagnostic information.

e. For a consistent user interface, provide remote front panel mimic screens for setting up controller parameters, input types, zones, and operating schedules. Mimic screens shall also allow direct breaker control and zone overrides.

f. The user interface shall share a common look and feel between panels and other web-enabled distribution equipment.

F. Ethernet communications. Each panel controller shall allow networking with other master panel controllers and the plant control system in a peer-to-peer configuration using an Ethernet 100Base-T full duplex network.

1. Each panel controller shall support three (3) Ethernet ports communicating using Modbus TCP/IP and/or BACnet/IP protocols.
2. Each input connected to the controller shall be capable of controlling any branch circuit connected to any other controller.
3. A schedule programmed in one controller shall be capable of controlling any branch circuit connected to any other controller.
4. Means for setting initial Ethernet parameters via a local operator interface without having to employ special software or configuration tools.
5. Each panel controller shall be capable of operating in a pass-through mode for Modbus connected devices, such as meters, whereby the information is automatically ported to the Modbus TCP/IP port without separate gateway devices.

G. Embedded web server. Each panel controllers shall incorporate a web-enabled server for displaying information over a standard web browser. Web-accessible information shall include:

1. A secure, password protected login screen for modifying operational parameters to ensure only authorized access. Password administration shall be accessible to authorized users via web page interface.
2. Separate web pages for each panel with the arrangement of circuit breakers on the page matching the physical appearance of the panel. Panel status pages shall also include, but shall not be limited to, circuit breaker nametags, pole configuration, location in panel, and actual contact state (on/off/tripped/manual) for the master panel and each associated sub-panel. The web page shall also provide the ability to observe circuit breaker on-time and blink information in real time.
3. Panel summary showing the master and sub-panel panelboards connected to the controller.
4. Controller summary showing controller diagnostic information.
5. Panel mimic screens for setting up controller parameters, input types, zones, and operating schedules. Mimic screens shall also allow direct circuit breaker control and zone overrides.

2.07 EXTENSION LIGHTING CONTROL PANELS

A. Panels marked as extension panels shall contain the necessary busses and network hardware to allow network connection of the extension panels to the master panel. The slave panel network shall be Eaton sub-network or Schneider Electric Subnet or approved equal.

B. Extension panel network wiring connections shall allow connection of wiring to a terminal that can be removed from the panel without interrupting the communications to other panels.

C. Extension panels shall contain a nameplate label attached to the deadfront trim indicating the panel designation, network address of the panel, and the panel designation of the associated master panel.

2.08 ENERGY MANAGEMENT METERING

A. For each panelboard indicated on the Drawings, provide power metering for main and branch circuits. Branch circuit metering CT's shall be arranged so that the branch circuit being metered is clearly associated with the metering CT.

B. Capable of monitoring up to 84 branch circuits.

C. Data shall be updated at 1 second intervals. Data shall be available through the controller Modbus TCP port.

D. Main and individual branch circuit metering values shall include:
   1. Current
   2. current demand
   3. Kilowatt hours
   4. Kilowatt demand
   5. Power factor
   6. Voltage
   7. Frequency.

E. Power metering shall be able to provide alarms for the following:
   1. Voltage over/under.
   2. Over/under currents.
   3. Phase loss.

2.09 INPUT DEVICES

A. General Requirements:
   1. Suitable for environment and hazardous area classification.
   2. Contacts rating and construction suitable for low level 24 VDC switching.
   3. Contacts shall have suitable protection for environment in which used.
   4. Mechanism to match control requirement.
   5. Provide power supplies, controllers, relays, junction boxes, and other equipment necessary to interface the motion sensors, photo eyes, and other sensors with the lighting control system.

B. Push Buttons: Momentary type.

C. Motion Sensors and Motion Controller:
   1. Adjustable 10-, 20-, 30-minute duration.

2. 360-degree 2000-square-foot coverage.
3. Pushbutton manual override control:
   a. a. If the lights are off, pressing the button will turn lights on and keep them on for as long as the room is occupied
   b. b. The lights will be turned off once the room is vacant after the delayed off time expires.
4. If the lights are on, pressing the button will turn lights off and keep them off even if the room is occupied.
5. Operating range 32 to 122 degrees F.
6. Incorporate ultrasonic and passive infrared technologies.
7. 120V power supply.
8. Hubbell, Leviton, or approved equal.

2.10 LCS PROGRAM DOCUMENTATION

A. Submit printouts of the program including configuration schedules, inputs configuration, zones, circuit breaker actions, and time schedules. The printouts shall include descriptive annotation.

B. The descriptive annotation shall match the tag numbers, names, and numbering/naming conventions used in the Contract Documents. Items required to be labeled include the following:
   1. Panelboards
   2. Circuit breakers
   3. Field devices
   4. Inputs
   5. Outputs

2.11 FINISH

A. Panelboard cabinet shall be fabricated from hot-dip galvanized steel in accordance with UL 50. Panelboard fronts shall have a gray, baked enamel finish.

2.12 NAMEPLATES

A. Panelboards shall be provided with phenolic nameplates showing panelboard name and equipment number as specified on the one-line drawings. Nameplates shall be in accordance with Section 26 05 00.

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.

3.02 CIRCUIT DIRECTORY

A. The Contractor shall type in the circuit description on the circuit directory as shown on the final record drawings or panelboard schedule.

B. Provide “Circuit Directory and Circuit Identification” in accordance with NEC 408.4. Each circuit shall be of sufficient detail to allow each circuit to be distinguished from other circuits. Circuit identification shall include load location and provide equipment or instrument Tag Number and Tag Description, where shown on the drawings.

3.03 TESTING

A. In addition to any testing herein, perform all testing for this product or system consistent with the requirements of Section 26 08 00 and 01 45 23, the applicable codes, and the manufacturers’ current quality assurance program.

B. A test plan of the LCS function shall be submitted and shall including the following:
   1. A hardware and software test plan to demonstrate correct functioning of the LCS.
   2. Hard copy of the software that will be tested
   3. Test forms including a description of the function being tested, the initiating devices, and location for signatures of the manufacture and construction manager.

C. Panelboards shall be tested for proper operation and function.

3.04 TRAINING

A. A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.
   1. Training Sessions:
      a. Procedures: Section 01 66 00.
      b. Provide two 4-hour training sessions on consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Certify completion of training on Form 11 00 00-B, Section 01 99 90.

3.05 SCHEDULES

A. Panelboard details and LCS logic are specified in the schedules on the Drawings.

END OF SECTION

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SECTION 26 24 16

PANELBOARDS

PART 1 GENERAL

1.01 DESCRIPTION

A. Three phase, four wire 208Y/120 or 480Y/277 volt, dead front, circuit breaker type panelboard with current rating of 600-amperes or less.

B. Single phase, three wire 120/240 volt, dead front, circuit breaker type panelboards with current rating of 400-amperes or less.

C. 2-Wire 125V DC, dead front, circuit breaker type panelboards with current rating 400-amperes or less

D. Provide metal oxide varistor (MOV) surge protective device (SPD) integral within each panelboard that indicates the status and condition of the SPD, tested per NEMA LS-1, rated IEEE C3 Combined Wave of 20kV and 10kA with 200kAIC internal fusing and listed / labeled per UL 1449.

1.02 REFERENCES

A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE	Institute of Electrical and Electronic Engineers
NEMA	National Electrical Manufacturing Association
NFPA 70	National Electrical Code (NEC)
UL 50	Cabinets and Boxes
UL 67	Underwriters Laboratories, Electric Panelboards
UL 489	Molded-Case Circuit Breakers and Circuit Breaker Enclosures
UL 1449	Surge Suppression Devices

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Time-Current Characteristics Curves for circuit breakers.
5. Outline plan and elevation drawings with clearance requirements, Elevation drawing including the quantity, location, and rating of circuit breakers with each panelboard.
6. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
7. Test results for all specified testing.
8. Operations and Maintenance information per section 01 78 23.

B. Equipment List

Equipment Number	Name
PNL169203	PNL169203 ANAEROBIC AND AERATION 480V PANELBOARD
PNL169204	PNL169204 ANAEROBIC AND AERATION 480V PANELBOARD
PNL169501	PNL169501 ANAEROBIC AND AERATION 208Y/120V PANELBOARD
PNL169~~5~~4502 (CCF 059)	PNL169~~5~~4502 ANAEROBIC AND AERATION 208Y/120V PANELBOARD

PNL169403 (CCF 059)	PNL169403 ANAEROBIC AND AERATION 208Y/120V UPS A PANELBOARD
PNL169301	PNL169301~~2~~ (CCF 059) ANAEROBIC AND AERATION 480V PANELBOARD
PNL169302	PNL169302 ANAEROBIC AND AERATION 208Y/120V UPS B PANELBOARD
PNL229301	PNL229301 RAS/WAS BASIN AND AERATION 208Y/120V PANELBOARD
PNL229201 (CCF 059)	PNL229201 RAS/WAS BASIN AND AERATION 480V PANELBOARD

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's products, nor shall it be construed that named manufacturers' standard equipment or products will comply with the requirements of this Section. Candidate manufacturers include:

1. Eaton / Cutler-Hammer:
   a. PRL1a and PRL3a ~~Clipper Power Visor~~Eaton Surge Protective Device series
2. General Electric:
   a. AQ and AD with internal Surge Protective Devices
3. Siemens:
   a. S1, SE, and S3 with internal Surge Protective Devices
4. Square D:
   a. NQOD and NF with internal Surge Protective Devices
5. or equal

2.02 ARRANGEMENT AND CONSTRUCTION

A. The front of the panel shall have concealed trim clamps and hinges. The locks shall be flush with cylinder tumbler-type with spring loaded door pulls. The fronts shall not be removable with doors in the locked position. Panelboard locks shall be keyed alike.

B. Gutter space shall be provided on all sides of the breaker assembly to neatly connect and arrange incoming wiring.

C. Panelboard shall be composed of individually mounted circuit breakers designed to be removable without disturbing other breakers.

D. A directory holder with clear plastic plate and metal frame shall be mounted on the inside of the door.

2.03 BUS

A. Bus shall be tin-plated copper and shall have current ratings as shown on the panelboard schedules, sized in accordance with UL 67. Ratings shall be determined by temperature rise test.

B. The minimum bus size shall be 100 amperes. Panel fault withstand rating shall be not less than the interrupting rating of the smallest circuit breaker in the panel. Series rating is prohibited.

C. Panelboards shall be provided with a separate ground bus and, where specified, with a full capacity neutral bus. The neutral bus shall be mounted on insulated stand-offs.

2.04 CIRCUIT BREAKERS

A. Circuit breakers shall be molded-case type provided for the current ratings and pole configurations specified on the panelboard schedule. Circuit breakers shall be bolt-on type. Circuit breakers shall be listed in accordance with UL 489 for the service specified. Load terminals of circuit breakers shall be solderless connectors.

B. Circuit breakers rated 120/208 volt and 120/240 volt alternating current shall have a minimum interrupting current rating of 18,000 amperes symmetrical at 240 volt AC.

C. Circuit breakers rated 277/480 volt alternating current shall have a minimum interrupting current rating of 25,000 amperes symmetrical at 480 volt or as specified on the panelboard schedule.

D. Circuit breakers rated 125/250 volt direct current shall have a minimum interrupting current rating of 14,000 amperes symmetrical at 250VDC or as specified on the panelboard schedule.

E. Provide circuit breakers with special features such as ground fault interrupting (GFI), heating air conditioning and refrigeration (HACR) rating, or locking capability as shown on the Drawings or Schedules.

2.05 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:

1. High-energy parallel design for IEEE C62.41 and C62.45 category C

2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses

3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)

4. Form C dry contacts

5. UL 1449

6. 5-year warranty

C. Surge Capacity: 120 kA minimum surge capacity per phase.

D. Mounting: SPD shall be connected directly to the panelboard bus between the main and branch bus section. Provide and additional 18 inches maximum addition

F. Eaton SPD Series or approved equal.

2.06 FINISH

A. Panelboard cabinet shall be fabricated from hot-dip galvanized steel in accordance with UL 50. Panelboard fronts shall have a gray, baked enamel finish.

2.07 NAMEPLATES

A. Panelboards shall be provided with phenolic nameplates showing panelboard name and equipment number as specified on the one-line drawings. Nameplates whall be in accordance with Section 26 05 00.

PART 3 EXECUTION

3.01 GENERAL

A. The Contractor shall type in the circuit description on the circuit directory as shown on the final record drawings or panelboard schedule.

B. Provide “Circuit Directory and Circuit Identification” in accordance with NEC 408.4. Each circuit shall be of sufficient detail to allow each circuit to be distinguished from other circuits. Circuit identification shall include load location and provide equipment or instrument Tag Number and Tag Description, where shown on the drawings.

3.02 TESTING

A. Panelboards shall be tested for proper operation and function.

3.03 SCHEDULE

A. Panelboards are scheduled on the drawings.

END OF SECTION

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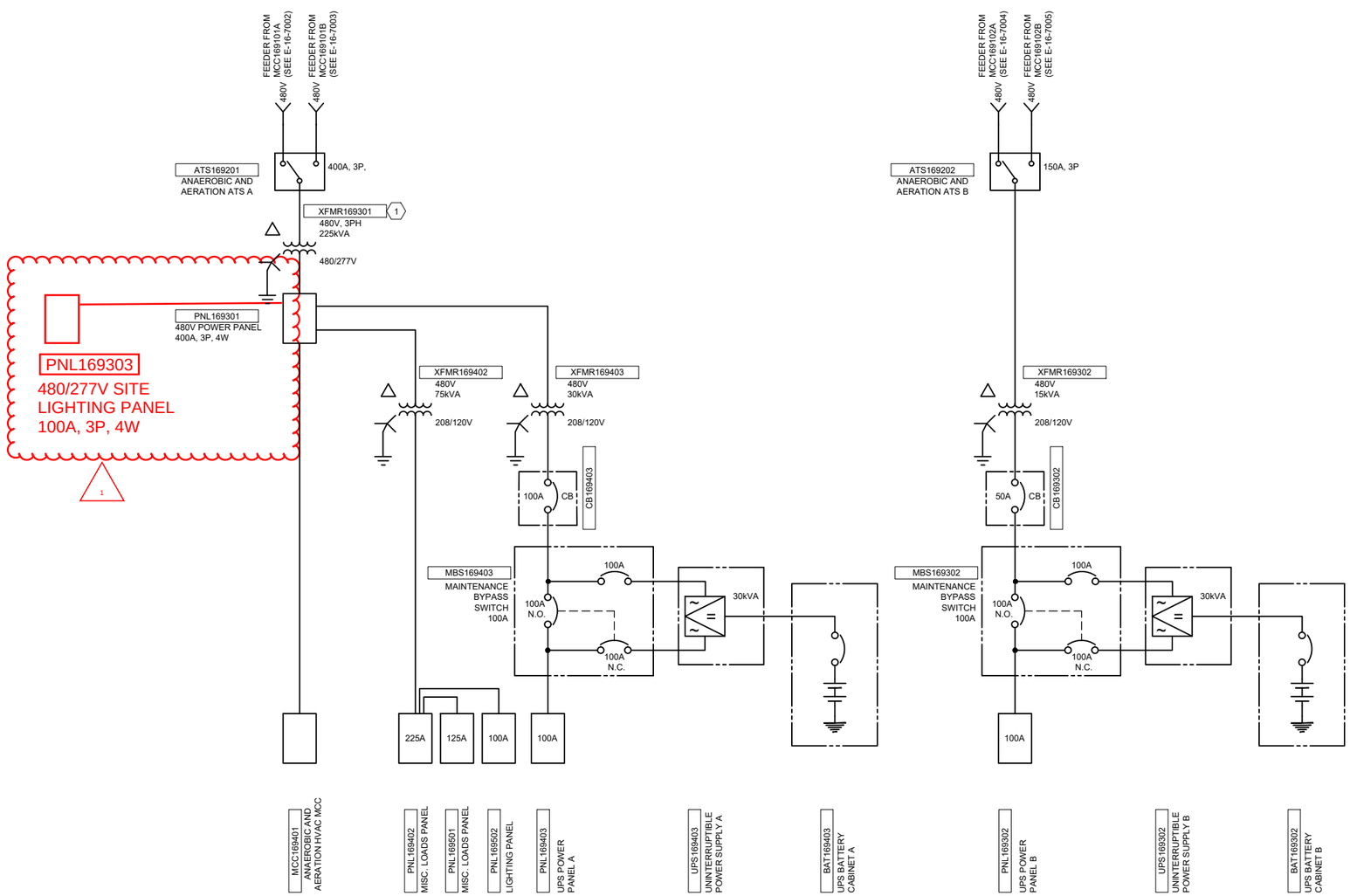


GENERAL NOTES :

1. VFD MOTOR CIRCUIT PROTECTORS (MCP) SIZED PER MANUFACTURER'S RECOMMENDATIONS.

KEYNOTES :

1 CONTRACTOR SHALL PROVIDE 225KVA, DELTA-WYE 480-480V, DRY-TYPE TRANSFORMER WITH K-FACTOR 4.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	03/2022	CC30B: CCF 060

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7006.DWG

BC PROJECT NUMBER
151600

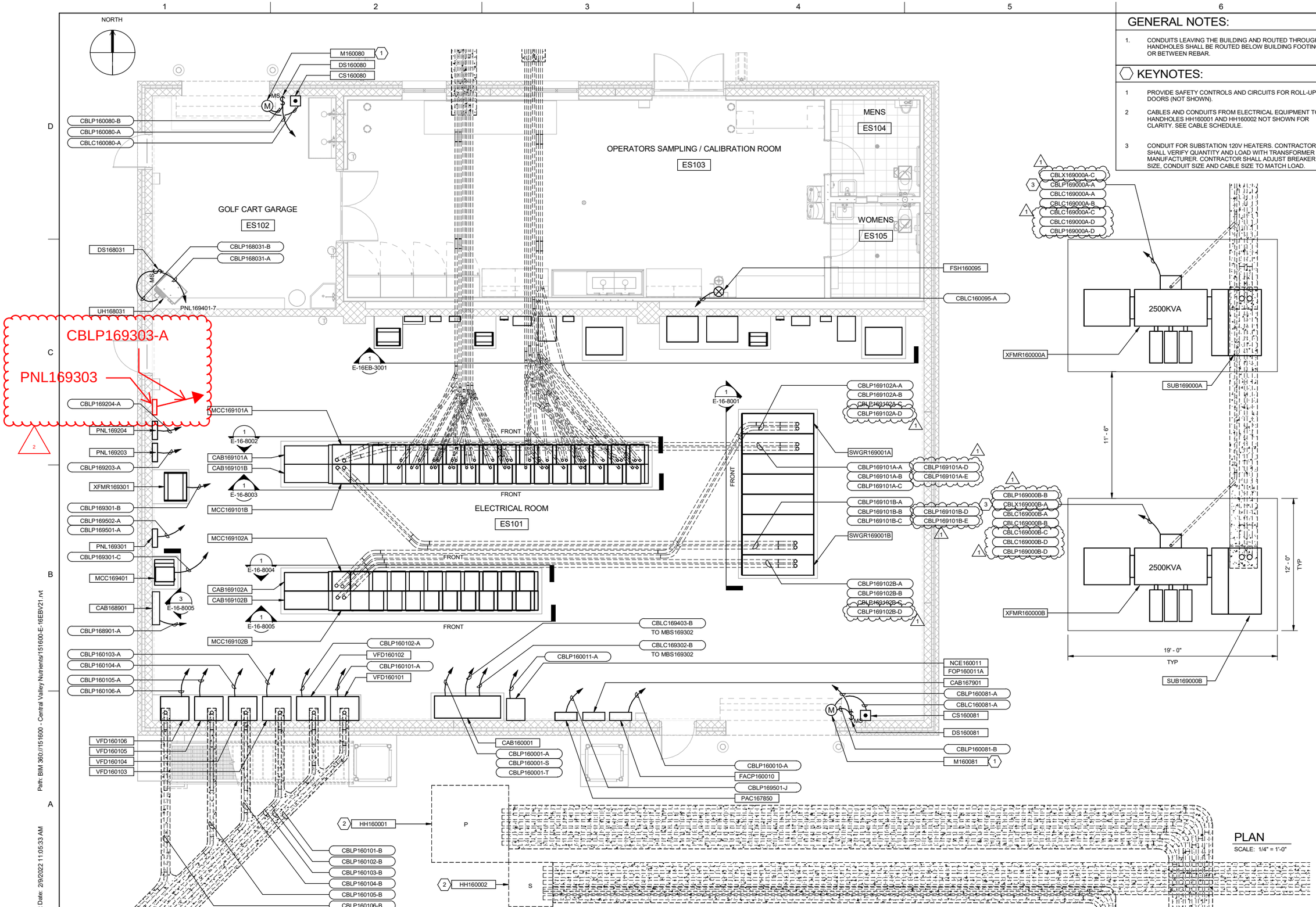
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ANAEROBIC AND AERATION 120V UPS A AND UPS B ONE LINE

DRAWING NUMBER
E-16-7006

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-16-7006.DWG PLOT DATE: 6/11/2020 12:39 PM CAD USER: STEVEN CANAS



PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. CONDUITS LEAVING THE BUILDING AND ROUTED THROUGH HANDHOLES SHALL BE ROUTED BELOW BUILDING FOOTING OR BETWEEN REBAR.

KEYNOTES:

1. PROVIDE SAFETY CONTROLS AND CIRCUITS FOR ROLL-UP DOORS (NOT SHOWN).
2. CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.
3. CONDUIT FOR SUBSTATION 120V HEATERS. CONTRACTOR SHALL VERIFY QUANTITY AND LOAD WITH TRANSFORMER MANUFACTURER. CONTRACTOR SHALL ADJUST BREAKER SIZE, CONDUIT SIZE AND CABLE SIZE TO MATCH LOAD.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	01/11/22	CC30B: CCF 042
2	03/2022	CC30B: CCF 060

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL ROOM POWER AND CONTROL PLAN

DRAWING NUMBER
E-16EB-1101

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16EBV21.rvt

Plot Date: 2/9/2022 11:05:33 AM

PNL169301

VOLTAGE: 480Y/277
3-PHASE
4-WIRE
REMARKS: 480V PNL FOR HVAC MCC FEED & SITE LIGHTING

RATING: 400A
MAIN DISCONNECT: 350A CIRCUIT BREAKER
AIC: 35 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: BOTTOM

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
SPD (NOTE 1)	30/3	1				~~0.38~~			2	20/1	~~RDWY LTG AREA 16EB~~ SPARE
		3					~~1.07~~		4	20/1	~~LTG AREA 17 S~~ SPARE
		5						~~0.89~~	6	20/1	~~LTG AREA 17 N~~ SPARE
~~LTG AREA 16 SITE~~ SPARE	20/1	7	~~0.45~~			~~0.24~~			8	20/2	~~RDWY LTG AREA 17~~ SPARE
~~LTG AREA 18 SITE AREA A~~ SPARE	20/1	9		~~0.71~~			~~0.24~~		10		
~~LTG AREA 18 SITE AREA B&C~~ SPARE	20/1	11			~~1.25~~			~~0.48~~	12	20/1	~~FLOOD LTG AREA 17~~ SPARE
~~LTG AREA 18 SITE AREA D~~ SPARE	20/1	13	~~1.42~~						14	1	Future Space
~~FLOOD LTG AREA 18 W~~ SPARE	20/1	15		~~0.61~~					16	1	Future Space
~~FLOOD LTG AREA 18 E~~ SPARE	20/1	17			~~0.61~~				18	1	Future Space
Future Space	1	19							20	1	Future Space
Future Space	1	21							22	1	Future Space
Future Space	1	23							24	1	Future Space
~~Future Space~~		25							26	1	Future Space
~~Future Space~~ FEED TO PNL169303	~~1~~ 100/3	27							28	1	Future Space
~~Future Space~~		29							30	1	Future Space
		31	30.65						32	1	Future Space
FEED TO XFMR169402(NOTE2)	200/3	33		17.34					34	1	Future Space
		35			16.06				36	1	Future Space
FEED TO XFMR169403	70/3	37	7.17			27.42			38	200/3	FEED TO MCC169401(NOTE 2)
		39		9.87			27.42		40		
		41			5.12			27.42	42		

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	29.11	28.54	23.04
LOAD SUBTOTAL, RIGHT (kVA):	28.04	28.73	28.79
LOAD TOTAL (kVA):	57.15	57.27	51.83
TOTAL AMPS PER PHASE (A):	201.65	200.73	183.70

CODES:	CONNECTED LOAD		CORRECTION FACTOR		DEMAND LOAD	
H = HVAC LOADS	0.00	kVA	100	%	0.00	kVA
K = KITCHEN EQUIPMENT	0.00	kVA	100	%	0.00	kVA
L = LIGHTING LOADS	5.79	kVA	125	%	9.04	kVA
LM = LARGEST SINGLE MOTOR	0.00	kVA	125	%	0.00	kVA
M = OTHER MOTOR LOADS	0.00	kVA	100	%	0.00	kVA
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0	%	0.00	kVA
R = GENERAL USE RECEPTACLES	0.00	kVA	100	%	0.00	kVA
S = DEDICATED RECEPTACLES	0.00	kVA	100	%	0.00	kVA
Z = MISC. OR APPLIANCES	2.49	kVA	100	%	3.11	kVA
TOTALS:	8.28	kVA			12.15	kVA

NOTES:

1. PROVIDE EXTERNAL MOUNTED SPD IF INTERNAL IS NOT AVAILABLE.

2. PROVIDE PANEL MAIN AND NOTED FEEDER BREAKERS WITH ADJUSTABLE TRIP UNIT. TRIP UNIT TO INCLUDE INSTANTANEOUS TRIP FUNCTION.

1

PNL169303

VOLTAGE: 480Y/277
3-PHASE
4-WIRE
REMARKS: 480V PNL FOR SITE LIGHTING

RATING: 100A
MAIN DISCONNECT: 100A CIRCUIT BREAKER
AIC: 65 kA

PROJECT NO.: 151600
MOUNTING: SURFACE
FED FROM: TOP

DESCRIPTION	BRKR. AMP POLE	CKT. NO.	LEFT SIDE, kVA A	LEFT SIDE, kVA B	LEFT SIDE, kVA C	RIGHT SIDE, kVA A	RIGHT SIDE, kVA B	RIGHT SIDE, kVA C	CKT. NO.	BRKR. AMP POLE	DESCRIPTION
FEED FROM PNL169301	100/3	1				0.38			2	20/1	RDWY LTG AREA 16EB
		3					1.07		4	20/1	LTG AREA 17 S
		5						0.89	6	20/1	LTG AREA 17 N
LTG AREA 16 SITE	20/1	7	0.45			0.24			8	20/2	RDWY LTG AREA 17
LTG AREA 18 SITE AREA A	20/1	9		0.71			0.24		10		
LTG AREA 18 SITE AREA B&C	20/1	11			1.25			0.48	12	20/1	FLOOD LTG AREA 17
LTG AREA 18 SITE AREA D	20/1	13	1.42						14	1	Future Space
FLOOD LTG AREA 18 W	20/1	15		0.61					16	1	Future Space
FLOOD LTG AREA 18 E	20/1	17			0.61				18	1	Future Space
Future Space	1	19							20	1	Future Space
Future Space	1	21							22	1	Future Space
Future Space	1	23							24	1	Future Space
Future Space	1	25							26	1	Future Space
Future Space	1	27							28	1	Future Space
Future Space	1	29							30	1	Future Space
SPACE	-	31							32	1	Future Space
		33							34	1	Future Space
		35							36	1	Future Space
SPACE	-	37							38	-	SPACE
		39							40		
		41							42		

	PHASE A:	PHASE B:	PHASE C:
LOAD SUBTOTAL, LEFT (kVA):	1.87	1.32	1.86
LOAD SUBTOTAL, RIGHT (kVA):	0.62	1.30	1.37
LOAD TOTAL (kVA):	2.49	2.63	3.23
TOTAL AMPS PER PHASE (A):	201.65	200.73	183.70

1

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	03/2022	CC30B: CCF 060

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16EB-6002.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
ANAEROBIC AND AERATION ELECTRICAL 480V PANEL SCHEDULES 2

DRAWING NUMBER
E-16EB-6002

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-16EB-6002.DWG PLOT DATE: 6/11/2020 1:17 PM CAD USER: STEVEN CANAS

PNL169303

LIGHTING CONTROL SYSTEM PANEL: ~~PNL169301~~ CIRCUIT BREAKERS

CKT	ZONE (NOTE 2)	GROUP	CONTROL TYPE	TIMER REQUIRED	TIME (MIN)
1		SPARE ~~SPD~~			
3					
5					
7	Z1	LTG AREA 16 SITE	TC	YES	DUSK TO DAWN
9	Z4	LTG AREA 18 SITE AREA A	TC	YES	DUSK TO DAWN
11	Z5	LTG AREA 18 SITE AREA B&C	TC	YES	DUSK TO DAWN
13	Z6	LTG AREA 18 SITE AREA D	TC	YES	DUSK TO DAWN
15		FLOOD LTG AREA 18 W			
17		FLOOD LTG AREA 18 E			
19		Future Space			
21		Future Space			
23		Future Space			
25		Future Space			
27		Future Space			
29		Future Space			
31		Future Space			
33		Future Space			
35		Future Space			
37		Future Space			
39		Future Space			
41		Future Space			
2		Future Space			
4	Z2	LTG AREA 17 S	TC	YES	DUSK TO DAWN
6	Z3	LTG AREA 17 N	TC	YES	DUSK TO DAWN
8		RDWY LTG AREA 17			
10					
12		FLOOD LTG AREA 17			
14		Future Space			
16		Future Space			
18		Future Space			
20		Future Space			
22		Future Space			
24		Future Space			
26		Future Space			
28		Future Space			
30		Future Space			
32		Future Space			
34		Future Space			
36		Future Space			
38		SPARE ~~FEED TO MCC169401~~			
40					
42					

CONTROL TYPE KEY:

LS = LIGHT SWITCH

OS = OCCUPANCY SENSOR

TC = TIME CLOCK

N/A = NOT APPLICABLE

NOTES:

1. Where identified, emergency fixture circuits to be fed from 2-pole emergency controllable breakers.

2. Breakers provided with Zone designation to be controllable

1

LIGHTING CONTROL SYSTEM PANEL: PNL169502 CIRCUIT BREAKERS

CKT	ZONE (NOTE 2)	GROUP	CONTROL TYPE	TIMER REQUIRED	TIME (MIN)
1	Z1	LTG RM ES102	OS	YES	480
3	Z4	LTG RM ES101 (NOTE 1)	OS	YES	480
5	N/A	LTG RM ES101 (NOTE 1)			
7	Z5	LTG RM ES101 (NOTE 1)	OS	YES	490
9	N/A	LTG RM ES101 (NOTE 1)			
11	Z6	LTG OUTSIDE (NOTE 1)	TC	YES	DUSK TO DAWN
13	N/A	LTG OUTSIDE (NOTE 1)			
15		Future Space			
17		Future Space			
19		Future Space			
21		Future Space			
23		Future Space			
25		Future Space			
27		Future Space			
29		Future Space			
31		Future Space			
33		Future Space			
35		Future Space			
37		Future Space			
39		Future Space			
41		Future Space			
2	Z2	LTG RM ES103 (NOTE 1)	OS	YES	480
4	N/A	LTG RM ES103 (NOTE 1)			
6	Z3	LTG RM ES103 (NOTE 1)	OS	YES	490
8	N/A	LTG RM ES103 (NOTE 1)			
10	N/A	LTG BATHROOMS			
12	N/A	LTG EXIT SIGNS			
14	Z7	LTG OUTSIDE STAIRWELL	TC	YES	DUSK TO DAWN
16		Future Space			
18		Future Space			
20		Future Space			
22		Future Space			
24		Future Space			
26		Future Space			
28		Future Space			
30		Future Space			
32		Future Space			
34		Future Space			
36		Future Space			
38		SPD			
40					
42					

CONTROL TYPE KEY:

LS = LIGHT SWITCH

OS = OCCUPANCY SENSOR

TC = TIME CLOCK

N/A = NOT APPLICABLE

NOTES:

1. Where identified, emergency fixture circuits to be fed from 2-pole emergency controllable breakers.

2. Breakers provided with Zone designation to be controllable

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	03/2022	CC30B: CCF 060

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16EB-6005.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL LIGHTING CONTROL SCHEDULE

DRAWING NUMBER
E-16EB-6005

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\07-SHEETS\05_E-ELECTRICAL FILENAME: E-16EB-6005.DWG PLOT DATE: 6/11/2020 1:20 PM CAD USER: STEVEN CANAS

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 064
Date: 8/8/2022
Description: Per Control Change Form #073: Cost to add painted steel baseplate for the vertical RAS Selector sump pumps and 6" aluminum grating on front edge.

Orion Construction (see attached back-up):	$1,223.00
Mark-up (5%):	$61.15
Xylem (see attached back-up):	$3,719.42
Gerber Labor and Material (see attached back-up):	$1,714.70
Gerber Onsite Coordination & Management (see attached back-up):	$876.04
Bonds:	$77.67
Mark-up (15%):	$958.18
Total:	**$8,630.16**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $8,630.16 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-064 RAS Selector Sump Modifications - CC#073	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-064	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Pump Base Painting (Orion)	**1.00**	**UNIT**	**$1,223.00**	**$1,223.00**	**$1,298.65**	**$1,298.65**	**5.10%**
Painting Sub	1.00	LS	$1,223.00	$1,223.00			
D 02 - Pump Base Change (Xylem)	**1.00**	**UNIT**	**$3,719.42**	**$3,719.42**	**$4,321.44**	**$4,321.44**	**15.00%**
Pump Bases	1.00	LS	$3,719.42	$3,719.42			
D 03 - Gerber Labor & Materials	**1.00**	**UNIT**	**$1,714.70**	**$1,714.70**	**$1,992.24**	**$1,992.24**	**15.00%**
03 Foreman	4.50	HR	$122.55	$551.49			
Truck, Pickup, 1 Ton	0.02	MO	$2,301.00	$53.51			
Welding Crew (Shop) (1.50 UNIT/DY, 0.67 DY)	1.00	UNIT	$972.16	$972.16			
Welding Shop	6.67	HR	$18.20	$121.33			
13 Welder Foreman	6.67	HR	$127.62	$850.83			
304 SS, Flat Bar, .1875"x02"	1.00	EACH	$137.54	$137.54			
D 04 - Gerber Coordination Labor	**1.00**	**UNIT**	**$876.04**	**$876.04**	**$1,017.83**	**$1,017.83**	**15.00%**
20 Project Engineer	3.00	HR	$150.82	$452.40			
18 Project Manager	2.00	HR	$181.68	$363.32			
Truck, Pickup, 3/4 Ton	0.03	MO	$1,729.00	$60.31			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,218.04	29.44%
Equipment Owned:	$235.16	3.12%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,856.96	51.20%
Subcontracted:	$1,223.00	16.23%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$7,533.16	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$7,533.16	87.29%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$77.67	0.90%
Total Overall Cost:	$7,610.83	88.19%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,019.33	11.81%
Total Margin:	$1,019.33	11.81%
Total Bid Price:	$8,630.16	

Orion Construction, LC
Painting and Coating Contractors

August 8, 2022

Shay Clark
Gerber Construction Company

Project: Change Control Modification 073 CVWRF BNR

Shay,

The cost to double coat the plate top and bottom requires three separate trips. One for the first coat, one for the second coat and third to coat where it was on the shoring. The cost is $1,223.00. This price is based on the plate being shop prepped and primed.

Thank you for your consideration.

Orion Construction, LC

George E. Hatfield
Managing Partner

9802 North 5740 West – Highland, Utah 84003-9198 - (801) 763-8999
Fax (801) 763-8998 - Mobile (801) 680-8999

Xylem Water Solutions USA, Inc.
Flygt Products

2464 West 1500 S
84104, UT 84104
Tel 307/789-3415
Fax 307/7893415

April 4, 2022

Gerber Construction, Inc.
815 E 675 S
LEHI UT 84043-3950

Quote # 2022-SLC-0067
Project Name: CVWRF
Job Name: 42 23 80.13 P181521&22

Xylem Water Solutions USA, Inc. is pleased to provide a quote for the following Flygt equipment.

A Flygt Preventive Maintenance Contract is available for this order. Please contact your Xylem Service Center for more information.

Accessories

Qty	Part Number	Description	Unit Price	Extended Price
1	170115.5S-FO	COVER, DUPLEX BASIN 51" X 47.5" W/ 20" PUMP PLATES PER TRAMCO DWG NO. 127930	$ 3,461.54	$ 3,461.54
		Accessories Price		**$ 3,461.54**
		Total Price		**$ 3,461.54**

Terms & Conditions

This order is subject to the Standard Terms and Conditions of Sale – Xylem Americas effective on the date the order is accepted which terms are available at http://www.xyleminc.com/en-us/Pages/terms-conditions-of-sale.aspx and incorporated herein by reference and made a part of the agreement between the parties.

Purchase Orders: Please make purchase orders out to: Xylem Water Solutions USA, Inc.

Freight Terms: 3 DAP - Delivered At Place 08 - Jobsite (per IncoTerms 2020)
See Freight Payment (Delivery Terms) below.

Taxes: State, local and other applicable taxes are not included in this quotation.

Back Charges: Buyer shall not make purchases nor shall Buyer incur any labor that would result in a back charge to Seller without prior written consent of an authorized employee of Seller.

Shortages: Xylem will not be responsible for apparent shipment shortages or damages incurred in shipment that are not reported within two weeks from delivery to the jobsite. Damages should be noted on the receiving slip and the truck driver advised of the damages. Please contact our office as soon as possible to report damages or shortages so that replacement items can be shipped and the appropriate claims made.

Terms of Delivery: PP/Add Order Position

Validity: This Quote is valid for sixty (60) days.

FLYGT
a xylem brand

Terms of Payment: 100% N45 after invoice date.
Xylem's payment shall not be dependent upon Purchaser being paid by any third party unless Owner denies payment due to reasons solely attributable to items related to the equipment being provided by FLYGT.

Schedule: Please consult your local Flygt Branch Office to get fabrication and delivery lead times.

Thank you for the opportunity to provide this quotation. Please contact us if there are any questions.
We do not supply junction boxes, disconnects, surge protection, kellum grips, piping, valves, pressure gauges, spare parts, labor or any other equipment or installation services not specifically indicated above.

Sincerely,

Aaron Terry
Engineered Projects Rep.

Cell: 208-908-3296
aaron.terry@xylem.com

Travis Tuft
Branch Manager

Cell: 385-315-6614
travis.tuft@xylem.com

FLYGT
a xylem brand

Customer Acceptance

This order is subject to the Standard Terms and Conditions of Sale – Xylem Americas effective on the date the order is accepted which terms are available at http://www.xyleminc.com/en-us/Pages/terms-conditions-of-sale.aspx and incorporated herein by reference and made a part of the agreement between the parties.

A signed copy of this Quote is acceptable as a binding contract.

Purchase Orders: Please make purchase orders out to: Xylem Water Solutions USA, Inc.

Quote #:	2022-SLC-0067
Customer Name:	Gerber Construction, Inc.
Job Name:	42 23 80.13 P181521&22
Total Amount: (excluding freight)	$ 3,461.54

Signature: _____ Name:_____
(PLEASE PRINT)

Company/Utility:_____ PO:_____

Address:_____ Date:_____

_____ Phone:_____

_____ Email:_____

_____ Fax:_____

FLYGT
a xylem brand

CHANGE CONTROL FORM 073
RAS Selector Sump Mounting Modifications

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/12/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide a painted steel mounting baseplate for the vertical RAS Selector Sump pumps and 6" aluminum grating on the front edge of pump baseplate, see attached sketch provide in RFI 115 response.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

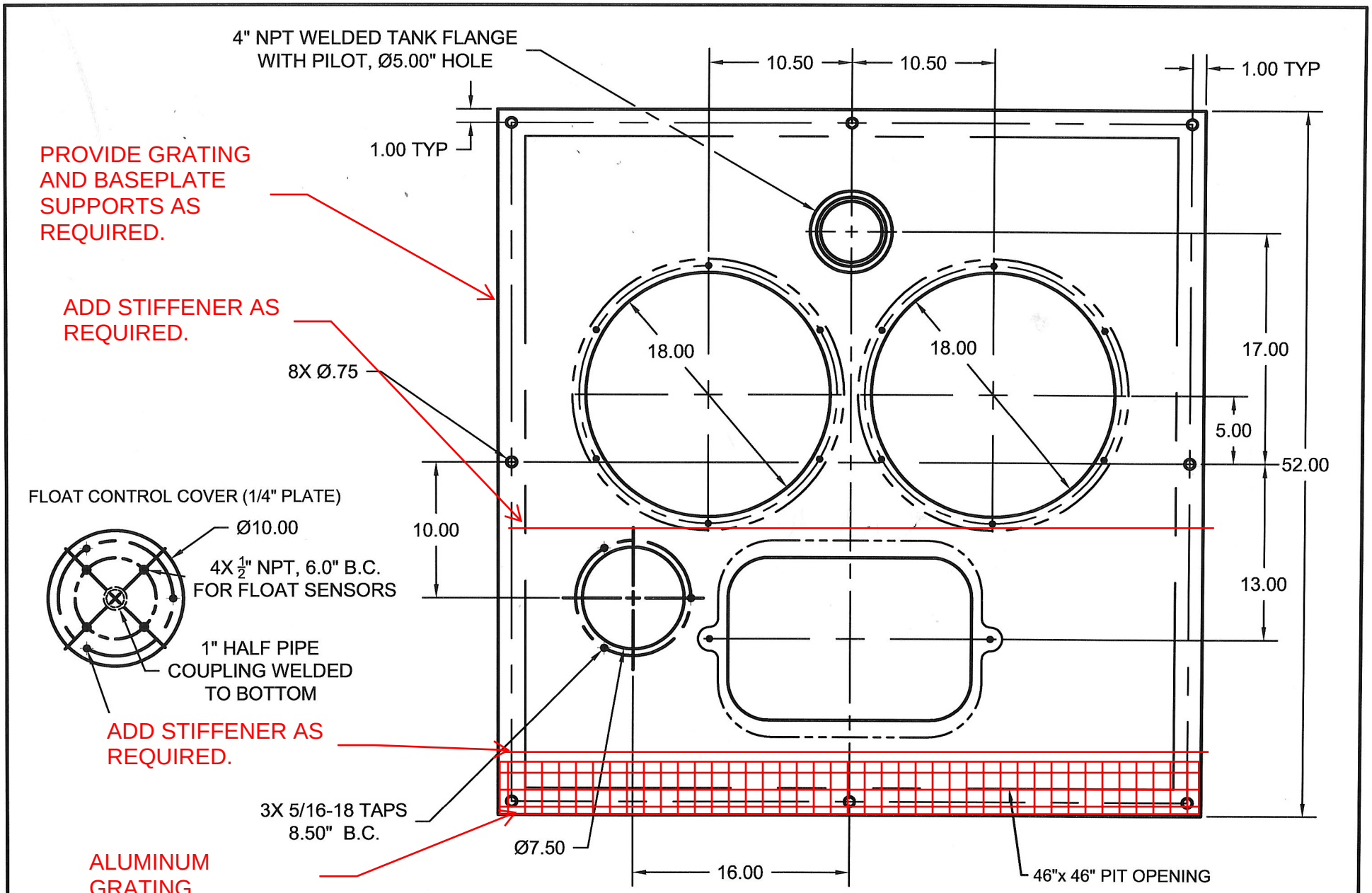
Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

© 1997 Brown and Caldwell

Tramco Typical Duplex Basin Cover



PROVIDE BASEPLATE WITH SUFFICIENT STIFFNESS TO LIMIT DEFLECTION TO L/360 WITH MAXIMUM LOADS. INCREASE BASEPLATE THICKNESS OR STIFFENERS AS REQUIRED.

TRAMCO PUMP CO. ROMEOVILLE, IL 60446 U.S.A.		TITLE: DUPLE	LATES	DWG NO. 170115.5S-FO
SCALE:1:10	DATE: 09/30/21	DRAWN: J OBE	MAT'L: ~~1/2"~~HR PLATE	REV. 0

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 062
Date: 8/3/2022
Description: Per Control Change Form #074: Cost for labor and material to add Grating at the RAS/WAS structure around gates GT223002, GT223001, SGTE223031. Some existing grating at these locations will need to be cut and re-banded and an additional 2”x2”x1/4” angle will need to be added to SGTE223031 opening to support grating (Brown and Caldwell to verify angle size, see blue markups on attached drawing S-22-1002).

Interstate Grating (see attached back-up):	$5,979.59
Gerber Labor, Equipment and Material (see attached back-up):	$3,768.63
Gerber Onsite Coordination & Management (see attached back-up):	$969.48
Bonds:	$112.09
Mark-up (15%):	$1,624.47
Total:	**$12,454.26**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $12,454.26 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-062 Grating At Gate Openings-CC#074	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-062	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Install Grating At Gate Openings	**1.00**	**LS**	**$10,717.70**	**$10,717.70**	**$12,454.26**	**$12,454.26**	**15.00%**
Gerber Management	1.00	LS	$969.48	$969.48			
18 Project Manager	2.00	HR	$175.82	$351.64			
20 Project Engineer	2.00	HR	$145.95	$291.90			
01 Superintendent	2.00	HR	$162.97	$325.94			
Gerber Install	1.00	DY	$3,231.38	$3,231.38			
Labor Crew, 3 Men (1.00 LS/DY, 1.00 DY)	1.00	LS	$3,231.38	$3,231.38			
03 Foreman	9.00	HR	$122.55	$1,102.98			
04 Leadman	9.00	HR	$106.78	$961.06			
14 Welder	9.00	HR	$96.32	$866.88			
Truck, Pickup, 1 Ton [2]	0.05	MO	$2,301.00	$214.05			
Welder, Truck Mounted 1 Ton	0.05	MO	$1,858.00	$86.42			
Aluminum Grating	1.00	LS	$5,979.59	$5,979.59			
Structural Steel/Hardware	1.00	LS	$537.25	$537.25			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,900.40	36.39%
Equipment Owned:	$300.47	2.80%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$6,516.84	60.80%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$10,717.70	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$10,717.70	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$112.09	0.90%
Total Overall Cost:	$10,829.79	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,624.47	13.04%
Total Margin:	$1,624.47	13.04%
Total Bid Price:	$12,454.26	

Quote

INTERSTATE GRATINGS
1820 West 200 South
Lindon, UT 84042

(801) 922-4700
(888) 499-8494 Toll Free

Quoted By:	Date	Quote #
Marshall Mackay	7/19/2022	QT16689

Quoted To:	Ship To
Gerber Construction 815 East 675 South Lehi, UT 84043	Gerber Construction 815 East 675 South Lehi, UT 84043 (801) 407-2000

Contact	JORDON

Lead Time
3-4 WEEKS
Approval Drawings
3-4 DAYS

Ship Via	FOB	Weight
WILL CALL		125

Item	Description	Qty	U/M	Unit Price	Total
AL Swaged	ALUMINUM SERRATED SWAGE LOCK GRATING 19-SG4 (2" X 3/16") FABRICATED AS PER DRAWING TRIM BANDED CLASS 1 CLEAR ANODIZED FINISH	27	SQ FT	206.11111	5,565.00

Total $5,565.00

Notes and Conditions:

1) Prices DO NOT INCLUDE taxes, duty, brokerage fees, erection, field measurements, P.E. stamp, nor any items not listed on the quote.
2) Prices quoted shall remain firm for ACCEPTANCE WITHIN 30 DAYS and for SHIPMENT WITHIN 90 DAYS of quote date. After which price is subject to escalations due to any raw material cost increases.
3) Delivery Schedule is based on current inventory that is subject to prior sale.
4) Payment Terms: NET 30 DAYS from Invoice Date
5) Grating products are manufactured in accordance with NAAMM MBG531-00 and MBG532-00 manuals.

CHANGE CONTROL FORM 074
Grating for Isolation Gate Openings at RAS Selector

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/12/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide aluminum grating around gates GT223002 and GT223001 at the RAS Collection Box and at SGTE223031 at the RAS Distribution Box to allow no more than ½" gap between the grating and the gate.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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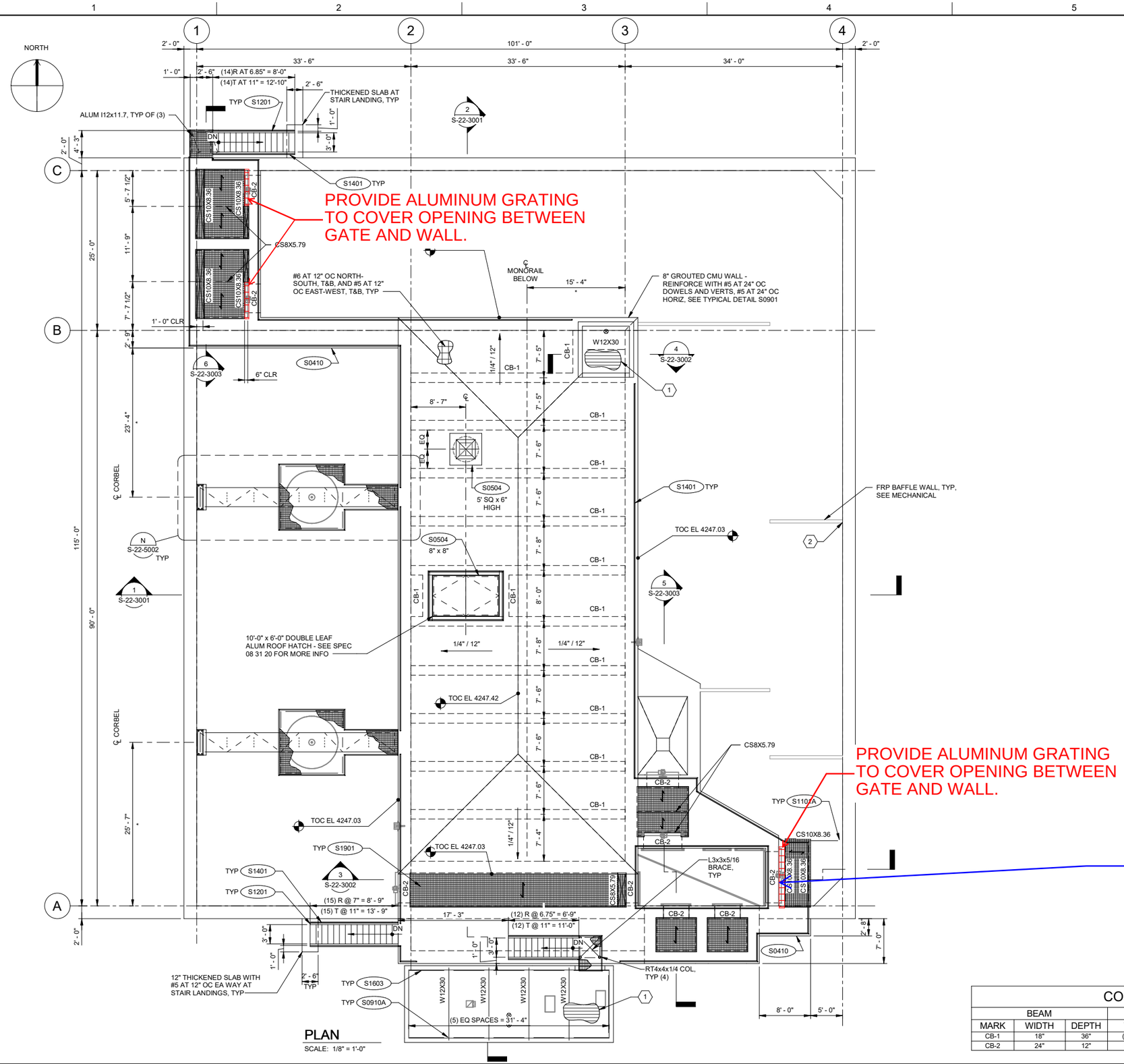

PLAN

SCALE: 1/8" = 1'-0"

Priced with 2"x2"x1/4" SS angle bolted to wall every 12' with 5/8" bolts. If larger or heavier angle is need BC will need to clarify and pricing will need to change. Shay Clark -GC

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.
7. COORDINATE ALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATION 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL AND HVAC EQUIPMENT PADS HEIGHT SHALL BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL AND HVAC DRAWINGS. SEE ELECTRICAL AND HVAC DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. MIXER SUPPORT PLATFORM LOCATION AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.

* VERIFY WITH APPROVED EQUIPMENT SUBMITTAL.

KEYNOTES:

1. 1 1/2" VERCO TYPE "PLB-36" 20 GA METAL DECK. FASTEN DECK WITH 1/2" DIA PUDDLE WELDS AT 12" OC AT PERIMETER AND INTERIOR SUPPORTS, AND 3/8" x 2" LONG AT 9" OC ARC SEAM WELDS AT SIDE LAPS, (2) SPAN MINIMUM.
2. FRP BAFFLE WALL ATTACHMENT DESIGNED BY THE CONTRACTOR. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.

CONCRETE BEAM SCHEDULE

BEAM			REINFORCING			SHEAR		
MARK	WIDTH	DEPTH	TOP	BOTTOM	NOTES	ES	IS	NOTES
CB-1	18"	36"	(5) #10	(5) #10		#4 AT 12" OC		
CB-2	24"	12"	(4) #7	(4) #7		#4 AT 12" OC		

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

RAS/WAS BASIN UPPER PLAN

DRAWING NUMBER
S-22-1002

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-22V18.rvt
Plot Date: 6/4/2020 12:37:58 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 063
Date: 8/3/2022
Description: Per Control Change Form #077: Cost for labor, material and equipment to epoxy supply and epoxy rebar.

Gerber Labor, Equipment and Material (see attached back-up):	$3,661.81
Gerber Onsite Coordination & Management (see attached back-up):	$338.79
Bonds:	$41.84
Mark-up (15%):	$604.62
Total:	**$4,647.06**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $4,647.06 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-063 AB2 Walls To Connector Box - CC#077	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-063	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
1 - Dowel & Epoxy Rebar	**1.00**	**LS**	**$4,000.60**	**$4,000.60**	**$4,647.06**	**$4,647.06**	**14.96%**
Dowel & Epoxy Rebar	1.00	LS	$2,858.94	$2,858.94			
Rebar Doweling (0.67 LS/DY, 1.50 DY)	1.00	LS	$2,858.94	$2,858.94			
Drill, Concrete 3/4"	0.30	WK	$61.50	$18.45			
Drill, Concrete 3/4"	0.30	WK	$61.50	$18.45			
05 Skilled Labor	13.50	HR	$92.89	$1,253.97			
04 Leadman	13.50	HR	$106.78	$1,441.59			
Truck, Pickup, 1 Ton	0.07	MO	$1,827.25	$126.48			
Gerber Management	1.00	LS	$338.79	$338.79			
18 Project Manager	1.00	HR	$175.82	$175.82			
01 Superintendent	1.00	HR	$162.97	$162.97			
Epoxy, Set XP (22oz)	4.00	EACH	$39.54	$158.17			
Waterstop, Hydrophilic, Hydrotite CJ-1020 2K (or equal) W/adheasive backing	80.00	LF	$8.06	$644.70			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$3,034.35	75.85%
Equipment Owned:	$163.38	4.08%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$802.87	20.07%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,000.60	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,000.60	86.09%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$41.84	0.90%
Total Overall Cost:	$4,042.44	86.99%
Total Overhead:	$0.00	0.00%
Total Profit:	$604.62	13.01%
Total Margin:	$604.62	13.01%
Total Bid Price:	$4,647.06	

CHANGE CONTROL FORM 077
AB2 Walls to Connector Box

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/21/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide two (2) #5 epoxy dowels 34" long minimum with 8" embedment @ 12" on center horizontally into existing AB2 Floor and Walls and two 2 rows of hydrophilic water stop all around floor slab and wall connection, see attached Sheets S-19-4001 Rev 1 and S-19-4302 Rev 1.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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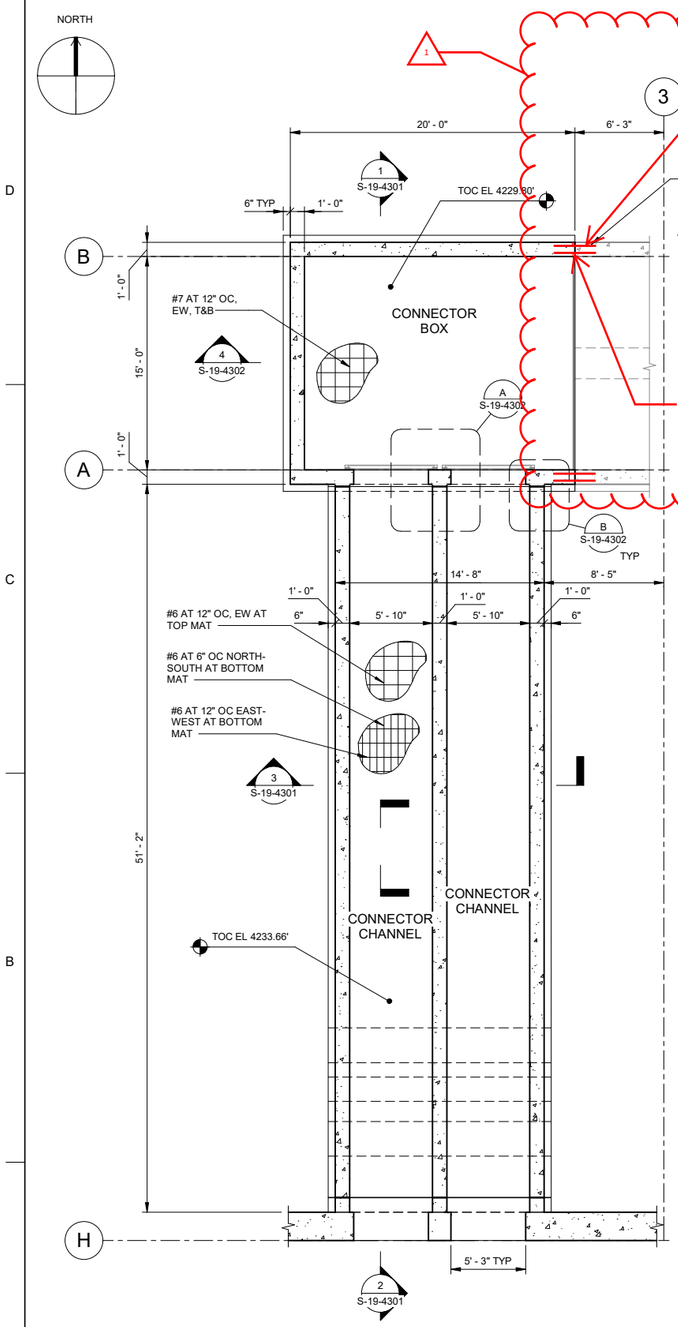
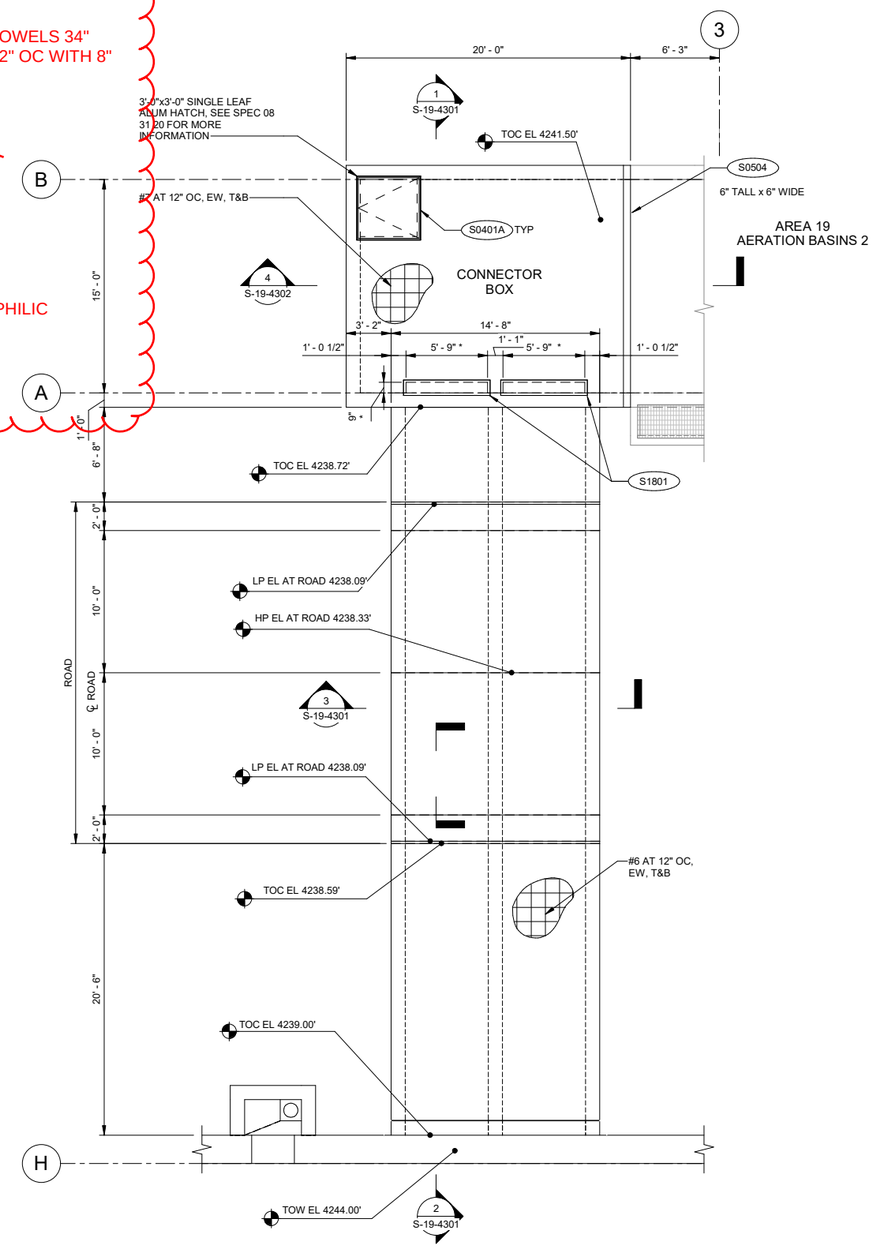


A PLAN AT CHANNEL LEVEL
S-19-1002 SCALE: 3/16" = 1'-0"



B PLAN AT TOP LEVEL
S-00-7110 SCALE: 3/16" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW / APPROVAL PRIOR TO ANY CONCRETE PLACEMENT. FOR CONSTRUCTION IN EXISTING SOLIDS CONTACT BASIN AREA REFERENCE SPECIFICATION 01 12 16 FOR RECOMMENDED SEQUENCING.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN, CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL, AND ELECTRICAL DRAWINGS.

* COORDINATE DIMENSION WITH APPROVED GATE SUBMITTAL

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	7/21/22	CC30B CCF077 Connection AB2 to Connector Box

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOUFFARD
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-19V18

BC PROJECT NUMBER
151600

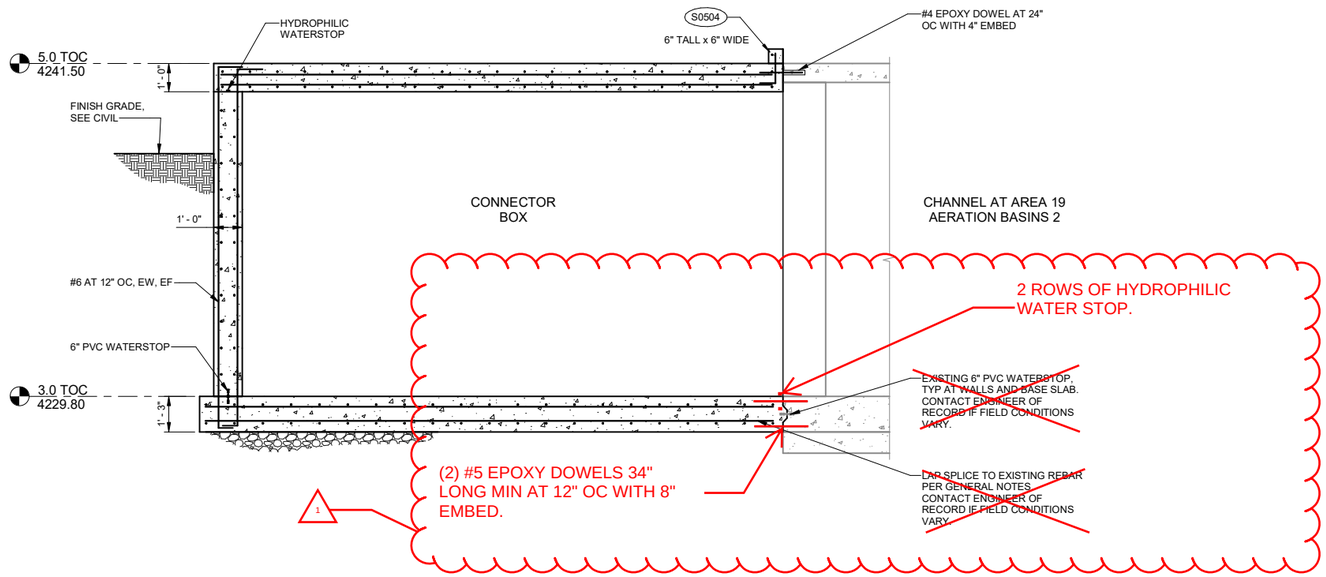
CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

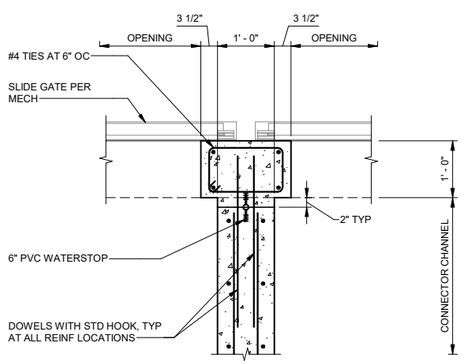
AERATION ZONE 2 CONNECTOR PLANS

DRAWING NUMBER
S-19-4001

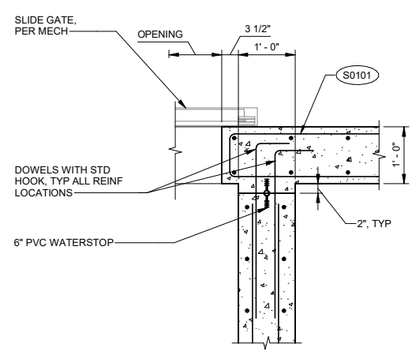
Path: BIM 360://151600 - CVWRF Nutrients/151600-S-19V18.rvt
Plot Date: 6/4/2020 12:29:48 PM



4 SECTION
S-19-4001 SCALE: 3/8" = 1'-0"



A DETAIL
S-19-4001 SCALE: 3/4" = 1'-0"



B DETAIL
S-19-4001 SCALE: 3/4" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	7/21/22	CC30B CCF077 Connection AB2 to Connector Box

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOUFFARD
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME
151600-S-19V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

STRUCTURAL

AERATION ZONE 2 CONNECTOR SECTIONS 2

DRAWING NUMBER
S-19-4302

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-19V18.rvt
Plot Date: 6/4/2020 12:29:54 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 065
Date: 8/8/2022
Description: Per Control Change Form #083: Cost to change 6" FMT Valves to CPVC.

Note: Hayward CPVC Valves is a 4" valve venturied to 6". Verify that this is acceptable. (See attached valve submittal spec sheets)

Harrington (see attached back-up):	$5,811.33
Gerber Onsite Coordination & Management (see attached back-up):	$1,129.30
Bonds:	$72.59
Mark-up (15%):	$1,051.97
Total:	**$8,065.19**

4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $8,065.19 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-065 FMT Valves - CC#083	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-065	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Slat Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - PVC Valves	**1.00**	**UNIT**	**$5,811.33**	**$5,811.33**	**$6,752.92**	**$6,752.92**	**15.00%**
Ball Valve, CPVC, 06"	3.00	EACH	$1,937.11	$5,811.33			
D 02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$1,129.30**	**$1,129.30**	**$1,312.27**	**$1,312.27**	**15.00%**
18 Project Manager	2.00	HR	$181.68	$363.36			
20 Project Engineer	3.00	HR	$150.82	$452.40			
03 Foreman	2.00	HR	$122.55	$245.08			
Truck, Pickup, 1 Ton	0.01	MO	$2,301.00	$23.78			
Truck, Pickup, 3/4 Ton	0.03	MO	$1,729.00	$44.68			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,060.84	15.28%
Equipment Owned:	$68.46	0.99%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,811.33	83.73%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$6,940.62	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$6,940.62	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$72.59	0.90%
Total Overall Cost:	$7,013.21	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,051.98	13.04%
Total Margin:	$1,051.98	13.04%
Total Bid Price:	$8,065.19	

Harrington Industrial Plastics LLC

Harrington Industrial Plastics
1907 West Indiana Avenue
Salt Lake City UT 84104

Phone: **801-974-5533** **Fax:** **801-974-5597**

Attention: PHIL DUNCAN

Company: GERBER CONSTRUCTION

To: RSTAKER@HIPCO.COM

From: Robert L. Staker

Subject: QUOTE 02081694

Memo:

Harrington Industrial Plastics
1907 West Indiana Avenue
Salt Lake City UT 84104
801-974-5533
801-974-5597 Fax

Quotation#: 02081694
Written: RLS
Quote Date: 08/08/22
Expire Date: 08/22/22
Page: 1 OF 1

Quotation

048084
GERBER CONSTRUCTION

815 EAST 675 SOUTH
LEHI, UT 84043

Ship To:
GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Job:

RFQ# 6" CPVC BALL

Contact: PHIL DUNCAN
Phone#: 435-590-8251
Fax: 801-407-2057

Ship Via: UPS GROUND
FOB / Delivery ARO: SHIPPING POINT
Frt-Terms: CHRG INBOUND & OUTBOUND

Product/Description	Quantity	Price	U/M	Extension
NOTE THIS IS NON CANCEL NON RETURNABLE				
TBH2600A0FE0000 6" VALVE BALL FLG CPVC EPDM TBH SERIES NOTE THIS IS NON CANCEL NON RETURNABLE	~~4~~ 3	~~1802.80~~	EA	~~7,211.20~~ 5,408.40

4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

Merchandise	Tax	Est.Freight / Handling	Net Quote Total
7,211.20	558.87	0.00	7,770.07

Thanks For Thinking Harrington.
Respectfully Robert L. Staker
All Quotations are subject to review upon placement of order.
Freight/Handling and applicable taxes if not listed above will be added.
Harrington standard terms and conditions apply to this quote.

Certified to NSF/ANSI 61 & 372 2-1/2" – 6"

4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

TBH Series True Union Ball Valves

2-1/2" TO 6" PVC AND CPVC

KEY FEATURES

- Available in PVC and CPVC
- Full Port Design Through 4"
- Reversible PTFE Seats
- Double O-Ring Stem Seals
- Ergonomic GFPP handle for improved grip and comfort
- ISO Mounting Flange
- Lockout/Tagout Standard
- Permanent Markings
- NSF / ANSI 61 and NSF / ANSI 372 Listed

OPTIONS

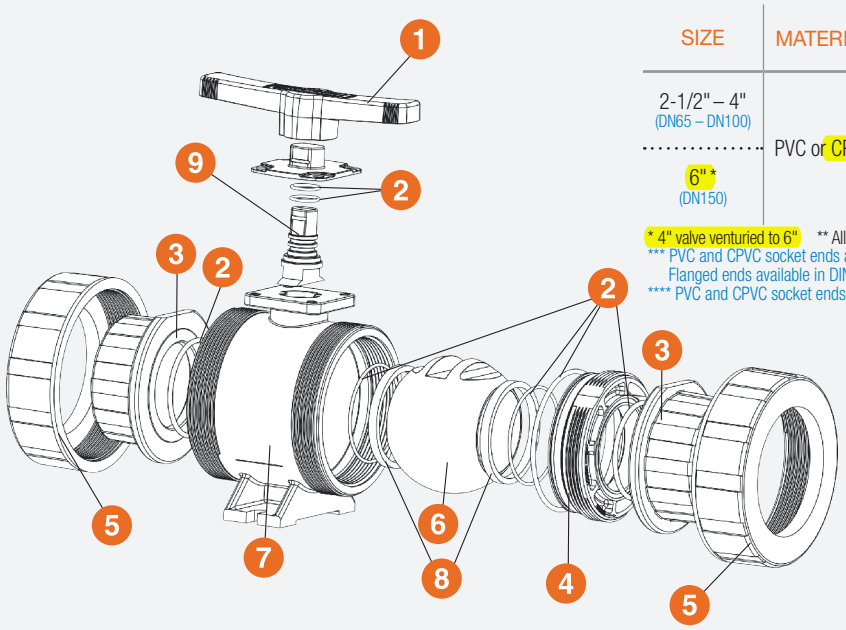
- Pneumatic and Electric Actuators
- Stem Extensions
- Limit Switch LHB Series

MATERIALS

- PVC Cell Class 12454 per ASTM D1784
- CPVC Cell Class 23447 per ASTM D1784
- GFPP Cell Class 85580 per ASTM D4101
- FPM and EPDM O-Ring Seals

TECHNICAL INFORMATION

EXPLODED VIEW



SELECTION CHART

SIZE	MATERIAL	END CONNECTION	SEALS	PRESSURE RATING
2-1/2" – 4" (DN65 – DN100)	PVC or CPVC	Socket, Threaded or Flanged**	FPM or EPDM	235 PSI @ 70°F 16 Bar @ 21°C Non-Shock
6"* (DN150)		Flanged		150 PSI @ 70°F 10 Bar @ 21°C Non-Shock

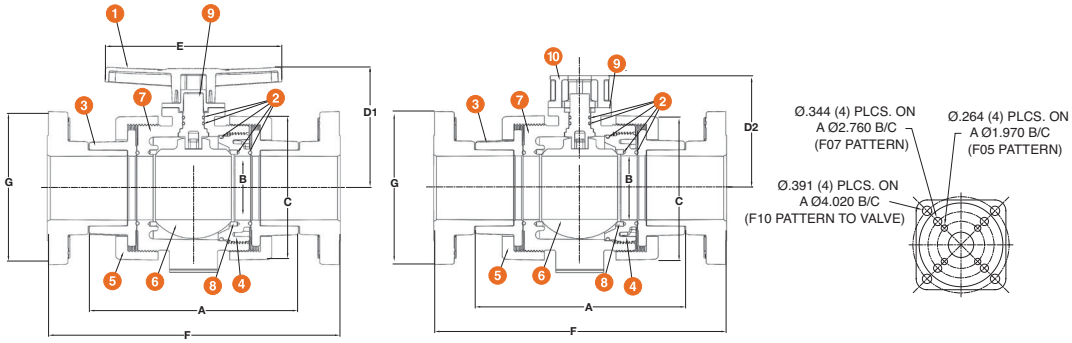
* 4" valve venturied to 6" ** All flanged valves are rated to 150 PSI @ 70°F Non-Shock (10 Bar @ 21°C)
*** PVC and CPVC socket ends available to ISO 727-1 and threaded ends to BS21. Flanged ends available in DIN / EN PN10.
**** PVC and CPVC socket ends available to JIS K 6743 and threaded ends to JIS B 0203.

TECHNICAL INFORMATION, *CONTINUED*

PARTS LIST

1. Handle
2. O-Ring Seals
3. End Connector
4. Seal Retainer
5. Union Nut
6. Ball
7. Body
8. PTFE Seat
9. Stem
10. Actuator Mounting Bracket*

* Mounting bracket sold separately



4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

DIMENSIONS

SIZE in / DN	A in / mm	B in / mm	C in / mm	D1 in / mm	D2 in / mm	E in / mm	F in / mm	G in / mm	WEIGHT lbs / kg SOC / THD	WEIGHT lbs / kg FLANGED
2-1/2 / 65	10.68 / 271	2.75 / 70	6.66 / 169	6.7 / 170	6.17 / 157	10.50 / 267	14.65 / 372	7.00 / 178	11.30 / 5.13	15.30 / 6.94
3 / 80*	10.56 / 268	2.75 / 70	6.66 / 169	6.7 / 170	6.17 / 157	10.50 / 267	14.60 / 371	7.90 / 200	11.30 / 5.13	15.30 / 6.94
4 / 100*	12.30 / 312	3.81 / 97	8.56 / 217	7.2 / 183	6.64 / 168	10.50 / 267	17.26 / 438	8.96 / 228	18.50 / 8.39	25.70 / 11.66
6 / 150*	N/A	3.81 / 97	8.56 / 217	7.2 / 183	6.64 / 168	10.50 / 267	19.26 / 489	11.00 / 279	N/A	30.75 / 13.95

Dimensions are subject to change without notice – consult factory for installation information

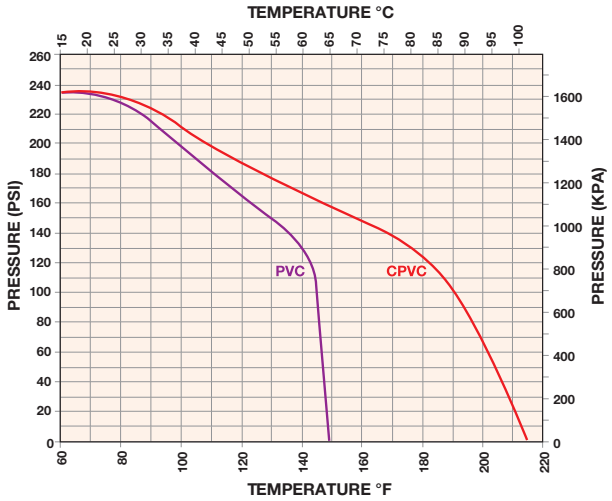
* Metric End Connections Available In: BSP – Straight Thread, BSP TR – Tapered Thread and Metric Socket

** Flange ends compy to ANSI150 bolt pattern, PN10 or JIS10K availble upon request

Cv VALUES

SIZE in / DN	Cv VALUES	SIZE in / DN	Cv VALUES
2-1/2 / 65	340	4 / 100	600
3 / 80	490	6 / 150	550

OPERATING TEMPERATURE/PRESSURE



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Visit us at: haywardflowcontrol.com

CHANGE CONTROL FORM 083
FMT Valves

Owner: Central Valley Water Reclamation Facility	**Project: BNR/PEPS/RAS Selector**	
Contractor: Gerber Construction	**Date: 08/04/2022**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Replace AWWA C517 Standard Port Plug Valves as specified in 40 05 02.53 for line sizes 4”-65”, Indoor Dry, Indoor Wet, with Sch 80 CPVC Ball Valves. CPVC Ball Valve elastomers shall be Viton, Teflon (PTFE), Nitrile, Hypalon, or EPDM. Acceptable manufacturers: Spears, VXE, IPEX.

Note, it is acceptable to add flanges to socket CPVC ball valves.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

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Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

Test Conditions

Pressure (psig)	Duration (min.)	Medium
200	120	Water

General Requirements

1. Full-Faced flanges mated with raised face flanges are not permitted.
2. Mating flanges for pipe shall be of the same Standard, Class and Series. Mating flanges at valves and equipment shall have specified rating and matching drilling pattern.
3. Pipe Threads per ASME B1.20.1.
4. Match metal alloy/grade/type for any metal welded to pipe or fittings. (e.g. Do not weld carbon steel to stainless steel; weld Type 316L to Type 316L pipe material.)
5. Solvent welding of PVC piping performed with Weld-On 724 (ASTM F 493, NSF/ANSI 14, NSF/ANSI 61) or Approved Equal. Universal plastic pipe solvent is not acceptable. Prior to solvent welding, clean pipe joints to remove all loose debris and prime with a compatible primer. Primer shall stain piping.

Notes:

1. Flange bolt length per ASME B16.5 plus three additional threads. Hex head bolt dimensions per ASME B18.2.1. Class 2A standard coarse series threads per ASME B1.1, standard coarse thread series. Hex nut dimensions per ASME B18.2.2 (Heavy Hex). Class 2B standard coarse series threads per ASME B1.1.
2. Provide Long Radius Elbows. Provide full flow fittings. Segmentally welded fittings are not acceptable.
3. Provide long radius five cut mitered elbows for segmentally welded fittings.
4. Install lining and coating prior to welding Threadolet or Half Coupling.
5. Provide Concrete Encasement for pipe buried below structures.
6. Except at flanged connections at valves, flanged connections/joints not permitted on buried Ductile Iron Pipe.
7. FNPT tap at factory installed tapping boss. Taps at other locations on pipe and fittings are not permitted.
8. No lining or coating for HDPE Pipe.
9. Bolts and nuts with metallurgy specified in AWWA C111.
10. BW (Butt Weld) and RJC (Ring Joint Coupling) connections/joints not permitted for 14-inch through 24-inch pipe.
11. Install plug valve with seat at the inlet or upstream connection to piping.
12. Provide square nut operator, extension stem, and valve box for buried valves.
13. PGRV (Proprietary Groove): Victaulic Advanced Groove System or Approved Equal
14. RJC (Ring Joint Coupling): Victaulic Vic-Ring Coupling or Approved Equal with welded pipe shoulders or ring adapters
15. Where specified pipe wall thickness (Rating) is insufficient for cut grooves, provide shouldered ends, ring adapters, or increase pipe wall thickness as necessary for installation of cut grooves.
16. Provide rigid couplings except for pipe installed on pipe racks in pipe/utility tunnels or chases.

Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

17. HPEG (HDPE Plain End with Gripping Teeth): Victaulic Style 995N, Victaulic Style 905, or Approved Equal.
18. HGRV (HDPE Groove Coupling): Victaulic Style 908 or Approved Equal.
19. Provide Fiberglass or Mineral Wool Insulation for Energy Conservation on CS lines installed in Indoor Dry and Indoor Wet exposures. Insulation for Energy Conservation is not required for other Process Services specified in this Piping System Schedule.
20. Apply Anti-seize to stainless stell bolts before turning nut on flange bolts.

Indoor Dry, Indoor Wet, Outdoor, Process Corrosive, Headspace, Submerged - Exposed

Component	Line Size, in	Rating	Conn./Joints	Material	Spec Section	Notes
Pipe	4 thru 65	IPS DR 17	FLG BFW	High Density Polyethylene: ASTM D3350 445574C/PE 4710, NSF 61 certified, Dim per ASTM F714/AWWA C906	40 05 33	
Lining for Pipe & Fittings	All	—	—	None	—	
External Coating	All	--	—	None		
Fittings	4 thru 12	IPS SDR 17	FLG, FSW, EFSW, BFW	Molded Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM D3261/ASTM F1055/ASTM D2683 Long Radius Sweep Bend: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM D 3035/AWWA C901	40 05 33	
	14 thru 20	IPS SDR 11	FLG, BFW	Fabricated Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM F2206	40 05 24	
		IPS SDR 17	FLG, BFW	Long Radius Sweep Bend: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM F714/AWWA C906		
	22 thru 65	IPS SDR 17	FLG, FSW, EFSW, BFW	Fabricated Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM F2206	40 05 33	
Taps	1/2 thru 3	IPS SDR 17	FLG, FSW, EFSW, BFW	Molded HDPE Tee: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM D3261, with reducers and HDPE to 316 Stainless Steel MNPT transition	40 05 33	
	4 thru 65	IPS SDR 11	BFW, FSW	Fabricated Reducing Tee: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM D3035/AWWA C901, with reducers and HDPE to 316 Stainless Steel MNPT transition	40 05 33	
Grooved Coupling	All	---	---	None		
Flanges	All	Class 150	BFW x FLG	Ductile Iron Backing Ring: ASTM A536, Polypropylene coated, LJ, Dim. per ANSI B16.5 with stub end flange adapter	40 05 24	

1 Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

Indoor Dry, Indoor Wet, Outdoor, Process Corrosive, Headspace, Submerged - Exposed

Component	Line Size, in	Rating	Conn./Joints	Material	Spec Section	Notes
		IPS SDR 17		Stub End Flange Adapters: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. per ASTM D3261		
FLG Bolts, nuts and hardware	All	All	—	Carbon Steel Bolts: ASTM A307 Gr B with Carbon Steel Nuts: ASTM A563 Gr A heavy hex nuts	—	1
Flange gaskets	1/8 thru 10	1/16 in Thk.	FLG	Nitrile or Neoprene	40 05 01	
	12 thru 65	1/8 in Thk.	FLG	Nitrile or Neoprene	40 05 01	
Mechanical Coupling Gaskets	All	—	—	None	—	
Compression and Push-On Gaskets	All	—	—	None	—	
Valves	1/2 thru 3		THD	Ball: Bronze Body/Ball, 40 05 63.02	40 05 60	
	4 thru 65		FLG 1	~~Plug: AWWA C517, Standard Port, 40 05 62.01~~ Ball: Sch 80 CPVC w/Teflon (PTFE), Nitrile, Hypalon, or EPDM elastomers. MFGRs: Spears, VXE, IPEX	~~40 05 60~~	~~11~~
Insulation	All	—	—	None	—	

4" CPVC ball valves venturied to 6" are acceptable. CPVC ball valves shall be vented to accommodate off-gassing of the fermentate.

1 Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

Buried (Includes Embedded and Encased)

Component	Line Size, in	Rating	Conn./Joints	Material	Spec Section	Notes
Pipe	4 thru 65	IPS DR 17	FLG BFW	High Density Polyethylene: ASTM D3350 445574C/PE 4710, NSF 61 certified, Dim per ASTM F714/AWWA C906	40 05 33	
Lining for Pipe & Fittings	All	—	—	None	—	
External Coating	All	--	—	None		
Fittings	4 thru 12	IPS SDR 17	FLG, FSW, EFSW, BFW	Molded Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM D3261/ASTM F1055/ASTM D2683 Long Radius Sweep Bend: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM D 3035/AWWA C901	40 05 33	
	14 thru 20	IPS SDR 11 IPS SDR 17	FLG, BFW FLG, BFW	Fabricated Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM F2206 Long Radius Sweep Bend: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM F714/AWWA C906	40 05 24	
	22 thru 65	IPS SDR 17	FLG, FSW, EFSW, BFW	Fabricated Fittings: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM F2206	40 05 33	
Taps	½ thru 3	IPS SDR 17	FLG, FSW, EFSW, BFW	Molded HDPE Tee: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM D3261, with reducers and HDPE to 316 Stainless Steel MNPT transition	40 05 33	
	4 thru 65	IPS SDR 11	BFW, FSW	Fabricated Reducing Tee: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM D3035/AWWA C901, with reducers and HDPE to 316 Stainless Steel MNPT transition	40 05 33	
Grooved Coupling	All	---	---	None		
Flanges	All	Class 150 IPS SDR 17	BFW x FLG	Stainless Steel Backing Ring: 316 SS, Dim. Per ANSI B16.5 with stub end flange adapter Stub End Flange Adapters: ASTM D 3350-445574C/PE 4710, NSF 61 certified, Dim. Per ASTM D3261	40 05 24	
FLG Bolts, nuts and hardware	All	All	—	Stainless Steel Bolts: ASTM A193 Gr B8M with Stainless Steel Nuts: ASTM A194 Gr 8M	—	1, 20
Flange gaskets	1/8 thru 10	1/16 in Thk.	FLG	Nitrile or Neoprene	40 05 01	
	12 thru 65	1/8 in Thk.	FLG	Nitrile or Neoprene	40 05 01	

Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

Buried (Includes Embedded and Encased)

Component	Line Size, in	Rating	Conn./Joints	Material	Spec Section	Notes
Mechanical Coupling Gaskets	3 thru 65	—	CGRV	Nitrile or Neoprene	40 05 01	
Compression and Push-On Gaskets	All	—	—	None	—	
Valves	½ thru 3		THD	Ball: Bronze Body/Ball, 40 05 63.02	40 05 60	
	4 thru 65		FLG	Plug: AWWA C517, Standard Port, 40 05 62.01	40 05 60	11
Insulation	All	—	—	None	—	

Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

Change Control Form 083

Schedule 40 05 02.53 –Dewatering

Process Service	Fermentate						
Process Service Identifier	FMT						

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Change Control Form 083

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

10/04/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 013_RAS/WAS Fiber, Deep Sump Valve Vault, RAS/WAS Brick Ledger Emseal, Substation Transformer Ties

Dear Brandon,

Change Order 13 includes:

- **RAS/WAS Fiber Changes** per CCF041
- **Deep Sump Valve Vault Changes** per CCF075
- **RAS/WAS Brick Ledger Emseal Addition** per CCF079
- **Substation Transformer Ties** per CCF080

RAS/WAS Fiber Changes: BNR CCF-041 includes clarifications to the existing contract documents to modify the camera models per CVWRF's current standard, updates the conduit and cable schedule to clarify fiber optic cable routing to the new network cabinet housed within the East RAS/WAS building and cabling between the two buildings, and adds fiber optic patch panels in response to the updated fire alarm system design. Additional signals were added to allow for status and fault monitoring of all new network switches housed within the associated project motor control centers. The Contractor is requesting **$12,776.94** and **2 days** to complete this change. Pricing has been reviewed in detail and is in line with our expectations for this scope.

Deep Sump Valve Vault Changes: The following changes were made to provide additional maintenance access in the deep sump valve vault. Delete manhole lid and replace with an 8' by 8' aluminum hatch rated for a minimum of 100 psf live load, hatch to be located over valve operators. Delete 7 penetrations in vault originally intended for valve operators. Addition of 4" floor drain to tank drain sump, piping shall be DR 17 HDPE encased per typical detail S0505. Core drill tank drain sump to accommodate 4" drain per typical detail M1112. The Contractor is requesting **$12,025.26** and **4 days** to complete this work. Pricing has been reviewed and appears fair and reasonable.

RAS/WAS Brick Ledger Emseal: Per RFI 145, a ledger will be added for the brick veneer per detail K on A-22-5001, similar to typical detail S0911. 4-inch expansion

joint (Emseal) between electrical building brick veneer or block wall and the concrete wall. Preformed joint filter between the RAS Basin wall and the electrical building foundation and CMU wall. The Contractor is requesting **$21,240.53** and **4 days** for this work. Pricing has been reviewed and is in line with our expectations for this scope.

Substation Transformer Ties: Per RFI 163, a change order has been created to add sizing for the Area 16 substation transformer ties between the two substations shown in drawing E-16-7001 to the cable schedules. Cable tags will be added to drawings E-16EB-1001 and E-16EB-1101 for the conduit and cable ties between the substations. Area 16 cable schedule sizing will be updated to reflect the cables in 4" conduits. The Contractor is requesting **$46,540.07** and **4 days** to complete this work. Pricing is in line with our expectations.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost for Change Order 13 is **$92,582.80** and **Fourteen (14) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Ryan Overman

Ryan Overman
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 041 w/Contractor Quotation
3. CCF 075 w/Contractor Quotation
4. CCF 079 w/Contractor Quotation
5. CCF 080 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 13

Date of Issuance:	10/04/2022	Effective Date:	10/04/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 13 includes:

- RAS/WAS Fiber changes per CCF041
- Deep Sump Valve Vault changes per CCF075
- RAS/WAS Brick Ledger Emseal per CCF079
- Substation Transformer Ties per CCF080

Attachments:

1. CCF 041 w/Contractor Quotation
2. CCF 075 w/Contractor Quotation
3. CCF 079 w/Contractor Quotation
4. CCF 080 w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 12: $799,893.98	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 12: Substantial Completion: 162 Ready for Final Payment: 162 Days
Contract Price prior to this Change Order: $ 124,067,574.98	Contract Times prior to this Change Order: Substantial Completion: 1,653 Ready for Final Payment: 1,761 days or dates
[Increase] [Decrease] of this Change Order: $92,582.80	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 14 Ready for Final Payment: 14 days or dates
Contract Price incorporating this Change Order: $124,160,157.78	Contract Times with all approved Change Orders: Substantial Completion: 1,667 Ready for Final Payment: 1,775

days or dates

	RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:			
	Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title:	Construction Manager	General Manager	Project Manager
Date:	10/04/2022	10/5/2022	10/04/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 069
Date: 9/21/2022
Description: Per Control Change Form #041: Cost to provide labor, material, and equipment for RAS/WAS fiber changes.

Skyline Electric (see attached back-up):	$10,679.72
Mark-up (5%):	$533.99
Gerber Onsite Coordination & Management (see attached back-up):	$1,244.34
Bonds:	$114.99
Mark-up (15%):	$203.90
Total:	**$12,776.94**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $12,776.94 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-069 RAS WAS Fiber - CC#041	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-069	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Sub (Skyline)	**1.00**	**UNIT**	**$10,679.72**	**$10,679.72**	**$11,332.15**	**$11,332.15**	**5.10%**
S Electrical Sub	1.00	LS	$10,679.72	$10,679.72			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$1,244.34**	**$1,244.34**	**$1,444.79**	**$1,444.79**	**15.00%**
01 Superintendent	3.00	HR	$128.58	$385.73			
20 Project Engineer	4.50	HR	$103.59	$466.18			
18 Project Manager	2.00	HR	$143.13	$286.26			
Truck, Pickup, 1 Ton	0.02	MO	$2,747.00	$42.58			
Truck, Pickup, 3/4 Ton	0.03	MO	$2,053.00	$63.60			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,138.16	9.55%
Equipment Owned:	$106.18	0.89%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$10,679.72	89.56%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$11,924.06	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$11,924.06	93.32%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$114.99	0.90%
Total Overall Cost:	$12,039.05	94.22%
Total Overhead:	$0.00	0.00%
Total Profit:	$737.89	5.78%
Total Margin:	$737.89	5.78%
Total Bid Price:	$12,776.94	

-QUOTATION-

BNR CC30B
CCF041 RAS WAS FIBER

September 20, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes involving *Flow Meter Manufacturer Changes*

Scope includes:
Remove raceways and cables per the directions described in CCF041.
Add raceways and cables per the descriptions described in CCF041.
Please contact me with any questions.

Price: $ 10,679.72

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Davis Bacon Contract Change

Date:	9/20/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF041 RAS WAS FIBER**	City/State/Zip:	Lehi, UT 84043

Change Description:

Remove and Add cables and racewyas per CCF041 descriptions.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$5,489.85		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			27.11

LABOR FACTOR:

material handling		2.00%					0.5422
cleanup		3.00%					0.8133
safety		1.25%					0.338875
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $425.46	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0

SUBTOTAL	loc 1 $ 5,915.31	loc 2 $ 0.00	28.80
EO #13706 Sick Leave Hours:			0.91
Total Labor Hours:			29.71
		RATE: $	**70.00**
extension:		$	2,016.31

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$42.00	$84.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$42.00	$84.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$37.80	$75.60	$	0.00
J Premium	0.00%	hrs	0.00	rate	$33.60	$67.20	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$75.60	$151.21	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$67.20	$134.40	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	2,016.31

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	2	hrs@	$79.00	$158.00
project management	0	hrs@	$84.00	$0.00	Testing	0	hrs@	$79.00	$0.00
change estimating	0	hrs@	$84.00	$0.00	Shop Drawings / Submittals	0	hrs@	$84.00	$0.00
FIELD					Freight				$0.00
BIM/VDC	0	hrs@	$75.00	$0.00	Fuel & Consumables				$0.00
BIM/VDC as-builds	0	hrs@	$75.00	$0.00	Tools & Equipment		2% of Labor Dollars		$40.33
change management	2	hrs@	$79.00	$158.00	Jobsite Trailer / Storage Rental	1	mo@	$125.00	$125.00
change estimating	6	hrs@	$79.00	$474.00	Pick-up Truck	1	dy@	$80.00	$80.00
as-builds	0.5	hrs@	$79.00	$39.50	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	1,074.83

MATERIAL		from loc 1	$	5,915.31
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	1,074.83
LABOR		from loc 3	$	2,016.31
WARRANTEE	1.50%		$	135.10
BOND	1.44%		$	145.17
subtotal			$	9,286.71
OVERHEAD + PROFIT	15.00%		$	1,393.01
TOTAL CHANGE			$	10,679.72

Date Accepted:		CO#	
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF041: RAS WAS FIBER

Takeoff

15 Sep 2022 12:17:01

Item: BASE BID
└**Phase:** ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**#7 ADD 144 FIBER SM**				
1070160	1,300.00	FT	M	144 FBR S-MODE	DISTRIBUTION FIBER (OFNR)	12.7000	16,510.00	0.0085	11.05
	0.00				**#8 ADD CAT6**				
1020047	260.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	2.9700	772.20	0.0175	4.55
90291	390.00	FT	M	4 PAIR	CAT6 UTP CABLE-PVC	1.6200	631.80	0.0088	3.43
	0.00				**#9 ADD CAT6**				
1020047	25.00	FT	M	4 PAIR WHITE	CAT6E UTP CABLE (CMP)	2.9700	74.25	0.0175	0.44
	0.00				**#10 ADD CAT6**				
90291	40.00	FT	M	4 PAIR	CAT6 UTP CABLE-PVC	1.6200	64.80	0.0088	0.35
	0.00				**#11 ADD 48 FIBER**				
1070158	50.00	FT	M	48 FBR S-MODE	DISTRIBUTION FIBER (OFNR)	3.5600	178.00	0.0077	0.38
	0.00				**#17-34 ADD #14 WIRING**				
70060	1,805.00	FT	M	14	XHHW CU (STR)	0.2205	398.00	0.0150	27.07
4	1.00		M		patch cord	0.0000	0.00	0.0000	0.00
	0.00				**#36 ADD FIBER PATCH PANEL**				
1	1.00		M		OCC ZDMBC1AP	89.0000	89.00	3.0000	3.00
2	1.00		M		MISC HARDWARE AND MATERIALS	50.0000	50.00	1.0000	1.00
3	1.00		M		OCC FSCS812DLCP	233.0000	233.00	1.0000	1.00
5	1.00		M		PATCH CORD	39.0000	39.00	0.2500	0.25
	0.00				**#37 ADD FIBER PATCH PANEL**				
1	1.00		M		OCC ZDMBC1AP	89.0000	89.00	3.0000	3.00
2	1.00		M		MISC HARDWARE AND MATERIALS	50.0000	50.00	1.0000	1.00
3	1.00		M		OCC FSCS812DLCP	233.0000	233.00	1.0000	1.00
5	1.00		M		PATCH CORD	39.0000	39.00	0.2500	0.25
						Phase Totals:	**19,451.05**		**57.78**

Item: BASE BID
└**Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	1.00				**#2 DELETE Wall Mount Type 1 Enclosure**				
1010140	-1.00	EA	M	38.5"H x 18" D BLACK	19" WALL MOUNT EQUIPMENT RACK	0.0000	0.00	1.8700	-1.87
TITLE	-1.00		M	GALV	PNL MTG KIT U-STRUT	0.0000	0.00	0.0000	0.00
240036	-22.00	FT	M	1 5/8" x 1 5/8"H	U-STRUT SGL-CHNL 12G STD HOT DIP GALV	3.2714	-71.97	0.0800	-1.76
160092	-12.00	EA	M	3/8 x 2 3/4"	WEDGE ANCHOR	1.3445	-16.13	0.0750	-0.90
160156	-12.00	EA	M	3/8"	FLAT WASHER (PLT)	0.1400	-1.68	0.0010	-0.01
160585	-12.00	EA	M	3/8 x 1 1/2 - 3"	HAMMER DRILLED HOLE	0.0000	0.00	0.1100	-1.32
240100	-4.00	EA	M	3/8 -16EG	U-STRUT SPRING NUT (1 5/8H)	0.9799	-3.92	0.0600	-0.24
240109	-4.00	EA	M	3/8-16 x 1"	MACHINE SCREWS (PLT)	0.1112	-0.44	0.0600	-0.24
160173	-4.00	EA	M	3/8 x 1 1/2"	FENDER WASHER (PLT)	1.0132	-4.05	0.0010	0.00
240155	-4.00	EA	M		U-STRUT END CAP	4.2498	-17.00	0.0200	-0.08
	0.00				**#4 DELETE 24 Fiber**				
1070156	-140.00	FT	M	24 FBR S-MODE	DISTRIBUTION FIBER (OFNR)	2.0000	-280.00	0.0077	-1.07
	0.00				**#5 DELETE 144 Fiber SM**				
1070160	-1,250.00	FT	M	144 FBR S-MODE	DISTRIBUTION FIBER (OFNR)	8.5000	-10,625.00	0.0085	-10.63
	0.00				**#6 DELETE FIBER PATCH CABLE/CONDUIT**				
1260168	-1.00	EA	M	A2F20200-06	6' DPLX ST/ST 62.5um MM FBR PATCH CA	0.0000	0.00	0.1250	-0.13
10181	-5.00	EA	M	1	CONDUIT CUT & THREAD	3.2000	-16.00	0.4950	-2.48
	0.00				**#7 DELETE 48 Fiber SM**				
1070158	-1,300.00	FT	M	48 FBR S-MODE	DISTRIBUTION FIBER (OFNR)	2.2500	-2,925.00	0.0077	-9.95
						Phase Totals:	**-13,961.20**		**-30.67**
						Job Totals:	**5,489.85**		**27.11**

CHANGE CONTROL FORM 041
RAS/WAS Fiber

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 8/11/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Contractor to note, the cable and raceway schedules are updated with the following information and will be issued at a later date. Attached cable schedule represents the working copy for clarity.

1. **The camera model for the PTZ Indoor camera (defined in 28 23 00-2.03.G.1) and the Outdoor PTZ camera (defined in 28 23 00-2.04.G.1) have both been updated to the "Axis Q6155-E PTZ Network Camera." See updated 28 23 00, attached.** ALREADY CHANGED BY AVTEC

The following items 2-6 are a cost reduction based on the movement of the cables between Area 21 and Area 24 to contract CC5F.

2. **Remove all scope related to the installation and procurement of NCE240011 from the CC30B: BNR Contract. All scope related to the replacement cabinet, CAB240011, to be completed in the CC5F: 3W contract. See revised E-24-1211, DE-24-1211, I-24-6101 and I-00-6101.**
3. **Cables CBLP240011A-A and CBLP240011A-B and Raceways RWYP210001P-B, RWYP240011A-A, and RWYP240011A-B to be deleted from scope. These cables were intended to power NCE240011 that is being removed from scope. These cables and raceways have been crossed out (deleted) on the cable schedule See updated E-24-1211.** NO CREDIT, CABLES AND RACEWAYS NOT ADDED IN 3 WATER CCF030
4. **Cable CBLF249101A-A between NCE240011 and NCE210011 to be deleted from scope of work for CC30B contract. This scope was completed in the CC5F contract. The contract number has been revised in area 00 and area 21 cable schedules. See updated E-21-1201, E-24-1211, I-00-6101, I-21-6101, and I-24-6101, attached.** DELETE 140' OF 24 STRAND FIBER
5. **Delete CBLF240011A-A (144-Fiber Single Mode Cable between NCR340001 and NCE240011). This has been removed from the area 00, 21-24, 23, and 34 cable schedules. See revised I-00-6101, I-24-6101, and I-34-6101.** DELETE 1250' 144 STRAND FIBER
6. **Delete CBLF210001A-A and CBLF210001A-B, 2-Fiber Single Mode patch cables between CAB210001 and NCE210011. Additionally, delete RWYF21001A-A for these cables. This scope is completed by the cable runs identified below. These cables and raceways have been crossed out (removed) from the area 21-24 cable schedule. See revised E-21-1201, and I-21-6101, attached.** DELETE PATCH CABLE AND 5' RIGID
7. **CBLF210011A-A to be 144-Fiber Single Mode instead of 48-Fiber Single Mode. Contractor to credit the value for the 48-Fiber cable and provide costing for the 144-Fiber cable. The routing did not change for this cable, but the fiber count was revised on the area 00, 21-24, 23, and 34 cable schedules. See revised I-00-6101, I-21-6101, and I-34-6101.** DELETE 1300' 48 STRAND FIBER, ADD 1300' 144 STRAND FIBER
8. **Route Ethernet cables listed below from Equipment network interface to Shielded Twisted Pair (STP) patch panel in NCE210011. See revised E-24-1211, I-21-6101, and I-24-6101, attached.**
   a. **Reroute cable CBLD240011-C from RIO24A in MCC24A in the West RAS/WAS Pump Station Electrical room to TPP210011A in NCE210011 in the East RAS/WAS Pump Station Electrical room. Route NC2 type cable from MCC24A to NCE210011 as defined on the revised cable schedule.** ADD 130' OF NC2 CAT6A
   b. **Reroute cable CBLD240011-D from RIO24B in MCC24B in the West RAS/WAS Pump Station Electrical room to TPP210011B in NCE210011 in the East RAS/WAS Pump Station Electrical room. Route NC2 type cable from MCC24B to NCE210011 as defined on the revised cable**

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schedule. ADD 130' OF NC2 CAT6A

c. **Reroute cable CBLD240011-B from PMM240001A in MCC24A in the West RAS/WAS Pump Station Electrical room to TPP210011A in NCE210011 in the East RAS/WAS Pump Station Electrical room. Route NC4 type cable from MCC24A to NCE210011as defined on the revised cable schedule.** ADD 130' OF NC4 CAT6A

d. **Reroute cable CBLD240011-E from PMM240001B in MCC24B in the West RAS/WAS Pump Station Electrical room to TPP210011B in NCE210011 in the East RAS/WAS Pump Station Electrical room. Route NC4 type cable from MCC24B to NCE210011 as defined on the revised cable schedule.** ADD 130' OF NC4 CAT6A

e. **Reroute cable CBLD240011-A from UPS24 in the West RAS/WAS Pump Station Electrical room to TPP210011A in NCE210011 in the East RAS/WAS Pump Station Electrical room. Route NC2 type cable from UPS24 to NCE210011 as defined on the revised cable schedule.** ADD 130' OF NC2 CAT6A

9. **Re-route CBLD219101BA-A from RIO21B in MCC 21B to NCE210011. Route NC4 type cable as defined on the revised cable schedule. See revised I-21-6101, attached.** ADD 25' OF NC4 CAT6A

10. **Add CBLD210001A-B, 1#U/FTP CAT6A cable between the CPU of PLC210001, Processor A in CAB210001 and TPP210011B in NCE210011. This was originally a cable internal to CAB210001. Route NC2 type cable from CAB210001 to NCE210011 as defined on the revised cable schedule. See revised E-21-1201, and I-21-6101, attached.** ADD 40' OF NC2 CAT6A

11. **Reroute CBLF230011A-B from FOP230011A in NCE230011 to FOP210011A in NCE210011. Route FOTSM type cable as defined on the revised cable schedule. See revised I-00-6101, I-21-6101, I-23-6101, and I-24-6101 attached.** ADD 50' 48 STRAND FIBER

The following 12-15 are for clarification only and should be a no-cost change:

12. **Cable CBLF020011A-B between NCE240011 and NCE020011 was incorrectly shown as part of the CC30B contract on I-24-6101. This cable was shown correctly as part of the CC5F contract on I-00-6101 and in the cable schedules. Remove any scope for CBLF020011A-B from the CC30B contract. See updated I-24-6101.** NOT SHOWN ON ORIGINAL BNR I-24-6101, NO COSTS

13. **Contractor to note, CBLF210011B-A between NCE210011 and NCE330001 is shown terminating at FOP330001AA in NCE330001 on I-33-6101, and FOP330001AA appears to be over-filled. If this cable will not fit, contractor to terminate cable at FOP330001AF instead. Do not remove or move already terminated and tested cables. Contractor to redline drawings and provide feedback if this item does not apply, or cables were terminated in a different way.** 1/2 HOURS TO REDLINE

14. **Contractor to note attached modifications to 26 24 19 Motor Control Centers and 26 29 13 Individual Motor Starters. Updates intended to clarify I/O card language and drive configuration responsibility, and Cisco switch model provided by client.**

15. **Contractor provided kirk key interlocks for MCC109105A/MCC109105B, MCC169101A/MCC169101B, MCC169102A/MCC169102B, and MCC229101A/MCC229101B Main-Tie-Tie-Main configuration per CVWRF standards. Revised onelines and specification provided in this CCF to provide clarity on the interlocking scheme required. The following drawings were updated: E-10-7009, E-16-7002, E-16-7003, E-16-7004, E-16-7005, E-22-7001, and E-22-7002. Additionally, specification 26 24 19 sections 1.03.7, 2.03.A.3, and 2.03.B.6. were updated to include interlock Main-Tie-Tie-Main interlock information.**

The following items #16-35 were included in the original design or previous CCFs. Updates are intended as clarifications for consistency in the documentation only.

16. **Add CBLC169401-A, 2#14, 1#14G cable between PMM169401 and CAB160001 for the "Power OK" signal on PMM169401. Route TCER type cable from MCC169401 to CAB160001 as defined on the revised cable schedule. This cable was previously shown on I-16-6091 and "40 61 93.16 Process Control System Area 16 IO List" in CCF031 and is now included in the cable schedule.** CONFIRMED

17. **Add CBLC169101A-A, 4#14, 1#14G cable between PLC169101A and NET169101AB in MCC169101A for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101A. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System**

Area 16 IO List" and is now included in the cable schedule. ADD 25' 5- #14

18. **Add CBLC169101A-B, 4#14, 1#14G cable between PLC169101A and NET169101AC in MCC169101A for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101A. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 30' 5- #14
19. **Add CBLC169101A-D, 4#14, 1#14G cable between PLC169101A and NET169101AD in MCC169101A for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101A. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 35' 5- #14
20. **Add CBLC169101A-F, 2#14, 1#14G cable between PLC169101A and PMM169101A in MCC169101A for "Power OK" signal. Route the conductors within the MCC wireways to CAB169101A. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 15' 3- #14
21. **Add CBLC169101B-A, 4#14, 1#14G cable between PLC169101B and NET169101BB in MCC169101B for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101B. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 40' 5- #14
22. **Add CBLC169101B-B, 4#14, 1#14G cable between PLC169101B and NET169101BC in MCC169101B for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101B. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 30' 5- #14
23. **Add CBLC169101B-D, 4#14, 1#14G cable between PLC169101B and NET169101BD in MCC169101B for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169101B. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 25' 5- #14
24. **Add CBLC169101B-F, 2#14, 1#14G cable between PLC169101B and PMM169101B in MCC169101B for "Power OK" signal. Route the conductors within the MCC wireways to CAB169101B. This cable was previously shown on I-16-6092 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 15' 3- #14
25. **Add CBLC169102A-A, 4#14, 1#14G cable between PLC169102A and NET169102AB in MCC169102A for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169102A. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 15' 5- #14
26. **Add CBLC169102A-B, 4#14, 1#14G cable between PLC169102A and NET169102AC in MCC169102A for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169102A. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 25' 5- #14
27. **Add CBLC169102A-E, 2#14, 1#14G cable between PLC169102A and PMM169102A in MCC169102A for "Power OK" signal. Route the conductors within the MCC wireways to CAB169102A. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 15' 3- #14
28. **Add CBLC169102B-A, 4#14, 1#14G cable between PLC169102B and NET169102BB in MCC169102B for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169102B. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 15' 5- #14
29. **Add CBLC169102B-B, 4#14, 1#14G cable between PLC169102B and NET169102BC in MCC169102B for switch "Fault" and Power "DC OK" signals. Route the conductors within the MCC wireways to CAB169102B. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule.** ADD 25' 5- #14
30. **Add CBLC169102B-E, 2#14, 1#14G cable between PLC169102B and PMM169102B in MCC169102B**

for "Power OK" signal. Route the conductors within the MCC wireways to CAB169102B. This cable was previously shown on I-16-6093 and "40 61 93.16 Process Control System Area 16 IO List" and is now included in the cable schedule. ADD 15' 3- #14

31. Add CBLC219101A-A, 2#14, 1#14G cable between RIO21A and MCC21A for SPD "FAULT" signal. Route the conductors within the MCC wireways to RIO21A. This cable was previously shown on I-21-6091 and "40 61 93.21 Process Control System Area 21 IO List" and is now included in the cable schedule. ADD 15' 3- #14

32. Add CBLC219101A-B, 2#14, 1#14G cable between RIO21A and MCC21A for PMM "Power OK" signal. Route the conductors within the MCC wireways to RIO21A. This cable was previously shown on I-21-6091 and "40 61 93.21 Process Control System Area 21 IO List" and is now included in the cable schedule. ADD 20' 3- #14

33. Add CBLC219101B-A, 2#14, 1#14G cable between RIO21B and MCC21B for SPD "FAULT" signal. Route the conductors within the MCC wireways to RIO21B. This cable was previously shown on I-21-6091 and "40 61 93.21 Process Control System Area 21 IO List" and is now included in the cable schedule. ADD 30' 3- #14

34. Add CBLC219101B-B, 2#14, 1#14G cable between RIO21B and MCC21B for PMM "Power OK" signal. Route the conductors within the MCC wireways to RIO21B. This cable was previously shown on I-21-6091 and "40 61 93.21 Process Control System Area 21 IO List" and is now included in the cable schedule. ADD 35' 3- #14

35. Contractor to note, the fault signals on the additional OWNER PROVIDED switches in area PLC control panels (added in CCF 031) are to be monitored by the associated PLC. The 20% spare included in the original design to be used for these signals. The following documentation has been updated for consistency. See updated I-10-6091, I-10-6101, I-16-6091, I-16-6092, I-16-6093, I-16-6101, I-21-6091, I-21-6101, I-22-6091, I-22-6101, "40 61 93.10 Process Control System Area 10 IO List (CCF 041).pdf", "40 61 93.16 Process Control System Area 16 IO List (CCF 041).pdf", "40 61 93.21 Process Control System Area 21 IO List (CCF 041).pdf", and "40 61 93.22 Process Control System Area 22 IO List (CCF 041).pdf," attached.

36. Contractor to provide and install a small panel and Fiber Optic Patch panel, FOP160010, within 6 inches of the new Fire Alarm Control Panel, FACP160010. Contractor to field verify the final mounting location with the CV Project Representative and Construction Manager prior to install. Contractor to use the OCC ZDMBC1AP with FSCS812DLCP for the FOP and coordinate with CV Project Representative on preferred panel, using the maintenance building installation as an example. See revised I-00-6107 and I-16-6101, attached. ADD PATCH PANEL

37. Contractor to provide and install a small panel and Fiber Optic Patch panel, FOP220010, within 6 inches of the new Fire Alarm Control Panel, FACP220010. Contractor to field verify the final mounting location with the CV Project Representative and Construction Manager prior to install. Contractor to use the OCC ZDMBC1AP with FSCS812DLCP for the FOP and coordinate with CV Project Representative on preferred panel, using the maintenance building installation as an example. See revised I-00-6107 and I-22-6101, attached. ADD PATCH PANEL

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection		Date:
Owner Signature ☐ Accepts Proposal ☐ Rejects Proposal		Date:

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

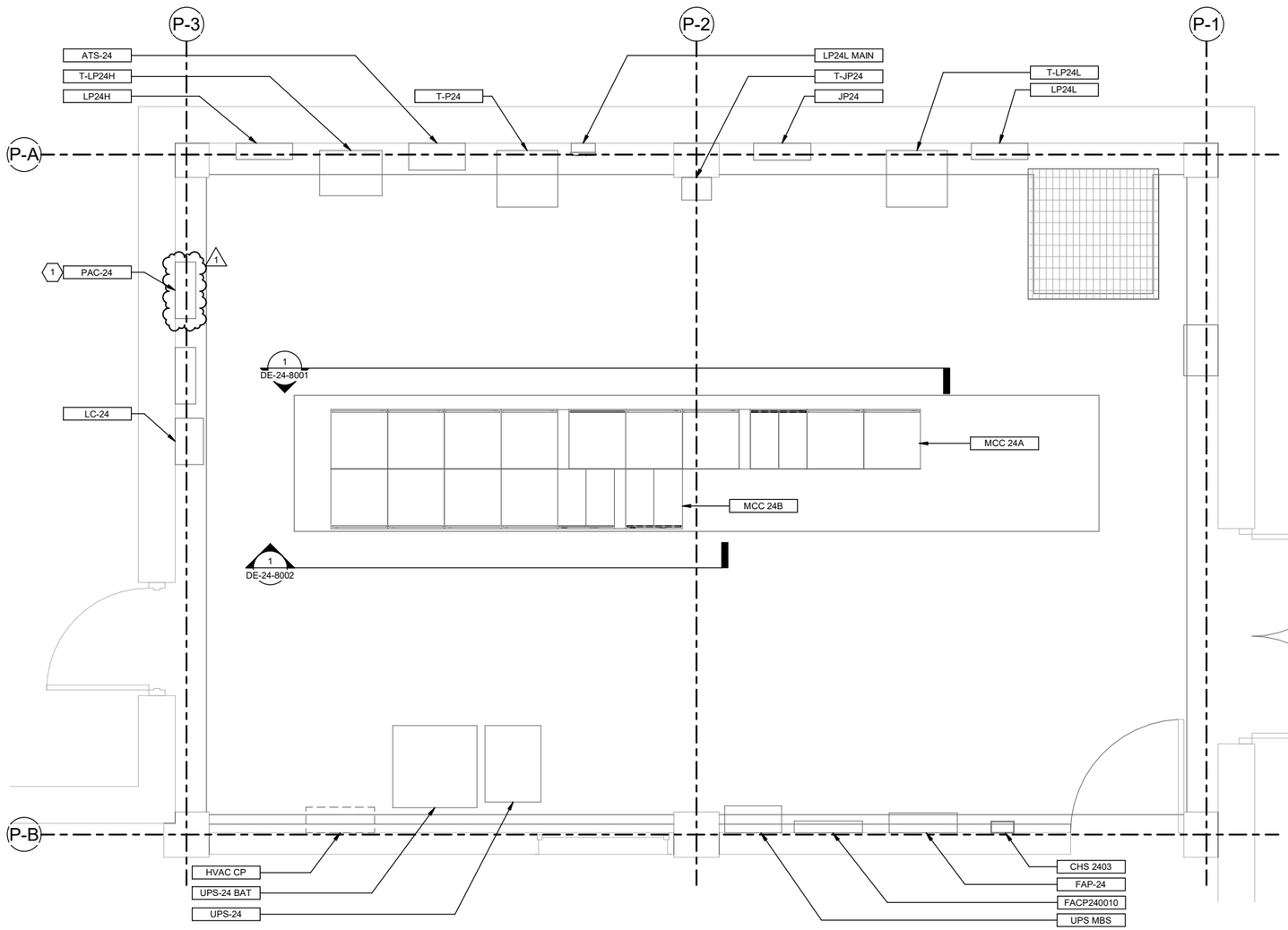
PLAN NORTH

GENERAL NOTES:

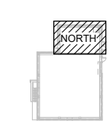
1. EQUIPMENT AND ASSOCIATED APPURTENANCES ARE TO BE REMOVED ACCORDING TO THE WORK SEQUENCE PLAN DESCRIBED IN SPECIFICATION SECTION 01 12 16.

KEYNOTES:

1 EXISTING SOUND SYSTEM CABINET TO REMAIN.



PLAN
SCALE: 1/2" = 1'-0"



KEY PLAN

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: K. GROSS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-24V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

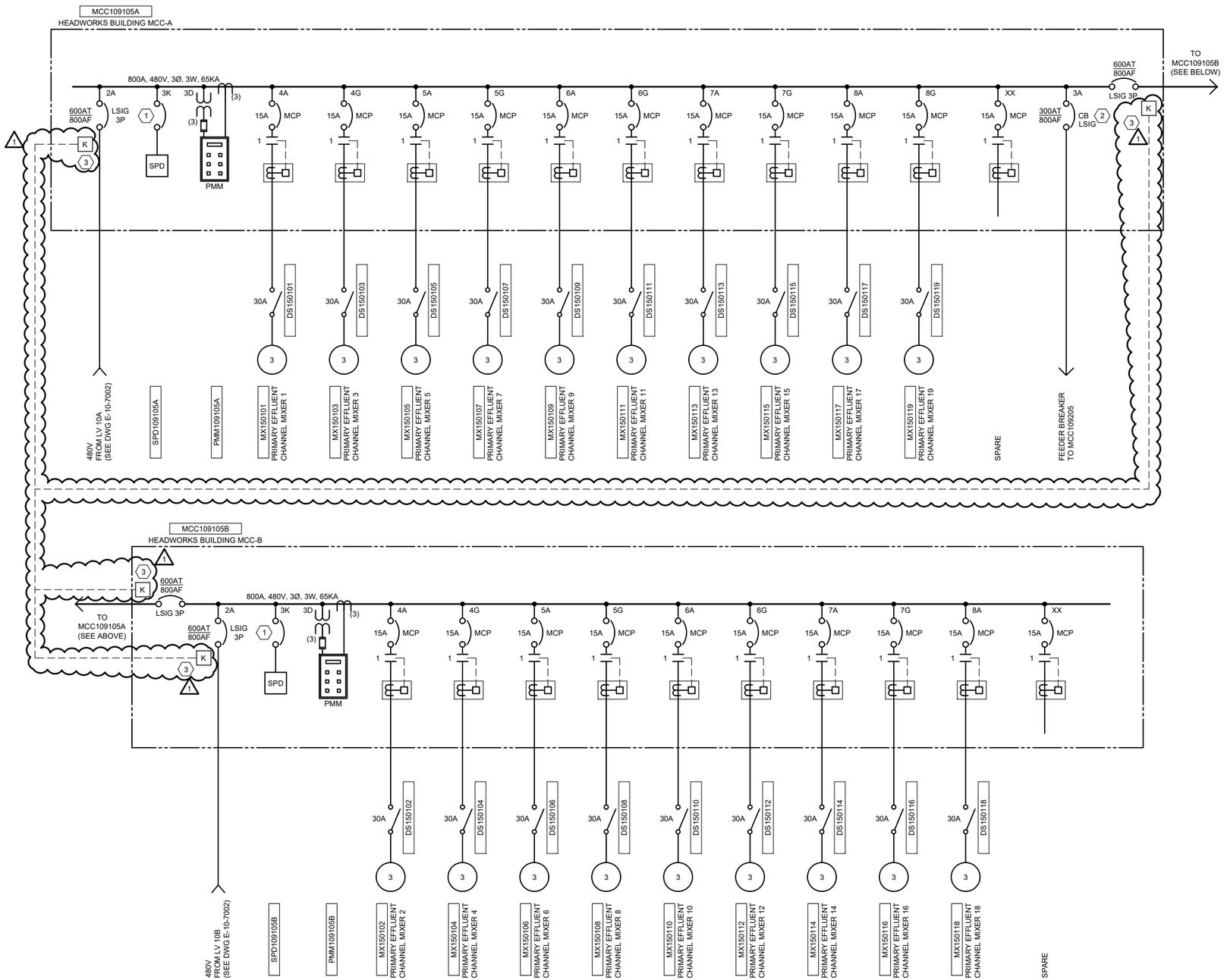
DEMOLITION ELECTRICAL

WEST RAS/WAS PUMP BUILDING ELECTRICAL ROOM DEMO PLAN

DRAWING NUMBER
DE-24-1211

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-24V21.rvt

Plot Date: 8/1/2022 3:32:19 PM



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. PROVIDE ARC FAULT MAINTENANCE SWITCH (ARMS) ON BREAKER.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES
AT FULL SIZE

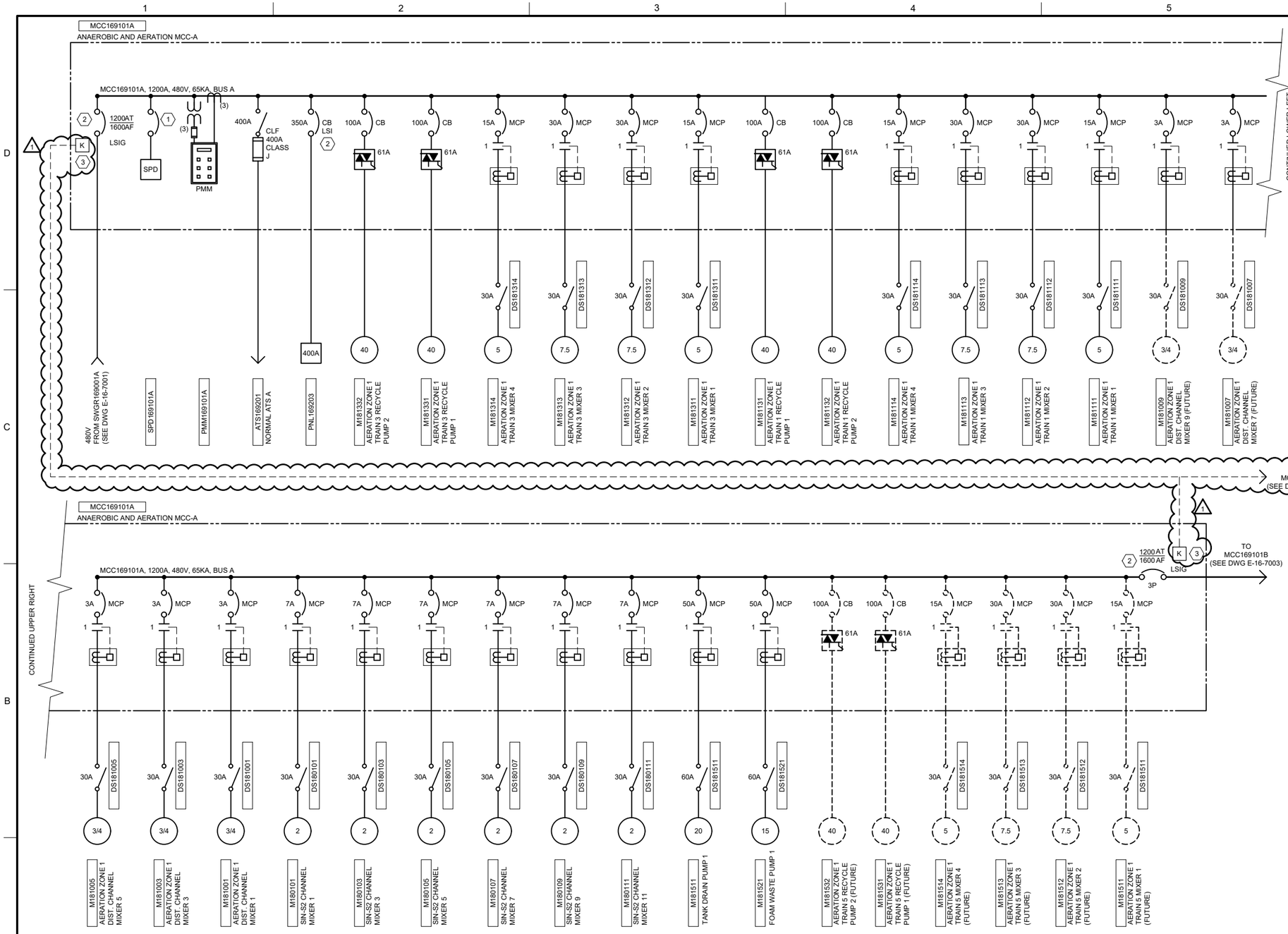
DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-10-7009.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

ELECTRICAL
HEADWORKS
BUILDING ONE LINE
MCC109105A AND
MCC109105B

DRAWING NUMBER
E-10-7009

Path: C:\BCPWID2160813 FILENAME: E-10-7009.DWG PLOT DATE: 8/2/2022 10:28 AM CAD USER: SAM MCBRIDE



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT A TIME.

Brown AND Caldwell
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Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

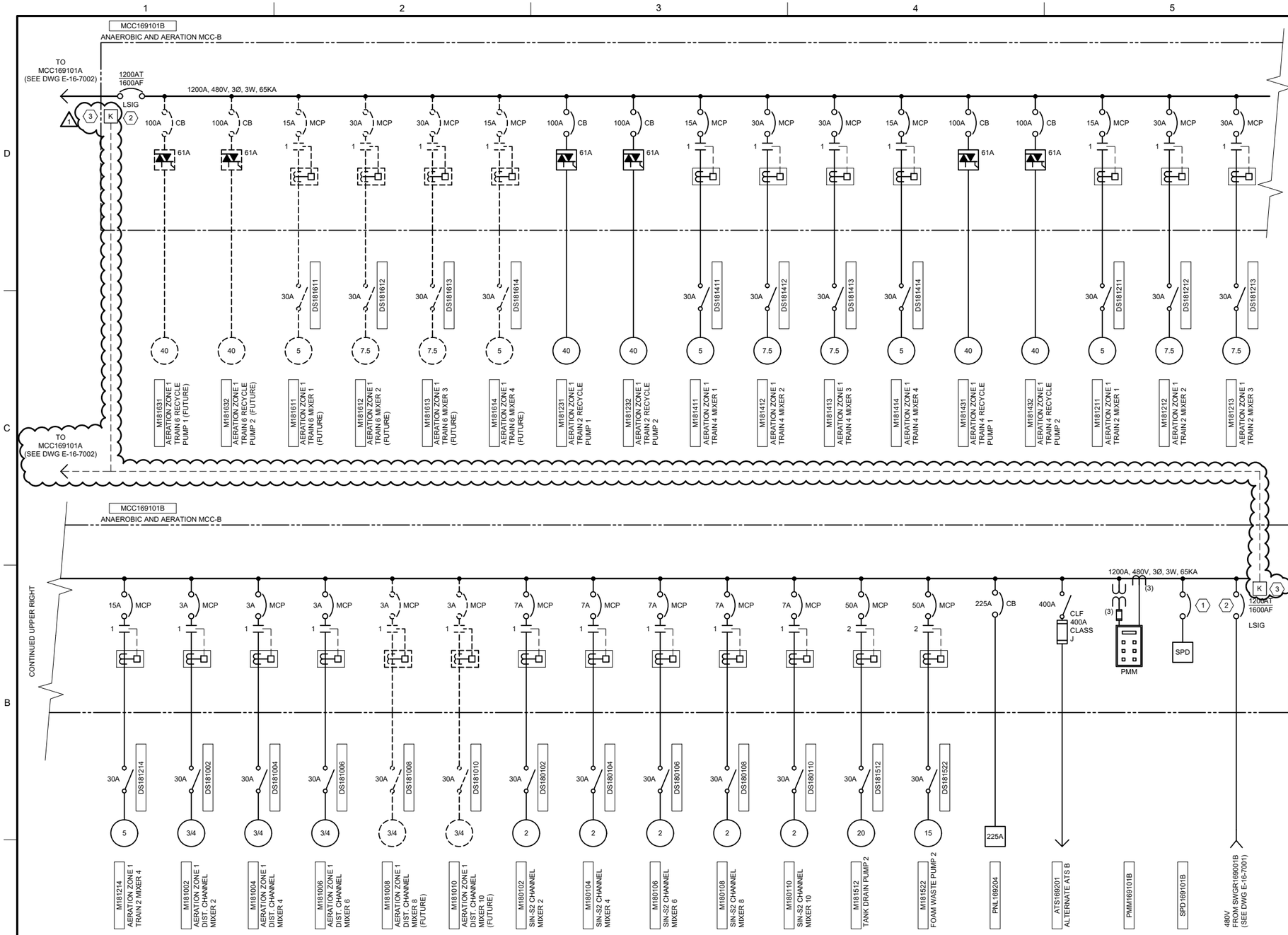
DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7002.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

ELECTRICAL
ANAEROBIC AND AERATION ONE LINE MCC169101A

DRAWING NUMBER
E-16-7002

Path: C:\BCPW\D2160813 FILENAME: E-16-7002.DWG PLOT DATE: 8/2/2022 10:28 AM CAD USER: SAM MCBRIDE



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

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Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7003.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

ELECTRICAL

ANAEROBIC AND AERATION ONE LINE MCC169101B

DRAWING NUMBER
E-16-7003

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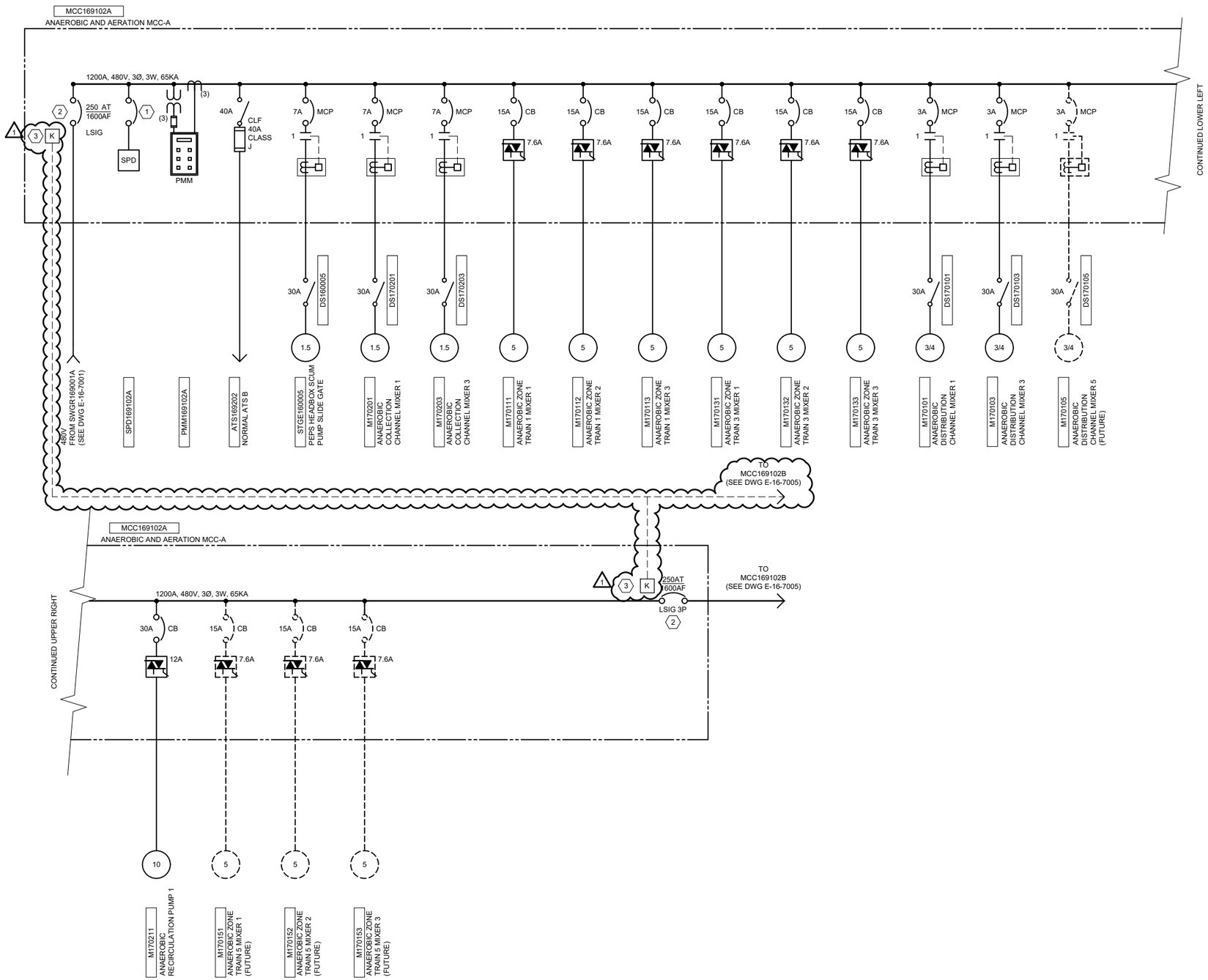

KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

Brown AND Caldwell

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Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7004.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30A

ELECTRICAL
ANAEROBIC AND
AERATION ONE LINE
MCC169102A

DRAWING NUMBER
E-16-7004

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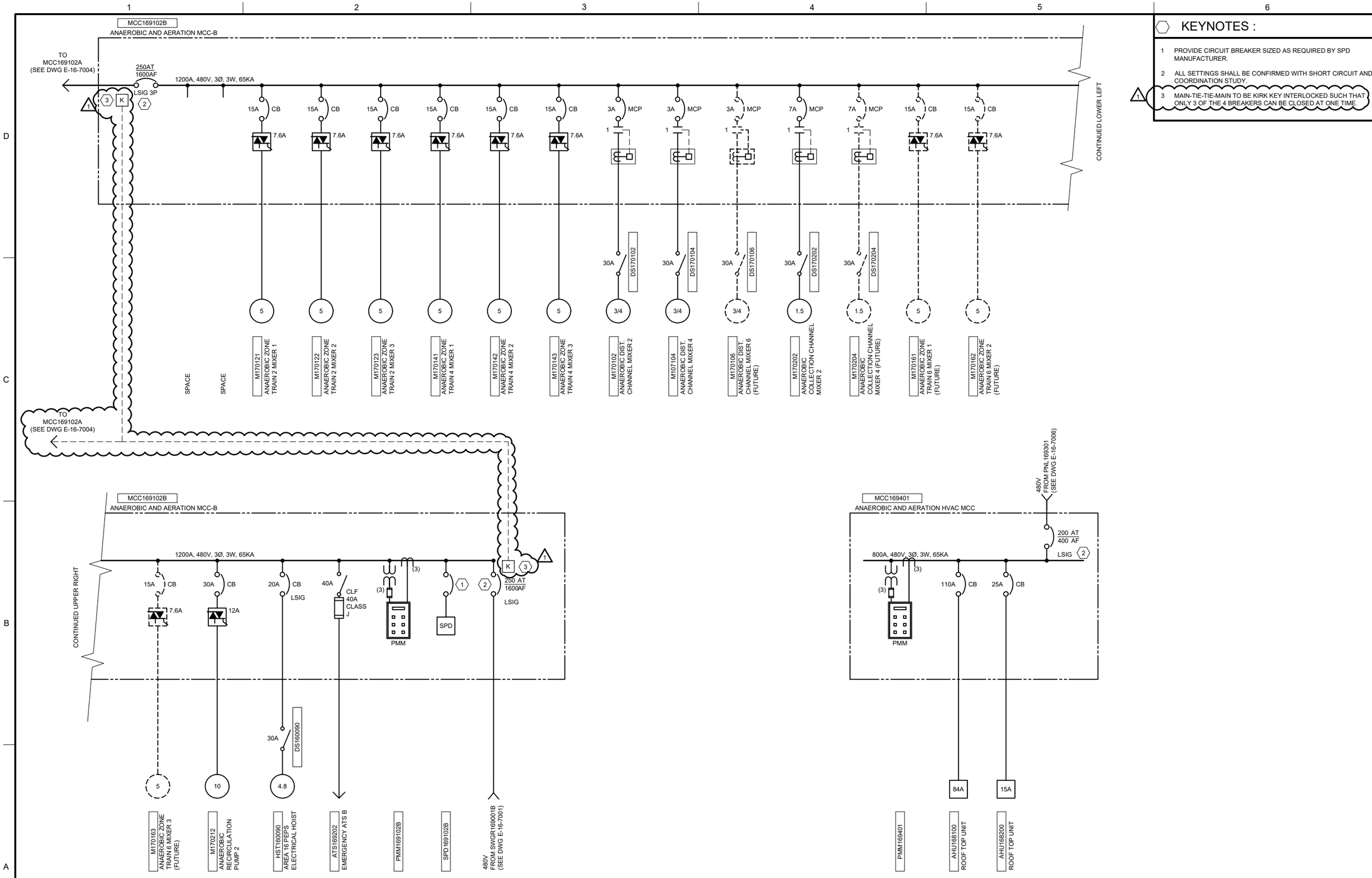

KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7005.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

ELECTRICAL
ANAEROBIC AND AERATION ONE LINE MCC169102B

DRAWING NUMBER
E-16-7005

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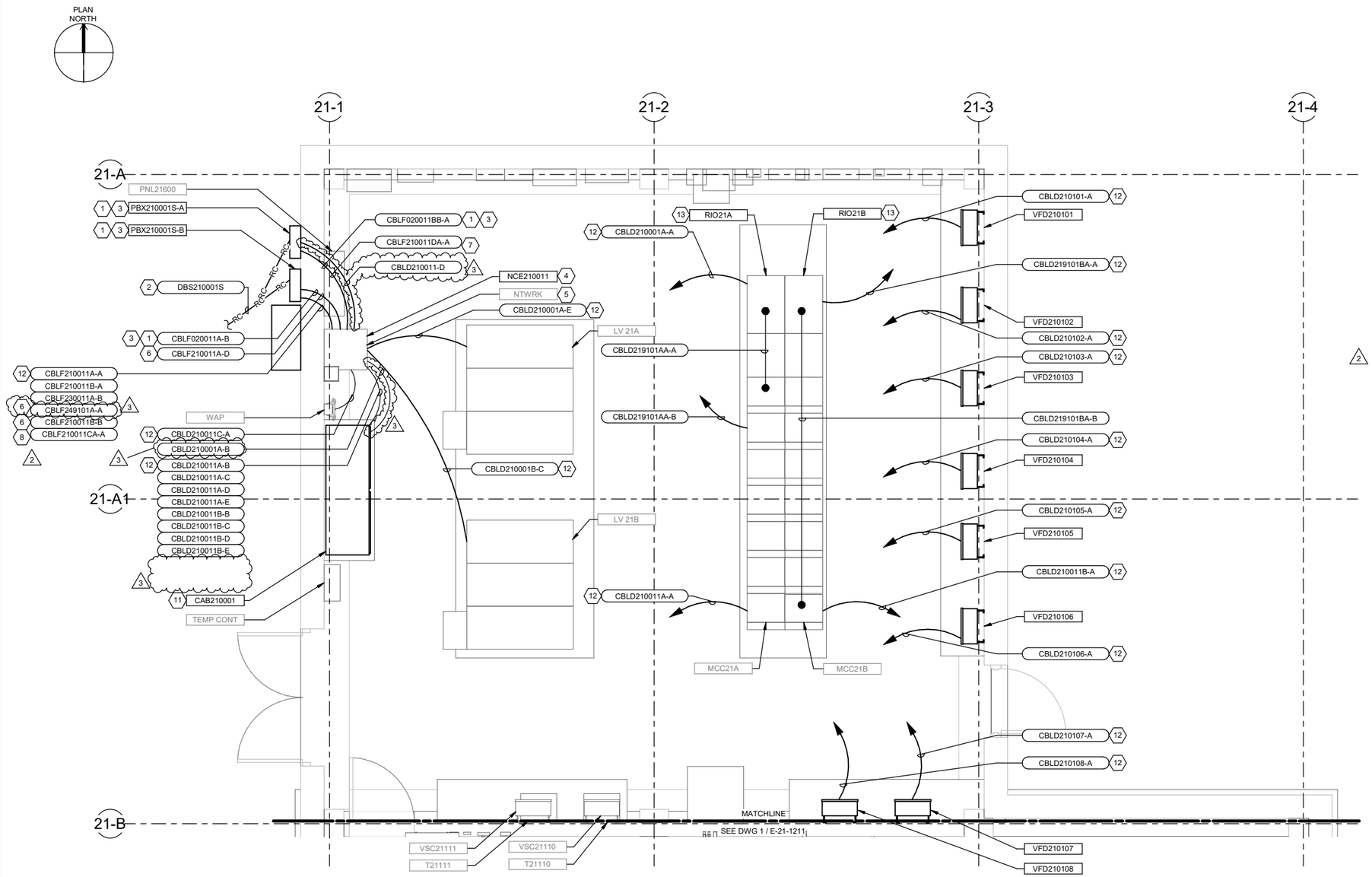

PLAN

SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. THIS DRAWING ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC5F):

1 NEW NEMA 4X SS JUNCTION BOXES WITH REMOVABLE FRONT COVER FOR SIGNAL CIRCUITS. SIZED PER NEC, 12"Wx12"Hx8D" (MIN). PENETRATE WALL AND EXTEND RACEWAYS AND NETWORK CABLING TO NCE210011.

2 DUCTBANK TO WEST RAS-WAS PUMP BUILDING CABLE ROOM. SEE DRAWING E-00-1304 FOR CONTINUATION.

3 NEW CONDUIT ROUTING WITHIN AREA 21 ELECTRICAL ROOM AND PULLBOX LOCATION ON EXTERIOR WALL OF AREA 21 ELECTRICAL ROOM TO BE FIELD DETERMINED AND COORDINATED WITH CVW CONSTRUCTION MANAGER. SUBMIT PROPOSED ROUTING AND PULLBOX LOCATIONS, COORDINATING WITH FIELD CONDITIONS, TO ENGINEER AND CVW CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO INSTALLATION.

4 NEW NETWORK CABINET LOCATION. SEE DRAWINGS I-00-6511, I-21-6101 AND I-21-6091 FOR ADDITIONAL REQUIREMENTS.

5 EXISTING NETWORK CABINET RE-LOCATED BELOW THE NEW NETWORK CABINET (NCE210011) TO AVOID NEW PLC PANEL INSTALLATION.

6 FIBER OPTIC CABLE TO BE INSTALLED UNDER CONTRACT CC5F.

7 NEW NETWORK CABLING. REFER TO INSTRUMENTATION NETWORK DIAGRAMS AND CABLE SCHEDULES FOR ADDITIONAL REQUIREMENTS. REFER TO SITE PLANS FOR SITE CABLE ROUTING.

KEYNOTES (CC30A):

8 FIBER OPTIC CABLE TO BE INSTALLED UNDER CONTRACT CC30A.

KEYNOTES (CC30B):

11 NEW PLC PANEL LOCATION. SEE DRAWING I-21-6101 FOR ADDITIONAL REQUIREMENTS.

12 NEW NETWORK CABLING. REFER TO INSTRUMENTATION NETWORK DIAGRAMS AND CABLE SCHEDULES FOR ADDITIONAL REQUIREMENTS. REFER TO SITE PLANS FOR SITE CABLE ROUTING.

13 INSTALL NEW NETWORK SWITCH AND POWER SUPPLIES IN EXISTING RIO CABINET. REFER TO I-21-6101 FOR ADDITIONAL REQUIREMENTS.

KEY PLAN

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	09/2021	CC05F: CCF 029
2	02/2022	CC30A: CCF 034
3	05/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: R. LEWIS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-21V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL
EAST RAS/WAS PUMP BUILDING ELECTRICAL ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-21-1201

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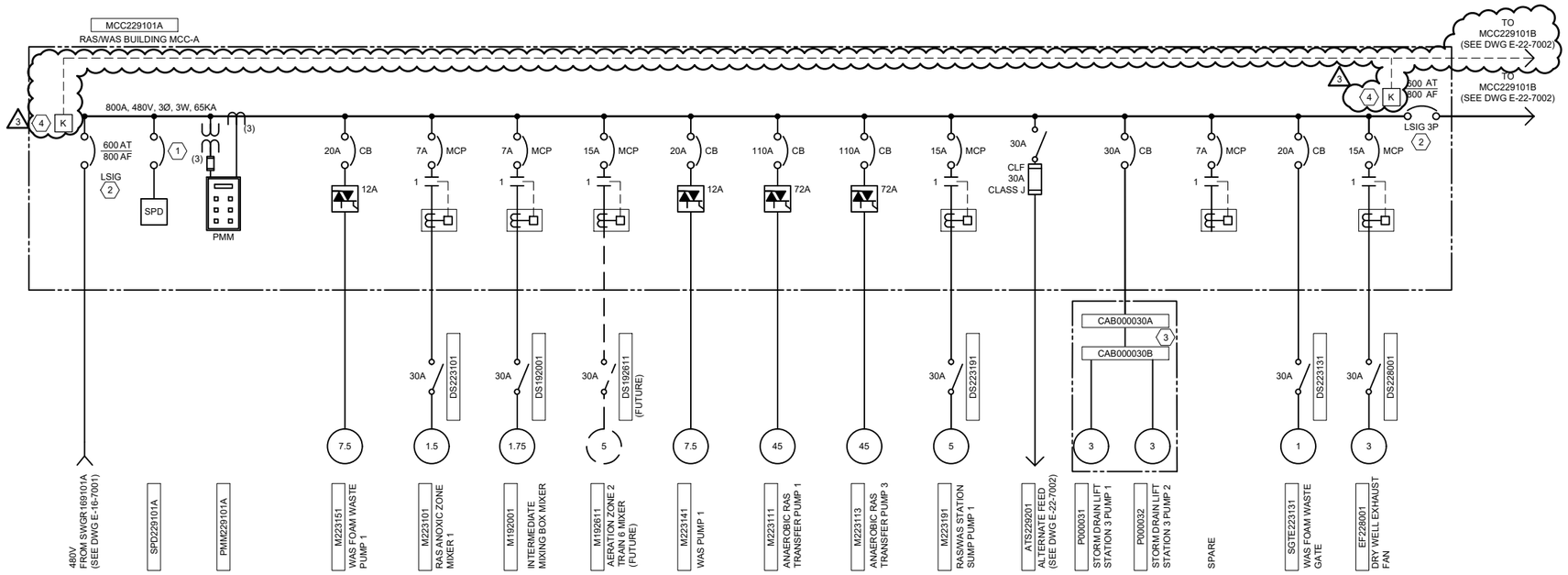
Plot Date: 5/24/2022 8:20:36 PM



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE SET PER SHORT CIRCUIT AND COORDINATION STUDY.
3. VENDOR PROVIDED DUPLEX SUBMERSIBLE PUMPING STATION. SEE DRAWING E-00-4001 FOR DETAILS.
4. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2021	CC30B: CCF037
2	05/2022	CC30B: CCF 067
3	08/2022	CC30B: CCF 041

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-22-7001.DWG

BC PROJECT NUMBER
151600

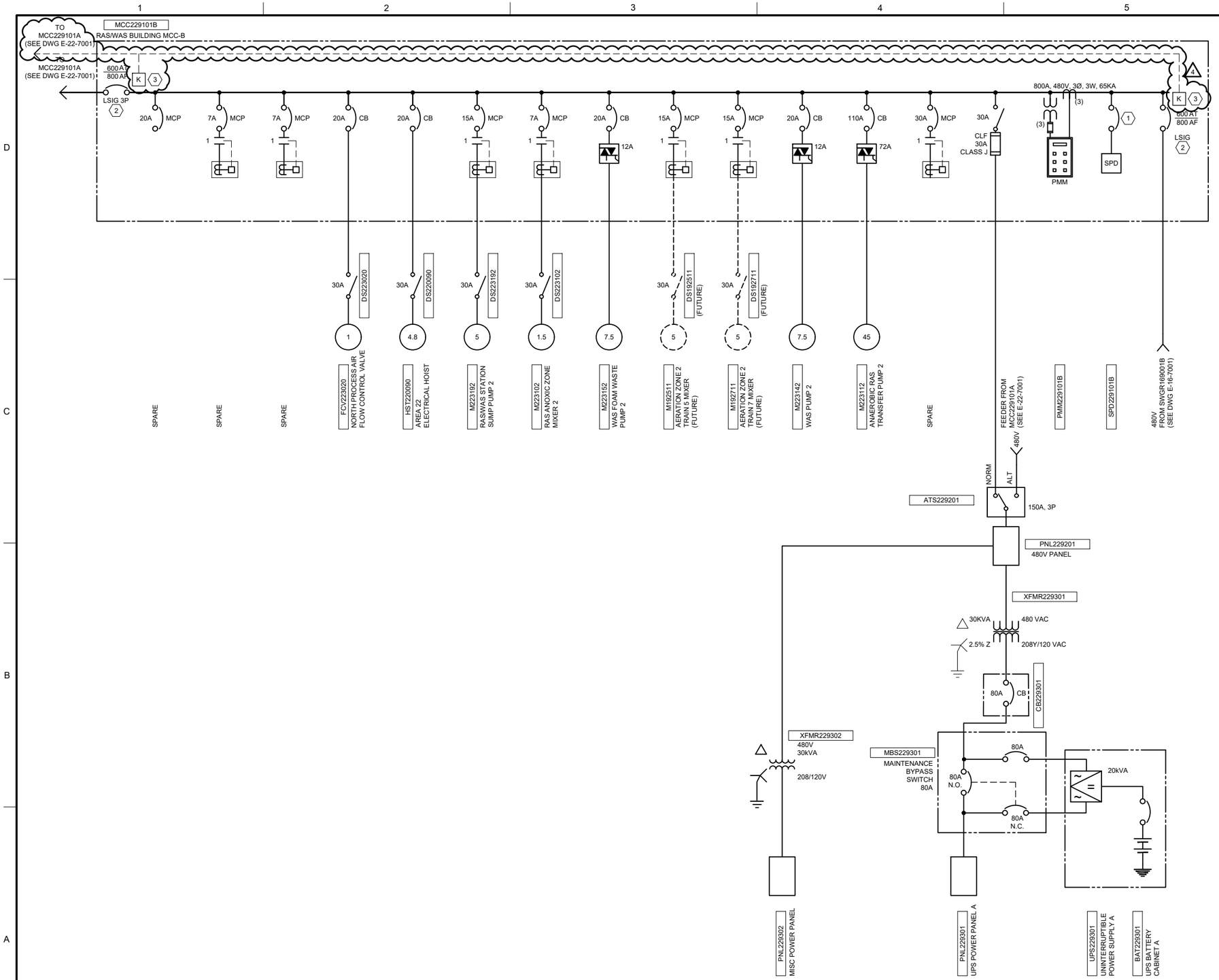
CLIENT PROJECT NUMBER
CC30A

ELECTRICAL

RAS-WAS BASIN
AND AERATION
BASIN 2
MCC229101A

DRAWING NUMBER
E-22-7001

Path: C:\BCPW\D2160813 FILENAME: E-22-7001.DWG PLOT DATE: 8/2/2022 10:28 AM CAD USER: SAM MCBRIDE



KEYNOTES :

1. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER.
2. ALL SETTINGS SHALL BE SET PER SHORT CIRCUIT AND COORDINATION STUDY.
3. MAIN-TIE-TIE-MAIN TO BE KIRK KEY INTERLOCKED SUCH THAT ONLY 3 OF THE 4 BREAKERS CAN BE CLOSED AT ONE TIME.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/2020	CO 008 CC30B: CCF 011
2	08/2021	CC30B: CCF 037
3	05/2022	CC30B: CCF 067
4	08/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: S. CANAS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-22-7002.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER

ELECTRICAL
RAS-WAS BASIN AND AERATION BASIN 2
MCC229101B

DRAWING NUMBER
E-22-7002

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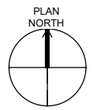
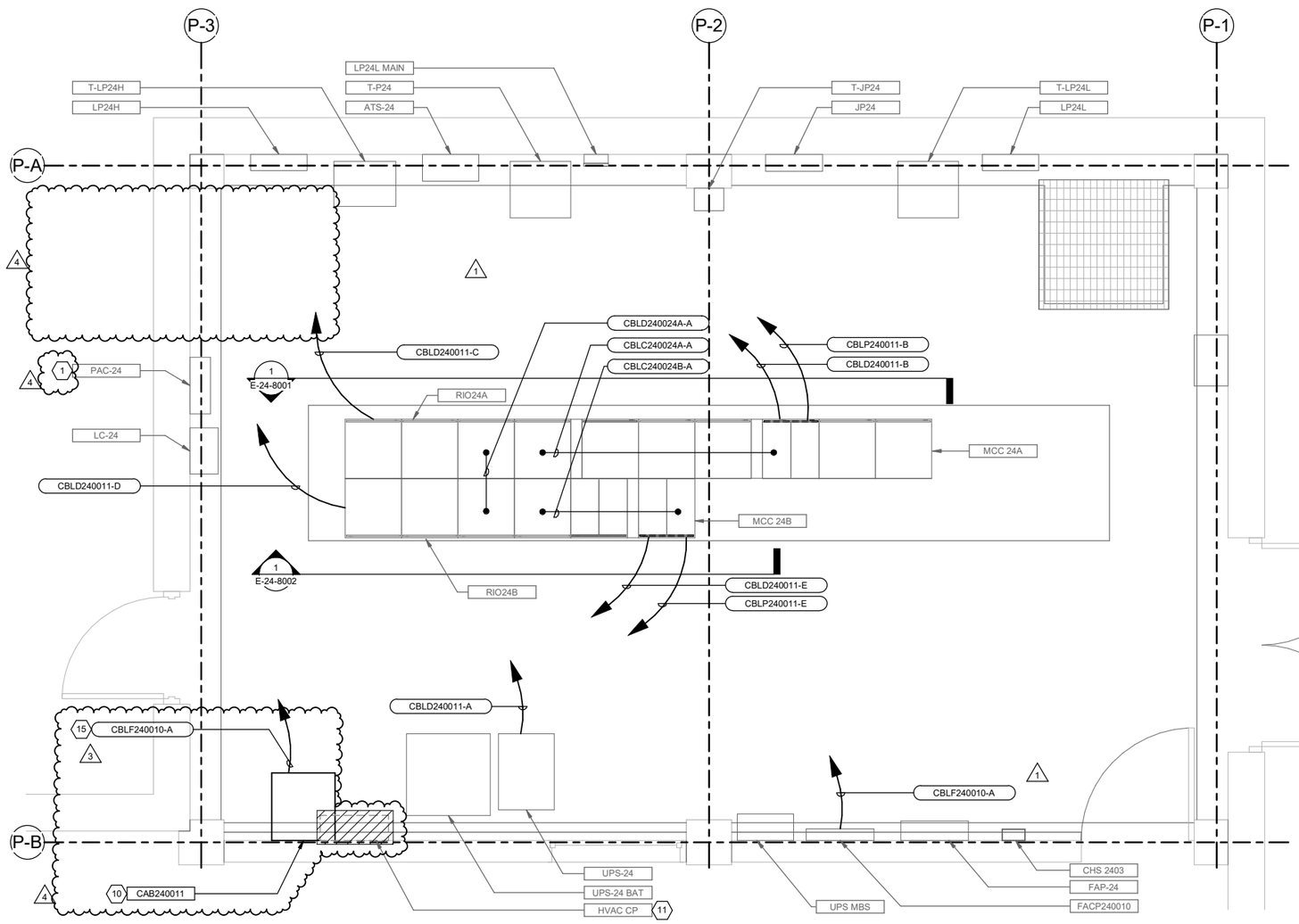




PLAN
SCALE: 1/2" = 1'-0"

KEY PLAN

GENERAL NOTES:

1. CONDUIT ROUTING TO OTHER AREAS SHALL UTILIZE CABLE TRAYS LOCATED BELOW AREA 24 ELECTRICAL ROOM. REFER TO CABLE SCHEDULES AND SITE PLANS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

KEYNOTES:

1 EXISTING SOUND SYSTEM CABINET WILL NOT BE RELOCATED.

2 NOT USED.

3 NOT USED.

KEYNOTES (CC5F):

10 INSTALLED UNDER THE CC05F CONSTRUCTION PROJECT.

11 OWNER TO RELOCATE HVAC CP.

KEYNOTES (CC30A):

15 INSTALLED UNDER THE CC30A CONSTRUCTION PROJECT.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CC30A: CCF 020
2	09/2021	CCO5F: CCF 029
3	02/2022	CC30A: CCF 034
4	05/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: K. GROSS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-24V18

BC PROJECT NUMBER
151600

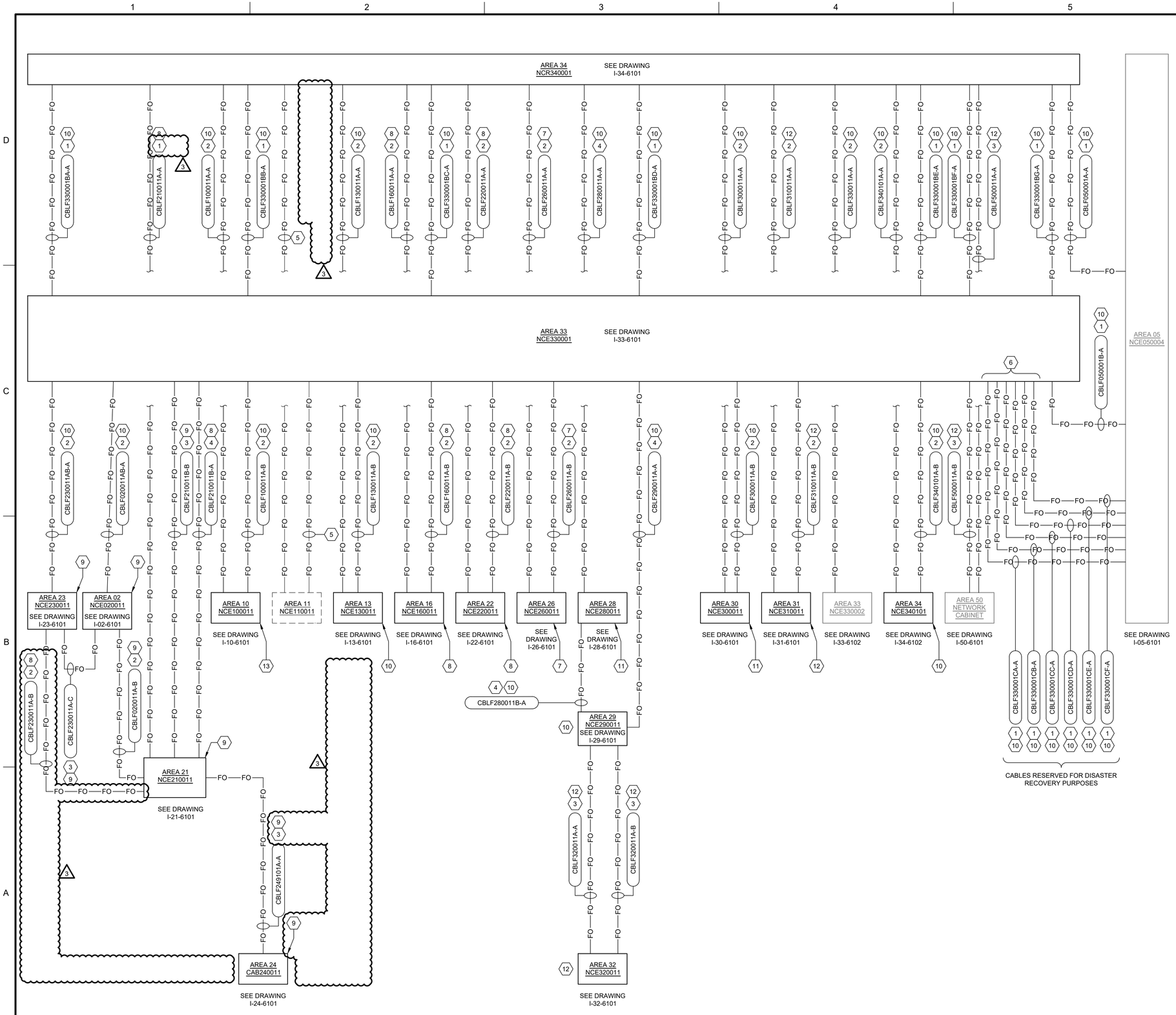
CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
WEST RAS/WAS PUMP BUILDING ELECTRICAL ROOM SIGNAL AND DATA PLAN

DRAWING NUMBER
E-24-1211

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-24V21.rvt

Plot Date: 6/17/2022 3:05:59 PM



GENERAL NOTES:

1. THIS DRAWING PROVIDES AN OVERVIEW OF THE PLANT SINGLE-MODE FIBER-OPTIC NETWORK. EXCEPT WHERE OTHERWISE SPECIFIED, ALL PLANT AREAS SHOWN SHALL HAVE REDUNDANT, PHYSICALLY SEPARATE FIBER-OPTIC CABLE CONNECTIONS TO THE PLANT OPERATIONS ZONE AND ENTERPRISE ZONE PRIMARY SERVERS IN THE BLOWER BUILDING SERVER ROOM (VIA NETWORK RACK NCR340001). ONE OF THESE CABLES (DESIGNATED AS "B" CABLES IN THE DESIGN DOCUMENTS) SHALL BE ROUTED THROUGH A FIBER-OPTIC PATCH PANEL WITHIN NETWORK CABINET NCE330001 IN THE POWER GENERATION BUILDING, AS SHOWN ON THIS DRAWING. REDUNDANT, PHYSICALLY SEPARATE FIBER-OPTIC CABLES SHALL ALSO CONNECT THE PRIMARY SERVERS IN THE BLOWER BUILDING SERVER ROOM TO THE SECONDARY SERVERS LOCATED IN THE ADMINISTRATION BUILDING SERVER ROOM (VIA NETWORK RACK NCR050001).

2. FIBER-OPTIC CABLES RESERVED FOR DISASTER RECOVERY PURPOSES SHALL BE CONNECTED FROM NCE330001 TO THE ADMINISTRATION BUILDING SERVER ROOM. IF A CATASTROPHIC EVENT WERE TO IMPACT THE BLOWER BUILDING SERVER ROOM , THESE CABLES WILL ALLOW THE OWNER TO QUICKLY ESTABLISH NETWORK CONNECTIVITY BETWEEN THE PLANT AREAS AND THE ADMINISTRATION SERVER ROOM BY MAKING TEMPORARY PATCHING MODIFICATIONS AT NCE330001.

3. REFER TO PLANT AREA NUMBER KEY ON DRAWING I-00-0004 FOR BUILDINGS AND PROCESS AREAS ASSOCIATED WITH AREA NUMBERS REFERENCED ON THE DRAWINGS.

4. PROVIDE, TERMINATE, AND TEST ALL NEW FIBER-OPTIC CABLES.

5. FIBER-OPTIC PATCHING PROVIDED BY OWNER.

6. REFER TO DRAWING E-00-0001 FOR CABLE IDENTIFICATION INFORMATION.

KEYNOTES:

1 144-FIBER CABLE.

2 48-FIBER CABLE.

3 24-FIBER CABLE.

4 96-FIBER CABLE.

5 FUTURE 48-FIBER CABLE.

6 OWNER TO TEMPORARILY MODIFY PATCHING SHOWN TO PATCH INCOMING "B" CABLES FROM PLANT AREAS TO THESE CABLES IN A DISASTER RECOVERY SCENARIO.

7 INSTALL AS PART OF THICKENING / STRAINING CONSTRUCTION PACKAGE CC 30D.

8 INSTALL AS PART OF BNR BASINS / PEPS / RAS SELECTOR CONSTRUCTION PACKAGE CC 30B.

9 INSTALL AS PART OF 3W/FILTERS CONSTRUCTION PACKAGE CC 05F.

10 INSTALL AS PART OF BLOWER BUILDING CONSTRUCTION PACKAGE CC 30A.

11 INSTALL AS PART OF SIDESTREAM PHOSPHORUS CONSTRUCTION PACKAGE CC 30C.

12 INSTALL AS PART OF SIDESTREAM NITROGEN CONSTRUCTION PACKAGE CC 30E.

13 INSTALL AS PART OF HEADWORKS CONSTRUCTION PACKAGE CC 10C.

LEGEND:

—FO— SINGLE-MODE FIBER-OPTIC CABLE

– – – – OWNER-PROVIDED SINGLE-MODE FIBER-OPTIC PATCH CABLES. QUANTITY DETERMINED BY OWNER.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	09/2021	CC5F: CCF 029
3	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

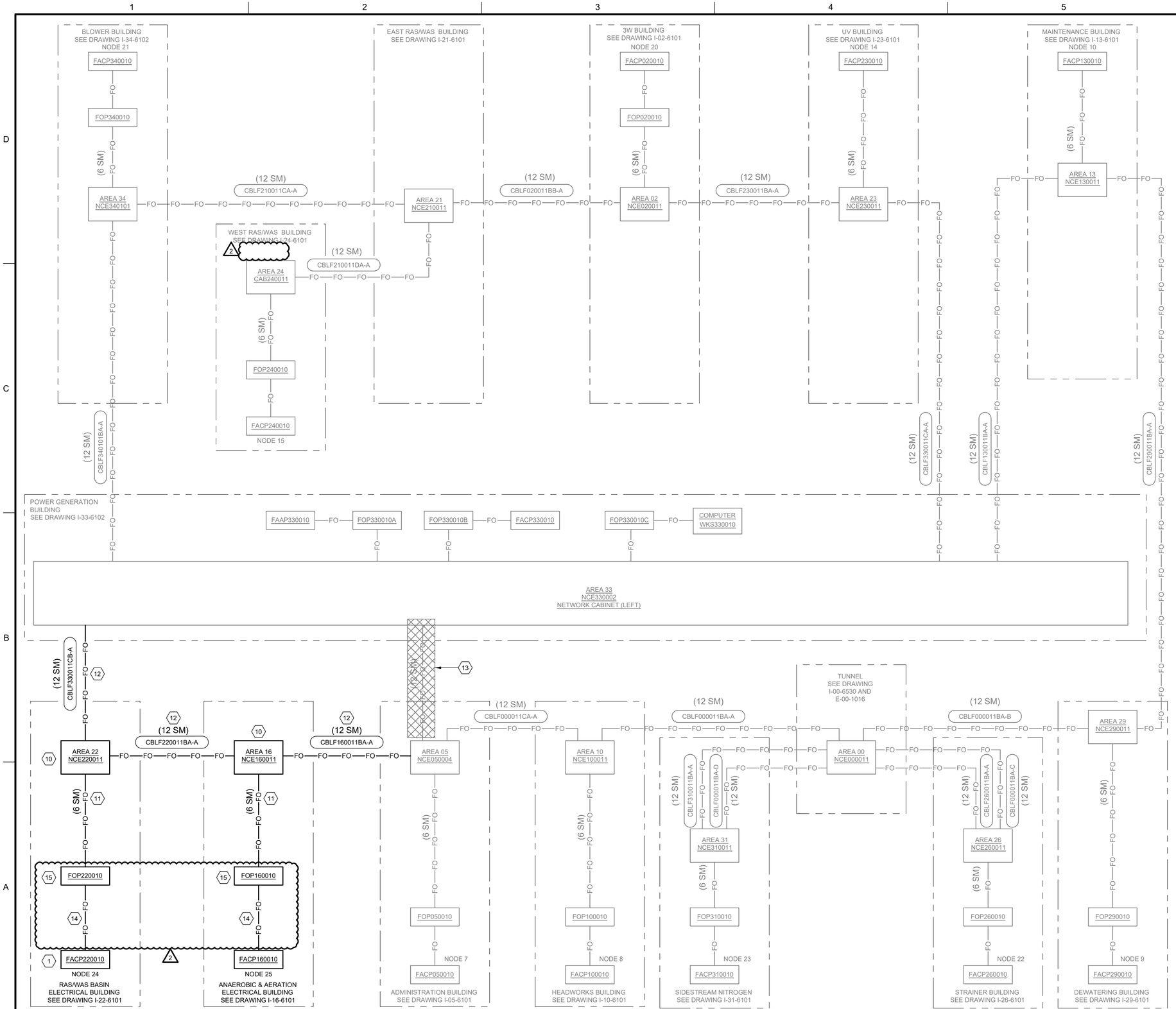
FILENAME
I-00-6101.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION

PLANT SINGLE-MODE FIBER-OPTIC NETWORK OVERVIEW DIAGRAM

DRAWING NUMBER
I-00-6101

Path: C:\BCPWD2160651 FILENAME: I-00-6101.DWG PLOT DATE: 6/2/2022 8:03 AM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. ALL EXISTING DEVICES AND CABLES ARE SHOWN SHADED BACK.

KEYNOTES (GENERAL):

1 NEW FIBER ALARM PANEL INSTALLED ON A SEPARATE CONTRACT.

KEYNOTES (CC30B):

10 INSTALLED AS PART OF BNR CONSTRUCTION PROJECT.

11 ROUTE NEW 6-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

12 ROUTE NEW 12-FIBER, SINGLE-MODE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

13 REMOVE TEMPORARY 12-FIBER, SINGLE-MODE CABLE INSTALLED AS PART OF CONSTRUCTION PACKAGE CC30A.

14 OWNER PROVIDED AND INSTALLED PATCH CABLES.

15 CONTRACTOR PROVIDED AND INSTALLED PATCH PANEL. FOP SHALL BE MOUNTED WITHIN 6 INCHES OF FACP.

2

LEGEND:

(12 MM) —FO—FO— 12-FIBER, MULTI-MODE FIBER-OPTIC CABLE

(12 SM) —FO—FO— 12-FIBER, SINGLE-MODE FIBER-OPTIC CABLE

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-00-6107.DWG

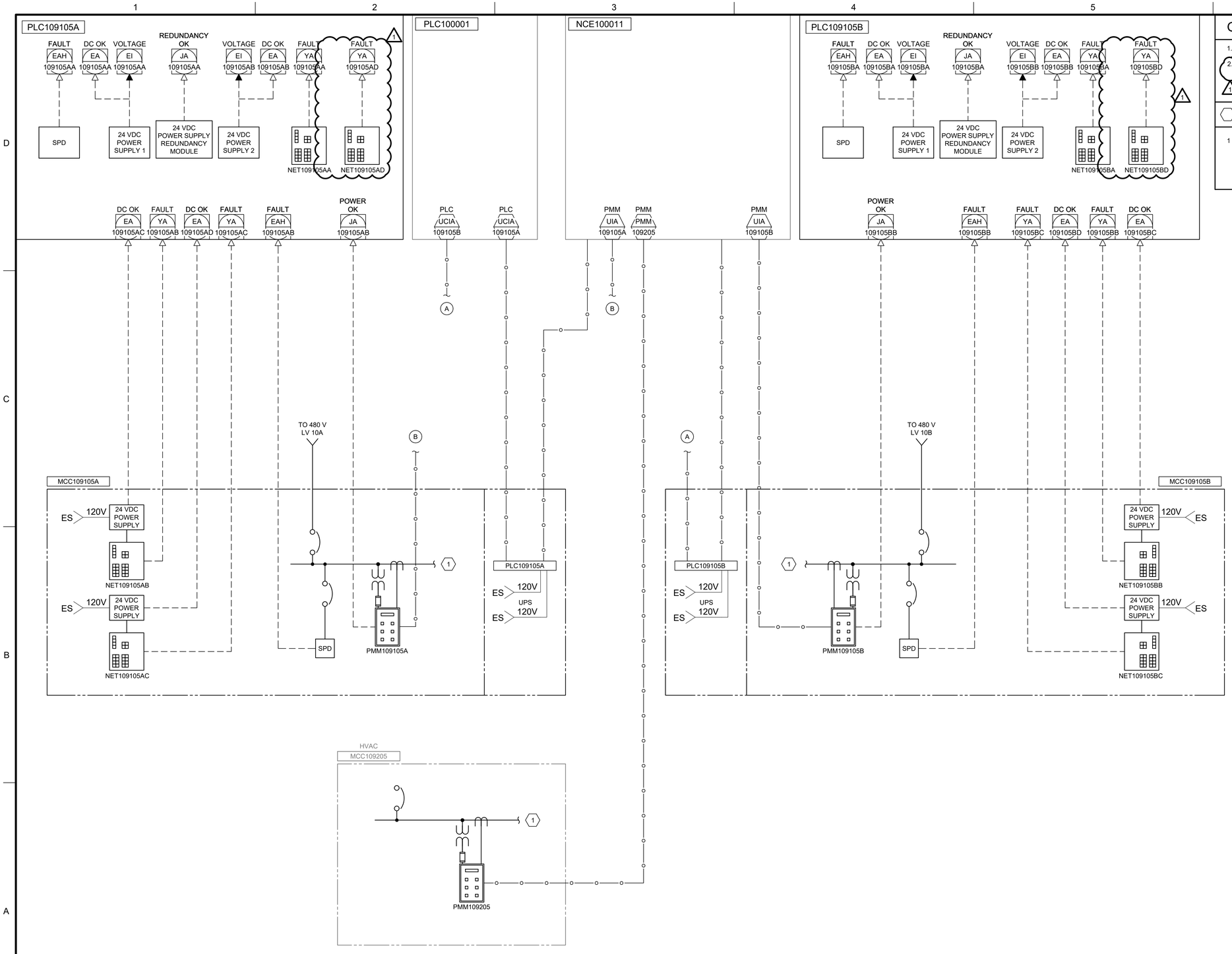
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
PLANT FIRE ALARM BNR NETWORK DIAGRAM

DRAWING NUMBER
I-00-6107

Path: C:\BCPWD2160651 FILENAME: I-00-6107.DWG PLOT DATE: 6/2/2022 8:03 AM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAM E-10-7008.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC.

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: K. SEE
CHECKED:
APPROVED: J. COX

FILENAME
I-10-6091.DWG

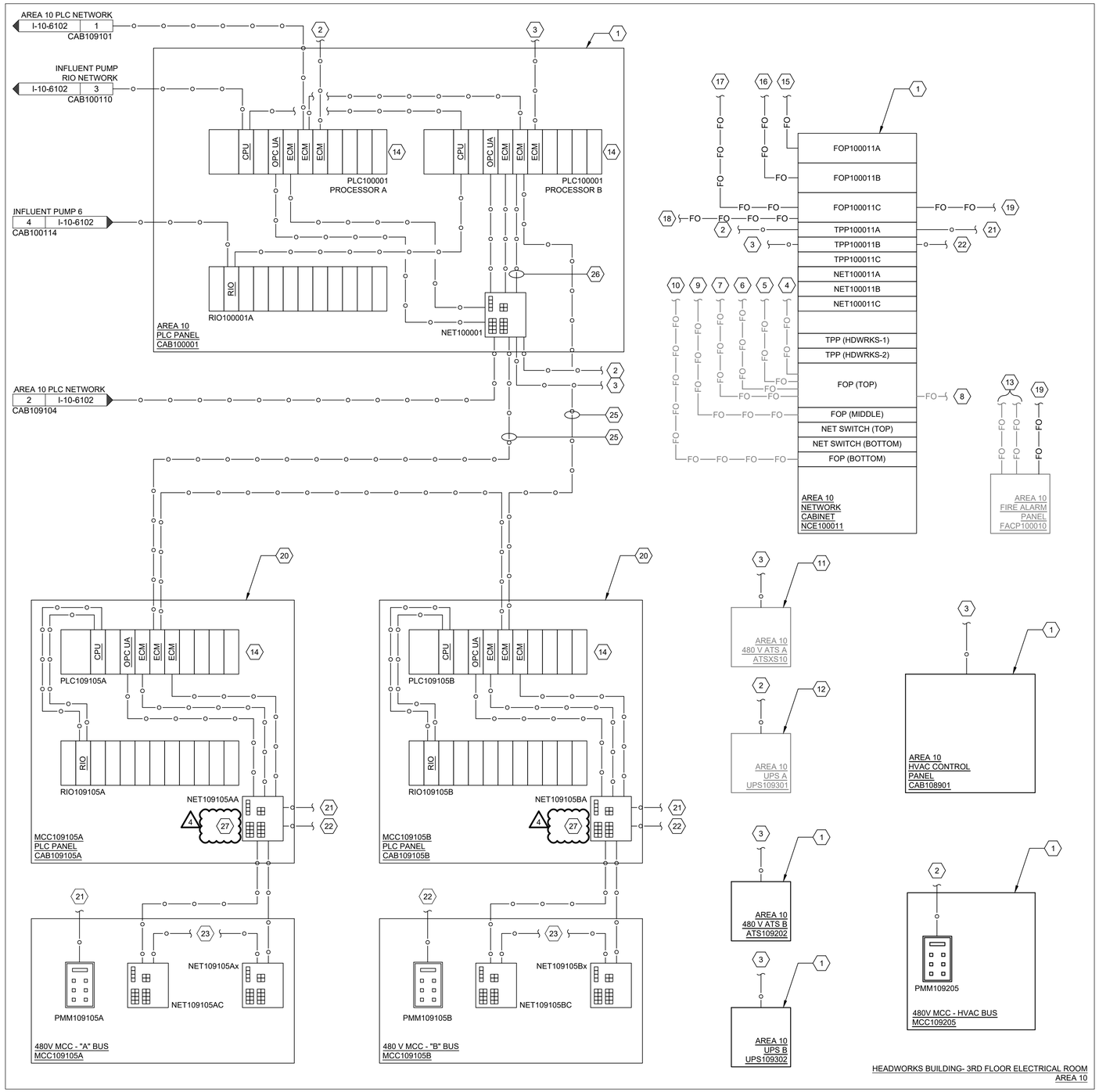
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 10 POWER 1

DRAWING NUMBER
I-10-6091

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-10-6091.DWG PLOT DATE: 5/31/2022 2:57 PM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

2. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 2.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 2.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 2.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 2.4. JACKET COLOR SHALL BE BLUE.

3. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

5. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 10 ETHERNET NETWORKS, WHICH ARE BEING MODIFIED UNDER A SEPARATE HEADWORKS CONTRACT THAT PRECEDES THIS PROJECT. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (CC10C):

1 INSTALL AS PART OF HEADWORKS CONSTRUCTION PACKAGE CC 10C.

2 ROUTE SHIELDED CAT6A CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP100011A IN AREA NETWORK CABINET NCE100011.

3 ROUTE SHIELDED CAT6A CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP100011B IN AREA NETWORK CABINET NCE100011.

4 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK RACK IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

5 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO ACC 3 - AA IN DEWATERING BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

6 RELOCATE EXISTING 12-FIBER, MULTI-MODE CABLE TO CP101 IN SAND FILTERS ELECTRICAL ROOM.

7 RELOCATE EXISTING 6-FIBER, MULTI-MODE CABLE TO CC 10A IN TUNNEL.

8 RELOCATE EXISTING 2-FIBER, MULTI-MODE PATCH CORD FROM EQUIPMENT IN MCC 10A TO FOP (TOP) IN NCR-HWK-1.

9 RELOCATE EXISTING 24-FIBER, MULTI-MODE CABLE TO NETWORK CABINET IN COMPOST AREA (AREA 50) COMPOST BUILDING. SEE DRAWING I-50-6101 FOR CONTINUATION.

10 RELOCATE EXISTING 6-FIBER, MULTI-MODE CABLE TO CC 10 IN TUNNEL.

11 EXISTING ATS.

12 EQUIPMENT PROVIDED BY OWNER.

13 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLES.

14 CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.

KEYNOTES (CC30B):

20 INSTALLED AS PART OF BNR CONSTRUCTION PACKAGE CC30B)

21 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP100011A IN AREA NETWORK CABINET.

22 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP100011B IN AREA NETWORK CABINET.

23 INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.

24 NOT USED.

25 ROUTE NEW CABLE FROM MCC PLC TO AREA PLC AS PART OF CONSTRUCTION PACKAGE CC30B.

26 REMOVE CABLE AS PART OF CONSTRUCTION PACKAGE CC30B.

27 SECOND ETHERNET SWITCH IN PANEL NOT SHOWN. (4)

KEYNOTES (CC30A):

15 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34). SEE DRAWING I-34-6101 FOR CONTINUATION.

16 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33). SEE DRAWING I-33-6101 FOR CONTINUATION.

17 12-FIBER, SINGLE-MODE CABLE TO NCE050004 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

18 12-FIBER, SINGLE-MODE CABLE TO NCE000011 IN TUNNEL AREA. SEE DRAWING I-00-6104, I-00-6110 AND I-00-6530.

19 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP100011C TO FIRE ALARM CONTROL PANEL FACP100010. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	06/2021	CC10C: CCF 031
3	08/2021	CC30B: CCF 031
4	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. SEE
DRAWN: A. LAPIERRE
CHECKED: C. WILSON
CHECKED: ----
APPROVED: J. COX

FILENAME
I-10-6101.DWG

BC PROJECT NUMBER
152721

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 10 NETWORK DIAGRAM 1

DRAWING NUMBER
I-10-6101

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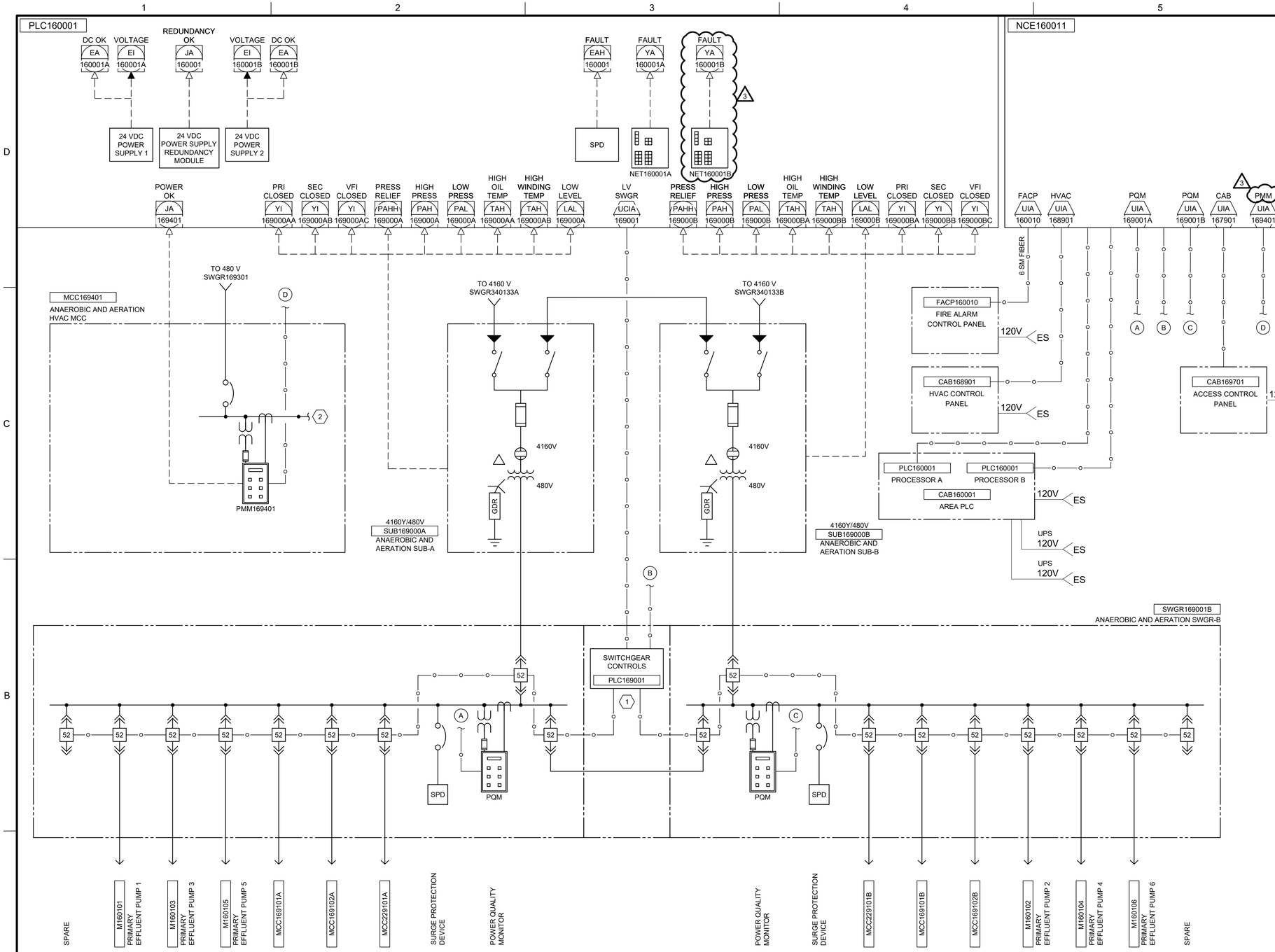

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAM E-16-7001.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC. (3)

KEYNOTES:

1. VENDOR PROVIDED SWITCHGEAR CONTROLS. REFER TO SECTION 26 23 00 FOR NETWORK AND HARDWIRED CONTROL, MONITORING, AND ALARM REQUIREMENTS INTERNAL TO THE SWITCHGEAR.
2. DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	08/2021	CC30B: CCF 031
3	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

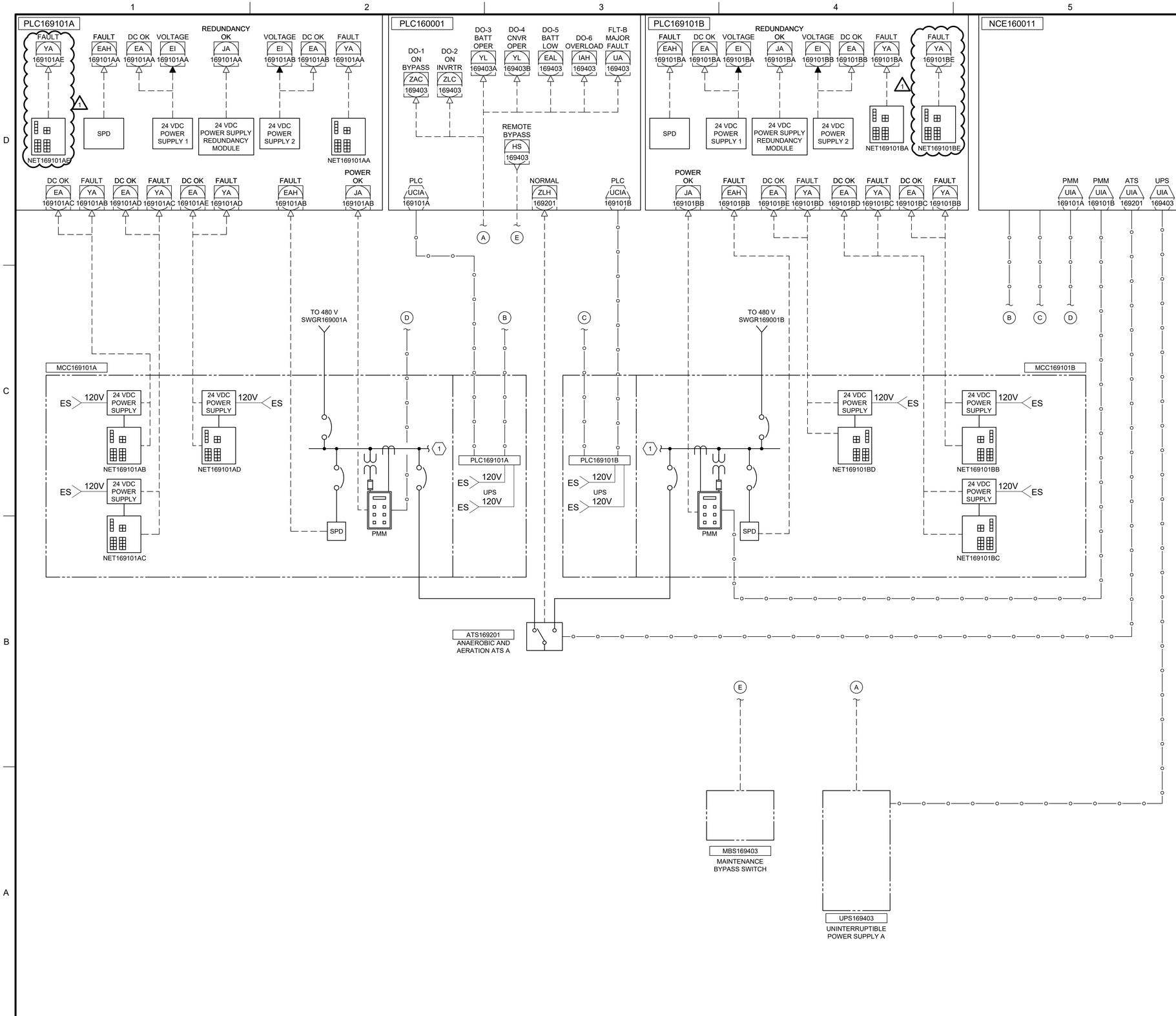
DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME I-16-6091.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

INSTRUMENTATION
AREA 16 POWER 1

DRAWING NUMBER
I-16-6091

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID.DWG FILENAME: I-16-6091.DWG PLOT DATE: 5/31/2022 2:59 PM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAMS E-16-7002, E-16-7003, AND E-16-7006.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC.

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME I-16-6092.DWG
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

INSTRUMENTATION
AREA 16 POWER 2

DRAWING NUMBER
I-16-6092

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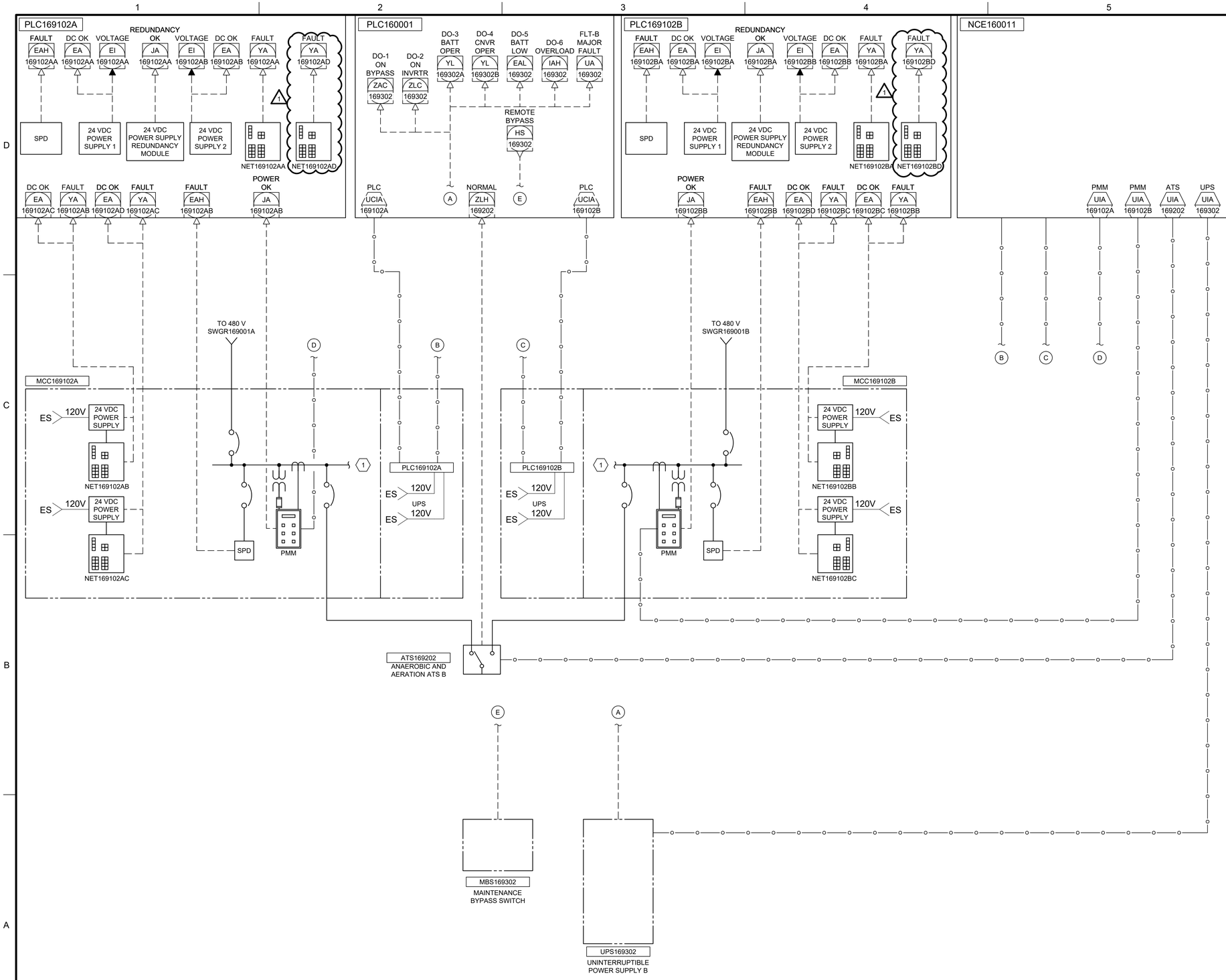

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAMS E-16-7004, E-16-7005, AND E-16-7006.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC. (1)

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-16-6093.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 16 POWER 3

DRAWING NUMBER
I-16-6093

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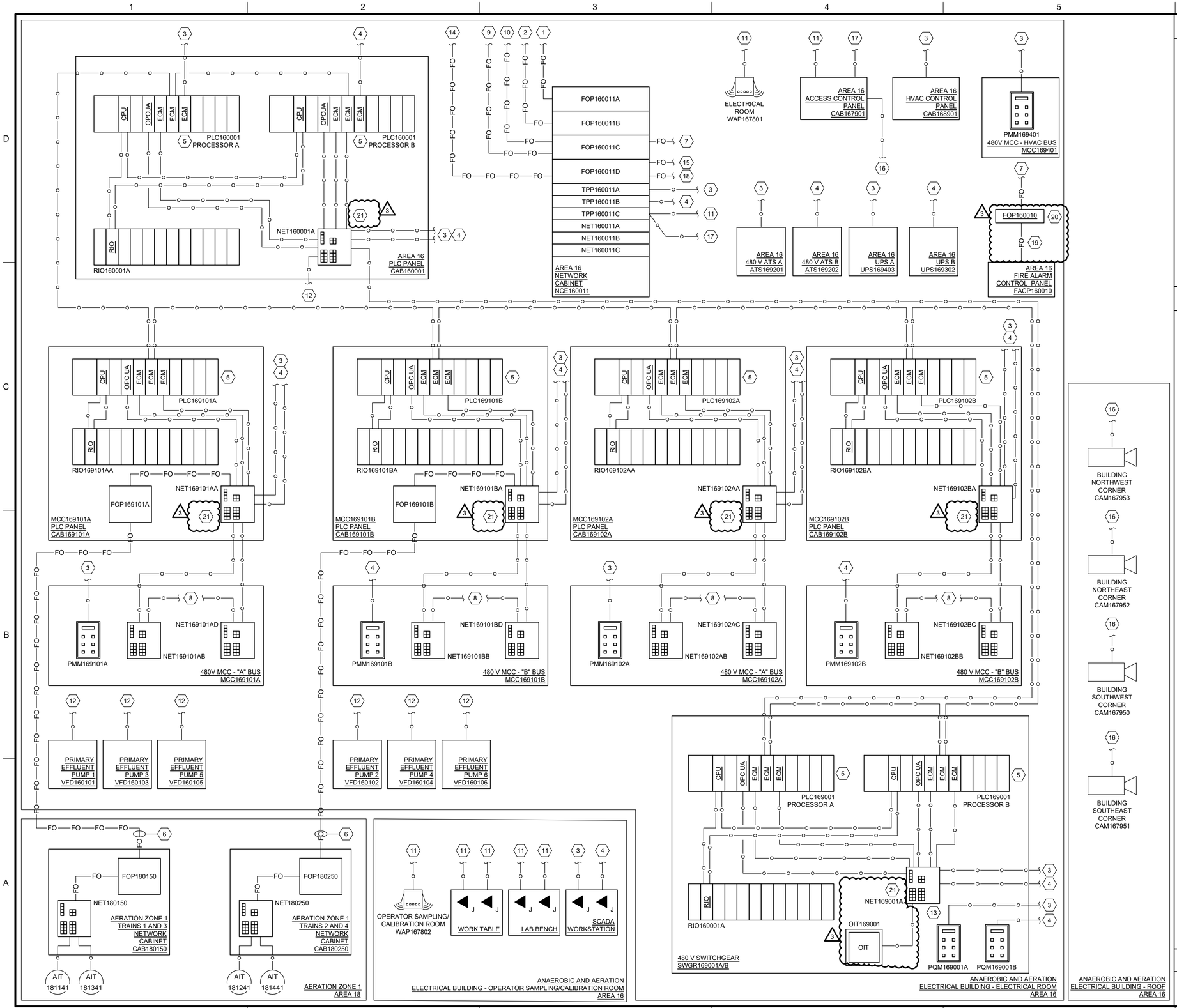

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP160011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.

5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP160011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP160011B IN AREA NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.
6. 6-FIBER, MULTI-MODE.
7. 6-FIBER, SINGLE-MODE CABLE FROM FIRE ALARM CONTROL PANEL TO FIBER-OPTIC PATCH PANEL FOP160011C.
8. INTERMEDIATE NETWORK SWITCHES WITHIN EACH MCC SWITCH-LEVEL RING ARE NOT SHOWN.
9. 12-FIBER, SINGLE-MODE CABLE TO NCE220011 IN RAS SELECTOR (AREA 22) ELECTRICAL BUILDING. SEE DRAWING I-22-6101 FOR CONTINUATION.
10. 12-FIBER, SINGLE-MODE CABLE TO NCE050004 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.
11. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP160011C IN AREA NETWORK CABINET.
12. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO NETWORK SWITCH IN AREA PLC PANEL CAB160001.
13. ADDITIONAL NETWORK CONNECTIONS INTERNAL TO THE SWITCHGEAR ARE NOT SHOWN ON THIS DRAWING.
14. TWO 12-FIBER MULTI-MODE CABLES FROM NCE340102 IN ARC FLASH ROOM OF THE BLOWER BUILDING. SEE DRAWING I-34-6111.
15. 12-FIBER MULTI-MODE CABLE TO AREA 16 SUBSTATION, SUB169000A, FOR SUB RELAY. SEE DRAWINGS E-16-7001 AND I-34-6112 FOR FURTHER DETAILS.
16. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB167901.
17. ROUTE FROM ACCESS CONTROL PANEL CAB167901 TO NCE160011 FOR EACH OUTDOOR CAMERA CONNECTED TO CAB167901.
18. 12-FIBER MULTI-MODE CABLE TO AREA 16 SUBSTATION, SUB169000B, FOR SUB RELAY. SEE DRAWINGS E-16-7001 AND I-34-6114 FOR FURTHER DETAILS.
19. OWNER PROVIDED AND INSTALLED PATCH CABLES.
20. CONTRACTOR PROVIDED AND INSTALLED PATCH PANEL. FOP SHALL BE MOUNTED WITHIN 6 INCHES OF FACP.
21. SECOND ETHERNET SWITCH IN PANEL IS NOT SHOWN.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	08/2021	CC30B: CCF 031
3	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-16-6101.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 16 NETWORK DIAGRAM

DRAWING NUMBER
I-16-6101

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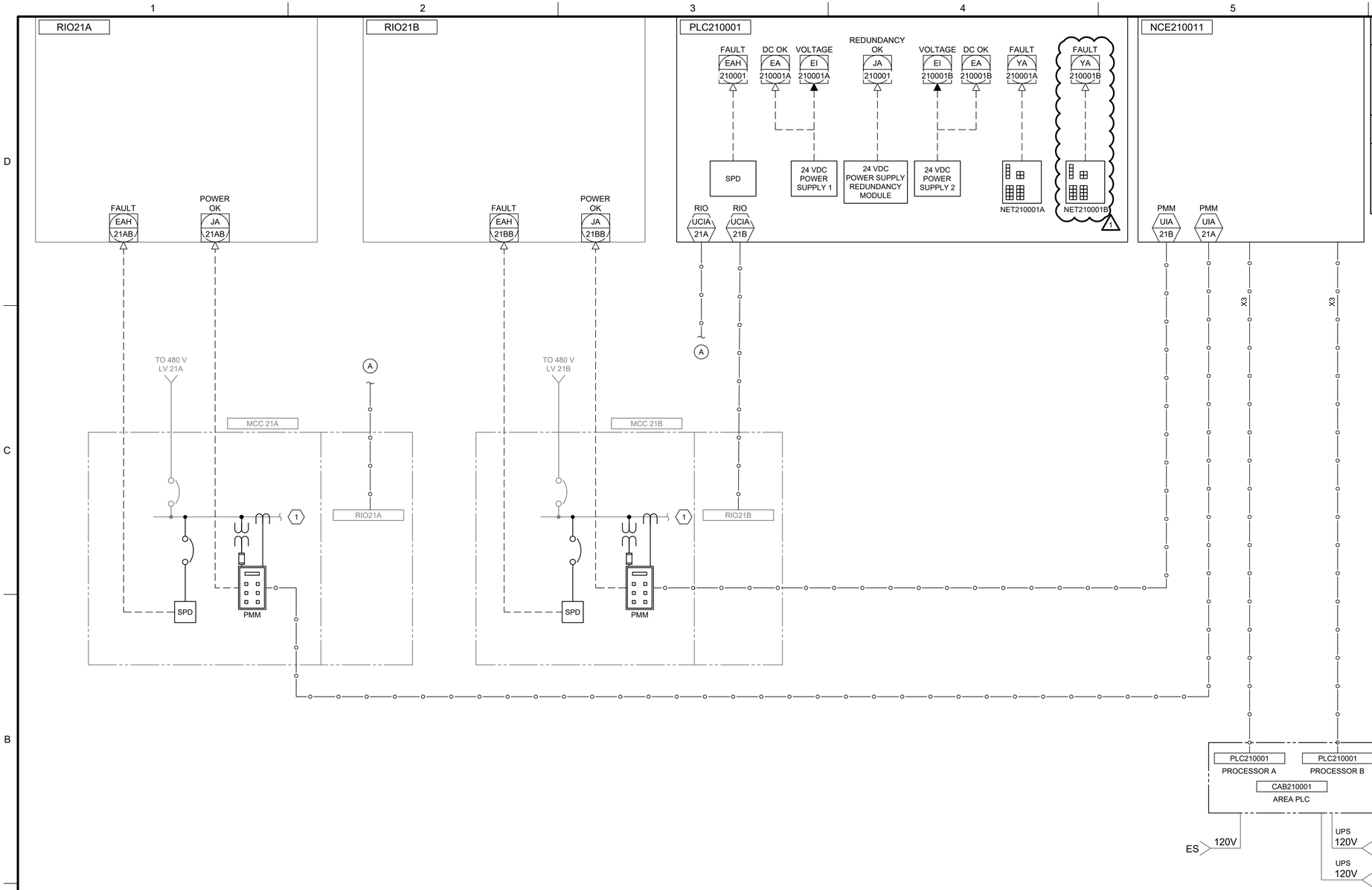

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAMS E-21-7002 AND E-21-7003.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC. (1)

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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6975 Union Park Center
Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-21-6091.DWG

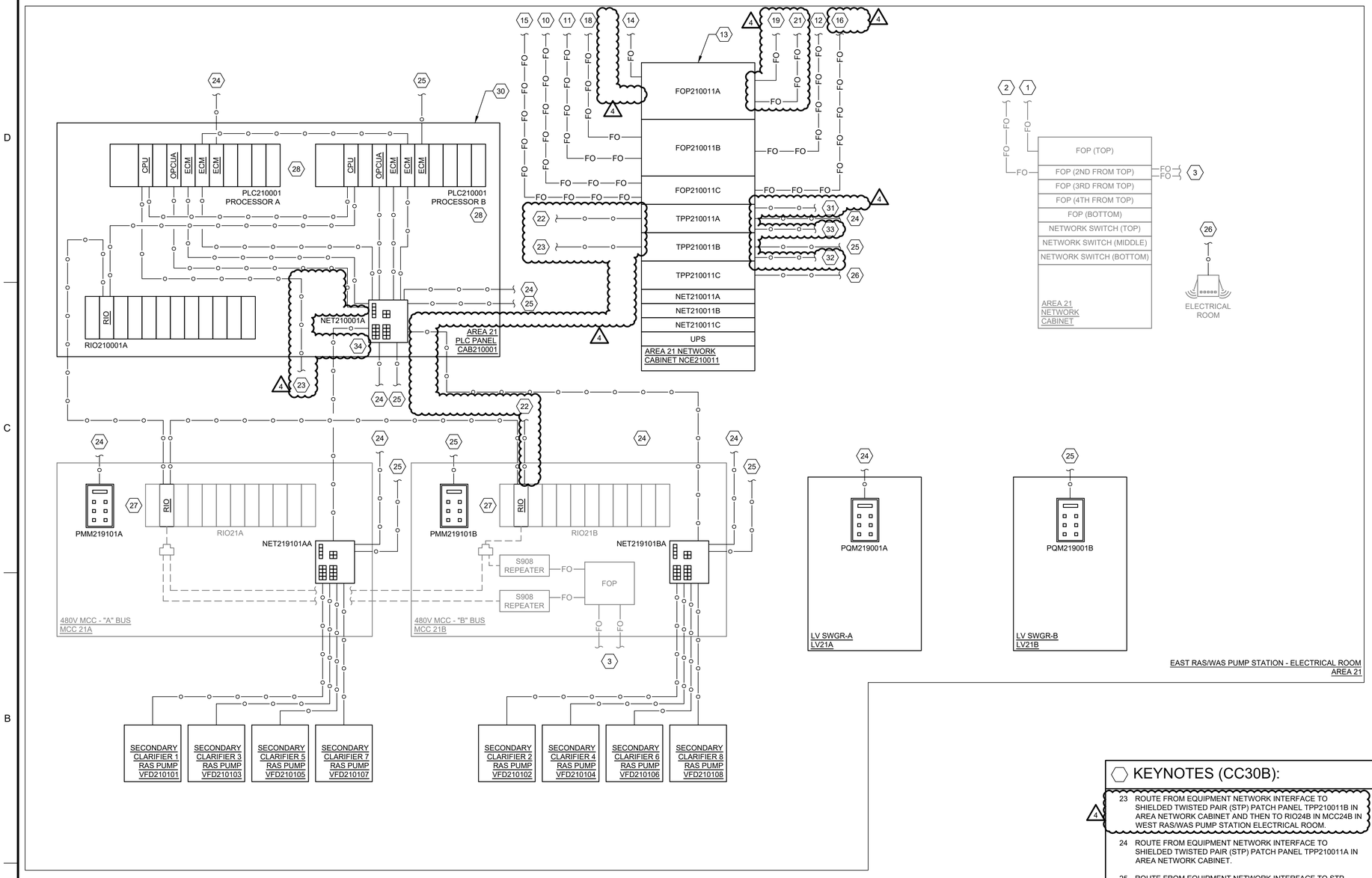
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 21 POWER 1

DRAWING NUMBER
I-21-6091

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\000-BIM\03-AUTOCAD\03-PID\151600-CENTRAL VALLEY NUTRIENTS-V17\PID DWG FILENAME: I-21-6091.DWG PLOT DATE: 5/31/2022 3:00 PM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP210011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 21 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

8. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 EXISTING 48-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

2 EXISTING 12-FIBER, MULTI-MODE CABLE TO MCC 24B IN WEST RAS/WAS PUMP STATION (AREA 24) ELECTRICAL ROOM. MOVE EXISTING FIBER TERMIATIONS TO FOP (3RD FROM TOP) SEE DRAWING I-24-6101 FOR CONTINUATION.

3 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

KEYNOTES (CC5F):

10 12-FIBER, SINGLE-MODE CABLE TO CAB240011 FIBER CABINET IN WEST EAS/WAS BUILDING (AREA 24) ELECTRICAL ROOM. REFERENCE DRAWING I-24-6101.

11 24-FIBER, SINGLE-MODE CABLE TO CAB240011 FIBER CABINET IN WEST EAS/WAS BUILDING (AREA 24) ELECTRICAL ROOM. REFERENCE DRAWING I-24-6101.

12 TEMPORARY 24-FIBER, SINGLE MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. REFERENCE DRAWING I-33-6101 FOR CONTINUATION.

13 INSTALL AS PART AS 3W WATER IMPROVEMENT CONSTRUCTION PACKAGE CC05F.

14 48-FIBER, SINGLE MODE CABLE TO 3W (AREA 02) NCE020011 IN THE ELECTRICAL ROOM. REFERENCE DRAWING I-02-6101 FOR CONTINUATION.

15 12-FIBER, SINGLE MODE CABLE TO 3W (AREA 02) NCE020011 IN THE ELECTRICAL ROOM. REFERENCE DRAWING I-02-6101 FOR CONTINUATION.

KEYNOTES (CC30A):

16 12-FIBER, SINGLE-MODE CABLE TO NCE340101 IN BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

17 NOT USED.

KEYNOTES (CC30B):

18 96-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.

19 144-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.

20 NOT USED.

21 48-FIBER, SINGLE MODE TO UV BUILDING (AREA 23) NCE230011 IN THE ELECTRICAL ROOM. SEE DRAWING I-23-6101 FOR CONTINUATION.

22 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP210011A IN AREA NETWORK CABINET AND THEN TO RIO24A IN MCC24A IN WEST RAS/WAS PUMP STATION ELECTRICAL ROOM. 4

KEYNOTES (CC30B):

23 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP210011B IN AREA NETWORK CABINET AND THEN TO RIO24B IN MCC24B IN WEST RAS/WAS PUMP STATION ELECTRICAL ROOM. 4

24 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP210011A IN AREA NETWORK CABINET.

25 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP210011B IN AREA NETWORK CABINET.

26 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP210011C IN AREA NETWORK CABINET.

27 OWNER TO REPLACE EXISTING MODICON QUANTUM S908 RIO DROP ADAPTER WITH MODICON QUANTUM ETHERNET RIO DROP ADAPTER (140CRA31200C).

28 CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.

29 NOT USED. 4

30 INSTALL AS PART OF BNR CONSTRUCTION PACKAGE CC 30B.

31 ROUTE FROM PMM240001A IN MCC24A IN WEST RAS/WAS PUMP STATION ELECTRICAL ROOM TO STP PATCH PANEL TPP210011A IN AREA NETWORK CABINET. 4

32 ROUTE FROM PMM240001B IN MCC24B IN WEST RAS/WAS PUMP STATION ELECTRICAL ROOM TO STP PATCH PANEL TPP210011B IN AREA NETWORK CABINET.

33 ROUTE FROM AREA 24 UPS IN WEST RAS/WAS PUMP STATION ELECTRICAL ROOM TO STP PATCH PANEL TPP210011A IN AREA NETWORK CABINET.

34 SECOND ETHERNET SWITCH IN PANEL NOT SHOWN.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

– – – – S908 (COAXIAL) CABLE

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6975 Union Park Center
Salt Lake City, UT

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	09/2021	CC5F: CCF 029
3	02/2022	CC30A: CCF 034
4	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-21-6101.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 21 NETWORK DIAGRAM

DRAWING NUMBER
I-21-6101

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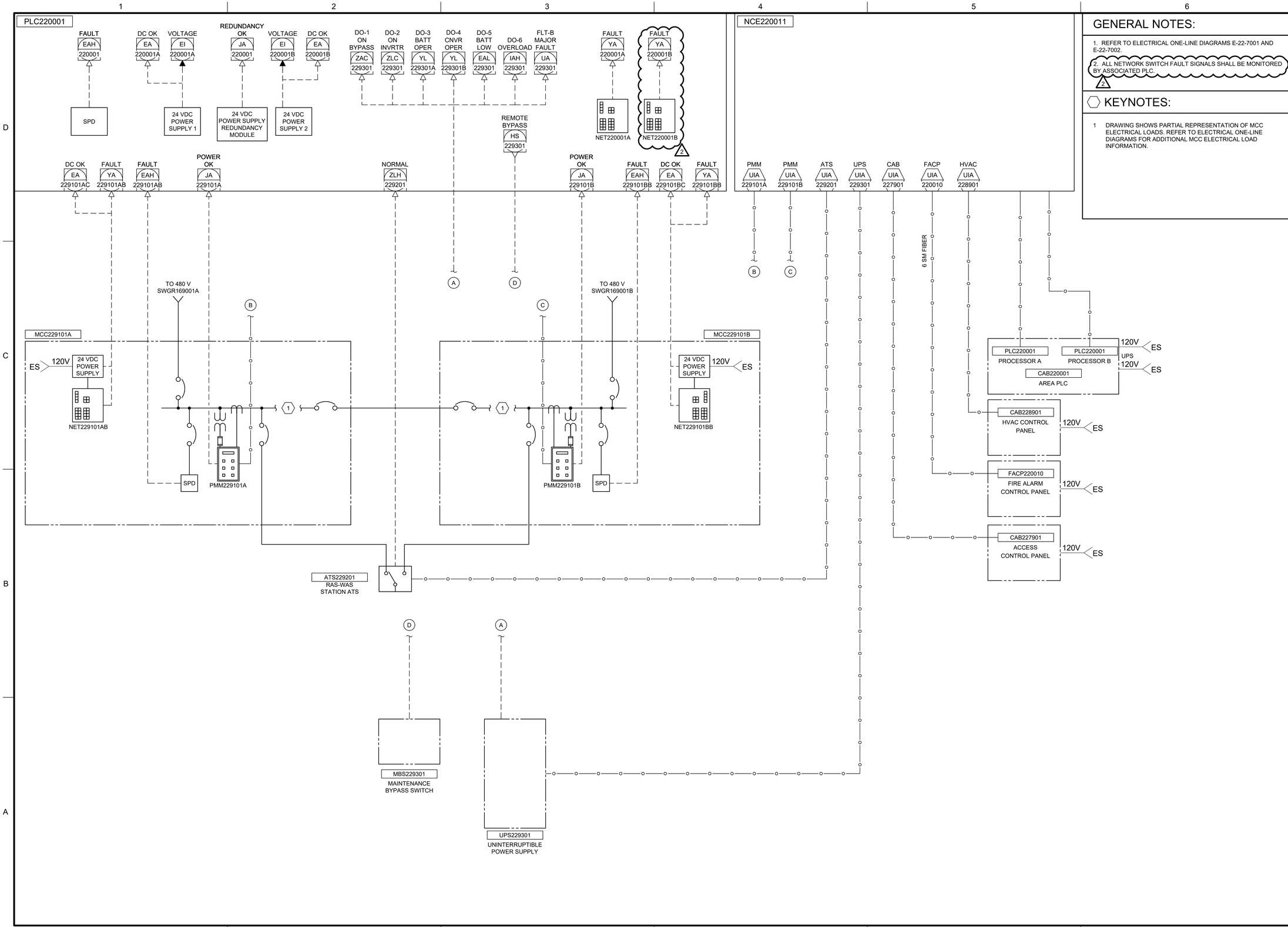

GENERAL NOTES:

1. REFER TO ELECTRICAL ONE-LINE DIAGRAMS E-22-7001 AND E-22-7002.
2. ALL NETWORK SWITCH FAULT SIGNALS SHALL BE MONITORED BY ASSOCIATED PLC. (2)

KEYNOTES:

1 DRAWING SHOWS PARTIAL REPRESENTATION OF MCC ELECTRICAL LOADS. REFER TO ELECTRICAL ONE-LINE DIAGRAMS FOR ADDITIONAL MCC ELECTRICAL LOAD INFORMATION.

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REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-22-6091.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 22 POWER 1

DRAWING NUMBER
I-22-6091

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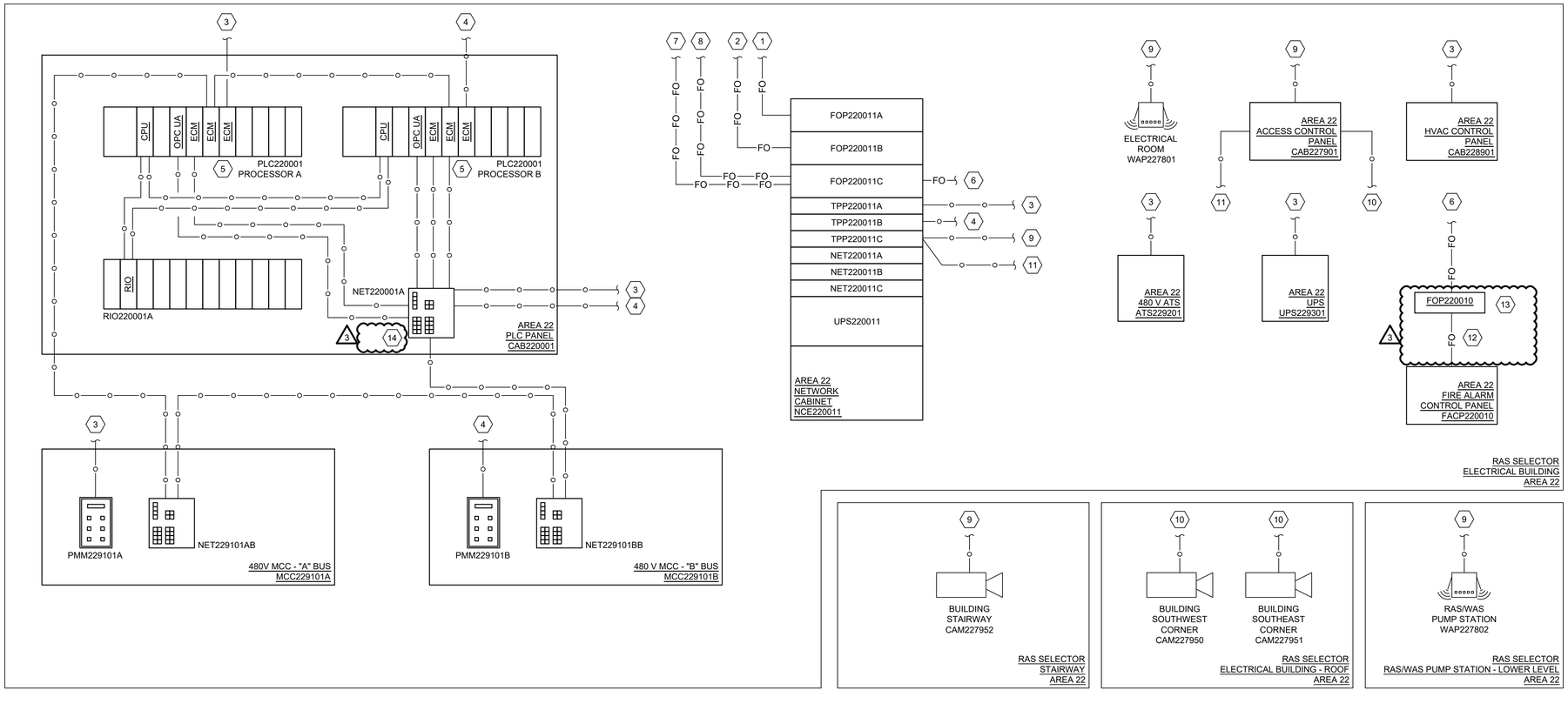

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR FOR CABLES CONNECTING TO TPP220011C SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

4. SHIELDED CAT 6 CABLES BETWEEN MCC NETWORK SWITCHES AND OVERLOAD RELAYS AND VFDS WITHIN THE MCC LINEUPS ARE NOT SHOWN ON THIS DRAWING. REFER TO TYPICAL MOTOR SCHEMATICS IN ELECTRICAL DRAWINGS FOR ETHERNET CONNECTION REQUIREMENTS.

5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES:

1. 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION.
2. 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.
3. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO SHIELDED TWISTED PAIR (STP) PATCH PANEL TPP220011A IN AREA NETWORK CABINET.
4. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011B IN AREA NETWORK CABINET.
5. CONTRACTOR TO COORDINATE FINAL INTERNAL PATCHING.
6. 6-FIBER, SINGLE-MODE CABLE FROM FIRE ALARM CONTROL PANEL TO FIBER-OPTIC PATCH PANEL FOP220011C.
7. 12-FIBER, SINGLE-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.
8. 12-FIBER, SINGLE-MODE CABLE TO NCE160011 IN PEPS ELECTRICAL BUILDING (AREA 16) ELECTRICAL ROOM. SEE DRAWING I-16-6101 FOR CONTINUATION.
9. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP220011C IN AREA NETWORK CABINET.
10. ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB227901.
11. ROUTE FROM ACCESS CONTROL PANEL CAB227901 TO NCE220011 FOR EACH OUTDOOR CAMERA CONNECTED TO CAB227901.
12. OWNER PROVIDED AND INSTALLED PATCH CABLES.
13. CONTRACTOR PROVIDED AND INSTALLED PATCH PANEL. FOP SHALL BE MOUNTED WITHIN 6 INCHES OF FACP.
14. SECOND ETHERNET SWITCH IN PANEL IS NOT SHOWN.

3

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	08/2021	CC30B: CCF 031
3	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-22-6101.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 22 NETWORK DIAGRAM

DRAWING NUMBER
I-22-6101

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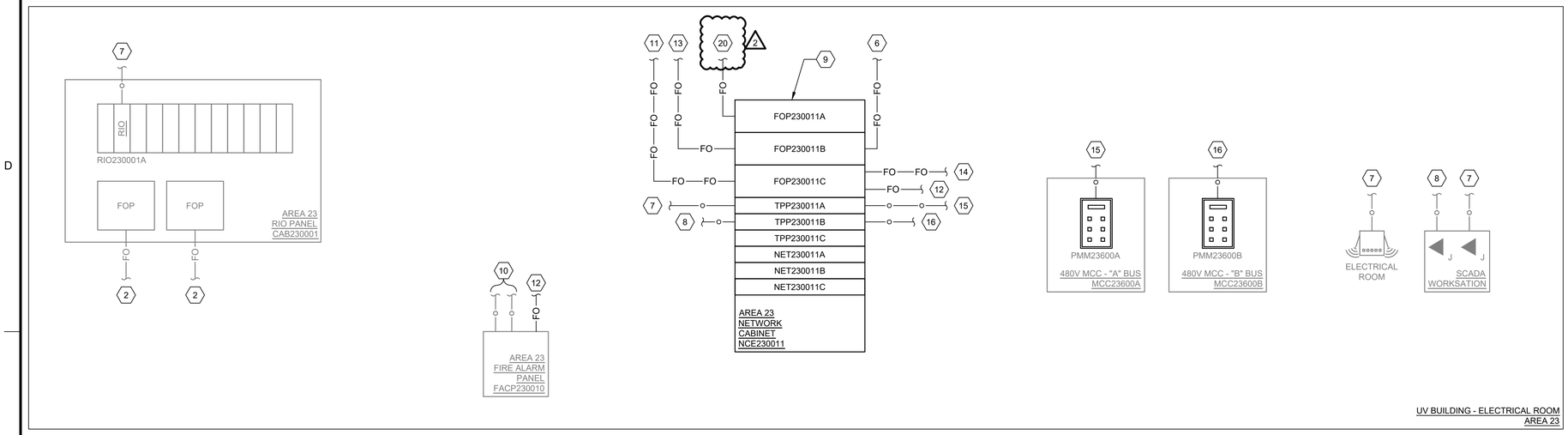

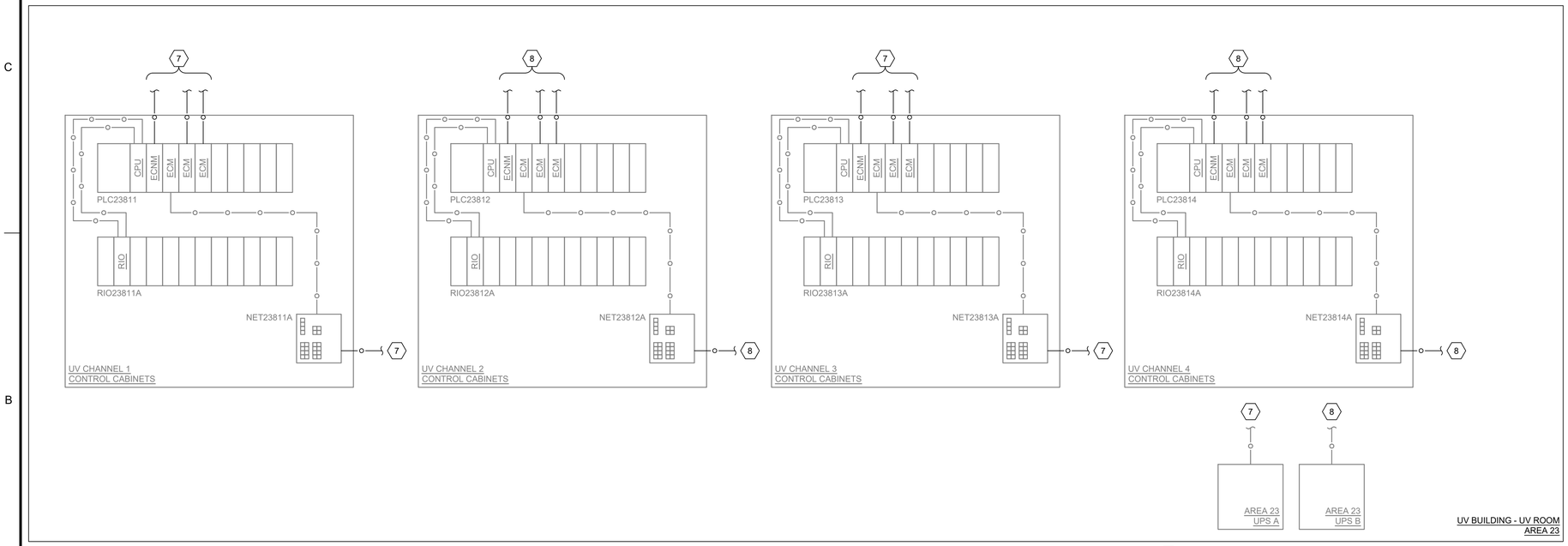

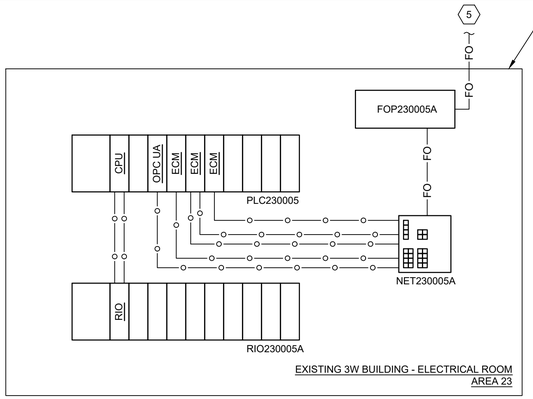

GENERAL NOTES:

1. CONTRATOR SHALL PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. JACKET COLOR SHALL BE BLUE.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 23 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

8. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 NOT USED.

2 EXISTING 24-FIBER, MULTI-MODE CABLE TO EXISTING NETWORK CABINET IN EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

KEYNOTES (CC5F):

5 12-FIBER, MULTI-MODE CABLE TO NCE020011 (FOP020011D) IN 3W BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

6 24-FIBER, SINGLE-MODE CABLE TO NETWORK CABINET IN UTILITY WATER FILTRATION BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

7 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011A IN AREA NETWORK CABINET.

8 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011B IN AREA NETWORK CABINET.

9 INSTALL AS PART OF 3W IMPROVEMENT CONSTRUCTION PROJECT CC 05F.

10 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

11 12-FIBER, SINGLE-MODE CABLE TO NCE020011 IN 3W BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101.

12 6-FIBER SINGLE-MODE CABLE ROUTED FROM FOP230011C TO FIRE ALARM CONTROL PANEL FACP230010. OWNER TO PROVIDE NEW FIRE ALARM CONTROL PANEL COMMUNICATIONS ADAPTOR. COORDINATE FINAL MULTI-MODE CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

KEYNOTES (CC30A):

13 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION.

14 12-FIBER, SINGLE-MODE CABLE TO EXISTING NETWORK CABINET IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

15 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011A IN AREA NETWORK CABINET.

16 COMMUNICATIONS CABLE FROM EQUIPMENT NETWORK INTERFACE TO STP PATCH PANEL TPP230011B IN AREA NETWORK CABINET.

17 NOT USED.

18 NOT USED.

KEYNOTES (CC30B):

20 48-FIBER, SINGLE-MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

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CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-23-6101.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 23 NETWORK DIAGRAM

DRAWING NUMBER
I-23-6101

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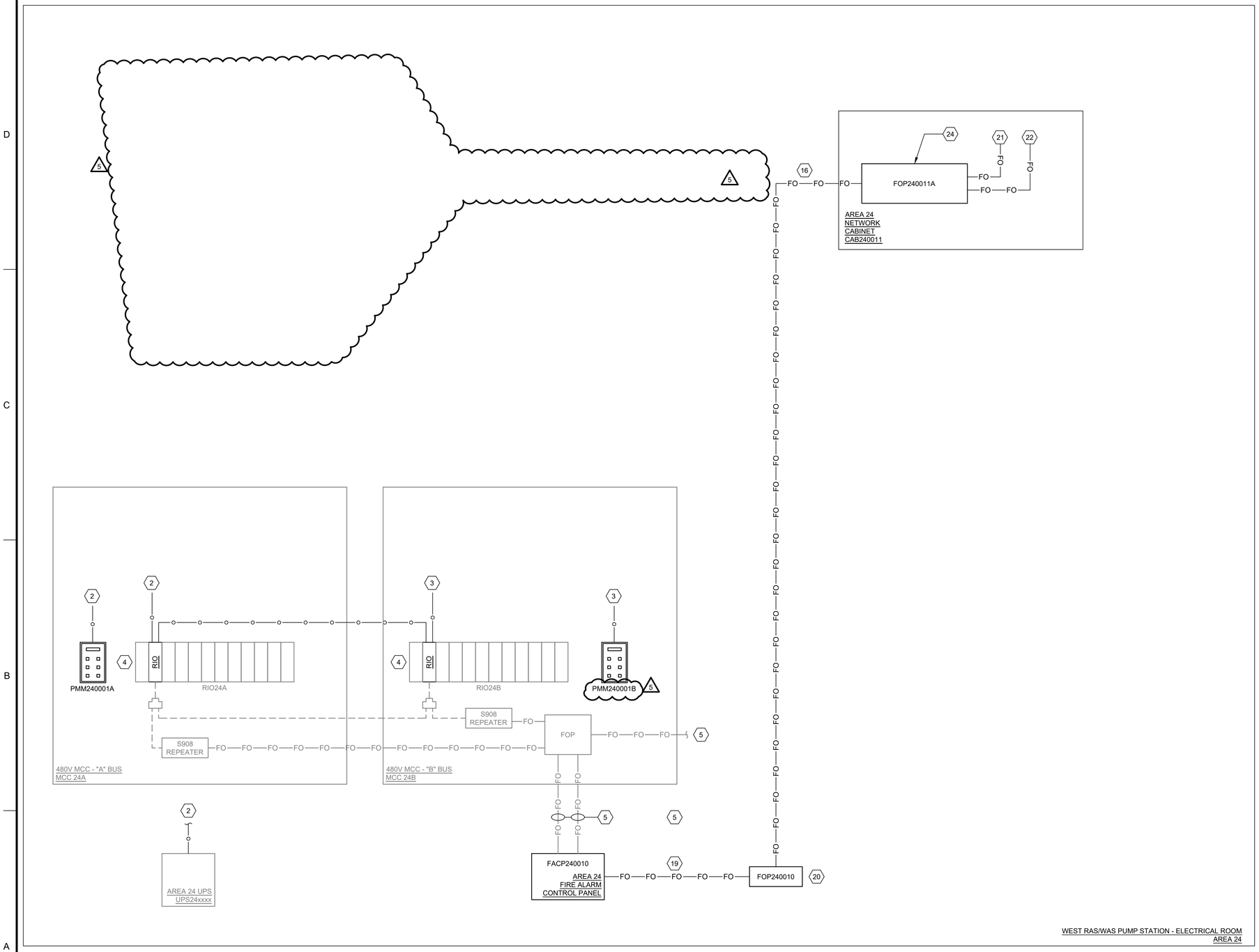

GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMARION.

3. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 3.1. UNSHIELDED CAT 6: PATCHING CONNECTIONS WITHIN PLC PANELS
   - 3.2. SHIELDED CAT 6: CABLES ENTERING OR LEAVING 480 VAC EQUIPMENT (ATS, MCC, SWITCHGEAR, ETC.).
   - 3.3. SHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 3.4. JACKET COLOR SHALL BE BLUE.

4. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. EXISTING EQUIPMENT AND COMMUNICATIONS CABLES ARE DEPICTED WITH LIGHTER WEIGHT LINE WORK. THIS DRAWING DOES NOT SHOW ALL EXISTING EQUIPMENT AND COMMUNICATIONS CABLES INCLUDED IN THE EXISTING AREA 24 ETHERNET NETWORKS. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT AND COMMUNICATIONS CABLES DEPICTED ON THIS DRAWING AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

7. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

KEYNOTES (CC30B):

1 NOT USED.

2 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP210011A IN NCE210011, EAST RAS/WAS PUMP STATION ELECTRICAL ROOM NETWORK CABINET.

3 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP210011B IN NCE210011, EAST RAS/WAS PUMP STATION ELECTRICAL ROOM NETWORK CABINET.

4 OWNER TO REPLACE EXISTING MODICON QUANTUM S908 RIO DROP ADAPTER WITH MODICON QUANTUM ETHERNET RIO DROP ADAPTER (140CRA31200C).

5 COORDINATE FINAL CABLE DEMOLITION WITH OWNER AFTER FIRE ALARM CONTROL PANEL COMMUNICATIONS HAVE BEEN CONFIRMED WITH NEW CABLING.

6 NOT USED.

7 NOT USED.

8 NOT USED.

KEYNOTES (CC30A):

10 NOT USED.

11 NOT USED.

12 NOT USED.

13 NOT USED.

14 NOT USED.

15 NOT USED.

16 6-FIBER, SINGLE MODE.

17 NOT USED.

18 NOT USED.

19 OWNER PROVIDED AND INSTALLED PATCH CABLES.

20 CONTRACTOR PROVIDED AND INSTALLED PATCH PANEL. FOP SHALL BE INSTALLED WITHIN 3 INCHES OF FACP.

KEYNOTES (CC5F):

20 NOT USED.

21 12-FIBER SINGLE-MODE TO NCE210011 IN EAST RAS/WAS PUMP STATION ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

22 24-FIBER SINGLE-MODE TO NCE210011 IN EAST RAS/WAS PUMP STATION ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

23 6-FIBER SINGLE MODE.

24 INSTALLED AS PART OF CONSTRUCTION PACKAGE CC5F.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

– — – – S908 (COAXIAL) CABLE

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NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	08/2021	CC30B: CCF 031
3	09/2021	CC5F: CCF 029
4	02/2022	CC30A: CCF 034
5	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: S. BRITTAIN
CHECKED:
APPROVED: J. COX

FILENAME
I-24-6101.DWG

BC PROJECT NUMBER
151600

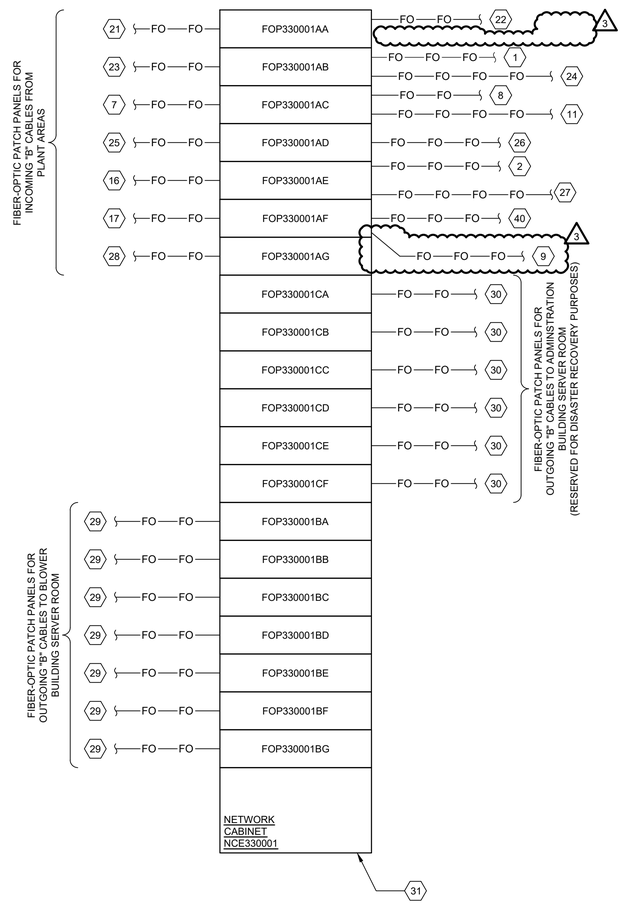
CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION

AREA 24 NETWORK DIAGRAM

DRAWING NUMBER
I-24-6101

Path: C:\BCPW\D2160651 FILENAME: I-24-6101.DWG PLOT DATE: 6/2/2022 8:03 AM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.
2. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
3. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.
4. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.
5. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 FUTURE 48-FIBER, SINGLE-MODE CABLE TO FOOD WASTE RECEIVING AREA (AREA 11). RESERVE MIDDLE TWO SLOTS.

2 OWNER TO MAKE FIBER-OPTIC PATCH CORD TERMINATIONS FROM EXISTING NETWORK CABINETS IN POWER GENERATION BUILDING CONTROL ROOM AS REQUIRED.

KEYNOTES (CC30B):

6 NOT USED.

7 48-FIBER, SINGLE-MODE CABLE TO PEPS ELECTRICAL BUILDING (AREA 16). SEE DRAWING I-16-6101 FOR CONTINUATION.

8 48-FIBER, SINGLE-MODE CABLE TO RAS/WAS AREA (AREA 22) ELECTRICAL ROOM. SEE DRAWING I-22-6101 FOR CONTINUATION.

9 96-FIBER, SINGLE-MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

KEYNOTES (CC30D):

11 48-FIBER, SINGLE-MODE CABLE TO SLUDGE HANDLING (AREA 26) ELECTRICAL ROOM. SEE DRAWING I-26-6101 FOR CONTINUATION.

KEYNOTES (CC30E):

16 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM NITROGEN AREA (AREA 31). RESERVE LEFT TWO SLOTS.

17 24-FIBER, SINGLE-MODE CABLE TO COMPOST BUILDING IN COMPOST AREA. SEE DRAWING I-50-6101 FOR CONTINUATION.

KEYNOTES (CC30A):

21 48-FIBER, SINGLE-MODE CABLE TO UTILITY WATER FILTRATION BUILDING (AREA 02) ELECTRICAL ROOM. SEE DRAWING I-02-6101 FOR CONTINUATION.

22 48-FIBER, SINGLE-MODE CABLE TO UV BUILDING (AREA 23) ELECTRICAL ROOM. SEE DRAWING I-23-6101 FOR CONTINUATION.

23 48-FIBER, SINGLE-MODE CABLE TO HEADWORKS BUILDING (AREA 10). SEE DRAWING I-10-6101 FOR CONTINUATION.

24 48-FIBER, SINGLE-MODE CABLE TO MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE DRAWING I-13-6101 FOR CONTINUATION.

25 96-FIBER, SINGLE-MODE CABLE TO DEWATER BUILDING (AREA 29) ELECTRICAL ROOM. SEE DRAWING I-29-6101 FOR CONTINUATION.

26 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM PHOSPHORUS AREA (AREA 30). RESERVE RIGHT TWO SLOTS.

27 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

28 144-FIBER, SINGLE-MODE CABLE TO ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

29 144-FIBER, SINGLE-MODE CABLE TO FOP340001xx WITHIN NCR340001 IN BLOWER BUILDING (AREA 34) SERVER ROOM. SEE DRAWING I-34-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCE330001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP340001BA AND FOP330001BA.

30 144-FIBER, SINGLE-MODE CABLE TO FOP050001xx WITHIN NCR050001 IN ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCE330001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP330001CA AND FOP050001CA.

31 INSTALLED AS PART OF BLOWER BUILDING CONSTRUCTION PACKAGE CC 30A.

32 NOT USED.

KEYNOTES (CC5F):

40 TEMPORARY 24-FIBER, SINGLE MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CCF 020
2	09/2021	CC5F: CCF 029
3	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: C. WILSON
CHECKED:
APPROVED: J. COX

FILENAME
I-33-6101.DWG

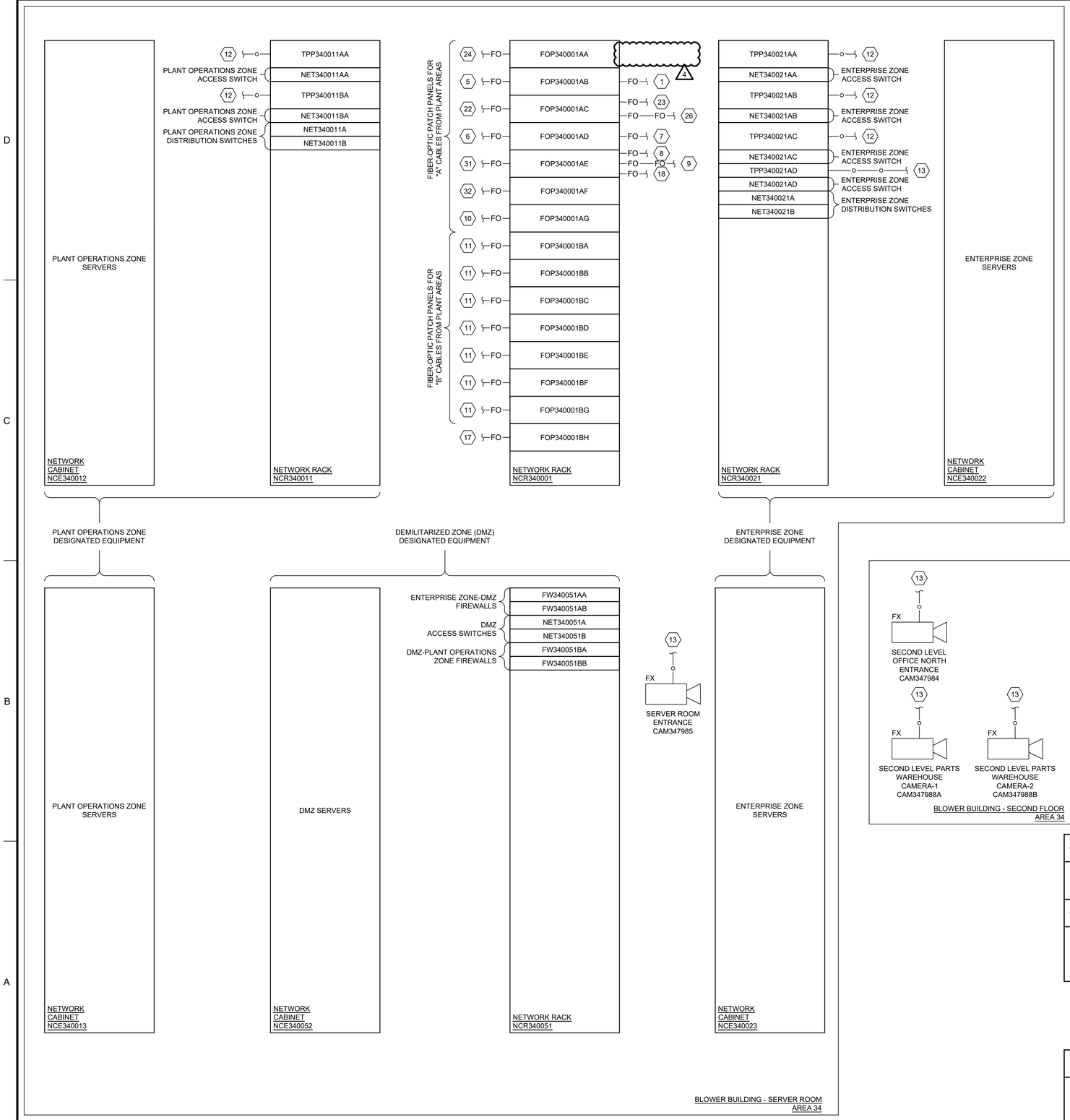
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 33 NETWORK DIAGRAM 1

DRAWING NUMBER
I-33-6101

Path: C:\BCPW\D2160651 FILENAME: I-33-6101.DWG PLOT DATE: 6/2/2022 8:04 AM CAD USER: SAM MCBRIDE



GENERAL NOTES:

1. PROVIDE, TERMINATE, AND TEST ALL NEW CATEGORY AND FIBER-OPTIC CABLES.

2. OWNER TO FURNISH, INSTALL, CONFIGURE, AND TEST ALL SERVERS, NETWORK SWITCHES, AND FIREWALLS SHOWN ON THIS DRAWING.

3. NETWORK CABINET AND ALL INTERIOR COMPONENTS ARE OWNER PROVIDED EQUIPMENT. OWNER TO PROVIDE AND CONFIGURE ALL TWISTED PAIR AND FIBER OPTIC JUMPERS BETWEEN TERMINATION PANELS AND NETWORK SWITCHES. SEE SECTION 27 11 00 FOR ADDITIONAL INFORMATION.

4. PROVIDE CATEGORY CABLE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 4.1. SHIELDED CAT 6A: OUTDOOR CAMERAS
   - 4.2. UNSHIELDED CAT 6A: ALL OTHER APPLICATIONS.
   - 4.3. JACKET COLOR FOR CABLES CONNECTING TO TPPS IN NCR340021 SHALL BE WHITE. JACKET COLOR SHALL BE BLUE FOR ALL OTHER CATEGORY CABLES.

5. ALL FIBER-OPTIC CABLES SHALL BE INSTALLED IN INNERDUCT WHEN OUTSIDE OF CONDUIT.

6. FOR CABLING REFER TO CABLE SCHEDULE AND ELECTRICAL PLAN DRAWINGS.

7. THIS DRAWING IS ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.

KEYNOTES (GENERAL):

1 FUTURE 48-FIBER, SINGLE-MODE CABLE TO FOOD WASTE RECEIVING AREA (AREA 11). RESERVE MIDDLE TWO SLOTS.

2 NOT USED. 4

KEYNOTES (CC30A):

5 48-FIBER, SINGLE-MODE CABLE TO HEADWORKS BUILDING (AREA 10). SEE DRAWING I-10-6101 FOR CONTINUATION.

6 96-FIBER, SINGLE-MODE CABLE TO EAST DIGESTERS BUILDING (AREA 28) ELECTRICAL ROOM. SEE DRAWING I-28-6101 FOR CONTINUATION.

7 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM PHOSPHORUS AREA (AREA 30). RESERVE RIGHT TWO SLOTS.

8 48-FIBER, SINGLE-MODE CABLE TO POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6102 FOR CONTINUATION.

9 48-FIBER, SINGLE-MODE CABLE TO BLOWER BUILDING (AREA 34) ELECTRICAL ROOM. SEE DRAWING I-34-6102 FOR CONTINUATION.

10 144-FIBER, SINGLE-MODE CABLE TO ADMINISTRATION BUILDING (AREA 05) SERVER ROOM. SEE DRAWING I-05-6101 FOR CONTINUATION.

11 144-FIBER, SINGLE-MODE CABLE TO FOP330001xx WITHIN NCE330001 IN POWER GENERATION BUILDING (AREA 33) CONTROL ROOM. SEE DRAWING I-33-6101 FOR CONTINUATION. THE "xx" IN THE FOP EQUIPMENT TAG CORRESPONDS TO THE SAME LETTER SUFFIX AS THE FOP EQUIPMENT TAG IN NCR340001 WHERE THE CABLE IS TERMINATED. FOR EXAMPLE, ONE 144-FIBER, SINGLE-MODE CABLE SHALL BE TERMINATED AT FOP330001BA AND FOP340001BA.

12 COMMUNICATIONS CABLES TO BLOWER BUILDING SECOND LEVEL DATA JACKS AND EQUIPMENT NETWORK INTERFACES. SEE DRAWING I-34-6104 FOR CONTINUATION.

13 COMMUNICATIONS CABLES TO SECOND FLOOR CAMERAS FROM TPP340021D.

14 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101A IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

15 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101B IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

16 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO TPP340101C IN ELECTRICAL ROOM NETWORK CABINET NCE340101. SEE DRAWING I-34-6102 FOR CONTINUATION.

17 48-FIBER, SINGLE MODE CABLE TO MAINTENANCE BUILDING (AREA 13) ELECTRICAL ROOM. SEE I-13-6101 FOR CONTINUATION.

18 ROUTE 12-FIBER, MULTI-MODE CABLE TO NCE340102 IN ARC FLASH ROOM. SEE DRAWING I-34-6111.

19 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347901. SEE DRAWING I-34-6102.

20 ROUTE FROM EQUIPMENT NETWORK INTERFACE TO ACCESS CONTROL PANEL CAB347902. SEE DRAWING I-34-6102.

21 NOTUSED.

21A NOT USED.

KEYNOTES (CC30B):

22 48-FIBER, SINGLE-MODE CABLE TO PEPS ELECTRICAL BUILDING (AREA 16). SEE DRAWING I-16-6101 FOR CONTINUATION.

23 48-FIBER, SINGLE-MODE CABLE TO RAS/WAS AREA (AREA 22) ELECTRICAL ROOM. SEE DRAWING I-22-6101 FOR CONTINUATION.

24 144-FIBER, SINGLE-MODE CABLE TO EAST RAS/WAS PUMP STATION (AREA 21) ELECTRICAL ROOM. SEE DRAWING I-21-6101 FOR CONTINUATION.

24A NOT USED. 4

KEYNOTES (CC30D):

26 48-FIBER, SINGLE-MODE CABLE TO SLUDGE HANDLING (AREA 26) ELECTRICAL ROOM. SEE DRAWING I-26-6101 FOR CONTINUATION.

KEYNOTES (CC30E):

31 48-FIBER, SINGLE-MODE CABLE TO SIDESTREAM NITROGEN AREA (AREA 31). RESERVE LEFT TWO SLOTS.

32 24-FIBER, SINGLE-MODE CABLE TO COMPOST BUILDING IN (AREA 50). SEE DRAWING I-50-6101 FOR CONTINUATION.

LEGEND:

—o— CATEGORY CABLE. SEE SECTION 26 05 19.

—FO— FIBER-OPTIC CABLE, TYPE AND QUANTITY AS SPECIFIED IN NOTES

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	02/2021	CC30A: CCF 020
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3	03/2022	CC30E: CCF 020
4	06/2022	CC30B: CCF 041

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: K. WESTERBERG
CHECKED: C. WILSON
CHECKED:
APPROVED: J. COX

FILENAME
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BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
AREA 34 NETWORK DIAGRAM - 1

DRAWING NUMBER
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SECTION 26 24 19

MOTOR-CONTROL CENTERS

(CCF 041)

PART 1 GENERAL

1.01 SUMMARY

A. Scope:

1. This section specifies freestanding, factory assembled 600 (480) volt Motor Control Centers (MCC).
2. Requirements apply to new freestanding sections and modifications to existing sections.
3. Work for this project includes providing new replacement buckets including all wiring and equipment into existing MCCs to power and control equipment furnished on this project as shown on the drawings.
4. Work includes configuration of MCC mounted relays and low voltage Variable Frequency Drives.
5. The Contractor shall obtain host IP address, subnet mask, and default gateway information for the Ethernet networked equipment located within the MCCs. Obtain via a request for information (RFI).

B. Equipment List

Equipment Number	Name
MCC109105A	MCC109105A HEADWORKS BUILDING 480V MCC A-SIDE
MCC109105B	MCC109105B HEADWORKS BUILDING 480V MCC B-SIDE
MCC169101A	MCC169101A ANAEROBIC AND AERATION 480V MCC A-SIDE
MCC169101B	MCC169101B ANAEROBIC AND AERATION 480V MCC B-SIDE
MCC169102A	MCC169102A ANAEROBIC AND AERATION 480V MCC A-SIDE
MCC169102B	MCC169102B ANAEROBIC AND AERATION 480V MCC B-SIDE

Equipment Number	Name
MCC229101A	MCC229101A RAS/WAS BASIN AND AERATION BASIN 2 480V MCC A-SIDE
MCC229101B	MCC229101B RAS/WAS BASIN AND AERATION BASIN 2 480V MCC B-SIDE

1.02 QUALITY ASSURANCE

C. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/NEMA ICS 1	Industrial Control Systems: General Requirements
ANSI/NEMA ICS 18	Motor Control Centers
ANSI/IEEE C37.20.7	Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
CSA C22.2.022	Evaluation Methods for Arc Resistance Ratings of Enclosed Electrical Equipment
IBC	International Building Code
NFPA 79	Electrical Standards for Industrial Machinery
UL 845	Motor Control Centers

B. Codes and Standards:

1. MCCs and all components shall be Underwriters Laboratory listed to UL 845 and shall conform to NEMA ICS-1 and ICS-18 standards. UL Listed labels shall be applied to the vertical sections and the individual units (or “buckets”) installed within those sections. MCCs shall be tested and verified per IEEE guideline C37.20.7 and CSA standard 22.2 No. 0.22-11.

C. Factory Test:

1. All system components shall be factory-wired and tested as a system prior to shipment. Testing shall be designed to verify system operation and shall include as a minimum:
   a. Verification of drawings and bill of materials versus the constructed equipment.
   b. Verification of electrical ratings from the one lines and specifications versus the equipment.
   c. Energize the MCC and test the operation of each motor controller and associated hard wired connections and programmed logic.
   d. Verify voltage output of each control transformer and DC power supply within the MCC.
   e. Test of each network interface
   f. Verify logic functionality, as described herein, of programmed devices internal to the MCC.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (☐) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Elementary connection and interconnection diagrams as required in paragraph 2.07, in accordance with NFPA 79 and/or NEMA ICS 18 Part 1 standards.
5. List of starters and feeder tap compartments indicating the size and type of circuit protection.
6. Network diagrams, network bill of material data for network components and cabling.
~~6.~~7. Kirk Key Interlocking operation. (CCF 041)
~~7.~~8. DC Power supply load calculations.
~~8.~~9. Time current curves for all protection devices.

~~9.~~10. Interrupting, withstand, and continuous current rating of:

a. Bus bars
b. Feeder tap units
c. Starter units
d. Main incoming units

~~10.~~11. Nameplate schedule.

~~11.~~12. Dimensioned drawings showing conduit access locations.

~~12.~~13. Weights

~~13.~~14. Front view elevation with starter and component schedule.

~~14.~~15. Installation instructions.

~~15.~~16. Factory test plan

~~16.~~17. Factory test results

~~17.~~18. Field test plan

~~18.~~19. Field test results

~~19.~~20. Operation and maintenance information as specified in Section 01 78 23. Electronic program file, in native and PDF format, with comments for each motor starter overload. Draft configuration provided prior to equipment startup for review. Final configuration of software provided after equipment commissioning for inclusion in operation and maintenance manual.

~~20.~~21. Seismic design drawings, calculations, and data as specified in Section 01 73 24.

~~21.~~22. Final As-Builts. Maintain stick set of MCC, elementaries, interconnections, one-lines, network diagrams, and elevations and provide final red-lines upon project completion.

~~22.~~23. Host IP address, subnet mask, and default gateway allocation listing for each Ethernet connected device within the MCCs.

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

1.05 PROJECT OR SITE CONDITIONS

A. Environmental Requirements: The equipment shall be sized and de-rated in accordance with the manufacturer's guidelines for the project altitude, temperature, and other conditions specified in Section 01 11 80.

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. Manufacturers equipment to match existing installation base. MCCs shall be as manufactured by:

1. Eaton Cutler-Hammer Freedom Arc Resistant
2. Schneider Electric Arc Resistant
3. Allen-Bradley Centerline 2100 ArcShield
4. Siemens tiastar Arc Resistant
5. Approved Equal

2.02 SERVICE

A. MCCs shall be rated 480 volts, 60 Hertz, 3 phase, 3 wire, and short circuit withstand rating of 65,000A rms symmetrical unless specified otherwise on the drawings.

B. MCCs shall be rated for arc resistance with a minimum arc duration rating of 50ms@480V and 600V.

C. MCCs rated for arc resistance shall have a Type 2 accessibility rating as defined in CSA standard 22.2 No. 0.22-11 and IEEE guideline C37.20.7.

2.03 STRUCTURE AND CONSTRUCTION

A. Structure:

1. MCCs shall be made of No. 12 gage steel minimum and, unless otherwise shown, each section shall be 90 inches high by 20 inches wide by 21 inches deep. The individual unit compartments shall be a minimum of 12 inches high.
2. Each section shall have 72 inches for stacking starter units into the sections.
3. Constructed and arranged in a Main-Tie-Tie-Main configuration for dual feeds from process area switchgear, where identified on drawings. For Main-Tie-Tie-Main MCC configurations, the MCC Main and Tie circuit breakers will be key interlocked within the MCC. (CCF 041)

~~3.~~4. Enhanced door hinges and door latches designed to contain arc blast energy and prevent doors from opening during an arc flash event. Doors shall be gasketed.

~~4.~~5. A full height vertical wireway, 4-inch wide minimum, and not less than 35 square inches in cross section, shall be provided for each vertical MCC section. The wireway shall contain full height removable doors. Horizontal wireways shall be provided top and bottom, extending the length of MCCs. Wire ways shall be gasketed.

~~5.~~6. Bottom channel sills shall be mounted front and rear of the vertical sections extending the full length of the MCC lineup. A removable lifting angle shall be mounted on top and shall extend the width of the MCC lineup.

~~6.~~7. Containing isolation barriers between each structure to aid in the containment of arc blast energy and prevention of prorogation of the event to subsequent structures in the lineup.

~~7.~~8. A four-inch vertical section on the left and right end of each MCC lineup to increase the structural integrity of the MCC so that it can withstand arc blast energy.

~~8.~~9. Arc resistant shall not require an exhaust plenum, roof flaps, or similar venting device/assembly on top of the MCC to vent the arc blast energy and gases generated during an arc flash event.

B. Construction:

1. MCCs located indoors shall have NEMA 1 gasketed enclosures.
2. Starter units, size 5 and smaller, and feeder tap units 400 amperes and smaller shall be drawout plug-in construction with hardened, tin-plated copper alloy stabs, steel spring backups. The door shall have interference tabs which prevent door closure if unit is improperly installed.
3. Units shall be latched in the position to assure proper bus contact. The unit disconnect device shall be interlocked to prevent removal or reinsertion of a unit when the disconnect is in the "ON" or "TRIPPED" positions.
4. Circuit breaker disconnect operators shall be capable of accommodating three padlocks for locking in the "OPEN" position. Handle mechanism shall be a vertical motion device with four positions: ON, OFF, TRIPPED and RESET. Securely mounted to the front of the unit and mechanically connected to the breaker. Handle provides a positive indication of the breaker or switch position, even with the door open.
5. Hardware for mounting future starter and feeder tap units shall be provided at compartments specified as "FUTURE."
6. Key Interlocks: Provide Kirk Key interlocks to provide interlocking between the main and tie breakers as noted on the drawings. Locks to be mounted on panel doors and wired to lock out breakers. (CCF 041)
   a. Provide key interlocks for the dual tie circuit breakers and the incoming main breakers that will be configured to allow only the following circuit breaker closure configurations:
      1) Only three of the four circuit breakers allowed closed at any given time.

2.04 FINISH AND COLOR

A. The finish and color shall be in accordance with Section 26 05 00.

2.05 BUS

A. General:
   1. Bus shall be tin-plated copper with bolted connections between vertical and horizontal bus bars. Access for tightening these connections shall be from the front, without the need for tools on the rear of the connection. Insulated horizontal and vertical bus barriers shall be provided. Barriers shall be fabricated from high-strength, glass-filled polyester resin.
   2. The bus shall be braced to withstand a fault current of 65,000 amperes, RMS, symmetrical.
   3. Vertical and horizontal bus shall be completely insulated.

D. Horizontal Bus:
   1. Unless otherwise specified or shown, the main horizontal bus shall be rated a minimum 600 amperes continuous.
   2. Extend existing main horizontal bus to provide new MCC sections. New sections ratings shall meet or exceed existing and shall maintain existing listing.

E. Vertical Bus:
   1. Unless otherwise specified or shown, the vertical bus shall be rated a minimum 300 amperes continuous.

F. Ground Bus:
   1. A 1/4-inch by 2-inch ground bus shall be provided the full length of the MCC. Ground bus shall be located at the bottom of the MCC. 300A minimum. Provide a lug to terminate a bare 4/0 AWG copper ground conductors at each end of the ground bus.

2.06 WIRING

A. General:
   1. MCCs shall be provided with NEMA ICS 18 Class II, Type B wiring. All starter units shall have pull apart terminal blocks for control wiring. Terminal blocks shall be provided for power wiring for starters size 2 and smaller.
   2. MCCs shall be provided with all necessary interconnecting wiring and interlocking. When an MCC control section is specified on the drawings or schedules, wire directly to the relays or programmable controller's input/output modules as part of the interconnecting wiring.
   3. Provide elementary and connection diagrams for each starter unit; network diagrams indicating all cable connections and host IP address, subnet mask, and default gateway allocation; and an interconnection diagram for the entire MCC.

B. Power Wire:
   1. Power wire shall be copper 90 degrees C insulated, sized to suit load; minimum power wire size shall be No. 12 AWG copper stranded.

C. Control Wire:
   1. Control wire shall be No. 16 AWG stranded copper wire, rated 90 degrees C machine tool wiring (MTW) and UL listed for panel wiring. Internal wires shall be numbered, and the number shall be on the manufacturer wiring diagrams.

D. Terminations and Cable Connections:
   1. Terminals:
      a. Control terminals: Finger safe screw cage clamp for 16-12 awg bare copper wire. . Electrolytic copper, tin-plated, 600V and 30A.
   2. Cable Connectors:
      a. Cable connectors for use with stranded copper wire, sizes No. 8 AWG to 1000 kCmil shall be UL listed. Dished conical washers shall be used for each bolted connection. Connectors shall be reusable and shall be rated for use with copper conductors. Incoming line and outgoing feeder compartments shall be provided with crimp type lugs, 3M Company, Burndy Company, or equal.

E. Conductor Markers: Markers used for identification shall meet the requirements of Section 26 05 00.

2.07 MAIN AND FEEDER CIRCUIT PROTECTION

A. General:
   1. Main and feeder tap units shall consist of circuit breakers, as specified or shown on the drawings. Series ratings for overcurrent devices to meet specified short circuit withstand ratings is prohibited. Main and tie breakers shall be 100% rated, with frame size, solid state trip unit, rating plug, and the fully adjustable (dynamic) trip

functions. Trip settings shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay. Minimum short circuit capacity shall be 42,000 amps symmetrical.

2. Feeder breakers feeding downstream distribution equipment including panelboards, switchboards, and MCCs, and all breakers 250A and greater shall include a solid state trip unit, rating plug and the fully adjustable (dynamic) trip functions Feeder breaker shall fully coordinate with the main breaker. The fully adjustable (dynamic) trip functions shall include Long Time Pickup, Long Time delay, Short Time Pick-up, Short Time delay, Instantaneous, Ground Fault Pick-up, and Ground Fault delay.
3. Digitrip RMS 310+ or equal.

B. Circuit Breakers (Thermal Magnetic):

1. Thermal-magnetic circuit breakers shall be molded case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

C. Circuit Breakers (Magnetic Only):

1. Magnetic circuit breakers shall be molded-case equipped with toggle type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall be 65,000 amperes symmetrical.

2.08 MOTOR STARTER UNITS

A. General:

1. Motor starter units shall be combination type with contactor and thermal magnetic circuit breaker, or motor circuit protector, and solid-state overload unit as indicated on the drawings or specified in the MCC schedule. The starter units shall have a minimum combination UL listing of 65,000 amperes RMS symmetrical or as indicated or specified in the schedule.
2. For reversing motors, controls internal to the motor starter or overload, shall inhibit direction change while the motor is turning. When selecting to go from a Forward to Reverse motion, or the other direction, the motor shall be commanded to come to a complete stop prior to starting in the opposite direction.

B. Motor Circuit Protectors:

1. The molded case motor circuit protector (MCP) shall operate on the magnetic principle with a current sensing coil in each of the three poles to provide an instantaneous trip for short circuit protection. The trip setting shall be adjustable from 700 to 1300 percent of the motor full load amperes from the front of the MCP. The motor circuit protector shall be set at its lowest position at the factory.

C. Control Power Supply:

1. Each control power supply shall be rated 480 input and 24VDC output. The control power supply shall be sized for the load it feeds but shall not be less than the minimum ratings as follows:

NEMA starter size	Minimum power supply watt rating
1	120
2	120
3	240
4	240

2. Each control power supply shall be provided with a fuse on the output. A fuse shall be provided on each input conductor (three or two) and the fuses shall be rated to interrupt 200,000 amperes at 600 volts.
3. Fuse holder for secondary fuse shall be drawout indicating type and mounted on the door of the compartment. Fuse holders for primary fuses shall be fuse clips with full barriers between fuses.
4. Power supplies shall be Eaton PSG series or approved equal.

D. Control Power transformer (CPT):

1. Where a space heater is specified inside a motor, provide a CPT with a minimum size that is 125% of the heater load. Provide heater control in the starter unit to turn off the space heater when the motor controller is energizing the motor and turn on the heater when the motor controller is not energizing the motor.

E. Contactors:

1. Unless otherwise specified or shown, contactors shall be full voltage, 3-pole, 600 volt AC, NEMA Size-1 minimum. Contacts shall be double break, silver-cadmium oxide, and weld resistant. Contacts shall be isolated to prevent arcing. Coils and magnets shall be capable of being removed or replaced without special tools. IEC contactors are prohibited.
2. Reversing, multispeed, and reduced voltage starters shall have additional contactors, overload relays, and auxiliary relays as required, and shall have mechanically interlocked contactor coils to prevent simultaneous engagement.
3. Lighting contactors with interposing relay with 120V coil. Relay is controled by 120V circuit from the lighting control panel..

F. Auxiliary Contacts:

1. Contactors shall be equipped with auxiliary contacts, rated 10 amperes at 120 volts AC. Refer to drawings for actual quantities required. As a minimum, each contactor shall be equipped with two normally open and two normally closed electrically isolated auxiliary contacts with the used and auxiliary contacts wired out to terminal blocks.

G. Surge Suppressor:

1. A surge suppressor shall be provided for all coils in each starter unit. Suppressor shall be encapsulated in a small module suitable for mounting directly to the coil. Size 3 or larger starters shall include an interposing relay to electrically isolate the starter coil from the I/O module output.

2. A surge suppressor shall be at the terminal strip on conductors that control solenoid valves or other inductive loads.

H. Terminal Blocks:
1. Terminal blocks shall be screw cage type rated 600 volts; minimum rating 30 amperes for control wiring and 60 amperes power wiring. Starters Size 3 and larger shall terminate the power leads directly to the contactor.
2. Control terminals pull apart for 16 awg to 12 awg stranded conductors.
3. The minimum number of terminals shall be as specified on the drawings. Terminal blocks shall be provided with integral marking strips and shall be permanently marked with the internal conductor number as depicted on the manufacturer wiring diagrams. Internal wiring shall be connected on one side of the terminal block; outgoing conductors shall be connected to the other side.

I. Programmable Motor Overload Relay:
1. Motor starters shall include a programmable electronic overload relay with configurable internal logic. Logic will allow for field input faults, with configurable time delay and latching logic. Overload relays shall monitor all three phases individually for incoming voltage, motor current and frequency. Provide modules cables and power supplies and other appurtenances required to measure voltage and current, provide the programmable control, provide human interface, provide discrete inputs and outputs, and provide the network interfaces specified on the drawings and in the specifications.
2. Overload relay current range to be sized by Contractor to match the equipment. Settings to be adjusted in accordance with NEC, the full load amps of the equipment, and the manufacturer's instructions.
3. Overload relays shall support protective functions with adjustable settings. The functions can be enabled or disabled. The overload shall support the following protective functions at a minimum:
   a. Thermal Overload
   b. Overload time delay with a range of Class 5 to Class 40
   c. Instantaneous Overcurrent
   d. Undercurrent
   e. Jam
   f. Stall
   g. Phase current unbalance
   h. Phase loss
   i. High and low voltage
   j. Voltage imbalance
   k. Phase voltage reversal
   l. Voltage loss
   m. Ground fault
4. Programmable with 8,000 word minimum memory. USB connection on the operator interface for programming (with the door shut). Provide cables and software for modifying, uploading, and downloading programs from a laptop computer.

5. The overload and expansion modules shall have discrete inputs and outputs. The data from inputs shall be communicated through Modbus TCP Ethernet communications. Module outputs shall be controlled through internal logic with status monitored through the user interface and onboard communications. Additional inputs and outputs shall be available by adding modules. A minimum of 12 inputs and 12 outputs shall be provided at each motor starter.
   a. Inputs 24VDC
   b. Outputs dry contact rated 5A at 250VAC and 5A at 30 VDC. At least one output single pole double throw.
   c. Control programming shall, to the greatest extent possible, be the same programming for all motors. Programming shall include the following configuration:
   d. Local MCC control via user interface:
      1) Start / Stop (regardless of field HOA position)
   e. Remote hardwired Hand control via local control station near motor:
      1) HOA in Hand – (when motor is non-reversing) motor runs in forward motion continuously.
      2) HOA in Hand and F/R in Forward – (when motor is reversing) motor runs in forward motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      3) HOA in Hand and F/R in Reverse – (when motor is reversing) motor runs in reverse motion continuously.
         a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
      4) Off – motor does not run.
      5) HOA in Auto – Network control via Modbus TCP Ethernet communications. (PLC/SCADA control)
      6) All faults will be configured and available. Faults will be based upon digital inputs listed herein, and internally determined fault conditions. All faults based upon field inputs shall be active, as shown on Drawings.
      7) All status will be configured and available. Status will be based upon digital inputs listed herein, and points available through internal monitoring.
   f. Program the inputs and outputs as specified herein and shown on the drawings.
   g. The following field inputs shall be configured as faults within the internal logic, with no need for additional relay or external timing devices:
      1) Motor temperature high (no delay on)
      2) Motor moisture high (no delay on)
      3) Seal water flow switch low (timed delay on @ 5 secs initial value) to allow flow prior to motor start)
      4) Discharge pressure high (timed delay on @ 1.0 secs initial value)
      5) Suction pressure low (timed delay on @ 1.5 secs initial value)
      6) E-stop (no delay on)
      7) Pump stator temperature high (no delay on)
   h. The following status inputs shall be provided, as a minimum:

1) HOA hand / run forward status
2) HOA hand / run reverse status (reversing motor)
3) HOA auto status
4) Ready status (Control power monitoring)
5) Remote call to run (external control)

i. The following relay type outputs shall be provided, as a minimum:
1) Forward starter coil
2) Reverse starter coil (for reversing motors)
3) Seal water solenoid valve with a reverse-current protection diode (for seal water required applications – see Drawings)
4) Run status pilot light (at motor local control station)
5) Fault status pilot light (at motor local control station)

6. Door mounted user interface with the following features incorporated:
a. USB or RJ-45 port for programming
b. Start, Stop, and Auto buttons.
c. Reset button
d. Navigation buttons
e. Status lights.
f. Three rows of text.
g. Display of voltage phase to ground and phase to phase, current for each phase, power, power factor, and other system data
h. Display of fault notification and diagnostic information
7. Overload Relay shall support native Modbus TCP (Ethernet) communications for remote monitoring and control. I/O communications local to the bucket shall be Modbus, Modbus 485, or Modbus TCP.
8. Automatic, network, electronic, and manual reset functions shall be supported.
9. The overload shall provide the following diagnostic and operational information via Ethernet at a minimum:
a. Error and trip information
b. Ground fault, L1, L2, L3 and three-phase average currents
c. L1-L2, L2-L3, L1-L3 and three-phase average voltages
d. Voltage and current unbalance
e. Power factor
f. Power
g. Fault history (last four faults)
h. Run timer value
10. Manufacturer:
a. Eaton C445
b. Schneider Electric TeSys T
c. Or approved equal.

J. Ethernet: ~~All motor control centers shall be factory wired and configured with Ethernet communications.~~ The Ethernet communications network shall include overload relays,

power meters, and network switches. See the drawings ~~and schedules~~ for more information about number of connections and configuration. (CCF 020)

2.09 ETHERNET COMMUNICATIONS CABLING SYSTEM

A. Cabling System:

1. Contractor to provide, install, and terminate Ethernet communications cabling between network capable devices, individual motor control center buckets to the internally mounted network switches. Where existing MCCs are modified by the project, the Contractor shall provide, install, and terminate new network cable routed from the existing or new MCC buckets to the new internally mounted network switches. (CCF 020)

~~1. The MCC shall include a pre-engineered communication cabling system to connect motor overload units and VFDs within the MCC.~~ (CCF 020)

2. Appropriate terminators and grounding shall be provided. Cable terminators to include integral ground for shielding.
3. Ethernet cable shall be shielded CAT6 UL 600V rated with a yellow outer insulation jacket color.
4. Ethernet cable through the MCC section shall be routed in so that they are protected from mechanical damage. Cable management shall be provided in vertical wireways to group network cables and maximize distance from power cabling.
5. Ethernet switches within the MCC shall be wired in a Resilient Ethernet Protocol ring topology, with the switches supporting a star configuration to the MCC bucket devices. ~~Manufacturer~~ Contractor to provide cabling between shipping splits. Contractor to provide and route cabling from the two outermost switches to the PLC panel completing the ring, as shown on the Drawings. (CCF 020)

B. Ethernet Equipment:

1. Provide one managed Ethernet switch for every shipping split. There shall be a maximum of three vertical sections per shipping split.
2. The switches shall be powered with 24VDC powered by 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules .
3. Locate Ethernet switch and power supply within a dedicated MCC bucket, located at the top most space within the vertical section.
4. Provide spare ports sufficient to support spare MCC buckets within shipping split for future equipment per switch. Provide 1 spare port for programming access, per switch.
5. Alarm contact output rated at minimum 30VDC, 1A.
6. Manufacturer, Model: Cisco IE-4000-16GT4G-E (Client Provided)~~Catalyst IE 2000 series~~, to match existing. No substitutions. (CCF 041)

2.10 ADJUSTABLE FREQUENCY DRIVES

A. Where used in the Contract AFD, ASD, VFD, VSD, shall be interchangeable terms to refer to adjustable frequency drives. AFDs mounted in MCCs shall comply with 26 29 23 and the following requirements.

1. AFDs shall be coordinated with the driven equipment. Where required by distance or motor provided supply load reactors or motor termination kits.

2. Provide variable or constant torque PWM type drives for motors as indicated on the Drawings. Include circuit breaker disconnecting means, 3-percent line reactors and cooling fans as required to dissipate the heat into the room.
3. Provide ratings as indicated.
4. Provide microprocessor Operator Interface Station (OIS)/Human Interface Module (HIM) mounted on the MCC bucket door, with associated communications cable.
5. EMI/RFI shielding as required for products and wiring.
6. Provide current limiting fuses for short circuit protection as required to meet SCCR listing of MCC.
7. Provide factory technician for setup, startup services, and training.
8. Provide Form C relays with 5-ampere contacts for interlocks as shown on drawings.
9. Provide programmable relay outputs for status, and alarms, as shown on drawings.
10. Provide isolated 4-20madc analog input for speed control.
11. Provide isolated 4-20madc analog output for speed indication.
12. Provide network communications, using facility standard communications protocol - Modbus TCP.
13. Provide additional optional I/O modules, as shown on drawings.
14. Configure drive to provide control with input from the following locations:
    a. MCC Bucket -
        1) Local mode – Manual start/stop and speed control at MCC through AFD HIM.
    b. Field Mounted Local Control Station
        1) AFD HIM in Remote mode
        2) Hand mode (Remote 1)
            a) Hand-Off-Auto (HOA) in the Hand position
            b) Manual start/stop and speed control – wired input
    c. SCADA -
        1) AFD HIM in Remote mode
        2) Auto mode (Remote 2)
        3) HOA in Auto position
        4) PLC based automatic control – network input
15. Configure field inputs in accordance with 26 29 23.

2.11 MISCELLANEOUS

A. General:
1. Control devices such as pushbuttons, selector switches, indicating lights and overload reset pushbuttons shall be incorporated within the overload or variable frequency drive digital user interface, or HIM module, mounted on the unit compartment door.
2. The control devices shall comply with the requirements of Section 26 09 16.

G. Elapsed Time Indicator:
1. The elapsed time indicator shall be incorporated within the overload or variable frequency drive digital user interface or HIM module, mounted on the unit compartment door.

2.12 NAMEPLATES

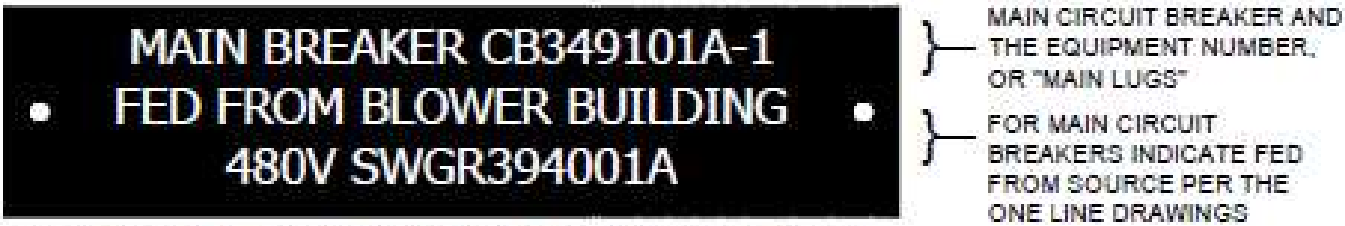
A. Nameplates: In addition to the manufacturer's identification, nameplates shall be provided showing the motor control center, main breaker, and feeder breaker and other component designations as indicated on the Drawings.

B. Nameplates shall be back engraved type and shall comply with Section 26 05 00 as modified in this Section.

C. Master nameplates shall be minimum 6 by 10 inches, four lines, 19 characters per line, 9/16-inch lettering.

D. Unit nameplates shall include the circuit breaker equipment number and the name of the equipment fed per the one line drawings. Main breakers shall include the breaker equipment number and the power source information shown on the one line Drawings. Other components in the motor control center indicated on the one lines shall have nameplates with the equipment numbers as a minimum and the full equipment name if shown. Nameplates shall be engraved per the typical examples shown below. See Section 26 05 00 for additional nameplate requirements.

TYPICAL FOR MASTER NAMEPLATE



TYPICAL NAME PLATE FOR MAIN CIRCUIT BREAKERS OR MAIN LUGS

TYPICAL NAME PLATE FOR FEEDER BREAKERS

2.13 SURGE PROTECTIVE DEVICE

A. General: Modular parallel surge protective device (SPD) shall have use metal oxide varistors. A surge suppression path shall be provided for each mode, line to neutral, line to ground, and neutral to ground. Each surge suppression mode shall be individually fused and use circuitry with thermal cutouts to isolate the SPD and ensure shutdown in the event of the MOV damage during sustained overvoltages.

B. Features: SPD shall include the following:
   1. High-energy parallel design for IEEE C62.41 and C62.45 category C
   2. Duty cycle tested (ANSI C 62.41 C3, 10 kA 20 kV) minimum 5000 impulses
   3. EMI/RFI filtering up to -50 dB (100 kHz to 100 MHz)
   4. Form C dry contacts
   5. UL 1449
   6. 5-year warranty

C. Surge Capacity: 160 kA minimum surge capacity per phase.

D. Unit Mounting: SPD shall be mounted in a MCC unit. The unit shall include:
   1. Circuit breaker. Overcurrent device shall be selected and sized by the SPD manufacturer. The overcurrent device may be a circuit breaker or a fuse, per the manufacturer's standard.
   2. Disconnect
   3. Display on the door.

E. Door mounted display with the following
   1. LCD screen with surge count
   2. Surge count reset button.
   3. LED for each phase indicating protection is functional
   4. LED for each phase indicating replacement is required
   5. Alarm with silence button

F. Eaton SPD Series or approved equal.

2.14 POWER METER.

A. Provide a power meter in accordance with Section 26 09 13 where specified or shown on the drawings.

B. Power meter shall be powered with 120 VAC power from the UPS panelboard as specified in the panel schedules and cable schedules.

2.15 SPARE PARTS

A. One set consisting of the following spare parts shall be provided:

1. 1--set each fuse size and type
2. 10--indicating light bulbs

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.
   2. Install MCC level and plumb. Pad height 3-1/2 inch. Installation per the manufacturer's installation instruction.

3.02 GENERAL

A. The MCCs shall be erected in accordance with the recommendations of the manufacturer and with the details specified herein.

B. Cables larger than No. 6 AWG which hang from their vertical connections shall be supported within 2 feet of the connection.

C. The solid-state overload relay settings shall be implemented by the Contractor with the settings selected based on the actual full load amperes of the motor connected to the starter and the requirements of the motor driven equipment. Refer to the manufacturer's literature for setting the overload relays.

D. The motor circuit protectors shall be adjusted by the Contractor to the lowest setting not causing false tripping.

E. The Contractor shall adjust the protection settings per the short circuit, coordination, and arc flash report. after obtaining approval by the Construction Manager.

F. Ethernet host IP addresses, subnet mask, and default gateway for each starter overload and starter input/output module shall be set by the Contractor. The Ethernet overload is commissioned with software configuration tools. Contractor to coordinate with Owner final IP address, subnet mask, and default gateway allocation.

G. Motor starter configurations shall be consistent and applicable to each motor schematic type. (CCF 041)
   1. Motor starters shall be configured by the contractor and coordinated with the owner.

3.03 REPAIR/RESTORATION

A. Use existing below MCC penetrations to access cable tray for routing to process equipment as shown on the drawings. Re-seal penetrations with listed raceway seal and clean MCC interior.

3.04 TRAINING

A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.

1. Training Sessions:
   a. Procedures: Section 01 79 00.
   b. Provide a minimum of 12 hours of classroom training on the motor control center installations. Conduct two 2-hour training sessions for operators and one 8-hour training session for electricians. Assume that this training will be done on consecutive weeks to accommodate the shift schedules of operation and maintenance staff. Record completion of training on the form in in Section 01 99 90.

3.05 FIELD TESTS

A. MCCs shall be tested in accordance with Section 26 08 00 and 01 45 23.

END OF SECTION

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SECTION 26 29 13 ~~24 19~~

INDIVIDUAL MOTOR STARTERS (ADDENDUM NO. 3)

(CCF 041)

PART 1 GENERAL

1.01 SUMMARY

A. This Section specifies motor starters installed in enclosures other than motor control centers.

1.02 QUALITY ASSURANCE

A. References:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ANSI/NEMA ICS 1	Industrial Control Systems: General Requirements
NEMA ICS 1	General Standards For Industrial Control and Systems

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00 and 26 05 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the

specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. A copy of the drawings (one line diagrams, wiring diagrams, and network diagrams) with a check mark to indicate compliance with the drawing a whole. If deviations from the drawing are indicated, and therefore requested by the Contractor, each deviation shall be circled and denoted by a number, referenced to a detailed written explanation of the reasons for requesting the deviation.
3. Catalog cuts of equipment, devices, and materials in Part 2 Products.
4. Elementary connection and interconnection diagrams as required in paragraph 2.07, in accordance with NFPA 79 and/or NEMA ICS 18 Part 1 standards.
5. Time current curves for all protection devices.
6. Interrupting, withstand, and continuous current rating of Starter units.
7. Nameplate text.
8. Front view elevation of the starter and component schedule.
9. Installation instructions.
10. Field test plan
11. Field test results
12. Operation and maintenance information as specified in Section 01 78 23. Electronic program file, in native and PDF format, with comments for each motor starter overload. Draft configuration provided prior to equipment startup for review. Final configuration of software provided after equipment commissioning for inclusion in operation and maintenance manual.
13. Seismic design drawings, calculations, and data as specified in Section 01 73 24.
14. Final As-Builts wiring diagrams.
15. Host IP address, subnet mask for each Ethernet connected device.

1.04 SEISMIC ANCHORAGE AND STRUCTURAL DATA:

A. Mechanical, instrumentation and control, electrical, nonstructural systems, components, and elements permanently attached to the structure shall be anchored and braced to resist seismic forces. Contractor shall design the structural components, seismic attachment, braces, and anchors to the structure for all parts or elements of the mechanical and electrical systems in accordance with Section 01 73 24.

1.05 PROJECT OR SITE CONDITIONS

A. Environmental Requirements: The equipment shall be sized and de-rated in accordance with the manufacturer's guidelines for the project altitude, temperature, and other conditions specified in Section 01 11 80.

2.01 MANUFACTURERS

A. The Owner and Construction Manager believe the following candidate manufacturers are capable of producing equipment and/or products that will satisfy the requirements of this Section. Manufacturers equipment to match existing installation base. Motor starters shall be as manufactured by:

1. Eaton Cutler-Hammer ~~Freedom~~
2. Schneider Electric
3. Siemens
~~2.~~
~~3.~~4. Approved Equal

2.02 SERVICE

A. Rated 480 volts, 60 Hertz, 3 phase, 3 wire, and short circuit withstand rating of 65,000A rms symmetrical unless specified otherwise on the drawings.

2.03 ENCLOSURE

A. The door to the motor starter enclosure shall be interlocked with an externally operated disconnect handle. Disconnect handle shall be arranged to indicate disconnect position. The disconnect operator (handle) shall have provisions to accept up to three 3/8 inch shackle padlocks to lock the disconnect in the open position. Enclosure NEMA 250 rating shall be as specified in Section 26 05 00.

B. Color: ANSI 61

2.04 GROUNDING

A. Ground lugs

2.01 WIRING

A. Conductors shall be 90-degree C copper. Conductors shall be identified with tag numbers.

2.02 TERMINAL BLOCKS:

1. Terminal blocks shall be provided for external conductor connections. 20% spare terminals shall be provided unless specified otherwise on the drawing.
2. Internal wiring shall be connnected on one side of the terminal blocks and outgoing conductors shall be connected to the other side.
3. Terminal blocks per 26 05 00.
4. For starter sizes NEMA 3 and higher conductors may land directly on the starter without a terminal block.

2.03 MOTOR STARTER

A. Motor starter shall be combination type with contactor and thermal magnetic circuit breaker, or motor circuit protector, and solid-state overload unit as indicated on the drawings. The starter units shall have a minimum combination UL listing of 65,000 amperes RMS symmetrical or as indicated or specified in the schedule.

B. For reversing motors, controls internal to the motor starter or overload, shall inhibit direction change while the motor is turning. When selecting to go from a Forward to

Reverse motion, or the other direction, the motor shall be commanded to come to a complete stop prior to starting in the opposite direction.

C. Control Power Supply:

1. Each control power supply shall be rated 480 input and 24VDC output. The control power supply shall be sized for the load it feeds but shall not be less than the minimum ratings as follows:

NEMA starter size	Minimum power supply watt rating
1	120
2	120
3	240
4	240

2. Each control power supply shall be provided with a fuse on the output. A fuse shall be provided on each input conductor (three or two) and the fuses shall be rated to interrupt 200,000 amperes at 600 volts.
3. Fuse holder for secondary fuse shall be drawout indicating type and mounted on the door of the compartment. Fuse holders for primary fuses shall be fuse clips with full barriers between fuses.
4. Power supplies shall be Eaton PSG series or approved equal.

D. Contactors:

1. Unless otherwise specified or shown, contactors shall be full voltage, 3-pole, 600 volt AC, NEMA Size-1 minimum. Contacts shall be double break, silver-cadmium oxide, and weld resistant. Contacts shall be isolated to prevent arcing. Coils and magnets shall be capable of being removed or replaced without special tools. IEC contactors are prohibited.
2. Reversing, multispeed, and reduced voltage starters shall have additional contactors, overload relays, and auxiliary relays as required, and shall have mechanically interlocked contactor coils to prevent simultaneous engagement.

E. Auxiliary Contacts:

1. Contactors shall be equipped with auxiliary contacts, rated 10 amperes at 120 volts AC. Refer to drawings for actual quantities required. As a minimum, each contactor shall be equipped with two normally open and two normally closed electrically isolated auxiliary contacts with the used and auxiliary contacts wired out to terminal blocks.

F. Surge Suppressor:

1. A surge suppressor shall be provided for all coils in each starter unit. Suppressor shall be encapsulated in a small module suitable for mounting directly to the coil. Size 3 or larger starters shall include an interposing relay to electrically isolate the starter coil from the I/O module output.
2. A surge suppressor shall be at the terminal strip on conductors that control solenoid valves or other inductive loads.

G. Programmable Motor Overload Relay:

1. Motor starters shall include a programmable electronic overload relay with configurable internal logic. Logic will allow for field input faults, with configurable time delay and latching logic. Overload relays shall monitor all three phases individually for incoming voltage, motor current and frequency. Provide modules, cables, power supplies, and other appurtenances required to measure voltage and current, provide the programmable control, provide human interface, provide discrete inputs and outputs, and provide the network interfaces specified on the drawings and in the specifications.
2. Overload relay current range to be sized by Contractor to match the equipment. Settings to be adjusted in accordance with NEC, the full load amps of the equipment, and the manufacturer's instructions.
3. Overload relays shall support protective functions with adjustable settings. The functions can be enabled or disabled. The overload shall support the following protective functions at a minimum:
   a. Thermal Overload
   b. Overload time delay with a range of Class 5 to Class 40
   c. Instantaneous Overcurrent
   d. Undercurrent
   e. Jam
   f. Stall
   g. Phase current unbalance
   h. Phase loss
   i. High and low voltage
   j. Voltage imbalance
   k. Phase voltage reversal
   l. Voltage loss
   m. Ground fault
4. Programmable with 8,000 word minimum memory. USB connection on the operator interface for programming (with the door shut). Provide cables and software for modifying, uploading, and downloading programs from a laptop computer.
5. The overload and expansion modules shall have discrete inputs and outputs. The data from inputs shall be communicated through Modbus TCP Ethernet communications. Module outputs shall be controlled through internal logic with status monitored through the user interface and onboard communications. Additional inputs and outputs shall be available by adding modules. A minimum of 12 inputs and 12 outputs shall be provided at each motor starter.
   a. Inputs 24VDC
   b. Outputs dry contact rated 5A at 250VAC and 5A at 30 VDC. At least one output single pole double throw.
   c. Control programming shall, to the greatest extent possible, be the same programming for all motors. Programming shall include the following configuration:
   d. Local control via user interface:
      1) Start / Stop (regardless of field HOA position)
   e. Remote hardwired Hand control via local control station near motor:

1) HOA in Hand – (when motor is non-reversing) motor runs in forward motion continuously.
2) HOA in Hand and F/R in Forward – (when motor is reversing) motor runs in forward motion continuously.
   a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
3) HOA in Hand and F/R in Reverse – (when motor is reversing) motor runs in reverse motion continuously.
   a) Motor shall be commanded to full stop prior to reversing direction if F/R selector switch is changed, while Hand status is active.
4) Off – motor does not run.
5) HOA in Auto – Network control via Modbus TCP Ethernet communications. (PLC/SCADA control)
6) All faults will be configured and available. Faults will be based upon digital inputs listed herein, and internally determined fault conditions. All faults based upon field inputs shall be active, as shown on Drawings.
7) All status will be configured and available. Status will be based upon digital inputs listed herein, and points available through internal monitoring.

f. Program the inputs and outputs as specified herein and shown on the drawings. The following field inputs shall be configured as faults within the internal logic, with no need for additional relay or external timing devices:
   1) Motor temperature high (no delay on)
   2) Motor moisture high (no delay on)
   3) Seal water flow switch low (timed delay on @ 5 secs initial value) to allow flow prior to motor start)
   4) Discharge pressure high (timed delay on @ 1.0 secs initial value)
   5) Suction pressure low (timed delay on @ 1.5 secs initial value)
   6) E-stop (no delay on)
   7) Pump stator temperature high (no delay on)
g. The following status inputs shall be provided, as a minimum:
   1) HOA hand / run forward status
   2) HOA hand / run reverse status (reversing motor)
   3) HOA auto status
   4) Ready status (Control power monitoring)
   5) Remote call to run (external control)
h. The following relay type outputs shall be provided, as a minimum:
   1) Forward starter coil
   2) Reverse starter coil (for reversing motors)
   3) Seal water solenoid valve with a reverse-current protection diode (for seal water required applications – see Drawings)
   4) Run status pilot light (at motor local control station)
   5) Fault status pilot light (at motor local control station)

6. Door mounted user interface with the following features incorporated:
   a. USB or RJ-45 port for programming

b. Start, Stop, and Auto buttons.
c. Reset button
d. Navigation buttons
e. Status lights.
f. Three rows of text.
g. Display of voltage phase to ground and phase to phase, current for each phase, power, power factor, and other system data
h. Display of fault notification and diagnostic information

7. Overload Relay shall support native Modbus TCP (Ethernet) communications for remote monitoring and control. I/O communications local to the bucket shall be Modbus, Modbus 485, or Modbus TCP.
8. Automatic, network, electronic, and manual reset functions shall be supported.
9. The overload shall provide the following diagnostic and operational information via Ethernet at a minimum:
   a. Error and trip information
   b. Ground fault, L1, L2, L3 and three-phase average currents
   c. L1-L2, L2-L3, L1-L3 and three-phase average voltages
   d. Voltage and current unbalance
   e. Power factor
   f. Power
   g. Fault history (last four faults)
   h. Run timer value
10. Manufacturer:
    a. Eaton C445
    b. Schneider Electric TeSys T
    c. Siemens SIMOCODE PRO 3UF
    ~~b.~~
    ~~c.~~d. Or approved equal.

2.04 MISCELLANEOUS

A. General:
   1. Control devices such as pushbuttons, selector switches, indicating lights and overload reset pushbuttons shall be incorporated within the overload user interface module, mounted on the unit compartment door.
   2. The control devices shall comply with the requirements of Section 26 09 16.

B. Elapsed Time Indicator:
   1. The elapsed time indicator shall be incorporated within the overload user interface mounted on the unit compartment door.

2.05 NAMEPLATES

A. Nameplates shall be back engraved type and shall comply with Section 26 05 00.

2.06 MANUAL STARTERS

A. Per see Section 26 09 16.

PART 3 EXECUTION

3.01 INSTALLATION

A. Equipment Mounting:
   1. SEISMIC ANCHORING AND BRACING: As specified in Section 01 73 24.

3.02 GENERAL

A. The solid-state overload relay settings shall be implemented by the Contractor with the settings selected based on the actual full load amperes of the motor connected to the starter and the requirements of the motor driven equipment. Refer to the manufacturer's literature for setting the overload relays.

B. The Contractor shall adjust the protection settings per the short circuit, coordination, and arc flash report. after obtaining approval by the Construction Manager.

C. Ethernet host IP addresses, subnet mask, and default gateway for each starter overload and starter input/output module shall be set by the Contractor. The Ethernet overload is commissioned with software configuration tools. Contractor to coordinate with Owner final IP address, subnet mask, and default gateway allocation.

D. Motor starter configurations shall be consistent and applicable to each motor schematic type.
   ~~0.~~1. Motor starter shall be configured by the contractor and coordinated with the owner. (CCF 041)

3.03 MOUNTING HEIGHT

A. Unless otherwise specified on the Drawings, mount local motor starters at 48 inches above the floor.

3.04 TRAINING

A. Provide a factory-trained representative at the site for the specified quantity and duration of the following activities. Specified durations do not include travel time to or from the project site.
   1. Training Sessions:
      a. Procedures: Section 01 79 00.
      b. Provide a minimum of 2 hours of classroom training. Record completion of training on the form in Section 01 99 90.

3.05 FIELD TESTS

A. Tested in accordance with Section 26 08 00 and 01 45 23.

END OF SECTION

SECTION 28 23 00

VIDEO MANAGEMENT SYSTEM

(CCF 041)

GENERAL

1.01 SUMMARY

A. This section specifies requirements for the video management system which includes video cameras, network video recorders (NVRs), and video camera software. Video camera software shall be installed on existing work stations, as required, by the Owner. Section 26 05 19 specifies requirements for data communication cables and their installation. Division 26 specifies terminations and testing for data communication cables. Section 28 10 00 unit responsibility requirements extend to the equipment and systems provided under this section.

B. Cameras shall be located as specified on the Drawings. The NVR, video camera/security software, and servers associated with the Owner's video management system are existing. The Owner's existing video management system is based on Genetec Security Center Professional Package, version 5.7. Contractor shall confirm current video management system vendor and version with Owner prior to beginning work.

C. Integration of new cameras into the existing video management system shall be provided by the Contractor. The Owner will provide configuration of network switches, patching of fiber-optic and Category cables at network cabinets and racks, and host IP address assignments for the cameras. The Contractor shall request host IP address, subnet mask, and default gateway information from the Owner via a Request for Information (RFI). The Contractor shall coordinate the integration, testing, and configuration work for the cameras with the Owner to minimize outages and disruptions to the existing video management system.

1.02 QUALITY ASSURANCE

A. Reference Standards:
   1. Network
      a. IEEE
         1) 802.3 Ethernet Standards
         2) 802.1x – Port-based authentication
   2. Video
      a. ISO / IEC 14496 –10, MPEG-4 Part 10 (ITU H.264)
      b. ISO / IEC 10918 – JPEG
      c. ONVIF – Profile S and Profile G
   3. Emissions
      a. FCC-47 CFR Part 15, Class A
      b. CE, Class A
      c. ICES-003, Class A
   4. Environmental

a. ANSI / IEC 60529 – Degrees of Protection Provided by Enclosures – IP66
b. IK10 (20J) Impact Resistance / IEC62262
c. National Electrical Manufacturers Association, NEMA 250-2003, 4X Enclosure Definition

B. Unit Responsibility:
1. The Contractor or security sub-Contractor specified in this Section and Section 28 10 00shall integrate all new video cameras into the existing video management system.

C. Contractor Requirements:
1. The following security sub-Contractor is pre-qualified to perform the work specified in this section without the need to provide Evidence of Experience:
a. Avtec – Systems Integrator (division of Cache Valley Electric).
2. The Contractor or security sub-Contractor shall be a licensed security contractor with a minimum of five (5) years experience installing and servicing systems of similar scope and complexity. The Contractor shall provide three (3) current references from clients with systems of similar scope and complexity which became operational in the past three (3) years. The technicians shall have a minimum of three (3) continuous years of technical experience in electronic security systems.

1.03 ENVIRONMENTAL CONDITIONS

A. Equipment provided under this section shall be suitable for operation under ambient conditions described in Section 26 05 00.

1.04 SUBMITTALS

A. General:
1. Submittals and transmittal procedures for submittals are defined in Section 01 33 00. Submit in accordance with the procedures set forth in the General Conditions of the Contract Documents and Section 01 33 00 that include drawings, information and technical data for equipment and as required in Section 26 05 00.

B. Action Submittals:
1. Package 1:
a. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Referenced and applicable sections to be marked up and submitted include:
1) Section 01 79 00 – Demonstration and Training
2) Section 01 78 23 – Operating and Maintenance Data
3) Section 26 05 00 – Common Work Results for Electrical
4) A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.

5) The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

6) Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

b. A copy of the contract document instrumentation network diagrams relating to the submitted equipment, with addendum updates that apply to the equipment in this section, marked to show specific changes necessary for the equipment proposed in the submittal. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

c. A copy of the contract document electrical plan drawings, sections, and details showing sensor installation locations and details. If no changes are required, the drawing or drawings shall be marked "no changes required". Failure to include copies of the relevant drawings with the submittal shall be cause for rejection of the entire submittal with no further review.

d. Contractor or security sub-Contractor experience and resumes for the personnel installing the cameras and integrating them into the Owner's existing video management system. Include factory training certifications.

2. Package 2:

a. Marked product literature of all cameras, mounting hardware, cable junction boxes, and accessories to be provided.

b. Installation drawings for only the camera equipment and mounting accessories to be provided. Drawings shall include:

1) Floor plan drawing(s) and riser diagram(s) showing intended installation locations of cameras along with mounting hardware, brackets, poles/stanchions, base plates, cable junction boxes, and other necessary appurtenances for a complete installation.

2) Complete interconnection diagram(s) of all cameras with their associated junction boxes, including wiring, terminations, and details of interconnection to data transmission media and data communication network.

3) Details of surge protection device installation.

c. Coordination drawings:

1) Floor plans, elevations, and details indicating all floor, wall, and ceiling penetrations.

d. List of miscellaneous items, cables, spare parts, that will be provided.

C. Closeout Submittals:

1. Package 3:

a. Final reviewed submittal, including revised as-built submittal drawings.

b. Manufacturer's operation and maintenance information, edited for this project, as specified in Section 01 78 23.

PRODUCTS

2.01 GENERAL

A. Video surveillance cameras and equipment shall comply with the following requirements:
   1. All cameras shall be IP camera technology and shall connect to patch panels in network cabinets and racks for final connection to the data communication system network switch by the Owner, as indicated in the specifications and Drawings.
   2. All cameras shall be capable of being powered by Power over Ethernet (PoE) technology. PoE power for cameras shall originate from the data communication system network switch.
   3. All cameras shall use Category 6A, Class E_A cable for signal transport as specified in Section 26 05 19. Camera video signals and power shall be via the same cable. Cameras that require greater power than can be provided by the standard IEEE 802.3bt PoE provided by the data communication system network switch, shall be powered by centralized wall-mounted high power PoE power injectors or centralized wall mounted CCTV power supplies where possible.
   4. All video related equipment requiring building power shall be connected to building UPS circuits. The Contractor shall be responsible for coordinating the electrical load requirements of the equipment provided in this Section in the UPS load calculations submitted under Division 26.
   5. Cameras located outdoors shall be provided with surge protectors.
   6. All equipment shall be installed in accordance with this specification and the manufacturers recommendations. Provide and install any and all equipment necessary to provide a complete and operating system, and meet the full intent of this design and other specifications within these Contract Documents. Any equipment such as consumables, terminators, or any other materials or equipment needed to install this system shall be considered ancillary and be provided as a part of this project.

2.02 FIXED INDOOR CAMERA

A. Video
   a. Compression type:
      1) H.264 (high, main, or base profiles)
      2) MJPEG
   b. Bit rate:
      1) Variable bit rate
   c. Frame rate:
      1) With Wide Dynamic Range (WDR): 25/30 fps with power line frequency 50/60 Hz
      2) Without WDR: 50/60 fps with power line frequency 50/60 Hz
   d. Resolution:
      1) Variable up to 1920x1080
   e. 120 dB WDR
   2. Storage and Recording
      a. Camera shall have onboard SD card

1) Card type: microSD, microSDHC, microSDXC

b. Local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera.

c. Alarm recording: Camera shall capture pre and post alarm video.

3. Camera Optics

a. Lens

1) Horizontal angle of view:

a) Approximately 92 to 34 degrees

2) Vertical angle of view:

a) Approximately 50 to 20 degrees

3) Focus settings:

a) Remote focus

b) Remote zoom

c) P-iris control

d) IR corrected

b. Minimum Ilumination

1) Color: 0.15 lux at 50 IRE, F1.4

2) Black and White: 0.03 lux at 50 IRE, F1.4

B. Camera Movement

1. Shutter time: 1/66500 second to 1 second
2. Pan movement: ± 180 degrees
3. Tilt: - 5 to 85 degrees
4. Rotation: ± 95 degrees
5. Digital PTZ
6. Preset positions

C. Network

1. Ethernet: 10BASE-T/100 BASE-TX with RJ-45 connector
2. Supported protocols:

a. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)

D. Mechanical and Environmental

1. Housing Material

a. IP66 and NEMA 4X rated, IK10 impact-resistant casing. with

2. Mounting

a. Mounting bracket with holes for junction boxes (double-gang, single-gang, and 4” octagon)

b. Wall or ceiling mount ¼”-20 UNC tripod screw thread

3. Temperature

a. Operating

1) 32 to 122 degrees F

b. Storage
    1) 32 to 122 degrees F
4. Operating Humidity
    a. 10 to 100% RH (condensing)

E. Electrical
1. Input Power:
    a. Power over Ethernet (PoE 802.3)
2. Ports: Ethernet RJ-45 connector

F. Certifications and Ratings
1. CE, Class A
2. FCC, Class A
3. UL listed
4. NEMA Type 4X

G. Manufacturer
1. Axis P3245-VE Network Camera

2.03 ~~OR EQUAL.~~PTZ INDOOR CAMERA

A. Video
    a. Compression type:
        1) H.264 (high, main, or base profiles)
        2) MJPEG
    b. Bit rate:
        1) Variable Bit Rate
    c. Frame rate:
        1) Variable to 60 frames per second
    d. Resolution:
        1) Variable up to 1920x1080
    e. 120 dB Wide Dynamic Range (WDR)
    f. Zoom
        1) Digital: 12X
        2) Optical: 30X
2. Storage and Recording
    a. Camera shall have onboard SD card storage
    b. Local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera
    c. Alarm recording: Camera shall capture selectable pre and post alarm video.
3. Camera Optics
    a. Lens:
        1) Horizontal angle of view:
            a) Approximately 63.7 degrees wide and 2.3 degrees tele

2) Focus settings:
   a) Auto focus: Automatically focuses during operation.
   b) Auto IRIS
   c) Electronic Image Stabalization
3) Minimum illumination
   a) Color mode: 0.20 lux (33 ms, F1.6), 0.025 lux (250 ms, F1.6)
   b) Black & white mode: 0.06 lux (33 ms, F1.6), 0.008 lux (250 ms, F1.6)

B. Camera Movement
   1. Pan movement: 360 degrees continuous pan rotation
   2. Vertical tilt: +1 to -90 degrees

C. Network
   1. Ethernet: 100 BASE-TX with RJ-45 connector
   2. Supported protocols:
      a. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)

D. Mechanical and Environmental
   1. Housing material
      a. IP66 and NEMA 4X rated, IK10 impact-resistant casing.
   2. Conduit attachments
      a. Pendant mounted: 1.5 inch NPT
      b. In-ceiling: 3/4 inch NPT
   3. Temperature
      1) Operating32 to 122 degrees F
      b. Storage
      1) 32 to 122 degrees F
   4. Operating Humidity
      1) 10 to 100 %, RH (condensing)

E. Electrical
   1. Input Power:
      a. PoE (802.3)
   2. Ports: Ethernet RJ-45 connector

F. Certifications and Ratings
   1. CE, Class A
   2. FCC, Class A
   3. UL listed
   4. NEMA Type 4X

G. Manufacturer:
   ~~1. Pelco Spectra Enhanced Series IP PTZ Dome, Model S6230-EGL1.~~

~~2.~~1. Axis ~~P56~~Q6155-E PTZ Network Camera (CCF 041)~~Or equal.~~

2.04 OUTDOOR PTZ CAMERA

A. Video
   a. Compression type:
      1) H.264 (high, main, or base profiles)
      2) MJPEG
   b. Bit rate:
      1) Variable Bit Rate
   c. Frame rate:
      1) Variable to 60 frames per second
   d. Resolution:
      1) Variable up to 1920x1080
      2) 0.92M (HD): 1280x720
   e. 120 dB Wide Dynamic Range (WDR)
   f. Zoom:
      1) Digital: 12X
      2) Optical: 30X
2. Storage and Recording
   a. Camera shall have onboard SD card storage:
   b. Local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera
   c. Alarm recording: Camera shall capture pre and post alarm video.
3. Camera Optics
   a. Lens:
      1) Horizontal angle of view
         a) 63.7 degrees wide and 2.3 degrees tele
      2) Focus settings
         a) Auto focus: Automatically focuses during operation.
         b) Auto IRIS
         c) Electronic Image Stabalization
   b.
      1) Minimum illumination
         a) Color mode: 0.03 lux (33 ms, F1.6), 0.008 lux (250 ms, F1.6)
         b) Black & white mode: 0.004 lux (33 ms, F1.6), 0.001 lux (250 ms, F1.6)

B. Camera Movement
   1. Pan movement: 360 degrees continuous pan rotation
   2. Vertical tilt: unobstructed +40 to -90 degrees

C. Network
   1. Ethernet: 100 BASE-TX with RJ-45 connector

2. Supported protocols:
   a. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)

D. Mechanical and Environmental
   1. Housing material:
   2. Temperature
      a. -50 to 140 degrees F
   3. Operating Humidity
      a. 10 to 100% RH (condensing)

E. Electrical
   1. Input Power:
      a. PoE (802.3)
   2. Connectors:
      a. Ethernet: RJ-45 connector

F. Certifications and Ratings
   1. CE, Class A
   2. FCC, Class A
   3. UL listed
   4. NEMA Type 4X

G. Manufacturer:
   ~~1. Pelco Esprit Enhanced Series IP Positioning System, Model ES6230-12P.~~
   ~~2.~~1. Axis ~~Q6075~~Q6155-E PTZ Network Camera (CCF 041)
   ~~3. Or equal.~~

2.05 OUTDOOR POLE/ROOF MOUNTED CAMERA

A. Video
   a. Compression type:
      1) H.264 (high, main, or base profiles)
      2) MJPEG
   b. Bit rate:
      1) Variable Bit Rate
   c. Frame rate:
      1) Variable to 60 frames per second
   d. Resolution:
      1) Variable up to 1920x1080
   e. 120 dB Wide Dynamic Range (WDR)
   f. Zoom:
      1) Digital: 12X
      2) Optical: 30X

2. Storage and Recording
    a. Camera shall have onboard SD card storage:
    b. Local SD storage shall have the ability to be backed up to alternate media without removal of the SD card from the camera
    c. Alarm recording: Camera shall capture
3. Camera Optics
    a. Lens:
        1) Horizontal angle of view
            a) 63.7 degrees wide and 2.3 degrees tele
        2) Focus settings
            a) Auto focus: Automatically focuses during operation.
            b) Auto IRIS
            c) Electronic Image Stabalization
        3) Minimum illumination
            a) Color mode: 0.03 lux (33 ms, F1.6), 0.008 lux (250 ms, F1.6)
            b) Black & white mode: 0.004 lux (33 ms, F1.6), 0.001 lux (250 ms, F1.6)

B. Camera Movement
1. Pan movement: 360 degrees continuous pan rotation
2. Vertical tilt: unobstructed +40 to -90 degrees

C. Network
1. Ethernet: 100 BASE-TX with RJ-45 connector
2. Supported protocols:
    a. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)

D. Mechanical and Environmental
1. Housing material:
    a. IP66 and NEMA 4X rated, IK10 impact-resistant casing.
2. Temperature
    a. -50 to 140 degrees F
3. Operating Humidity
    a. 10 to 100% RH (condensing)

E. Electrical
1. Input Power:
    a. PoE (802.3)
2. Connectors:
    a. Ethernet: RJ-45 connector

F. Certifications and Ratings
1. CE, Class A
2. FCC, Class A

3. UL listed
4. NEMA Type 4X

G. Manufacturer:
1. Axis Q6075-E PTZ Network Camera, Or Equal

2.06 WIRE AND CABLE

A. Low voltage wire and cable shall be provided and installed as required per Division 26 requirements.

B. Wire and cable shall be selected, sized, and used as appropriate for the device application in accordance with the device manufacturer's specifications, voltage and load, and distance of the wire/cable run.

C. Wire and cable runs shall be "home run".

D. Mid-run splices shall not be permitted.

E. Provide surge arrestor kits as recommended by the camera manufacturer and as required by the NEC.

2.07 MOUNTING HARDWARE AND CABLE JUNCTION BOX

A. Wherever possible use mounting hardware from the camera manufacturer. Mount cameras at locations shown on Drawings.

B. Where manufacturer cable is provided, provide a cable junction box or water-proof connector with each outdoor camera to transition from manufacturer provided cable to Division 26 cable within an enclosure rated for the installation environment, as specified in Section 26 05 00.

2.08 SPARE PARTS

A. Provide the following spare parts for the project:
1. One spare camera, of each type.
2. One spare PoE power injector of each type provided, if required.
3. Package of 10 window wiper replacement blades, if required.
4. One spare surge arrestor of each type provided.

EXECUTION

3.01 INSTALLATION

A. Coordinate with Sections 26, 27, and 28 (if a sub-Contractor to Division 28) Contractors and the Owner to provide and install and make fully operational all components required for a fully functional system.

B. All equipment locations shall be coordinated with other trades. Coordinate Work with other trades to verify exact routing of all cable and conduit before installation.

C. Provide easy, safe, and code-mandated clearances at equipment enclosures, and other equipment requiring maintenance and operation.

D. Install the equipment in accordance with the Contract Documents, all applicable codes and standards, and the Manufacturer's written instructions. The installed system shall meet all applicable equipment and performance requirements.

E. Provide a minimum of two persons for on-site technical support during commissioning and system warranty periods, on an on-call basis.

3.02 TESTING

A. The following testing is in addition to Section 26 08 00 requirements.

B. Perform the following additional tests at a minimum:
   1. Visually inspect installation and correct cabling or connectors if the following conditions exist:
      a. Mechanically damaged cable
      b. Too small bending radii
      c. Disregard of minimum spacing
      d. Defective connectors
      e. Missing labels on cables
      f. Wiring pinouts do not meet terminated equipment requirements
   2. Copper transmission media cable:
      a. No short circuit between the wires
      b. No wire breaks
      c. No pair has been separated
      d. Cable length is less than 100 m
      e. Near-end and far-end cross talk
      f. Permissible attenuation values
   3. Performance testing shall be conducted to measure the following characteristics at a minimum: video transfer speed, storage and retrieval, and local refresh rate on Owner workstations.
   4. Performance testing shall include verifications of acceptable image clarity and ability to control camera zoom functions.
   5. Contractor shall coordinate testing of the video management system with the Owner’s Representative, which will require Owner assistance to access the network. Contractor shall confirm that all cameras provided under this Section can be monitored over the network, both directly and via the video management system. Contractor shall also confirm that recorded data for all cameras hosted by the video management system and/or NVR can be accessed over the network from the laptop. The Owner’s Representative shall retain the right to witness this testing and shall be provided with a minimum of five (5) days notice prior to the test.

3.03 MANUFACTURER’S SERVICE

A. Training:

1. Provide a Manufacturer's representative or certified technician skilled in equipment use at the Site for the following activities. Specified durations do not include travel time to or from the Site.
    a. Provide minimum 6 hours training session for up to 6 Owner staff members that includes configuration, operation, troubleshooting, and warranty coverage for cameras provided under this Section.

END OF SECTION

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	10	9105	UIA109105A	MCC109105A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-10-6091	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6101	
	10	9105	UIA109105B	MCC109105B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-10-6091	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6101	
	10	9101	UIA109101	MCC109101 POWER MONITORING METER ETHERNET DATA EXCHANGE (OLD 10A)	I-10-6094	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6102	
	10	9102	UIA109102	MCC109102 POWER MONITORING METER ETHERNET DATA EXCHANGE (OLD 10B)	I-10-6094	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6102	
	10	9103	UIA109103	MCC109103 POWER MONITORING METER ETHERNET DATA EXCHANGE (OLD 10E)	I-10-6094	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6102	
	10	9104	UIA109104	MCC109104 POWER MONITORING METER ETHERNET DATA EXCHANGE (OLD 10F)	I-10-6094	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6102	
	10	9205	UIA109205	MCC109205 POWER MONITORING METER ETHERNET DATA EXCHANGE	I-10-6091	40 61 96	NCE100011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-10-6101	
	10	**9105**	**YA109105AD**	**MCC109105A PLC PANEL NETWORK SWITCH NET109105AD FAULT**	**I-10-6091**	**40 61 96**	**PLC109105A**	**DI**	**24 VDC**	**02**	**01**	**21**	**I1001, DET. A**	**CC30B: CCF 041**
	10	9105	JA109105AB	MCC109105A POWER MONITORING METER POWER OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	22	I1001, DET. A	
	10	9105	EAH109105AB	MCC109105A SPD FAULT	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	23	I1001, DET. A	
	10	9105	YA109105AC	MCC109105A NETWORK SWITCH NET109105AC FAULT	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	24	I1001, DET. A	
	10	9105	EA109105AD	MCC109105A NETWORK SWITCH NET109105AC 24 VDC POWER SUPPLY DC OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	25	I1001, DET. A	
	10	9105	YA109105AB	MCC109105A NETWORK SWITCH NET109105AB FAULT	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	26	I1001, DET. A	
	10	9105	EA109105AC	MCC109105A NETWORK SWITCH NET109105AB 24 VDC POWER SUPPLY DC OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	27	I1001, DET. A	
	10	9105	**YA109105AA**	**MCC109105A PLC PANEL NETWORK SWITCH NET109105AA FAULT**	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	28	I1001, DET. A	**CC30B: CCF 041**
	10	9105	EAH109105AA	MCC109105A PLC PANEL SPD FAULT	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	29	I1001, DET. A	
	10	9105	EA109105AA	MCC109105A PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	30	I1001, DET. A	
	10	9105	JA109105AA	MCC109105A PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	01	31	I1001, DET. A	
	10	9105	EA109105AB	MCC109105A PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-10-6091	40 61 96	PLC109105A	DI	24 VDC	02	02	30	I1001, DET. A	
	10	9105	EI109105AA	MCC109105A PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-10-6091	40 61 96	PLC109105A	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	10	9105	EI109105AB	MCC109105A PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-10-6091	40 61 96	PLC109105A	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	10	**9105**	**YA109105BD**	**MCC109105B PLC PANEL NETWORK SWITCH NET109105BD FAULT**	**I-10-6091**	**40 61 96**	**PLC109105B**	**DI**	**24 VDC**	**02**	**01**	**21**	**I1001, DET. A**	**CC30B: CCF 041**
	10	9105	JA109105BB	MCC109105B POWER MONITORING METER POWER OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	22	I1001, DET. A	
	10	9105	EAH109105BB	MCC109105B SPD FAULT	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	23	I1001, DET. A	
	10	9105	YA109105BC	MCC109105B NETWORK SWITCH NET109105BC FAULT	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	24	I1001, DET. A	
	10	9105	EA109105BD	MCC109105B NETWORK SWITCH NET109105BC 24 VDC POWER SUPPLY DC OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	25	I1001, DET. A	
	10	9105	YA109105BB	MCC109105B NETWORK SWITCH NET109105BB FAULT	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	26	I1001, DET. A	
	10	9105	EA109105BC	MCC109105B NETWORK SWITCH NET109105BB 24 VDC POWER SUPPLY DC OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	27	I1001, DET. A	
	10	9105	**YA109105BA**	**MCC109105B PLC PANEL NETWORK SWITCH NET109105BA FAULT**	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	28	I1001, DET. A	**CC30B: CCF 041**
	10	9105	EAH109105BA	MCC109105B PLC PANEL SPD FAULT	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	29	I1001, DET. A	
	10	9105	EA109105BA	MCC109105B PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	30	I1001, DET. A	
	10	9105	JA109105BA	MCC109105B PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	01	31	I1001, DET. A	
	10	9105	EA109105BB	MCC109105B PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-10-6091	40 61 96	PLC109105B	DI	24 VDC	02	02	30	I1001, DET. A	
	10	9105	EI109105BA	MCC109105B PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-10-6091	40 61 96	PLC109105B	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	10	9105	EI109105BB	MCC109105B PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-10-6091	40 61 96	PLC109105B	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	10	9101	EAH109101	MCC109101 (OLD 10A) SPD FAULT	I-10-6094	40 61 96	PLC109101 (RIO10A)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9101	JA109101	MCC109101 (OLD 10A) POWER MONITORING METER POWER OK	I-10-6094	40 61 96	PLC109101 (RIO10A)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9102	EAH109102	MCC109102 (OLD 10B) SPD FAULT	I-10-6094	40 61 96	PLC109102 (RIO10B)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9102	JA109102	MCC109102 (OLD 10B) POWER MONITORING METER POWER OK	I-10-6094	40 61 96	PLC109102 (RIO10B)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9103	EAH109103	MCC109103 (OLD 10E) SPD FAULT	I-10-6094	40 61 96	PLC109103 (RIO10E)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9103	JA109103	MCC109103 (OLD 10E) POWER MONITORING METER POWER OK	I-10-6094	40 61 96	PLC109103 (RIO10E)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9104	EAH109104	MCC109104 (OLD 10F) SPD FAULT	I-10-6094	40 61 96	PLC109104 (RIO10F)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS
	10	9104	JA109104	MCC109104 (OLD 10F) POWER MONITORING METER POWER OK	I-10-6094	40 61 96	PLC109104 (RIO10F)	DI	24 VDC	01	See Note	See Note	I1001, DET. C	EXISTING MODULE. VERIFY SPARE POINTS

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	16	9001	UIA169001A	SWGR169001A POWER QUALITY METER ETHERNET DATA EXCHANGE	I-16-6091	40 61 96	NCE160011	ETHERNET (PQM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9001	UIA169001B	SWGR169001B POWER QUALITY METER ETHERNET DATA EXCHANGE	I-16-6091	40 61 96	NCE160011	ETHERNET (PQM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	8901	UIA168901	AREA 16 HVAC CONTROL PANEL HVAC ETHERNET DATA EXCHANGE	I-16-6091	40 61 96	NCE160011	ETHERNET (HVAC)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9101	UIA169101A	MCC169101A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	NCE160011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9101	UIA169101B	MCC169101B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	NCE160011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9401	UIA169401	MCC169401 POWER MONITORING METER ETHERNET DATA EXCHANGE	I-16-6091	40 61 96	NCE160011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	CC30B CCF 031
	16	9403	UIA169403	UPS169403 UNINTERRUPTIBLE POWER SUPPLY A ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	NCE160011	ETHERNET (UPS)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	CC30B ADDENDUM 2
	16	9201	UIA169201	ATS169201 ANAEROBIC AND AERATION ATS A ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	NCE160011	ETHERNET (ATS)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9302	UIA169302	UPS169302 UNINTERRUPTIBLE POWER SUPPLY B ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	NCE160011	ETHERNET (UPS)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9202	UIA169202	ATS169202 ANAEROBIC AND AERATION ATS B ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	NCE160011	ETHERNET (ATS)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9102	UIA169102B	PLC169102B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	NCE160011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9102	UIA169102A	PLC169102A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	NCE160011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	17	0220	EI170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE IN AUTO	I-17-6022	17-6021A	PLC160001	DI	24 VDC	03	01	00	I1001, DET. A	
	17	0220	EY170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE IN HAND	I-17-6022	17-6021A	PLC160001	DI	24 VDC	03	01	01	I1001, DET. A	
	17	0220	YA170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE FAULT	I-17-6022	17-6021A	PLC160001	DI	24 VDC	03	01	02	I1001, DET. A	
	17	0220	ZIO170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE OPENED	I-17-6022	17-6021A	PLC160001	DI	24 VDC	03	01	03	I1001, DET. A	
	17	0220	ZIC170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE CLOSED	I-17-6022	17-6021A	PLC160001	DI	24 VDC	03	01	04	I1001, DET. A	
	16	0095	FAH160095	AREA 16 ELECTRICAL BUILDING EMERGENCY SHOWER AND EYEWASH STATION IN USE	I-16-6003	40 61 96	PLC160001	DI	24 VDC	03	01	05	I1001, DET. A	
	16	9000	YI169000AA	SUBSTATION SUB169000A PRIMARY SOURCE AIR SWITCH CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	09	I1001, DET. A	
	16	9000	YI169000AB	SUBSTATION SUB169000A SECONDARY SOURCE AIR SWITCH CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	10	I1001, DET. A	
	16	9000	YI169000AC	SUBSTATION SUB169000A VFI CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	11	I1001, DET. A	
	16	9000	LAL169000A	SUBSTATION SUB169000A LOW OIL LEVEL	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	12	I1001, DET. A	
	16	9000	TAH169000AB	SUBSTATION SUB169000A HIGH WINDING TEMPERATURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	13	I1001, DET. A	
	16	9000	TAH169000AA	SUBSTATION SUB169000A HIGH OIL TEMPERATURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	14	I1001, DET. A	
	16	9000	PAL169000A	SUBSTATION SUB169000A LOW PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	15	I1001, DET. A	
	16	9000	PAH169000A	SUBSTATION SUB169000A HIGH PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	16	I1001, DET. A	
	16	9000	PAHH169000A	SUBSTATION SUB169000A HIGH-HIGH PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	17	I1001, DET. A	
	16	9403	UA169403	UPS169403 FLT-B MAJOR FAULT (BREAK)	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	18	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	ZAC169403	UPS169403 DO-1 ON BYPASS	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	19	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	ZLC169403	UPS169403 DO-2 ON INVERTER	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	20	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	YL169403A	UPS169403 DO-3 BATTERY OPERATIONAL	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	21	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	YL169403B	UPS169403 DO-4 CONVERTER OPERATIONAL	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	22	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	EAL169403	UPS169403 DO-5 BATTERY LOW VOLTAGE	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	23	I1001, DET. A	CC30B ADDENDUM 2
	16	9403	IAH169403	UPS169403 DO-6 OVERLOAD	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	24	I1001, DET. A	CC30B ADDENDUM 2
	~~16~~	~~9201~~	~~JI169201B~~	~~ATS169201 SECONDARY SOURCE AVAILABLE~~	~~I-16-6092~~	~~40 61 96~~	~~PLC160001~~	~~DI~~	~~24 VDC~~	~~03~~	~~01~~	~~25~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	~~16~~	~~9201~~	~~YI169201A~~	~~ATS169201 IN PRIMARY SOURCE POSITION~~	~~I-16-6092~~	~~40 61 96~~	~~PLC160001~~	~~DI~~	~~24 VDC~~	~~03~~	~~01~~	~~26~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	16	9201	ZLH169201	ATS169201 NORMAL POWER	I-16-6092	40 61 96	PLC160001	DI	24 VDC	03	01	27	I1001, DET. A	CC30B ADDENDUM 2
	16	0001	YA160001A	AREA 16 PLC PANEL NETWORK SWITCH NET160001A FAULT	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	28	I1001, DET. A	
	16	0001	EAH160001	AREA 16 PLC PANEL SPD FAULT	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	29	I1001, DET. A	
	16	0001	EA160001A	AREA 16 PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	30	I1001, DET. A	
	16	0001	JA160001	AREA 16 PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	01	31	I1001, DET. A	
	16	9000	YI169000BA	SUBSTATION SUB169000B PRIMARY SOURCE AIR SWITCH CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	09	I1001, DET. A	
	16	9000	YI169000BB	SUBSTATION SUB169000B SECONDARY SOURCE AIR SWITCH CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	10	I1001, DET. A	
	16	9000	YI169000BC	SUBSTATION SUB169000B VFI CLOSED	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	11	I1001, DET. A	
	16	9000	LAL169000B	SUBSTATION SUB169000B LOW OIL LEVEL	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	12	I1001, DET. A	
	16	9000	TAH169000BB	SUBSTATION SUB169000B HIGH WINDING TEMPERATURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	13	I1001, DET. A	
	16	9000	TAH169000BA	SUBSTATION SUB169000B HIGH OIL TEMPERATURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	14	I1001, DET. A	
	16	9000	PAL169000B	SUBSTATION SUB169000B LOW PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	15	I1001, DET. A	
	16	9000	PAH169000B	SUBSTATION SUB169000B HIGH PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	16	I1001, DET. A	
	16	9000	PAHH169000B	SUBSTATION SUB169000B HIGH-HIGH PRESSURE	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	17	I1001, DET. A	
	16	9302	UA169302	UPS169302 FLT-B MAJOR FAULT (BREAK)	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	18	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	ZAC169302	UPS169302 DO-1 ON BYPASS	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	19	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	ZLC169302	UPS169302 DO-2 ON INVERTER	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	20	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	YL169302A	UPS169302 DO-3 BATTERY OPERATIONAL	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	21	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	YL169302B	UPS169302 DO-4 CONVERTER OPERATIONAL	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	22	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	EAL169302	UPS169302 DO-5 BATTERY LOW VOLTAGE	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	23	I1001, DET. A	CC30B ADDENDUM 2
	16	9302	IAH169302	UPS169302 DO-6 OVERLOAD	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	24	I1001, DET. A	CC30B ADDENDUM 2
	~~16~~	~~9202~~	~~JI169202B~~	~~ATS169202 SECONDARY SOURCE AVAILABLE~~	~~I-16-6093~~	~~40 61 96~~	~~PLC160001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~25~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	~~16~~	~~9202~~	~~YI169202A~~	~~ATS169202 IN PRIMARY SOURCE POSITION~~	~~I-16-6093~~	~~40 61 96~~	~~PLC160001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~26~~	~~I1001, DET. A~~	CC30B ADDENDUM 2
	16	9202	ZLH169202	ATS169202 NORMAL POWER	I-16-6093	40 61 96	PLC160001	DI	24 VDC	03	02	27	I1001, DET. A	CC30B ADDENDUM 2
	16	**0001**	**YA160001B**	**AREA 16 PLC PANEL NETWORK SWITCH NET160001B FAULT**	**I-16-6091**	**40 61 96**	**PLC160001**	**DI**	**24 VDC**	**03**	**02**	**28**	**I1001, DET. A**	**CC30B: CCF 041**
	16	0001	EA160001B	AREA 16 PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	30	I1001, DET. A	
	16	9401	JA169401	MCC169401 PMM169401 POWER OK	I-16-6091	40 61 96	PLC160001	DI	24 VDC	03	02	31	I1001, DET. A	CC30B CCF 031
	16	0101	TI160101A	PRIMARY EFFLUENT PUMP 1 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	00	I1003, DET. A	WIRED THROUGH TBX160101
	16	0101	TI160101B	PRIMARY EFFLUENT PUMP 1 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	01	I1003, DET. A	WIRED THROUGH TBX160101
	16	0101	TI160101C	PRIMARY EFFLUENT PUMP 1 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	02	I1003, DET. A	WIRED THROUGH TBX160101

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	16	0103	TI160103A	PRIMARY EFFLUENT PUMP 3 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	03	I1003, DET. A	WIRED THROUGH TBX160101
	16	0103	TI160103B	PRIMARY EFFLUENT PUMP 3 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	04	I1003, DET. A	WIRED THROUGH TBX160101
	16	0103	TI160103C	PRIMARY EFFLUENT PUMP 3 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	03	05	I1003, DET. A	WIRED THROUGH TBX160101
	16	0100	LI160100	PRIMARY EFFLUENT PUMP STATION LEVEL TRANSMITTER 1 LEVEL	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA (HART)	03	03	06	I1003, DET. A	WIRED THROUGH TBX160101
	16	0001	EI160001A	AREA 16 PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-16-6091	40 61 96	PLC160001	AI	4 - 20 mA	03	03	07	I1003, DET. A	
	16	0102	TI160102A	PRIMARY EFFLUENT PUMP 2 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	04	00	I1003, DET. A	WIRED THROUGH TBX160101
	16	0102	TI160102B	PRIMARY EFFLUENT PUMP 2 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	04	01	I1003, DET. A	WIRED THROUGH TBX160101
	16	0102	TI160102C	PRIMARY EFFLUENT PUMP 2 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA	03	04	02	I1003, DET. A	WIRED THROUGH TBX160101
	16	0104	TI160104A	PRIMARY EFFLUENT PUMP 4 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	04	03	I1003, DET. A	WIRED THROUGH TBX160101
	16	0104	TI160104B	PRIMARY EFFLUENT PUMP 4 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	04	04	I1003, DET. A	WIRED THROUGH TBX160101
	16	0104	TI160104C	PRIMARY EFFLUENT PUMP 4 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	04	05	I1003, DET. A	WIRED THROUGH TBX160101
	16	0200	LI160200	PRIMARY EFFLUENT PUMP STATION LEVEL TRANSMITTER 2 LEVEL	I-16-6001	16-6001A	PLC160001	AI	4 - 20 mA (HART)	03	04	06	I1003, DET. A	WIRED THROUGH TBX160101
	16	0001	EI160001B	AREA 16 PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-16-6091	40 61 96	PLC160001	AI	4 - 20 mA	03	04	07	I1003, DET. A	
	16	0105	TI160105A	PRIMARY EFFLUENT PUMP 5 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	00	I1003, DET. A	WIRED THROUGH TBX160101
	16	0105	TI160105B	PRIMARY EFFLUENT PUMP 5 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	01	I1003, DET. A	WIRED THROUGH TBX160101
	16	0105	TI160105C	PRIMARY EFFLUENT PUMP 5 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	02	I1003, DET. A	WIRED THROUGH TBX160101
	16	0106	TI160106A	PRIMARY EFFLUENT PUMP 6 MOTOR WINDING RTD PHASE A TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	03	I1003, DET. A	WIRED THROUGH TBX160101
	16	0106	TI160106B	PRIMARY EFFLUENT PUMP 6 MOTOR WINDING RTD PHASE B TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	04	I1003, DET. A	WIRED THROUGH TBX160101
	16	0106	TI160106C	PRIMARY EFFLUENT PUMP 6 MOTOR WINDING RTD PHASE C TEMPERATURE	I-16-6002	16-6001A	PLC160001	AI	4 - 20 mA	03	05	05	I1003, DET. A	WIRED THROUGH TBX160101
	17	0220	ZI170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE POSITION	I-17-6022	17-6021A	PLC160001	AI	4 - 20 mA	03	06	00	I1003, DET. A	
	17	0220	WI170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE TORQUE	I-17-6022	17-6021A	PLC160001	AI	4 - 20 mA	03	06	01	I1003, DET. A	
	17	0221	LI170221	ANAEROBIC COLLECTION CHANNEL LEVEL	I-17-6022	17-6021A	PLC160001	AI	4 - 20 mA	03	06	02	I1003, DET. A	
	17	0220	ZC170220	ANAEROBIC COLLECTION CHANNEL SCUM BOX SLIDE GATE POSITION COMMAND	I-17-6022	17-6021A	PLC160001	AO	4 - 20 mA	03	07	00	I1004, DET. A	
	17	0222	ZC0170222	ANAEROBIC COLLECTION CHANNEL SCUM BOX SPRAY WATER SOLENOID VALVE OPEN COMMAND	I-17-6022	17-6021A	PLC160001	DO	24VDC	03	10	00	I1001, DET. B	
	16	0006	ZC0160006	PRIMARY EFFLUENT HEAD BOX PLANT WATER SOLENOID VALVE OPEN COMMAND	I-16-6003	16-6001A	PLC160001	DO	24VDC	03	10	01	I1001, DET. B	
	16	9403	HS169403	UPS169403 REMOTE BYPASS	I-16-6092	40 61 96	PLC160001	DO	24VDC	03	10	02	I1001, DET. B	CC30B ADDENDUM 2
	16	9302	HS169302	UPS169302 REMOTE BYPASS	I-16-6093	40 61 96	PLC160001	DO	24VDC	03	10	03	I1001, DET. B	CC30B ADDENDUM 2
	16	0101	UCIA160101	PRIMARY EFFLUENT PUMP 1 ETHERNET DATA EXCHANGE	I-16-6001	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	0102	UCIA160102	PRIMARY EFFLUENT PUMP 2 ETHERNET DATA EXCHANGE	I-16-6001	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	0103	UCIA160103	PRIMARY EFFLUENT PUMP 3 ETHERNET DATA EXCHANGE	I-16-6001	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	0104	UCIA160104	PRIMARY EFFLUENT PUMP 4 ETHERNET DATA EXCHANGE	I-16-6002	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	0105	UCIA160105	PRIMARY EFFLUENT PUMP 5 ETHERNET DATA EXCHANGE	I-16-6002	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	0106	UCIA160106	PRIMARY EFFLUENT PUMP 6 ETHERNET DATA EXCHANGE	I-16-6002	16-6001A	PLC160001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7104	
	16	9001	UCIA169001	SWGR169001A/B ETHERNET DATA EXCHANGE	I-16-6091	40 61 96	PLC160001	ETHERNET (LV SWGR)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9101	UCIA169101A	PLC169101A ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	PLC160001	ETHERNET (PLC)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9101	UCIA169101B	PLC169101B ETHERNET DATA EXCHANGE	I-16-6092	40 61 96	PLC160001	ETHERNET (PLC)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9102	UCIA169102A	PLC169102A ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	PLC160001	ETHERNET (PLC)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	16	9102	UCIA169102B	PLC169102B ETHERNET DATA EXCHANGE	I-16-6093	40 61 96	PLC160001	ETHERNET (PLC)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	18	1321	EI181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE IN AUTO	I-18-6024	18-6010A	PLC169101A	DI	24 VDC	02	01	00	I1001, DET. A	
	18	1321	EY181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE IN HAND	I-18-6024	18-6010A	PLC169101A	DI	24 VDC	02	01	01	I1001, DET. A	
	18	1121	YA181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE FAULT	I-18-6016	18-6010A	PLC169101A	DI	24 VDC	02	01	02	I1001, DET. A	
	18	1321	ZIO181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE OPENED	I-18-6024	18-6010A	PLC169101A	DI	24 VDC	02	01	03	I1001, DET. A	
	18	1321	ZIC181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE CLOSED	I-18-6024	18-6010A	PLC169101A	DI	24 VDC	02	01	04	I1001, DET. A	
	18	1322	EI181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE IN AUTO	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	05	I1001, DET. A	
	18	1322	EY181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE IN HAND	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	06	I1001, DET. A	
	18	1322	YA181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE FAULT	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	07	I1001, DET. A	
	18	1322	ZIO181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE OPENED	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	08	I1001, DET. A	
	18	1322	ZIC181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE CLOSED	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	09	I1001, DET. A	
	18	1323	EI181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE IN AUTO	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	10	I1001, DET. A	
	18	1323	EY181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE IN HAND	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	11	I1001, DET. A	
	18	1323	YA181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE FAULT	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	12	I1001, DET. A	
	18	1323	ZIO181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE OPENED	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	13	I1001, DET. A	
	18	1323	ZIC181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE CLOSED	I-18-6025	18-6010A	PLC169101A	DI	24 VDC	02	01	14	I1001, DET. A	
	16	9101	EAH169101AB	MCC169101A SPD FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	23	I1001, DET. A	
	16	9101	YA169101AC	MCC169101A NETWORK SWITCH NET169101AC FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	24	I1001, DET. A	
	16	9101	EA169101AD	MCC169101A NETWORK SWITCH NET169101AC 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	25	I1001, DET. A	
	16	9101	YA169101AB	MCC169101A NETWORK SWITCH NET169101AB FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	26	I1001, DET. A	
	16	9101	EA169101AC	MCC169101A NETWORK SWITCH NET169101AB 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	27	I1001, DET. A	
	16	9101	YA169101AA	MCC169101A PLC PANEL NETWORK SWITCH NET169101AA FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	28	I1001, DET. A	
	16	9101	EAH169101AA	MCC169101A PLC PANEL SPD FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	29	I1001, DET. A	
	16	9101	EA169101AA	MCC169101A PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	30	I1001, DET. A	
	16	9101	JA169101AA	MCC169101A PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	01	31	I1001, DET. A	
	18	1121	EI181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE IN AUTO	I-18-6016	18-6010A	PLC169101A	DI	24 VDC	02	02	00	I1001, DET. A	
	18	1121	EY181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE IN HAND	I-18-6016	18-6010A	PLC169101A	DI	24 VDC	02	02	01	I1001, DET. A	
	18	1321	YA181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE FAULT	I-18-6024	18-6010A	PLC169101A	DI	24 VDC	02	02	02	I1001, DET. A	
	18	1121	ZIO181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE OPENED	I-18-6016	18-6010A	PLC169101A	DI	24 VDC	02	02	03	I1001, DET. A	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	18	1121	ZIC181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE CLOSED	I-18-6016	18-6010A	PLC169101A	DI	24 VDC	02	02	04	I1001, DET. A	
	18	1122	EI181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE IN AUTO	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	05	I1001, DET. A	
	18	1122	EY181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE IN HAND	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	06	I1001, DET. A	
	18	1122	YA181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE FAULT	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	07	I1001, DET. A	
	18	1122	ZIO181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE OPENED	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	08	I1001, DET. A	
	18	1122	ZIC181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE CLOSED	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	09	I1001, DET. A	
	18	1123	EI181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE IN AUTO	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	10	I1001, DET. A	
	18	1123	EY181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE IN HAND	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	11	I1001, DET. A	
	18	1123	YA181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE FAULT	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	12	I1001, DET. A	
	18	1123	ZIO181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE OPENED	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	13	I1001, DET. A	
	18	1123	ZIC181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE CLOSED	I-18-6017	18-6010A	PLC169101A	DI	24 VDC	02	02	14	I1001, DET. A	
	18	1611	EI181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE IN AUTO	I-18-6042	18-6042A	PLC169101A	DI	24 VDC	02	02	15	I1001, DET. A	
	18	1611	EY181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE IN HAND	I-18-6042	18-6042A	PLC169101A	DI	24 VDC	02	02	16	I1001, DET. A	
	18	1611	YA181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE FAULT	I-18-6042	18-6042A	PLC169101A	DI	24 VDC	02	02	17	I1001, DET. A	
	18	1611	ZIO181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE OPENED	I-18-6042	18-6042A	PLC169101A	DI	24 VDC	02	02	18	I1001, DET. A	
	18	1611	ZIC181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE CLOSED	I-18-6042	18-6042A	PLC169101A	DI	24 VDC	02	02	19	I1001, DET. A	
	16	9101	JA169101AB	MCC169101A POWER MONITORING METER POWER OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	02	27	I1001, DET. A	
	16	9101	EA169101AE	MCC169101A NETWORK SWITCH NET169101AD 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	02	28	I1001, DET. A	
	16	9101	YA169101AD	MCC169101A NETWORK SWITCH NET169101AD FAULT	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	02	29	I1001, DET. A	
	16	9101	EA169101AB	MCC169101A PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-16-6092	40 61 96	PLC169101A	DI	24 VDC	02	02	30	I1001, DET. A	
	16	**9101**	**YA169101AE**	**MCC169101A PLC PANEL NETWORK SWITCH NET169101AE FAULT**	**I-16-6092**	**40 61 96**	**PLC169101A**	**DI**	**24 VDC**	**02**	**02**	**31**	**I1001, DET. A**	**CC30B: CCF 041**
	18	1121	WI181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE TORQUE	I-18-6016	18-6010A	PLC169101A	AI	4 - 20 mA	02	03	00	I1003, DET. A	WIRED THROUGH TBX181121
	18	1121	ZI181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION	I-18-6016	18-6010A	PLC169101A	AI	4 - 20 mA	02	03	01	I1003, DET. A	WIRED THROUGH TBX181121
	18	1121	FI181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 FLOW	I-18-6016	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	03	02	I1003, DET. A	WIRED THROUGH TBX181121
	18	1122	WI181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE TORQUE	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA	02	03	03	I1003, DET. A	WIRED THROUGH TBX181121
	18	1122	ZI181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA	02	03	04	I1003, DET. A	WIRED THROUGH TBX181121
	18	1122	FI181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 FLOW	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	03	05	I1003, DET. A	WIRED THROUGH TBX181121
	16	9101	EI169101AA	MCC169101A PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-16-6092	40 61 96	PLC169101A	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	18	1123	WI181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE TORQUE	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA	02	04	00	I1003, DET. A	WIRED THROUGH TBX181121
	18	1123	ZI181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA	02	04	01	I1003, DET. A	WIRED THROUGH TBX181121
	18	1123	FI181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 FLOW	I-18-6017	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	04	02	I1003, DET. A	WIRED THROUGH TBX181121
	18	1510	LI181510	TANK DRAIN PUMP STATION LEVEL	I-18-6041	18-6041A	PLC169101A	AI	4 - 20 mA (HART)	02	04	03	I1003, DET. A	WIRED THROUGH TBX181121
	18	1520	LI181520	FOAM WASTE PUMP STATION LEVEL	I-18-6041	18-6041B	PLC169101A	AI	4 - 20 mA (HART)	02	04	04	I1003, DET. A	WIRED THROUGH TBX181121
	16	9101	EI169101AB	MCC169101A PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-16-6092	40 61 96	PLC169101A	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	18	1321	WI181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE TORQUE	I-18-6024	18-6010A	PLC169101A	AI	4 - 20 mA	02	05	00	I1003, DET. A	WIRED THROUGH TBX181321
	18	1321	ZI181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION	I-18-6024	18-6010A	PLC169101A	AI	4 - 20 mA	02	05	01	I1003, DET. A	WIRED THROUGH TBX181321
	18	1321	FI181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 FLOW	I-18-6024	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	05	02	I1003, DET. A	WIRED THROUGH TBX181321
	18	1322	WI181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE TORQUE	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA	02	05	03	I1003, DET. A	WIRED THROUGH TBX181321
	18	1322	ZI181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA	02	05	04	I1003, DET. A	WIRED THROUGH TBX181321
	18	1322	FI181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 FLOW	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	05	05	I1003, DET. A	WIRED THROUGH TBX181321
	18	1323	WI181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE TORQUE	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA	02	06	00	I1003, DET. A	WIRED THROUGH TBX181321
	18	1323	ZI181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA	02	06	01	I1003, DET. A	WIRED THROUGH TBX181321
	18	1323	FI181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 FLOW	I-18-6025	18-6010A	PLC169101A	AI	4 - 20 mA (HART)	02	06	02	I1003, DET. A	WIRED THROUGH TBX181321
	18	1612	LI181612	AERATION ZONE 1 COLLECTION CHANNEL WEST LEVEL	I-18-6042	18-6042A	PLC169101A	AI	4 - 20 mA (HART)	02	06	03	I1003, DET. A	WIRED THROUGH TBX181321
	18	1611	WI181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE TORQUE	I-18-6042	18-6042A	PLC169101A	AI	4 - 20 mA	02	06	04	I1003, DET. A	WIRED THROUGH TBX181321
	18	1611	ZI181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE POSITION	I-18-6042	18-6042A	PLC169101A	AI	4 - 20 mA	02	06	05	I1003, DET. A	WIRED THROUGH TBX181321
	18	1121	ZC181121	AERATION ZONE 1 TRAIN 1 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6016	18-6010A	PLC169101A	AO	4 - 20 mA	02	07	00	I1004, DET. A	WIRED THROUGH TBX181121
	18	1122	ZC181122	AERATION ZONE 1 TRAIN 1 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6017	18-6010A	PLC169101A	AO	4 - 20 mA	02	07	01	I1004, DET. A	WIRED THROUGH TBX181121
	18	1123	ZC181123	AERATION ZONE 1 TRAIN 1 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6017	18-6010A	PLC169101A	AO	4 - 20 mA	02	07	02	I1004, DET. A	WIRED THROUGH TBX181121
	18	1611	ZC181611	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SLIDE GATE POSITION COMMAND	I-18-6042	18-6042A	PLC169101A	AO	4 - 20 mA	02	07	03	I1004, DET. A	WIRED THROUGH TBX181321
	18	1532	ZCO181532	FOAM WASTE PUMP STATION SPRAY WATER SOLENOID VALVE OPEN COMMAND	I-18-6041	18-6041B	PLC169101A	DO	24 VDC	02	08	00	I1001, DET. B	
	18	1613	ZCO181613	AERATION ZONE 1 COLLECTION CHANNEL WEST END SCUM BOX SPRAY WATER SOLENOID VALVE OPEN COM	I-18-6042	18-6042A	PLC169101A	DO	24 VDC	02	08	01	I1001, DET. B	
	18	1321	ZC181321	AERATION ZONE 1 TRAIN 3 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6024	18-6010A	PLC169101A	AO	4 - 20 mA	02	09	00	I1004, DET. A	WIRED THROUGH TBX181321
	18	1322	ZC181322	AERATION ZONE 1 TRAIN 3 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6025	18-6010A	PLC169101A	AO	4 - 20 mA	02	09	01	I1004, DET. A	WIRED THROUGH TBX181321
	18	1323	ZC181323	AERATION ZONE 1 TRAIN 3 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6025	18-6010A	PLC169101A	AO	4 - 20 mA	02	09	02	I1004, DET. A	WIRED THROUGH TBX181321
	18	0101	UCIA180101	SIN/S2 CHANNEL MIXER 1 ETHERNET DATA EXCHANGE	I-18-6001	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0103	UCIA180103	SIN/S2 CHANNEL MIXER 3 ETHERNET DATA EXCHANGE	I-18-6001	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0105	UCIA180105	SIN/S2 CHANNEL MIXER 5 ETHERNET DATA EXCHANGE	I-18-6002	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0107	UCIA180107	SIN/S2 CHANNEL MIXER 7 ETHERNET DATA EXCHANGE	I-18-6002	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0109	UCIA180109	SIN/S2 CHANNEL MIXER 9 ETHERNET DATA EXCHANGE	I-18-6003	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0111	UCIA180111	SIN/S2 CHANNEL MIXER 11 ETHERNET DATA EXCHANGE	I-18-6003	18-6001A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1001	UCIA181001	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 1 ETHERNET DATA EXCHANGE	I-18-6004	18-6004A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1003	UCIA181003	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 3 ETHERNET DATA EXCHANGE	I-18-6004	18-6004A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1005	UCIA181005	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 5 ETHERNET DATA EXCHANGE	I-18-6005	18-6004A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1111	UCIA181111	AERATION ZONE 1 TRAIN 1 MIXER 1 ETHERNET DATA EXCHANGE	I-18-6015	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1112	UCIA181112	AERATION ZONE 1 TRAIN 1 MIXER 2 ETHERNET DATA EXCHANGE	I-18-6015	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	18	1113	UCIA181113	AERATION ZONE 1 TRAIN 1 MIXER 3 ETHERNET DATA EXCHANGE	I-18-6015	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1114	UCIA181114	AERATION ZONE 1 TRAIN 1 MIXER 4 ETHERNET DATA EXCHANGE	I-18-6016	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1141	UIA181141	AERATION ZONE 1 TRAIN 1 PROBE CONTROLLER ETHERNET DATA EXCHANGE	I-18-6016	18-6010A	PLC169101A	ETHERNET (PROBE CONTROLLER)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	18	1131	UCIA181131	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 1 ETHERNET DATA EXCHANGE	I-18-6018	18-6010A	PLC169101A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1132	UCIA181132	AERATION ZONE 1 TRAIN 1 RECYCLE PUMP 2 ETHERNET DATA EXCHANGE	I-18-6018	18-6010A	PLC169101A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1311	UCIA181311	AERATION ZONE 1 TRAIN 3 MIXER 1 ETHERNET DATA EXCHANGE	I-18-6023	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1312	UCIA181312	AERATION ZONE 1 TRAIN 3 MIXER 2 ETHERNET DATA EXCHANGE	I-18-6023	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1313	UCIA181313	AERATION ZONE 1 TRAIN 3 MIXER 3 ETHERNET DATA EXCHANGE	I-18-6023	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1314	UCIA181314	AERATION ZONE 1 TRAIN 3 MIXER 4 ETHERNET DATA EXCHANGE	I-18-6024	18-6010A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1341	UIA181341	AERATION ZONE 1 TRAIN 3 PROBE CONTROLLER ETHERNET DATA EXCHANGE	I-18-6024	18-6010A	PLC169101A	ETHERNET (PROBE CONTROLLER)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	18	1331	UCIA181331	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 1 ETHERNET DATA EXCHANGE	I-18-6026	18-6010A	PLC169101A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1332	UCIA181332	AERATION ZONE 1 TRAIN 3 RECYCLE PUMP 2 ETHERNET DATA EXCHANGE	I-18-6026	18-6010A	PLC169101A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1511	UCIA181511	TANK DRAIN PUMP 1 ETHERNET DATA EXCHANGE	I-18-6041	18-6041A	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1521	UCIA181521	FOAM WASTE PUMP 1 ETHERNET DATA EXCHANGE	I-18-6041	18-6041B	PLC169101A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1421	EI181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE IN AUTO	I-18-6028	18-6010A	PLC169101B	DI	24 VDC	02	01	00	I1001, DET. A	
	18	1421	EY181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE IN HAND	I-18-6028	18-6010A	PLC169101B	DI	24 VDC	02	01	01	I1001, DET. A	
	18	1421	YA181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE FAULT	I-18-6028	18-6010A	PLC169101B	DI	24 VDC	02	01	02	I1001, DET. A	
	18	1421	ZIO181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE OPENED	I-18-6028	18-6010A	PLC169101B	DI	24 VDC	02	01	03	I1001, DET. A	
	18	1421	ZIC181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE CLOSED	I-18-6028	18-6010A	PLC169101B	DI	24 VDC	02	01	04	I1001, DET. A	
	18	1422	EI181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE IN AUTO	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	05	I1001, DET. A	
	18	1422	EY181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE IN HAND	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	06	I1001, DET. A	
	18	1422	YA181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE FAULT	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	07	I1001, DET. A	
	18	1422	ZIO181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE OPENED	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	08	I1001, DET. A	
	18	1422	ZIC181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE CLOSED	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	09	I1001, DET. A	
	18	1423	EI181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE IN AUTO	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	10	I1001, DET. A	
	18	1423	EY181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE IN HAND	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	11	I1001, DET. A	
	18	1423	YA181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE FAULT	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	12	I1001, DET. A	
	18	1423	ZIO181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE OPENED	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	13	I1001, DET. A	
	18	1423	ZIC181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE CLOSED	I-18-6029	18-6010A	PLC169101B	DI	24 VDC	02	01	14	I1001, DET. A	
	16	9101	JA169101BB	MCC169101B POWER MONITORING METER POWER OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	22	I1001, DET. A	
	16	9101	EAH169101BB	MCC169101B SPD FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	23	I1001, DET. A	
	16	9101	YA169101BC	MCC169101B NETWORK SWITCH NET169101BC FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	24	I1001, DET. A	
	16	9101	EA169101BD	MCC169101B NETWORK SWITCH NET169101BC 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	25	I1001, DET. A	
	16	9101	YA169101BB	MCC169101B NETWORK SWITCH NET169101BB FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	26	I1001, DET. A	
	16	9101	EA169101BC	MCC169101B NETWORK SWITCH NET169101BC 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	27	I1001, DET. A	
	16	9101	YA169101BA	MCC169101B PLC PANEL NETWORK SWITCH NET169101BA FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	28	I1001, DET. A	
	16	9101	EAH169101BA	MCC169101B PLC PANEL SPD FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	29	I1001, DET. A	
	16	9101	EA169101BA	MCC169101B PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	30	I1001, DET. A	
	16	9101	JA169101BA	MCC169101B PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	01	31	I1001, DET. A	
	18	1221	EI181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE IN AUTO	I-18-6020	18-6010A	PLC169101B	DI	24 VDC	02	02	00	I1001, DET. A	
	18	1221	EY181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE IN HAND	I-18-6020	18-6010A	PLC169101B	DI	24 VDC	02	02	01	I1001, DET. A	
	18	1221	YA181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE FAULT	I-18-6020	18-6010A	PLC169101B	DI	24 VDC	02	02	02	I1001, DET. A	
	18	1221	ZIO181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE OPENED	I-18-6020	18-6010A	PLC169101B	DI	24 VDC	02	02	03	I1001, DET. A	
	18	1221	ZIC181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE CLOSED	I-18-6020	18-6010A	PLC169101B	DI	24 VDC	02	02	04	I1001, DET. A	
	18	1222	EI181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE IN AUTO	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	05	I1001, DET. A	
	18	1222	EY181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE IN HAND	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	06	I1001, DET. A	
	18	1222	YA181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE FAULT	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	07	I1001, DET. A	
	18	1222	ZIO181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE OPENED	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	08	I1001, DET. A	
	18	1222	ZIC181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE CLOSED	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	09	I1001, DET. A	
	18	1223	EI181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE IN AUTO	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	10	I1001, DET. A	
	18	1223	EY181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE IN HAND	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	11	I1001, DET. A	
	18	1223	YA181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE FAULT	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	12	I1001, DET. A	
	18	1223	ZIO181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE OPENED	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	13	I1001, DET. A	
	18	1223	ZIC181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE CLOSED	I-18-6021	18-6010A	PLC169101B	DI	24 VDC	02	02	14	I1001, DET. A	
	18	1621	EI181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE IN AUTO	I-18-6042	18-6042A	PLC169101B	DI	24 VDC	02	02	15	I1001, DET. A	
	18	1621	EY181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE IN HAND	I-18-6042	18-6042A	PLC169101B	DI	24 VDC	02	02	16	I1001, DET. A	
	18	1621	YA181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE FAULT	I-18-6042	18-6042A	PLC169101B	DI	24 VDC	02	02	17	I1001, DET. A	
	18	1621	ZIO181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE OPENED	I-18-6042	18-6042A	PLC169101B	DI	24 VDC	02	02	18	I1001, DET. A	
	18	1621	ZIC181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE CLOSED	I-18-6042	18-6042A	PLC169101B	DI	24 VDC	02	02	19	I1001, DET. A	
	16	9101	EA169101BE	MCC169101B NETWORK SWITCH NET169101BD 24 VDC POWER SUPPLY DC OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	02	29	I1001, DET. A	
	16	9101	YA169101BD	MCC169101B NETWORK SWITCH NET169101BD FAULT	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	02	28	I1001, DET. A	
	16	9101	EA169101BB	MCC169101B PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-16-6092	40 61 96	PLC169101B	DI	24 VDC	02	02	30	I1001, DET. A	
	16	**9101**	**YA169101BE**	**MCC169101B PLC PANEL NETWORK SWITCH NET169101BE FAULT**	**I-16-6092**	**40 61 96**	**PLC169101B**	**DI**	**24 VDC**	**02**	**02**	**31**	**I1001, DET. A**	**CC30B: CCF 041**
	18	1221	WI181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE TORQUE	I-18-6020	18-6010A	PLC169101B	AI	4 - 20 mA	02	03	00	I1003, DET. A	WIRED THROUGH TBX181221
	18	1221	ZI181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION	I-18-6020	18-6010A	PLC169101B	AI	4 - 20 mA	02	03	01	I1003, DET. A	WIRED THROUGH TBX181221
	18	1221	FI181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 FLOW	I-18-6020	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	03	02	I1003, DET. A	WIRED THROUGH TBX181221

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	18	1222	WI181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE TORQUE	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA	02	03	03	I1003, DET. A	WIRED THROUGH TBX181221
	18	1222	ZI181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA	02	03	04	I1003, DET. A	WIRED THROUGH TBX181221
	18	1222	FI181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 FLOW	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	03	05	I1003, DET. A	WIRED THROUGH TBX181221
	16	9101	EI169101BA	MCC169101B PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-16-6092	40 61 96	PLC169101B	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	18	1223	WI181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE TORQUE	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA	02	04	00	I1003, DET. A	WIRED THROUGH TBX181221
	18	1223	ZI181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA	02	04	01	I1003, DET. A	WIRED THROUGH TBX181221
	18	1223	FI181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 FLOW	I-18-6021	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	04	02	I1003, DET. A	WIRED THROUGH TBX181221
	16	9101	EI169101BB	MCC169101B PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-16-6092	40 61 96	PLC169101B	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	18	1421	WI181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE TORQUE	I-18-6028	18-6010A	PLC169101B	AI	4 - 20 mA	02	05	00	I1003, DET. A	WIRED THROUGH TBX181421
	18	1421	ZI181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION	I-18-6028	18-6010A	PLC169101B	AI	4 - 20 mA	02	05	01	I1003, DET. A	WIRED THROUGH TBX181421
	18	1421	FI181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 FLOW	I-18-6028	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	05	02	I1003, DET. A	WIRED THROUGH TBX181421
	18	1422	WI181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE TORQUE	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA	02	05	03	I1003, DET. A	WIRED THROUGH TBX181421
	18	1422	ZI181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA	02	05	04	I1003, DET. A	WIRED THROUGH TBX181421
	18	1422	FI181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 FLOW	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	05	05	I1003, DET. A	WIRED THROUGH TBX181421
	18	1423	WI181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE TORQUE	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA	02	06	00	I1003, DET. A	WIRED THROUGH TBX181421
	18	1423	ZI181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA	02	06	01	I1003, DET. A	WIRED THROUGH TBX181421
	18	1423	FI181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 FLOW	I-18-6029	18-6010A	PLC169101B	AI	4 - 20 mA (HART)	02	06	02	I1003, DET. A	WIRED THROUGH TBX181421
	18	1622	LI181622	AERATION ZONE 1 COLLECTION CHANNEL EAST LEVEL	I-18-6042	18-6042A	PLC169101B	AI	4 - 20 mA (HART)	02	06	03	I1003, DET. A	WIRED THROUGH TBX181221
	18	1621	WI181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE TORQUE	I-18-6042	18-6042A	PLC169101B	AI	4 - 20 mA	02	06	04	I1003, DET. A	WIRED THROUGH TBX181221
	18	1621	ZI181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE POSITION	I-18-6042	18-6042A	PLC169101B	AI	4 - 20 mA	02	06	05	I1003, DET. A	WIRED THROUGH TBX181221
	18	1221	ZC181221	AERATION ZONE 1 TRAIN 2 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6020	18-6010A	PLC169101B	AO	4 - 20 mA	02	07	00	I1004, DET. A	WIRED THROUGH TBX181221
	18	1222	ZC181222	AERATION ZONE 1 TRAIN 2 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6021	18-6010A	PLC169101B	AO	4 - 20 mA	02	07	01	I1004, DET. A	WIRED THROUGH TBX181221
	18	1223	ZC181223	AERATION ZONE 1 TRAIN 2 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6021	18-6010A	PLC169101B	AO	4 - 20 mA	02	07	02	I1004, DET. A	WIRED THROUGH TBX181221
	18	1621	ZC181621	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SLIDE GATE POSITION COMMAND	I-18-6042	18-6042A	PLC169101B	AO	4 - 20 mA	02	07	03	I1004, DET. A	WIRED THROUGH TBX181221
	18	1623	ZCO181623	AERATION ZONE 1 COLLECTION CHANNEL EAST END SCUM BOX SPRAY WATER SOLENOID VALVE OPEN COM	I-18-6042	18-6042A	PLC169101B	DO	24 VDC	02	08	00	I1001, DET. B	
	18	1421	ZC181421	AERATION ZONE 1 TRAIN 4 DIFFUSER 1 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6028	18-6010A	PLC169101B	AO	4 - 20 mA	02	09	00	I1004, DET. A	WIRED THROUGH TBX181421
	18	1422	ZC181422	AERATION ZONE 1 TRAIN 4 DIFFUSER 2 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6029	18-6010A	PLC169101B	AO	4 - 20 mA	02	09	01	I1004, DET. A	WIRED THROUGH TBX181421
	18	1423	ZC181423	AERATION ZONE 1 TRAIN 4 DIFFUSER 3 AIRFLOW CONTROL VALVE POSITION COMMAND	I-18-6029	18-6010A	PLC169101B	AO	4 - 20 mA	02	09	02	I1004, DET. A	WIRED THROUGH TBX181421
	18	0102	UCIA180102	SIN/S2 CHANNEL MIXER 2 ETHERNET DATA EXCHANGE	I-18-6001	18-6001A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0104	UCIA180104	SIN/S2 CHANNEL MIXER 4 ETHERNET DATA EXCHANGE	I-18-6001	18-6001A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0106	UCIA180106	SIN/S2 CHANNEL MIXER 6 ETHERNET DATA EXCHANGE	I-18-6002	18-6001A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0108	UCIA180108	SIN/S2 CHANNEL MIXER 8 ETHERNET DATA EXCHANGE	I-18-6002	18-6001A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	0110	UCIA180110	SIN/S2 CHANNEL MIXER 10 ETHERNET DATA EXCHANGE	I-18-6003	18-6001A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1002	UCIA181002	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 2 ETHERNET DATA EXCHANGE	I-18-6004	18-6004A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1004	UCIA181004	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 4 ETHERNET DATA EXCHANGE	I-18-6004	18-6004A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1006	UCIA181006	AERATION ZONE 1 DISTRIBUTION CHANNEL MIXER 6 ETHERNET DATA EXCHANGE	I-18-6005	18-6004A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1211	UCIA181211	AERATION ZONE 1 TRAIN 2 MIXER 1 ETHERNET DATA EXCHANGE	I-18-6019	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1212	UCIA181212	AERATION ZONE 1 TRAIN 2 MIXER 2 ETHERNET DATA EXCHANGE	I-18-6019	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1213	UCIA181213	AERATION ZONE 1 TRAIN 2 MIXER 3 ETHERNET DATA EXCHANGE	I-18-6019	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1214	UCIA181214	AERATION ZONE 1 TRAIN 2 MIXER 4 ETHERNET DATA EXCHANGE	I-18-6020	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1241	UIA181241	AERATION ZONE 1 TRAIN 2 PROBE CONTROLLER ETHERNET DATA EXCHANGE	I-18-6020	18-6010A	PLC169101B	ETHERNET (PROBE CONTROLLER)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	18	1231	UCIA181231	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 1 ETHERNET DATA EXCHANGE	I-18-6022	18-6010A	PLC169101B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1232	UCIA181232	AERATION ZONE 1 TRAIN 2 RECYCLE PUMP 2 ETHERNET DATA EXCHANGE	I-18-6022	18-6010A	PLC169101B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1411	UCIA181411	AERATION ZONE 1 TRAIN 4 MIXER 1 ETHERNET DATA EXCHANGE	I-18-6027	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1412	UCIA181412	AERATION ZONE 1 TRAIN 4 MIXER 2 ETHERNET DATA EXCHANGE	I-18-6027	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1413	UCIA181413	AERATION ZONE 1 TRAIN 4 MIXER 3 ETHERNET DATA EXCHANGE	I-18-6027	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1441	UIA181441	AERATION ZONE 1 TRAIN 4 PROBE CONTROLLER ETHERNET DATA EXCHANGE	I-18-6028	18-6010A	PLC169101B	ETHERNET (PROBE CONTROLLER)	NETWORK SWITCH	N/A	N/A	N/A	I-16-6101	
	18	1414	UCIA181414	AERATION ZONE 1 TRAIN 4 MIXER 4 ETHERNET DATA EXCHANGE	I-18-6028	18-6010A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	18	1431	UCIA181431	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 1 ETHERNET DATA EXCHANGE	I-18-6030	18-6010A	PLC169101B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1432	UCIA181432	AERATION ZONE 1 TRAIN 4 RECYCLE PUMP 2 ETHERNET DATA EXCHANGE	I-18-6030	18-6010A	PLC169101B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	18	1512	UCIA181512	TANK DRAIN PUMP 2 ETHERNET DATA EXCHANGE	I-18-6041	18-6041A	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	18	1522	UCIA181522	FOAM WASTE PUMP 2 ETHERNET DATA EXCHANGE	I-18-6041	18-6041B	PLC169101B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0115	YA170115	ANAEROBIC ZONE TRAIN 1 ORP FAULT	I-17-6003	40 61 96	PLC169102A	DI	24 VDC	02	01	00	I1001, DET. A	CC30B ADDENDUM 2
	16	9102	JA169102AB	MCC169102A POWER MONITORING METER POWER OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	22	I1001, DET. A	
	16	9102	EAH169102AB	MCC169102A SPD FAULT	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	23	I1001, DET. A	
	16	9102	YA169102AC	MCC169102A NETWORK SWITCH NET169102AC FAULT	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	24	I1001, DET. A	
	16	9102	EA169102AD	MCC169102A NETWORK SWITCH NET169102AC 24 VDC POWER SUPPLY DC OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	25	I1001, DET. A	
	16	9102	YA169102AB	MCC169102A NETWORK SWITCH NET169102AB FAULT	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	26	I1001, DET. A	
	16	9102	EA169102AC	MCC169102A NETWORK SWITCH NET169102AB 24 VDC POWER SUPPLY DC OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	27	I1001, DET. A	
	16	9102	YA169102AA	MCC169102A PLC PANEL NETWORK SWITCH NET169102AA FAULT	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	28	I1001, DET. A	
	16	9102	EAH169102AA	MCC169102A PLC PANEL SPD FAULT	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	29	I1001, DET. A	
	16	9102	EA169102AA	MCC169102A PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	30	I1001, DET. A	
	16	9102	JA169102AA	MCC169102A PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	01	31	I1001, DET. A	
	17	0135	YA170135	ANAEROBIC ZONE TRAIN 3 ORP FAULT	I-17-6007	40 61 96	PLC169102A	DI	24 VDC	02	02	00	I1001, DET. A	CC30B ADDENDUM 2
	16	**9102**	**YA169102AD**	**MCC169102A PLC PANEL NETWORK SWITCH NET169102AD FAULT**	**I-16-6093**	**40 61 96**	**PLC169102A**	**DI**	**24 VDC**	**02**	**02**	**28**	**I1001, DET. A**	**CC30B: CCF 041**
	16	9102	EA169102AB	MCC169102A PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-16-6093	40 61 96	PLC169102A	DI	24 VDC	02	02	30	I1001, DET. A	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	17	0115	AI170115	ANAEROBIC ZONE TRAIN 1 ORP	I-17-6003	17-6003A	PLC169102A	AI	4 - 20 mA	02	03	00	I1003, DET. B	
	16	9102	EI169102AA	MCC169102A PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-16-6093	40 61 96	PLC169102A	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	17	0135	AI170135	ANAEROBIC ZONE TRAIN 3 ORP	I-17-6007	17-6003A	PLC169102A	AI	4 - 20 mA	02	04	00	I1003, DET. B	
	16	9102	EI169102AB	MCC169102A PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-16-6093	40 61 96	PLC169102A	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	17	0101	UCIA170101	ANAEROBIC DISTRIBUTION CHANNEL MIXER 1 ETHERNET DATA EXCHANGE	I-17-6001	17-6001A	PLC169102A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0103	UCIA170103	ANAEROBIC DISTRIBUTION CHANNEL MIXER 3 ETHERNET DATA EXCHANGE	I-17-6001	17-6001A	PLC169102A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0111	UCIA170111	ANAEROBIC ZONE TRAIN 1 MIXER 1 ETHERNET DATA EXCHANGE	I-17-6003	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0112	UCIA170112	ANAEROBIC ZONE TRAIN 1 MIXER 2 ETHERNET DATA EXCHANGE	I-17-6003	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0113	UCIA170113	ANAEROBIC ZONE TRAIN 1 MIXER 3 ETHERNET DATA EXCHANGE	I-17-6004	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0131	UCIA170131	ANAEROBIC ZONE TRAIN 3 MIXER 1 ETHERNET DATA EXCHANGE	I-17-6007	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0132	UCIA170132	ANAEROBIC ZONE TRAIN 3 MIXER 2 ETHERNET DATA EXCHANGE	I-17-6007	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0133	UCIA170133	ANAEROBIC ZONE TRAIN 3 MIXER 3 ETHERNET DATA EXCHANGE	I-17-6008	17-6003A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0201	UCIA170201	ANAEROBIC COLLECTION CHANNEL MIXER 1 ETHERNET DATA EXCHANGE	I-17-6021	17-6021A	PLC169102A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0203	UCIA170203	ANAEROBIC COLLECTION CHANNEL MIXER 3 ETHERNET DATA EXCHANGE	I-17-6021	17-6021A	PLC169102A	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0211	UCIA170211	ANAEROBIC RECIRCULATION PUMP 1 ETHERNET DATA EXCHANGE	I-17-6022	17-6022A	PLC169102A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	
	17	0125	YA170125	ANAEROBIC ZONE TRAIN 2 ORP FAULT	I-17-6005	40 61 96	PLC169102B	DI	24 VDC	02	01	00	I1001, DET. A	CC30B ADDENDUM 2
	16	9102	JA169102BB	MCC169102B POWER MONITORING METER POWER OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	22	I1001, DET. A	
	16	9102	EAH169102BB	MCC169102B SPD FAULT	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	23	I1001, DET. A	
	16	9102	YA169102BC	MCC169102B NETWORK SWITCH NET169102BC FAULT	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	24	I1001, DET. A	
	16	9102	EA169102BD	MCC169102B NETWORK SWITCH NET169102BC 24 VDC POWER SUPPLY DC OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	25	I1001, DET. A	
	16	9102	YA169102BB	MCC169102B NETWORK SWITCH NET169102BB FAULT	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	26	I1001, DET. A	
	16	9102	EA169102BC	MCC169102B NETWORK SWITCH NET169102BB 24 VDC POWER SUPPLY DC OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	27	I1001, DET. A	
	16	9102	YA169102BA	MCC169102B PLC PANEL NETWORK SWITCH NET169102BA FAULT	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	28	I1001, DET. A	
	16	9102	EAH169102BA	MCC169102B PLC PANEL SPD FAULT	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	29	I1001, DET. A	
	16	9102	EA169102BA	MCC169102B PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	30	I1001, DET. A	
	16	9102	JA169102BA	MCC169102B PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	01	31	I1001, DET. A	
	17	0145	YA170145	ANAEROBIC ZONE TRAIN 4 ORP FAULT	I-17-6009	40 61 96	PLC169102B	DI	24 VDC	02	02	00	I1001, DET. A	CC30B ADDENDUM 2
	16	**9102**	**YA169102BD**	**MCC169102B PLC PANEL NETWORK SWITCH NET169102BD FAULT**	**I-16-6093**	**40 61 96**	**PLC169102B**	**DI**	**24 VDC**	**02**	**02**	**28**	**I1001, DET. A**	**CC30B: CCF 041**
	16	9102	EA169102BB	MCC169102B PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-16-6093	40 61 96	PLC169102B	DI	24 VDC	02	02	30	I1001, DET. A	
	17	0125	AI170125	ANAEROBIC ZONE TRAIN 2 ORP	I-17-6005	17-6003A	PLC169102B	AI	4 - 20 mA	02	03	00	I1003, DET. B	
	16	9102	EI169102BA	MCC169102B PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-16-6093	40 61 96	PLC169102B	AI	4 - 20 mA	02	03	07	I1003, DET. A	
	17	0145	AI170145	ANAEROBIC ZONE TRAIN 4 ORP	I-17-6009	17-6003A	PLC169102B	AI	4 - 20 mA	02	04	00	I1003, DET. B	
	16	9102	EI169102BB	MCC169102B PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-16-6093	40 61 96	PLC169102B	AI	4 - 20 mA	02	04	07	I1003, DET. A	
	17	0102	UCIA170102	ANAEROBIC DISTRIBUTION CHANNEL MIXER 2 ETHERNET DATA EXCHANGE	I-17-6001	17-6001A	PLC169102B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0104	UCIA170104	ANAEROBIC DISTRIBUTION CHANNEL MIXER 4 ETHERNET DATA EXCHANGE	I-17-6002	17-6001A	PLC169102B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0121	UCIA170121	ANAEROBIC ZONE TRAIN 2 MIXER 1 ETHERNET DATA EXCHANGE	I-17-6005	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0122	UCIA170122	ANAEROBIC ZONE TRAIN 2 MIXER 2 ETHERNET DATA EXCHANGE	I-17-6005	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0123	UCIA170123	ANAEROBIC ZONE TRAIN 2 MIXER 3 ETHERNET DATA EXCHANGE	I-17-6006	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0141	UCIA170141	ANAEROBIC ZONE TRAIN 4 MIXER 1 ETHERNET DATA EXCHANGE	I-17-6009	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0142	UCIA170142	ANAEROBIC ZONE TRAIN 4 MIXER 2 ETHERNET DATA EXCHANGE	I-17-6009	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0143	UCIA170143	ANAEROBIC ZONE TRAIN 4 MIXER 3 ETHERNET DATA EXCHANGE	I-17-6010	17-6003A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7105	
	17	0202	UCIA170202	ANAEROBIC COLLECTION CHANNEL MIXER 2 ETHERNET DATA EXCHANGE	I-17-6021	17-6021A	PLC169102B	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	17	0212	UCIA170212	ANAEROBIC RECIRCULATION PUMP 2 ETHERNET DATA EXCHANGE	I-17-6022	17-6022A	PLC169102B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7106	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	21	0001	YA210001A	AREA 21 PLC PANEL NETWORK SWITCH NET210001A FAULT	I-21-6091	40 61 96	PLC210001	DI	24 VDC	03	01	28	I1001, DET. A	
	21	0001	EAH210001	AREA 21 PLC PANEL SPD FAULT	I-21-6091	40 61 96	PLC210001	DI	24 VDC	03	01	29	I1001, DET. A	
	21	0001	EA210001A	AREA 21 PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-21-6091	40 61 96	PLC210001	DI	24 VDC	03	01	30	I1001, DET. A	
	21	0001	JA210001	AREA 21 PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-21-6091	40 61 96	PLC210001	DI	24 VDC	03	01	31	I1001, DET. A	
	21	0001	EA210001B	AREA 21 PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-21-6091	40 61 96	PLC210001	DI	24 VDC	03	02	30	I1001, DET. A	
	21	**0001**	**YA210001B**	**AREA 21 PLC PANEL NETWORK SWITCH NET210001B FAULT**	**I-21-6091**	**40 61 96**	**PLC210001**	**DI**	**24 VDC**	**03**	**02**	**31**	**I1001, DET. A**	**CC30B: CCF 041**
	21	0001	EI210001A	AREA 21 PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-21-6091	40 61 96	PLC210001	AI	4 - 20 mA	03	03	07	I1003, DET. A	
	21	0001	EI210001B	AREA 21 PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-21-6091	40 61 96	PLC210001	AI	4 - 20 mA	03	04	07	I1003, DET. A	
	21		UIA21A	MCC 21A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-21-6091	40 61 96	PLC210001	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-21-6101	
	21		UIA21B	MCC 21B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-21-6091	40 61 96	PLC210001	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-21-6101	
	21		EAH21AB	MCC 21A SPD FAULT	I-21-6091	40 61 96	RIO21A	DI	24 VDC	01	05	31	I1001, DET. C	EXISTING MODULE, NERIFY SPARE POINTS
	21		JA21AB	MCC 21A POWER MONITORING METER POWER OK	I-21-6091	40 61 96	RIO21A	DI	24 VDC	01	05	32	I1001, DET. C	EXISTING MODULE, NERIFY SPARE POINTS
	21	0101	FI210101	SECONDARY CLARIFIER 1 RAS PUMP FLOW	I-21-6001	21-6001A	RIO21A	AI	4 - 20 mA (HART)	01	12	01	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0103	FI210103	SECONDARY CLARIFIER 3 RAS PUMP FLOW	I-21-6002	21-6001A	RIO21A	AI	4 - 20 mA (HART)	01	12	02	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0105	FI210105	SECONDARY CLARIFIER 5 RAS PUMP FLOW	I-21-6003	21-6001A	RIO21A	AI	4 - 20 mA (HART)	01	12	03	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0107	FI210107	SECONDARY CLARIFIER 7 RAS PUMP FLOW	I-21-6004	21-6001A	RIO21A	AI	4 - 20 mA (HART)	01	12	04	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0101	UCIA210101	SECONDARY CLARIFIER 1 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6001	21-6001A	RIO21A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0103	UCIA210103	SECONDARY CLARIFIER 3 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6002	21-6001A	RIO21A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0105	UCIA210105	SECONDARY CLARIFIER 5 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6003	21-6001A	RIO21A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0107	UCIA210107	SECONDARY CLARIFIER 7 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6004	21-6001A	RIO21A	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21		EAH21BB	MCC 21B SPD FAULT	I-21-6091	40 61 96	RIO21B	DI	24 VDC	01	05	19	I1001, DET. C	EXISTING MODULE, NERIFY SPARE POINTS
	21		JA21BB	MCC 21B POWER MONITORING METER POWER OK	I-21-6091	40 61 96	RIO21B	DI	24 VDC	01	05	20	I1001, DET. C	EXISTING MODULE, NERIFY SPARE POINTS
	21	0102	FI210102	SECONDARY CLARIFIER 2 RAS PUMP FLOW	I-21-6001	21-6001A	RIO21B	AI	4 - 20 mA (HART)	01	12	01	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	21	0104	FI210104	SECONDARY CLARIFIER 4 RAS PUMP FLOW	I-21-6002	21-6001A	RIO21B	AI	4 - 20 mA (HART)	01	12	02	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0106	FI210106	SECONDARY CLARIFIER 6 RAS PUMP FLOW	I-21-6003	21-6001A	RIO21B	AI	4 - 20 mA (HART)	01	12	03	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0108	FI210108	SECONDARY CLARIFIER 8 RAS PUMP FLOW	I-21-6004	21-6001A	RIO21B	AI	4 - 20 mA (HART)	01	12	04	I1004, DET. B	OWNER TO PROVIDE MODICON QUANTUM 140ACI03000 ANALOG INPUT MODULE AND CABLEFAST 140CFH00800 FIELD TERMINATION MODULE IN SLOT 12 OF EXISTING RIO RACK TO ACCOMMODATE NEW ANALOG INPUT.
	21	0102	UCIA210102	SECONDARY CLARIFIER 2 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6001	21-6001A	RIO21B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0104	UCIA210104	SECONDARY CLARIFIER 4 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6002	21-6001A	RIO21B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0106	UCIA210106	SECONDARY CLARIFIER 6 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6003	21-6001A	RIO21B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	
	21	0108	UCIA210108	SECONDARY CLARIFIER 8 RAS PUMP ETHERNET DATA EXCHANGE	I-21-6004	21-6001A	RIO21B	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7107	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	22	0010	UIA220010	AREA 22 FIRE ALARM CONTROL PANEL FIRE ALARM ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (FACP)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	8901	UIA228901	AREA 22 HVAC CONTROL PANEL ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (HVAC)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9101	UIA229101A	MCC229101A POWER MONITORING METER ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9101	UIA229101B	MCC229101B POWER MONITORING METER ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (PMM)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9201	UIA229201	ATS229201 RAS-WAS STATION ATS ETHERNET DATA EXCHANGE	I-22-6091	40 61 96	NCE220011	ETHERNET (ATS)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	9301	UIA229301	UPS229301 UNINTERRUPTIBLE POWER SUPPLY	I-22-6091	40 61 96	NCE220011	ETHERNET (UPS)	NETWORK SWITCH	N/A	N/A	N/A	I-22-6101	
	22	3020	EI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE IN AUTO	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	00	I1001, DET. A	
	22	3020	EY223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE IN HAND	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	01	I1001, DET. A	
	22	3020	YA223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE FAULT	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	02	I1001, DET. A	
	22	3020	ZIO223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE OPENED	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	03	I1001, DET. A	
	22	3020	ZIC223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE CLOSED	I-22-6001	22-6001A	PLC220001	DI	24 VDC	03	01	04	I1001, DET. A	
	22	3105	YA223105	RAS ANOXIC ZONE TSS FAULT	I-22-6002	40 61 96	PLC220001	DI	24 VDC	03	01	08	I1001, DET. A	
	22	9301	UA229301	UPS229301 MAJOR FAULT (BREAK)	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	14	I1001, DET. A	
	22	9301	ZAC229301	UPS229301 DO-1 ON BYPASS	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	15	I1001, DET. A	
	22	9301	ZLC229301	UPS229301 DO-2 ON INVERTER	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	16	I1001, DET. A	
	22	9301	YL229301A	UPS229301 DO-3 BATTERY OPERATIONAL	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	17	I1001, DET. A	
	22	9301	YL229301B	UPS229301 DO-4 CONVERTER OPERATIONAL	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	18	I1001, DET. A	
	22	9301	EAL229301	UPS229301 DO-5 BATTERY LOW VOLTAGE	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	19	I1001, DET. A	
	22	9201	IAH229301	UPS229301 DO-6 OVERLOAD	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	20	I1001, DET. A	
	22	9201	ZLH229201	ATS229201 NORMAL POWER	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	23	I1001, DET. A	
	22	9101	JA229101A	MCC229101A POWER MONITORING METER POWER OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	24	I1001, DET. A	
	22	9101	EAH229101AB	MCC229101A SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	25	I1001, DET. A	
	22	9101	YA229101AB	MCC229101A NETWORK SWITCH NET229101AB FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	26	I1001, DET. A	
	22	9101	EA229101AC	MCC229101A NETWORK SWITCH NET229101AB 24 VDC POWER SUPPLY DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	27	I1001, DET. A	
	22	0001	YA220001A	AREA 22 PLC PANEL NETWORK SWITCH NET220001A FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	28	I1001, DET. A	
	22	0001	EAH220001	AREA 22 PLC PANEL SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	29	I1001, DET. A	
	22	0001	EA220001A	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 1 DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	30	I1001, DET. A	
	22	0001	JA220001	AREA 22 PLC PANEL 24 VDC POWER SUPPLY REDUNDANCY MODULE REDUNDANCY OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	01	31	I1001, DET. A	
	22	3131	EI223131	WAS WET WELL SLIDE GATE IN AUTO	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	00	I1001, DET. A	
	22	3131	EY223131	WAS WET WELL SLIDE GATE IN HAND	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	01	I1001, DET. A	
	22	3131	YA223131	WAS WET WELL SLIDE GATE FAULT	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	02	I1001, DET. A	
	22	3131	ZIO223131	WAS WET WELL SLIDE GATE OPENED	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	03	I1001, DET. A	
	22	3131	ZIC223131	WAS WET WELL SLIDE GATE CLOSED	I-22-6005	22-6005A	PLC220001	DI	24 VDC	03	02	04	I1001, DET. A	
	00	0030	UA000030	STORM DRAIN LIFT STATION 3 COMMON ALARM	I-00-6003	40 72 00	PLC220001	DI	24 VDC	03	02	05	I1001, DET. A	CC30B: CCF 037
	~~00~~	~~0030~~	~~LCM000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL CONTROL MEDIUM~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~05~~	~~I1001, DET. A~~	CC30B: CCF 037
	~~00~~	~~0030~~	~~LAH000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL ALARM HIGH~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~06~~	~~I1001, DET. A~~	CC30B: CCF 037
	~~00~~	~~0030~~	~~LGL000030~~	~~STORM DRAIN LIFT STATION 3 LEVEL CONTROL LOW~~	~~I-00-6003~~	~~40 72 00~~	~~PLC220001~~	~~DI~~	~~24 VDC~~	~~03~~	~~02~~	~~07~~	~~I1001, DET. A~~	CC30B: CCF 037
	22	3160	YA223160	WAS AND FOAM WASTE DISCHARGE TSS FAULT	I-22-6007	40 61 96	PLC220001	DI	24 VDC	03	02	08	I1001, DET. A	
	22	9101	JA229101B	MCC229101B POWER MONITORING METER POWER OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	24	I1001, DET. A	
	22	9101	EAH229101BB	MCC229101B SPD FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	25	I1001, DET. A	
	22	9101	YA229101BB	MCC229101B NETWORK SWITCH NET229101BB FAULT	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	26	I1001, DET. A	
	22	9101	EA229101BC	MCC229101B NETWORK SWITCH NET229101BB 24 VDC POWER SUPPLY DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	27	I1001, DET. A	
	22	**0001**	**YA220001B**	**AREA 22 PLC PANEL NETWORK SWITCH NET220001B FAULT**	**I-22-6091**	**40 61 96**	**PLC220001**	**DI**	**24 VDC**	**03**	**02**	**28**	**I1001, DET. A**	**CC30B: CCF 041**
	22	0001	EA220001B	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 2 DC OK	I-22-6091	40 61 96	PLC220001	DI	24 VDC	03	02	30	I1001, DET. A	
	22	3020	ZI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE POSITION	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA	03	03	00	I1003, DET. A	
	22	3020	WI223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE TORQUE	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA	03	03	01	I1003, DET. A	
	22	3030	LI223030	RAS DISTRIBUTION BOX LEVEL	I-22-6001	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	03	02	I1003, DET. A	
	22	3105	AI223105	RAS ANOXIC ZONE TSS	I-22-6002	22-6002A	PLC220001	AI	4 - 20 mA	03	03	03	I1003, DET. B	
	22	3121	PI223121	ANAEROBIC RAS TRANSFER PUMPS DISCHARGE PRESSURE	I-22-6004	22-6003A	PLC220001	AI	4 - 20 mA (HART)	03	03	04	I1003, DET. A	
	22	3120	FI223120	ANAEROBIC RAS TRANSFER PUMPS FLOW	I-22-6004	22-6003A	PLC220001	AI	4 - 20 mA (HART)	03	03	05	I1003, DET. A	
	22	3020	FI223020	RAS AERATION DIFFUSER AIRFLOW	I-22-6001	22-6001A	PLC220001	AI	4 - 20 mA (HART)	03	03	06	I1003, DET. A	
	22	0001	EI220001A	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 1 VOLTAGE	I-22-6091	40 61 96	PLC220001	AI	4 - 20 mA	03	03	07	I1003, DET. A	
	22	3131	ZI223131	WAS WET WELL SLIDE GATE POSITION	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA	03	04	00	I1003, DET. A	
	22	3131	WI223131	WAS WET WELL SLIDE GATE TORQUE	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA	03	04	01	I1003, DET. A	
	22	3132	PI223132	WAS WET WELL LEVEL	I-22-6005	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	04	02	I1003, DET. A	
	22	3159	FI223159	WAS AND FOAM WASTE DISCHARGE FLOW	I-22-6007	22-6005A	PLC220001	AI	4 - 20 mA (HART)	03	04	03	I1003, DET. A	
	22	3160	AI223160	WAS AND FOAM WASTE DISCHARGE TSS	I-22-6007	22-6005A	PLC220001	AI	4 - 20 mA	03	04	04	I1003, DET. B	
	22	3190	LI223190	RAS/WAS STATION SUMP LEVEL TRANSMITTER 1 LEVEL	I-22-6008	22-6008A	PLC220001	AI	4 - 20 mA (HART)	03	04	05	I1003, DET. A	
	22	0001	EI220001B	AREA 22 PLC PANEL 24 VDC POWER SUPPLY 2 VOLTAGE	I-22-6091	40 61 96	PLC220001	AI	4 - 20 mA	03	04	07	I1003, DET. A	
	22	3131	ZC223131	WAS WET WELL SLIDE GATE POSITION COMMAND	I-22-6005	22-6005A	PLC220001	AO	4 - 20 mA	03	05	00	I1004, DET. A	
	22	3020	ZC223020	RAS AERATION DIFFUSER AIRFLOW CONTROL VALVE POSITION COMMAND	I-22-6001	22-6001A	PLC220001	AO	4 - 20 mA	03	05	01	I1004, DET. A	
	22	3133	ZCO223133	WAS WET WELL SPRAY WATER SOLENOID VALVE OPEN COMMAND	I-22-6005	22-6005A	PLC220001	DO	24 VDC	03	08	00	I1001, DET. B	
	22	9301	HS229301	UPS229301 REMOTE BYPASS	I-22-6091	40 61 96	PLC220001	DO	24 VDC	03	08	01	I1001, DET. B	
	22	3101	UCIA223101	RAS ANOXIC ZONE MIXER 1 ETHERNET DATA EXCHANGE	I-22-6002	22-6002A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	22	3102	UCIA223102	RAS ANOXIC ZONE MIXER 2 ETHERNET DATA EXCHANGE	I-22-6002	22-6002A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7102	
	22	3111	UCIA223111	ANAEROBIC RAS TRANSFER PUMP 1 ETHERNET DATA EXCHANGE	I-22-6003	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3112	UCIA223112	ANAEROBIC RAS TRANSFER PUMP 2 ETHERNET DATA EXCHANGE	I-22-6003	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3113	UCIA223113	ANAEROBIC RAS TRANSFER PUMP 3 ETHERNET DATA EXCHANGE	I-22-6004	22-6003A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3141	UCIA223141	WAS PUMP 1 ETHERNET DATA EXCHANGE	I-22-6006	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3142	UCIA223142	WAS PUMP 2 ETHERNET DATA EXCHANGE	I-22-6006	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3151	UCIA223151	WAS FOAM WASTE PUMP 1 ETHERNET DATA EXCHANGE	I-22-6007	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3152	UCIA223152	WAS FOAM WASTE PUMP 2 ETHERNET DATA EXCHANGE	I-22-6007	22-6005A	PLC220001	ETHERNET (VFD)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7108	
	22	3191	UCIA223191	RAS/WAS STATION SUMP PUMP 1 ETHERNET DATA EXCHANGE	I-22-6008	22-6008A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	

Item	Area	Loop Number	Tag	Description	P&ID	CONTROLSPEC	PLC/RIO	I/O Type	Module/Device Type	Rack	Slot	Point	I/O Wiring Detail/Diagram	Application Notes
	22	3192	UCIA223192	RAS/WAS STATION SUMP PUMP 2 ETHERNET DATA EXCHANGE	I-22-6008	22-6008A	PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	
	22	8001	UCIA228001	DRY WELL EXHAUST FAN ETHERNET DATA EXCHANGE			PLC220001	ETHERNET (FVNR)	NETWORK SWITCH	N/A	N/A	N/A	E-00-7101	ADDED AFTER BNR MCC SUBMITTAL

SECTION 40 63 43

PROGRAMMABLE LOGIC CONTROLLERS

(CCF 041)

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope

1. This Section specifies requirements for programmable logic controllers (PLC) designed to execute discrete and continuous control logic with high reliability in industrial applications. Enclosures and components not specific to the PLC platform are specified in Section 40 67 00.
2. All PLC components provided for this project will be Owner or Vendor supplied.
3. Contractor to coordinate PLC component requirements with Owner for each control panel listed within Section 40 67 00. Provide a component listing per panel, with quantities, including minimum spares.

B. PLC Schedule

Panel No.	System	Hot-Standby Redundant Processors	Testing	Spares
PLC109101A	MCC109101A PLC	No	40 61 21	Yes
PLC109101B	MCC109101B PLC	No	40 61 21	Yes
PLC130001	MCC13A / B	No	40 61 21	Yes
PLC160001	Area 16 PLC	Yes	40 61 21	Yes
PLC169001	SWGR169001A/B PLC	Yes	Vendor supplied	Vendor supplied
PLC169101A	MCC169101A PLC	No	40 61 21	Yes
PLC169101B	MCC169101B PLC	No	40 61 21	Yes
PLC169102A	MCC169102A PLC	No	40 61 21	Yes
PLC169102B	MCC169102B PLC	No	40 61 21	Yes
PLC210001	Area 21 PLC	Yes	40 61 21	Yes
PLC220001	Area 22 PLC	Yes	40 61 21	Yes
PLC340001	Area 34 PLC	Yes	40 61 21	Yes
PLC340111	Aeration Blower 1 PLC	No	Vendor supplied	Vendor supplied
PLC340133	SWGR340133A/B PLC	Yes	Vendor supplied	Vendor supplied
PLC340211	Aeration Blower 2 PLC	No	Vendor supplied	Vendor supplied
PLC340311	Aeration Blower 3 PLC	No	Vendor supplied	Vendor supplied
PLC340411	Aeration Blower 4 PLC	No	Vendor supplied	Vendor supplied
PLC340511	Aeration Blower 5 PLC	No	Vendor supplied	Vendor supplied
PLC349001	SWGR349001A/B PLC	Yes	Vendor supplied	Vendor supplied
PLC349101A	MCC349101A PLC	No	40 61 21	Yes
PLC349101B	MCC349101B PLC	No	40 61 21	Yes

C. General Requirements

1. General requirements shall be as specified in Sections 40 61 13 and 40 67 00.

1.02 QUALITY ASSURANCE

A. References

1. This Section contains references to the following documents or documents listed in Sections 26 05 00, 40 61 13, and 40 67 00. They are a part of this Section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this Section as if referenced directly. In the event of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.
2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).
3. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.
4. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEC 61131-3	Programmable Controllers – Part 3: Programming Languages
NEMA IA 2.2	Programmable Controllers – Equipment Requirements and Tests
NEMA IA 2.3	Programmable Controllers – Programming Languages

B. Systems Integrator

1. Responsibilities shall be as specified in Section 40 61 13.

1.03 SUBMITTALS

A. General:

1. Submittals and transmittal procedures for submittals are defined in Section 01 33 00. Submit in accordance with the procedures set forth in the General Conditions of the Contract Documents and Section 01 33 00 that include drawings, information and technical data for equipment and as required in Section 40 61 13. Submittal information shall be included in one complete submittal.
2. Submit the following submittal packages under Section 40 67 00.

B. Action Submittals:

1. Section 40 67 00 Submittal Package 1:
   a. A copy of this Specification Section, with addendum updates included, and all referenced and applicable Sections, with addendum updates included, with each paragraph check-marked to indicate Specification compliance or marked to indicate requested deviations from Specification requirements. A check mark shall denote full compliance with a paragraph as a whole.
   b. If deviations from the Specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in

the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.

c. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the Specifications.

d. Failure to include a copy of the marked-up Specification Sections, along with justification(s) for any requested deviations to the Specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Section 40 67 00 Submittal Package 2:
   a. Submittal requirements per Section 40 67 00 for the equipment specified herein.
   b. List of spare parts to be provided.
3. Section 40 67 00 Submittal Package 3:
   a. PLC Input/Output (I/O) loop diagram drawings.
   b. Internal power distribution schematic diagram drawings.
   c. PLC power supply loading calculations.

C. Closeout Submittals:
1. Section 40 67 00 Submittal Package 4:
   a. Manufacturer's operation and maintenance information as specified in Section 01 78 23. Manual shall include final reviewed submittal and separate record of all final configuration, jumper, and switch settings.
   b. As-built record drawings incorporating all modifications to the originally submitted panel drawings; as-built record drawings must be provided in both AutoCAD and Portable Document Format (PDF) format.
   c. Test results as specified in Section 40 61 21-2.02.
   d. List of spare parts provided.

PART 2 PRODUCTS

2.01 GENERAL

A. Manufacturer
1. The PLC manufacturer and model shall be Schneider Electric Modicon M580 family of PLC controllers.

B. Conformal Coating: Include coating option on all available PLC components when:
1. PLC components located within process areas that are subject to contaminent exposure such as dust, mosture, corrosive gasses, or higher temperatures when enclosures are open during maintenance activities.

2.02 PROGRAMMABLE LOGIC CONTROLLER

A. Manufacturer:
1. Schneider Electric Modicon

B. Processor:

1. Hot standby applications: Catalog number: BMEH586040 – M580 hot standby CPU
   a. Accessories:
      1) SD Memory card – 4G storage: Catalog number: BMXRMS004GPF
      2) CPU hot standby link SFP transceiver, single-mode fiber optic: Catalog number: 490NAC0201
2. Standalone applications: Catalog number: BMEP586040 – M580 CPU
   a. Accessories:
      1) SD Memory card – 4G storage: Catalog number: BMXRMS004GPF

C. Network Connections: Provide all communication interfaces, network cables, taps, terminators, power supplies, and accessories for a complete operating network. Provide network cards, as shown within the Drawings.
   1. Protocol: Modbus TCP.
      a. ~~PLC Maintenance/Remote Programming network~~Plant SCADA: Catalog number: ~~BMENOC0321~~BMENUA0100 (CCF 041)
      b. ~~Device~~ Historian Network – Catalog number: BMENOC0301 ~~BMENOC0311~~ (CCF 041)
      c. PLC Peer Network – Catalog number: BMENOC0301 ~~BMENOC0311~~ (CCF 041)
      d. ~~SCADA~~ Device Network – Catalog number: BMENOC0301 ~~BMENOC0311~~ (CCF 041)
   2. Remote I/O:
      a. Catalog number: BMECRA31210

D. Input and Output Modules:
   1. Discrete Inputs: 24 VDC, 32 channel, sinking. Catalog number: BMXDDI3202
      a. I/O Termintation
         1) Sub-base for passive discrete I/O – 24 VDC, 16 channel, LED, disconnect per channel. Catalog number: ABE7H16S21
         2) Sub-base for plug-in relay type (non-24 VDC inputs), 16 channel, LED per channel. Catalog number: ABE7P16F310
            a) 120 VAC Relay – ABS-7EA3F5, or as recommended by Manufacturer.
         3) Cable – 40-way FCN to two HE 10 connectors. Catalog number: BMXFCCxxx3
            a) xxx defines specific length – Contractor to determine.
   2. Discrete Outputs: Relay output, 32 channel, sourcing. Catalog number: BMXDDO3202
      a. I/O Termintation
         1) Sub-base for plug-in relay type, 16 channel, LED and fuse per channel. Catalog number: ABE7P16T214
            a) Various relay options can be ordered. Contractor to coordinate type required for installation and provide final listing.
         2) Cable – 40-way FCN to two HE 10 connectors. Catalog number: BMXFCCxxx3
            a) xxx defines specific length – Contractor to determine.
   3. Analog Inputs: 4-20 mA DC/1-5 VDC HART, isolated channel-to-channel, 8 channel. Catalog number: BMEAHI0812
      a. I/O Termination

1) Sub-base for passive analog input, 8 channel. Catalog number: ABE7CPA02
2) Cable – 20-way terminal block to 25-way SUB-D connector. Catalog number: BMXFTAxx22
a) xx defines specific length – Contractor to determine.

4. Analog Outputs: 4-20 mA DC HART, isolated channel-to-channel, 4 channel. Catalog number: BMEAHO0412
a. I/O Termintation
1) Sub-base for analog output distribution, 4 channel. Catalog number: ABE7CPA21
2) Cable – 20-way terminal block to 25-way SUB-D connector. Catalog number: BMXFCAxx0
a) xx defines specific length – Contractor to determine.

5. Thermocouple Input: 8 channel. Catalog number: BMXART0814
a. I/O Termintation
1) Sub-base for thermocouple distribution, 4 channel. Catalog number: ABE7CPA412
2) Cable – 40-way FCN to 25-way SUB-D connector. Catalog number: BMXFCAxx2
a) xx defines specific length – Contractor to determine.

E. Power Supplies: (CCF 041)
1. ~~Hot standby and standalone PLC~~All applications – 24 VDC, redundant, Catalog number: BMXCPS4022
~~a. Note, the redundant power supply has a higher power rating that can accommodate multiple communication modules. A single redundant power supply is specified for the standalone PLC applications for this reason.~~
2. ~~Remote I/O rack applications – 24 VDC isolated, 31.2 W power supply. Catalog number: BMXCPS3020H~~

F. Racks:
1. Hot standby applications – 10-slot rack. Catalog number: BMEXBP1002
2. Standalone applications – 12-slot rack. Catalog number: BMEXBP1200
3. Remote I/O applications – 12-slot rack. Catalog number: BMEXBP1200
4. Extended rack applications – 12-slot rack. Catalog number: BMXXBP1200
a. Rack extender module – Catalog number: BMXXBE1000
b. Rack extender cable – Catalog number: BMXXBCxxxK
1) xxx defines specific length – Contractor to determine.

G. Accessories:
1. Rack slot protective cover – Catalog number: BMXXEM010

2.03 PROGRAMMING SOFTWARE

A. The Owner will provide the PLC software, communication module configuration, and all PLC settings and logic modifications.

~~A.~~B. Programming software shall be per 40 68 00. (CCF 041)

2.04 SPARE PARTS

A. The following spares shall be provided when determining the total I/O card count.
   1. A minimum of 20% of each I/O type installed per new rack.
      a. Existing racks do not require additional spare I/O modules.

2.05 CONTROL PANEL FABRICATION

A. Refer to Section 40 67 00.

B. Detailed shop drawings showing field connections and any terminal block jumpering required.

C. Terminate all used and spare I/O wiring to terminal blocks, where applicable.

D. Create wire markers with “to-from” component name, PLC slot/base, or terminal column number and terminal number information identical at each end.

E. Provide prefabricated terminal modules for field connections to PLC inputs and outputs, as indicated herein.

PART 3 EXECUTION

3.01 INSTALLATION

A. Refer to Section 40 67 00.

B. Connect input and output devices to the PLC via field termination modules blocks, not directly to the PLC rack mounted I/O.

C. Network connections coming from external sources shall be terminated at the control panel Ethernet switch or directly to the PLC, as shown within the Drawings.

3.02 FIELD INSPECTION AND TESTING

A. Refer to Section 40 67 00.

B. Equipment Manufacturer and Systems Integrator: The supplier of each PLC system shall provide a qualified service representative to perform the following:
   1. Assist in all testing. The Systems Integrator will provide a minimum of two man-weeks on-site for each new PLC I/O rack.

C. Contractor
   1. Fault or trouble conditions caused by wiring or installation issues internal to the new control panels shall be investigated and resolved by the Contractor to the satisfaction of the PLC supplier.

3.03 TRAINING – NOT USED

3.04 PLC INPUT/OUTPUT SUMMARY

A. The Section 40 61 93 Process Control System I/O Lists provide a listing of PLC module requirements, and the assigned input/output points for the specified PLC system. The unassigned PLC I/O points shall be tagged as spare. The Process Control System I/O Lists are provided for new and modified control panels.

B. The detailed assignment of I/O to specific points is provided for information only and will be revised and modified throughout the project. Final assignments shall be coordinated between the Contractor, the System Integrator, and the Owner during Construction.

END OF SECTION

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SECTION 40 68 00

PROCESS CONTROL SOFTWARE

(CCF 041)

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope:

1. This section specifies the general requirements applicable to the development and programming of the process control system graphical operator interface, historical data management system, and process control logic.
2. The services described in this specification will be provided by the Owner and are NOT included in the Contractor's Scope of Work. This specification is provided to the Contractor for information only.

1.02 QUALITY ASSURANCE

A. Implementation Plan Meetings:

1. The Systems Integrator shall include as work of this section of the specifications the requirement for two (2) meetings to be held at the project site. The primary function of the meetings shall be to solicit input from the Owner regarding the implementation of the process control system and to facilitate preparation of the Process Control System Implementation Plan specified herein.
2. The Systems Integrator shall have in attendance at each meeting a representative who is responsible for the preparation of the Process Control System Implementation Plan. The preliminary schedule and agenda for each of the meetings shall be as described below. The specific dates for each of the meetings shall be scheduled by the Systems Integrator and approved by the Construction Manager.
3. The Construction Manager shall be provided with two (2) weeks minimum advanced written notice of proposed scheduled meeting dates. The System Integrator shall prepare a detailed meeting agenda and submit it to the Construction Manager with the notice of proposed scheduled meeting dates.
   a. Meeting-1 shall be held within sixty (60) days of receipt of Notice to Proceed. The purpose of this meeting shall be to begin preparation of the Process Control System Implementation Plan. The System Integrator shall be prepared to present the capabilities of the proposed process control system software and the alternatives available for each of the major areas of implementation described by the Process Control System Implementation Plan.
   b. Meeting-2 shall be held within thirty (30) days of completion of the Construction Manager's review of the Process Control System Implementation Plan submittal. The purpose of this meeting shall be to discuss the submittal review comments and resolve any related issues.

1.03 SUBMITTALS

A. The following information shall be provided in accordance with Section 01 33 00:

1. Process Control System Implementation Plan

PART 2 PRODUCTS

2.01 PRODUCT DATA

A. The following data shall be provided in accordance with Section 01 33 00:

1. Process Control System Developer's Guidelines: The Process Control System Implementation Plan shall be modified and updated during the course of development of the process control system control logic and graphical operator interface to reflect the conventions and standards used in the final system development. Upon final acceptance of the work, the updated implementation plan shall be re-published and submitted as the Process Control System Developer's Guidelines.
2. Process Control System Configuration Report:
   a. Report documenting the final configuration of the process control system including the following:
      1) Hardware Configuration: Final switch settings and jumper positions shall be documented for all process control system components including processors, communications adapter modules, motor controllers and adjustable frequency drives, power metering systems, etc.
      2) Process Control Logic: Bound hard copy of the annotated process controller program listing. The program listing for each processor shall be separately bound and shall have tab dividers for each program file listing. Program listing shall include cross references.

2.02 OPERATOR INTERFACE SOFTWARE (CCF 041)

A. Manufacturer: GE iFIX
   1. Version to match owner's current installed software.

2.03 PLC PROGRAMMING SOFTWARE (CCF 020)

A. Manufacturer: Schneider Electric EcoStruxure Control Expert
   1. Version to match owner's current installed software.

PART 3 EXECUTION

3.01 PROCESS CONTROL SYSTEM IMPLEMENTATION PLAN

A. General:

1. The Systems Integrator shall prepare an implementation plan for the process control system development and programming work. The implementation plan shall establish guidelines for information coordination between the Contractor provided activities and the Owner provided activities. As a minimum coordination on the following tasks shall be provided within the implementation plan:
   a. Testing – per 40 61 21..

3.02 TESTING AND COMMISSIONING

A. The graphical operator interface shall be tested and commissioned in accordance with Section 40 61 21.

END OF SECTION

AREA 00 CC30B: CCF 041 CABLE MODIFICATIONS

Cable Schedule

equipment number

3	1	2	4	5			TYPE	CONDUCTORS	CABLE FROM	CABLE TO			VIA			PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-00-1006	CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING) **(REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-00-1006	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING) **(REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING) **(REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING) **(REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-00-1005	CONTINUED FROM LINE ABOVE. CABLE ALSO APPEARS IN AREA 21 AND 34 CABLE SCHEDULES. (CCF 020 CHANGE ORDER PENDING) **(REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**~~NCE240011~~ NCE210011**	NCE230011	**RWYF210011-A**	**PBX210001S-B**	**RWYF210001B-B**	**~~RWYF240011-B~~**	CTS24	E-23-1102	48-STRAND. CABLE ALSO APPEARS IN AREA 24 SHCEDULE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**~~NCE240011~~ NCE210011**	NCE230011	RWYF24224-D	HH24224	RWYF24225-D	HH24225	RWYF020001-C	E-23-1102	CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**~~NCE240011~~ NCE210011**	NCE230011	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B		E-23-1102	CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	24	9101	A	-A			FOTSM	24 FiberSM	NCE210011	NCE240011	RWYF210011-B	PBX210001S-B	RWYF210001B-B	CTS24	**RWYF240011-B**	E-00-1005	TO FOP IN AREA 24. CABLE ALSO APPEARS IN AREA 21 CABLE SCHEDULE **(PART OF CC5F, REMOVE FROM CC30B SCOPE - CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~ CC5F**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**	**~~144 FiberSM~~**	**~~NCR340001~~**	**~~NCE240011~~**	**~~CTS340202~~**	**~~CTS340201~~**	**~~RWYF340013A-A~~**	**~~CTS340013A~~**	**~~RWYF341002-D~~**	**~~E-24-1211~~**	**~~CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND 24 SCHEDULE (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**	**~~144 FiberSM~~**	**~~NCR340001~~**	**~~NCE240011~~**	**~~MH341002~~**	**~~RWYF001002-D~~**	**~~HH001002~~**	**~~RWYF23613-D~~**	**~~MH23613~~**	**~~E-24-1211~~**	**~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**		**~~NCR340001~~**	**~~NCE240011~~**						**~~E-24-1211~~**	**~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**	**~~144 FiberSM~~**	**~~NCR340001~~**	**~~NCE240011~~**	**~~RWYF230001A-A~~**	**~~JBX230001-A~~**	**~~RWYF230001B-A~~**	**~~JBX230001-B~~**	**~~RWYF020001-A~~**	**~~E-24-1211~~**	**~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**	**~~144 FiberSM~~**	**~~NCR340001~~**	**~~NCE240011~~**	**~~HH020001~~**	**~~RWYF24225-A~~**	**~~HH24225~~**	**~~RWYF24224-A~~**	**~~HH24224~~**	**~~E-24-1211~~**	**~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**
~~CBLF~~	**~~24~~**	**~~0011~~**	**~~A~~**	**~~-A~~**			**~~FOTSM~~**	**~~144 FiberSM~~**	**~~NCR340001~~**	**~~NCE240011~~**	**~~RWYF240000-A~~**	**~~CTS24~~**	**~~RWYF240011-A~~**			**~~E-24-1211~~**	**~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**

Print Schedule

Print Schedule

toggles print preview for all deliverable sheets

SORT

warning: cannot undo sort

sorts cables by equipment number (numbers, then names)

WORKING

AREA 16 CC30B: CCF 041 CABLE MODIFICATIONS

Cable Schedule

equipment number

3	1	2	4	5			TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT / REV
CBLC	16	9101	A	-A			XHHW2	4#14, 1#14G	PLC169101A	NET169101AB						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	A	-B			XHHW2	4#14, 1#14G	PLC169101A	NET169101AC						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	A	-D			XHHW2	4#14, 1#14G	PLC169101A	NET169101AD						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	A	-F			XHHW2	2#14, 1#14G	PLC169101A	PMM169101A						I-16-6092	POWER OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	B	-A			XHHW2	4#14, 1#14G	PLC169101B	NET169101BB						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	B	-B			XHHW2	4#14, 1#14G	PLC169101B	NET169101BC						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	B	-D			XHHW2	4#14, 1#14G	PLC169101B	NET169101BD						I-16-6092	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9101	B	-F			XHHW2	2#14, 1#14G	PLC169101B	PMM169101B						I-16-6092	POWER OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	A	-A			XHHW2	4#14, 1#14G	PLC169102A	NET169102AB						I-16-6093	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	A	-B			XHHW2	4#14, 1#14G	PLC169102A	NET169102AC						I-16-6093	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	A	-E			XHHW2	2#14, 1#14G	PLC169102A	PMM169102A						I-16-6093	POWER OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	B	-A			XHHW2	4#14, 1#14G	PLC169102B	NET169102BB						I-16-6093	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	B	-B			XHHW2	4#14, 1#14G	PLC169102B	NET169102BC						I-16-6093	NET FAULT AND DC OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9102	B	-E			XHHW2	2#14, 1#14G	PLC169102B	PMM169102B						I-16-6093	POWER OK CABLE INSIDE MCC (ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING)	CC30B
CBLC	16	9401		-A			TCER	2#14, 1#14G	CAB160001	MCC169401	CTC160007	CTC160008				E-16EB-3001	PMM169401 POWER OK (CC30B: CCF 041 CHANGE ORDER PENDING	CC30B

AREA 21-24 CC30B: CCF 041 CABLE MODIFICATIONS

Cable Schedule

3	1 (equipment number)	2	4	5			TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS	CONTRACT/ REV
CBLD	**21**	**0001**	**A**	**-B**			**NC2**	**1#U/FTP CAT6A**	**CAB210001**	**NCE210011**	**RWYD210001A-B**					E-21-1201	**(CABLE AND RACEWAY ADDED CC30B: CCF 041 CHANGE ORDER PENDING**	**CC30B**
~~**CBLF**~~	~~**21**~~	~~**0001**~~	~~**A**~~	~~**-A**~~			~~**FOTSM**~~	~~**2 FiberSM**~~	~~**NCE210011**~~	~~**CAB210001**~~	~~**RWYF21001A-A**~~					~~**E-21-1201**~~	~~**TWO 2-FIBER, SINGLE MODE PATCH CABLES. SEE I-21-6101. (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
~~**CBLF**~~	~~**21**~~	~~**0001**~~	~~**A**~~	~~**-B**~~			~~**FOTSM**~~	~~**2 FiberSM**~~	~~**NCE210011**~~	~~**CAB210001**~~	~~**RWYF21001A-A**~~					~~**E-21-1201**~~	~~**TWO 2-FIBER, SINGLE MODE PATCH CABLES. SEE I-21-6101. (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	21	0011	A	-A			FOTSM	**144 FiberSM**	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLC	**21**	**9101**	**A**	**-A**			**XHHW2**	**2#14, 1#14G**	**RIO21A**	**MCC 21A**						**I-21-6091**	**SPD FAULT CABLE INSIDE MCC ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING**	**CC30B**
CBLC	**21**	**9101**	**A**	**-B**			**XHHW2**	**2#14, 1#14G**	**RIO21A**	**PMM219101A**						**I-21-6091**	**PMM POWER OK CABLE INSIDE MCC ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING**	**CC30B**
CBLC	**21**	**9101**	**B**	**-A**			**XHHW2**	**2#14, 1#14G**	**RIO21B**	**MCC 21A**						**I-21-6091**	**SPD FAULT CABLE INSIDE MCC ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING**	**CC30B**
CBLC	**21**	**9101**	**B**	**-B**			**XHHW2**	**2#14, 1#14G**	**RIO21B**	**PMM219101B**						**I-21-6091**	**PMM POWER OK CABLE INSIDE MCC ADDED CABLE TO SCHEDULE CC30B: CCF 041 CHANGE ORDER PENDING**	**CC30B**
CBLD	21	9101	BA	-A			NC4	1#600V CAT6A	~~**CAB210001**~~ **NCE210011**	MCC 21B	RWYD219101BA-A					E-21-1201	TO RIO21B. (CCF 020 CHANGE ORDER PENDING). **(REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	~~**NCE240011**~~ **NCE210011**	NCE230011	**RWYF210011-A**	**PBX210001S-B**	**RWYF210001B-B**	~~**RWYF240011-B**~~	CTS24	E-00-1005	CABLE ALSO APPEARS ON SITE AND AREA 23 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING) (REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	~~**NCE240011**~~ **NCE210011**	NCE230011	RWYF24224-D	HH24224	RWYF24225-D	HH24225	RWYF020001-C	E-00-1005	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	~~**NCE240011**~~ **NCE210011**	NCE230011	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B		E-00-1005	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLD	24	0011		-A			NC2	1#U/FTP CAT6A	~~**NCE240011**~~ **NCE210011**	UPS24	**RWYD210011D**	**PBX210001S-A**	**RWYD210001A**	**CTS24**	RWYD240011-A	E-24-1211	**(REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLD	24	0011		-B			NC4	1#600V CAT6A	~~**NCE240011**~~ **NCE210011**	MCC24A	**RWYD210011D**	**PBX210001S-A**	**RWYD210001A**	**CTS24**	RWYD240011-B	E-24-1211	FOR POWER MONITOR. (**REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLD	24	0011		-C			NC2	1#U/FTP CAT6A	~~**NCE240011**~~ **NCE210011**	RIO24A	**RWYD210011D**	**PBX210001S-A**	**RWYD210001A**	**CTS24**	RWYD240011-C	E-24-1211	**(REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLD	24	0011		-D			NC2	1#U/FTP CAT6A	~~**NCE240011**~~ **NCE210011**	RIO24B	**RWYD210011D**	**PBX210001S-A**	**RWYD210001A**	**CTS24**	RWYD240011-D	E-24-1211	**(REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
CBLD	24	0011		-E			NC4	1#600V CAT6A	~~**NCE240011**~~ **NCE210011**	MCC24B	**RWYD210011D**	**PBX210001S-A**	**RWYD210001A**	**CTS24**	RWYD240011-E	E-24-1211	FOR POWER MONITOR. (**REROUTE CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
~~**CBLF**~~	~~**24**~~	~~**0011**~~	~~**A**~~	~~**-A**~~			~~**FOTSM**~~	~~**144 FiberSM**~~	~~**NCR340001**~~	~~**NCE240011**~~	~~**CTS340202**~~	~~**CTS340201**~~	~~**RWYF340013A-A**~~	~~**CTS340013A**~~	~~**RWYF341002-D**~~	~~**E-24-1211**~~	~~**CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULE (CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
~~**CBLF**~~	~~**24**~~	~~**0011**~~	~~**A**~~	~~**-A**~~			~~**FOTSM**~~	~~**144 FiberSM**~~	~~**NCR340001**~~	~~**NCE240011**~~	~~**MH341002**~~	~~**RWYF001002-D**~~	~~**HH001002**~~	~~**RWYF23613-D**~~	~~**MH23613**~~	~~**E-24-1211**~~	~~**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
~~**CBLF**~~	~~**24**~~	~~**0011**~~	~~**A**~~	~~**-A**~~			~~**FOTSM**~~	~~**144 FiberSM**~~	~~**NCR340001**~~	~~**NCE240011**~~	~~**RWYF230001A-A**~~	~~**JBX230001-A**~~	~~**RWYF230001B-A**~~	~~**JBX230001-B**~~	~~**RWYF020001-A**~~	~~**E-24-1211**~~	~~**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~
~~**CBLF**~~	~~**24**~~	~~**0011**~~	~~**A**~~	~~**-A**~~			~~**FOTSM**~~	~~**144 FiberSM**~~	~~**NCR340001**~~	~~**NCE240011**~~	~~**HH020001**~~	~~**RWYF24225-A**~~	~~**HH24225**~~	~~**RWYF24224-A**~~	~~**HH24224**~~	~~**E-24-1211**~~	~~**CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**~~	~~**CC30B**~~

AREA 21-24 CC30B: CCF 041 CABLE MODIFICATIONS CONT'D

~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~RWYF240000-A~~	~~CTS24~~	~~RWYF240011-A~~			~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING)~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLP~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~XHHW2~~	~~2#12, 1#12G~~	~~JP21~~	~~NCE240011~~	~~RWYP210001P-B~~	~~PBX210001P~~	~~RWYP210001P-A~~	~~CTP24~~	~~RWYP240011A-A~~	~~E-24-1211~~	~~NCE240011 POWER (TO RACK-MOUNTED UPS IN NCE).~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLP~~	~~24~~	~~0011~~	~~A~~	~~-B~~			~~XHHW2~~	~~2#12, 1#12G~~	~~JP24~~	~~TBX240011~~	~~RWYP240011A-B~~					~~E-24-1211~~	~~UPS POWER FEED FOR NCE240011~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
CBLF	24	9101	A	-A			FOTSM	**48 FiberSM**	NCE210011	NCE240011	RWYF210011-B	PBX210001S-B	RWYF210001B-B	CTS24	RWYF240011-B	E-00-1005	CABLE ALSO APPEARS ON SITE CABLE SCHEDULE. (CCF 020 CHANGE ORDER PENDING) **(PART OF CC5F, REMOVE FROM CC30B SCOPE - CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B CC5F**

AREA 23 CC30B: CCF 041 CABLE MODIFICATIONS

Cable Schedule

SORT ORDER

3	1	2	4	5			TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS CCF 041	CONTRACT / REV
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 34 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**NCE240011 NCE210011**	NCE230011	**RWYF210011-A**	**PBX210001S-B**	**RWYF210001B-B**	**~~RWYF240011-B~~**	CTS24	E-23-1102	48-STRAND. CABLE ALSO APPEARS IN AREA 24 SCHEDULE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**NCE240011 NCE210011**	NCE230011	RWYF24224-D	HH24224	RWYF24225-D	HH24225	RWYF020001-C	E-23-1102	CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	23	0011	A	-B			FOTSM	48 FiberSM	**NCE240011 NCE210011**	NCE230011	HH020001	RWYF230001B-C	JBX230001-B	RWYF230011-B		E-23-1102	CONTINUED FROM LINE ABOVE. (CCF 020 CHANGE ORDER PENDING) **(REROUTED CABLE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~CTS340202~~	~~CTS340201~~	~~RWYF340013A-A~~	~~CTS340013A~~	~~RWYF341002-D~~	~~E-24-1211~~	~~CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 , AREA 21 AND SITE CABLE SCHEDULE~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~MH341002~~	~~RWYF001002-D~~	~~HH001002~~	~~RWYF23613-D~~	~~MH23613~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~RWYF230001A-A~~	~~JBX230001-A~~	~~RWYF230001B-A~~	~~JBX230001-B~~	~~RWYF020001-A~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~HH020001~~	~~RWYF24225-A~~	~~HH24225~~	~~RWYF24224-A~~	~~HH24224~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~RWYF240000-A~~	~~CTS24~~	~~RWYF240011-A~~			~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**CC30B**

Print Schedule

Cable Schedule

AREA 33-34 CC30B: CCF 041 CABLE MODIFICATIONS

3	1 (equipment number)	2	4	5			TYPE	CONDUCTORS	CABLE FROM	CABLE TO	VIA					PLAN DRAWING	COMMENTS CCF 041	CONTRACT / REV
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	CTS340202	CTS340201	RWYF340013A-A	CTS340013A	RWYF341002-D	E-21-1201	CABLE ALSO APPEARS IN AREA 23, SITE AND AREA 21 CABLE SCHEDULES. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	MH341002	RWYF001002-D	HH001002	RWYF23613-D	MH23613	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	RWYF230001A-A	JBX230001-A	RWYF230001B-A	JBX230001-B	RWYF020001-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	HH020001	RWYF24225-A	HH24225	RWYF24224-A	HH24224	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
CBLF	21	0011	A	-A			FOTSM	144 FiberSM	NCR340001	NCE210011	RWYF240000-A	CTS24	RWYF210001B-A	PBX210001S-B	RWYF210011-A	E-21-1201	CONTINUED FROM LINE ABOVE. **(CCF 020 CHANGE ORDER PENDING) (REVISED FIBER COUNT CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~CTS340202~~	~~CTS340201~~	~~RWYF340013A-A~~	~~CTS340013A~~	~~RWYF341002-D~~	~~E-24-1211~~	~~CONTRACTOR TO FIELD FIBER OPTIC CABLE PER RFI 060. CONTRACTOR SHALL PROVIDE UPDATE CABLE SCHEUDLE AND ROUTING BASED ON FIELD ROUTING. FIBER OPTIC CABLE TO AREA 24 NETWORK CABINET. CABLE ALSO APPEARS IN AREA 34 AND SITE CABLE SCHEDULE~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~MH341002~~	~~RWYF001002-D~~	~~HH001002~~	~~RWYF23613-D~~	~~MH23613~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~RWYF230001A-A~~	~~JBX230001-A~~	~~RWYF230001B-A~~	~~JBX230001-B~~	~~RWYF020001-A~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~HH020001~~	~~RWYF24225-A~~	~~HH24225~~	~~RWYF24224-A~~	~~HH24224~~	~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~
~~CBLF~~	~~24~~	~~0011~~	~~A~~	~~-A~~			~~FOTSM~~	~~144 FiberSM~~	~~NCR340001~~	~~NCE240011~~	~~RWYF240000-A~~	~~CTS24~~	~~RWYF240011-A~~			~~E-24-1211~~	~~CONTINUED FROM LINE ABOVE.~~ **(CCF 020 CHANGE ORDER PENDING) (REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~CC30B~~

AREA 00 CC30B: CCF 041 RACEWAY MODIFICATIONS

Cable Tray/Raceway Schedule

WORKING

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV	Percent filled	Mininum size (inches)	Error messages
CTS340013A	12	Tray		CBLF210011A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A	4%	6	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
CTS340201	18	Tray		CBLF210011A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A	2%	6	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
CTS340202	18	Tray		CBLF050001A-A			REFERENCE AREA 34 SCHEDULE FOR TRAY SIZE	CC30A	5%	6	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF001002-D	4	Raceway	DB340001	CBLF210011A-A	MH341002	HH001002	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33.	CC30A	23%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF020001-A	4	Raceway	DB020005	CBLF210011A-A	JBX230001-B	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F	23%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF210001B-B	4	Raceway	DB210001S	CBLF210011A-D	PBX210001S-B	CTS24	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 033	CC5F	6%	1	
				CBLF230011A-B			**ADDED CABLE TO RACEWAY CC30B: CCF 041**				
				CBLF249101A-A							
RWYF210011-A	4	Raceway		CBLF210011A-A	PBX210001S-B	NCE210011	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30B	15%	1-1/2	
				CBLF230011A-B			**ADDED CABLE TO RACEWAY CC30B: CCF 041**				
RWYF230001A-A	4	Raceway	DB23614A	CBLF020011AB-A	MH23613	JBX230001-A	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC30A	23%	2	
				~~CBLF210011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
				CBLF230011AB-A							
				CBLF240011A-A							
RWYF230001B-A	4	Raceway		~~CBLF210011A-A~~	JBX230001-A	JBX230001-B	**IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 (REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	19%	2	
				CBLF210011CA-A							
				CBLF240011A-A							
RWYF23613-D	**4**	Raceway	DB001001	CBLF210011A-A	HH001002	MH23613	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A	23%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF240000-A	2	Raceway	DB240011S	CBLF210011A-A	HH24224	CTS24		CC30B	89%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF240011-A	3	Raceway		CBLF020011A-B	NCE240011	CTS24	IDFM - (2) 3" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	CC30B	22%	1-1/2	
				CBLF210011DA-A							
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF240011-B	2	Raceway		CBLF020011BB-A	NCE240011	CTS24	IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	CC30B	27%	1-1/4	
				CBLF210011CA-A							
				~~CBLF230011A-B~~			**CABLE REROUTED, REMOVE FROM RACEWAY CC30B: CCF 041 CHANGE ORDER PENDING**				
				CBLF249101A-A							
RWYF24224-A	2	Raceway	DB240009S	CBLF210011A-A	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING)	EXISTING	89%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF24225-A	4	Raceway	DB020002	CBLF020011BB-A	HH24225	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33	CC5F	20%	2	
				CBLF210011A-A							
				CBLF210011CA-A							
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF340013A-A	4	Raceway		CBLF210011A-A	CTS340201	CTS340013A	IDFM - 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33	CC30A	23%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				
RWYF341002-D	4	Raceway	DB340002	CBLF210011A-A	CTS340013A	MH341002	IDFM - (2) 4" - 3 CELL INNDERDUCT. REFER TO SPEC 26 05 33	CC30A	23%	2	
				~~CBLF240011A-A~~			**(REMOVE CBLF240011A-A FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**				

Cable Tray/Raceway Schedule

AREA 16 CC30B: CCF 041 RACEWAY MODIFICATIONS

CABLE TRAY/ RACEWAY TAG	SIZE (INCHES)	TRAY OR RACEWAY	DUCT BANK	CABLE NUMBERS	RACEWAY FROM	RACEWAY TO	COMMENTS	CONTRACT / REV	Percent filled	Mininum size (inches)	Error messages
CTC160007	**12**	Tray		CBLC169201-A			ADDENDUM 5	CC30B/REV A	9%	6	
				CBLC169202-A							
				CBLC169302-A							
				CBLC169302-B							
				CBLC169401-A			**CABLE ADDED CC30B: CCF 041 CHANGE ORDER PENDING**				
				CBLC169403-A							
				CBLC169403-B							
				CBLD160101-A							
CTC160008	12	Tray		CBLC169302-B			**ADDENDUM 2 (CABLE) / ADDENDUM 5 (TRAY SIZE)**	**CC30B/REV A**	3%	6	
				CBLC169401-A			**CABLE ADDED CC30B: CCF 041 CHANGE ORDER PENDING**				
				CBLC169403-B							

AREA 21-24 CC30B: CCF 041 RACEWAY MODIFICATIONS

WORKING

CTS24	6	Tray		**CBLD240011-A**			EXISTING TRAY (CCF 020 CHANGE ORDER PENDING) **(ADDED CABLES CBLD240011-A THRU E TO CABLE TRAY, CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**		13%	6	
				CBLD240011-B							
				CBLD240011-C							
				CBLD240011-D							
				CBLD240011-E							
				CBLF020011A-B							
				CBLF020011BB-A							
				CBLF210011A-A							
				CBLF210011A-D							
				CBLF210011B-A							
				CBLF210011CA-A							
				CBLF210011DA-A							
				CBLF230011A-B							
				CBLF240011A-A							
				CBLF249101A-A							
RWYD210001A	4	Raceway	DB210001S	**CBLD240011-A**	PBX210001S-A	CTS24	**(EXISTING RACEWAY RWYX210001 IN DUCT BANK TO BE RETAGGED, ADDED CABLES CBLD240011-A THRU D CC30B: CCF 041 CHANGE ORDER PENDING)**		77%	1-1/4	
				CBLD240011-B							
				CBLD240011-C							
				CBLD240011-D							
				CBLD240011-E							
RWYD210001A-B	**3/4**	**Raceway**		**CBLD210001A-B**	**CAB210001**	**NCE210011**	**NEW RACEWAY CC30B: CCF 041 CHANGE ORDER PENDNING**	**CC30B**	**31%**	**3/4**	
RWYD210011D	**1-1/2**	**Raceway**		CBLD240011-A	**NCE210011**	**PBX210001S-A**	**(NEW RACEWAY CC30B: CCF 041 CHANGE ORDER PENDING)**		56%	1-1/4	
				CBLD240011-B							
				CBLD240011-C							
				CBLD240011-D							
				CBLD240011-E							
RWYD219101BA-A	3/4	Raceway		CBLD219101BA-A	**CAB210001 NCE210011**	MCC 21B	**(CABLE REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	41%	3/4	
RWYD240011-A	3/4	Raceway		CBLD240011-A	**CTS24**	UPS24	CCF 020 CHANGE ORDER PENDING **(RACEWAY REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	31%	3/4	
RWYD240011-B	3/4	Raceway		CBLD240011-B	**CTS24**	MCC24A	CCF 020 CHANGE ORDER PENDING **(RACEWAY REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	41%	3/4	
RWYD240011-C	3/4	Raceway		CBLD240011-C	**CTS24**	RIO24A	CCF 020 CHANGE ORDER PENDING **(RACEWAY REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	31%	3/4	
RWYD240011-D	3/4	Raceway		CBLD240011-D	**CTS24**	RIO24B	CCF 020 CHANGE ORDER PENDING **(RACEWAY REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	31%	3/4	
RWYD240011-E	3/4	Raceway		CBLD240011-E	**CTS24**	MCC24B	CCF 020 CHANGE ORDER PENDING **(RACEWAY REROUTED CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	41%	3/4	
RWYF210001B-B	4	Raceway	DB210001S	CBLF210011A-D	PBX210001S-B	CTS24	IDFM - (3) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(ADDED CBLF230011A-B TO RACEWAY CC30B: CCF 041 CHANGE ORDER PENDING)**	CC5F	7%	1-1/4	
				CBLF230011A-B							
				CBLF249101A-A							
RWYF210011-A	4	Raceway		CBLF210011A-A	PBX210001S-B	NCE210011	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(ADDED CBLF230011A-B TO RACEWAY CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	15%	1-1/2	
				CBLF230011A-B							
~~RWYF21001A-A~~	**~~1-1/4~~**	**Raceway**		**~~CBLF210001A-A~~**	**~~NCE210011~~**	**~~CAB210001~~**	**~~IDFM - 1" - 3 CELL INNERDUCT,. REFER TO SPEC 26 05 33~~ (CABLES AND RACEWAY REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	**~~CC30B~~**	**~~12%~~**	**~~3/4~~**	
				~~CBLF210001A-B~~							
RWYF240000-A	2	Raceway	DB240011S	CBLF210011A-A	HH24224	CTS24	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING) **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	EXISTING	89%	2	
				~~CBLF240011A-A~~							
RWYF240011-A	3	Raceway		CBLF020011A-B	NCE240011	CTS24	IDFM - (2) 3" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	22%	1-1/2	
				CBLF210011DA-A							
				CBLF240011A-A							

AREA 21-24 CC30B: CCF 041 RACEWAY MODIFICATIONS - CONT.

RWYF240011-B	2	Raceway		CBLF020011BB-A	RacewayToFrmErr	RacewayToFrmErr	IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 **(REMOVED CBLF230011A-B FROM RACEWAY CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30B	29%	1-1/4	
				CBLF210011CA-A							
				~~**CBLF230011A-B**~~							
				CBLF249101A-A							
RWYF24224-A	2	Raceway	DB240009S	CBLF210011A-A	HH24225	HH24224	EXISTING RACEWAY TO BE RETAGGED. IDFM - 2" - 4 CELL INNERDUCT. SEE SPEC 26 05 33 (CCF 020 CHANGE ORDER PENDING) **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	EXISTING	89%	2	
				~~**CBLF240011A-A**~~							
RWYF24225-A	4	Raceway	DB020002	CBLF020011BB-A	HH24225	HH020001	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC5F	20%	2	
				CBLF210011A-A							
				CBLF210011CA-A							
				~~**CBLF240011A-A**~~							
RWYP210001P-A	4	Raceway	DB210001P	CBLP210001A-E	CTP24	PBX210001P	EXISTING RACEWAY TO BE RETAGGED **(CABLE CBLP210011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC5F	26%	2-1/2	
				CBLP210001B-C							
				CBLP210011-B							
				~~**CBLP210011A-A**~~							
				CBLP210011B-A							
				CBLP219101-A							
				CBLP219101-B							
				CBLP240011A-A							
~~**RWYP210001P-B**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLP240011A-A**~~	~~**JP21**~~	~~**PBX210001P**~~	~~**CCF 020 CHANGE ORDER PENDING**~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~**CC30B**~~	33%	3/4	
~~**RWYP240011A-A**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLP240011A-A**~~	~~**CTP24**~~	~~**NCE240011**~~	~~**CCF 020 CHANGE ORDER PENDING**~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~**CC30B**~~	33%	3/4	
~~**RWYP240011A-B**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLP240011A-B**~~	~~**JP24**~~	~~**TBX240011**~~	~~**CCF 020 CHANGE ORDER PENDING**~~ **(REMOVE FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	~~**CC30B**~~	33%	3/4	

AREA 23 CC30B: CCF 041 RACEWAY MODIFICATIONS

WORKING

RWYF230001A-A	4	Raceway	DB23614A	CBLF020011AB-A	MH23613	JBX230001-A	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	68%	3-1/2
				CBLF210011A-A						
				CBLF230011AB-A						
				~~**CBLF240011A-A**~~			**(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**			
RWYF230001B-A	4	Raceway		CBLF210011A-A	JBX230001-A	JBX230001-B	IDFM - (2) 4" - 3 CELL INNERDUCT. SEE SPEC 26 05 33 **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	51%	3
				CBLF210011DA-A						
				~~**CBLF240011A-A**~~						

AREA 33-34 CC30B: CCF 041 RACEWAY MODIFICATIONS

WORKING

CTS340013A	18	Tray		CBLD340001-A			**(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	12%	6
				CBLF240011A-A						
CTS340201	18	Tray		CBLD347231A-A			**(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	4%	6
				CBLF240011A-A						
CTS340202	36	Tray		CBLD347201A-A			**(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	22%	9
				CBLD347201A-B						
				CBLF240011A-A						
RWYF340013A-A	4	Raceway		CBLF210011A-A	CTS340201	CTS340013A	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33. (CCF 020 CHANGE ORDER PENDING) **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	15%	1-1/2
				CBLF240011A-A						
				CBLF340101A-A						
				CBLF340102-M						
RWYF341002-D	4	Raceway	DB340002	CBLF210011A-A	CTS340013A	MH341002	IDFM - (2) 4" - 3 CELL INNERDUCT. REFER TO SPEC 26 05 33 **(CABLE CBLF240011A-A REMOVED FROM SCOPE CC30B: CCF 041 CHANGE ORDER PENDING)**	CC30A	15%	1-1/2
				CBLF240011A-A						

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 066.2
Date: 9/21/2022
Description: Per Control Change Form #075: Cost to provide labor and material for changes to deep sump valve vault.

Gerber Onsite Coordination & Management (see attached back-up):	$700.06
Gerber Labor, Equipment and Material (see attached back-up):	$12,636.21
Bonds:	$139.47
Mark-up (15%):	$2,021.37
Sub Total:	**$15,497.11**
Gerber Labor and Material Credit (see attached back-up):	-$3,471.85
Total:	**$12,025.26**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $12,025.26 will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-066 Modifications To Deep Sump Valve Vault-CC#75	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-066	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Valve Vault Modifications	**1.00**	**LS**	**$13,336.27**	**$13,336.27**	**$15,497.11**	**$15,497.11**	**15.00%**
Gerber Management	1.00	LS	$700.06	$700.06			
18 Project Manager	2.00	HR	$143.13	$286.26			
01 Superintendent	3.00	HR	$128.58	$385.73			
Truck, Pickup, 1 Ton	0.02	MO	$1,827.25	$28.08			
Install 8'x8' Aluminum Hatch	1.00	LS	$7,969.31	$7,969.31			
Concrete Crew, 03 Men (2.63 LS/DY, 0.38 DY)	1.00	LS	$766.04	$766.04			
03 Foreman	3.42	HR	$86.27	$295.03			
04 Leadman	3.42	HR	$69.66	$238.24			
05 Skilled Labor	3.42	HR	$58.70	$200.74			
Truck, Pickup, 1 Ton	0.02	MO	$1,827.25	$32.04			
Crane, RT, 60 Ton	3.00	HR	$141.18	$423.53			
8'x8' Aluminum Hatch	1.00	EACH	$6,779.74	$6,779.74			
Install 4" Floor Drain	1.00	LS	$1,666.90	$1,666.90			
Pipe Crew, HDPE Welding (2.00 LS/DY, 0.50 DY)	1.00	LS	$804.16	$804.16			
HDPE Fusion Machine, 01"-04"	0.50	DY	$205.00	$102.50			
03 Foreman	4.50	HR	$86.27	$388.19			
04 Leadman	4.50	HR	$69.66	$313.47			
4" HDPE	10.00	LF	$10.73	$107.25			
Concrete Coring Crew (2" to 10") (2.00 LS/DY, 0.50 DY)	1.00	LS	$755.49	$755.49			
Concrete Core drill	4.00	HR	$15.25	$61.00			
Truck, Pickup, 1 Ton	0.02	MO	$1,827.25	$42.16			
03 Foreman	4.50	HR	$86.27	$388.19			
05 Skilled Labor	4.50	HR	$58.70	$264.13			
Structural Engineer (Re-Design Fee)	1.00	LS	$3,000.00	$3,000.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,759.98	20.70%
Equipment Owned:	$586.81	4.40%
Equipment Rented:	$102.50	0.77%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$6,886.99	51.64%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$3,000.00	22.50%
Plug:	$0.00	0.00%
Direct Cost:	$13,336.27	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$13,336.27	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$139.47	0.90%
Total Overall Cost:	$13,475.75	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,021.36	13.04%
Total Margin:	$2,021.36	13.04%
Total Bid Price:	$15,497.11	

ADD

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-066 Modifications To Deep Sump Valve Vault-CC#75 (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-066 (Credit)	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
1 - Valve Vault Modification Credit	**1.00**	**LS**	**$3,471.84**	**$3,471.84**	**$3,471.85**	**$3,471.85**	**0.00%**
Pour Valve Vault Lid	1.00	LS	$2,903.76	$2,903.76			
Concrete, 4500 PSI Engineered	2.50	CY	$193.41	$483.53			
Manhole Ring & Cover D&L B5502 (36" Opening)	1.00	EACH	$536.25	$536.25			
Rebar, Black A706 #5 1.043 lb/ft	267.00	LB	$1.29	$343.63			
Valve Boxes	7.00	EACH	$107.25	$750.75			
Concrete Crew, 03 Men (2.00 LS/DY, 0.50 DY)	1.00	LS	$789.60	$789.60			
03 Foreman	4.50	HR	$63.19	$284.35			
04 Leadman	4.50	HR	$54.23	$244.01			
05 Skilled Labor	4.50	HR	$46.16	$207.73			
Truck, Pickup, 1 Ton	0.02	MO	$2,301.00	$53.51			
Core Holes In Lid	1.00	LS	$568.09	$568.09			
Concrete Coring Crew (2" to 10") (14.00 EACH/DY, 0.50 DY)	7.00	EACH	$81.16	$568.09			
Concrete Core drill	4.00	HR	$5.63	$22.50			
Truck, Pickup, 1 Ton	0.02	MO	$2,301.00	$53.51			
03 Foreman	4.50	HR	$63.19	$284.35			
05 Skilled Labor	4.50	HR	$46.16	$207.73			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,228.17	35.38%
Equipment Owned:	$129.52	3.73%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$2,114.15	60.89%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,471.84	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,471.84	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$3,471.84	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.01	0.00%
Total Margin:	$0.01	0.00%
Total Bid Price:	$3,471.85	CREDIT

Jordon Miller

From: Matthew.Sisson@Ferguson.com
Sent: Monday, August 8, 2022 12:12 PM
To: Jordon Miller
Subject: RE: CVWRF 8'x8' Aluminum Hatch
Attachments: Q42802 SUBMITTALS.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Jordon,
Attached per our conversation and below, thanks!

Price Quotation # B186761

FERGUSON WATERWORKS

1492 SOUTH 4450 WEST
SALT LAKE CITY, UT 84104-5022

Phone : 801-956-3600
Fax : 801-956-2001

Bid No.....: B186761
Bid Date...: 08/04/22
Quoted By: MSS
Customer.: GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Cust Phone: 801-407-2000
Terms.....: NET 10TH PROX
Ship To.....: GERBER CONSTRUCTION
815 EAST 675 SOUTH
LEHI, UT 84043

Cust PO#..:

Job Name.: CVWRF HATCH

Item	Description	Quantity	Net Price	UM	Total
	LEAD TIME 10-12 WEEKS				
	** CHANNEL FRAME				
~~SP-H096096CBD~~	~~8X8 ALUM ACCESS CVR W2S F&C~~	~~1~~	~~5253.330~~	~~EA~~	~~5253.33~~
	~~CHANNEL FRAME, 1.5" DRAIN COUPLING~~				
	~~SS316 HARDWARE, 300PSF LOAD RATING~~				
	~~WE RECOMMEND PROTECTIVE GRATING~~				
	~~PANELS ON ALL HATCH OPENINGS~~				
~~SP-AESTFREIGHTCOST~~	~~ESTIMATED FREIGHT COST~~	~~1~~	~~1355.000~~	~~EA~~	~~1355.00~~

	SUBTOTAL				6608.33
	** ANGLE FRAME				
SP-H096096CBDS2S	8X8 ANGLE FRAME S2S DBL HATCH	1	4954.670	EA	4954.67
	ANGLE FRAME , 300PSF LOAD RATING				
	PER ATTACHED SUBMITTAL				
SP-AESTFREIGHTCOST	ESTIMATED FREIGHT COST	1	1355.000	EA	1355.00

Subtotal:	$12918.00
Inbound Freight:	$0.00
Tax:	$1001.14
Order Total:	$13919.14

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). SHIPMENTS BEYOND 48 HOURS SHALL BE AT THE PRICE IN EFFECT AT TIME OF SHIPMENT UNLESS NOTED OTHERWISE. QUOTES FOR PRODUCTS SHIPPED FOR RESALE ARE NOT FIRM UNLESS NOTED OTHERWISE.

CONTACT YOUR SALES REPRESENTATIVE IMMEDIATELY FOR ASSISTANCE WITH DBE/MBE/WBE/SMALL BUSINESS REQUIREMENTS.

Seller not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing type of products that can be sold or put into commerce. This Quote is offered contingent upon the Buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at https://www.ferguson.com/content/website-info/terms-of-sale. Govt Buyers: All items quoted are open market unless noted otherwise.

LEAD LAW WARNING: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable law in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.
COVID-19 ORDER: ANY REFERENCE TO OR INCORPORATION OF EXECUTIVE ORDER 14042 AND/OR THE EO-IMPLEMENTING FEDERAL CLAUSES (FAR 52.223-99 AND/OR DFARS 252.223-7999) IS EXPRESSLY REJECTED BY SELLER AND SHALL NOT APPLY AS SELLER IS A MATERIALS SUPPLIER AND THEREFORE EXEMPT UNDER THE EXECUTIVE ORDER.

Matt Sisson
Ferguson Waterworks
C:(208)-606-2217
matthew.sisson@ferguson.com
www.ferguson.com

From: Matthew Sisson
Sent: Thursday, August 4, 2022 1:17 PM
To: Jordon Miller <jordonm@1gerber.com>
Subject: RE: CVWRF 8'x8' Aluminum Hatch

Jordan,
See pricing & submittal attached.
Let me know, thanks

Matt

Matt Sisson
Ferguson Waterworks
C:(208)-606-2217
matthew.sisson@ferguson.com
www.ferguson.com

From: Jordon Miller <jordonm@1gerber.com>
Sent: Thursday, August 4, 2022 10:31 AM
To: Matthew Sisson <Matthew.Sisson@Ferguson.com>
Subject: CVWRF 8'x8' Aluminum Hatch

Matt,

The Aluminum Hatch we are looking for needs to be:

-Cast in Place
-8'x8'
-300psf Loading
-Double door

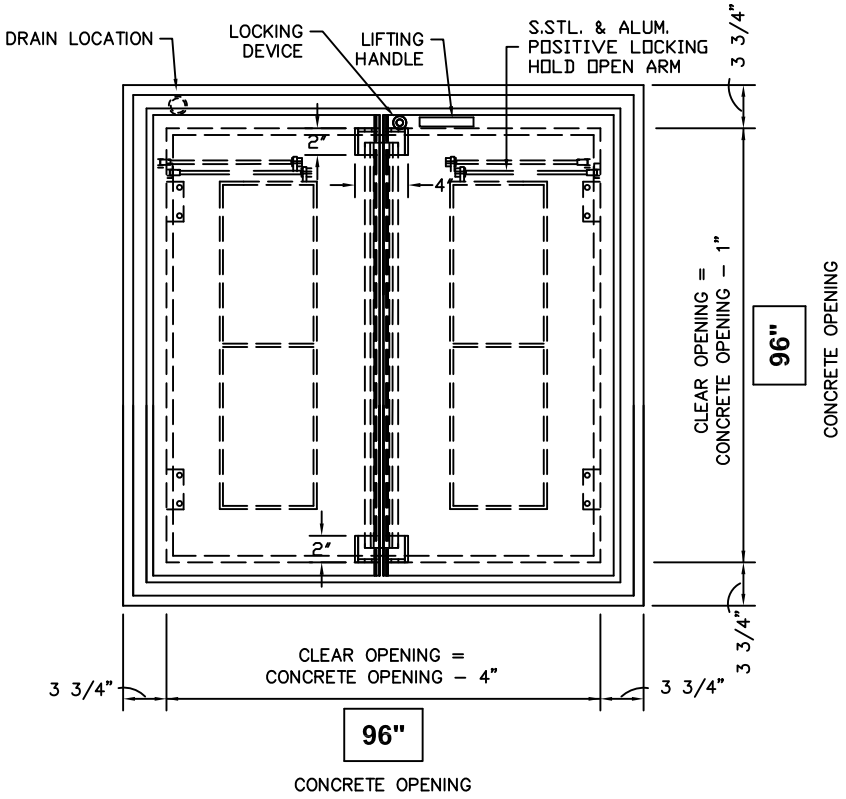
Thanks,

Jordon Miller
Project Engineer
Cell: 801-380-9005
815 East 675 South
Lehi, UT 84043

HALLIDAY PRODUCTS, INC.
ORLANDO, FL
http://www.hallidayproducts.com

HALLIDAY PRODUCTS

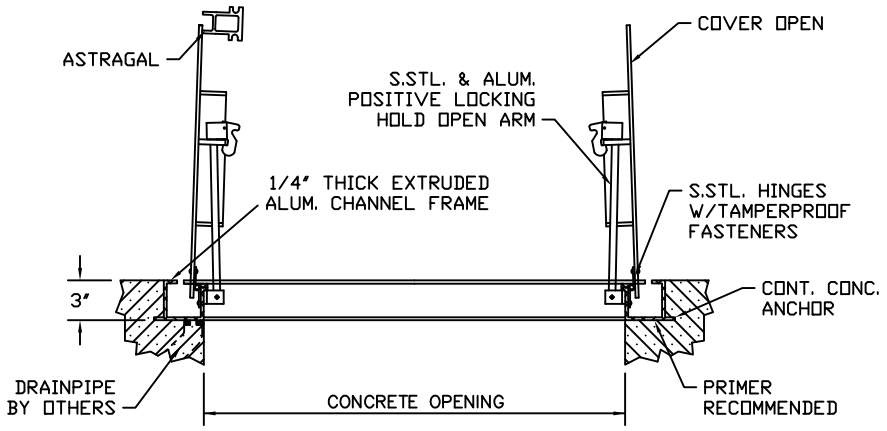
MODEL NO. W2S096096CBD------
QUANTITY: 1
DOCUMENT NO. Q42802
DATE: 8/4/22
LOCATION/TAG:



STANDARD FEATURES:

1/4 ALUMINUM TREAD PLATE COVER
1/4 THICK ALUMINUM FRAME EXTRUSION
T-316 STAINLESS STEEL HARDWARE
S.STL. & ALUM. HOLD OPEN ARM
1 1/2" DRAIN COUPLING
RECESSED LIFT HANDLE (S)
LIFETIME GUARANTEE
300 LB. PER SQ. FT. LOAD RATING

[X] ASTRAGAL: STD. DRIP CHANNEL WELDED TO R.H. COVER



SECTION

OPTIONS/FEATURES:

	PADLOCK BAR
X	S.STL. SLAM LOCK W/ KEY
	RECESSED LOCK BOX
	KEYED CYLINDER LOCK
X	SPRING ASSIST
X	EPDM GASKET/CUSHION
X	BITUMINOUS COATING
	PVC PROTECTIVE FILM
	SLAB SKIRT HEIGHT (INCLUDING FRAME)
	CLEAR ANODIZED FINISH
	SAFETY CHAIN WITH POSTS
	SAFETY CABLE WITH POSTS
	EMBED FLANGE REMOVED
	2" INSULATION W/ CAPTIVE PAN
	NUTRAIL - SPECIFY LENGTH & LOCATION
	RETRO-GRATE
	BOLT DOWN COVER
	INSPECTION DOOR
	MODULAR DESIGN
	MISCELLANEOUS

NOTE: UNITS LARGER THAN 90" X 90" WILL REQUIRE SPLICE JOINTS FOR SHIPPING PURPOSES. FIELD ASSEMBLY WILL BE REQUIRED.

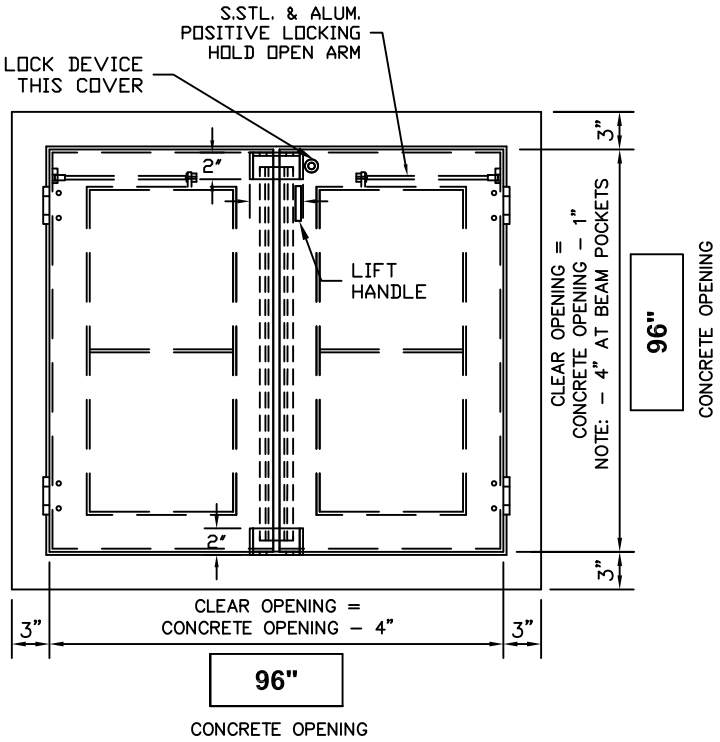
NOTE: STANDARD PRODUCT WARRANTY DOES NOT COVER CORROSION FROM CHLORINE CONTACT.

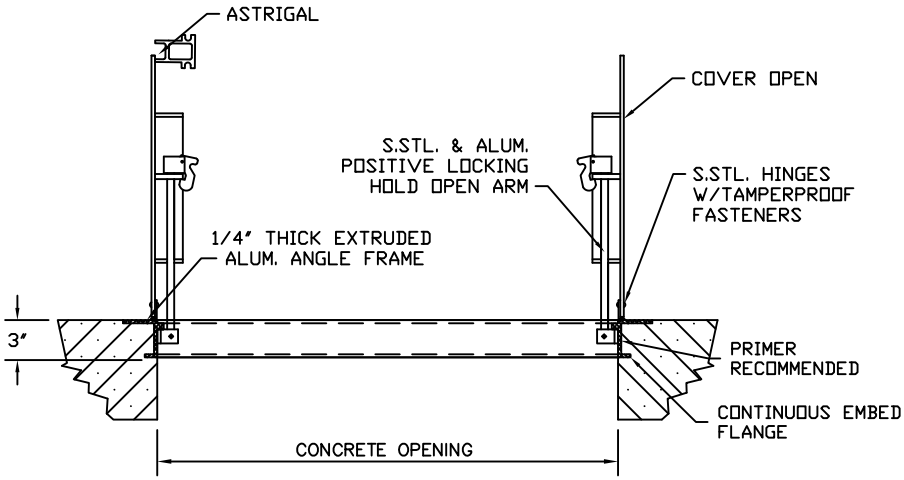
S1_STD 9/30/05

HALLIDAY PRODUCTS, INC.
ORLANDO, FL
http://www.hallidayproducts.com

HALLIDAY PRODUCTS

MODEL NO. S2S096096CBD------
QUANTITY: 1
DOCUMENT NO. Q42802
DATE: 8/8/22
LOCATION/TAG:





SECTION

STANDARD FEATURES:

1/4 ALUMINUM TREAD PLATE COVER
1/4 THICK ALUMINUM FRAME EXTRUSION
T-316 STAINLESS STEEL HARDWARE
S.STL. & ALUM. HOLD OPEN ARM
RECESSED LIFT HANDLE
LIFETIME GUARANTEE
300 LB. PER SQ. FT. LOAD RATING

[X] ASTRAGAL: STD. DOOR BEAM WELDED TO R.H. COVER

OPTIONS/FEATURES:

	PADLOCK BAR
X	S.STL. SLAM LOCK W/ KEY
	RECESSED LOCK BOX
	KEYED CYLINDER LOCK
X	SPRING ASSIST
X	EPDM GASKET/CUSHION
X	BITUMINOUS COATING
	PVC PROTECTIVE FILM
	SLAB SKIRT HEIGHT (INCLUDING FRAME)
	CLEAR ANODIZED FINISH
	SAFETY CHAIN
	SAFETY CABLE
	EMBED FLANGE REMOVED
	2" INSULATION W/ CAPTIVE PAN
	NUTRAIL - SPECIFY LENGTH & LOCATION
	RETRO-GRATE
	BOLT DOWN COVER
	INSPECTION DOOR
	MODULAR DESIGN
	MISCELLANEOUS

NOTE: UNITS LARGER THAN 90" X 90" WILL REQUIRE SPLICE JOINTS FOR SHIPPING PURPOSES. FIELD ASSEMBLY WILL BE REQUIRED.

NOTE: STANDARD PRODUCT WARRANTY DOES NOT COVER CORROSION FROM CHLORINE CONTACT.

April 24, 2022

Gerber Construction
Attn: Phil Duncan
815 E 675 S
Lehi, UT 84043

Re: Proposal for Engineering Services – Aeration Basin Valve Vault Structural Calculations and Details

Dear Phil,

Thank you for the opportunity to provide professional engineering services for the referenced project. AQUA Engineering has vast experience in all aspects of water and wastewater infrastructure engineering, and we are ready to assist you in meeting its goal related to this project.

Based on our phone and email correspondence, we understand the scope of work for this proposal to consist of structural engineering calculations and redlines to the supplied plan view and section details for the proposed 11' x 12' x 5'-11" aeration basin valve vault. Gerber Construction will incorporate the recommendations and redlines provided into their drawings. The final drawing can be submitted for stamp if requested. Project Specification Section 03 48 11 and Drawing 18-VV-01, Rev. F1.1, dated 3/4/2022 as provided by Gerber Construction will dictate the dimensions of the vault and will not change. The vault shall be traffic rated (HS-20 Loading) and the lid will be flush with finished grade without any cover material. The lid will contain seven (7) 9-inch penetrations for valve risers and a single 31-inch penetration for manway ring. Any changes to this specification or drawing may negate the engineered design provided.

The work would be completed on a lump sum basis for a fee of $3,000.00**.** The following summary scope of work and costs lists the efforts anticipated for the project as presently defined. The deliverables are as follows: Stamped Structural Calculation Summary with redlined revisions to the provided aeration valve vault drawing.

We look forward to working with you on this project. Please don't hesitate to call if you have questions or need additional information.

Sincerely,

AQUA Engineering, Inc.

Darin M. Hawkes, P.E., S.E.
Principal

Attachment: Standard Terms and Conditions

AQUA Engineering/Client Standard Terms and Conditions

533 W 2600 S, Suite 275, Bountiful, Utah 84010
Phone: 801-299-1327 / Corp. Fax: 801-299-0153

I. SCOPE

AQUA Engineering (AE) agrees to perform the services described in the proposal attached hereto which incorporates these terms and conditions. Unless modified in writing by the parties hereto, the duties of AE shall not be construed to exceed those services specifically set forth in the proposal. These terms and conditions and the proposal, when executed by Client, shall constitute a binding agreement on both parties (hereinafter the "Agreement').

II. COMPENSATION

Client agrees to pay for the services in Article I in accordance with the compensation provisions in the proposal. Payment to AE will be made within 30 days after the date of billing. Interest on the unpaid balance will accrue beginning on the 31st day at the maximum interest rate permitted by law.

Time-related charges will be made in accordance with the billing rate referenced in the proposal or Agreement. Direct expenses and Subcontractor services shall be billed in accordance with the proposal or compensation exhibit attached to this Agreement. Otherwise, AE's standard billing rates shall apply.

III. RESPONSIBILITY

AE is employed to render a professional service only, and any payments made by Client are compensation solely for such services rendered and recommendations made in carrying out the Work. AE shall perform the services in accordance with generally accepted engineering practices and standards in effect when the services are rendered. AE does not expressly or impliedly warrant or guarantee its services.

In performing construction management services, AE shall act as agent of Client. AE's review or supervision of work prepared or performed by other individuals or firms employed by Client shall not relieve those individuals or firms of complete responsibility for the adequacy of their work.

The presence of AE's personnel at a construction site, whether as on-site representative, resident engineer or construction manager, shall be for the sole purpose of determining that the work is generally proceeding in conformance with the intent of the project specifications and contract documents and does not constitute any form of guarantee or assurance with respect to contractor's performance. AE shall have no responsibility for the contractor's means, methods, techniques, sequences, for safety precautions and programs incident to the contractor's work, or for any failure of contractor to comply with laws and regulations applicable to performing its work.

IV. INDEMNIFICATION

AE agrees to indemnify, defend, and hold Client harmless from and against any liability to the extent arising out of the negligent acts, errors or omissions of AE, its agents, employees, or representatives, in the performance of duties under the Agreement. Regardless of any other term of this Agreement, in no event shall AE be responsible or liable to the other for any incidental, consequential, or other indirect damages. The Client agrees to limit AE's liability for the Clients damages to AE's fee.

V. ATTORNEYS' FEES

In the event of any litigation arising from or related to this Agreement or the services provided under this Agreement, the prevailing party shall be entitled to recover from the nonprevailing party all reasonable costs incurred, including staff time, court costs, attorneys' fees and all other related expenses in such litigation.

VI. INSURANCE

AE shall maintain during the life of the Agreement the following minimum insurance:

1. **Comprehensive general liability** insurance, including personal injury liability, blanket contractual liability, and broad form property damage liability. The combined single limit for bodily injury and property damage shall be not less than $1,000,000.
2. **Automobile bodily injury and property damage liability** insurance covering owned, non-owned, rented, and hired cars. The combined single limit for bodily injury and property damage shall be not less than $1,000,000
3. **Statutory Worker's compensation and employers' liability** insurance as required by state law.
4. **Professional liability** insurance with limits of not less than $1,000,000.

VII. SUBCONTRACTS

AE shall be entitled, to the extent determined to be appropriate by AE, to subcontract any portion of the Work to be performed under this Agreement.

VIII. ASSIGNMENT

This Agreement is binding on the heirs, successors, and assigns of the parties hereto. The Agreement is not to be assigned by either Client or AE without the prior written consent of the other.

IX. INTEGRATION

These terms and conditions and the proposal to which they are attached represent the entire understanding of Client and AE as to those matters contained herein. No prior oral or written understanding shall be of any force or effect with respect to those matters covered herein. The Agreement may not be modified or altered except in writing signed by both parties, provided further that any terms and conditions in any Task Order or purchase order issued in connection or under the Agreement which are inconsistent with the Agreement are deemed null and void.

X. CHOICE OF LAW/JURISDICTION

This Agreement shall be administered and interpreted under the laws of the state in which the AE office responsible for the project is located. Jurisdiction of litigation arising from the Agreement shall be in that state.

XI. SEVERABILITY

If any part of the Agreement is found unenforceable under applicable laws, such part shall be inoperative, null and void insofar as it is in conflict with said laws, but the remainder of the Agreement shall be in full force and effect.

XII. NO BENEFIT FOR THIRD PARTIES

The services to be performed by AE hereunder are intended solely for the benefit of Client, and no right or benefit is conferred on, nor any contractual relationship intended or established with any person or entity not a party to this Agreement No such person or entity shall be entitled to rely on AE's performance of its services hereunder.

XIII. WORK PRODUCT

AE and Client recognize that AE's work product submitted in performance of this Agreement is intended only for the Client's benefit and use. Change, alteration, or reuse on another project by Client shall be at Clients sole risk, and Client shall hold harmless and indemnify AE against all losses, damages, costs and expense, including attorneys' fees, arising out of or related to any such unauthorized change, alteration or reuse.

Any signed, stamped and dated Construction Documents prepared by the Consultant are the Work Product. CADD files are furnished for convenience only. The transfer of the CADD files for use by the Client shall not be deemed a sale and the Consultant makes no warranty, either express or implied, of merchantability or fitness for any particular purpose.

XIV. SUSPENSION OF WORK

Work under this Agreement may be suspended as follows:

1. **BY Client**. By written notice to AE, Client may suspend all or a portion of the Work under this Agreement if unforeseen circumstances beyond Client's control make normal progress of the Work impracticable. AE shall be compensated for its reasonable expenses resulting from such suspension including mobilization and de-mobilization. If suspension is greater than 30 days, then AE shall have the right to terminate this Agreement in accordance with Article XIV, Termination of Work.
2. **By AE.** By written notice to Client, AE may suspend the Work if AE reasonably determines that working conditions at the Site (outside AE's control) are unsafe, or in violation of applicable laws, or for other circumstances not caused by AE that are interfering with the normal progress of the Work. AE's suspension of Work hereunder shall be without prejudice to any other remedy of AE at law or equity.

XV. TERMINATION OF WORK

This Agreement may be terminated as follows

1. **Client** (a) for its convenience on 30 days' notice to AE, or (b) for materially breaches this Agreement through no fault of Client and AE neither cures such material breach nor makes reasonable progress toward cure within 15 days after Client has given written notice of the alleged breach to AE.
2. **By AE** (a) for cause, if Client materially breaches this Agreement through no fault of AE and Client neither cures such material breach nor makes reasonable progress toward cure within 15 days after AE has given written notice of the alleged breach to Client, or (b) upon five days' notice if Work under this Agreement has been suspended by either Client or AE in the aggregate for more than 30 days.
3. **Payment upon Termination.** In the event of termination, AE shall perform such additional work as is reasonably necessary for the orderly closing of the Work. AE shall be compensated for all work performed prior to the effective date of termination, plus work required for the orderly closing of the Work. Except for termination of AE by Client for cause, AE shall also receive a termination fee equal to 15 percent of the total compensation yet to be earned under existing authorizations at the time of termination.

XVI. NOTICES

All notices required under this Agreement shall be by personal delivery, facsimile or mail to the AE Project Manager and to the person signing the proposal on behalf of the Client and shall be effective upon delivery to the addressed stated in the proposal.

Engineer | **Client**

CHANGE CONTROL FORM 075
Modifications to deep sump valve vault

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/12/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide the following modifications to the concrete valve vault called out on drawing S-18-1013 and P-18-4201. See attached redline modifications to P-18-4201.

1. Delete manhole lid.
2. Delete 7 penetrations in vault lid for valve operator access.
3. Add one (1) 8'by 8' aluminum hatch rated for a minimum of 100 psf live load. Hatch to be located over valve operators for access and maintenance.
4. Add 4-inch floor drain to tank drain sump. Drain piping shall be DR 17 HDPE and encased in concrete per typical detail S0505.
5. Core drill tank sump and install 4-inch drain per typical detail M1112.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

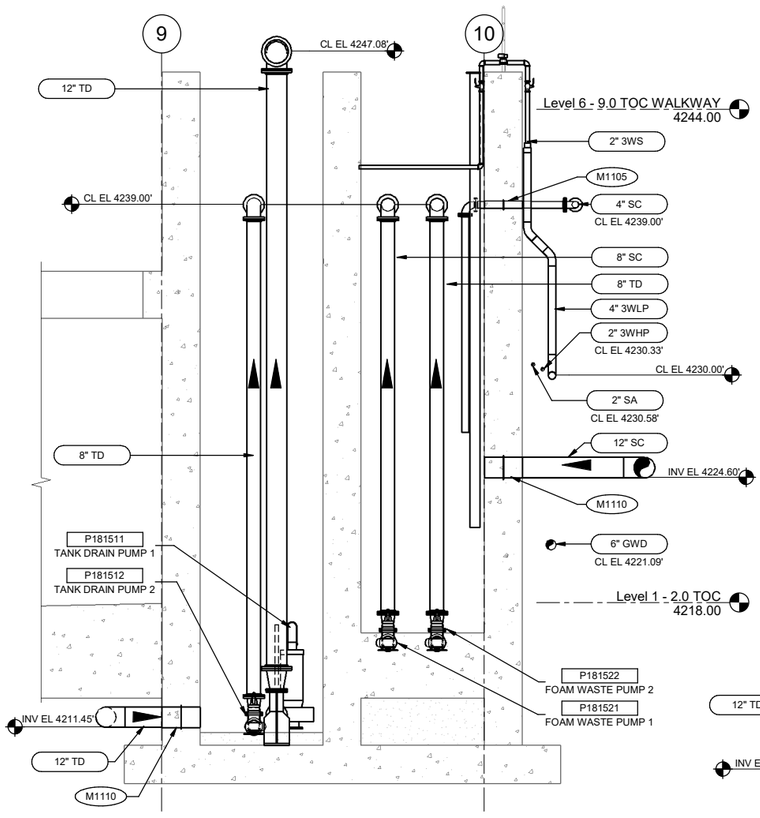
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

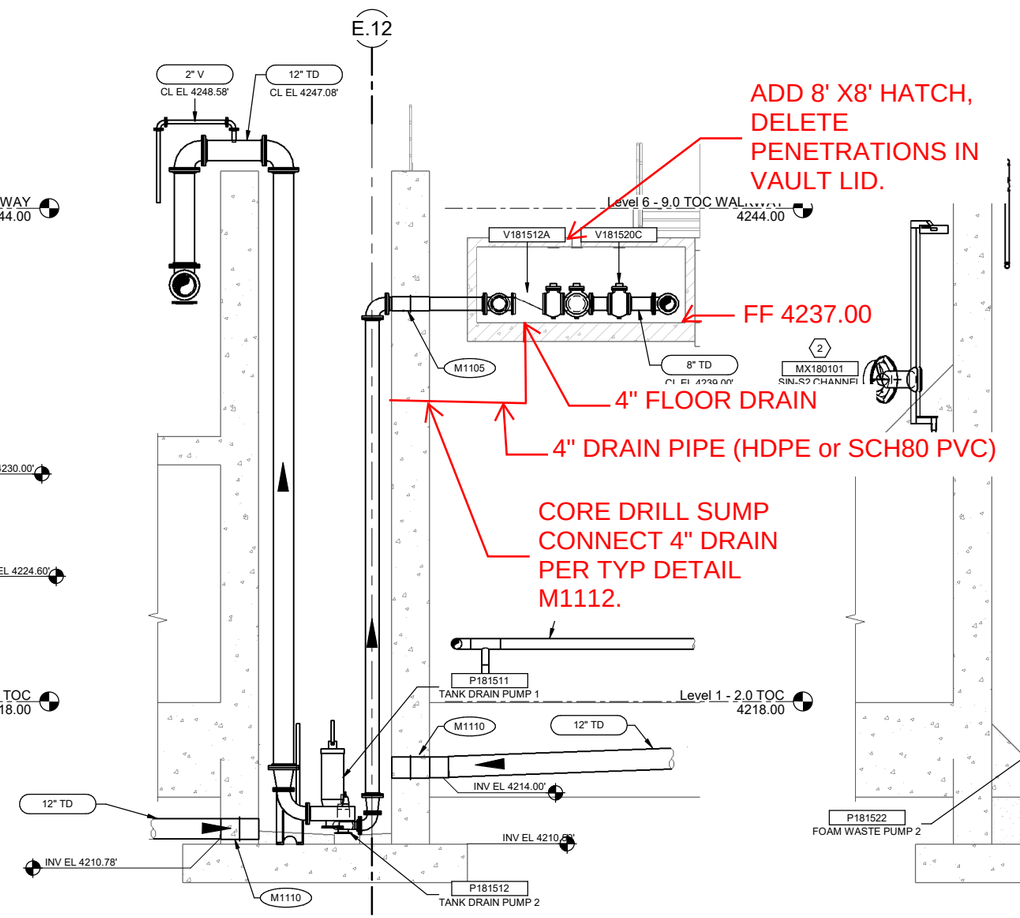
© 1997 Brown and Caldwell

KEYNOTES:

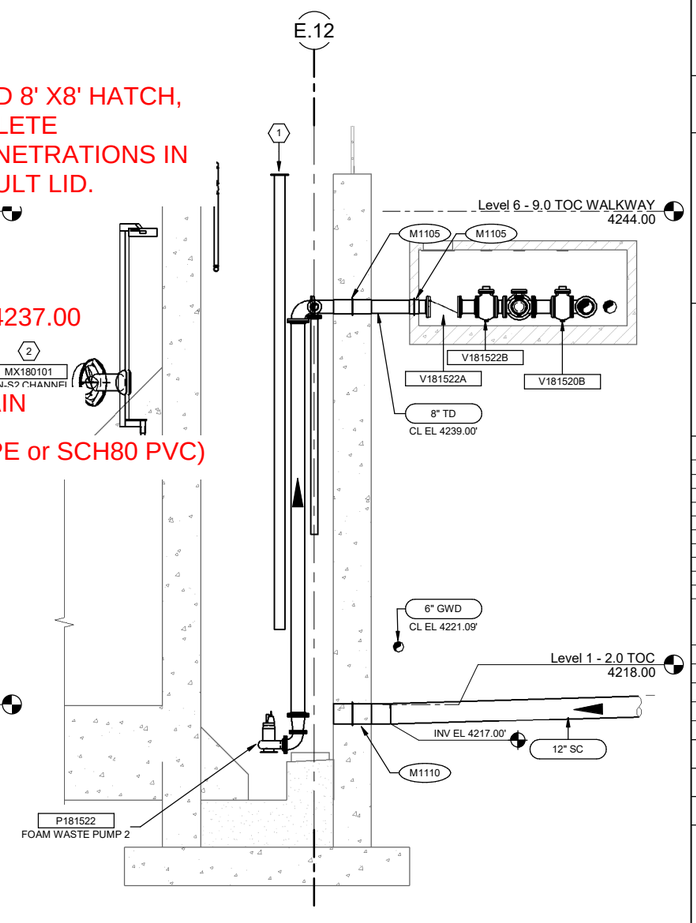
1. PROPOSED LOCATION FOR RADAR TRANSMITTER INSTALLED WITHIN 6" STAINLESS STEEL STILLING WELL.
2. SIN-S2 ANAEROBIC DISTRIBUTION CHANNEL MIXER LOCATION TO BE DETERMINED BY MANUFACTURER AND SHOP DRAWINGS TO BE SUBMITTED FOR APPROVAL.



1 SECTION
P-18-4001 SCALE: 1/4" = 1'-0"



2 SECTION
P-18-4001 SCALE: 1/4" = 1'-0"



3 SECTION
P-18-4001 SCALE: 1/4" = 1'-0"

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. WATSON
DRAWN: R. FULK
CHECKED: Z. MOORE
CHECKED:
APPROVED: N. KUNZ

FILENAME
151600-P-18V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

PROCESS

AERATION BASINS ENLARGED SECTIONS 1

DRAWING NUMBER
P-18-4201

Path: BIM 360://151600 - CVWRF Nutrients/151600-P-18V18.rvt

Plot Date: 6/3/2020 4:06:54 PM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 067.1
Date: 9/21/2022
Description: Per Control Change Form #079: Cost to provide labor and material for brick ledger and Emseal at RAS/WAS Electrical building.

Gerber Onsite Coordination & Management (see attached back-up):	$825.98
Gerber Labor, Equipment and Material (see attached back-up):	$17,452.87
Bonds:	$191.16
Mark-up (15%):	$2,770.52
Total:	**$21,240.53**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $21,240.53 will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-067 RAS WAS Brick Ledger Emseal	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-067	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
1 - Brick Ledger & Emseal	**1.00**	**LS**	**$18,278.86**	**$18,278.86**	**$21,240.53**	**$21,240.53**	**15.00%**
Gerber Management	1.00	LS	$825.98	$825.98			
18 Project Manager	3.04	HR	$143.13	$435.11			
01 Superintendent	3.04	HR	$128.58	$390.87			
Install Brick Ledger/Flashing	1.00	LS	$2,634.43	$2,634.43			
Labor Crew, 2 Man (0.67 LS/DY, 1.50 DY)	1.00	LS	$2,365.81	$2,365.81			
05 Skilled Labor	13.50	HR	$58.70	$792.39			
03 Foreman	13.50	HR	$86.27	$1,164.58			
Truck, Pickup, 1 Ton	0.07	MO	$1,827.25	$126.48			
Crane, RT, 60 Ton	2.00	HR	$141.18	$282.35			
Flashing	1.00	LS	$268.63	$268.63			
Install Emseal	1.00	LS	$6,782.73	$6,782.73			
Labor Crew, 2 Man (1.00 LS/DY, 1.00 DY)	1.00	LS	$1,388.97	$1,388.97			
05 Skilled Labor	9.00	HR	$58.70	$528.26			
03 Foreman	9.00	HR	$86.27	$776.39			
Truck, Pickup, 1 Ton	0.05	MO	$1,827.25	$84.32			
Emseal	1.00	EACH	$5,393.75	$5,393.75			
Fabricate Ledger (Galvanized)	40.00	LF	$200.89	$8,035.71			
Welding Crew (Shop) (9.00 HR/DY, 1.00 DY)	9.00	HR	$195.73	$1,761.59			
Welding Shop	10.00	HR	$18.20	$182.00			
13 Welder Foreman	10.00	HR	$93.77	$937.73			
14 Welder	10.00	HR	$64.19	$641.86			
Misc. Metals, Fab. X Lb, Galv. (Bent 7x7x3/8") + (PL.1/2" X 13")	1,300.00	LB	$4.83	$6,274.13			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$5,667.20	31.00%
Equipment Owned:	$675.15	3.69%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$11,936.50	65.30%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$18,278.86	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$18,278.86	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$191.16	0.90%
Total Overall Cost:	$18,470.02	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,770.51	13.04%
Total Margin:	$2,770.51	13.04%
Total Bid Price:	$21,240.53	

From: Stoic, Adam <Adam.Stoic@becn.com>
Sent: Friday, August 12, 2022 2:45 PM
To: Jordon Miller
Subject: Seismic ColorSeal Proposal--Beacon Waterproofing
Attachments: willseal-seismic (1).pdf

Jordon,

Please see your updated Seismic ColorSeal proposal below:

EML SEISMIC CLR SEAL 4.0"2M STK Limestone--**$744.50 per 6.56' Stick--$113.49 per Linear Foot--5 Sticks--$3,722.50**
EML SEISMIC CLR SEAL 1.0" 10' Rolls Limestone--**$192.57 per 10' Roll--$19.26 per Linear Foot--4 Rolls--$770.28**
SIKASIL 295 LIMESTONE 20OZ Sausages--**$21.50 per Sausage--12 Sausages--$258.00**
Freight--6% of the Total Joint Cost--**$269.57 Freight**

Best,

Adam Stoic
Sales Manager--Mountain Region | Beacon Waterproofing Products
Mobile 801.455.6861
Email adam.stoic@becn.com
2371 South 3600 West
West Valley City, UT 84119

BEACON

Product Data Sheet

willseal® Seismic
SEISMIC SEAL

DESCRIPTION

Willseal Seismic is a one-step primary sealant for exposed areas where color matching is important. It has a puncture resistant, elastomeric coating on the exterior surface, which can be factory colored to match most construction substrates or sealants. The joint is watertight and color matched.

MATERIAL

Willseal Seismic is an open micro-cell polyurethane foam impregnated with a hydrophobic, acrylic polymer sealing compound. It is designed to provide a watertight, dust-proof, airtight, UV stable, chemically resistant, sound-proof, and insulated primary seal. Willseal Seismic, by it's design, is inherently insulating and sound deadening. Willseal Seismic is a monolithic foam sealant that will not delaminate like multi-layer products that are comprised of unbonded vertical foam strips. Willseal Seismic has been independent lab tested to ASTM 330, 331, 283 & 547 for water and air penetration. It has been tested and passes TAS 202/203 requirements for hurricane force exposure. Contact Willseal for complete details.

COLORS

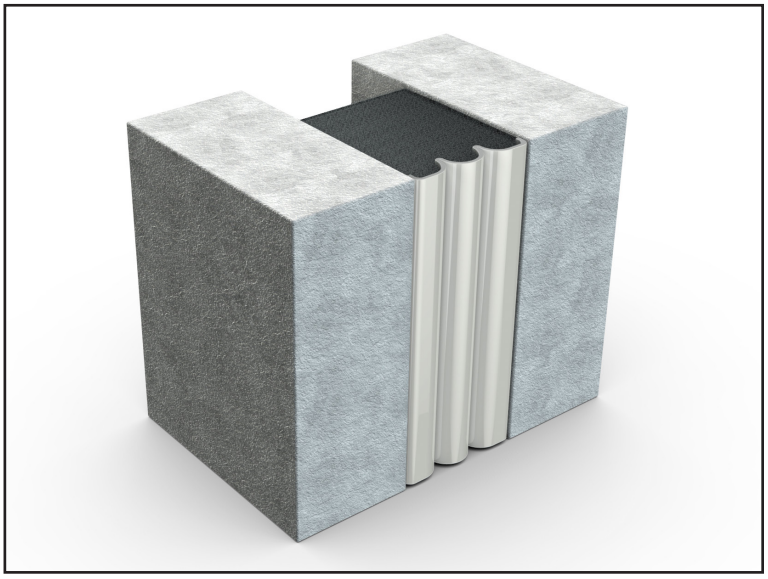
- Dow Corning® 790 Colors
- Pecora 890NST Colors
- Request actual color charts for exact match

DIMENSIONS

- Joint sizes from 1/2" to 8" in sticks
- Custom sizes available upon request
- Factory supplied transitions available

APPLICATIONS

- Primary construction joints
- Vertical movement joints (for horizontal applications use Willseal Seismic HS or consult willseal technical support)
- Expansion, control, and isolation joints
- Retrofit and seismic joints
- Pre-cast concrete walls, tilt-up walls
- Exterior panel systems - Masonry, Granite, Metal, EIFS, Curtain Walls
- Joints requiring a resilient, waterproof seal
- Larger joints requiring an architectural finish



*Willseal Seismic does not rely on the external fillet bead to provide a watertight seal.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	VALUE
Thermal Conductivity		0.05 W/m.°C
Temperature Stability Range		-40°F (-40°C) to 185°F (85°C)
Tensile Strength	ASTM D 3574	21 psi min.
Ultimate Elongation	ASTM D 3574	125% ±20%
Resistance to Compression Set		Max 2.5%
Shear Strength		Min 8N/cm^2
Mildew Resistance		Excellent
Staining		None
Flammability	UL 94VO Meets CAL 117	Self Extinguishing
Flash Point		590°F (310°C)
Durometer Hardness	ASTM D2240	Shore A 15pts.

DOW CORNING® 790 COLORS

Black	Limestone	Dusty Rose
Bronze	Precast White	Rustic Brick
Sandstone	Natural Stone	Blue Spruce
Adobe Tan	Gray	Charcoal
		White

PECORA 890NST COLORS

Black	Precast	Beige
Limestone	Anodized Aluminum	Aluminum Stone
Natural Stone	Sandstone	Charcoal Gray
Classic Bronze	Red Rock	Hartford Green
		Tru White

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ADVANTAGES

- Accommodates rapid rates of joint movement
- Supplied in pre-compressed state for ease of installation
- Does not rely on the silicone coating or on the adhesion of a field applied bead of sealant to provide a watertight seal
- Consistent depth of product
- Excellent compression recovery
- Permanently elastic and weather-tight
- Used for joints up to 8" wide
- Allows for up to 100% (±50%) movement
- Not based on wax, asphalt or bitumastic impregnation

NOT INTENDED FOR

- Joints submerged in water or below grade, use Willseal Coreseal
- Joints in contact with harsh chemicals unless polysulfide or other chemically resistant sealant is used
- Joints requiring pick resistance, use Willseal Seismic with durable, pick-resistant urethane
- Joints in roofing applications

LIMITATIONS/TECHNIQUES

- Joints must be sized by measuring every 5-7 feet to ensure gap opening is uniform and depth is sufficient for the supplied material
- For joints 4" and larger, do not install when substrate or ambient temperatures are below 40°F (4.5°C) or above 95°F (35°C). Consult Willseal for extreme temperature installation information
- Will not adhere to surfaces contaminated by oil or grease. Concrete should be clean & sound
- If ambient storage temperatures are below 50°F store material at a min of 68°F for a minimum of 24 hours prior to installation, regardless of temperature at location of installation
- Store material in a dry, enclosed area, off the ground, and out of direct sunlight
- Do not install when raining or snowing

PREPARATION FOR INSTALLATION

- Verify that the joint is clean, sound, and will provide an appropriate surface for installation of the joint sealant
- Check material for the appropriate lengths, widths, and depths
- Prepare the material for seams and proper lengths

INSTALLATION

(see supplied installation data for complete procedures)

- Run a 3/8" bead of the supplied silicone adhesive along both sides of the joint approximately ½" – ¾" back from the substrate surface, for larger joints use the supplied epoxy
- When fully prepared to install, open the sealant material by removing the shrink packaging and masonite strapping
- Remove the white or clear release liner on both sides of the material
- Insert the material into the joint while pressing the material against the side of the joint activating the PSA (Pressure Sensitive Adhesive)
- Tool the silicone over all seams and transitions to allow for a clean, aesthetic finish

CLEAN UP

- Remove any excess silicone left on the surface of the material or substrate
- Remove all waste materials from the jobsite
- Do not reuse waste material
- Leave site to the satisfaction of the owner/ architect

WARRANTY

- Project specific warranty details and terms are available from Willseal
- Due to superior nature of the design of Willseal materials, warranties are typically longer than competitive products

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CHANGE CONTROL FORM 079
RAS_WAS Brick Ledger Emseal

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 08/11/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a ledger for the brick veneer per Detail K A-22-5001 and similar to typical detail S0911 per RFI 145.

Provide 4-inch expansion joint (Emseal) between electrical building brick veneer or block wall and the concrete wall per RFI 145.

Provide preformed joint filter between the RAS Basin wall and the electrical building foundation and CMU wall. Extend preformed joint filler to the top of the CMU wall, per RFI 145.

Provide a 1-inch expansion joint (Emseal) between brick ledger and top of RAS/WAS basin per RFI 145.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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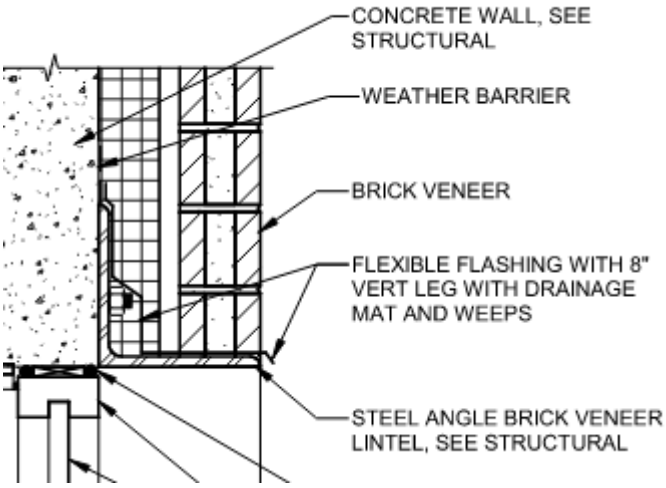
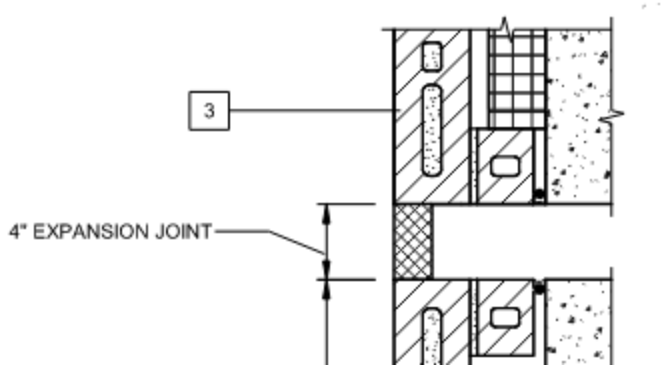
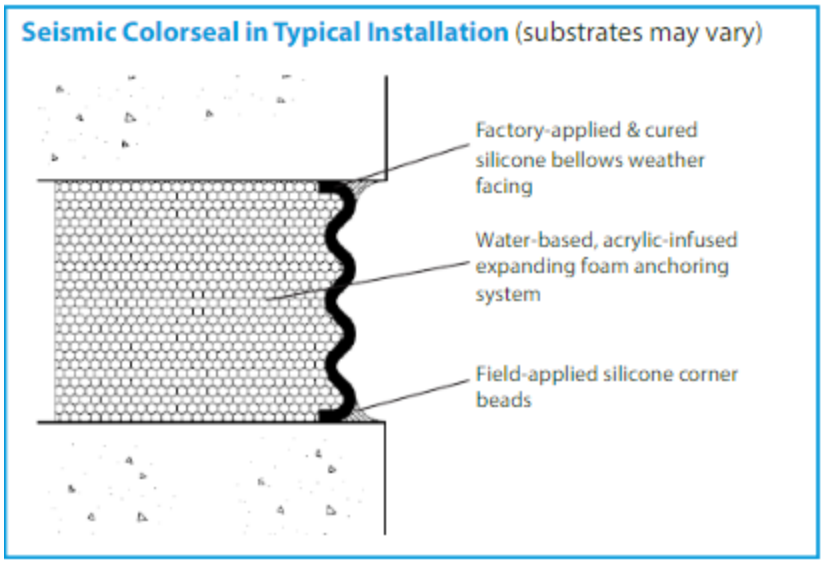
1. Provide Ledger per Detail K A-22-6001 and similar to typical detail S0911.

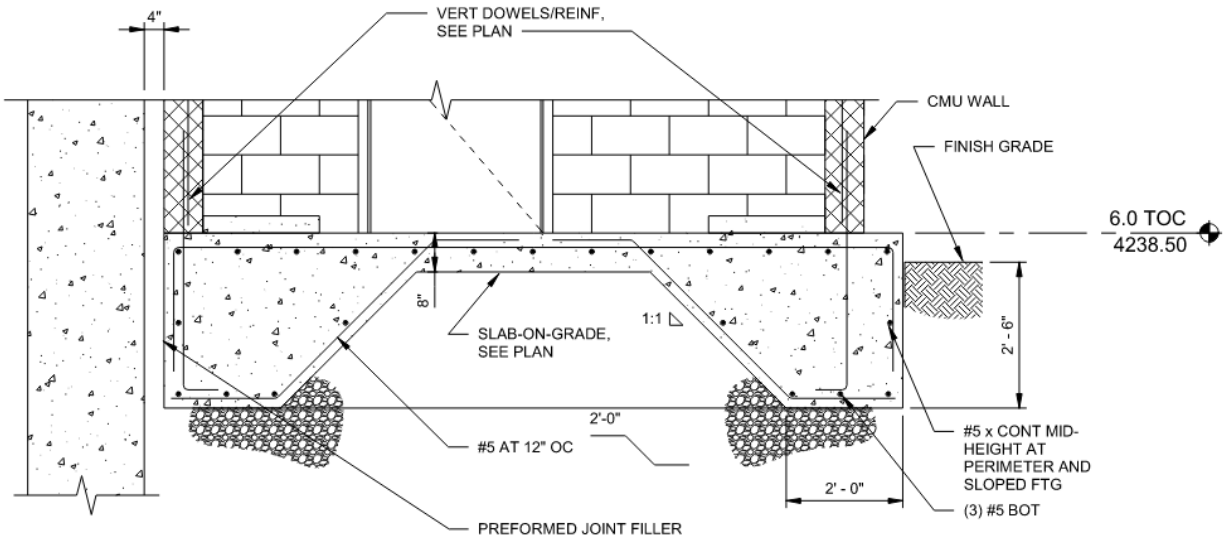


2. Provide 4” expansion joint (emseal) between electrical building brick veneer or block wall and the concrete wall, similar to detail below.





3. Provide preformed joint filter between the RAS Basin wall and the electrical building foundation and CMU wall. Extend preformed joint filler to the top of the CMU wall.



L
S-22-3001

DETAIL
SCALE: 1/2" = 1'-0"

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 068.1
Date: 9/21/2022
Description: Per Control Change Form #080: Cost to provide labor, material and equipment to install substation transformer ties.

Skyline Electric (see attached back-up):	$41,402.03
Mark-up (5%):	$2,070.10
Gerber Labor, Equipment and Material (see attached back-up):	$885.71
Gerber Onsite Coordination & Management (see attached back-up):	$1,363.20
Bonds:	$418.86
Mark-up (15%):	$400.17
Total:	**$46,540.07**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $46,540.07 will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-068 Substation Transformer Ties - CCF#080	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-068	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Sub (Skyline)	**1.00**	**UNIT**	**$41,402.03**	**$41,402.03**	**$43,929.01**	**$43,929.01**	**5.10%**
S Electrical Sub	1.00	LS	$41,402.03	$41,402.03			
D 02 - Extra Trenching (Gerber)	**1.00**	**UNIT**	**$885.71**	**$885.71**	**$1,028.34**	**$1,028.34**	**15.00%**
Excavation Crew, Medium (100.00 UNIT/DY, 0.25 DY)	25.00	UNIT	$35.43	$885.71			
01 Superintendent	2.25	HR	$133.91	$301.29			
05 Skilled Labor	2.25	HR	$58.70	$132.07			
Loader, 5 Yard (Volvo 150)	2.00	HR	$81.28	$162.55			
Excavator, Crawler, 220	2.00	HR	$74.00	$148.00			
07 Operator	2.25	HR	$63.03	$141.81			
D 03 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$1,363.20**	**$1,363.20**	**$1,582.72**	**$1,582.72**	**15.00%**
20 Project Engineer	4.00	HR	$103.59	$414.34			
18 Project Manager	2.67	HR	$143.13	$381.64			
01 Superintendent	3.56	HR	$128.58	$457.11			
Truck, Pickup, 1 Ton	0.02	MO	$2,301.00	$47.57			
Truck, Pickup, 3/4 Ton	0.04	MO	$1,729.00	$62.54			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,828.25	4.19%
Equipment Owned:	$420.66	0.96%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$41,402.03	94.85%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$43,650.94	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$43,650.94	93.79%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$418.86	0.90%
Total Overall Cost:	$44,069.80	94.69%
Total Overhead:	$0.00	0.00%
Total Profit:	$2,470.27	5.31%
Total Margin:	$2,470.27	5.31%
Total Bid Price:	$46,540.07	

-QUOTATION-

BNR CC30B
CCF080 SUBSTATION TRANSFORMER TIES

August 18, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes involving *Flow Meter Manufacturer Changes*

Scope includes:
Provide and install 2) 4" underground conduit from substaion A switch cabinet to substation B switch cabinet.
Provide and Install 2) runs of 3#500, 1#4/0G Medium Voltage cables.

Please contact me with any questions.

Price: $ 41,402.03

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	8/18/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF080 SUBSTAION TRANSFORMER TIES**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide and install 2) 4" underground conduit from substaion A switch cabinet to substation B switch cabinet.
Provide and Install 2) runs of 3#500, 1#4/0G Medium Voltage cables.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$21,648.65		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$0.00	
Base Labor Hours (from pricing sheets).....			146.13

LABOR FACTOR:

material handling		2.00%					2.9226
cleanup		3.00%					4.3839
safety		1.25%					1.826625
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $1,677.77	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 23,326.42	loc 2 $ 0.00		155.26
			RATE: $	70.00
extension:			$	10,868.42

	hrs.		diff.	rate $		
Supervision Labor Premium	0.00	rate	$42.00	$84.00	$	0.00
GF Premium	0.00	rate	$42.00	$84.00	$	0.00
F Premium	0.00	rate	$37.80	$75.60	$	0.00
J Premium	0.00	rate	$33.60	$67.20	$	0.00
F Double Time	0.00	rate	$75.60	$151.21	$	0.00
J Double Time	0.00	rate	$67.20	$134.40	$	0.00
TOTAL DIRECT LABOR COST **E28*E32**					loc 3 $	10,868.42

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	2	hrs@	$79.00	$158.00
project management	0	hrs@	$84.00	$0.00	Testing	0	hrs@	$79.00	$0.00
change estimating	0	hrs@	$84.00	$0.00	Shop Drawings / Submittals	0	hrs@	$84.00	$0.00
FIELD					Freight				$0.00
BIM/VDC	0	hrs@	$75.00	$0.00	Fuel & Consumables				$0.00
BIM/VDC as-builds	0	hrs@	$75.00	$0.00	Tools & Equipment		2% of Labor Dollars		$217.37
change management	2	hrs@	$79.00	$158.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	2	hrs@	$79.00	$158.00	Pick-up Truck	1	dy@	$80.00	$80.00
as-builds	0	hrs@	$79.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	771.37

MATERIAL		from loc 1	$	23,326.42
SUBCONTRACTS		from loc 2	$	0.00
JOB EXPENSE		from loc 4	$	771.37
LABOR		from loc 3	$	10,868.42
WARRANTEE	1.50%		$	524.49
BOND	1.44%		$	511.07
subtotal			$	36,001.77
OVERHEAD + PROFIT	15.00%		$	5,400.27
TOTAL CHANGE			$	41,402.03

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF080: SUBSTATION TRANSFORMER TIES

Takeoff

18 Aug 2022 13:15:19

Item: BASE BID
└**Phase:** ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
10066	80.00	FT	M	4	PVC SCH 40	11.2700	901.60	0.2000	16.00
20261	4.00	EA	M	4	GRC/PVC COATED 90-DEG ELBOW	1,033.2200	4,132.88	4.1250	16.50
30244	4.00	EA	M	4	PVC COUPLING	3.6566	14.63	1.0000	4.00
30293	8.00	EA	M	4	PVC FEMALE ADAPTER	4.1740	33.39	1.0000	8.00
30305	4.00	EA	M	4	PVC END BELLS	6.2398	24.96	0.5000	2.00
40050	2.00	EA	M	QUART	PVC (GLUE) CEMENT	7.8986	15.80	0.2400	0.48
390499	250.00	FT	M	#4	STEEL REBAR	0.5500	137.50	0.0300	7.50
390536	3.00	YD	M	3000#	CONCRETE ENCASEMENT	206.0000	618.00	0.3750	1.13
390502	2.00	FT	M	16 GA	STEEL TIE WIRE	12.4400	24.88	0.0750	0.15
110021	360.00	FT	M	500	5KV XLP SHIELD CABLE	26.0800	9,388.80	0.0720	25.92
70073	120.00	FT	M	4/0	XHHW CU (STR)	7.1521	858.25	0.0480	5.76
110148	4.00	EA	M	500 3/C	5KV STRESS CONES	912.5700	3,650.28	8.7500	35.00
100030	12.00	EA	M	500	AL/CU CRIMP LUG 2-HOLE	152.6922	1,832.31	1.8500	22.20
500090	500.00	FT	M	2500#	MULE TAPE/HERCULINE PULL LINE	0.0308	15.38	0.0030	1.50
						Phase Totals:	**21,648.65**		**146.13**
						Job Totals:	**21,648.65**		**146.13**

Skyline Electric Company
1848 West 2300 South
West Valley City, UT 84119
Phone: 801-972-3656
Web: https://skyline.us

CHANGE CONTROL FORM 080
Substation Transformer Ties

Owner: Central Valley Water Reclamation Facility	**Project: BNR – CC30B**	
Contractor: Gerber Construction	**Date: 8/11/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Per RFI 163, a change order has been created to add sizing for the Area 16 substation transformer ties between the two substations shown in drawing E-16-7001 to the cable schedules. Cable tags will be added to drawings E-16EB-1001 and E-16EB-1101 for the conduit and cable ties between the substations. Area 16 cable schedule sizing will be updated to reflect the following cables in 4" conduits:

7	CBLH	16	9000	A	-B			MV105	3#500, 1#4/0G	SUB169000B	SUB169000A	RWYH169000A-B					E-16EB-1001	4160V HIGH VOLTAGE CABLE TIES BETWEEN A-BUS AND B-BUS AREA 16 SUBSTATIONS (CCF 080 CHANGE ORDER PENDING)
8	CBLH	16	9000	B	-B			MV105	3#500, 1#4/0G	SUB169000A	SUB169000B	RWYH169000B-B					E-16EB-1001	4160V HIGH VOLTAGE CABLE TIES BETWEEN A-BUS AND B-BUS AREA 16 SUBSTATIONS (CCF 080 CHANGE ORDER PENDING)

Cable schedules will be reissued at a later date and will reflect these changes.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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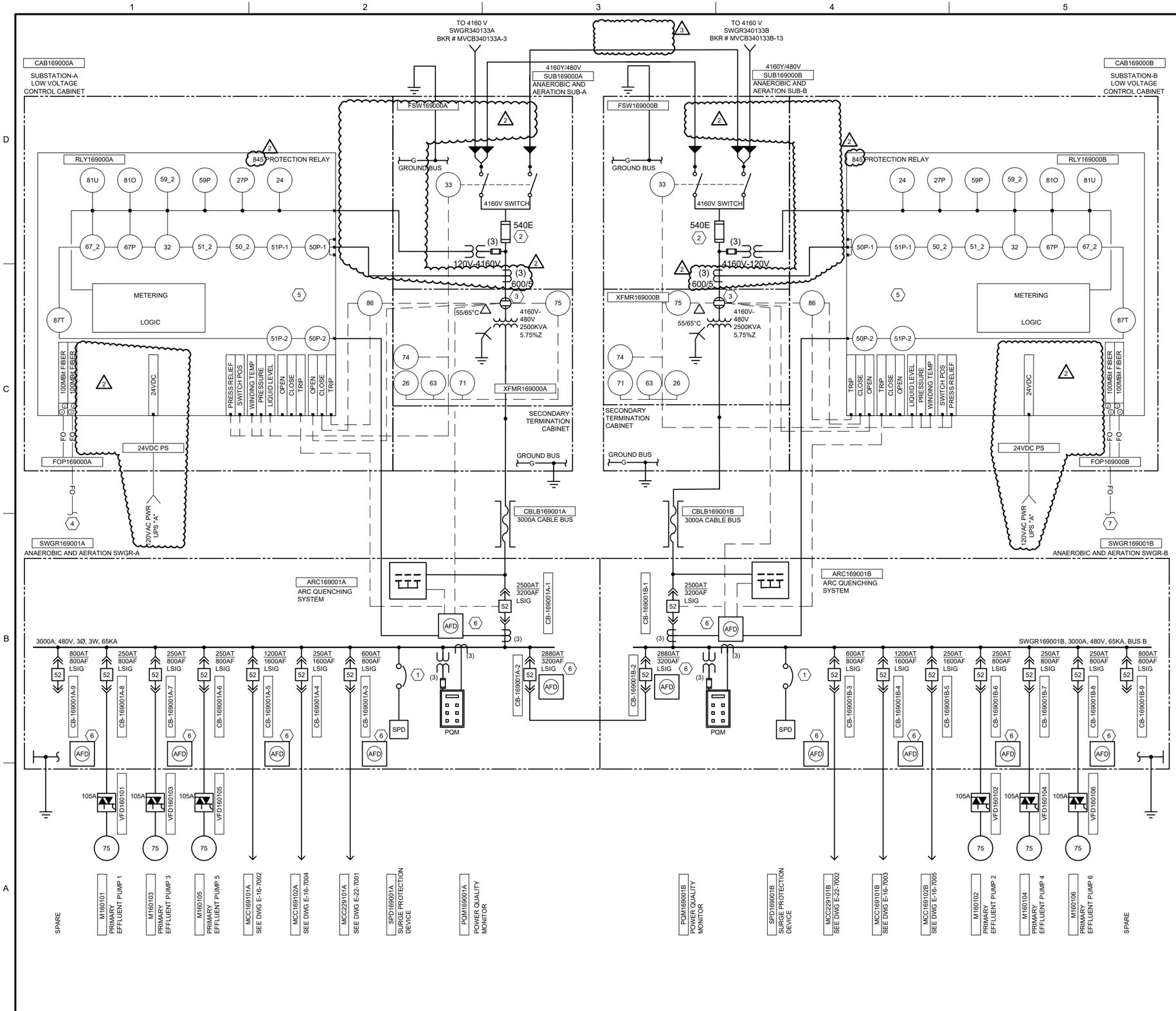


GENERAL NOTES :

1. ALL BREAKER SETTINGS SHALL BE SET PER THE SHORT CIRCUIT AND COORDINATION STUDY.
2. LISTED PROTECTIVE DEVICE NUMBERS ARE IN ACCORDANCE WITH ANSI STANDARD C37.2.
3. SUBMIT MANUFACTURES SHOP DRAWINGS OF SWITCHGEAR TO CVWRF FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
4. FOR CLARITY NOT ALL DEVICES ARE SHOWN. SEE SPECIFICATION SECTIONS 26 13 26, 26 11 16.13, AND 26 13 19.

KEYNOTES :

1. BREAKER RATING SHALL BE PER SPD MANUFACTURER'S RECOMMENDATION.
2. MANUFACTURER SHALL CONFIRM SIZE FUSES AND CT.
3. TRANSFORMER VACUUM FAULT INTERRUPTER AND INTERNAL DISCONNECT. SEE SPEC SECTION 26 11 16.13 FOR DETAILS.
4. SEE AREA AND PROTECTIVE RELAY NETWORK INTERCONNECTION DIAGRAM I-16-6101 AND I-34-6112 FOR DETAILED INTERCONNECTION ROUTING.
5. CONFIGURE CT POLARITY AND RELAY INPUTS TO INCLUDE SUBSTATION AND CABLE BUS IN DIFFERENTIAL ZONE OF PROTECTION.
6. DETAILED WIRING FOR ARC FLASH DETECTION (AFD) RELAY AND LIGHT SENSOR (NOT SHOWN FOR CLARITY) PROVIDED BY MANUFACTURER. (1) AFD PER 2 CIRCUIT BREAKERS.
7. SEE AREA AND PROTECTIVE RELAY NETWORK INTERCONNECTION DIAGRAM I-16-6101 AND I-34-6114 FOR DETAILED INTERCONNECTION ROUTING.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	08/2021	CC30B: CCF 031
2	09/2021	CC30B: CCF 042
3	07/2022	CC30B: CCF 080

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-16-7001.DWG

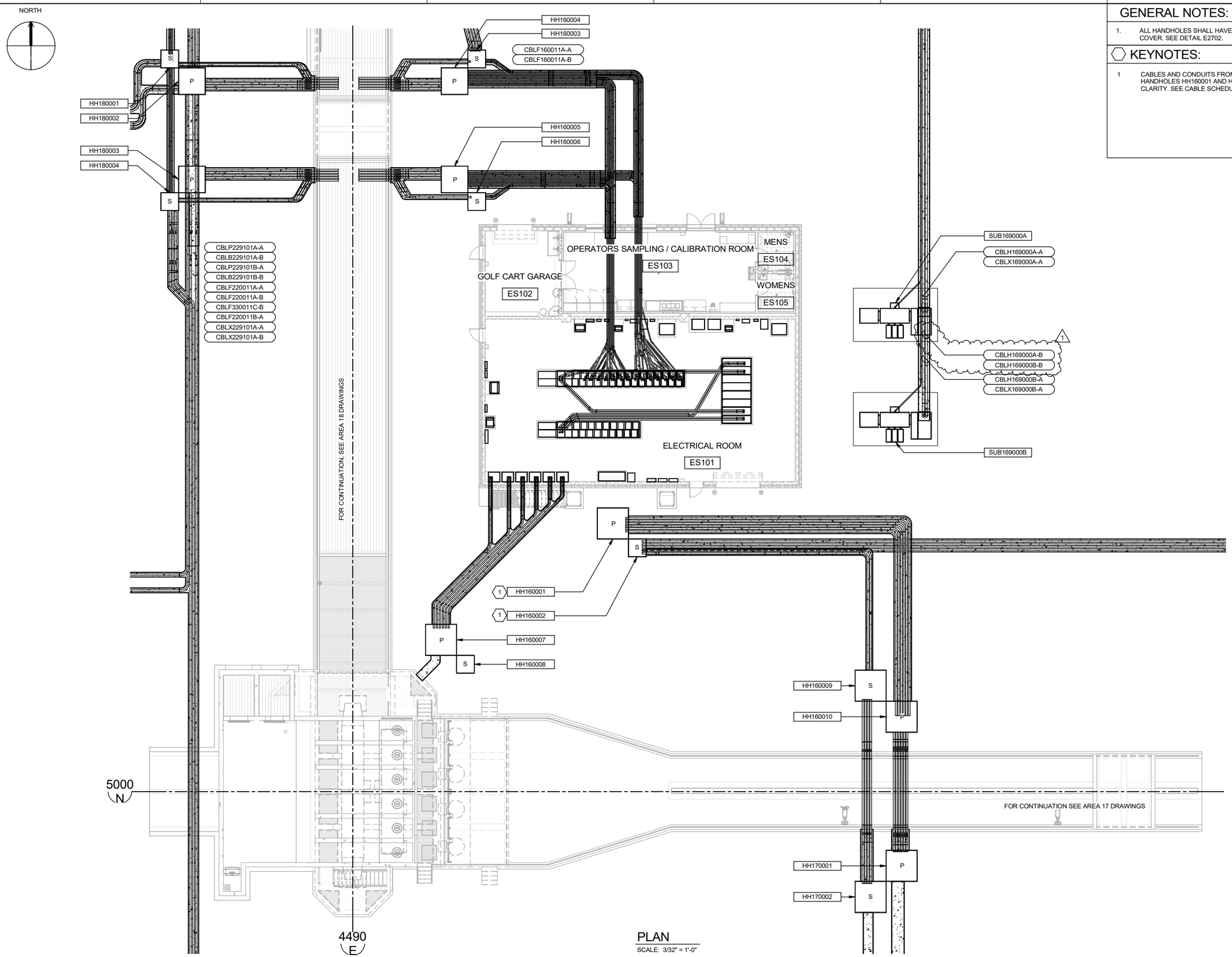
BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30A

ELECTRICAL
ANAEROBIC AND AERATION SWITCHGEAR ONE LINE SWGR169001

DRAWING NUMBER
E-16-7001

Path: C:\BCPW\D2160813 FILENAME: E-16-7001.DWG PLOT DATE: 7/25/2022 10:17 AM CAD USER: NICHOLAS ROBERTS



PLAN

SCALE: 3/32" = 1'-0"

GENERAL NOTES:

1. ALL HANDHOLES SHALL HAVE AN H-20 TRAFFIC RATED COVER. SEE DETAIL E2702.

KEYNOTES:

1 CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	07/2022	CC30B: CCF 080

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
151600-E-16EBV18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

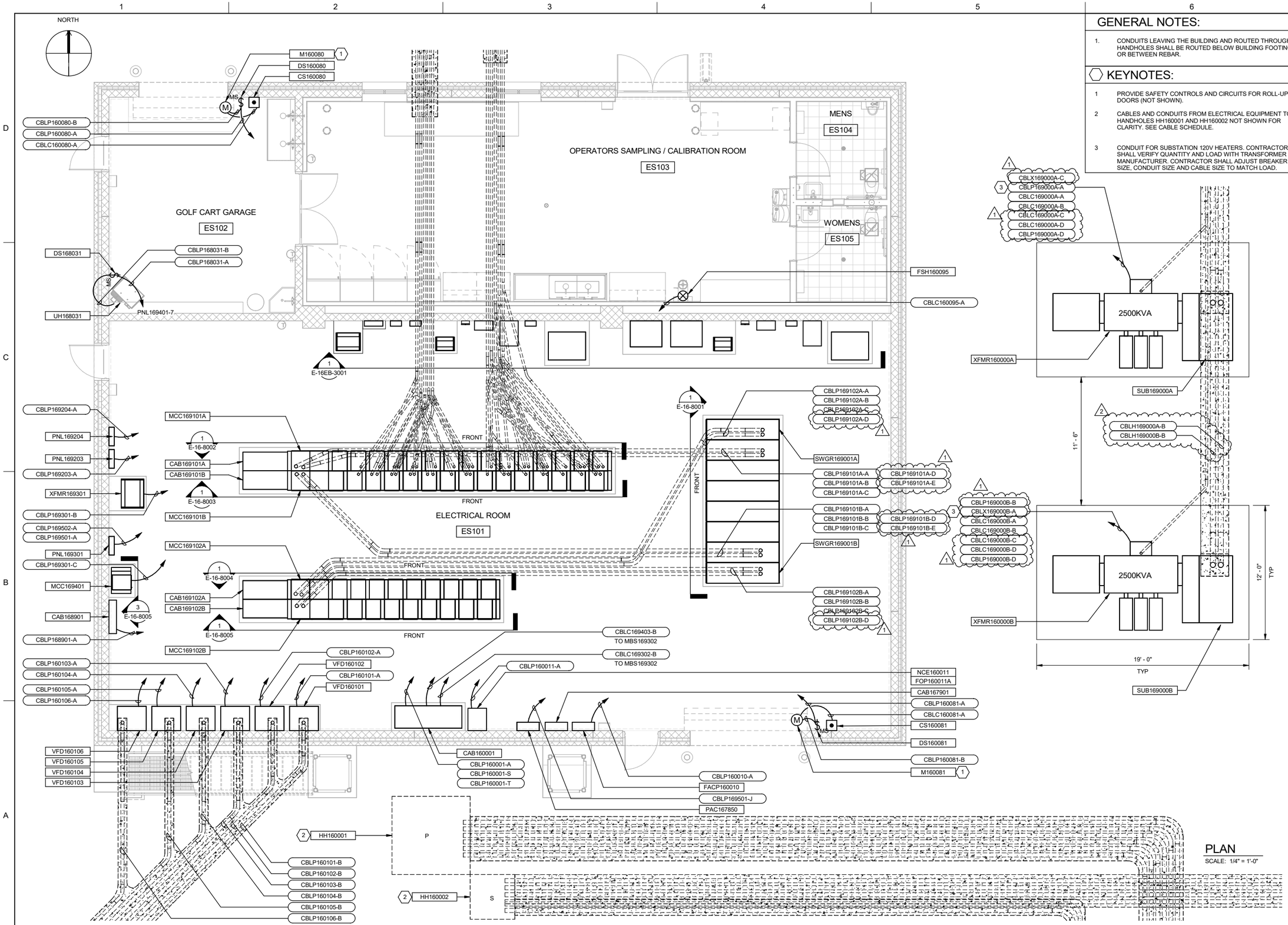
ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL BUILDING OVERALL PLAN

DRAWING NUMBER
E-16EB-1001

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16EBV21.rvt

Plot Date: 7/25/2022 10:00:41 AM



PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. CONDUITS LEAVING THE BUILDING AND ROUTED THROUGH HANDHOLES SHALL BE ROUTED BELOW BUILDING FOOTING OR BETWEEN REBAR.

KEYNOTES:

1. PROVIDE SAFETY CONTROLS AND CIRCUITS FOR ROLL-UP DOORS (NOT SHOWN).
2. CABLES AND CONDUITS FROM ELECTRICAL EQUIPMENT TO HANDHOLES HH160001 AND HH160002 NOT SHOWN FOR CLARITY. SEE CABLE SCHEDULE.
3. CONDUIT FOR SUBSTATION 120V HEATERS. CONTRACTOR SHALL VERIFY QUANTITY AND LOAD WITH TRANSFORMER MANUFACTURER. CONTRACTOR SHALL ADJUST BREAKER SIZE, CONDUIT SIZE AND CABLE SIZE TO MATCH LOAD.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	01/2022	CC30B: CCF 042
2	07/2022	CC30B: CCF 080

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: T. HALL
DRAWN: N. ROBERTS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME 151600-E-16EBV18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

ANAEROBIC AND AERATION ELECTRICAL ROOM POWER AND CONTROL PLAN

DRAWING NUMBER
E-16EB-1101

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-16EBV21.rvt
Plot Date: 7/25/2022 10:00:44 AM

#		$	Time	
CCF 041_RAS WAS Fiber		$12,776.94	2	
CCF 075_Deep Sump Valve Vault		$12,025.26	4	
CCF 079_RAS WAS Brick Ledger Emseal		$21,240.53	4	
CCF 080_Substation Transformer Ties		$46,540.07	4	
Total		**$92,582.80**	**14**	
Original contract value				
	$123,267,681.00			
Previous increases (co1-12)				
	$799,893.98		162	
Previous contract value				
	$124,067,574.98			
CO 13 increase				
	$92,582.80		14	
New contract value				
	$124,160,157.78		176	**1,645.00**

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

11/30/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 014.1_East RAS Flow Mete
Manufacturer Change, Gate Handle Extensions, and RAS Pipe Supports

Dear Brandon,

Change Order 14.1 includes:

- **East RAS Flow Meter Changes** per PCO 077
- **Gate Handle Extensions** per CCF 078
- **RAS Pipe Supports** per CCF 084

East RAS Flow Meter Changes: The flow meters in the East RAS pump station were changed from Rosemount to E+H to rectify performance and repeatability issues experienced during operation of the West RAS pumps. The piping configuration required due to existing space constraints in the West pump station equated to a flow meter installation that does not provide the required straight runs, upstream or downstream of the originally specified Rosemount flow meters. The E+H flow meters require zero pipe diameters of straight run both upstream and downstream and have been successfully operating the West RAS pump station. This change includes all eight flow meters required for the eight RAS pumps in the East RAS pump station. The Contractor is requesting **$90,334.29** and **2 days** to purchase and install E+H flow meters. Pricing was previously reviewed and appears fair and reasonable.

Gate Handle Extensions: Several manually operated slide gates had operators that were found to interfere with handrail after installation. CCF 078 was issued to add extensions to the gate operators to resolve the interference. The Contractor is requesting **$2,497.04** and **1 day** to complete this work. Pricing has been reviewed and appears fair and reasonable.

RAS Pipe Supports: The Contract documents inadvertently left out the requirement for the Contractor to provide and install pipe supports for the 24” & 30” RAS piping in the RAS/WAS basin dry pit. CCF 084 was issued to add the missing pipe supports. The Contractor is requesting **$44,734.43** and **8 days** to provide and install these pipe supports. Pricing has been reviewed and is in line with our expectations for this scope.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost of Change Order 14 is **$137,565.76** and **Eleven (11) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. Proposed Change Order 077
3. CCF 078 w/Contractor Quotation
4. CCF 084 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 14.1

Date of Issuance:	11/30/2022	Effective Date:	11/30/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 14.1 includes:

- East RAS Flow Meter Changes per PCO 077
- Gate Handle Extensions per CCF 078
- RAS Pipe Supports per CCF 084

Attachments:

1. Proposed Change Order 077
2. CCF 078 w/Contractor Quotation
3. CCF 084 w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 13 : $892,476.78	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 13 : Substantial Completion: 176 Ready for Final Payment: 176 Days
Contract Price prior to this Change Order: $ 124,160,157.78	Contract Times prior to this Change Order: Substantial Completion: 1,667 Ready for Final Payment: 1,775 days or dates
[Increase] [Decrease] of this Change Order: $137,565.76	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 11 Ready for Final Payment: 11 days or dates
Contract Price incorporating this Change Order: $124,297,723.54	Contract Times with all approved Change Orders: Substantial Completion: 1,678 Ready for Final Payment: 1,786 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title: Construction Manager	Title General manager	Title Project Manager
Date: 11/30/2022	Date 12/5/2022	Date 12/1/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 077
Date: 11/18/2022
Description: Per email from Mark Hansen in attached back-up: Cost to change flow meter manufacturer from Rosemont to Endress Hauser. This cost is for the flow meters only. Any additional cost for piping adjustment due to the change in the flow meters will be priced under Change Control Form #076.

Skyline Electric (see attached back-up):	$83,821.27
Mark-up (5%):	$4,191.07
Gerber Onsite Coordination & Management (see attached back-up):	$1,206.07
Bonds:	$813.01
Mark-up (15%):	$302.87
Total:	**$90,334.29**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $90,334.29 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-077 Flow Meter Manufacturer Change	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-077	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Flow Meter Manufacturer Change (Skyline)	**1.00**	**UNIT**	**$83,821.27**	**$83,821.27**	**$88,934.04**	**$88,934.04**	**5.09%**
S Electrical Sub	1.00	LS	$83,821.27	$83,821.27			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$1,206.07**	**$1,206.07**	**$1,400.25**	**$1,400.25**	**15.00%**
01 Superintendent	4.00	HR	$128.58	$514.31			
20 Project Engineer	3.00	HR	$103.59	$310.47			
18 Project Manager	2.66	HR	$143.13	$381.29			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,206.07	1.42%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$83,821.27	98.58%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$85,027.34	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$85,027.34	94.13%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$813.01	0.90%
Total Overall Cost:	$85,840.35	95.03%
Total Overhead:	$0.00	0.00%
Total Profit:	$4,493.94	4.97%
Total Margin:	$4,493.94	4.97%
Total Bid Price:	$90,334.29	

-QUOTATION-

BNR CC30B
FLOW METER MANUFACTURER CHANGES

August 16, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes involving *Flow Meter Manufacturer Changes*

Scope includes:
Provide credit for Rosemont flow meters.
Provide customer requested Endress + Hauser flow meters.

Please contact me with any questions.

Price: $ 83,821.27

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Contract Change

Date:	8/16/2022		
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**FLOW METERS**	City/State/Zip:	Lehi, UT 84043

Change Description:

Provide credit for Rosemont flow meters.
Provide customer requested Endress + Hauser flow meters.

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached).....	$0.00		
SUBCONTRACTOR PRICING (from quote sheets; attached).....		$73,159.87	
Base Labor Hours (from pricing sheets).....			0.00

LABOR FACTOR:

material handling		2.00%					0
cleanup		3.00%					0
safety		1.25%					0
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $0.00	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 0.00	loc 2 $ 73,159.87	0.00
		RATE: $	70.00
extension:		$	0.00

	hrs.		diff.	rate $		
Supervision Labor Premium	0.00	rate	$42.00	$84.00	$	0.00
GF Premium	0.00	rate	$42.00	$84.00	$	0.00
F Premium	0.00	rate	$37.80	$75.60	$	0.00
J Premium	0.00	rate	$33.60	$67.20	$	0.00
F Double Time	0.00	rate	$75.60	$151.21	$	0.00
J Double Time	0.00	rate	$67.20	$134.40	$	0.00
TOTAL DIRECT LABOR COST **E28*E32**					loc 3 $	0.00

JOB EXPENSE:

permit				$0.00	FIELD Cont.					
OFFICE					Layout / Coordination	2		hrs@	$79.00	$158.00
project management	0	hrs@	$84.00	$0.00	Testing	0		hrs@	$79.00	$0.00
change estimating	0	hrs@	$84.00	$0.00	Shop Drawings / Submittals	2		hrs@	$84.00	$168.00
FIELD					Freight					$0.00
BIM/VDC	0	hrs@	$75.00	$0.00	Fuel & Consumables					$0.00
BIM/VDC as-builds	0	hrs@	$75.00	$0.00	Tools & Equipment		2% of Labor Dollars			$0.00
change management	3	hrs@	$79.00	$237.00	Jobsite Trailer / Storage Rental	0		mo@	$125.00	$0.00
change estimating	2	hrs@	$79.00	$158.00	Pick-up Truck	0		dy@	$80.00	$0.00
as-builds	0	hrs@	$79.00	$0.00	Equipment Rental	0		wk@	$600.00	$0.00
EXPENSE TOTAL									loc 4 $	721.00

MATERIAL		from loc 1	$	0.00
SUBCONTRACTS		from loc 2	$	73,159.87
JOB EXPENSE		from loc 4	$	721.00
LABOR		from loc 3	$	0.00
WARRANTEE	1.50%		$	1,108.21
BOND	1.44%		$	1,079.84
subtotal			$	76,068.93
OVERHEAD + PROFIT	15.00%		$	4,094.35
TOTAL CHANGE			$	83,821.27

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

PDI *Leading by Design…*

CVWRF, CC30B BNR Basins Project:
Rosemount Flow Meter Removal Credit: July 20th, 2022

Credit reflects pricing as quoted on 5/11/2020.

Scope of Credit:
Remove the Following Rosemount Flow Meters:

- FE/FIT-210101
- FE/FIT-210102
- FE/FIT-210103
- FE/FIT-210104
- FE/FIT-210105
- FE/FIT-210106
- FE/FIT-210107
- FE/FIT-210108

Credit	***$ 26737.92***
Materials Sales Tax	***$ 1991.98***
	$28,729.90

PDI appreciates the opportunity to work with you. We will be available at any of the numbers below. Please do not hesitate to call if you have any questions.
Phone 208-240-7382 or 208-237-2529.

Sincerely,

Russ Ekins

Russ Ekins

PDI *Leading by Design…*

CVWRF: CC30B BNR Basins Project:
E&H Flow Meter Change Order: July 21st, 2022

Scope of Supply:
Add the Following E&H Mag Flow Meters:

- FE/FIT-210101
- FE/FIT-210102
- FE/FIT-210103
- FE/FIT-210104
- FE/FIT-210105
- FE/FIT-210106
- FE/FIT-210107
- FE/FIT-210108

Flow Meters (8)	***$ 95,712.31***
Materials Sales Tax	***$ 6,177.46***
	$101,889.77

PDI appreciates the opportunity to work with you. We will be available at any of the numbers below. Please do not hesitate to call if you have any questions.
Phone 208-240-7382 or 208-237-2529.

Sincerely,

Russ Ekins

Russ Ekins

Jeremy Jones

From: Mark Hansen <MHansen@BrwnCald.com>
Sent: Thursday, July 14, 2022 3:45 PM
To: Shay Clark
Cc: Navneet Prasad; Brandon Heidelberger; Jeremy Jones; Brad Wilding; Jeromie Miner; Jordon Miller; Phillip Duncan; Neil Kunz; Joe R. Martinez
Subject: CC 30B -BNR/PEPS/RAS Selector - East RAS Pumps - Endress+Hauser Flow Meters

Importance: High

Shay,

This email is to clarify the intent with these new flow meters.

BC will issue a change control form, as a request for quotation, to replace the specified Rosemount flow meters with Endress + Hauser flow meters; work with Rust Automation (contact Allyson Wright). It is my understanding that the specified Rosemount flow meters have not been purchased. The $ value you propose will be the difference in price between the specified flow meters and the Endress + Hauser flow meters.

Also included in the same CCF will be piping arrangement modifications which are not ready yet.

Endress + Hauser has a price increase effective August 1, 2022. We would like these released in advance of August 1, 2022, to avoid the price increase.

Thank you,

Mark Hansen
Manager, Construction Services
Brown and Caldwell
T 801.316.9830 | C 801.367.6680 | MHansen@brwncald.com

Quotation

RUST AUTOMATION & CONTROLS INC.

Endress+Hauser
People for Process Automation

Number	**2003460251**
Dated	07/19/22
Valid to	08/12/22
Customer No.	46138954

SKYLINE ELECTRIC COMPANY INC
1848 W 2300 S
SALT LAKE CITY UT 84119-2012

External Sales	Rust Automation - Allyson Wright
Telephone	801-828-0390
allyson.wright@rustco.com	
Inside Sales	Rust Automation - Sales
Telephone	801-566-7878
sales@rustco.com	

Your Reference	Skyline Electric // 5W4C3F
Dated	07/13/22

QUOTE PROVIDED TO SKYLINE PER CVWRF REQUEST. REQUEST WAS SENT TO PDI TO ORDER. PDI MADE PURCHASE BEFORE PRICE INCREASE ON AUGUST 1, 2022 AS REQUESTED

Issue PO to:
Endress+Hauser c/o Rust Automation
2350 Endress Place
Greenwood, IN 46143

With My Endress+Hauser, view and order this quote! Easy, fast, convenient!

Order and track online

Summary

Item	Qty	Product	Delivery time	Net value (USD)
10	8 PC	Promag W 400, 5W4C3F, DN350 14" 5W4C3F-J070/0 (5W4C3F-C6ILHP4DHA1KHA+EB)	58 wrk.day(s)	**74,314.56** Unit price 9,289.32
20	1 PC	Time-based Commissioning Service XD21BL-ABA44J **Your item number: 910000**	to be agreed	**2,400.00** Unit price 2,400.00

Endress+Hauser Inc.
Toll Free - 888-ENDRESS
FAX - 317-535-8498
www.us.endress.com

Regional Centers:
East - Chalfont, PA 18914
Gulfcoast - Pearland, TX 77047
Midwest - Greenwood, IN 46143
West - Pearland, TX 77047

Remit To:
ENDRESS+HAUSER -DEPT 78795
P.O. Box 78000
DETROIT, MI 48278-0795

Quotation 2003460251

Version

Endress+Hauser
People for Process Automation

Item	Qty	Product	Delivery time	Net value (USD)
30	16 PC	Promag, grounding disc/protection disc DK5GD-3FAHL	on request	**8,491.84**
		Your item number: 910001		Unit price 530.74

Total prices	**85,206.40**
Logistic Service	**1,654.27**
Net value	**86,860.67**
Sales Tax Total	**6,177.46**
Total including tax (USD)	**93,038.13**

Ship-To

SKYLINE ELECTRIC COMPANY INC
1848 W 2300 S
SALT LAKE CITY UT 84119-2012

Payment term Net 30 Days

Delivery conditions DAP Delivered at place CUSTOMER SITE - Incoterms® 2020

Warranty Details are listed in the items further below.

Delivery time The mentioned delivery times are calculated in working days and are based on partial, standard delivery service.
If you wish complete delivery, please contact your sales representative.

Endress+Hauser
People for Process Automation

Details

Dated 07/19/22

Item	Qty	Product	Net value (USD)
10	8 PC	Promag W 400, 5W4C3F, DN350 14" 5W4C3F-J070/0 (5W4C3F-C6ILHP4DHA1KHA+EB)	**74,314.56**
		EDI-Orderref.: 2003460251-0010 Unit price	9,289.32

Electromagnetic flowmeter
Inline version.
Application: Ideal for water measurement
e.g. drinking water, utility water
and industrial/municipal wastewater.
International drinking water approvals.
Installation length: DVGW/ISO conform.
Corrosion-resistant transmitter version.
Same housing for compact/remote version.
:: Versatile standard flowmeter
for the water and wastewater industry
:: Constant accuracy with 0 x DN inlet
run and no pressure loss (optional).

Warranty 12 months after delivery

Delivery time 58 wrk.day(s)

Order code description

C6	Approval: CSA C/US NI Cl.I Div.2 Gr. ABCD
I	Design: Fixed flange, 0 x DN inlet/ outlet runs
L	Power Supply: 100-240VAC/24VAC/DC
H	Output; Input: 4-20mA HART, pulse/freq., switch output
P	Housing: Remote, alu, coated
4	Cable, Remote Version: 50.00 m coil + signal cable
D	Electrical Connection: Thread NPT1/2
H	Liner: Hard rubber
A1K	Process Connection: Cl.150, carbon steel, flange ASME B16.5
H	Electrodes: Alloy C22, bullet nose
A	Calibration Flow: 0.5%
EB	>>Application Package: Heartbeat Verification + Monitoring

Details

Format display	1 value, max. size
Value 1 display	Volume flow
Value 2 display	None

Item	Qty	Product	Net value (USD)

Value 3 display	None
Value 4 display	None
Display damping	0.00000 s
Totalizer 1	
Unit	USgal
Operating mode totalizer	Net flow total
Failure mode	Stop
Totalizer 2	
Unit	USgal
Operating mode totalizer	Net flow total
Failure mode	Stop
Totalizer 3	
Unit	USgal
Operating mode totalizer	Net flow total
Failure mode	Stop
Curr. output 1	Volume flow
Current span	4...20 mA US
Value 0/4 mA	0.00000 USgal/min
Value 20 mA	3,600.00000 USgal/min
Failsafe mode current output	Max.
Damping output 1	1.00000 s
Operating mode	Pulse
Assign pulse output	Volume flow
Pulse value (per pulse)	30.00000 USgal
Pulse width	100.000 ms
Failsafe mode pulse output	No pulses

Country of origin	Country of dispatch	HS-Code
FR	FR	9026102040

20	1 PC	Time-based Commissioning Service XD21BL-ABA44J	**2,400.00**

EDI-Orderref.: 2003460251-0020 Unit price 2,400.00

Your item number: 910000
To ensure optimal device performance

Item	Qty	Product	Net value (USD)
		right from the start trained service technicians ensure optimum set-up and perform initial checks. All results are documented in final service reports.	

Delivery time to be agreed

Order code description

A Preparation and standard travel time: included in the base price
B Standard labor time: 1 x 8h
A Surcharges: not selected
4 Extended Factory Warranty: 8 x instrument/s, 2 additional years after shipment date (3 years in total), in workshop
4 Commissioning Level: 8 x Basic: Device Inspection, configuration, provision of parameter files + explanation of operations and maintenance.
J Additional travel expenses: 20 x Roundtrip mileage (travel hours included)

This is a budgetary quote estimated based on 8 flowmeters for start up/commissioning.

Travel is quoted from West Jordan, UT.

If work time or travel surpasses our preconceived time for the scope or any additional trips are necessary, actual time and expenses will be invoiced and may require a revised PO.

If overtime is needed it is considered as time over 8 hours in a day and is 1.5 times the standard rate. Saturday is 1.5 multiplier of standard rate. Sundays and Holidays are a 2.0 multiplier of standard rate.

30	16 PC	Promag, grounding disc/protection disc DK5GD-3FAHL	**8,491.84**
		EDI-Orderref.: 2003460251-0030 Unit price	530.74
		Your item number: 910001	
		Includes 1 grounding disc/protection disc	

Delivery time on request

Order code description

3FA Nominal Diameter: DN350 14", 1.4435/316L
H Liner: Hard rubber
L Process Connection: Cl.150 ANSI B16.5

Item	Qty	Product	Net value (USD)

Country of origin	Country of dispatch	HS-Code
US	US	9026902000

US: Subject to US Export Administration Regulations - EAR99

General Terms & Conditions of Sale

All sales order related transactions with Endress+Hauser, Inc. shall be governed by Endress+Hauser, Inc.'s General Terms and Conditions of Sale ("E+H Terms") which are subject to modification. Please visit https://www.us.endress.com/static/terms-conditions for the most up to date E+H Terms. Any contracts or agreements which are currently in place shall apply andwill not be replaced by the E+H Terms.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 071
Date: 10/6/2022
Description: Per Control Change Form #078: Cost to provide labor and materials to install gate handle extensions on the following gates.
SGTE 170110 (4" Extension) SGTE 170120 (4" Extension)
SGTE 170130 (4" Extension) SGTE 170140 (4" Extension)
SGTE 223021 (10" Extension) SGTE 223043 (6" Extension)
SGTE 223100 (6" Extension)
*The gates listed above are different than those detailed in CCF#078. Additional gates will need to be identified later and an additional change order will need to be issued for them.

Golden Harvest (see attached back-up):	$1,396.85
Gerber Labor (see attached back-up):	$256.71
Gerber Onsite Coordination & Management (see attached back-up):	$495.30
Bonds:	$22.47
Mark-up (15%):	$325.70
Total:	**$2,497.04**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $2,497.04 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-071 Valve Handle Extensions	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-071	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Management	**1.00**	**LS**	**$495.30**	**$495.30**	**$575.56**	**$575.56**	**15.00%**
18 Project Manager	1.00	HR	$143.13	$143.13			
20 Project Engineer	3.00	HR	$103.59	$310.75			
Truck, Pickup, 1 Ton	0.00	MO	$2,747.00	$12.78			
Truck, Pickup, 3/4 Ton	0.01	MO	$2,053.00	$28.65			
D 02 - Gerber Installation	**1.00**	**LS**	**$256.71**	**$256.71**	**$298.30**	**$298.30**	**15.00%**
Mechanical Crew, 2 Man (9.00 HR/DY, 0.22 DY)	2.00	HR	$128.36	$256.71			
05 Skilled Labor	2.00	HR	$58.70	$117.39			
04 Leadman	2.00	HR	$69.66	$139.32			
D 03 - Materials	**1.00**	**LS**	**$1,396.85**	**$1,396.85**	**$1,623.18**	**$1,623.18**	**15.00%**
Gate Handle Extensions	1.00	EACH	$1,396.85	$1,396.85			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$710.59	33.07%
Equipment Owned:	$41.42	1.93%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,396.85	65.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$2,148.86	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$2,148.86	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$22.47	0.90%
Total Overall Cost:	$2,171.34	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$325.70	13.04%
Total Margin:	$325.70	13.04%
Total Bid Price:	$2,497.04	

Golden Harvest, Inc.

Golden Gates ™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

QUOTATION #20-0408 7-CO

NAMED MANUFACTURER

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

CONTACT: Joshua McGaughey @ 1-800-338-6238

PLEASE RESPOND TO:

GOBLE SAMPSON AND ASSOCIATES, INC
3500 SOUTH MAIN STREET, SUITE 200
SALT LAKE CITY, UT 84115

ATTN:

David Ritter
dritter@goblesampson.com

PHONE: 801-268-8790
FAX: 801-268-8792

DATE: September 29, 2022
QUOTE EXPIRES: 30 days
JOB: CVWRF BNR Basins Selector
South Salt Lake, UT
BID DATE: 05/12/2020 2:00 PM (MDT)
ENGINEERS: Brown & Caldwell

PHONE: 801-316-9800 **FAX** 801-565-7330

FOB: FACTORY (Full Freight Allowed)
SHIPPING NOTE: Split shipments available. **REQUEST QUOTE.**
TERMS: Net 30
SUBMITTALS: **2-4 weeks following receipt of order.**
SHIPMENT: **12-18 weeks following submittal approval.**
ADDENDA REC'D: **ADD01-06**

CHANGE ORDER

SPECIFICATION: 40 05 59.13 FABRICATED STAINLESS STEEL SLIDE GATE, 40 05 57.23-2 POWERED ACTUATORS

#	LOCATION	GATE	SIZE	TYPE	QTY	TOTAL
1	various	SGTE 170110, 170120, 170130, 170140	4" EXT	2" NUT EXT W/SET SCREWS TO FIT OVER 30mm SHAFTS.	4	
2		SGTE 223021	10" EXT		1	
3		SGTE 223043, 223100	6" EXT		2	
					7	**$1,300.00**

1. Stainless steel anchor bolts are included for concrete mounted frames.
2. Epoxy adhesive by contractor.
3. **SALES TAX NOT INCLUDED IN PRICE.**
4. Mill finish on stainless steel/aluminum surfaces.

CHANGE CONTROL FORM 078
Valve Handle Extension

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 07/22/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide a 6-inch extension stem from the 2-inch square nut to locate the handle a minimum of 3-inches inside the handrail for the following tank drain slide gate valves per RFI 134:

1. SGTE223021 on RAS/WAS Basin
2. SGTE 181104 on Aeration Basin
3. SGTE 181204 on Aeration Basin
4. SGTE 181304 on Aeration Basin
5. SGTE 181404 on Aeration Basin

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	

Proposed by:	**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 070
Date: 10/18/2022
Description: Per Control Change Form #084: Cost to provide labor, material, and equipment for pipe supports 24" and greater in RAS/WAS.

Gerber Onsite Coordination & Management (see attached back-up):	$2,618.54
Gerber Labor, Material, Equipment and Fabrication (see attached back-up):	$31,009.66
Gerber Installation Labor, Material and Equipment (see attached back-up):	$4,868.69
Bonds:	$402.61
Mark-up (15%):	$5,834.93
Total:	**$44,734.43**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $44,734.43 will be added to the contract price, and an additional 8 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-070 Pipe Supports RAS Piping - CC#084	**Customer:**	Central Weber Sewer Improvement District
Job Number:	2008 **Bid Number:** 2008-070	**Billing Address:**	2618 West Pioneer Road
Bid As:	Contractor		Ogden, UT 84404
Estimator:	Jeromie Miner	**Phone:**	801-731-3011
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Management	**1.00**	**LS**	**$2,618.54**	**$2,618.54**	**$3,042.82**	**$3,042.82**	**15.00%**
Gerber Management	1.00	LS	$2,618.54	$2,618.54			
01 Superintendent	4.00	HR	$128.58	$514.31			
18 Project Manager	4.00	HR	$143.13	$572.51			
17 Draftsman	6.75	HR	$72.43	$488.89			
Shop Manager	4.50	HR	$103.59	$466.18			
20 Project Engineer	4.50	HR	$103.59	$466.18			
Truck, Pickup, 1 Ton	0.02	MO	$1,827.25	$42.16			
Truck, Pickup, 3/4 Ton	0.05	MO	$1,480.63	$68.33			
02 - Pipe Supports (Material/Fabrication)	**1.00**	**LS**	**$31,009.66**	**$31,009.66**	**$36,034.06**	**$36,034.06**	**15.00%**
Gerber Fabrication	1.00	LS	$24,992.46	$24,992.46			
Welding Crew (Shop) (9.00 HR/DY, 3.89 DY)	35.00	HR	$195.73	$6,850.63			
Welding Shop	38.89	HR	$18.20	$707.78			
13 Welder Foreman	38.89	HR	$93.77	$3,646.71			
14 Welder	38.89	HR	$64.19	$2,496.14			
W6x20, 304 SS	40.00	LF	$123.57	$4,942.70			
W4x13, 304 SS	20.00	LF	$105.30	$2,106.02			
06" Pipe, Schedule 40, SS (Threaded)	4.00	LF	$128.94	$515.76			
304 SS PL, 1"(1 SF=40.8 Lbs)	32.00	SF	$208.45	$6,670.50			
5/8"x1' 304 SS Flat Bar	20.00	EACH	$98.85	$1,977.08			
U-Bolt 1"X24" W/ Nut & Washer, 316 SS	3.00	EACH	$355.29	$1,065.88			
U-Bolt 1" X 30" W/ Nut & Washer, 316 SS	2.00	EACH	$431.95	$863.90			
Vendor Supplied (Anvil Figure 265)	1.00	LS	$6,017.20	$6,017.20			
24" Pipe Support SS (Anvil Figure 265)	4.00	EACH	$1,504.30	$6,017.20			
03 - Install Pipe Supports	**1.00**	**LS**	**$4,868.69**	**$4,868.69**	**$5,657.55**	**$5,657.55**	**15.00%**
Gerber Install	1.00	LS	$4,277.72	$4,277.72			
Mechanical Crew, 3 Man (9.00 HR/DY, 2.22 DY)	20.00	HR	$213.89	$4,277.72			
05 Skilled Labor	20.00	HR	$58.70	$1,173.91			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 03 - Install Pipe Supports continued)							
03 Foreman	20.00	HR	$86.27	$1,725.31			
Truck, Pickup, 1 Ton	0.10	MO	$1,827.25	$187.38			
Forklift	17.78	HR	$67.00	$1,191.11			
Epoxy	4.00	EACH	$45.13	$180.52			
Concrete Anchors 316 SS	44.00	EACH	$8.60	$378.22			
Sikagrout 212 (50 lb bag)	2.00	BAG	$16.12	$32.24			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$11,550.13	30.00%
Equipment Owned:	$2,196.76	5.71%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$24,750.01	64.29%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$38,496.90	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$38,496.90	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$402.61	0.90%
Total Overall Cost:	$38,899.50	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$5,834.93	13.04%
Total Margin:	$5,834.93	13.04%
Total Bid Price:	$44,734.43	

CHANGE CONTROL FORM 084
Pipe Supports RAS Piping

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 08/17/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide pipe supports for 24-inch and 30-inch RAS piping in RAS/WAS Basin dry pit per revised drawing P-22-3002 Rev1 and attached details.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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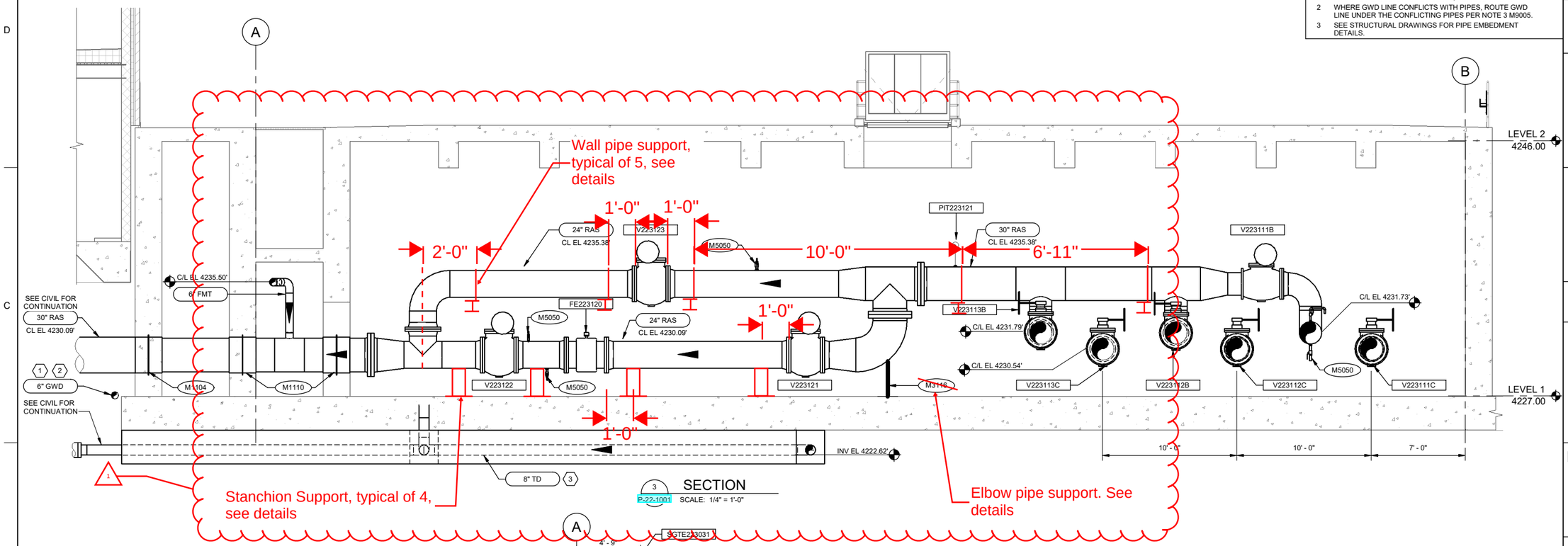
CONSTRUCTION SKETCH

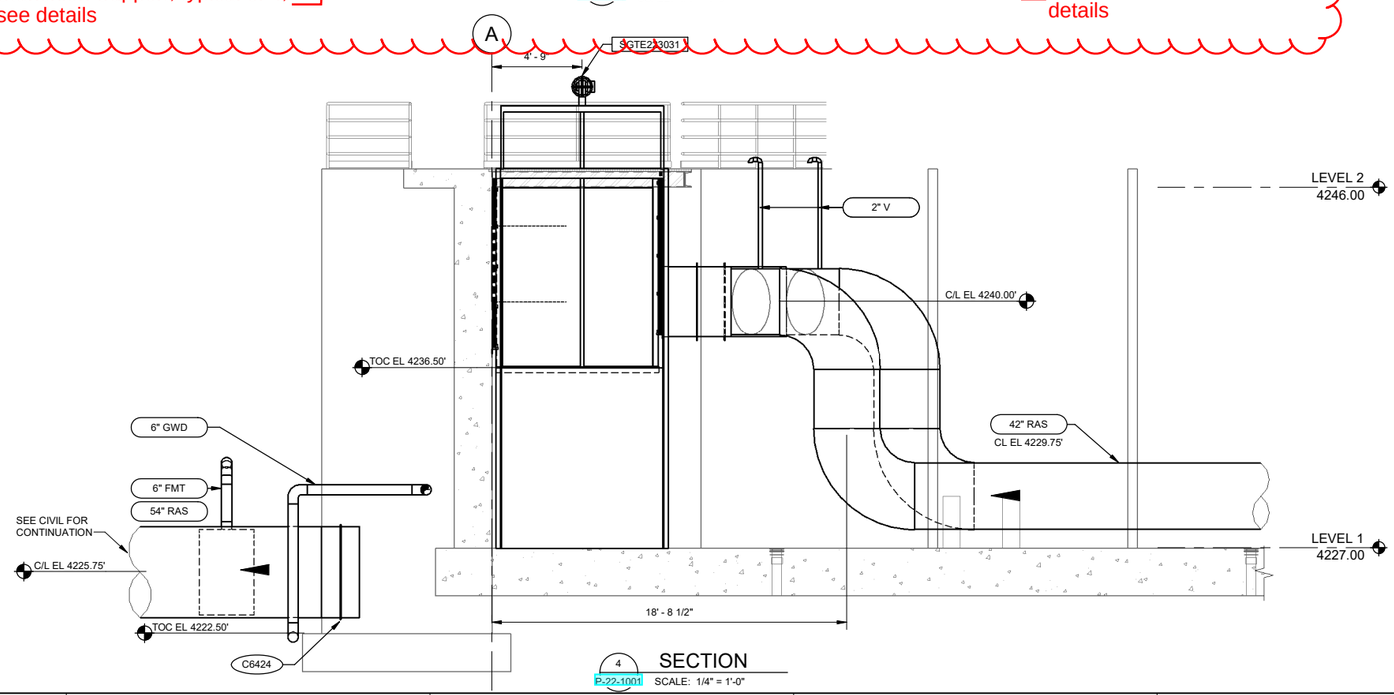
GENERAL NOTES:

1. PIPING ROUTED BENEATH THE BASINS WILL REQUIRE CONCRETE ENCASEMENT. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
2. PLUG VALVE SHALL BE ORIENTED WITH SHAFT HORIZONTAL AND PLUG LIFING TO TOP OF PIPE WHEN OPEN.

KEYNOTES:

1. CONTRACTOR TO FIELD ROUTE PERFORATED GWD LINE AROUND PERIMETER OF BUILDING, PER STD M9005.
2. WHERE GWD LINE CONFLICTS WITH PIPES, ROUTE GWD LINE UNDER THE CONFLICTING PIPES PER NOTE 3 M9005.
3. SEE STRUCTURAL DRAWINGS FOR PIPE EMBEDMENT DETAILS.





Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	8/17/22	CC30B - CCF084 Pipe Supports

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: B. WATSON
DRAWN: R. FULK
CHECKED: Z. MOORE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
151600-P-22V18

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

PROCESS

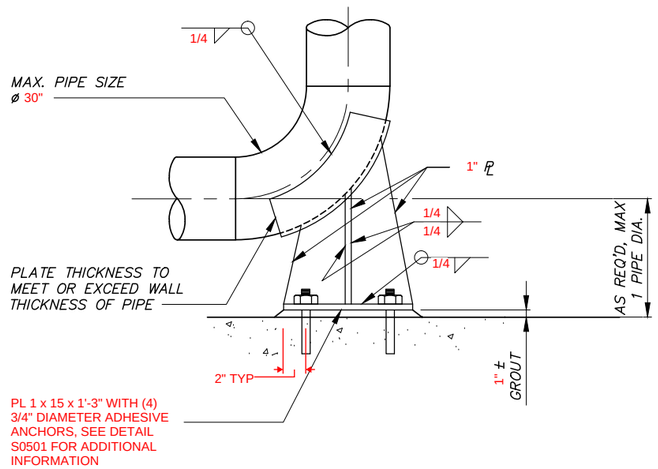
RAS/WAS BASIN SECTIONS 2

DRAWING NUMBER
P-22-3002

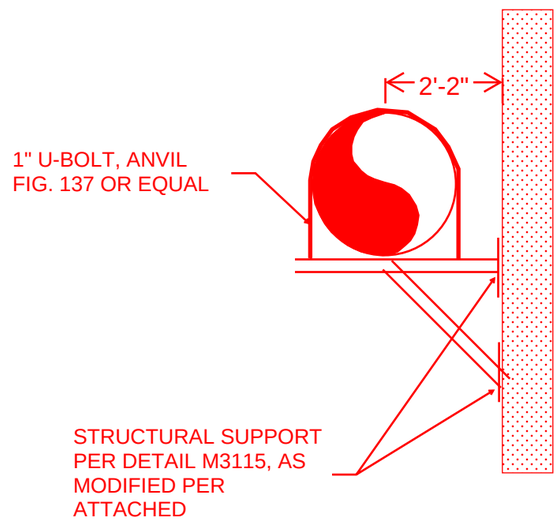
Path: BIM 360://151600 - CVWRF Nutrients/151600-P-22V18.rvt

Plot Date: 6/4/2020 10:17:36 AM

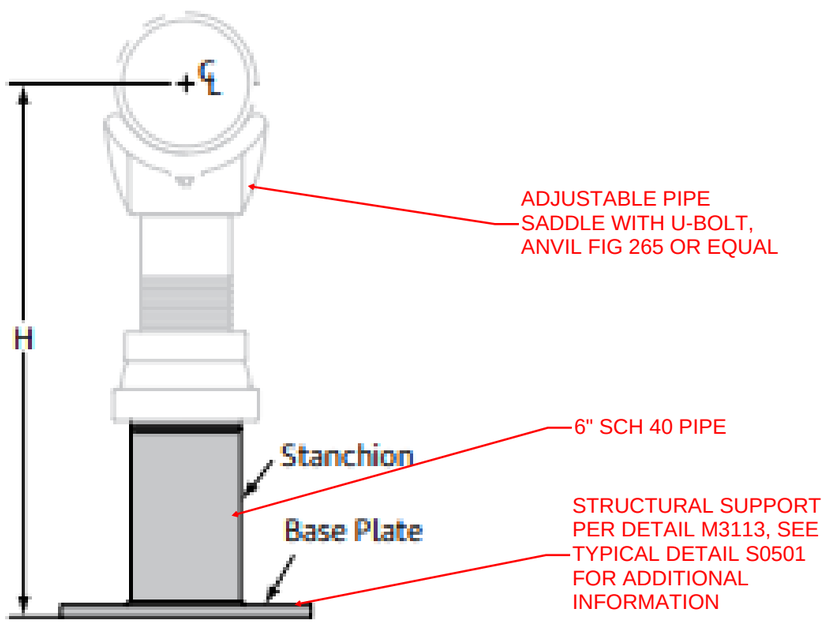
CONSTRUCTION SKETCH



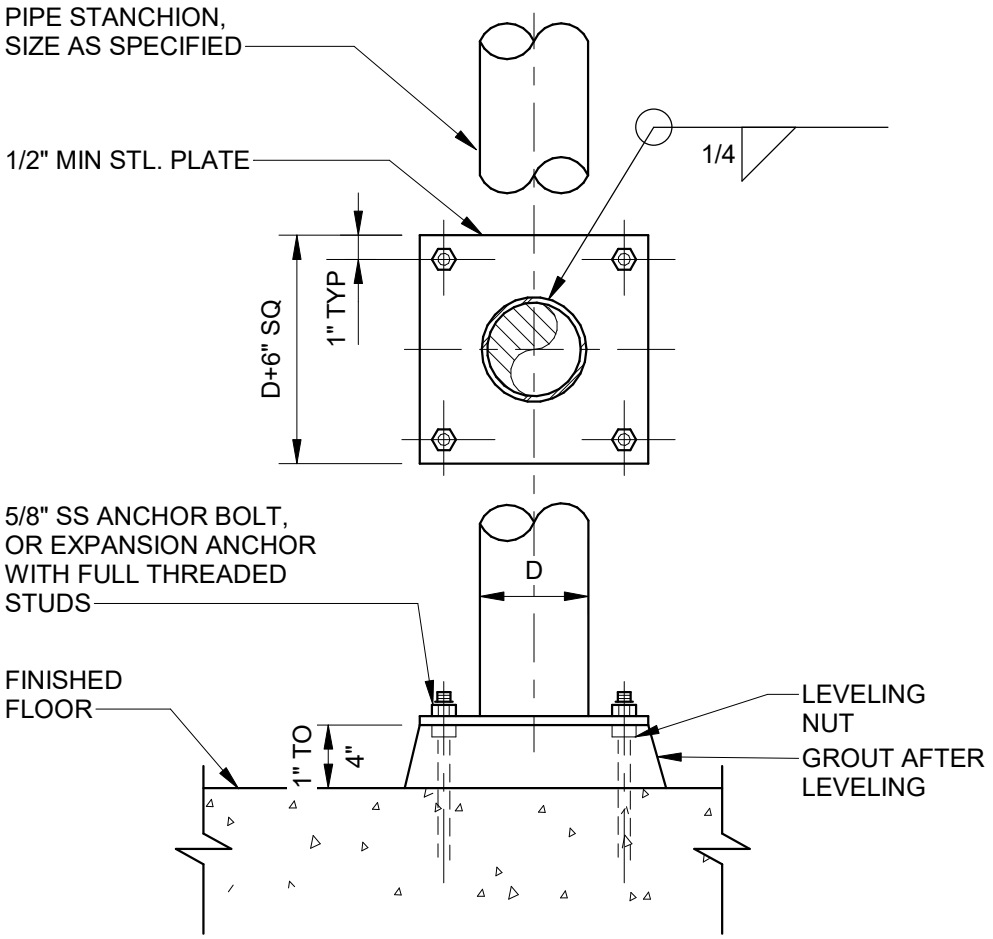
ELBOW PIPE SUPPORT



WALL SUPPORT



STANCHION SUPPORT



TYPE N PIPE STANCHION FLOOR ATTACHMENT

DETAIL

M3113

SCALE: NONE

TYPICAL DETAILS

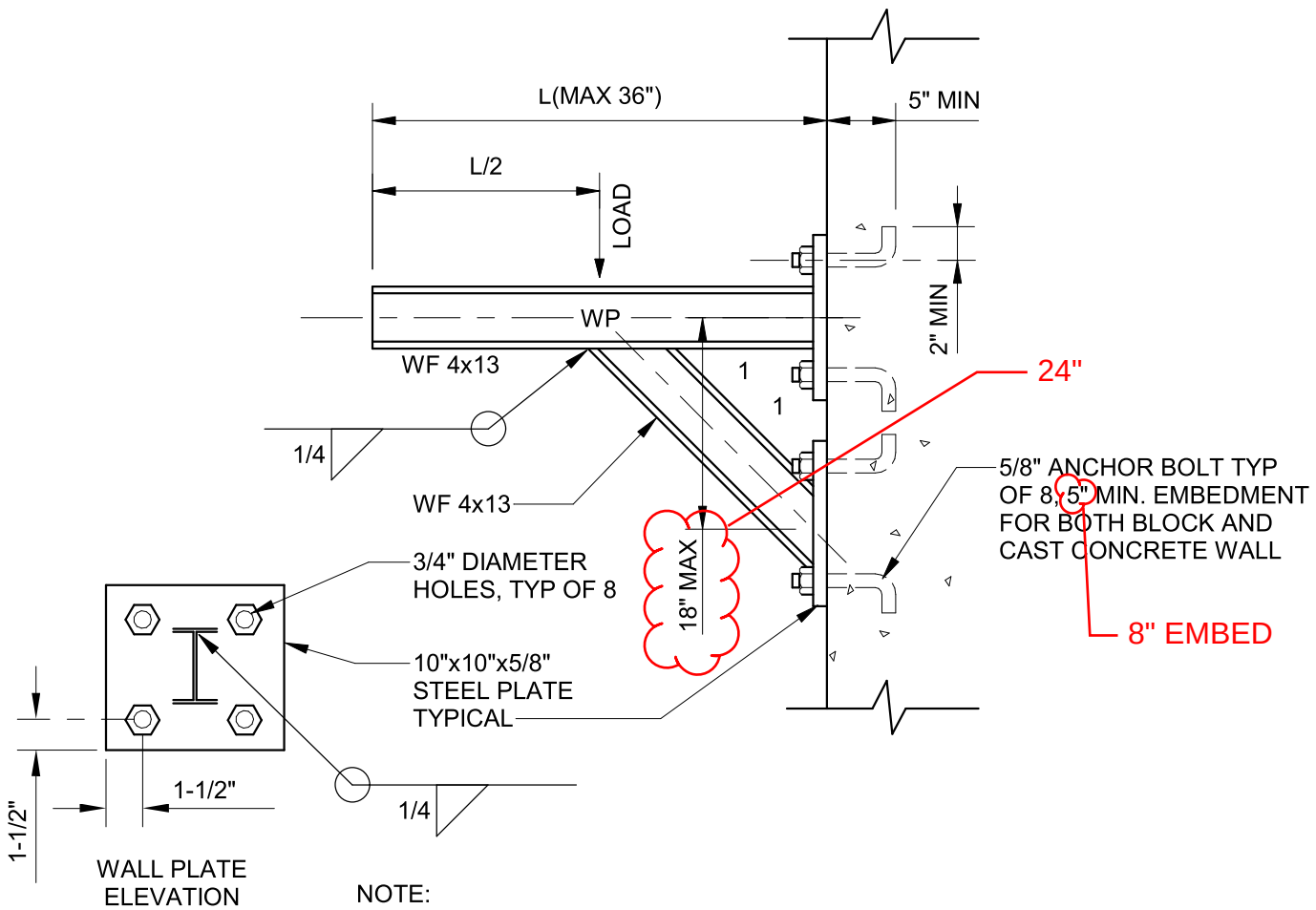
Brown AND Caldwell

Path: C:\Users\atasayco\Documents\151600-TYPICAL_DETAILS-00V18_atasayco9MB62.rvt

Plot Date: 7/22/2019 9:56:00 AM

24 & 30" Pipe Supports Inside RAS Basin

STRUCTURAL ATTACHMENT MAY BE USED WITH
VARIOUS HANGER, GUIDE, AND ANCHOR ASSEMBLIES.



NOTE:

1. USE TYPE R ONLY WHERE SPECIFIED ON THE DRAWINGS. SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M2301.

2. CONTRACTOR SHALL LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.

CVWRF

TYPE R STRUCTURAL ATTACHMENT

DETAIL

M3115

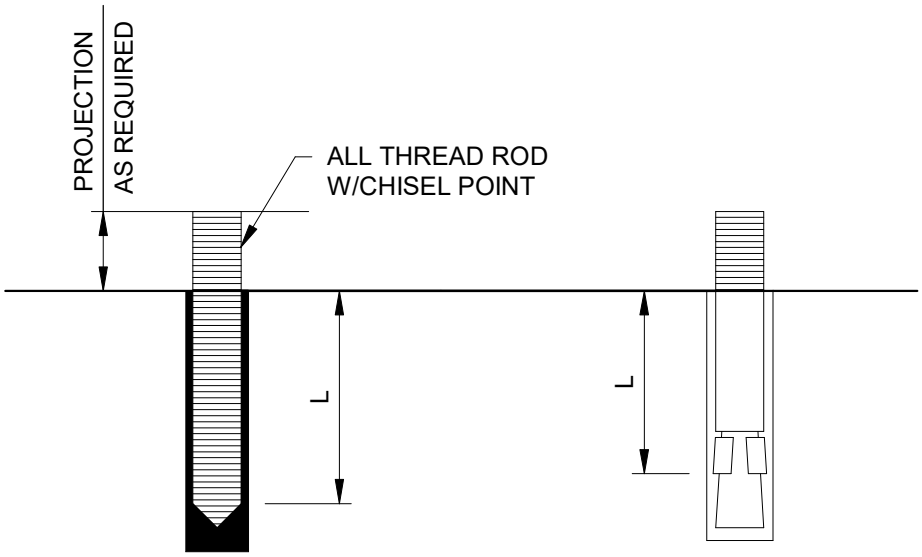
SCALE: NONE

TYPICAL DETAILS

Brown AND Caldwell

Path: C:\Users\atasayco\Documents\151600-TYPICAL_DETAILS-00V18_atasayco9MB62.rvt

Plot Date: 7/22/2019 9:56:00 AM



ADHESIVE ANCHOR

EXPANSION ANCHOR

MINIMUM EMBEDMENT LENGTH, L		
DIAMETER	ADHESIVE ANCHOR	EXPANSION ANCHOR
3/8"	4 1/2"	3 1/2"
1/2"	6"	4 3/4"
5/8"	7 1/2"	5 1/2"
3/4"	9"	6 1/2"
7/8"	10 1/2"	-
1"	12"	-

NOTES:

1. CONFORM TO ICC EVALUATION SERVICE REPORT (ES REPORT) REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
2. PROVIDE TYPE 316 STAINLESS STEEL ALL-THREAD ROD MATERIAL.
3. PROVIDE HOLE DIAMETER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
4. EXPANSION ANCHOR EMBEDMENT LENGTHS ARE BASED ON HILTI KWIK BOLT TZ STAINLESS STEEL ANCHORS. SUBMIT ICC EVALUATION SERVICE REPORT (ES REPORT) FOR ALTERNATE PRODUCTS.
5. ADHESIVE ANCHOR EMBEDMENT LENGTHS ARE BASED ON HILTI HIT-RE 500-V3 ADHESIVE. SUBMIT ICC ES REPORT FOR ALTERNATE PRODUCTS.

CVWRF

CONCRETE ANCHORS

TYPICAL DETAILS

DETAIL

S0501

SCALE: NONE

Brown AND Caldwell

Path: C:\Users\TBouffard1\Documents\151600-TYPICAL_DETAILS-00V18_TBouffard1.rvt

Plot Date: 10/30/2019 2:47:41 PM

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

12/16/2022

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 015.1_AB 3WLP Valves, GCL Pond Liner for STD Ponds 1 and 3

Dear Brandon,

Change Order 15.1 includes:

- **AB 3WLP Valves** per CCF 081
- **GCL Pond Liner for STD Ponds 1 and 3** per CCF 087
- **HVAC Supports Area 22** per CCF 092

AB 3WLP Valves: CCF 081 was issues to resolve a design discrepancy that resulted in the lack of draining provisions for the 4" 3WLP line. HDPE butterfly isolation valves were added to resolve this issue. Provisions were also added to this line to allow flushing of the scum piping. The Contractor is requesting **$23,873.08** and **4 days** to complete this work. Pricing has been reviewed and is line with our expectations for this scope.

GCL Pond Liner for STD Ponds 1 and 3: CCF 087 was issued at the request of Central Valley to replace the filter fabric in storm drain ponds 1 and 3 with a Geosynthetic Clay Liner. GCL material will be provided by Central Valley. The Contractor is requesting **$24,563.32** and **5 days** to complete this work. Pricing was previously reviewed and appears fair and reasonable.

HVAC Supports Area 22: No structural supports were specified for one HVAC unit in the RAS/WAS Electrical building. CCF 092 was issued to add details and additional steel supports to ensure this unit is installed securely. The Contractor is requesting **$2,498.83** and **2 days** to complete this work. Pricing has been reviewed and appears fair and reasonable.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost of Change Order 15 is **$50,935.23** and **Eleven (11) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Ryan Overman

Ryan Overman
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 081 w/Contractor Quotation
3. CCF 087 w/Contractor Quotation
4. CCF 092 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 15.1

Date of Issuance:	12/16/2022	Effective Date:	12/16/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Description:

Change Order 15.1 includes:

- AB 3WLP Valves per CCF 081
- GCL Pond Liner for STD Ponds 1 & 3 per CCF 087
- HVAC Supports Area 22 per CCF 092

Attachments:

1. CCF 081_AB 3WLP Valves w/Contractor Quotation
2. CCF 087_GCL Pond Liner for STD Ponds 1 & 3 w/Contractor Quotation
3. CCF 092_HVAC Supports Area 22 w/Contractor Quotation

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 14.1 : $1,030,042.54	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 14.1 : Substantial Completion: 187 Ready for Final Payment: 187 Days
Contract Price prior to this Change Order: $ 124,297,723.54	Contract Times prior to this Change Order: Substantial Completion: 1,678 Ready for Final Payment: 1,786 days or dates
[Increase] [Decrease] of this Change Order: $50,935.23	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 11 Ready for Final Payment: 11 days or dates
Contract Price incorporating this Change Order: $124,348,658.77	Contract Times with all approved Change Orders: Substantial Completion: 1,689 Ready for Final Payment: 1,797 days or dates

RECOMMENDED: ACCEPTED: ACCEPTED:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

By:		By:		By:	
	Engineer (if required)		Owner (Authorized Signature)		Contractor (Authorized Signature)
Title:	Construction Manager	Title	General Manager	Title	Project Manager
Date:	12/16/2022	Date	12/20/2022	Date	12/16/2022

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 072
Date: 10/18/2022
Description: Per Control Change Form #081: Cost to provide labor, material, and equipment for added valves on 3WLP lines at the Aeration Basin. The HDPE valves will be as submitted with this Proposed Change Order. The butterfly valves will be Tri Seal Valves as previously submitted and approved in submittal #035. **Two proposed changes have been submitted below. Proposal #1 includes (2) stainless steel butterfly valves on the 4" line and (2) brass curb stops on the 2" line underground. Proposal #2 includes (2) HDPE ball valves on the 4" line and (2) HDPE ball valves on the 2" line underground. The balance of the proposals is the same.**

Proposal #1

Gerber labor Material and Equipment (see attached back-up):	$24,223.69
Gerber Onsite Coordination & Management (see attached back-up):	$3,336.30
Bonds:	$288.23
Mark-up (15%):	$4,177.22
Total:	**$32,025.44**

Proposal #2

Gerber labor Material and Equipment (see attached back-up):	$17,208.05
Gerber Onsite Coordination & Management (see attached back-up):	$3,336.30
Bonds:	$214.86
Mark-up (15%):	$3,113.87
Total:	**$23,873.08**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

Upon approval **the sum of $32,025.44 or the sum of $23,873.08** will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-072 AB 3WLP Valves CC#081	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-072	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Phillip Duncan	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Gerber Labor And Material	**1.00**	**UNIT**	**$24,223.69**	**$24,223.69**	**$28,148.57**	**$28,148.57**	**15.00%**
Excavation Crew, Small (1.33 UNIT/DY, 1.50 DY)	2.00	UNIT	$1,294.06	$2,588.13			
05 Skilled Labor	13.50	HR	$58.70	$792.39			
03 Foreman	13.50	HR	$86.27	$1,164.58			
Truck, Pickup, 1 Ton	0.07	MO	$2,747.00	$191.65			
Forklift, Telescoping, 10,000 Lb	12.00	HR	$36.63	$439.50			
4" High Performance BFV	4.00	EACH	$3,367.48	$13,469.93			
4" Plate Flange, 316 SS	4.00	EACH	$150.43	$601.72			
304 SS 04" Flange Bolt Kit	4.00	EACH	$128.94	$515.76			
2" BRASS CURB STOP	2.00	EACH	$398.64	$797.28			
Valve Box Assembly, 4' Bury	4.00	EACH	$284.74	$1,138.97			
4" DR 17 IPS FLANGE ADAPTER HDPE	4.00	EACH	$21.24	$84.97			
4" DR 17 IPS 316 SS BACKUP RING (CF8M)	4.00	EACH	$147.94	$591.75			
2" DR 11 IPS TEE MOLDED HDPE	1.00	EACH	$12.31	$12.31			
4" DR 17 IPS TEE MOLDED HDPE	1.00	EACH	$25.86	$25.86			
12" X 2" IPS ELECTROFUSION BRANCH SADDLE	1.00	EACH	$112.64	$112.64			
12" X 4" IPS ELECTROFUSION BRANCH SADDLE	1.00	EACH	$203.65	$203.65			
2" IPS ELECTROFUSION COUPLING	10.00	UNIT	$21.22	$212.21			
4" IPS ELECTROFUSION COUPLING	3.00	EACH	$40.94	$122.82			
2" DR 11 90 DEG ELBOW MOLDED HDPE	3.00	EACH	$10.91	$32.72			
4" DR 17 IPS 90 DEG ELBOW MOLDED	3.00	EACH	$21.89	$65.66			
2" DR11 IPS MPT TRANS FIT BRASS	4.00	EACH	$51.01	$204.03			
HDPE Fusion Machine, 04"-12"	1.00	DY	$265.00	$265.00			
Electro Fusion Box Daily	1.00	DY	$102.50	$102.50			
Compactor, Jumping Jack	8.00	HR	$9.10	$72.80			
Excavator, Compact, 045	8.00	HR	$37.38	$299.00			
Mechanical Crew, 2 Man (1.00 100/DY, 1.00 DY)	1.00	100	$1,584.25	$1,584.25			

PROPOSAL #1

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - Gerber Labor And Material continued)							
03 Foreman	9.00	HR	$86.27	$776.39			
05 Skilled Labor	9.00	HR	$58.70	$528.26			
Manlift, 40' Boom	8.00	HR	$34.95	$279.60			
Welding Crew (Shop) (1.00 UNIT/DY, 1.00 DY)	1.00	UNIT	$1,119.73	$1,119.73			
Welding Shop	10.00	HR	$18.20	$182.00			
13 Welder Foreman	10.00	HR	$93.77	$937.73			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$3,336.30**	**$3,336.30**	**$3,876.87**	**$3,876.87**	**15.00%**
01 Superintendent	8.00	HR	$128.58	$1,028.61			
20 Project Engineer	13.50	HR	$103.59	$1,398.53			
18 Project Manager	4.00	HR	$143.13	$572.51			
Truck, Pickup, 1 Ton	0.05	MO	$2,747.00	$127.77			
Truck, Pickup, 3/4 Ton	0.10	MO	$2,053.00	$208.88			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$7,199.00	26.12%
Equipment Owned:	$1,801.20	6.54%
Equipment Rented:	$367.50	1.33%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$18,192.28	66.01%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$27,559.99	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$27,559.99	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$288.23	0.90%
Total Overall Cost:	$27,848.21	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$4,177.23	13.04%
Total Margin:	$4,177.23	13.04%
Total Bid Price:	$32,025.44	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-072 AB 3WLP Valves CC#081 - HDPE VALVES	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-072	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Phillip Duncan	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor And Material	**1.00**	**UNIT**	**$17,208.05**	**$17,208.05**	**$19,996.21**	**$19,996.21**	**15.00%**
Excavation Crew, Small (1.33 UNIT/DY, 1.50 DY)	2.00	UNIT	$1,294.06	$2,588.13			
05 Skilled Labor	13.50	HR	$58.70	$792.39			
03 Foreman	13.50	HR	$86.27	$1,164.58			
Truck, Pickup, 1 Ton	0.07	MO	$2,747.00	$191.65			
Forklift, Telescoping, 10,000 Lb	12.00	HR	$36.63	$439.50			
4" High Performance BFV	2.00	EACH	$3,367.48	$6,734.97			
4" Plate Flange, 316 SS	4.00	EACH	$150.43	$601.72			
304 SS 04" Flange Bolt Kit	2.00	EACH	$128.94	$257.88			
2" FULL PORT HDPE BALL VALVE	2.00	EACH	$101.35	$202.69			
4" FULL PORT HDPE BALL VALVE	2.00	EACH	$315.58	$631.16			
Valve Box Assembly, 4' Bury	4.00	EACH	$284.74	$1,138.97			
2" DR 11 IPS TEE MOLDED HDPE	1.00	EACH	$12.31	$12.31			
4" DR 17 IPS TEE MOLDED HDPE	1.00	EACH	$25.86	$25.86			
12" X 2" IPS ELECTROFUSION BRANCH SADDLE	1.00	EACH	$112.64	$112.64			
12" X 4" IPS ELECTROFUSION BRANCH SADDLE	1.00	EACH	$203.65	$203.65			
2" IPS ELECTROFUSION COUPLING	10.00	UNIT	$21.22	$212.21			
4" IPS ELECTROFUSION COUPLING	5.00	EACH	$40.94	$204.69			
2" DR 11 90 DEG ELBOW MOLDED HDPE	3.00	EACH	$10.91	$32.72			
4" DR 17 IPS 90 DEG ELBOW MOLDED	3.00	EACH	$21.89	$65.66			
HDPE Fusion Machine, 04"-12"	8.00	HR	$87.13	$697.00			
Electro Fusion Box Daily	8.00	HR	$51.25	$410.00			
Compactor, Jumping Jack	8.00	HR	$9.10	$72.80			
Excavator, Compact, 045	8.00	HR	$37.38	$299.00			
Mechanical Crew, 2 Man (1.00 100/DY, 1.00 DY)	1.00	100	$1,584.25	$1,584.25			
03 Foreman	9.00	HR	$86.27	$776.39			
05 Skilled Labor	9.00	HR	$58.70	$528.26			

PROPOSAL #2

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 01 - Gerber Labor And Material continued)							
Manlift, 40' Boom	8.00	HR	$34.95	$279.60			
Welding Crew (Shop) (1.00 UNIT/DY, 1.00 DY)	1.00	UNIT	$1,119.73	$1,119.73			
Welding Shop	10.00	HR	$18.20	$182.00			
13 Welder Foreman	10.00	HR	$93.77	$937.73			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$3,336.30**	**$3,336.30**	**$3,876.87**	**$3,876.87**	**15.00%**
01 Superintendent	8.00	HR	$128.58	$1,028.61			
20 Project Engineer	13.50	HR	$103.59	$1,398.53			
18 Project Manager	4.00	HR	$143.13	$572.51			
Truck, Pickup, 1 Ton	0.05	MO	$2,747.00	$127.77			
Truck, Pickup, 3/4 Ton	0.10	MO	$2,053.00	$208.88			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$7,199.00	35.04%
Equipment Owned:	$2,908.20	14.16%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$10,437.15	50.80%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$20,544.35	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$20,544.35	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$214.86	0.90%
Total Overall Cost:	$20,759.20	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$3,113.88	13.04%
Total Margin:	$3,113.88	13.04%
Total Bid Price:	$23,873.08	

AVK PE BALL VALVES
TIMESAVER™

Expect… AVK

AVK Timesaver™ universal ball valves are made for use in the isolation of water and gas on domestic, commercial and industrial premises. The ends are designed for butt-fusion or electro-fusion making the valve an integral part of the fully welded leak-free pipe system. The valve is designed, manufactured, and approved to worldwide leading standards.

Tested in accordance with ASME B16.40 and NSF61 certified.

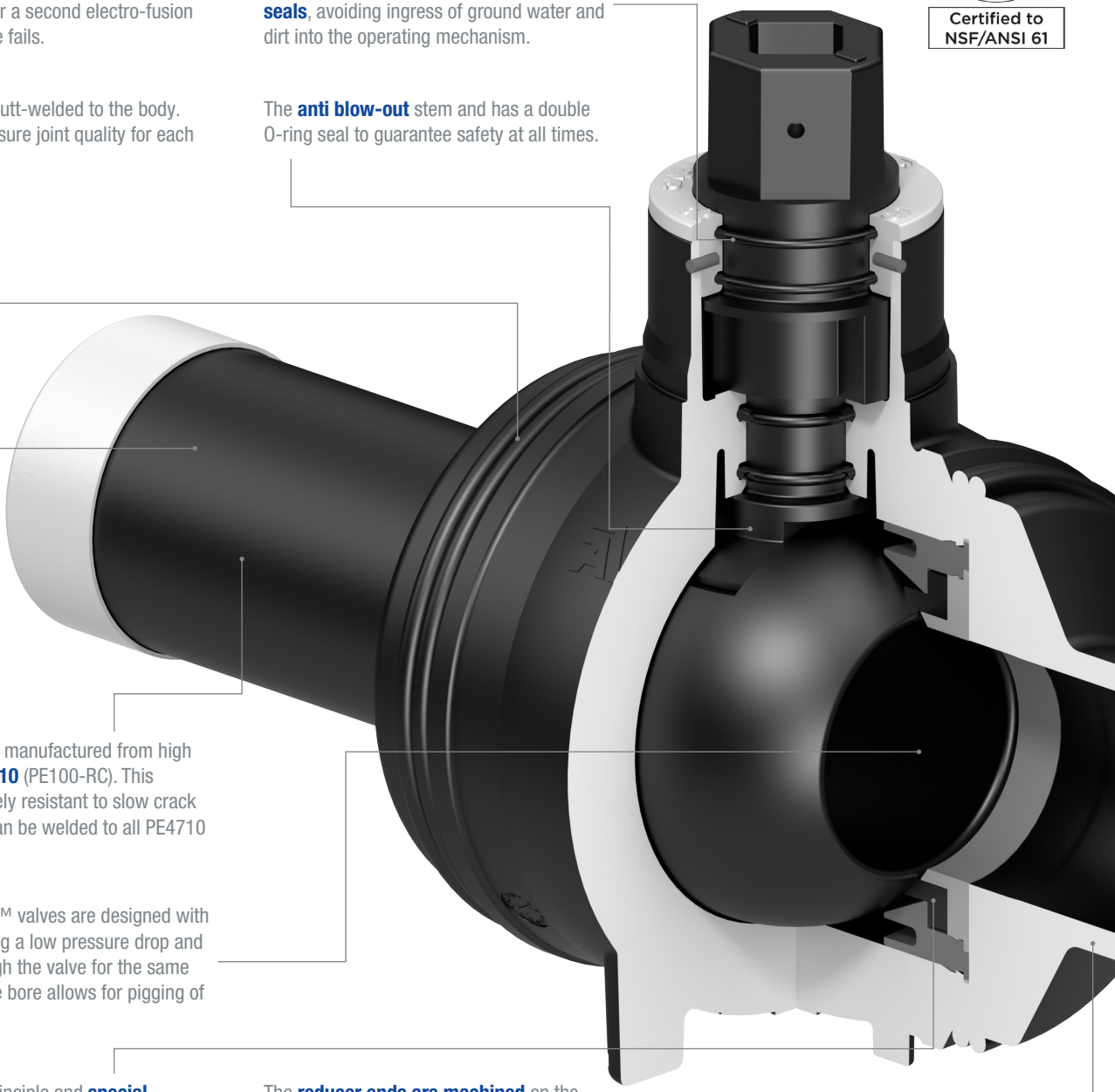
NSF®
Certified to NSF/ANSI 61

All valves are designed with a **double reducer length**, allowing for a second electro-fusion weld if the first one fails.

The valves are equipped with two **weather seals**, avoiding ingress of ground water and dirt into the operating mechanism.

The reducers are butt-welded to the body. **Visual beads** reassure joint quality for each weld.

The **anti blow-out** stem and has a double O-ring seal to guarantee safety at all times.



Body and reducers manufactured from high performance **PE4710** (PE100-RC). This material is extremely resistant to slow crack propagation and can be welded to all PE4710 and PE3408 pipes.

All AVK Timesaver™ valves are designed with a **full port**, ensuring a low pressure drop and greater flow through the valve for the same pressure. The large bore allows for pigging of pipeline.

The floating ball principle and **special shaped ball seat** with large sealing surface are designed to ensure sealing at all times and be less affected by dirt or debris that might be in the pipeline.

The **reducer ends are machined** on the inside as well as on the outside, guaranteeing a uniform wall thickness, allowing for optimal welding of electro-fusion couplers. The smooth inner surface prevents deposits and minimises flow resistance.

AVK PE BALL VALVES
TIMESAVER™

Expect… AVK

Features

- Universal ball valve is suitable for gas or water
- Double reducer length allows for 2 electro-fusion joints, if the first one fails
- Full port design allows for pigging of pipeline
- Robust design, suitable for most harsh environments
- Seat, ball and grease combination ensures low operating torques and avoids sticking over time
- Over-torque protection prevents leakage to atmosphere
- Seat compression of large sealing surfaces precisely set via separate pre-assembly
- Flexible spindle shaft to ensure equal compression around the O-rings when loaded by internal pressure

Performance

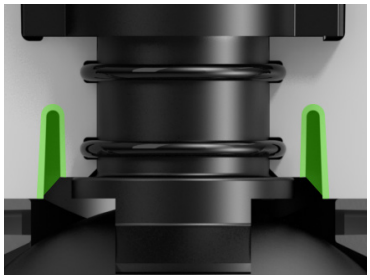
- **Operating temperature**
  -20°F to 140°F (-29° to 60°C)
- **Pressure rating gas**
  DR11: 100 PSI
  DR9: 125 PSI
  DR7: 167 PSI
- **Pressure rating water**
  DR11: 200 PSI
  DR9: 250 PSI
  DR7: 335 PSI

TIMESAVER™ Ball Valve **DR11**

TIMESAVER™ Ball Valve **DR7/DR9**

Close-up

If the valve is over torqued during opening or closing, the **connector** is designed to fail before the valve seals, preventing leakage to atmosphere.



The **flexible spindle shaft** ensures equal compression around the O-rings when loaded by internal pressure. At the same time, the groove will adapt to any deformation as a result of upstream pressure on the ball when the valve is in the closed position.

The **seat retainer and support ring** design ensure the ball seat is kept in place at all times. This optimal design prevents the ball seat from being dislodged, delivering better functionality over time.

CHANGE CONTROL FORM 081.1
AB 4-inch 3WLP Valves

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 09/27/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide two (2) 4-inch 3WLP Butterfly isolation valves on 3WLP line below walkway deck with operating nut embedded in deck per key note on P-18-1014 and P-18-1018.

Provide a 4-inch isolation butterfly valve and valve box, a 4-inch butterfly drain valve and valve box, 4-inch pipe, 4-inch elbow, 4-inch tee and 4-inch connection to 12-inch Secondary Scum line for the isolation and draining of the 3WLP line, see attached sketch.

Provide a 2-inch isolation ball valve and valve box, a 2-inch butterfly drain valve and valve box, 2-inch pipe, 2-inch elbow, 2-inch tee and 2-inch connection to 12-inch Secondary Scum line for isolation and draining of the 3WHP line, see attached sketch.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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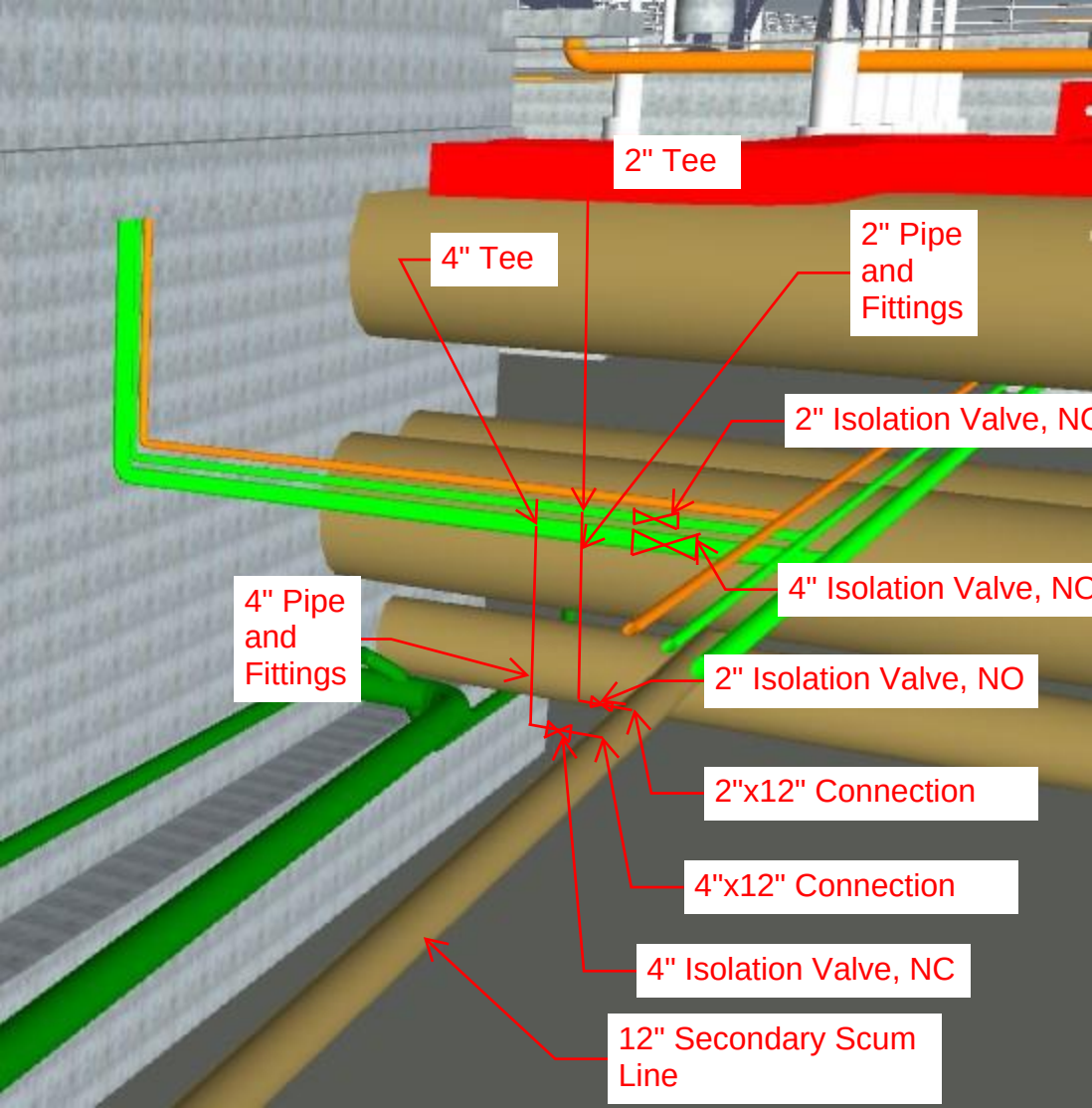
2" Tee
4" Tee
2" Pipe and Fittings
2" Isolation Valve, NC
4" Isolation Valve, NC
4" Pipe and Fittings
2" Isolation Valve, NO
2"x12" Connection
4"x12" Connection
4" Isolation Valve, NC
12" Secondary Scum Line

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 073
Date: 10/20/2022
Description: Per Control Change Form #087: Cost to provide labor, material, and equipment for changes to the Pond #1 and #3.

Gerber Material, Labor & Equipment (see attached back-up):	$30,413.24
Gerber 3" of Native Sand on Wire Mesh (see attached back-up):	$745.97
Gerber Onsite Coordination & Management (see attached back-up):	$2,804.86
Bonds:	$355.20
Mark-up (15%):	$5,147.90
Sub Total:	**$39,467.17**
Gerber 6" Rip Rap Credit (see attached back-up):	-$14,903.85
Total:	**$24,563.32**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $24,563.32 will be added to the contract price, and an additional 5 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-073 GCL Pondliner For STD Ponds 1&3 - CC#087	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-073	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Pond #1 And #3 Changes	**1.00**	**UNIT**	**$30,413.24**	**$30,413.24**	**$35,341.02**	**$35,341.02**	**15.00%**
Added Filter Fabric 140N (17,009 SF)	1.00	UNIT	$9,865.02	$9,865.02			
Geotextile Filter Fabric, Mirafi 140N 15'x360' (600 SY)	4.40	ROLL	$725.29	$3,191.27			
Labor Crew, 3 Men (0.33 UNIT/DY, 3.00 DY)	1.00	UNIT	$6,673.76	$6,673.76			
03 Foreman	27.00	HR	$86.27	$2,329.17			
04 Leadman	27.00	HR	$69.66	$1,880.81			
05 Skilled Labor	27.00	HR	$58.70	$1,584.78			
Forklift, Telescoping, 10,000 Lb	24.00	HR	$36.63	$879.00			
Install (Owner Supplied) GCL Pond Liner	1.00	UNIT	$15,457.11	$15,457.11			
Labor Crew, 3 Men (0.20 UNIT/DY, 5.00 DY)	1.00	UNIT	$9,657.93	$9,657.93			
03 Foreman	45.00	HR	$86.27	$3,881.95			
04 Leadman	45.00	HR	$69.66	$3,134.68			
05 Skilled Labor	45.00	HR	$58.70	$2,641.31			
07 Operator	27.00	HR	$63.03	$1,701.71			
Crane, 035 Ton, Rough Terrain Hydraulic	24.00	HR	$63.38	$1,521.00			
07 Operator	18.00	HR	$63.03	$1,134.47			
Compactor, Double Drum, 78"	16.00	HR	$90.13	$1,442.00			
Added Aggregate Material	1.00	UNIT	$5,091.12	$5,091.12			
Gravel, "Type E" Drain Rock	498.75	TON	$10.21	$5,091.12			
02 - 3" Of "Native Sand" On Wire Mess	**1.00**	**UNIT**	**$745.97**	**$745.97**	**$866.83**	**$866.83**	**15.00%**
07 Operator	2.00	HR	$63.03	$125.93			
Loader, 7 Yard (Volo 220)	2.00	HR	$104.58	$209.15			
07 Operator	3.00	HR	$63.03	$188.89			
Excavator, Crawler, 220	3.00	HR	$74.00	$222.00			
03 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$2,804.86**	**$2,804.86**	**$3,259.32**	**$3,259.32**	**15.00%**
01 Superintendent	12.00	HR	$128.58	$1,542.92			
20 Project Engineer	4.50	HR	$103.59	$466.18			

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
(Item 03 - Gerber Onsite Coordination continued)							
18 Project Manager	4.00	HR	$143.13	$572.51			
Truck, Pickup, 1 Ton	0.05	MO	$2,747.00	$127.77			
Truck, Pickup, 3/4 Ton	0.05	MO	$2,053.00	$95.49			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$21,185.28	62.38%
Equipment Owned:	$4,496.41	13.24%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$8,282.38	24.39%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$33,964.07	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$33,964.07	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$355.20	0.90%
Total Overall Cost:	$34,319.27	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$5,147.90	13.04%
Total Margin:	$5,147.90	13.04%
Total Bid Price:	$39,467.17	

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-073A GCL Pondliner For STD Ponds 1 &3 - CC#087 (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-073A	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Mark Hansen
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - 6" Rip Rap Credit	**1.00**	**UNIT**	**$14,903.85**	**$14,903.85**	**$14,903.85**	**$14,903.85**	**0.00%**
RipRap, 06" D50	1,008.00	TON	$8.04	$8,108.10			
RipRap, 06" D50 (Trucking)	533.00	TON	$12.75	$6,795.75			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$14,903.85	100.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$14,903.85	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$14,903.85	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$14,903.85	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	$14,903.85	CREDIT

CHANGE CONTROL FORM 087
GLC for Storm Drain Ponds 1 and 3

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 9/26/2022**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The Owner has asked to change the filter fabric on the bottom of Strom Drain Ponds 1 and 3 to a Geosynthetic Clay Liner (GCL). The Owner will provide approximately 20 rolls (each 15' x 150") of Bentomat DN GCL, and two 50 pound bags of loose bentonite for seaming, for the Contractor to install per the manufacturer's recommendations. The Owner will provide additional materials if required.

Please see the attached sketch.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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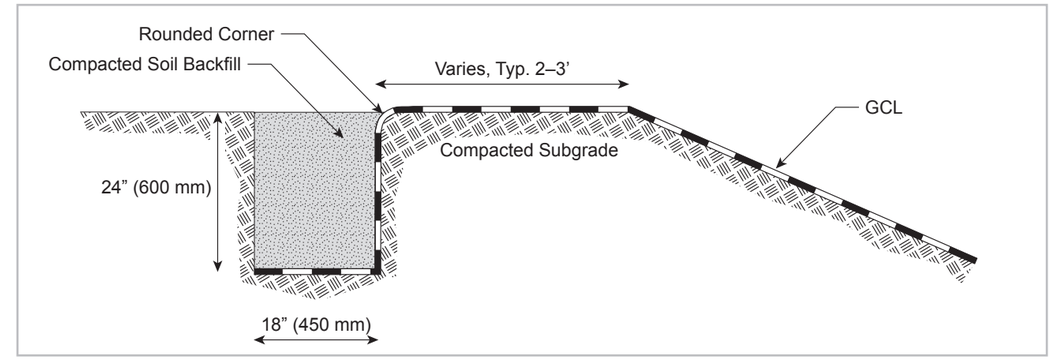
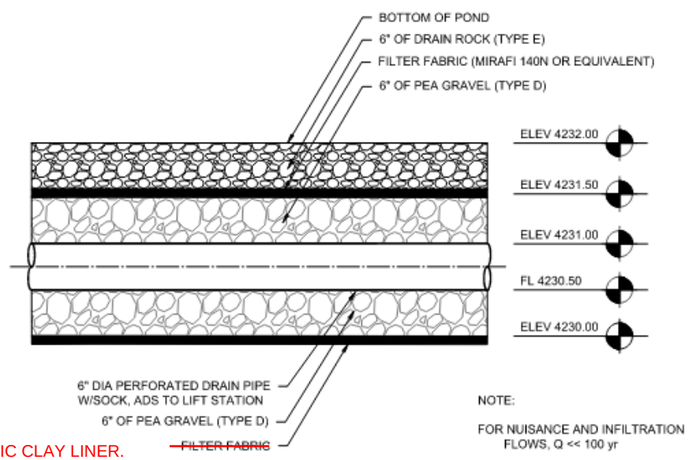


Figure 4-6. Typical anchor trench at top of slope.



NOTE:

FOR NUISANCE AND INFILTRATION FLOWS, Q << 100 yr

GEOSYNTHETIC CLAY LINER. BENTOMAT DN, PROVIDED BY OWNER. INSTALL PER MANUFACUTRUERS RECOMMENDATIONS.

11 / VAR GRAVEL DRAIN - SECTION

SCALE: SCALE: 1" = 1'-0"

REVISIONS		
REV	DATE	DESCRIPTION

B

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. GOODLEY
DRAWN: D. DAVIDSE
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-5006.DWG

BC PROJECT NUMBER
151600

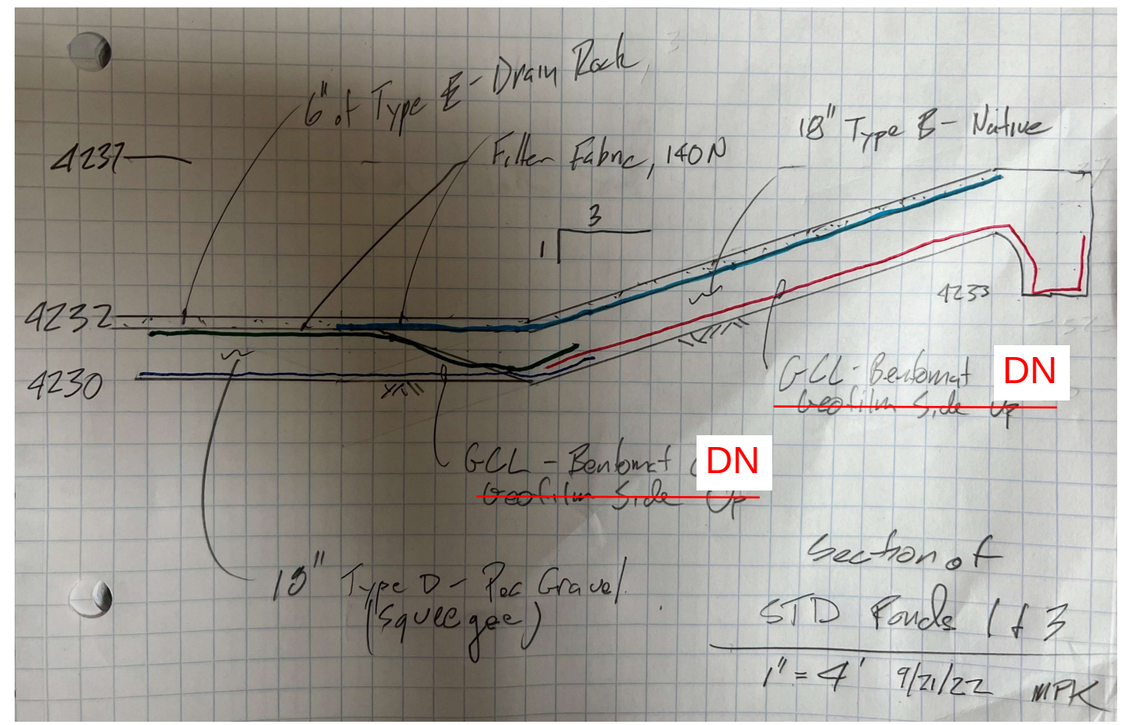
CLIENT PROJECT NUMBER
CC30B

CIVIL

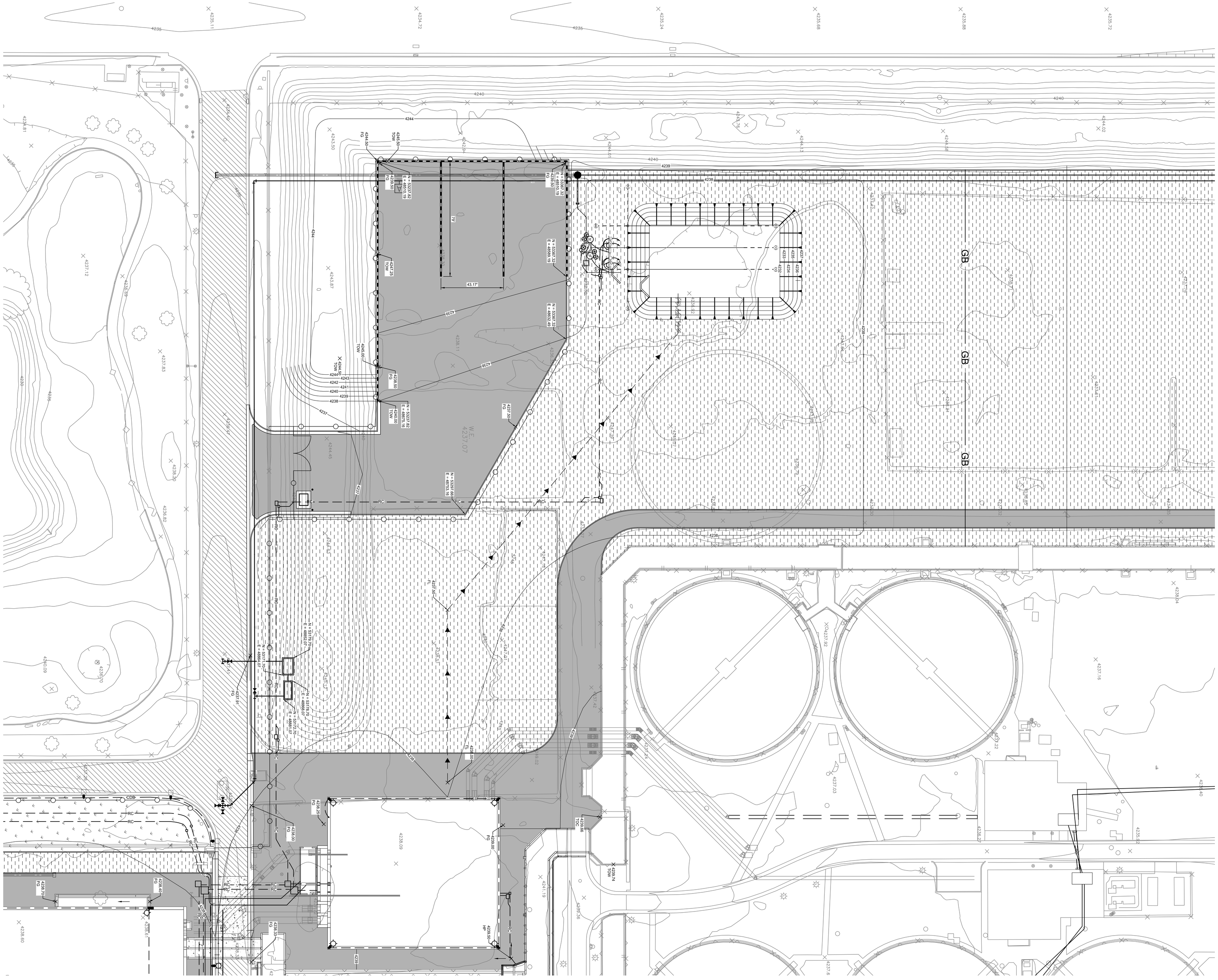
CIVIL DETAILS 6

A

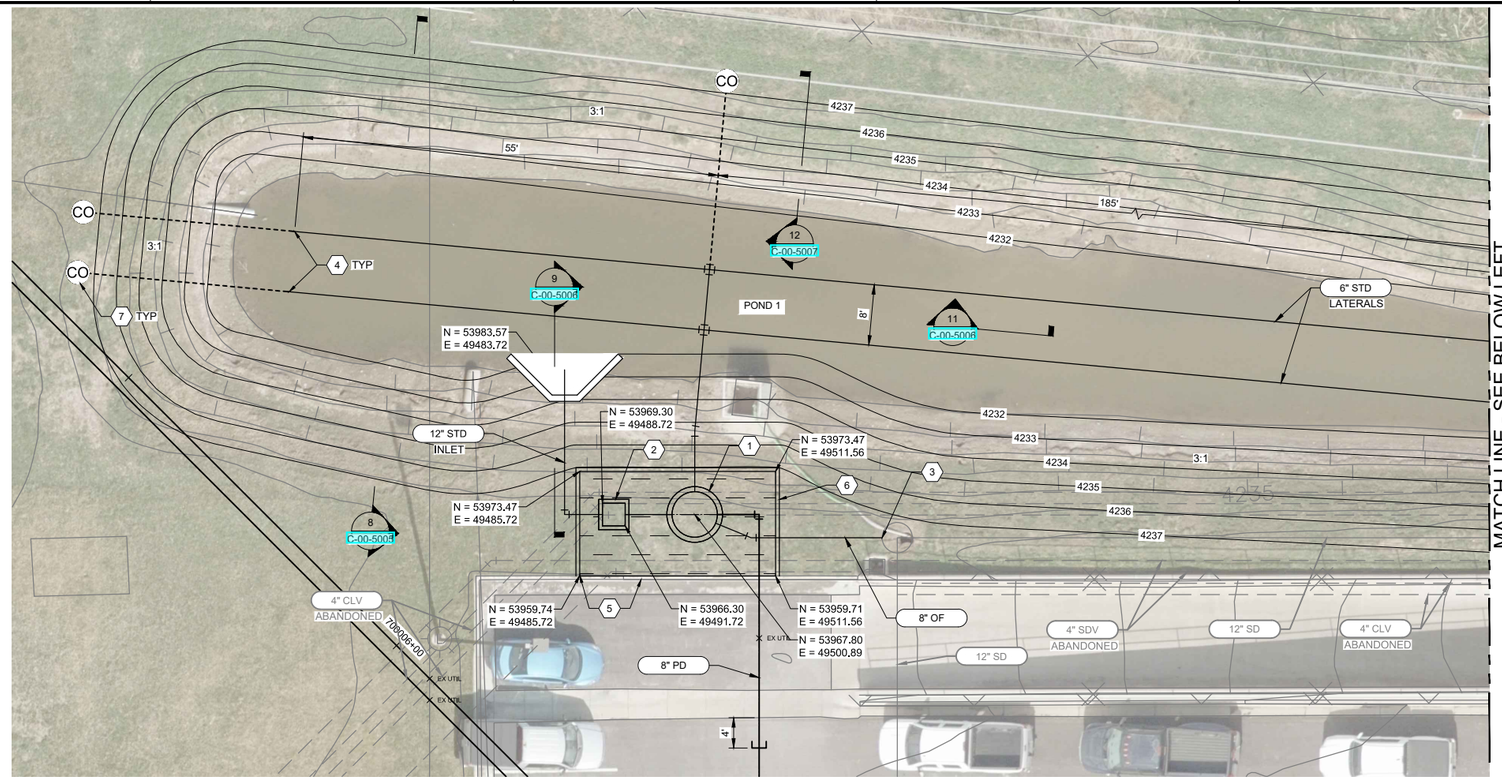
DRAWING NUMBER
C-00-5006

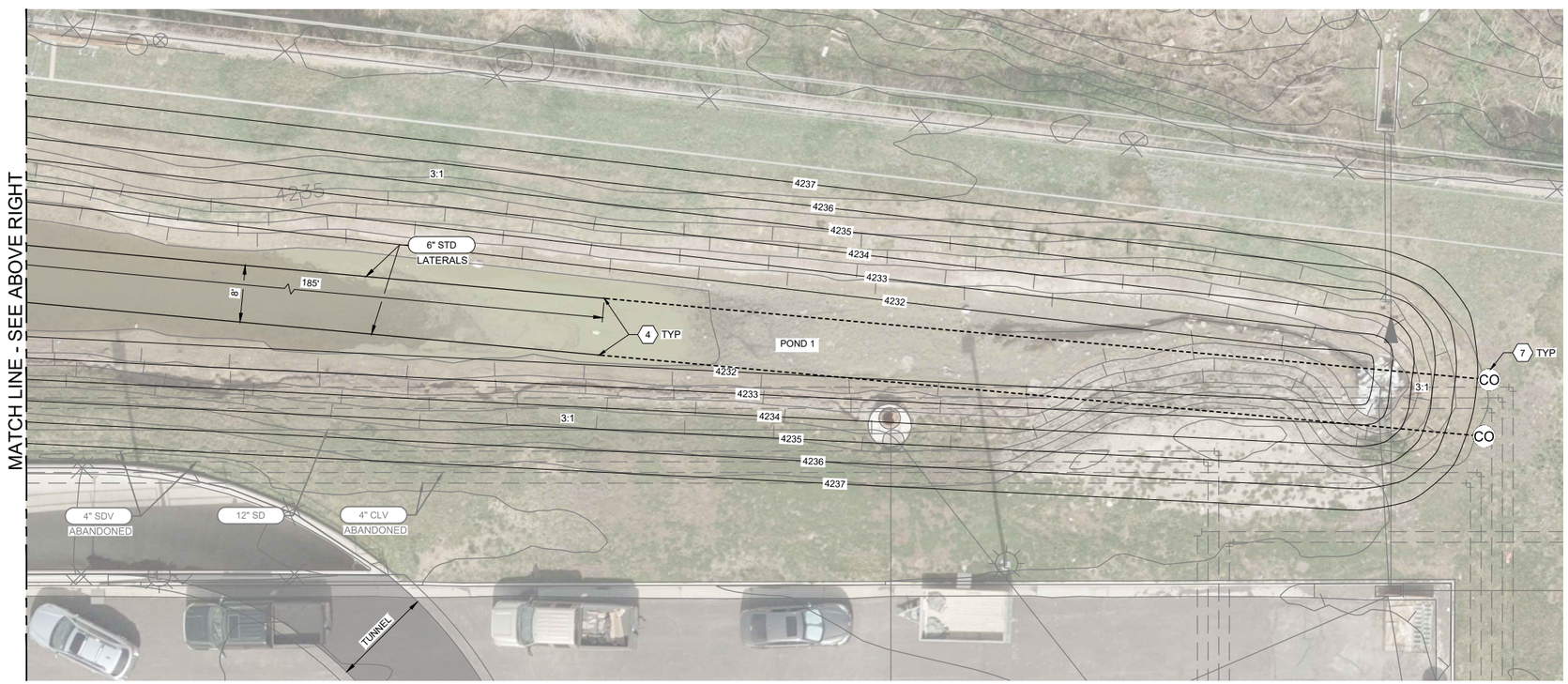


CCF 087 - GCL FOR STD PONDS 1 AND 3


GB
GB
GB
43.17'
79'
W.E.
4237.07

NORTH





KEY NOTES:

1. 8' DIA. WET WELL AND PACKAGED LIFT STATION, SEE SPECIFICATION 43 25 50.
2. 3'x3' TRASH RACK VAULT, SEE G/C-00-5006.
3. 8" GRAVITY OVERFLOW, SEE 12/C-00-5007.
4. TRANSITION POINT FROM UNDERDRAINS TO CLEANOUT PIPING, TYP 5 LOCATIONS.
5. SAWCUT EXISTING CURB, DEMO AND REMOVE
6. INSTALL CURB PER C2203, CURB ELEVATION TO MATCH EXISTING.
7. SEE STANDARD DETAIL M4107.

0 10 20
SCALE IN FEET

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. GOODLEY
DRAWN: D. DAVIDSE
CHECKED: M. KOBE
CHECKED:
APPROVED: T. LINDLEY

FILENAME
C-00-4002.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

CIVIL

STORM POND 1 LIFT STATION ENLARGED SITE PLAN

DRAWING NUMBER
C-00-4002

Path: \\BCSUNFP01\PROJECTS\CENTRAL VALLEY\151600\00-BIM\03-AUTOCAD\04-CIVIL3D\02-SHEETS FILENAME: C-00-4002.DWG PLOT DATE: 6/5/2020 2:37 PM CAD USER: DAVID DAVIDSE
CVWRF_NW.sd

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A COMPLETE GUIDE FOR THE PROPER DESIGN AND CONSTRUCTION OF WATER CONTAINMENT SYSTEMS

cetco@mineralstech.com | cetco.com | 800.527.9948

MINERALS TECHNOLOGIES CETCO®

BENTOMAT® CL and CLT GCLs

CONTENTS

SECTION 1 INTRODUCTION ***4***
1.1 Purpose and Scope 4
1.2 Limitations 4
1.3 Disclaimer 4

SECTION 2 UNIVERSAL DESIGN PARAMETERS ***4***
2.1 Site Selection 4
2.2 Slope Stability 5
2.2.1 Internal Shear Strength 6
2.2.2 Interface Shear Strength 6
2.2.3 Recommended Slope Angle 8
2.2.4 Steeper Slopes 8
2.2.5 GCL Orientation 9
2.2.6 General Design Guidelines for Slop Stability 9
2.2.7 Anchorage of the Liner 10
2.3 Hydraulic Performance 10
2.3.1 Performance Requirements 10
2.3.2 Darcy's Law for Clay Liners 10
2.3.3 Baseline Hydraulic Performance 11
2.3.4 Seam Flow 11
2.3.5 Safety Factors for Installation Damage 12
2.3.6 Net Hydraulic Performance 12
2.3.7 Evaporation 12
2.4 Chemical Compatibility 13

SECTION 3 APPLICATION-SPECIFIC DESIGN CONSIDERATIONS ***13***
3.1 Wastewater Lagoons or Sedimentation Basins 13
3.1.1 Inlet / Outlet Structures and Penetrations 13
3.1.2 Sludge and Sediment Removal 14
3.1.3 Designing for Water Level Fluctuations 14
3.1.4 Gas Venting 14
3.2 Fire Ponds 14
3.2.1 Water Usage 14
3.3 Wetlands 14
3.3.1 High Groundwater Conditions 15
3.3.2 Consolidation of Subgrade 15
3.3.3 Cut and Cover Construction 15
3.3.4 "Bottomless" wetlands and ponds 16
3.3.5 Streams and wetlands 16
3.4 Canals 16
3.4.1 Slope Stability 16
3.5.1 Pond Shape and Geometry 16
3.5.2 The Pond Foundation 16
3.5.3 The Pond Perimeter 17
3.5.4 Boat Ramps 17
3.5.5 Vegetation 17
3.5.6 Rockstructures 17

SECTION 4 LINER INSTALLATION ***18***
4.1 Equipment 18
4.2 Shipping Unloading and Storage 19
4.2.1 Shipping 19
4.2.2 Unloading 19
4.3 Subgrade Preparation 19
4.3.1 Unstable Subgrade Conditions 20
4.4 Liner Deployment 20
4.4.1 Basic Placement Guidelines 20
4.4.2 Placement Strategies 20
4.5 Anchorage 21
4.6 Seaming 21
4.7 Sealing around Penetrations and Structures 22
4.8 Damage Repair 22
4.9 Covering the Liner 22
4.9.1 Cover Thickness 23
4.9.2 Cover Placement 23
4.9.3 Cover Type 23
4.10 Cover Soil/Stone Stability 23
4.10.1 Erosion Prevention 24
4.10.2 Alternative Cover Materials 24
4.11 Weather 24
4.12 Construction Quality Assurance (CQA) 24

SECTION 5 OPERATION AND MAINTENANCE ***25***
5.1 Initial Filling 25
5.2 Sludge and Sediment Removal 25
5.3 Performance Monitoring 25
5.4 Inspections 26
5.5 Addressing Leaks 26

REFERENCES ***27***

APPENDIX A – Estimating the Effects of Preferential Seam Flow on Liner System Performance 28
APPENDIX B – Evaporation Nomograph 32
APPENDIX C – Example Calculation for Slope Stability 34
APPENDIX D – Ramp Design Procedure 38
APPENDIX E – Pond Liner Design Checklist 40
APPENDIX F – Guidelines for Assessing the Condition of Hydrated Liner 41
APPENDIX G – BENTOMAT CL and CLT Interface Shear Test Data 42

ACKNOWLEDGEMENTS

The information in this manual has been compiled using the many years of experience and insights accumulated by CETCO personnel and our dedicated team of sales professionals. Special acknowledgment is reserved for Joe Carmo who pioneered many of the design strategies for water containment that are covered in this manual.

NOTICE: THIS DOCUMENT IS INTENDED FOR USE AS A GENERAL GUIDELINE FOR THE DESIGN OF CETCO GCLS. THE INFORMATION AND DATA CONTAINED HEREIN ARE BELIEVED TO BE ACCURATE AND RELIABLE. CETCO MAKES NO WARRANTY OF ANY KIND AND ACCEPTS NO RESPONSIBILITY FOR THE RESULTS OBTAINED THROUGH APPLICATION OF THIS INFORMATION. DESIGN GUIDELINES ARE SUBJECT TO PERIODIC CHANGES. PLEASE CONSULT OUR WEBSITE FOR THE MOST RECENT VERSION.

Figure 1-1. A properly designed and constructed artificial pond is functional and aesthetically pleasing.

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SECTION 1 INTRODUCTION

1.1 PURPOSE AND SCOPE

The primary objective in the design and construction of a pond liner system is water containment. If this objective is not achieved, the resulting empty excavation is a painfully obvious reminder of failure. Unfortunately, the mistakes that cause this failure may be time-consuming, expensive and difficult to correct. The purpose of this manual is to provide the design and installation information necessary to minimize the chance for failure.

This document includes design and construction guidelines for the lining of fresh-water liquid containment systems, including ponds, wastewater lagoons, wetlands, and canals. These structures all have common or "universal" design elements as described in Section 2 of the manual. Section 3 provides additional design considerations that are specific to each type of water containment application. Section 4 provides liner installation procedures, and, finally, Section 5 covers operation and maintenance practices for ensuring long-term performance of the liner system.

It should be noted that this manual provides BENTOMAT CL pond design and installation guidance. In any project, both of these tasks must be performed properly. The best design cannot overcome sloppy execution, nor can a superb installation compensate for a poor design. In other words, liner system design and construction are inextricably linked, and every project should be approached with this concept in mind.

1.2 LIMITATIONS

The information in this manual has several important limitations as listed below:

This manual only considers those design parameters which will directly or indirectly address the performance of the liner system. It does not address other design considerations relating to the local ecosystem, hydrology, safety, seismic activity, and aesthetics.

This manual is to be used only for the design of fresh water containment systems. Different design and product selection procedures apply for the design of containment systems for other liquids, including salt water and brackish water.

The field performance of a pond liner system is typically considered acceptable (under normal, non-critical conditions) even when there is some small amount of leakage. A higher degree of containment may be possible, but is achieved at significant additional expense. It is the designer's responsibility to define pond leakage performance requirements with this concept in mind.

The design data in this manual applies to BENTOMAT CL, BENTOMAT CLT, and BENTOMAT 600CL. The design calculations and test data provided in this manual are specific to these products. BENTOMAT CL, CLT, and 600CL are premium pond lining products because of their unique combination of superb performance and field ruggedness. BENTOMAT CL products consist of bentonite encapsulated between woven and nonwoven geotextiles, needle-punched together, with either a smooth flexible polyethylene geofilm (BENTOMAT CL and 600CL) or a double-sided textured HDPE geomembrane (BENTOMAT CLT) laminated to the nonwoven geotextile component of the GCL.

Excessive leakage through a liner system may occur in areas where the liner is damaged or vulnerable to damage. As the depth of the pond increases, the hydraulic pressure also increases, aggressively seeking the "path of least resistance." Improved performance can be achieved by limiting the maximum water depth to avoid excessive pressure-related leakage. As a general rule, the pond depth should not exceed 16 feet (5 meters). Deeper ponds can be successfully constructed, but more care must be taken with subgrade preparation, installation, and detailing.

BENTOMAT CL, CLT, and 600CL are used only in soil-covered liner systems. Provided with cover, a properly designed and installed liner will function for many years.

1.3 DISCLAIMER

While there may be broad similarities within various pond projects, each project is unique. CETCO does not have the ability to anticipate and control topographical features, soil conditions, weather, installation quality, permitting requirements, and other variables. Therefore, it is the designer's and installer's responsibility to recognize these factors and to account for them as necessary. This manual is not intended to be used in lieu of a licensed engineer or architect when required by local and/or state regulations.

The information and data contained herein are believed to be accurate and reliable. CETCO makes no warranty of any kind and accepts no responsibility for the results obtained through application of this information.

SECTION 2 UNIVERSAL DESIGN PARAMETERS

2.1 SITE SELECTION

Several factors should be examined if the designer has the option of selecting the most suitable site for a pond within a given property:

Topography: The area immediately surrounding the footprint of the proposed pond should be fairly level if it is desired to minimize earthwork. Stormwater should drain away from the excavation rather than into it (locating a pond on a hillside or in a low spot presents some unique challenges with respect to stormwater control). If possible, the top of the pond should be at grade to allow easier access by heavy equipment. Ponds with above-grade perimeter berms are much more difficult to construct.

Soil Type: If information is available regarding the general soil type at the site, check to ensure that the soil:

- Is too porous to be considered acceptable as a barrier. A synthetic liner may not be required if the in-situ permeability of the compacted subsoil is 1x10-7 cm/sec or lower. See Section 2.3.2 for more information on assessing the suitability of native soils for use as a liner material.
- Can be compacted properly at the elevation of the proposed subgrade.
- Is not excessively rocky. Rocky subgrades can damage the liner. Rocks larger than 4 in. (100 mm) should be covered with fine-grained soil or screened out and discarded. The rocks remaining in the soil should not be allowed to protrude above the surrounding subgrade (see Section 4.3).
- Is chemically compatible with BENTOMAT CL (see Section 2.4).

Utilities: Underground utility lines must be located and staked. The pond should never be located over the right-of-way of any such utilities. Overhead utilities should also be inspected to ensure that heavy equipment will not contact power lines.

Dammed Streams: Water storage ponds for agricultural use are often sited within an existing streambed or drainage ditch. Caution should be exercised to ensure that the streambed has the bearing capacity to withstand loading during and after construction. If the downstream end of the channel is dammed to create a retention area behind the embankment, these bearing capacity issues are even more important. While a foundation analysis is beyond the scope of this document, any soil mechanics textbook can be consulted for proper design procedures.

Depth to Water: The depth to the seasonal high water table should also be known. Failure to understand local hydrogeological conditions could seriously affect construction. Excavating into the water table will make subgrade preparation and compaction almost impossible. Even if water infiltration does not occur, it may be impossible to obtain adequate compaction if the subsoils are continuously saturated. Dewatering may be required (Section 3.3.1). Hydrostatic uplift of the liner system is another concern in conditions where the elevation of the groundwater table exceeds the elevation of the water in the pond. This condition will generate an uplift force which may exceed the confining stress on the liner. For these reasons, an unsaturated zone of at least 6 feet (2 m) should exist between the bottom elevation of the pond and the top of the seasonal higher water table. If it is not possible to achieve these conditions, the pond will be more difficult to construct. Section 3.3.1 of this manual discusses strategies for managing high groundwater levels.

Trees: While trees near the pond may be aesthetically pleasing, they can interfere with construction equipment. Tree roots can make subgrade preparation difficult and affect the liner in the long term. In a completed pond, falling leaves can contaminate the water. For these reasons, trees should be set back from the perimeter by at least 20 feet and perhaps more for certain tree species.

2.2 SLOPE STABILITY

Special Note: Many useful stability modeling techniques have been developed (Koerner and Soong, 2005; Giroud and Beech, 1989; Wilson- Fahmy and Koerner, 1992; Long, et. al., 1994, to name a very few) which expertly address this paramount design concern. This paper does not endorse a particular mathematical method for calculating the design shear load on the liner system and determining its stability. Instead, the manual provides design guidance based on previous project experience, large-scale laboratory shear test data, and conservative engineering assumptions. This approach is possible because the cross-section of the liner system is relatively constant (BENTOMAT CL is placed over a prepared soil subgrade, and a 1 foot (300 mm) soil/stone cover layer(s) is placed over the liner). For cases where the design of the slope departs from the established guidelines, a more quantitative method for assessing stability is presented in Appendix C.

Furthermore, this paper does not provide guidance for assessing global slope stability, relating to the stability of the soil beneath the liner. It is assumed that the site selection process has resulted in the location of the pond in an area with stable soils. Global stability considerations can be evaluated through several textbook methods. A useful summary of these considerations is found in Koerner (1994).

Most water containment applications require placement of the liner on a sloped surface. When a protective soil/stone layer is then placed over the liner, the weight of that cover induces a downslope shear (driving) force on the layers beneath it. The primary engineering challenge in this situation is to ensure that the driving force does not exceed the frictional resisting forces between each component of the liner system. If this condition is not met, a slide may result. The consequences of a slide are generally severe and can result in failure of the liner. The

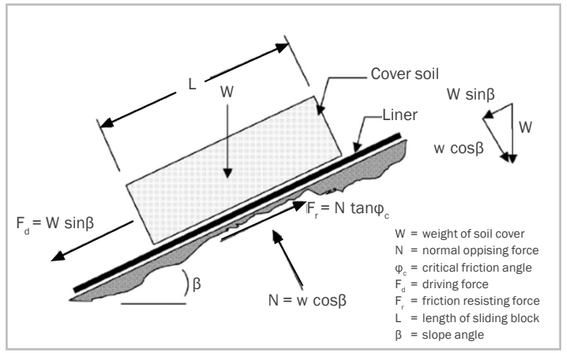

Figure 2-1. Sliding Block Slope Stability Analysis.

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information in this section of the design guide will assist engineers in designing to prevent sliding failures.

As shown in Figure 2-1, the driving force is the slope-adjusted weight of the cover layer(s).

The resisting force is the frictional resistance between adjacent layers or interfaces of the liner system and the overlying cover soil. A low-friction interface will therefore provide little frictional resistance and could cause instability. It is important to note that a liner system may still be stable even if the resisting force is smaller than the driving force. This is because additional contributions to the total resisting force may be provided by the "buttress effect" of the cover material at the base of the slope, and by the tensile strength of the liner anchored at the top of the slope. Appendix C provides a method of determining stability in consideration of these additional resisting components.

By eliminating the buttress effect and the tensile reinforcement effect, the slope stability problem is reduced to a simple comparison between downslope driving force and frictional resisting force. This simplified (yet conservative) approach allows the use of historical interface shear testing data to build general design rules that provide the necessary factors of safety to account for site-specific variations in materials characteristics. In cases where the design factor of safety from the simplified sliding block analysis is insufficient, it may be desired to include the additional resisting forces offered by toe buttressing and the tensile strength of the liner.

2.2.1 INTERNAL SHEAR STRENGTH

The first bentonite liners on the market in the mid-1980s were unreinforced, meaning that the internal shear strength of the liner was no greater than the low shear strength of the hydrated bentonite layer (around 8 degrees). The resulting design process was, therefore, relatively straightforward, although quite limiting due to low shear strength of bentonite. When needlepunched products were introduced in the late 1980s, peak internal shear strength properties were significantly increased. These products can safely be placed on much steeper slopes.

BENTOMAT CL and BENTOMAT CLT are both certified to internal shear strengths of 500 psf under a normal stress of 200 psf, yielding a peak secant friction angle1 of 68.2 degrees minimum. Because this value is nominally higher than the interface friction angles discussed in the following section, internal shear strength is not a relevant design issue in most liquid containment projects. Only when normal stresses are quite large (in excess of 10,000 to 12,000 psf or 480–575 kPa) do resultant shear stresses approach the internal strength limits of BENTOMAT CL/CLT reinforced liners. For this reason, the lowest peak interface strength is the critical design parameter. Since the peak internal shear strength of the GCL will rarely be mobilized (only under large normal stresses), the large displacement internal shear strength of the GCL is typically not relevant.

Internal shear strength must be demonstrated both in the short term and the long term, ideally for the life of the pond. Laboratory research (Trauger, et. al., 1996) indicates that the needle-punched reinforcement can sustain long-term shear loads. In one test, total displacement was essentially negligible after 10,000 hours of exposure to a constant shear load of 250 psf (12 kPa) and a normal load of 500 psf (24 kPa). Laboratory testing by Zanziger and Soothoff (2012) estimated that the needlepunch reinforcement of BENTOMAT would have a lifetime of more than 100 years. In addition to the laboratory research referenced above, field-scale testing (Koerner, 1996) and actual project experience have yielded similar conclusions. From the data and experience gained to date, it is reasonable to conclude that BENTOMAT CL will maintain significant internal strength in the long term.

When shear strength is not important (such as pond bottoms) BENTOMAT 600CL can be installed. BENTOMAT 600CL is a lightly reinforced GCL and is not intended for sloped applications. BENTOMAT 600CL should only be installed on flat areas, 10H:1V or less.

1. The secant angle is calculated by taking the inverse tangent of the shear strength divided by the normal stress applied to the system. In an infinite slope analysis, the slope is generally stable if the friction angle is greater than the slope angle.

2.2.2 INTERFACE SHEAR STRENGTH

A thorough stability analysis requires evaluation of all the interfaces in the liner system. Ideally, each interface should be capable of generating enough friction to transfer the driving force rather than creating tension on the liner.
CETCO ran representative interface shear strength tests with various soils against both BENTOMAT CL and BENTOMAT CLT. Interface shear strength tests with various soils were conducted against the smooth geofilm interface of BENTOMAT CL, the woven geotextile component of BENTOMAT CL, and the textured geomembrane interface of BENTOMAT CLT. The woven geotextile component of BENTOMAT CL and BENTOMAT CLT is the same.

SOILS TESTED AGAINST GEOFILM SIDE OF BENTOMAT CL

SOIL TYPE	NORMAL STRESS (PSF)	PEAK SHEAR STRENGTH (PSF)	PEAK SECANT ANGLE	RESIDUAL SHEAR STRENGTH (PSF)	RESIDUAL SECANT ANGLE
Silty Sand (SM)	400	166	22	152	20
Clay (CL)	400	206	27	195	26
Graded Aggregate Base (GAB)	400	195	26	184	24
Average			25		23

Table 2-1. Summary of interface shear strengths of various soils and BENTOMAT CL's geofilm interface, tested under low normal stresses typical of a water containment application (test results included in Appendix G).

SOILS TESTED AGAINST WOVEN GEOTEXTILE SIDE OF BENTOMAT CL

SOIL TYPE	NORMAL STRESS (PSF)	PEAK SHEAR STRENGTH (PSF)	PEAK SECANT ANGLE	RESIDUAL SHEAR STRENGTH (PSF)	RESIDUAL SECANT ANGLE
Silty Sand (SM)	400	294	36	244	31
Clay (CL)	400	327	39	283	35
Graded Aggregate Base (GAB)	400	402	45	291	36
Average			40		34

Table 2-2. Summary of interface shear strengths of various soils and BENTOMAT CL's woven geotextile interface, tested under low normal stresses typical of a water containment application (test results included in Appendix G).

In certain scenarios, particularly on steep and/or long slopes, the shear strength between the soil and the geofilm component of BENTOMAT CL may not be enough. In these cases, BENTOMAT CLT may be more appropriate. The following test results are representative of the interface shear strength between soils and the textured HDPE geomembrane component of BENTOMAT CLT:

SOILS TESTED AGAINST TEXTURED GEOMEMBRANE SIDE OF BENTOMAT CLT

SOIL TYPE	NORMAL STRESS (PSF)	PEAK SHEAR STRENGTH (PSF)	PEAK SECANT ANGLE	RESIDUAL SHEAR STRENGTH (PSF)	RESIDUAL SECANT ANGLE
Silty Sand (SM)	400	213	28	178	24
Clay (CL)	400	290	36	177	24
Graded Aggregate Base (GAB)	400	257	33	214	28
Average			32		25

Table 2-3. Summary of interface shear strengths of various soils and BENTOMAT CLT's geomembrane interface, tested under low normal stresses typical of a water containment application (test results included in Appendix G).

As in the internal shear strength, the amount of friction for a given combination of soil and/or geosynthetic layers can be expressed as an angle. Interface shear tests under normal loads of 400 psf were conducted, representative of cover soil conditions, and friction angles were calculated for each interface. As mentioned above, other factors such as buttressing and soil tapering can be taken into consideration to meet a desired factor of safety against sliding. The following test results are representative of BENTOMAT CL. Project specific testing is recommended for more accurate analysis.

From this data, some important conclusions can be drawn about the interface shear strength properties of this liner and different soils.
There is significant variation in peak interface friction values, which emphasizes the fact that every soil has unique characteristics which should be considered independently of historical data.

In the case of BENTOMAT CL, the interface between the soil and the geotextile side of the liner is higher than the interface between the geofilm and the soil. This means that the "critical" or weakest interface will usually be the subgrade against the liner, assuming that BENTOMAT CL is installed geofilm side down. In the case of BENTOMAT CLT, the test results showed the woven geotextile component would still produce a higher peak shear strength compared to the geomembrane side; however, that difference is much narrower.

In the case of BENTOMAT CL, there is little difference between the peak and post-peak shear strengths, meaning that shear displacement of these interfaces does not cause significant loss of strength. This essentially eliminates the problem of trying to decide whether to design around peak or post-peak strengths. BENTOMAT CLT does experience some loss of strength between peak and post peak strength. In certain conditions (such as seismic events or construction loads), the peak strength may be exceeded, and the post peak strength would be mobilized. In these scenarios, the design engineer may consider checking slope stability with the post-peak interface shear strength value.

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2.2.3 RECOMMENDED SLOPE ANGLE

Given the simplifying assumptions described previously, the slope stability problem becomes a textbook "sliding block" where the forces acting on the slope are the same in all locations. This means that the stability of a proposed system can be determined simply by comparing the interface friction angle between various liner system components to the design slope angle. If the lowest ("critical") interface friction angle in the liner system exceeds the slope angle, the slope will generally be stable. If the lowest interface friction angle is less than the slope angle, the slope is potentially unstable and a sliding failure is possible. The analysis can also include a safety factor, which is the ratio of the resisting force to the driving force. From Figure 2-1 it can be seen that:

$$FS = \frac{W\cos\alpha \tan\varphi_c}{W\sin\varphi} \quad \text{(Equation 2-1)}$$

Which through trigonometric identities can be simplified to:

Where:

$$FS = \frac{\tan\varphi_c}{\tan\beta} \quad \text{(Equation 2-2)}$$

FS = Factor of safety

φ_c = Critical (lowest) friction angle in lining system

β = Slope angle

It is emphasized that this method assumes zero cohesion in the cover soil (sand is an example of a cohesionless soil) and zero seepage (pore pressure) forces, and only applies to simple slope veneers of uniform depth along the slope. Cohesive soils tend to increase stability, so zero cohesion is considered a conservative assumption in any cases where the cover soil exhibits some cohesion. It is also noted that this method of analysis does not include slope length, because the sliding block exerts the same forces on any part of the slope. The method used in Appendix C should be used in cases where the sliding block analysis is inconclusive.

EXAMPLE: A pond is designed with an interior side slope 20 feet long and with a grade of 4H:1V. Using BENTOMAT CL with a silty-sand cover soil layer one foot thick, is this slope stable?

ANSWER: From Appendix C, Table C-2, a 4H:1V slope is 14.0 degrees. From Table 2-1, the typical expected interface shear strength on the GCL (φc) is 22 degrees (Geofilm side of BENTOMAT CL to silty-sand). Using Equation 2-2:

$$FS = \frac{\tan\varphi_c}{\tan\beta} = \frac{\tan(22)}{\tan(14)} = 1.6$$

For this type of application, a factor of safety of 1.6 is considered quite acceptable and therefore the slope is stable.

Based on the data provided above, ***CETCO recommends that the maximum slope angle should not exceed 4H:1V or 14 degrees when using BENTOMAT CL.*** The design of a liner system with this slope angle will provide stability with a factor of safety of approximately 1.5 when the minimum interface friction angle in the liner system is greater than or equal to 20 degrees.

In addition to contributing to stability, there are several other benefits associated with the design and construction of a slope that is ≤ 4H:1V:

- Natural appearance
- Reduced possibility for erosion-related damage to the cover layer
- Less maintenance of the cover materials
- Easier accessibility to and escape from the shoreline for waterfowl or for recreational use
- Easier installation of the liner and other layers in the liner system
- Easier subgrade preparation and compaction

For these reasons, a designer should make a reasonable effort to limit the slope steepness of a pond to a maximum of 4H:1V. This assumes that the GCL is BENTOMAT CL, deployed with the geofilm side facing up. When the slope exceeds 4H:1V, other variables can be taken into consideration, as discussed below.

2.2.4 STEEPER SLOPES

It may be necessary to design the pond using slopes steeper than 4H:1V in order to obtain the necessary water volume or depth within a given area. In such cases, the simplified stability analysis presented above will show that the slope is potentially unstable, or at least will not provide a factor of safety of 1.5. BENTOMAT CL may also be used for steeper slopes, in which case a more rigorous stability analysis is required to determine if this is really the case. Appendix C provides a detailed review of this method, and the results show that the liner system can be stable on a steeper slope as summarized in Table 2-4.

Slopes steeper than 4H:1V can also be made stable by installing BENTOMAT CLT instead of BENTOMAT CL and/or by using reinforcing members (such as geogrids or reinforcing geotextiles) to carry the weight of the protective cover. The same simplified analysis above can be repeated for BENTOMAT CLT. If the minimum interface friction angle with the cover soil is at least 27 degrees, a factor of safety of 1.5 can be achieved with a 3H:1V slope with BENTOMAT CLT.

If reinforcement is used, it would be separately anchored at the top of the slope and would interlock with the cover layer more efficiently than the original interface. Where synthetic reinforcement is necessary, a more extensive stability analysis is required which is best performed by an experienced engineer or vendor of reinforcement systems. An example analysis method for slopes with veneer reinforcement is provided by Koerner & Soong (2005). Reinforced slopes are technically feasible, but project costs could be significantly greater than if it is decided to grade the slope more moderately.

A mid-slope "bench" can also be considered for certain steep slope applications. A horizontal shelf or bench on the slope will provide buttressing of the cover soil above it, allowing steeper slopes to be accommodated. The analytical method in Appendix C can be used to evaluate the benefits of a mid-slope bench.

2.2.5 GCL ORIENTATION

Installing BENTOMAT CL with the geofilm side facing upward should result in a stable system on most 4H:1V slope systems. On steeper slopes, BENTOMAT CL is frequently installed with the geofilm side facing down against the subgrade to provide for improved slope stability. In this orientation, BENTOMAT CL may go into tension. With the support of an anchor trench at the top of the slope, and the addition of a "buttress effect" provided by the cover material at the toe of the slope, the system can still be stable, as discussed in the following sections.

However, in certain cases, it may be preferable to install BENTOMAT CL or CLT with the geofilm or geomembrane facing upward. This may be the case when the GCL is expected to undergo wetting and drying cycles, such as dry detention ponds. Installing BENTOMAT CL with the geofilm side facing up will help allow the bentonite to maintain its moisture, even during periods of drought. Bentonite that undergoes wetting and drying cycles can experience an increase in long-term hydraulic conductivity, depending on the chemistry of the adjacent soil material. Much of this research is related to GCLs in cover applications, where GCLs can experience the combined effects of desiccation and ion exchange. Installing BENTOMAT CL with the geofilm facing up will help prevent the bentonite from desiccating, and allow a lower overall permeability though BENTOMAT CL. More on this topic can be found in CETCO's TR-341.

Another scenario where it may be more favorable to install the GCL with the geofilm side facing up is where erosion of the bentonite is a concern. This may be in a river or stream where the water current may erode the bentonite. Installing the GCL with the plastic side facing up would protect the bentonite from the moving water.

Installing BENTOMAT CL with the geofilm side facing up is typically recommended for slopes up to 4H:1V. If slopes are steeper, and installing with the geofilm side facing up is preferable, BENTOMAT CLT should be considered for improved slope stability. This will be discussed further in the following sections.

2.2.6 GENERAL DESIGN GUIDELINES FOR SLOPE STABILITY

Assessing the stability of lined slopes for a pond application can be a confusing task from a strictly mathematical standpoint. This is because many variables are required to perform the calculations. Fortunately, the confusion can be minimized if we examine only the relevant data and site conditions expected for a pond. In order to develop some simplified slope stability guidelines, it is assumed:

- BENTOMAT CL is used for lining the pond, installed with the geofilm facing down.
- The soil cover layer is 1.5 feet (450 mm) thick, has a unit weight of 130 lbs/ft3 (20.4 kN/m³), and an internal friction angle of 34 degrees. This accounts for the possibility that some ponds will require thicker cover layers than others.
- The interface friction angle of the geofilm component of BENTOMAT CL against the subgrade is the critical interface and is 20 degrees.
- The desired safety factor is 1.3.

Using these assumptions, and the analytical method in Appendix C, the following general rules are established for BENTOMAT CL:

SLOPE GRADE	SLOPE ANGLE (DEG)	MAXIMUM ALLOWABLE SLOPE LENGTH, FT (M)	COMMENT
Up to 4H:1V	0 – 14	Any	No stability concerns when the slope is 14 degrees or less.
Up to 3H:1V	18.4	67 (20.4)	With 3 ft (1 m) of freeboard this allows a water depth of 18 feet (5.4 m).
Up to 2.5H:1V	21.8	30 (9.1)	Liner will be in tension on a 2.5H:1V slope.
Up to 2H:1V	26.6	17 (5.2)	Maximum slopes on any project should not exceed these values.

Table 2-4. Recommended maximum slope lengths for pond lining applications with BENTOMAT CL, when installed geofilm-side down and anchored at the slope crest. See important notes below:

Important Notes:

1. Submerged slopes are subject to sliding due to wave action, scouring, etc. See Section 3.
2. Method of Giroud and Beech (Appendix C) used to determine slope lengths for steep slopes.
3. This table is to be used as a guideline only. Site-specific evaluations should always be performed, most notably for slopes steeper than 4H:1V.

Using this table as a guideline, it should be possible to design and construct lined slopes that will be stable in the long term.

Where longer/steeper slopes are lined, BENTOMAT CLT can be utilized in place of BENTOMAT CL. Site specific shear strength testing is highly recommended for slopes greater than 4H:1V, followed by a slope stability analysis to ensure a sufficient factor of safety against sliding. Please contact CETCO for material samples for testing. CETCO can also suggest third party testing laboratories that are experienced with these test methods.

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2.2.7 ANCHORAGE OF THE LINER

It is standard practice in the synthetic lining industry to place the end of the liner into an anchor trench at the top of a slope. The anchor trench prevents the liner from moving during, and in some cases, after construction. In the most conservative design, no tension exists on the liner, and an anchor trench only serves to prevent unintended liner movement during placement of the cover soils. However, Table 2-4 indicates that the liner system can be in tension under certain conditions of slope steepness and loading. In these cases, the anchor trench plays an important role in ensuring stability of the liner system. The trench must therefore provide enough resistance to prevent the liner from pulling out and sliding down slope.

Koerner (1994) provides a detailed model for designing an anchor trench based on the amount of tension allowed on the liner. From Appendix C, the allowable strength of BENTOMAT CL is 312 lbs/ft (4.6 kN/m). With a typical in-service liner thickness of 0.4 inch (1 cm), the allowable stress is 65 lbs/in2 (450 kPa). Using Koerner's methods it can be calculated that an anchor trench with a ***2 foot (60 cm) runout at the top of the slope and a 1 foot (30 cm) depth*** is adequate to accommodate the stresses that may be imposed on the liner in certain conditions.

2.3 HYDRAULIC PERFORMANCE

The purpose of the pond liner is to function as a barrier to water. As a result, the baseline hydraulic performance of the liner must be demonstrated to meet any design or regulatory requirements under the anticipated service conditions. This section of the design guide identifies realistic performance objectives for a pond liner system and provides the tools needed to estimate how much leakage can reasonably be expected from a typical pond lined with BENTOMAT CL, CLT, or 600CL. The first step in determining the anticipated hydraulic performance is to identify the service conditions to which the liner will be exposed. The term "service conditions" includes the following:

- Confining stress – the weight of cover material on the liner system
- Hydraulic head – the depth of water on the liner system
- Other factors which could influence liner system performance in the long term, such as climatic exposure, maintenance activities, chemical degradation, etc.

With knowledge of these service conditions, performance of the liner system can be estimated. Permeability or hydraulic conductivity has historically been used to measure the hydraulic performance of liners. The permeability of a liner is not the same as its leakage rate, however. In order to calculate the leakage rate, or flux, of a liner, the service conditions described above must be known. Then, a relationship known as Darcy's Law can be used to calculate the leakage rate. This is discussed in Section 2.3.2.

2.3.1 PERFORMANCE REQUIREMENTS

The design objective for many ponds is usually no more sophisticated than to ensure that it "holds water." Obviously, a more quantitative design process is needed, not only to meet any existing performance requirements but also to establish a realistic set of expectations regarding the containment ability of a pond.

On one extreme, we can assume that zero leakage is not a reasonable design goal. First, it would seldom be considered necessary, except in cases where an extremely hazardous waste is being contained. Such systems are beyond the scope of this manual. Second, the cost of obtaining a zero leakage pond would be astronomical, in consideration of the many redundancies that would be required to ensure that no water escapes. And finally, as with any human endeavor, it can be argued that "perfection" in the form of zero leakage is not even possible.

On the other extreme, the pond must not leak to the extent that the static water level visibly decreases or is held constant only by adding large volumes of makeup water. In consideration of these two extremes, it can be seen that the performance objective should involve some sort of equilibrium where feasibility, cost, and containment intersect. Through a closer examination of the techniques used to measure hydraulic performance, we will develop a quantitative performance equilibrium point that should be adequate for most ponds.

The nature of the subgrade soils and water table also play a role in determining how effective the liner should be. For example, a liner installed over a clayey subgrade may have several defects without showing excessive leakage. If those same defects were present over a sandy subgrade, however, there would likely be much more leakage. The depth to the groundwater table at the site can also influence the performance of the liner in a similar way. As a result of these practical complications, the design of an acceptable liner system for water containment involves evaluation of not just the liner material but also the surrounding soils and water levels.

2.3.2 DARCY'S LAW FOR CLAY LINERS

Prior to the introduction of synthetic lining products, most water containment structures were designed and constructed using low-permeability clay soils. Today, earth-lined ponds are still built in large numbers in locations where clay soils are found. In cases where a performance requirement is established for clay-lined ponds, the in-place permeability of the clay soils is usually specified as 1×10^{-7} cm/sec (1×10^{-9} m/sec). This is not the result of back-calculation from some existing leakage requirement; instead, it represents a value that can be achieved when a clay soil of good quality is compacted at or near its maximum density under optimum moisture conditions.

Darcy's Law describes the flow through a porous media such as sand, silt, or clay. With knowledge of the service conditions of the liner system, the theoretical leakage rate can be calculated. The following example shows how Darcy's Law can be applied to a clay-lined pond. The resulting leakage value will indicate the relative performance value that clay-lined ponds are capable of achieving and will therefore serve as a reference point for evaluating the performance of other lined ponds.

EXAMPLE: What is the leakage from a clay liner 2 feet (0.6 m) in thickness with a nominal depth of water of 10 feet (3m)?

Q = kiA, where

Q = flux through the liner, liters/day

k = hydraulic conductivity, 1×10^{-9} cm/sec

= hydraulic gradient, dimensionless

$$i = \frac{\textit{hydraulic head+liner thickness}}{\textit{liner thickness}} = \frac{3.0+0.6}{0.6} = 6.0$$

A = liner area, assume as 10,000 m² (1 ha)

$$Q = (1\times10^{-9}\ \text{m/sec})(6.0)(10{,}000\ \text{m}^2/\text{ha})(1{,}000\ \text{L/m}^3)(86{,}400\ \text{sec/day})$$

= 5,184 liters/Ha-day

= 552 gal/acre/day

= 0.5 mm/day

= 0.02 inches/day

There is a long historical precedent for considering the above leakage rate to be acceptable. This is partly because of the difficulty in compacting clay soils to the density necessary to achieve a low permeability value. Thus, "acceptable performance" has come to be defined by what was technically feasible in the past. A leakage rate of approximately 5,000 lphd is a useful reference point in this regard, but it does not represent the performance capabilities of a synthetic liner such as BENTOMAT CL, CLT, or 600CL.

2.3.3 BASELINE HYDRAULIC PERFORMANCE

CETCO has worked with different laboratories in an effort to develop reliable estimates of the flux of BENTOMAT CL for design purposes (see Appendix A). It should be noted that these are very low leakage rates that approach the practical limits of the test equipment used to measure and record them, and that the general consensus is that the majority of this measured leakage is around the sides of the specimen. For example, a flux of 1×10^{-10} m³/m²/s is equal to just 1 droplet per day. Assuming that limited installation defects occur in the geofilm component of BENTOMAT CL, 600CL or CLT, the liner will allow very little water through the GCL. Through an intact geomembrane, diffusion is the most likely path of water flow, and while diffusion of water vapor through a liner system will contribute to the overall leakage rate, in most cases diffusion is too slow to be considered as a major contributor to leakage (Richardson, 2000). It is noted that the leakage data reported in Appendix A therefore includes both diffusion as well as advection (direct movement) through the liner system.

Darcy's Law can be used to estimate the leakage through a standard geotextile-based GCL that does not contain a geofilm or geomembrane component. By changing the water depth, flux data can also be plotted as a function of head pressure at a fixed confining stress. Figure 2-4 shows that the flux increases linearly with increasing head pressure. For example, if the average depth of a pond is 3 m, Figure 2-4 predicts that the leakage rate from a traditional GCL will be approximately 18,000 lphd. This leakage rate is far greater than the 5,000 lphd historical performance of compacted clay. Because of its essentially impermeable geofilm component, performing a flux test is quite difficult on BENTOMAT CL, because the leakage rate is almost too low to measure accurately. Using the certified hydraulic conductivity of 5×10^{-10} cm/sec for BENTOMAT CL products, the flux rate can be calculated through BENTOMAT CL as well. Using this method with BENTOMAT CL would be conservative, as demonstrated by the low leakage rates measured in Appendix A. Based on this data, it is clear that a traditional geotextile-encased GCL is not recommended as the sole liner for pond applications and ***BENTOMAT CL is the preferred liner material*** for pond projects.

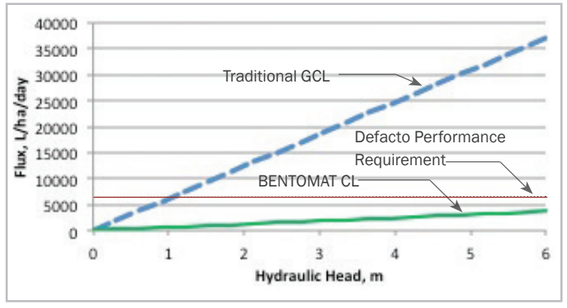

Figure 2-4. GCL flux as a function of head pressure.

It is important to note that other factors can contribute to the hydraulic performance of a standard geotextile-based GCL in high head applications. For instance, where the subgrade is porous, higher hydraulic pressures can force bentonite from the geotextile components, essentially resulting in thin spots in the GCL, or even spots where bentonite is completely forced out. The geofilm or geomembrane component serves two functions – a low permeability barrier on its own, and in limiting bentonite migration through a GCL.

2.3.4 SEAM FLOW

As with any synthetic liner system, the potential for leakage problems are greatest at the longitudinal and lateral seams – where adjacent liner panels are connected. With pond liners such as BENTOMAT CL, there is no mechanical attachment of the panels; they are simply overlapped with a bead of granular bentonite between the panels. Properly installed, the liner should be self-seaming such that the hydraulic performance of the seam is almost the same as unseamed material. To achieve this result, some confining pressure is needed. The cover soil layer(s) provide this confinement, in addition to physical protection of the liner system from equipment, animals, and erosion.

Appendix A provides results with large-scale seam flow testing using BENTOMAT CL under a variety of hydrostatic head pressures from 30 to 90 psi (SGI, 2001). These tests show that the overlapped seam yielded slightly higher leakage than unseamed specimens, as would be expected. The flux through the overlapped seams of BENTOMAT CL will be based on the total seamed area. Assuming a reduced roll length of 100 ft (instead of the standard 150 ft), the design flux for a seamed system of BENTOMAT CL becomes 4.17×10^{-10} m³/m²/s = 360 lphd = 38.5 gpad.

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The importance of a proper seam installation cannot be understated. A traditional liner system is typically composed of a low permeability soil and/or a welded geomembrane. A properly welded seam will allow essentially zero leakage. A GCL seam requires careful installation, including a properly prepared subgrade to ensure that the two panels are installed with as few wrinkles as possible and without gaps between the two panels. Improperly installed, water can easily escape the system between the two GCL panels. The installation instructions in Sections 4.3 and 4.6 for subgrade preparation and seam installation should be followed to help ensure a proper GCL installation.

While BENTOMAT CL products allow for expedience and ease of installation, in certain cases, a standard composite system, consisting of BENTOMAT ST with a separate overlying welded geomembrane may be more appropriate. This may apply to large water reservoirs and other critical water containment structures where a higher factor of safety to water loss is required.

2.3.5 SAFETY FACTORS FOR INSTALLATION DAMAGE

This method of analysis does not consider the many imperfections that can occur in any field-constructed liner system and through which much leakage can flow. In fact, with such low baseline leakage in today's generation of synthetic liners, installation quality is the most important factor in determining liner performance. This is yet another variable that is difficult to quantify. The flow through defects in a geomembrane liner (HDPE, PVC, etc.) has been extensively studied by Giroud (1990, 1997). However, the effect of punctures on BENTOMAT CL products has not been specifically studied. With the self-healing attributes of bentonite, a membrane-backed GCL pond liner such as BENTOMAT CL will not suffer dramatic leakage associated with minor geofilm punctures. By assuming a credible scenario in terms of the number and size of defects per unit area of pond, an installation quality safety factor (addressing punctures) may be calculated. Again, there is no information pertaining to the number and size of punctures that occur in the field, but it is assumed that each defect is circular in shape and is 1 cm^2 (a little less than 1/8") in area. It is further assumed that these punctures are present on every 1,000 m^2 of pond (10 defects per hectare or 4 holes per acre). Finally, it is assumed that the punctures are self-healing by bentonite, while the punctured membrane freely transmits flow.

As an example, we can refer to Figure 2-4 for a pond that is 6 m deep (this depth is in the range of the baseline flux data obtained at 21 m) to determine the affect of installation damage on the performance of the liner system as a whole. The flux from the damaged portion of BENTOMAT CL is the same as that for BENTOMAT ST, which is 37,000 lphd (3,955 gpad). The total area of the defects is 10 x 1 cm^2 = 10 cm^2 = 1 x 10^{-7} Ha. The leakage rate through the defects is 108,000 L/Ha/day x 1 x 10^{-7} Ha = 0.0037 L/day. This is the total quantity of damage-related leakage in one hectare (2.47 acres) of BENTOMAT CL – lined pond where there are 10 defects per hectare (4 per acre). Compared with the design flux of 360 lphd calculated earlier, it can be seen that minor installation defects (punctures) do not contribute to significant additional leakage.

This finding should not be interpreted as a license to "abuse" the BENTOMAT CL. It only demonstrates that the product can handle, without significant performance deterioration, infrequent punctures that might occur during the installation and covering process. The reason this is acceptable is because the total area of these punctures is very small relative to the total lined area. Installation damage can be more severe than assumed herein and therefore can still contribute a significant amount of the overall leakage of the liner system. The designer must ensure that detailed installation procedures are followed and that the installer recognizes those practices which can damage the liner.

2.3.6 NET HYDRAULIC PERFORMANCE

This analysis of hydraulic performance considers baseline flux, seam flow, and installation damage in order to arrive at the following design value:

Design Flux through BENTOMAT CL (Q_A) =

= 4.17 x 10^{-10} $m^3/m^2/sec$

= 360 L/Ha/day

= 38.5 gal/acre/day

= 0.036 mm/day

= 0.0014 inches/day

CETCO does not guarantee that these values will be achieved in the field. Actual performance depends on subgrade preparation, installation quality, and other factors discussed in this manual. The values are provided to demonstrate that some small amount of leakage should be included in the liner system design.

It is noted that this leakage rate at 21 m head pressure is far less than the historically accepted pond liner performance standard of 5,000 lphd at 1.8 m head pressure as discussed in Section 2.3.1. It can therefore be concluded that BENTOMAT CL is acceptable for all but the most demanding water containment applications. Certain applications, such as large reservoirs or hazardous waste ponds should still utilize a standard composite liner system, consisting BENTOMAT ST overlain by a separate welded geomembrane for a higher factor of safety against leakage. Regulations may drive this system in some cases.

2.3.7 EVAPORATION

This analysis does not include loss of water through evaporation, which can range from 1–5 mm/day or more in certain climates. An evaporation nomograph (Appendix B) can be used to estimate daily evaporative losses given data on temperature, wind speed, and relative humidity. Of these variables, wind speed has the greatest influence on evaporation. In the United States, a local branch of the National Resources Conservation Service (NRCS) may be able to provide more information regarding evaporation rates. It is interesting to note that evaporative losses can exceed liner flux by a significant margin.

2.4 CHEMICAL COMPATIBILITY

Any liner must have the ability to resist chemical attack when utilized in containment applications where contaminants may be present. Although chemical compatibility is actually a subtopic of hydraulic performance, this issue is worthy of discussion separately from the other hydraulic performance issues presented earlier. The geofilm/geomembrane component of BENTOMAT CL products is not susceptible to attack by any chemicals that would be encountered in normal pond projects. Therefore, this discussion will focus exclusively on the effects of different chemicals on the bentonite component of the GCL.

Sodium bentonite is an effective barrier primarily because it can absorb large quantities of water (i.e., swell). When the bentonite component of the liner hydrates, it becomes a dense, uniform layer with exceptionally low permeability and flux. Water absorption occurs because of the presence of sodium ions situated in the interlayer region between clay platelets.

Experience has shown that calcium is the most common source of compatibility problems for bentonite-based liners. Other cations (magnesium, ammonium, potassium) may also contribute to compatibility problems, but they generally are not as prevalent or as concentrated as calcium (Alther, 1985). Such cations may already be present in the water to be contained or may leach into the water from cover soils on the liner.

CETCO is often asked to specify the maximum concentration at which a certain chemical becomes a compatibility problem. Unfortunately, it is not possible to do so because of the many variables involved in assessing performance. For example, if the bentonite is hydrated in fresh water before exposure to high calcium levels, it will often maintain a low permeability. But the bentonite will not perform as well when initially hydrated in the same calcium solution. In lieu of blanket recommendations, CETCO instead performs project-specific routine compatibility tests that determine if a chemical can affect the liner.

Figure 3-1. Installation of BENTOMAT CL in a typical wastewater lagoon. Inlet pipes in foreground.

The liner may also be sensitive to the chemical composition of soil placed over it. CETCO recommends that limestone and other calcium-rich cover soils be avoided. Another method to overcome compatibility problems is to install BENTOMAT CL with the geofilm facing up. In this orientation, the bentonite will partially hydrate with clean water absorbed from the subgrade and will have very limited exposure to the liquid to be contained. Even if the hydraulic performance of the bentonite is decreased, it can still function effectively in the secondary role of seam-sealing and puncture sealing of the membrane component of BENTOMAT CL. Slope stability of the liner system in this orientation would need to be confirmed. BENTOMAT CLT can help in this regard because of the increased shear strength with the textured geomembrane component.

SECTION 3 APPLICATION-SPECIFIC DESIGN CONSIDERATIONS

Section 2 of this guide discussed design elements applicable to all water containment applications. This section identifies those design considerations that are unique to specific types of applications. By combining universal design elements with application-specific design elements, designers will be able to assemble a comprehensive pond design. Some of these design issues (such as inlet/outlet structures in Section 3.1.1) do pertain to more than one type of application. Designers are therefore encouraged to review all of Section 3.

3.1 WASTEWATER LAGOONS OR SEDIMENTATION BASINS

Wastewater lagoons contain effluent from industrial or municipal wastewater processing operations. Sedimentation and retention basins are designed to store runoff water and to allow suspended solid particles to settle so that clean water can be discharged. BENTOMAT CL may be used as a primary liner, or as a secondary liner beneath a geomembrane in these applications. In either case, there are several issues a designer must consider to ensure proper liner system function.

3.1.1 INLET / OUTLET STRUCTURES AND PENETRATIONS

Wastewater lagoons may have inlet and outlet structures such as manholes, pipes, weirs, or bottom drains. These structures will generally require a penetration in the liner system, especially if a bottom drain is required. All such penetrations must be treated with special care during both the design and installation phases of the project. The hydrostatic pressure exerted by the water column is a tremendous force that will readily exploit any areas that are not secure. Rapid leakage and extensive damage to the pond are possible through a small breech in a containment system (Richardson, 2002; Bierwirth and Richardson, 2003). For this reason, CETCO recommends that lagoons should not have bottom drains, and that the number of penetrations and associated structures be kept to a minimum. A good alternative to pipe penetrations is a

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spillway which allows water to enter or exit the pond in a controlled flow.

CETCO does not generally recommend a physical attachment of the liner to a wall or a penetrating pipe. Instead, a positive seal is formed around the penetration as shown in Figure 4-9. First, a small notch is excavated around the structure into the subgrade. Next, this notch is backfilled with bentonite. Finally, the liner is placed against the structure and is held in place by cover soil (see Section 4.7 for additional details). Because BENTOMAT CL does not thermally expand or contract, there is nothing to be gained by physical attachment of the liner to the structure. Such attachments can cause potential stress points and damage to the liner if there is long-term movement in the structure. A bentonite-based seal can better accommodate such movements while maintaining the hydraulic performance required for this crucial area. In instances where a mechanical connection is desired, contact CETCO for additional installation details.

If buried or above-grade pipes are used in the lagoon, the pipes and joints should be pressure tested for leaks prior to being buried or put into service. This step will help to eliminate one potential source of water loss that could be confused with liner leakage after the pond is put into service.

3.1.2 SLUDGE AND SEDIMENT REMOVAL

The designer must be aware of the long-term use and maintenance of the lagoon. If sludge or sediment will accumulate such that periodic removal actions are required, then the floor and walls of the lagoon must be designed to accommodate vehicle loads. The designer may also need to furnish ramps for vehicle access. A ramp design procedure is provided in Appendix D.

A layer of stone, asphalt, or concrete should be placed on the lagoon bottom to provide physical protection and to serve as an "indicator" layer for equipment operators who reach the lower boundary of the sludge or sediment. If stone is used, it should be roughly 2-inch minus (50 mm) in size in a layer approximately 12 inches (300 mm) thick to ensure that it will be noticed if penetrated. However, a proper cover soil as described in Section 4.9.3 must still be provided directly over the liner to prevent puncture. The indicator layer supplements, but does not replace, the protective cover.

Finally, it should be noted that maintenance activities requiring removal of the water should only be performed when the surrounding groundwater level is known to be below the bottom of the pond. This will ensure that hydrostatic uplift forces do not occur. This issue is explored more fully in Section 3.5.2.

3.1.3 DESIGNING FOR WATER LEVEL FLUCTUATIONS

If water level variations are expected, the side slopes of the lagoon may need to be protected from wave action and erosion along their entire length. Frequent drawdown of the water level will expose interior slopes that, if not protected, will be susceptible to erosion. "Hard armor" such as rip-rap is recommended in these cases, as vegetative cover is not likely to survive. The use of hard armor will also reduce the risk of seepage forces that promote downslope sliding of the cover.

3.1.4 GAS VENTING

Ideally, the site selected for the lagoon does not expel significant amounts of gas. Gas may be generated through degradation of organic matter or through the expulsion of air during periods of a rising water table. If the uplift forces from beneath the liner exceed the confining pressure above it, the liner can be displaced upwards. Damage to the liner is possible if uplift occurs.

If the soil beneath the liner is porous, gas will take the path of least resistance around the lagoon and will not threaten the liner system. However, if the soils are less porous and less permeable, and if the surface area of the lagoon is large, gas venting may be necessary. The design and placement of the vents depends on the amount of gas that may be generated, which is impossible to predict. CETCO is unaware of any analytical methods to estimate gas production rates from subsoil; however, Koerner (1994) provides a method for calculating the gas transmissivity requirements for a venting layer that would be placed beneath the liner. Given the lack of good design data to address the venting concern and the potential for long-term degradation and settlement, foremost consideration should be given to selecting a site that does not contain significant organic content.

3.2 FIRE PONDS

Fire ponds must be designed to allow easy access for emergency vehicles. The liner system should be able to withstand rapid drawdown in the event that large quantities of water are needed. As discussed in Section 2, there are unique slope stability considerations relating the seepage forces that can occur when the water level is rapidly reduced. Seepage forces can cause stability problems in this situation, and it is therefore recommended to design hard armor on the side slopes of all fire ponds. Seepage forces may also be reduced by use of a drainage layer beneath the cover soil or by buttressing the toes of the slope.

3.2.1 WATER USAGE

A fire pond must be designed with a scheme for removal of the water in the event of a fire. Water can be extracted in several ways:

- Placement of a suction line directly into the pond
- Placement of a submersible pump into the water
- Access via a standpipe which runs to the base of the pond
- Hard plumbing via piping directly to an outlet at the facility
- Siphoning

The water access point will be determined by the type of facility into which the pond will be placed and the relative hazard level presented if a fire occurs. It is beyond the scope of this design guide to address these issues; however, it should be realized that different facilities will have different means of fire water access, which ultimately requires the access point to be compatible with the liner system.

3.3 WETLANDS

The biological diversity within a wetland environment presents a series of challenging design considerations for the engineer attempting to create an environment that meets the conditions necessary to sustain a balanced ecosystem. A properly designed liner system is an essential component of a wetlands design.

A wetland is an area that is saturated or nearly saturated with water and supports vegetation and wildlife adapted for wet conditions. The design of wetlands usually involves a water balance calculation to ensure that the proper water levels can be maintained on a year-round basis. The most basic wetlands consist of a shallow area that has a low permeability subgrade to provide the moist environment necessary for the propagation of aquatic plants. A more diverse ecosystem is established when changes in elevation provide zones of varying moisture for the establishment of other fauna and flora native to the local environment. Figure 3-2 demonstrates three different zones for plant growth based on different moisture levels, and a fourth deepwater zone for aquatic life. Each zone is established by the amount of fill installed above the liner system. The transition from the deep-water areas of Zone 4 to the low water areas of Zone 3 can be handled in different ways. The liner may be deployed continuously through the transition area or may be terminated at the top of the transition. If slope stability calculations (Section 2.2) determine the liner will be placed under unacceptable strain, an anchor trench should be used. A new length of liner would then be laid over the liner in the anchor trench, terminating at the crest of the slope.

3.3.1 HIGH GROUNDWATER CONDITIONS

High groundwater conditions may require creative design and construction techniques in order to establish a viable liner system. The best way to handle high groundwater is through installation of a dewatering system at the perimeter of the site to decrease the groundwater table below the bottom of the excavation. Local soil conditions will influence the effectiveness of the dewatering effort. Silty soils will resist dewatering and will not provide a structurally sound foundation necessary for long-term liner performance. Sandy, drainable soils will more easily convey the flow of groundwater to pump stations, while maintaining reasonable structural stability and load bearing capabilities.

Another concern in high groundwater conditions is the potential for hydrostatic uplift. If the dewatering system is used only during construction, the water table could rise above the water level in the wetlands, thus causing a buoyant force as discussed further in Section 3.5.2. This is not an uncommon occurrence in wetlands work, where the site may already be poorly drained.

High groundwater conditions are problematic on slopes as well. Water migrating through the subgrade soil and onto the sloping surface of a containment area can cause slope stability problems both during and after construction. The designer should be aware of the potential reduction in interface friction that can occur in these conditions. Installation of a site-wide dewatering system is the best technique for avoiding all of these problems related to subgrade moisture. In cases where site-wide dewatering is not possible, localized use of drainage trenches and drainage geocomposites may be used to allow the liner to be properly deployed and covered.

3.3.2 CONSOLIDATION OF SUBGRADE

On many wetlands projects, it may be difficult to drain the subgrade soils. Therefore, the loading on the subgrade from the weight of the cover soils and the equipment used for its installation will cause consolidation. As water is released from the subgrade soils, it may accumulate in a thin film between the subgrade and bottom of the liner. At this point it will be easy for the liner to slide out of position or for water pressure to be relieved through a seam "blowout."

To address this problem, the installing contractor can place a nonwoven geotextile and a 6-inch (150 mm) sand layer on the subgrade prior to the liner installation. The sand layer should be connected to the site dewatering system. On less critical projects, a series of drainage trenches filled with stone can be easily constructed in the subgrade to funnel flow to the dewatering system. Alternately, geocomposite drainage materials can be deployed over any areas requiring additional drainage. The geocomposite would simply be laid on the subgrade and tied into a drainage trench prior to the installation of the liner. All of these options serve the purpose of removing consolidation water and improving interface stability. A greater-than-normal GCL overlap may also be required when these conditions are encountered.

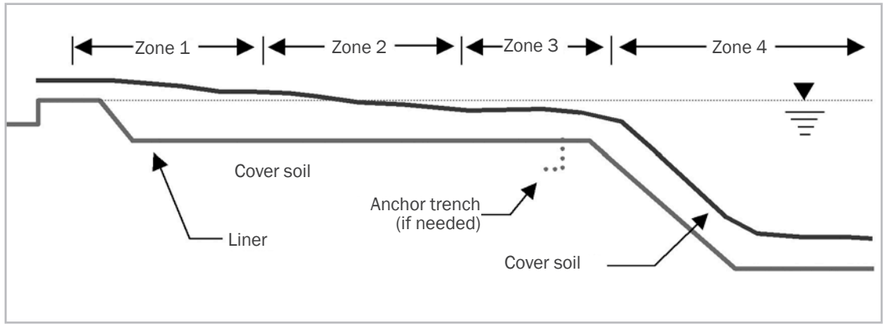

Figure 3-2. The zones within a wetlands will dictate the conditions the liner system will face.

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3.3.3 CUT AND COVER CONSTRUCTION

In wetlands projects, application conditions are often difficult to predict. Designers and contractors may get caught with an unexpected high or low water situation without a ready solution for cost-effectively continuing the installation process. For example, groundwater flow may be so high and so disruptive that it becomes impractical to expose a large subgrade area at any one time. The only possible construction technique is to cut, install liner, and cover in a series of small operations. For this technique to work, the subgrade conditions must be capable of supporting operating equipment without subgrade stabilization.

The characteristics of the cover material placed over the liner are equally important as those of the subgrade soil. The cover should be sufficiently coarse and granular so as to drain freely and support the weight of the covering equipment. In cases where the cover soils are not so stable, it may be preferred to design a geogrid into the system. Experience has demonstrated that the use of a biaxial geogrid above the liner will function to tie the cover system together and provide some consistency when subjected to strain. This technique was used in a 200,000 ft2 (20,000 m^2) area within a 1,000,000 ft2 (100,000 m^2) wetlands project where the deep water (Zone 4) areas were several feet below the water table (Trauger and Burgio, 1994).

3.3.4 "BOTTOMLESS" WETLANDS AND PONDS

While it is recommended to line the full surface of a pond to minimize the risk of preferential leakage, it may be possible to use the natural characteristics of a wetlands or pond site to minimize construction costs. For example, a pond site might already possess a layer of clayey soil at a prescribed depth, with acceptable permeability characteristics to function as a bottom liner. In this case, a synthetic liner would be installed only on the perimeter side slopes and would be "keyed" into the clay layer (placed into a trench) at the bottom of the slope in the same manner as the liner is placed into an anchor trench at the top of the slope.

3.3.5 STREAMS AND WETLANDS

BENTOMAT CL is well-suited for the lining of combined environments of wetlands and streams. In these projects, a meandering stream/wetland combination flows to a pond, where a pump recirculates the water back to the beginning of the stream. In any wetlands project, it is necessary to maintain saturation of the soils. This is difficult to accomplish throughout the full width of the stream, because water tends to concentrate in a narrow area.

A series of earthen or concrete dams can be constructed to pool the upstream water to control water flow and ensure soil saturation above each dam. The top of each downstream dam should be at least as high as the bottom of the upstream dam to ensure complete water saturation of the soil.

3.4 CANALS

As fresh water becomes an increasingly more valuable commodity, the performance of water conveyance canals is being more heavily scrutinized. Existing canals are being rehabilitated to minimize infiltration losses, and new canals are being constructed with careful consideration of their hydraulic performance. The information in this section also applies to the lining of roadside drainage swales, which is becoming an increasingly popular means to limit infiltration of potential environmental contaminants such as oil, lead, and other pollutants that may be released in a spill event.

The design of a lining system for a canal must address the challenges of steep sideslopes, rapid water movement, and time limitations imposed by downstream water users. This section of the design guide discusses these challenges and offers some solutions based on the use of BENTOMAT CL.

3.4.1 SLOPE STABILITY

Trapezoidal water supply canals usually possess steeply sloping side walls which are problematic when synthetic and natural materials are layered together. Additionally, the surficial water velocity in the canal encourages erosion and scouring of cover materials placed on the side slopes. The canal liner must therefore support its protective cover and prevent it from being washed downstream.

When space permits, the easiest and most economical solution to the stability problem is to limit the steepness of the side slopes to 3H:1V. However, this may not prove possible in many cases, especially with rehabilitation projects. With a restrictive geometry, the stability method of Appendix C can be used to determine how long and steep the slope can be under a given cover system configuration. From Table 2-4, it can be seen that the maximum slope length at a 2H:1V angle is 17 feet (5.2 m). From this information and knowledge of the gradient of the canal, it is possible to calculate its carrying capacity. This will help the designer determine the geometry needed to convey the water within whatever space limitations exist.

The side slopes of a canal may not be stable enough to support a layer of stone with an adequate factor of safety to protect against sliding of the cover layer or scouring during peak flows. In such cases, 3–4 inches (75–100 mm) of concrete should be applied directly to the surface of the geotextile side of BENTOMAT CL. When concrete is poured or sprayed over the liner, the exposed needle punched fibers on the surface of the liner embed into the first few millimeters of the concrete, creating a strong mechanical bond.

When the concrete cures, BENTOMAT CL is intimately bonded to it and can be removed only with great difficulty. The rigidity of the concrete provides a strong "passive wedge" that improves stability, and the bond by BENTOMAT CL prevents the possibility that the concrete will crack and delaminate from the liner over the long term. The concrete and BENTOMAT CL liner system should be considered as an option for all water supply canals with side slopes steeper than 3H:1V.

3.5.1 POND SHAPE AND GEOMETRY

It is generally desired for the shape of the pond to have a "natural" appearance, free of unusually sharp corners or angles. Gradual slopes, curves, and corner transitions always facilitate easier liner installation. On the other hand, sharp corners and angles will complicate the installation process with more frequent cuts, seams, and detail seals. There is a greater chance of leakage problems when the geometry of the pond is too complex.

3.5.2 THE POND FOUNDATION

Subgrade preparation and compaction in accordance with CETCO published specifications is the single most important earthwork aspect in pond design and construction. A smooth, unyielding subgrade provides the proper foundation to build a successful liner system. The designer should take special care to specify that the subgrade soils are capable of being compacted to the extent necessary to deploy the liner on an unyielding surface.

The pond designer should be aware of the seasonal high and low water tables relative to the minimum and maximum water levels expected in the pond. This relates to the potential for hydrostatic uplift. If the water table rises above the water level in the pond, a buoyant force is created. In some cases, the buoyant force could exceed the weight of the soil cover, thus causing uplift of the liner. This could lead to failure of the liner system.

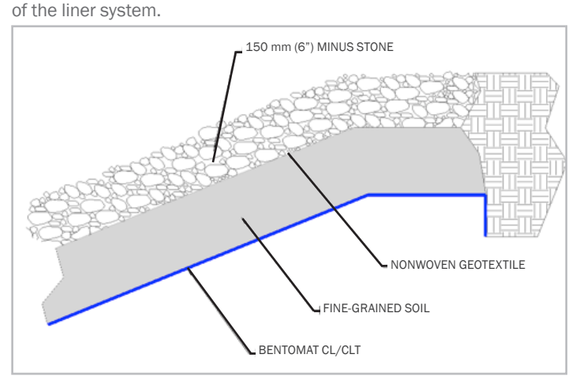

Figure 3-3. Shoreline armor system for long-term protection of liner and cover.

There are two remedies to this potential problem. First, an excess layer of cover soil may be placed on the liner system to counteract the buoyant force. Because the submerged weight of cover soil is approximately equal to the unit buoyant force of water, a general rule of thumb would be to add one foot (300 mm) of cover for every one foot of difference between the two water levels. A second, simpler remedy to prevent uplift is to never allow the water level in the pond to decrease below the seasonal high water level. While hydrostatic uplift is definitely a situation to avoid, it should not be difficult to maintain the water level difference necessary to avoid the situation altogether. Any activities requiring removal of the water should be undertaken only after it is confirmed that the groundwater level is lower than the lowest elevation of the liner system.

3.5.3 THE POND PERIMETER

The pond should have a relatively flat "bench" or very gradually sloping perimeter extending inward at least 5 feet (1.5 m) before a transition to a steeper slope. Not only does the bench allow access by wildlife and humans, it serves as a safety device by providing organisms a chance to exit the pond before encountering deep water. A well-designed bench also allows for rip rap (large stone) to be placed for protection against wave action and scouring.

Pond perimeters constructed only with a layer of cover soil are not likely to provide long-term protection of the liner. A hard armor system is recommended as shown in Figure 3-3. This cover system should be installed from the low water level all the way to the top of the pond slope. In addition to erosion/scouring protection, the stone acts as a capillary break. In arid climates, evaporative forces are strong enough to pull water into fine-grained perimeter soils, thereby increasing the evaporation area beyond the actual water area. If a stone armor system extends to shoreline as shown in Figure 3-3, this capillary action is prevented and evaporation reduced.

In some cases, it is necessary to join the liner to a concrete or stone retaining wall. The objective in this case is to ensure that the liner provides continuous protection from behind the wall and into the pond. A tie-in detail is provided in Figure 3-4. When terminating the liner into existing concrete structures, the detailing should be performed in accordance with Figure 4-9.

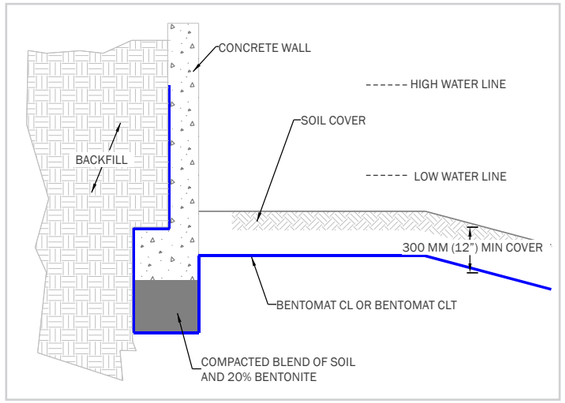

Figure 3-4. Perimeter retaining wall detail.

3.5.4 BOAT RAMPS

The vehicular loading on a boat ramp must not exceed the shear strength of the liner system. The ramp design procedure provided in Appendix D addresses this issue in greater detail.

3.5.5 VEGETATION

Depending on the design, it may be desired to establish vegetation at the perimeter of the pond and/or into the water line. In these cases, the

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depth of cover in the vegetative zone must be increased to a minimum of 2 feet (600 mm) to minimize the potential for root penetration into the liner. In any case, woody vegetation with persistent and deep root penetration should not be established in the pond. Over time, these roots may penetrate through the liner and its overlaps, contributing to increased leakage rates.

3.5.6 ROCK STRUCTURES

Rock structures are often used to enhance the natural beauty and fish habitat of a decorative pond. However, large boulders should never be placed directly on top of the liner. Not only is it likely that the liner will become torn or punctured during placement, but it's equally likely that the boulder will compress and deform the subgrade soils which will further stress the liner. Two design and installation guidelines apply when working with boulders. First, when the boulders exceed 3 feet (1 m) in diameter, it is recommended that the boulder be seated in the subgrade, with the liner cut around and sealed to the boulder. When the boulder is smaller than 1 m, it can be placed on the liner system, but only after two layers of reinforcing/cushioning geotextile are placed on the liner to protect it from damage. In this case, it should be ensured that the subgrade soils are strong enough to support the boulder without deformation. If this is not possible, geogrids or other reinforcement techniques should be used to improve the load distribution capability of the soil in the area where the boulders will be placed.

SECTION 4
LINER INSTALLATION

As discussed in Section 1, a successful pond lining project requires both a good design and a good installation. Fortunately, the forgiving nature of CETCO liner products and the active swelling and sealing properties of bentonite make it relatively easy to successfully install the liner. CETCO Geosynthetic Clay Liner (GCL) Installation Guide (TR-402) is the primary reference on installation, but this manual provides additional details for pond projects.

4.1 EQUIPMENT

CETCO BENTOMAT CL liner is heavy. The installing contractor must have the proper equipment to offload, transport, and deploy the liner. Using improper or inadequately sized equipment can cause delays, safety hazards, and damage to the liner material. Therefore, detailed equipment requirements are provided to ensure these problems are avoided. The liner is delivered in rolls weighing 2,700–2,950 lbs (1,227–1,340 kg). A strong core pipe is required to support the rolls as indicated in Table 4-1. The core pipe must not deflect more than 3 inches (75 mm) as measured from end to midpoint when a full roll is lifted.

Lifting chains or appropriately rated straps should be used in combination with a spreader bar made from an I-beam or solid steel pipe, as shown in Figure 4-1. The spreader bar ensures that lifting chains or straps do not chafe against the ends of the roll, allowing it to rotate freely during installation. Spreader bar and core pipe kits are available through CETCO.

Figure 4-1. Deploying of the liner using core pipe and spreader bar.

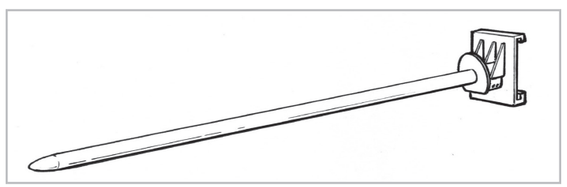

Figure 4-2. Typical stinger used for handling liner material.
The dimensions of the mounting plate are specific to the forklift used.

PRODUCT	ROLL SIZE, L X DIAM. FT. (M) X IN. (MM)	TYPICAL ROLL WT., LBS. (KG)	CORE PIPE LENGTH X DIAM., FT. X. IN. (M X MM)	MINIMUM CORE PIPE STRENGTH*
BENTOMAT CL	16' x 25" (4.9 x 635)	2,750 (1,250)	20 x 3.5 O.D. (6.1 x 88)	XXH
BENTOMAT 600CL	16' x 25" (4.9 x 635)	2,700 (1,227)	20 x 3.5 O.D. (6.1 x 88)	XXH
BENTOMAT CLT	16' x 26" (4.9 x 660)	2,950 (1340)	20 x 3.5 O.D. (6.1 x 88)	XXH

Table 4-1. Core pipe requirements for safely handling CETCO liners.
*This is the strongest pipe grade available; XXH is "extra-extra heavy."

A front end-loader, backhoe, excavator, or other equipment can be utilized with the spreader bar and core pipe. Alternatively, a forklift with a "stinger" attachment may be used for on-site handling and, in certain cases, installation. A forklift without a stinger attachment must not be used to lift or handle the rolls. A stinger attachment as shown in Figure 4-2 can be specially fabricated to fit various forklift models. Additional equipment needed for installation of CETCO pond liners includes:

- Utility knife and spare blades (for cutting the liner)
- Bentonite-water paste (for sealing around structures and details) and/or granular bentonite (for seams and for sealing around structures and details)
- Waterproof tarpaulins (for temporary cover on installed material as well as for stockpiled rolls)
- Flat-bladed vise grips (for gripping and positioning the liner panels by hand)

4.2 SHIPPING UNLOADING AND STORAGE

4.2.1 SHIPPING

To account for waste and overlaps, the area of liner ordered should exceed the lined area by approximately 15% (rounded up to the nearest roll quantity) depending on the relative complexity of the site. Two bags of accessory bentonite per roll of liner ordered is generally sufficient for overlaps, details, and penetrations. Upon receipt of the liner, all lot and roll numbers should be recorded and compared to the packing list. Each roll of liner should also be visually inspected during unloading to determine if any packaging has been damaged. Damage, whether obvious or suspected, should be recorded and marked. Major damage suspected to have occurred during transit should be reported immediately to the carrier and to CETCO. The nature of the damage should also be indicated on the bill of lading with the specific lot and roll numbers.

4.2.2 UNLOADING

The party directly responsible for unloading the liner should refer to this manual prior to shipment to ensure that they have the proper unloading and handling equipment. CETCO GCLs can be delivered in either flatbed trucks or vans. To unload the rolls from the flatbed using a core pipe and spreader bar, first insert the core pipe through the core tube. Secure the lifting chains or straps to each end of the core pipe and to the spreader bar mounted on the lifting equipment. Lift the roll straight up and make sure its weight is evenly distributed so that it does not tilt or sway when lifted. NEVER PUSH ROLLS OFF THE SIDE OF THE FLATBED TRUCK.

In some cases, rolls will be stacked in three pyramids on flatbed trucks. If slings are not used, unloading can be accomplished with a stinger bar and extendible boom fork lift such as a Caterpillar TH83 or equivalent with 8,000 lbs (45 kN) lifting capacity. Spreader bars will not work in this situation because of the limited space between the ends of the rolls. To unload liner rolls oriented in this way, guide the stinger bar as far as possible through the core tube before lifting the roll from the truck.

Rolls should be stored at the job site away from high-traffic areas but sufficiently close to the active work area to minimize handling. The designated storage area should be flat, dry and stable. Moisture protection of the liner is provided by its existing packaging; however, an additional tarpaulin or plastic sheet should be placed over the rolls for additional protection of the liner. Rolls can be stored indefinitely if these procedures are implemented. Rolls should be stored with the directional arrows oriented in the same direction to save materials handling time during installation.

The material should be stacked in a manner that prevents them from sliding or rolling. This can be accomplished by frequent chocking of the bottom layer of rolls. Rolls should be stacked no higher than the height at which they can be safely handled by laborers (typically no higher than four layers).

4.3 SUBGRADE PREPARATION

The subgrade is the foundation for the liner, and its importance cannot be overemphasized. Proper subgrade preparation will greatly improve the chances for a successful outcome. Conversely, deploying liner over

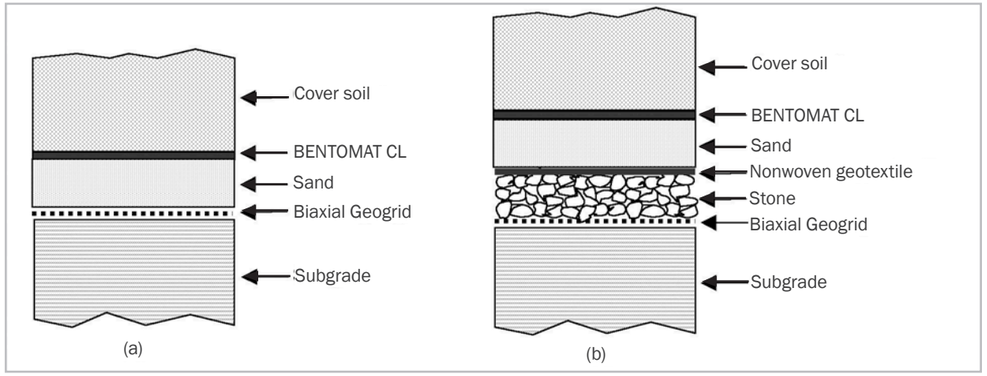

Figure 4-3. Use of geogrid and geotextile to reinforce unstable subgrade soils.

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a poor foundation can easily lead to trouble. Every attempt should be made to adhere to the following subgrade preparation procedures.

Subgrade surfaces consisting of coarse granular soils or gravel may not be acceptable due to their large void fraction puncture potential. The finished surface should be firm and unyielding, without abrupt elevation changes, voids, cracks, ice, or standing water. Additionally, the subgrade surface must be smooth and free of vegetation, sharp-edged rocks, stones, sticks, construction debris, and other foreign matter that could contact the liner. The subgrade should be rolled with a smooth-drum compactor to remove any wheel ruts, footprints, or other abrupt grade changes. All protrusions extending more than 0.5 inch (12 mm) from the subgrade surface shall be manually removed, crushed, or pushed into and flush with the surface. The liner may be installed on a frozen subgrade, but the subgrade soil in the unfrozen state should meet the above requirements.

4.3.1 UNSTABLE SUBGRADE CONDITIONS

Soft subgrade soils are often present in pond construction. It is essential that the subgrade be made firm and unyielding as described above, but in many cases the soils cannot be compacted properly. Several techniques are available to compensate for poor subgrade conditions. In moderately unstable subgrade conditions, the contractor may wish to install the liner during winter months when the subgrade is frozen. If this solution is considered, it is important to prepare the subgrade to accept the liner prior to freezing.

Another means to improve subgrade soil stability is to eliminate pore water and consolidate the subgrade soils. In this method, a biaxial geogrid is placed directly on the unstable soil. A layer of sand or similarly porous soil is placed over the geogrids. The geogrid reinforces the unstable soils and distributes the loading of equipment and the overlying drainage media. Water collected in the drainage layer can be directed to a sump. The liner can then be deployed and covered, which will cause further consolidation and stabilization of the subsoils (Figure 4-3a). The overlap should be increased to 2 feet (600 mm) in these situations.

Subgrades can also be stabilized by mixing clay or other more cohesive soil into the surface. For compatibility purposes, lime should not be used for subgrade stabilization unless the membrane side of the product is installed facing down.

If the subgrade soils are still not able to bear the load of the liner and its cover system, the design can be modified to include a higher strength biaxial geogrid and/or the incorporation of stone as shown in Figure 4-3b. Reputable manufacturers of geosynthetic reinforcement products offer design guides that assist in the identification of suitable products for this application.

4.4 LINER DEPLOYMENT

4.4.1 BASIC PLACEMENT GUIDELINES

Equipment which could damage the liner should not be allowed to travel directly on it. An ATV can be driven directly on the GCL provided that no sudden stops, starts, or turns are made. Acceptable installation may be accomplished with a liner that is unrolled in front of backwards moving equipment. If the installation equipment causes rutting of the subgrade, the subgrade must be restored to its originally accepted condition before placement continues.

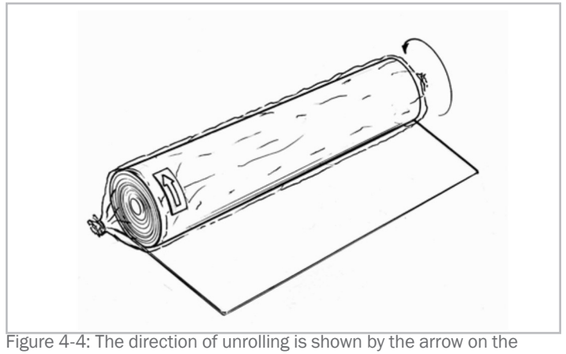

Figure 4-4: The direction of unrolling is shown by the arrow on the plastic sleeve.

If sufficient access is available, the liner may be deployed by suspending the roll at the top of the slope and by pulling the material off the roll and down the slope. Rolls should never be released on the slope and allowed to unroll freely by gravity. Care must be taken to minimize the extent to which the liner is dragged across the subgrade in order to avoid damage to its membrane surface. In cases where there is no other choice except to drag the liner, a thin smooth plastic membrane or "slip sheet" should be used as a temporary subgrade covering to reduce friction damage during placement. The slip sheet should be removed after the liner is deployed.

The liner should be placed so that seams are parallel to the direction of the slope. End-of-roll seams should be located at least 3 ft (1m) from the toe and/or crest of all slopes steeper than 4H:1V. End-of-roll overlapped seams on slopes should be used only if the liner is not expected to be in tension (see Section 2.2). All panels should lie flat on the underlying surface, with no wrinkles or folds, especially at the exposed edges of the panels.

The liner should not be installed in standing water or during rainy weather. Only as much material should be deployed as can be covered by the end of the working day with soil or a temporary waterproof tarpaulin. The liner should not be left uncovered overnight. If it is hydrated before cover is applied, the liner may become damaged. CETCO offers specific guidance on this situation as provided in CETCO's TR-312.

4.4.2 PLACEMENT STRATEGIES

Placement of the liner for most ponds should begin on the side slopes. The main reason for this recommendation is to prevent rainfall from eroding and scouring the prepared subgrade. Another benefit is that the unlined bottom area can be used to stockpile and push cover soil onto the lined slopes. A roadway or ramp area should be left unlined to allow ongoing vehicle access into and out of the pond. Depending on

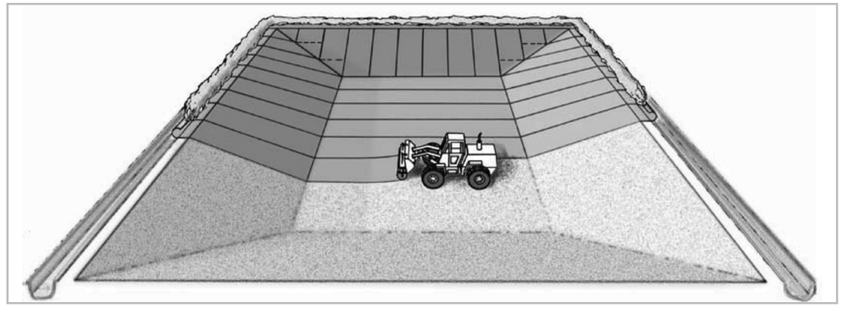

Figure 4-5. In corners, the liner should be maintained perpendicular to the slope and trimmed into a herringbone pattern.

the size of the pond, separate inbound and outbound access ramps may be used. The liner should be deployed on the entire slope extending into the bottom area by approximately 6 feet (2 m).

For corners, the liner should be placed in a "herringbone" pattern as shown in Figure 4-5. It is important that the liner remain perpendicular to the slope. Panels from both sides of the corner will converge at the corner line. The triangular end of the overlapping panel should be cut along the corner line, while the end of the underlying panel extends beyond the corner line as shown in Fig. 4-5.

After the slopes have been lined, the bottom area should be lined starting with the location farthest from the access ramp(s). Cover soils may be staged at other locations in the bottom area if space is available. The liner materials placed on the floor of the pond should be lapped under the "tails" of the liner previously deployed on the slopes, creating a shingling effect to convey rainfall off the liner system. Liner placement on the bottom areas should continue back toward the access road/ramp system, leaving it to be lined last. Covering of the slope and bottom areas should be completed before the ramp is lined.

4.5 ANCHORAGE

The liner requires anchorage at the top of the side slopes. Anchorage is most commonly accomplished using an anchor trench as discussed in Section 2.2.7. The front edge of the trench should be rounded to eliminate any sharp corners that could cause excessive stress on the liner. Loose soil should be removed or compacted into the floor of the trench. Soil backfill should be placed in the trench to provide resistance against pullout. The backfill material must be compacted using a hand tamper or a small walk-behind compactor. The size and shape of the trench should be in accordance with Figure 4-6.

The liner should be placed in the anchor trench such that it covers the entire trench floor but does not extend up the rear trench wall (to prevent water retention in the trench). For gentle slopes of 4H:1V or less, sufficient anchorage may alternately be obtained by extending the end of the liner roll back from the crest of the slope, and placing cover soil. The length of this "runout" anchor is project-specific but is usually sufficient at 5 feet (1.5 m).

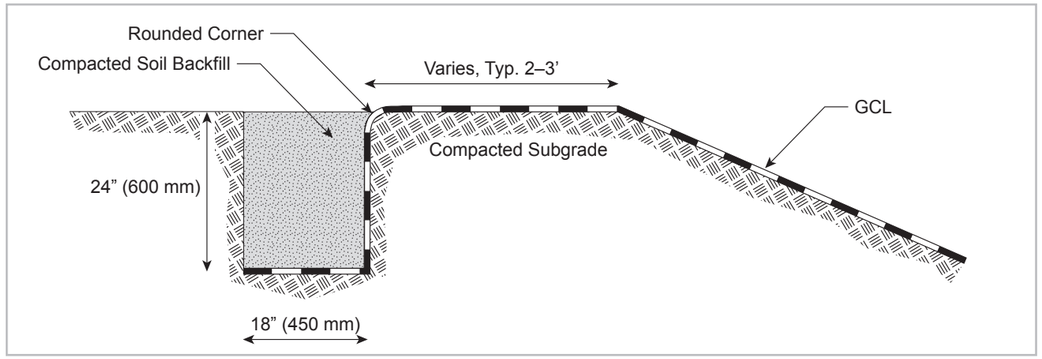

Figure 4-6. Typical anchor trench at top of slope.

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4.6 SEAMING

Seams are constructed by overlapping their adjacent edges. Each longitudinal edge of the rolls is marked at the factory with a "lap line" at 12 inches (300 mm) from the edge of the panel and a "match line" at 15 inches (375 mm) from the edge of the panel. The objective in seaming these edges is to place the overlying panel such that the lap line is completely covered (ensuring that a minimum required overlap is achieved) while allowing the match line to remain visible (ensuring that liner material is not wasted). Greater panel overlaps may be required in high-head applications or in yielding subgrade soils.

Before completing the seam, care should be taken to ensure that the overlap is not contaminated with loose soil or other debris. After the panels have been placed, the overlap should then be turned back so that supplemental bentonite (VOLCLAY® CG-50 provided by CETCO) can be distributed within the overlap zone at a rate of one quarter pound per linear foot (0.4 kg/m). The location of this "bead" or "fillet" of bentonite should be at 6 inches (150 mm) inward from the edge of the bottom panel.

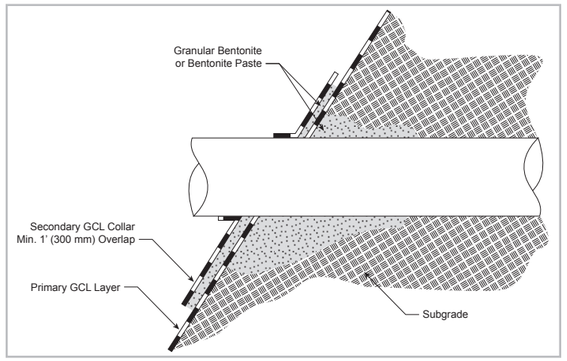
End-of-panel overlapped seams should be similarly constructed, except the overlap dimension is increased to 24 inches (600 mm). End-of-panel seams on slopes are permissible, but only if the slope steepness is 4H:1V or less. Overlaps should be shingled such that water flows across, and not into, the overlap zone. This is especially important in any application where water will be actively flowing, such as streams and canals.

4.7 SEALING AROUND PENETRATIONS AND STRUCTURES

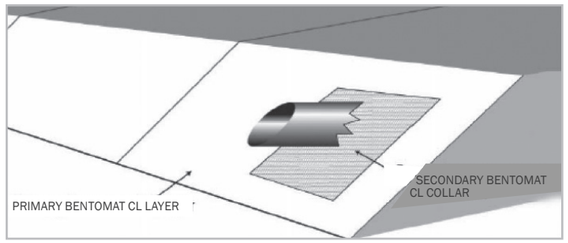
Cutting the liner should be performed using a sharp utility knife. Frequent blade changes are recommended to avoid irregular tearing of the geotextile components of the liner during the cutting process. The liner should be sealed around penetrations and structures embedded in the subgrade in accordance with Figures 4-7 and 4-8. Granular bentonite or a bentonite mastic shall be used liberally (approx. 2 lb/lin ft or 3 kg/m) to seal the liner to these structures.

When the liner is placed over a horizontal pipe penetration, a notch should be excavated into the subgrade around the penetration (Figure 4-7a). The notch should then be backfilled with bentonite paste. A secondary liner collar should be placed around the penetration as shown in Figure 4-7b. It is helpful to first trace an outline of the penetration on the liner and then cut a starburst pattern in the collar to improve its fit around the penetration. Bentonite paste should be applied between the primary BENTOMAT CL layer and the secondary liner collar.

As discussed previously, vertical penetrations are not generally recommended because of their tendency to induce leak problems. However, if a vertical penetration is needed, it should be prepared by notching into the subgrade as shown in Figure 4-8. A secondary collar can be placed as shown in Figure 4-7.



4.7 (a)



4.7 (b)

Figure 4-7. Horizontal pipe penetrations are potential leakage zones and must be detailed properly. These diagrams show the proper installation procedures.

When the liner is terminated at a structure or wall that is embedded into the subgrade on the floor of the containment area, the subgrade should be notched shown in Figure 4-9. The notch is filled with granular bentonite, and the liner should be placed over the notch and up against the structure. The connection to the structure can be accomplished by placement of soil or stone backfill in this area. When structures or walls are on or at the top of a slope, additional detailing may be required as shown in Figure 3-4.

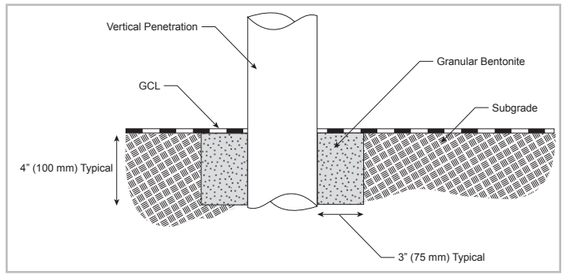


Figure 4-8. Detailing around a vertical penetration.

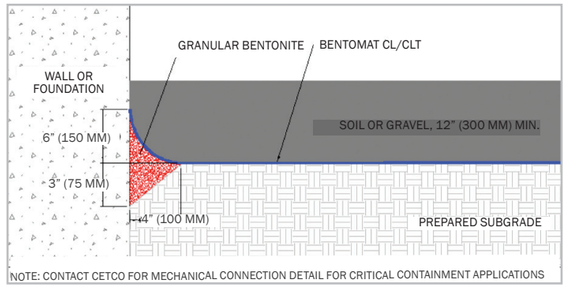


Figure 4-9. Termination of the liner at a structure embedded in the subgrade.

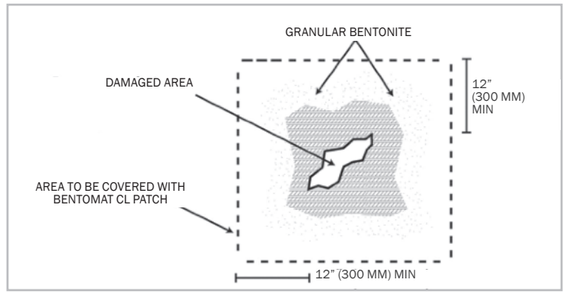


Figure 4-10. Damage repair through patching.

4.8 DAMAGE REPAIR

If the liner is damaged (torn, punctured, etc.) during installation, it may be possible to repair it by placing a patch to fit over the damaged area (Figure 4-10). The patch should be cut to size such that a minimum overlap of 12 inches (300 mm) is achieved around all parts of the damaged area. Granular bentonite or bentonite mastic should be applied around the damaged area prior to placement of the patch. It may be necessary to use an adhesive such as wood glue or liquid nails to affix the patch in place so that it is not displaced during cover placement. Smaller patches also may be tucked under the damaged area to prevent patch movement.

4.9 COVERING THE LINER

All pond projects require that the liner be covered with a layer of soil and/or stone. The cover serves several vital functions in the pond system. Specifically, it:

- Confines the liner and prevents free swell of the bentonite, allowing the bentonite layer to function effectively as a water barrier and to prevent flow within the overlapped seams.
- Protects the liner from damage by humans, animals, plants. Also protects against damage by ultraviolet light, erosional forces, and extreme weather conditions.
- Beautifies the pond by giving the liner system a natural appearance.

In general, the deeper or thicker the cover layer, the better the long-term hydraulic performance of the liner system. But it is seldom cost-effective or practical to install thick cover soil layers.

4.9.1 COVER THICKNESS

The minimum recommended thickness of cover soil on the liner is 12 inches or 300 mm. This recommendation is based on the following:

1. The confining stress provided by 300 mm of soil is adequate to keep the overlaps closed and to prevent lateral seam leakage. The flux test data provided in Appendix A verifies the adequacy of this thickness of cover soil.
2. A soil layer of 300 mm is sufficient to distribute loads from typical earthmoving equipment which would otherwise damage the liner. Fox, et. al. (1998) performed a comprehensive study examining many different cover materials, thicknesses, and placement methods. The most important result of the study was that, when adequate cover thickness was in place, equipment had little influence on the physical integrity and performance of the liner.
3. It is very difficult to install thinner layers of soil on a liner without damaging it.

Some projects may require more cover material when disruptive forces such as scouring or wave action are considered. In these projects, up to 2 feet (600 mm) of cover may be necessary. Fine-grained soil would be placed directly on BENTOMAT CL, followed by a cushioning geotextile and a layer of angular stone (Figure 3-3).

4.9.2 COVER PLACEMENT

Equipment operators should understand that the liner must be protected. They must not allow soil or stone to fall a long distance when a loader bucket is emptied. They must not drive directly on the liner unless it is proven that the vehicle in question can do so without damaging the liner. As a general rule, tracked equipment should not be permitted to come in direct contact with the liner. Rubber-tired equipment is usually acceptable, assuming a firm foundation has been established.

Cover placement activities typically involve one piece of equipment dumping the cover in a pile near the site, and one piece of equipment spreading the cover. These activities should be coordinated such that the placement effort does not outpace the covering effort. At the end of the working day, the exposed liner should be completely covered with the exception of a leading edge where the next day's liner installation will overlap. This will ensure that the liner will not be accidentally damaged and displaced by equipment or other forces. The leading edge of the liner should be protected from damage by rolling it under itself. If the leading edge is at the base of a slope to be covered, plywood sheets will afford protection while allowing access by cover placement equipment.

Cover for the liner should be placed at the bottom of the excavation so that it can be pushed upslope. Although it may be more convenient to dump cover soil at the top of the pond and push it downslope, enormous tensile stresses can occur on the liner from the thick cover layer resting (without a toe buttress) on the slope and from the weight of the

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equipment pushing on it. By staging liner deployment such that one or more access ramps are left unlined until the end of the project, the cover soil can be efficiently delivered to the bottom of the pond without damaging the liner system or causing undue expense. It is important to include this provision in the project specifications so that contractors can plan for this covering methodology.

4.9.3 COVER TYPE

The cover on the liner must not contain large and/or angular stones capable of damaging the liner. Cover soils should have a particle size ranging from fine to < 1 inch (25 mm) in diameter, unless a cushioning geotextile is placed on the liner. Common sense should play a primary role in assessing the suitability of the cover. If there are many sharp stones visible in the proposed cover soil, then it probably is not an appropriate material. Stone may be used as cover only if it is a washed gravel or similarly graded materials that does not possess sharp edges. The cover should also be compactable. Non-cohesive soil (pure sand) and fat clay may not be suitable if the soil cannot be placed and trafficked by equipment without rutting. Therefore, dry soils should be wetted to improve workability and compaction, and especially wet soils may require additional time to dry out before being placed over the GCL.

4.10 COVER SOIL/STONE STABILITY

The liquid containment system must be designed to provide long-term performance under all expected operating conditions. Fundamental to this objective is the integrity and stability of the cover soil. BENTOMAT CL needs the confinement provided by cover soil so that the overlaps will self-seal and the bentonite is not permitted to reach free-swell conditions. Failure to provide and maintain these conditions could result in failure of the liner system. In other words, when confinement is provided through an initial application of cover, that cover must not be compromised.

4.10.1 EROSION PREVENTION

Erosion occurs as a result of a driving force of rapidly moving water which overcomes the gravitational and cohesive resisting forces of a cover soil. In pond applications, rapidly moving water can be caused by drainage of a sloped area or by shoreline wave impact. Erosion can be prevented in two ways. The first and most cost-effective preventative strategy is to utilize sensible design practices:

- Use moderate slopes. Water velocity can be reduced if grades are as gentle as possible.
- Use erosion-control materials. Mulch and hay bales represent the crudest form of erosion control products, but there are a variety of cost-effective natural fiber and synthetic products that offer superior performance over a longer term.
- Limit slope lengths. A long slope will allow water velocity to reach critical levels. Shorter slopes and mid-slope diversion swales will alleviate this problem.
- Use energy diffusion devices. Inflow and outflow areas within a pond may be subjected to scouring by rapidly moving water. Water velocities can be reduced in these areas by erecting baffles, deploying large stones, or installing other energy-diffusion structures.

4.10.2 ALTERNATIVE COVER MATERIALS

Interior sideslopes of ponds may be exposed to wave action, animal contact, fluctuating water levels, and equipment loadings such as mowers or other vehicles. All of these elements can contribute to erosion, and for this reason, alternative cover materials may be required. The use of concrete, rip rap, or protective geotextiles are all valid means by which slopes may be preserved. More detail on these techniques is provided in Section 3.

4.11 WEATHER

The bentonite component of BENTOMAT CL will absorb water in wet conditions. As a result, the liner becomes heavier and more difficult to move. It also becomes softer and more susceptible to damage by installation equipment or by stones in the cover soil. For these reasons, extra care should be taken when the product is installed in wet weather. Ideally, BENTOMAT CL should be installed and covered with at least 1 foot of cover soil as soon as possible and before a rain event. In most instances, early hydration of BENTOMAT CL products is not a major concern. CETCO's TR-312 provides a checklist (summarized in Appendix F) to reference to evaluate premature hydration on a site-specific basis. BENTOMAT CL is not affected by warm or cold temperatures and there are no restrictions or limitations relating to ambient temperatures, again provided that the subgrade can be properly prepared.

Wind uplift during installation is possible, although rare, with BENTOMAT CL. Very high winds may be able to displace the liner, so some form of ballast should be used if these conditions are present. Sandbags are commonly used for this purpose. Due to the self-weight of BENTOMAT CL, wind uplift is not encountered frequently.

4.12 CONSTRUCTION QUALITY ASSURANCE (CQA)

Construction Quality Assurance refers to a set of procedures performed during the project to ensure that the liner is placed and covered in accordance with the instructions provided herein. In critical projects, a CQA plan is developed and implemented by a third party who may provide inspections, tests, and measurements to confirm proper installation. In most pond projects, this added level of oversight may not be necessary or desirable. However, some CQA concepts are useful to employ even in the absence of a dedicated CQA plan.

The most important CQA procedures are those which can prevent damage to the liner. Prior to installation, the subgrade should be inspected for soft spots, protrusions, and uneven surfaces (such as ruts). These areas should be repaired before the liner is deployed. Prior to covering, the liner itself should also be inspected to ensure that it has not been damaged, the overlaps are adequate, and that the details and penetrations have been properly constructed. Finally, the covering process should be monitored to ensure that the liner is not damaged by equipment or rocks in the cover soil. Periodic thickness measurements should also be taken. If CQA oversight functions are performed as described above, there is a far greater chance that problems will be prevented. The owner of the pond should make sure that a record of CQA activities and inspections is created as part of the contract documents. CQA services are typically provided by a third-party company.

The purpose of this manual is to illustrate sound design and construction practices needed to ensure long-term performance of the liner system. Ideally, a properly designed and constructed pond liner system will require very little maintenance. But water can be a very destructive force, and so it is worthwhile to discuss the procedures needed to maintain the original condition and function of the liner.

SECTION 5
OPERATION AND MAINTENANCE

5.1 INITIAL FILLING

The pond is most vulnerable to erosion and scouring damage immediately after its construction. Heavy rainfall and over-aggressive filling procedures can wash soil cover off the slopes and even displace the liner altogether. Special care must be taken at this critical time in order to protect the integrity of the completed construction.

Filling of the pond may occur through natural precipitation, run-on, or through adding water. Whatever means are selected to introduce water to the pond, it is essential to eliminate turbulent flow conditions which can scour and erode the cover soil. The less cohesive the cover soil, the more prone it will be to washout. Heavy rains immediately after construction are a worst-case scenario because erosion rills and gullies can form, especially on the side slopes. This is another reason why hard armor on the side slopes is beneficial. If such a rain event occurs, eroded soils must be replaced and recompacted to a minimum depth of 12 inches (300 mm) and a preferred depth of 18 inches (450 mm). When adding water through a hose, the velocity of the water from the nozzle will cause similar erosion problems. An apron of rock should be placed around the nozzle to dissipate this destructive force. For ponds that will fill by run-on from a stream entering the pond, this entry area should be protected with rock as well. As a general rule, the velocity of any water entering the pond should be kept as low as possible until the pond is filled to its design depth.

Prior to filling the pond with water, all piping servicing the pond should be pressure-tested for leaks at joints and valves. This is a critical step in eliminating a potential source of water loss that could be incorrectly interpreted as pond leakage at a later time.

5.2 SLUDGE AND SEDIMENT REMOVAL

As discussed in Section 3, in certain applications such as sedimentation basins and sludge lagoons, it may be necessary to periodically remove the water and excavate the accumulated solids on the bottom of the lagoon. In such cases, the removal should be performed using methods and equipment that will not damage the liner.

There is little doubt that concrete provides the best surface for periodic removal operations. It protects the liner, distributes vehicle loads, and ensures that a certain minimum distance will always be maintained between the equipment and surface of the liner. While similar benefits exist with a stone layer, it is more vulnerable to accidental excavation. Equipment loading on the liner system must be evaluated both on flat interior areas of the lagoon as well as slopes. Dedicated ramp areas designed into the lagoon (Appendix D) will help prevent the possibility that heavy vehicle loads will be imposed on other side slopes that are not adequately reinforced.

5.3 PERFORMANCE MONITORING

It is difficult to quantitatively monitor the performance of the liner system. To estimate the liner seepage rate in an existing lagoon, a water balance must be performed which considers sources of inflow and outflow as shown below:

SOURCES OF INFLOW	SOURCES OF OUTFLOW
Streams = S	Liner leakage = L
Precipitation = P	Evaporation = E
Run-on = R	Overflow = O

The change in water level (ΔD) is therefore the difference between the sum of the outflow sources and the sum of the inflow sources. If ΔD is positive, the water level is rising; if ΔD is negative, the water level is dropping. In a situation where the amount of leakage is suspected to be excessive, it is useful to perform a water balance calculation as a means to assess the problem.

To measure water loss, a measuring stick should be placed in the water column, far enough from shore to minimize the effects of wave action. An initial reading should be made at time zero, with subsequent readings made once each day. If water loss is not accurately recordable in one day, then allow several days to elapse before taking the next measurement, and obtain a value for ΔD by dividing the total observed water loss by the number of days in the observation period. If there is precipitation during this time, a rain gage should be used and these values recorded also. With this data, a water balance calculation can be performed to determine whether the liner is performing adequately. Example: A famer suspects that his BENTOMAT CL-lined 2.5 acre (1 Ha) irrigation pond is leaking excessively. He measures a water level decrease of 0.75 inches (19 mm) over 5 days. During this observation period there was a 1-inch (25 mm) rainfall. The water level has already dropped below the outflow spillway. The pond has no inflow spillway and there has been no run-on. The average temperature during this time was 80° F (26.7° C); the average relative humidity was 58%, and the average wind speed was approximately 8 mph (14 Km/h). Is the liner leakage rate within accepted standards?

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ANSWER:

$\Delta D = \Sigma Inflow - \Sigma Outflow$
$\Delta D = (S + P + R) - (L + E + O)$, (Equation 5-1) where:
$\Delta D = -19$ mm/5 days = –3.8 mm/day
S = 0 because there is no inflow source
P = 25 mm/5 days = 5 mm/day
R = 0
L = liner leakage, the unknown variable
E = 6.7 mm/day as indicated by the evaporation nomograph in Appendix B
O = 0 because the water level is below the outflow pipe

Inserting the variables into Equation 5-1 and solving for the liner leakage rate, we obtain:

$\Delta D = (S + P + R) - (L + E + O)$
$-3.8 = (0 + 5 + 0) - (L + 6.7 + 0)$
$-3.8 = 5 - L - 6.7$
$L = 3.8 - 1.7 = 2.1$ mm/day

Comparing this value for L to the net leakage of 0.036 mm/day calculated in Section 2.3.7, we can see that the pond is leaking more than would be expected based on the properties of the liner system. However, it is important to note that evaporation, not leakage, is the largest source of water loss in this example. Performing this calculation is useful if for no other reason than to understand this point.

Appendix B, which contains the nomograph used in this example, also contains a map of the United States showing seasonal "pan" evaporation rates. These rates were obtained from averaging seasonal evaporative losses from small pools of water in various parts of the country during the so-called "evaporative season" of May through October. Because pan evaporation tends to overestimate actual evaporation, these rates are multiplied by a correction factor of 0.7. Returning to Example 1, if the pond in question were located in New York City, a seasonal evaporation rate of 40 inches per 6 months or 5.6 mm/day is predicted. The actual pond evaporation would therefore be 5.6 x 0.7 = 4 mm/day. This is an average rate, and it should be realized that actual rates for smaller time increments can be significantly higher or lower.

5.4 INSPECTIONS

All lined ponds should be inspected on a quarterly basis (at minimum), in addition to after a significant rain or snow event. With respect to the integrity of the liner system, the inspections should include observation of the following:

- Depth and uniformity of cover layers
- Integrity of hard armor system at shoreline
- Presence of deep-rooted vegetation in the cover soil
- Signs of burrowing animals
- Signs of settlement or erosion around weirs, spillways, inlet/outlet pipes
- Current water level in relation to design water level

If the inspection reveals any problems, corrective action should be taken as soon as possible. Especially critical is the need to maintain cover over the liner system. Immediate repairs must be performed if the cover soil/stone is washed away and the liner is exposed. Records should be kept of inspections and any required maintenance.

5.5 ADDRESSING LEAKS

If inspections and water balance calculations reveal that unacceptable leakage is occurring, then the following guidelines may be helpful in identifying the source of the problem. If leaks occur immediately upon the initial filling with water, then it is quite likely that there has been an installation-related flaw in the pond. The steady-state water level may, in fact, indicate the location of the leak. In any case, special attention should be focused on all details and terminations. These areas are the most difficult to construct and are therefore the most likely sources of leakage.

If significant leakage does not occur immediately, but does occur within one month of filling the newly constructed pond, then it is likely that water has worked its way into another construction/installation related flaw. The same areas mentioned above should be carefully inspected and repaired as needed.

Finally, if major leakage occurs in the long-term after many months or years of negligible leakage, it is likely that the problem is attributable to longer-term forces such as burrowing animals, root intrusion, or subgrade stability problems. Repairs on these problems are site-specific.

REFERENCES

Alther, G., Evans, J.C., Fang,H.-Y., and K. Witmer, (1985) "Influence of Inorganic Permeants Upon the Permeability of Bentonite," Hydraulic Barriers in Soil and Rock, ASTM STP 874, A.I. Johnson, R.K. Frobel, N.J. Cavalli, C.B. Peterson, Eds., American Society for Testing and Materials, Philadelphia, PA, pp. 64–73.

Bierwirth, J.E. and Richardson, G.N. (2003) "Surface Impoundment Rehabilitation," Geotechnical Fabrics Report, Vol. 21, No.3, pp. 18–20..

Farnsworth, Richard K., Edwin S. Thompson, and Eugene L. Peck (1982) After Map 1: May-October Pan Evaporation. In NOAA Technical Report NWS 33, Evaporation Atlas for the Contiguous 48 United States, National Weather Service, NOAA, Washington, D.C., 1982.

Fox, P.J., Triplett, E.J., Kim, R.H., and J.T. Olsta (1998) "Field Study of Installation Damage for Geosynthetic Clay Liners, Geosynthetics International, Vol. 5, No. 5, pp. 491–520.

Giroud, J.P., and J.F. Beech (1989) "Stability of Soil Layers on Geosynthetic Lining Systems," Geosynthetics '89, Industrial Fabrics Association International, pp. 35–46.

Giroud, J.P. and K. Badu-Tweneboah, (1990) "Rate of Leakage Through a Composite Liner Due to Geomembrane Defects, Geotextiles and Geomembranes, Elsevier Science Publishers, Ltd., England.

Giroud, J.P., (1997) "Equations for Calculating the Rate of Liquid Migration Through Composite Liners Due to Geomembrane Defects," Geosynthetics International, Volume 4, Nos. 3–4, pp. 335–348.

Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (1997), "Recommended Standards for Wastewater Facilities," Health Research, Inc., Albany, NY, Ch. 90.

Koerner, R. (1994) Designing With Geosynthetics, Third Ed., Prentice Hall, Upper Saddle River, NJ, pp. 486–492. Koerner, R.M., (1996) "Current Status of the Cincinnati GCL Test Plots," Proceedings of the 10th GRI Conference, Field Performance of Geosynthetic Related Systems, December 10–11, 1996, Philadelphia, PA, pp. 147–175. Matson, Tim (1991) Earth Ponds, Countryman Press, Woodstock, Vermont.

Koerner, R. and Soong, T.-Y. (2005) "Analysis and design of veneer cover soils," Conference proceedings, Geosynthetics International, 2005, 12, No. 1.

McKelvey, J.A, and Deutsch, W.L. (1991) "The Effect of Equipment Loading and Tapered Cover Soil Layers on Geosynthetic Lined Landfill Slopes," Conference Proceedings, Fourteenth Annual Madison Waste Conference, University of Wisconsin-Madison, September 25–26, 1991.

Richardson, G.N. (2002) "Surface Impoundment Design Goals," Geotechnical Fabrics Report, Vol. 20, No.3, pp. 16–17. Richardson, G.N. (2000) "Non-Environmental Surface (Liquid) Impoundments," Geotechnical Fabrics Report, Vol. 20, No.3, pp. 26–29.

SGI (2001) Final Report, Large-Scale Flow Testing, Seamed and Unseamed BENTOMAT CL GCL, SGI Report No. SGI1029, 3 August 2001, Unpublished.

Trauger, R.J. and J. Burgio (1994) "Geosynthetics Solve Wetlands Mitigation Problems." Geotechnical Fabrics Report, Vol. 12, No. 6, August 1994, pp. 16–21.

Trauger, R., Swan, R.H., and X. Yuan, (1996), "Long-Term Internal Shear Strength of a Needlepunched Geosynthetic Clay Liner," Testing and Acceptance Criteria for Geosynthetic Clay Liners, ASTM STP 1308, Larry W. Well, Ed., American Society for Testing and Materials, Philadelphia, 1996, pp. 103–120.

United States Department of Agriculture, Natural Resources Conservation Service (USD-NRCS) (1997) Part 651, Agricultural Waste Management Field Handbook, Appendix 10D.

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APPENDIX A
ESTIMATING THE EFFECTS OF PREFERENTIAL SEAM FLOW ON LINER SYSTEM PERFORMANCE

TEST METHOD AND THEORY

As shown in Figure A-1, flux testing was performed on unseamed and seamed samples of BENTOMAT CL (SGI, 2001). For each test, the flow rate was monitored over time for several applied hydrostatic pressures. The measured quantity of flow over a specific time interval was then used to calculate the unit flow rate. The unit flow rate is defined as the total measured inflow divided by the product of the liner area and the testing time, as shown in the following equation:

$$q = Q_t / (A_t \cdot \Delta t), \text{ where:} \qquad \text{(Equation A-1)}$$

q = unit flow through the entire seamed or unseamed liner specimen
Q_t = total measured flow
A_t = area of the entire seamed or unseamed liner specimen
Δt = time interval during which the total flow is measured

When the unit flow rate for the seamed test is subtracted from the unit flow rate for the unseamed test, the resulting value is the amount of flow through the seam, or the preferential flow rate. However, this seamed flow rate does not directly correlate with field behavior because there is much more seam length per unit liner area in the test chamber than actually occurs in the field. Therefore a seam correction factor must be applied.

From Figure A-2, it is calculated that there are 3.42 m of seam/sqm of liner area in the test apparatus. From Figure A-3, it is calculated that there are only 0.2483 m of seam/sqm of liner deployed in the field. Therefore, the calculated value of seam flow from the lab testing overstates the actual field seam flow by a factor of 3.42/0.2483 = 13.7. This correction factor is applied to the test results as explained below.

TEST RESULTS

Comparative testing between seamed and unseamed BENTOMAT CL samples was performed at three different hydraulic pressures: 30, 60, and 90 psi (207, 413, and 620 kPa). Table A-1 summarizes the results and calculates the seam flow by subtraction. The seam correction factor was then applied to the data in order to calculate the expected seam flow per unit area of full-size BENTOMAT CL panels deployed in the field (column 6).

By adding the unseamed flow results (column 1) to the corrected seam flow (column 6), the resulting value is the total amount of leakage expected in a field deployment of BENTOMAT CL. These values are presented in Table A-2. The value of 4.05×10^{-10} $m^3/m^2/s$ is used for design purposes in Section 2.3 of this manual.

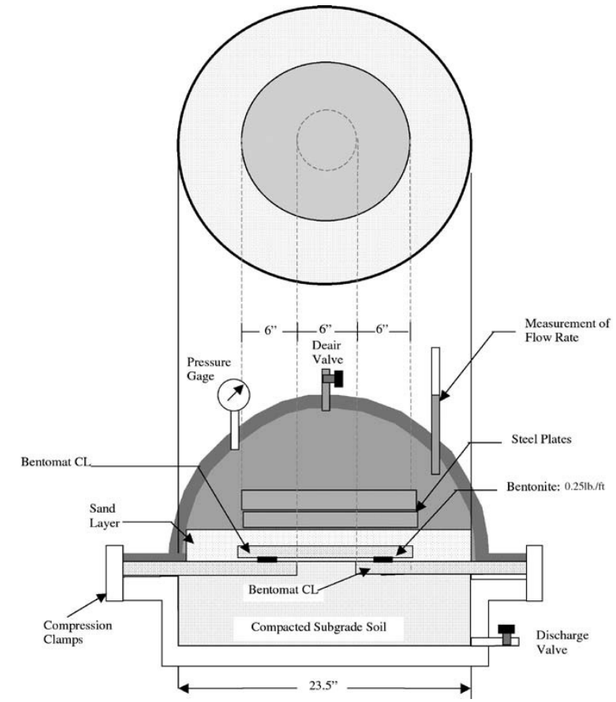

Figure A-1. Schematic diagram of testing apparatus used to determine overlapped seam flow through BENTOMAT CL. Figure

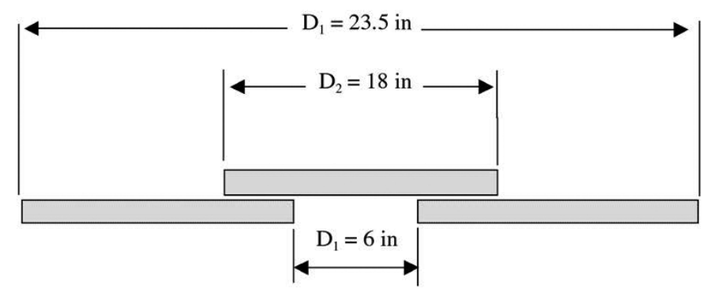

Figure A-2. Calculation of seam coverage factor in test apparatus.

$A_{total} = \pi D^2 / 4 = (3.14)(23.5^2) / 4 = 433.5^2$ in = 0.28 m²
Length of seam = $\pi (D_1 + D_2) / 2$ = 37.68 in = 0.957 m
Seam Coverage Factor (C_s) = 0.957 m / 0.28 m² = 3.42 m/m²

There are 3.42 m of seam per m² of liner in the testing apparatus.

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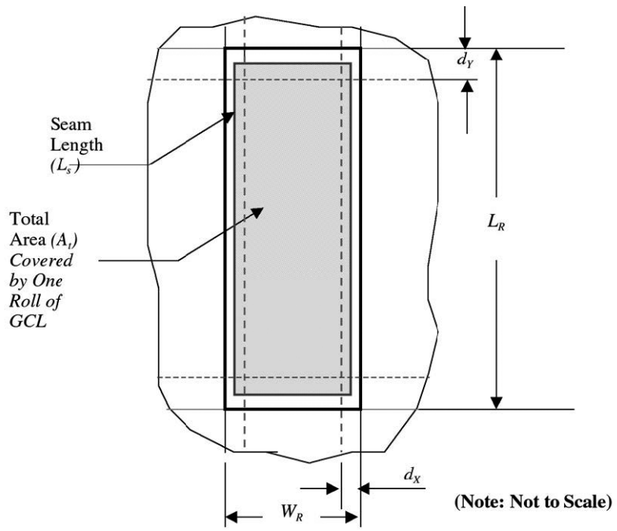

Figure A-3. Calculation of seam coverage factor for multiple rolls of BENTOMAT CL deployed in a large area.

The total area At covered by one roll of BENTOMAT CL is:

$$A_t = (W_R - d_X)(L_R - d_Y)$$

where:
W_R and L_R = GCL roll width and length, respectively, and
d_X and d_Y = overlap at the roll edge and end, respectively.

The total seam length Ls (i.e., perimeter around the unseamed area) is:

$$L_s = 2(W_R - d_X) + 2(L_R - d_Y)$$

In the field, with multiple rolls laid adjacent to each other, only half of the perimeter of any one roll is actually seamed. The actual seam coverage C_S can be expressed as:

$$C_s = [(W_R - d_X) + (L_R - d_Y)])/[(W_R - d_X)(L_R - d_Y)]$$

The preceding equation is now used to determine the seam coverage factor for BENTOMAT CL rolls that are 45.7 m (150 ft) long and 4.57 m (15 ft) wide. We will assume that the overlap is 150 mm (0.5 ft) on the longitudinal edges and 300 mm (1 ft) on the ends of the rolls. Thus,

$W_R = 4.57$
$L_R = 45.7$
$d_X = 0.15$
$d_Y = 0.3$
$C_s = [(4.57 - 0.15) + (45.7 - 0.3)])/[(4.57 - 0.15)(45.7 - 0.3)]$

$C_s = 0.2483\ m/m^2$

There are 0.2483 m of seam per m^2 of liner in a typical field application.

1 HYDRAULIC PRESSURE (PSI/FT HEAD)	2 UNSEAMED FLOW ($M^3/M^2/S$)	3 SEAMED FLOW ($M^3/M^2/S$)	4 FLOW DIFFERENCE ($M^3/M^2/S$)	5 SEAM CORRECTION FACTOR	6 FIELD SEAM FLOW ($M^3/M^2/S$)
10 / 23	Not tested	1.77×10^{-11}	N/A	N/A	N/A
20 / 46	Not tested	3.37×10^{-10}	N/A	N/A	N/A
30 / 69	1.71×10^{-10}	3.37×10^{-9}	3.20×10^{-9}	13.7	2.34×10^{-10}
60 /138	5.91×10^{-10}	1.56×10^{-9}	9.69×10^{-9}	13.7	7.07×10^{-10}
90 / 128	6.95×10^{-10}	3.18×10^{-9}	2.49×10^{-9}	13.7	1.81×10^{-10}

Table A-1. Summary of laboratory testing of seamed and unseamed BENTOMAT CL, with the seam correction factor used to calculate net seam flow.

HYDRAULIC PRESSURE (PSI/FT HEAD)	UNSEAMED FLOW ($M^3/M^2/S$)	FIELD SEAM FLOW ($M^3/M^2/S$)	TOTAL FLOW ($M^3/M^2/S$)
10 / 23	Not tested	N/A	N/A
20 / 46	Not tested	N/A	N/A
30 / 69	1.71×10^{-10}	2.34×10^{-10}	4.05×10^{-10}
60 / 138	5.91×10^{-10}	7.07×10^{-10}	1.29×10^{-9}
90 / 208	6.95×10^{-10}	1.81×10^{-10}	8.76×10^{-10}

Table A-2. Summing the unseamed flow rate and seam flow rate to obtain a total flow rate expected for a seamed system of BENTOMAT CL deployed in the field.

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APPENDIX B
EVAPORATION NOMOGRAPH

EVAPORATION

Data on evaporation from lakes and reservoirs are not extensive. But there are formulas by which it may be computed. One of these: by Fizgerald, has the form, E_n=(S–F)(1+V/2)/60: where E_n = evaporation rate, in./hr.; S = vapor pressure of water at water temperature, in. Hg; F = vapor pressure existing in the air; and v = wind velocity, mph. Wind velocities are at the water surface and may be taken at one-half those recorded at an elevated station such as the Weather Bureau stations. For larger reservoirs, however. Weather Bureau values give results in close agreement with direct measurements.

An alternative and substantially equivalent formula is given by Fitzgerald in more usable terms. Somewhat simplified and transformed: it is: E_n=0.0002 (T_n–T_{wb})(1+v/2): where T_n and T_{wb} are the air temperature and wet-bulb temperature, respectively. The monogram is based on the second formula. It includes the relative humidity for convenience.

EXAMPLE

Assume the "normal" or long-term monthly temperature, relative humidity, and wind velocity for a certain location are 80°F., 58%, and 8 mph; what is the "normal" wet-bulb temperature, and what is the evaporation rate per hour and per month of 31 days?

SOLUTION

Step 1. Line 80°F. on T_a scale with 58% on R scale, extend to Pivot line and mark. Also read wet-bulb temperature as 69°F where line crossed T_{wb} scale. Step 2, from marked position Pivot line, connect with 8 mph on V scale, extend to E_n scale, and read evaporation rate as 0.011 in./hr. The evaporation rate per month = 0.011 x 24 x 31 = 8.184 in.

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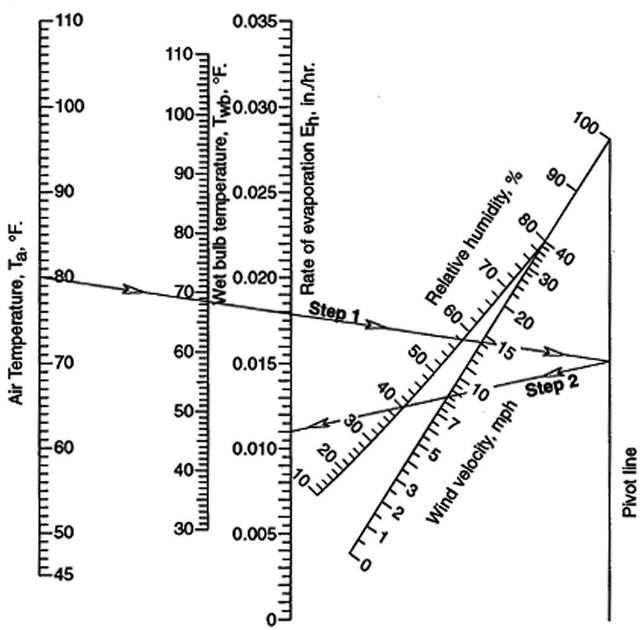
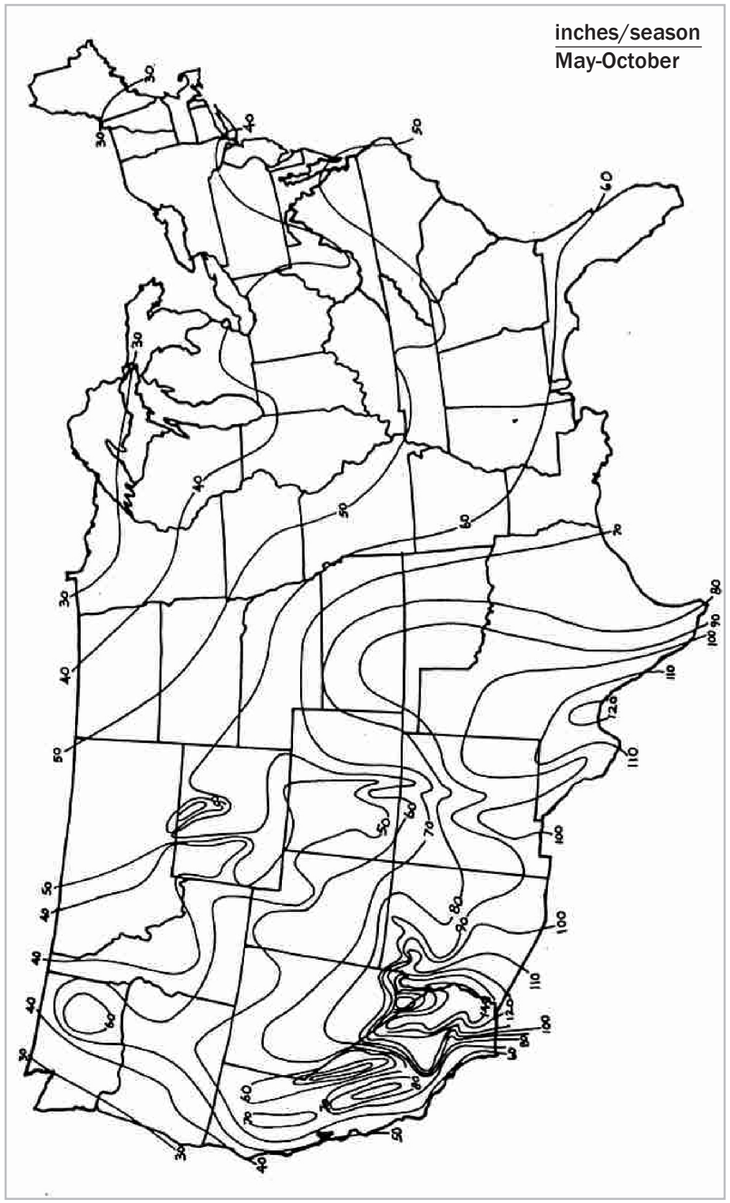


PAN EVAPORATION RATES FOR THE UNITED STATES

(Farnsworth, et. al. 1982)



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APPENDIX C
EXAMPLE CALCULATION FOR SLOPE STABILITY

This procedure demonstrates how a mathematical model can be used to assess slope stability for an BENTOMAT CL-lined pond in cases where a simple sliding block analysis is inconclusive. It is not intended to derive or explain the model. Readers are referred to the full text of the source paper for detailed explanations.

The Giroud and Beech stability calculation differs from the simplified "sliding block" model presented in Section 2.2, because it includes consideration of toe buttressing and liner anchorage, both of which contribute to stability. The method does not include pore water (seepage) forces, which can contribute to instability. In a water containment application, seepage forces can occur during rapid drawdown of the water such as might occur in a fire pond application. In ordinary use, however, rapid drawdown is not likely and is not considered herein

Slope Stability Equation from Giroud and Beech

$$\alpha = \frac{\gamma_c T_c^2}{\sin 2\beta}\left[\left(\frac{2H\cos\beta}{T_c}-1\right)\left(\frac{\sin(\beta-\phi_i)}{\cos\phi_i}\right)-\left(\frac{\sin\phi_c}{\cos(\beta+\phi_c)}\right)\right]$$

Where:

α = Liner tension per unit width
= Unit weight of cover material
T_c = Thickness of cover material
β = Slope angle, degrees
H = Slope height
ϕ_i = Minimum interface friction angle, degrees
ϕ_c = Internal friction angle of cover material, degrees

And:

$$\tan\phi_m = \frac{\tan\phi_{ic}}{FS}$$

Where:

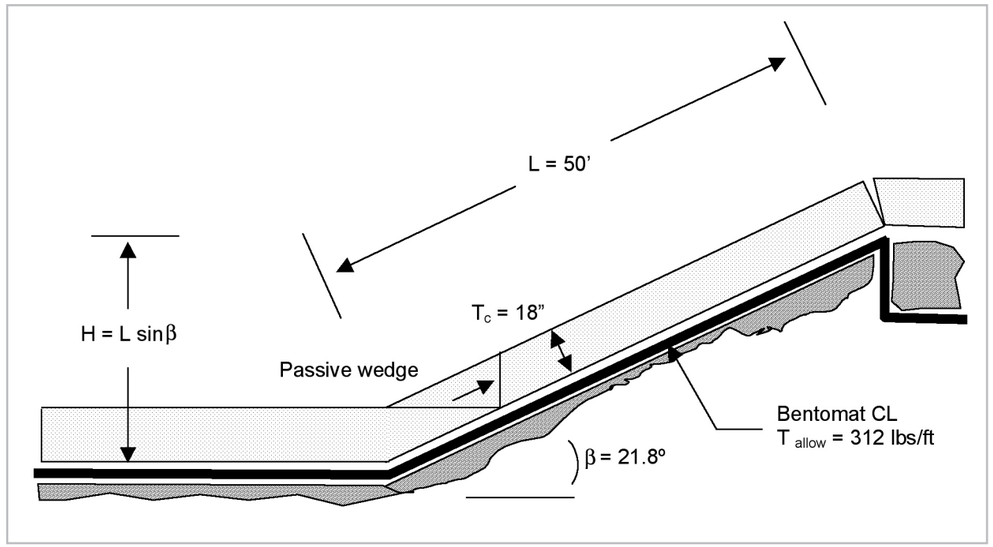
$\tan\phi_m$ = mobilized friction angles, with factor of safety included
FS = factor of safety (engineer-determined)

Reference: Giroud, J.P., and J.F. Beech (1989) "Stability of Soil Layers on Geosynthetic Lining Systems," **Geosynthetics '89**, Industrial Fabrics Association International, pp. 35–46.

Using this calculation, if the result (a) is negative, then the liner system is not in tension and can be considered stable. If is positive, then the geosynthetic component of the lining system above the critical interface will be in tension. This is because the driving force cannot be transferred through frictional resistance. If the tension exceeds the allowable amount for this component, failure could occur.

The value for allowable tension is determined by the ultimate tensile strength of the liner, which is reduced by an appropriate percentage to ensure that the liner is not excessively stressed. Assuming BENTOMAT CL is used, existing data indicates that its ultimate strength is 780 lbs/ft (11.4 kN/m). Assuming that the liner will still remain functional in the long term with 40% of this load applied, the "allowable" tensile stress is 312 lbs/ft (4.6 kN/m). If the designer opts to eliminate all tension on the liner, then the analysis is performed to ensure that a=0. An example calculation is provided below.

EXAMPLE:
A pond is to be constructed on compacted sand with a 2.5H:1V interior side slope. There will be 18 inches (450 mm) of sand cover on the BENTOMAT CL (allowable tension = 312 lb/ft or 4.6 kN/m), with the membrane component of the pond liner facing the subgrade. The slope is 50 feet (15.2 m) long. The designer prefers a safety factor of 1.3. Determine if the slope will be stable both in the as-constructed and submerged conditions.



ANSWER: From Table C-1, the compacted density of the sand cover soil layer can be reasonably estimated as 130 lbs/ft3 (20.42 kN/m³). The friction angle of the sand is assumed to be 30 degrees (23.9 degrees with FS=1.3). And from the data in Table 2-1, the weakest interface is that between the membrane component of BENTOMAT CL and the sand. For purposes of this calculation, the interface friction value is assumed to be 24 degrees (18.9 degrees with FS=1.3), although site specific tests are always recommended. Finally, with a 2.5H:1V slope 50 feet (15.2 m) long, it can be calculated that the slope height (H) is 18.6 ft (5.67 m). Using the Giroud and Beech stability equation,

$$\alpha = \frac{(130)(1.5)^2}{\sin 2(21.8)}\left[\left(\frac{2(18.6)\cos(21.8)}{1.5}-1\right)\left(\frac{\sin(21.8-18.9}{\cos 18.9}\right)-\left(\frac{\sin 23.9}{\cos(21.8+23.9)}\right)\right]$$

$$\alpha = 251 \text{ lb/ft } (3.66 \text{ kN/m})$$

The answer is positive, indicating that there is tension on the liner. However, the amount of tension is less than the allowable value, so the slope is stable. To evaluate the submerged state, the buoyant force of water (62.4 lbs/ft3 or 9.8 kN/m³) is subtracted from the unit weight of the soil. When the calculation is repeated, the resulting tension on the liner system = 131 lb/ft (1.91 kN/m) and the slope is still considered stable.

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Had the simple sliding block calculation been performed using these same values, the results would have been:

$$FS = \frac{\tan \phi_c}{\tan \beta} = \frac{\tan 24}{\tan 21.4} = 1.13$$

With a desired factor of safety of 1.3, the simplified analysis would have shown that the slope is not acceptably stable. Thus the modified analysis method can be used to demonstrate stability in cases where the simplified method does not.

SYMBOL	DESCRIPTION	DENSITY (LB./FT3) MIN., MAX.	DENSITY (KN/ M³) MIN., MAX.	FRICTION
GW	Well-graded, clean sands, gravel-sand mixtures	125, 135	19.64, 21.21	>38
GP	Poorly graded, clean gravels, gravel-sand mixtures	115, 125	18.07, 19.64	>37
GM	Silty gravels, poorly graded gravel-sand silt	120, 135	18.85, 21.21	>34
GC	Clayey gravels, poorly graded gravel-sand-clay	115, 130	18.07, 20.42	>31
SW	Well-graded clean sands, gravelly sands	110, 130	17.28, 20.42	38
SP	Poorly graded clean sands, sand-gravel mix	100, 120	15.71, 18.85	37
SM	Silty sands, poorly graded sand silt mix	110, 125	17.28, 19.64	34
SM-MC	Sandy-silt-clay mix with slightly plastic fines	110, 130	17.28, 20.42	33
SC	Clayey sands, poorly graded sand-clay mix	105, 125	16.50, 19.64	31
ML	Inorganic silts and clayey silts	95, 120	14.92, 18.85	32
ML-CL	Mixture of organic silt and clay	100, 120	15.71, 18.85	32
CL	Inorganic clays of low-to-medium plasticity	95, 120	14.92, 18.85	28
OL	Organic silts and silt-clays, low plasticity	80, 100	12.57, 15.71	–
MH	Inorganic clayey silts, elastic silts	70 , 95	11.00, 14.92	25
CH	Inorganic clays of high plasticity	75, 105	11.78, 16.50	19
OH	Organic and silty clays	65, 100	10.21, 15.71	–

Table C-1. Typical Properties of Compacted Soils.
Reference: Construction Planning: Equipment and Methods, 4th Ed.

RATIO (H:V)	PERCENT	DEGREES
0.5:1	70.5	63.4
1:1	50	45.0
1.5:1	37.4	33.7
2:1	29.5	26.6
2.5:1	24.2	21.8
3:1	20.5	18.4
3.5:1	17.7	15.9
4:1	15.6	14.0
5:1	12.6	11.3
6:1	10.6	9.5
7:1	9.0	8.1
8:1	7.9	7.1
9:1	7.0	6.3
10:1	6.3	5.7

Table C-2. Slope Conversions.

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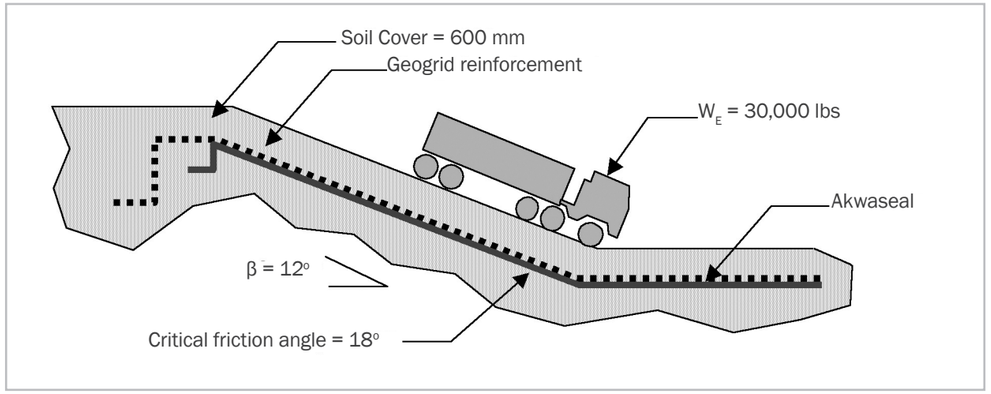
APPENDIX D
RAMP DESIGN PROCEDURE

In certain water containment applications, it may be necessary to include a ramp to provide vehicular access to the interior of the pond. Ramps may be needed when earthmoving equipment is used to remove accumulated sludge in a wastewater lagoon or sediment in a sedimentation basin. A ramp may also be included in a decorative pond design in order to provide boat access. In all of these cases, the liner system must be strong enough to support the static and dynamic loads that vehicles will impose on the slopes. This procedure (provided courtesy of Tensar) helps the designer calculate these loads and then determine whether additional reinforcing members are needed to support them.

EXAMPLE:
A ramp sloping at 12 degrees is constructed leading into a sedimentation basin. The ramp is 10 feet (3 m) wide and 100 feet (30 m) long and is covered with 2 feet (600 mm) of sandy soil at 130 lbs/ft3 (2,082 Kg/m³). How much reinforcement is needed to ensure a factor of safety of 2.0 when a 30,000 lb (13,605 Kg) vehicle is moving down the ramp and applies its brakes? The critical friction angle in the liner system is the membrane component of the BENTOMAT CL against the subgrade, which is 24 degrees. Assume that braking applies a downward force that is 30% of the vehicle weight.



ANSWER:
As with other stability calculations, it is necessary to calculate the driving forces and resisting forces. The driving forces include the weight of the ramp cover soil (WR), the weight of the equipment driving on the slope (WE), and the braking force (FB). The resisting forces include the frictional resistance between the liner and subgrade and tension on any reinforcing component such as a geogrid.

W_R = (100 ft x 10 ft x 2 ft)(130 lbs/ft³) = 260,000 lbs
W_E = 30,000 lbs
F_B = 0.3 x W_E = (0.3)(30,000) = 9,000 lbs

Frictional resistance = F_R= (W_R + W_E) cos 12 tan 24
= (260,000 + 30,000)(0.978)(0.445) = 126,210 lbs

Driving forces (static conditions) = F_{DS} = (W_R + W_E) sin 12
= (260,000 + 30,000)(0.208) = 60,320 lbs

Driving forces (dynamic conditions) = F_{DD} = F_{DS} + F_B
= 60,320 + 9,000 = 69,320 lbs
Factor of safety = FS = Resisting forces/driving forces

$$FS = \frac{F_R + T_{req}}{F_{Ds} + F_B}$$

Tension required for reinforcement = T_{req}
T_{req} = FS (F_{DS} + F_B) – F_R
= 2 (60,320 + 9,000) – 126,210 = **12,430 lbs or 1,234 lbs/ft ramp width**

This is the total amount of tension required to be carried by the geogrid reinforcement. As an example, a Tensar UX1100HS geogrid has a long-term allowable tensile strength of 1,570 lbs/ft in sand. Therefore, this ramp would be stable with an FS > 2.0 using a Tensar UX1100HS geogrid placed on the liner, with the 2 feet of cover soil backfill placed over the geogrid.

It should be noted that the factor of safety without the geogrid is 1.8. This is because the critical friction angle is greater than the slope angle. This implies stability although perhaps not with a sufficient degree of conservatism as would be warranted in a ramp design.

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APPENDIX E
POND LINER DESIGN CHECKLIST

	OUTCOME (CHECK ONE)		
CHECKLIST ITEM	ACCEPTABLE	NOT ACCEPTABLE	NOT APPLICABLE
UNIVERSAL DESIGN PARAMETERS			
Site selection			
Groundwater level is below bottom of pond			
Subgrade soils can be compacted and smoothed			
Soil is not excessively rocky			
Trees and roots can be removed			
Soil has adequate bearing capacity			
Slope Stability			
Design slopes do not exceed 4H:1V			
Design calculations indicate stability			
Slope lengths do not exceed those listed in Table 2–3			
Hydraulic Performance			
Bentomat CL flux rate meets project requirements			
Evaporative losses evaluated			
Pond will contain fresh water only			
Pond will not contain high levels of contaminants			
APPLICATION-SPECIFIC DESIGN PARAMETERS			
Details for inlet/outlet structures are complete			
Details for terminations are complete			
Indicator layer planned for sediment removal			
Hard armor system designed for shoreline			
Rapid drawdown issues considered			
Groundwater elevation considered			
Hydrostatic uplift potential evaluated			
Entry/exit ramps designed			
Pond perimeter favorable for easy access			
INSTALLATION-RELATED DESIGN PARAMETERS			
Suitable handling equipment available			
Contractor aware of need to protect liner			
Unloading and storage conditions recognized			
Subgrade prepared to receive liner			
Runout and anchor trench with proper dimensions			
Suitable quality and quantity of cover soil available			

NOTE:
This checklist is merely a guideline for the designer's convenience and is not intended as a replacement for a project-specific design.

APPENDIX F
GUIDELINES FOR ASSESSING THE CONDITION OF HYDRATED LINER

It is often asked whether "premature hydration" affects BENTOMAT CL to the extent where it should be "removed and replaced". The term "premature" is used because excessive hydration is only a concern when the liner is uncovered. Once a modest confining cover (12 inches of soil) is applied over the liner, the bentonite cannot exert enough swelling force to delaminate the product, nor can it absorb enough water to become overly plastic. A few years ago, specifiers began to include provisions requiring the removal and replacement of all liner that was hydrated before being covered. However, this "remove and replace" practice is not always necessary.

BENTOMAT CL is needlepunched, meaning that it is held together with needlepunched fibers. The needlepunched construction of BENTOMAT CL provides a mechanical bond that cannot be overcome by the swelling bentonite. In other words, BENTOMAT CL can withstand unconfined hydration without losing its integrity. This is why BENTOMAT CL can be successfully deployed even in standing water for short periods without adverse impacts. However, this does not mean that CETCO recommends such installation practices. CETCO advises that these instances be evaluated on a case-by-case basis. For example, the duration that the material was exposed, the degree of its hydration, the location of BENTOMAT CL within the liner system, and the bearing loads it will be subjected to during construction are all factored into a recommendation.

When assessing whether to remove and replace any prematurely hydrated BENTOMAT CL, an examination of the hydrated areas should be conducted in order to verify that:

1. The geotextiles have not been separated, torn, or otherwise damaged.

2. There is no evidence that the needlepunching between the geotextiles has been compromised.

3. The BENTOMAT CL does not leave deep indentations when it is walked upon.

4. The overlapped and bentonite-enhanced seams are intact.

If these conditions are met, then BENTOMAT CL probably may remain in place. Although it may contain more water than it would have under soil or geosynthetic cover, this water will be drained from the pond liner when consolidation occurs as normal loads are applied. The end result will be a water content in the formerly unconfined areas that is equivalent to that in the confined areas. Even if BENTOMAT CL is hydrated to the extent that bentonite is displaced under foot, it may be possible to allow the material to air-dry such that bentonite is no longer displaced by point load. This is why it is not necessary to specify an absolute numerical moisture content criterion to decide whether to remove and replace BENTOMAT CL. Again, removal and replacement would not be necessary, provided there is no visible evidence of damage.

Premature hydration is an extremely common occurrence, and BENTOMAT CL was designed to sustain it without requiring removal and replacement. CETCO has found that such cases are a rare exception and occur only as a result of prolonged hydration followed by direct vehicular contact. For this reason, CETCO estimates that over 99% of prematurely hydrated BENTOMAT CL does not require removal.

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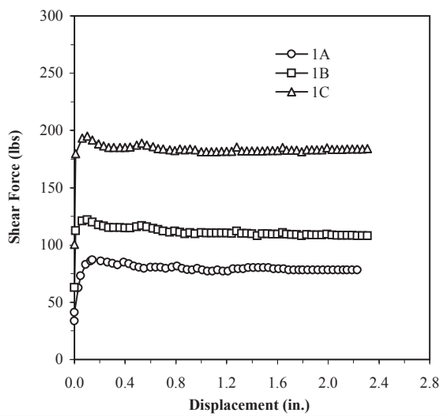
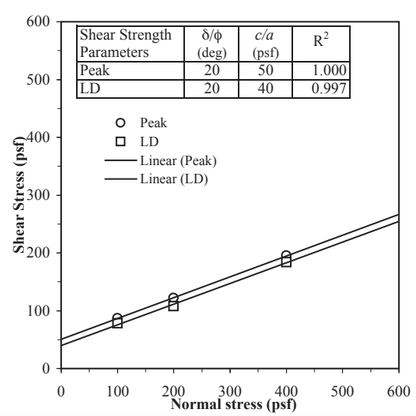
APPENDIX G
BENTOMAT CL AND CLT INTERFACE SHEAR TEST DATA

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
INTERFACE DIRECT SHEAR TESTING (ASTM D 6243)

Test Series 1: graded aggregate base (GAB) material against the membrane side of Bentomat CL GCL under soaked conditions





Shear Strength Parameters	δ/φ (deg)	c/a (psf)	R^2
Peak	20	50	1.000
LD	20	40	0.997

Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	Soaking Stress (psf)	Soaking Time (hour)	Consolidation Stress (psf)	Consolidation Time (hour)	Lower Soil γ_{di} (pcf)	Lower Soil ω_i (%)	Lower Soil ω_f (%)	Upper Soil γ_{di} (pcf)	Upper Soil ω_i (%)	Upper Soil ω_f (%)	GCL ω_i (%)	GCL ω_f (%)	Shear Stress τ_p (psf)	Shear Stress τ_{LD} (psf)	Failure Mode
1A	12 x 12	100	0.040	200	24	-	-	-	-	-	128.5	6.1	6.8	31.6	126.9	87	78	(1)
1B	12 x 12	200	0.040	200	24	-	-	-	-	-	128.3	6.1	6.6	31.6	119.6	122	108	(1)
1C	12 x 12	400	0.040	200	24	-	-	-	-	-	128.4	6.1	6.0	31.6	100.0	195	184	(1)

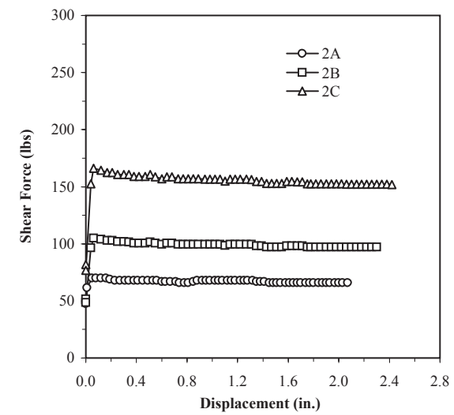
Notes: (1) Sliding (i.e., shear failure) occurred between the soil and the membrane side of the GCL during each test.
(2) The reported total-stress parameters of friction angle and adhesion were determined from a best-fit line drawn through the test data. Caution should be exercised in using these strength parameters for applications involving normal stresses outside the range of the stresses covered by the test series. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

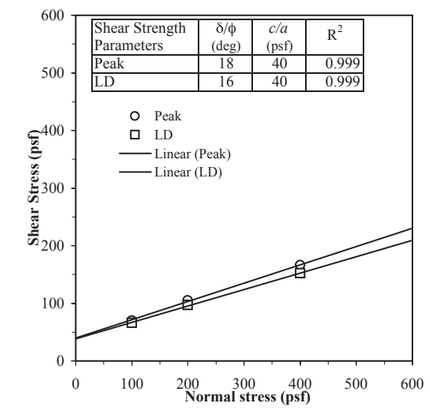
SGI TESTING SERVICES, LLC

DATE OF TEST:	11 to 12 February 2002
FIGURE NO.	B-1
PROJECT NO.	SGI2009
DOCUMENT NO.	SGI02045
FILE NO.	

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
INTERFACE DIRECT SHEAR TESTING (ASTM D 6243)

Test Series 2: silty sand material against the membrane side of Bentomat CL GCL under soaked conditions





Shear Strength Parameters	δ/φ (deg)	c/a (psf)	R^2
Peak	18	40	0.999
LD	16	40	0.999

Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	Soaking Stress (psf)	Soaking Time (hour)	Consolidation Stress (psf)	Consolidation Time (hour)	Lower Soil γ_{di} (pcf)	Lower Soil ω_i (%)	Lower Soil ω_f (%)	Upper Soil γ_{di} (pcf)	Upper Soil ω_i (%)	Upper Soil ω_f (%)	GCL ω_i (%)	GCL ω_f (%)	Shear Stress τ_p (psf)	Shear Stress τ_{LD} (psf)	Failure Mode
2A	12 x 12	100	0.040	200	24	-	-	-	-	-	93.0	22.6	21.7	31.6	128.0	70	66	(1)
2B	12 x 12	200	0.040	200	24	-	-	-	-	-	93.2	22.6	21.4	31.6	120.3	105	97	(1)
2C	12 x 12	400	0.040	200	24	-	-	-	-	-	93.3	22.6	21.2	31.6	107.2	166	152	(1)

Notes: (1) Sliding (i.e., shear failure) occurred between the soil and the membrane side of the GCL during each test.
(2) The reported total-stress parameters of friction angle and adhesion were determined from a best-fit line drawn through the test data. Caution should be exercised in using these strength parameters for applications involving normal stresses outside the range of the stresses covered by the test series. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

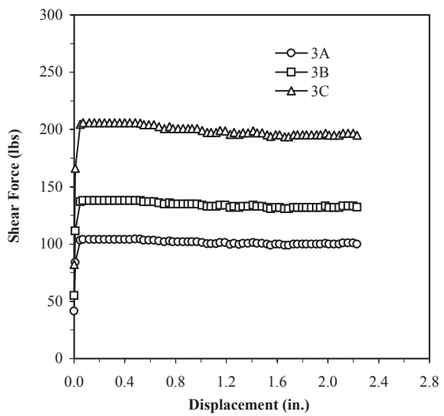
SGI TESTING SERVICES, LLC

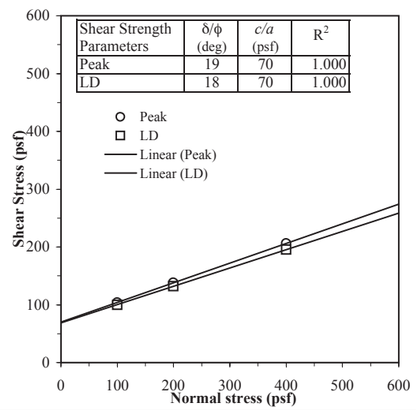
DATE OF TEST:	13 to 14 February 2002
FIGURE NO.	B-2
PROJECT NO.	SGI2009
DOCUMENT NO.	SGI02045
FILE NO.	

BENTOMAT® CL and CLT GCLs

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY
INTERFACE DIRECT SHEAR TESTING (ASTM D 6243)

Test Series 3: clay soil material against the membrane side of Bentomat CL GCL under soaked conditions





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	Soaking Stress (psf)	Soaking Time (hour)	Consolidation Stress (psf)	Consolidation Time (hour)	Lower Soil γ_{di} (pcf)	Lower Soil ω_i (%)	Lower Soil ω_f (%)	Upper Soil γ_{di} (pcf)	Upper Soil ω_i (%)	Upper Soil ω_f (%)	GCL ω_i (%)	GCL ω_f (%)	Shear Stress τ_p (psf)	Shear Stress τ_{LD} (psf)	Failure Mode
3A	12 x 12	100	0.040	200	24	-	-	-	-	-	93.0	13.4	13.5	31.6	115.4	104	100	(1)
3B	12 x 12	200	0.040	200	24	-	-	-	-	-	93.2	13.4	13.5	31.6	100.0	138	132	(1)
3C	12 x 12	400	0.040	200	24	-	-	-	-	-	93.3	13.4	13.4	31.6	94.0	206	195	(1)

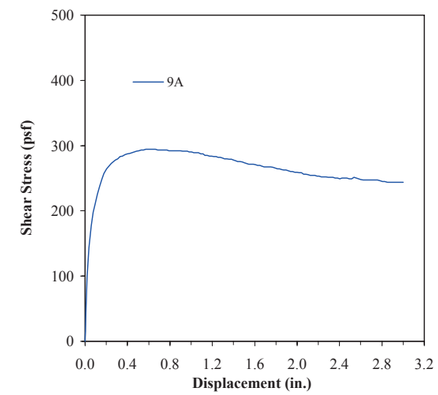
Notes: (1) Sliding (i.e., shear failure) occurred between the soil and the membrane side of the GCL during each test.
(2) The reported total-stress parameters of friction angle and adhesion were determined from a best-fit line drawn through the test data. Caution should be exercised in using these strength parameters for applications involving normal stresses outside the range of the stresses covered by the test series. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

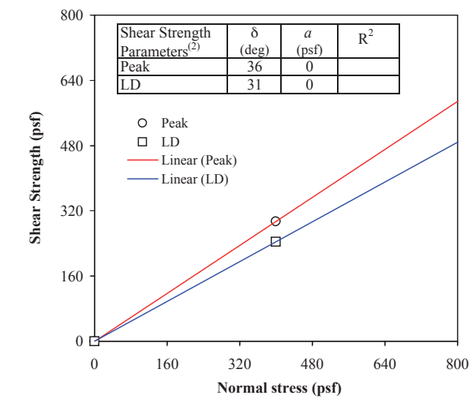
SGI TESTING SERVICES, LLC

DATE OF TEST:	14 to 15 February 2002
FIGURE NO.	B-3
PROJECT NO.	SGI2009
DOCUMENT NO.	SGI02045
FILE NO.	

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Silty sand compacted to approximately 95% of max standard Proctor density at OMC (γ_{dmax} = 98.5 pcf, OMC = 19.0%)/
Bentomat CL GCL (Lot #200902CV/Roll #1) with black woven geotextile side up against silty sand
Lower Shear Box: Steel grip (Note: by using steel grip, shear failure was forced to occur at interface between the silty sand and woven geotextile side of GC)





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
9A	12 x 12	400	0.04	200	24	400	24			99.8	32	75	31	30	294	244	0.91	0.90
9B	12 x 12																	
9C	12 x 12																	

NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between silty sand and woven geotextile side of GCL.
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

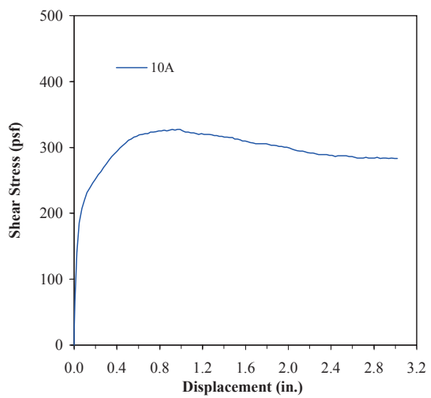
SGI TESTING SERVICES, LLC

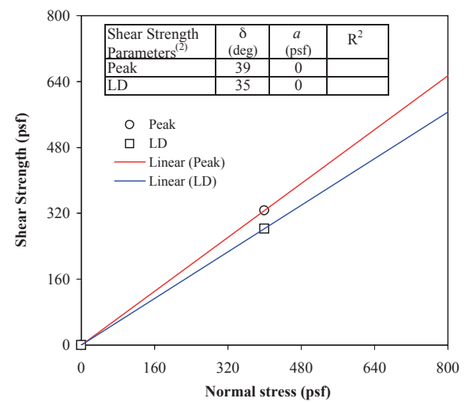
DATE OF TEST:	11/9/2012
FIGURE NO.	C-1
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

BENTOMAT® CL and CLT GCLs

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Clay soil compacted to approximately 95% of max standard Proctor density at 3% + OMC (γ_{dmax} = 114 pcf, OMC = 15.0%)/
Bentomat CL GCL (Lot #200902CV/Roll #1) with black woven geotextile side up against clay soil
Lower Shear Box: Steel grip (Note: by using steel grip, shear failure was forced to occur at the interface between clay soil and woven geotextile side of GC)





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
10A	12 x 12	400	0.04	200	24	400	24			105.5					327	283		
10B	12 x 12																	
10C	12 x 12																	

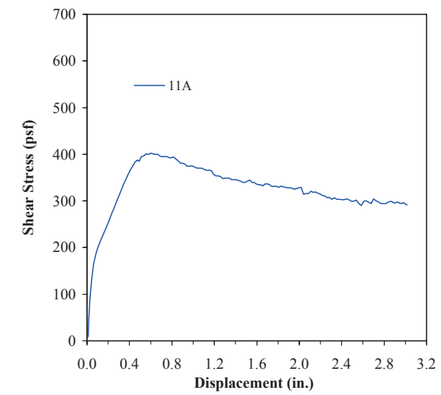
NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between clay soil and geotextile side of GCL.
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

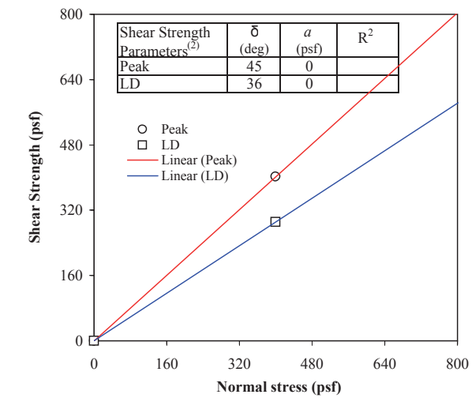
SGI TESTING SERVICES, LLC

DATE OF TEST:	11/9/2012
FIGURE NO.	C-2
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Graded aggregate base (GAB) material compacted to approximately 95% of max standard Proctor density at OMC (γ_{dmax} = 137 pcf, OMC = 5.7%)/
Bentomat CL GCL (Lot #200902CV/Roll #1) with black woven geotextile side up against GAB material
Lower Shear Box: Steel grip (Note: by using steel grip, shear failure was forced to occur at the interface between GAB material and geotextile side of GCL)





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
11A	12 x 12	400	0.04	200	24	400	24			102.4	45	45	42	15	402	291	0.90	0.78
11B	12 x 12																	
11C	12 x 12																	

NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between GAB material and geotextile side of GCL).
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

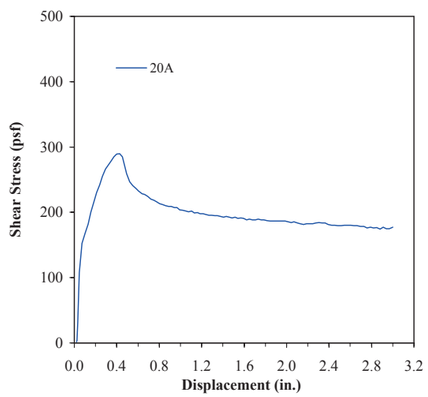
SGI TESTING SERVICES, LLC

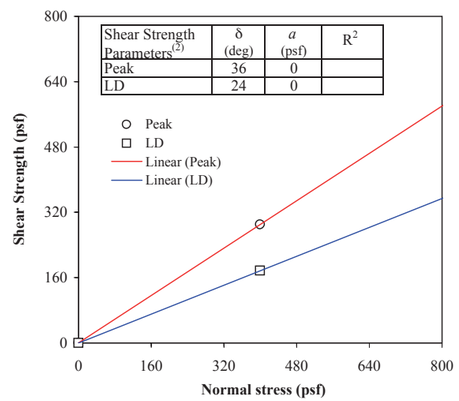
DATE OF TEST:	10/30/2012
FIGURE NO.	C-3
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

BENTOMAT® CL and CLT GCLs

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Clay soil compacted to approximately 95% of max standard Proctor density at 3% + OMC (γ_{dmax} = 114 pcf, OMC = 15.0%)/
Bentomat CLT GCL with 20 mil textured geomembrane (asperity = 13 mils) with black textured geomembrane side up against clay soil
Lower Shear Box: Concrete sand





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
20A	12 x 12	400	0.04	200	24	400	24			124.2					290	177		
20B	12 x 12																	
20C	12 x 12																	

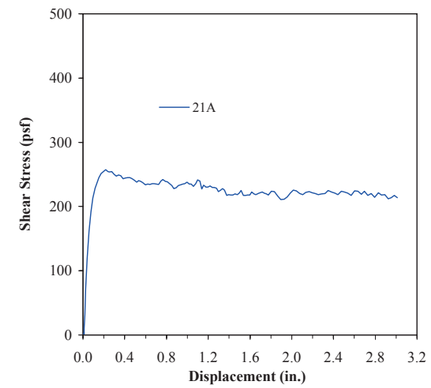
NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between clay and textured geomembrane of GCL.
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

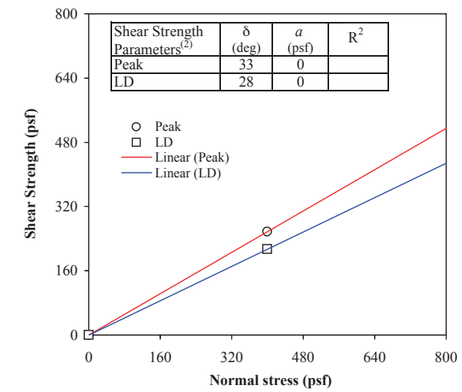
SGI TESTING SERVICES, LLC

DATE OF TEST:	12/15/2012
FIGURE NO.	C-20
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Graded aggregate base (GAB) material compacted to approximately 95% of max standard Proctor density at OMC (γ_{dmax} = 137 pcf, OMC = 5.7%)/
Bentomat CLT GCL with 20 mil textured geomembrane (asperity = 13 mils) with black textured geomembrane side up against GAB material
Lower Shear Box: Concrete sanc





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
21A	12 x 12	400	0.04	200	24	400	24			114.9	45	45	42	15	257	214	0.58	0.57
21B	12 x 12																	
21C	12 x 12																	

NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between GAB material and textured geomembrane of GCL.
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

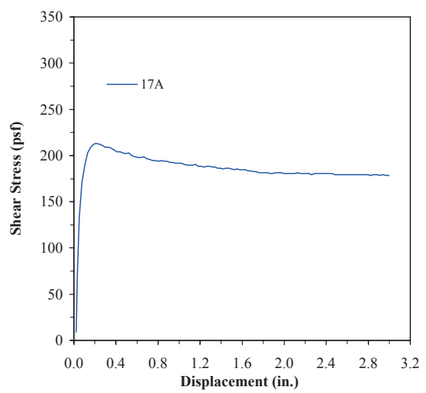
SGI TESTING SERVICES, LLC

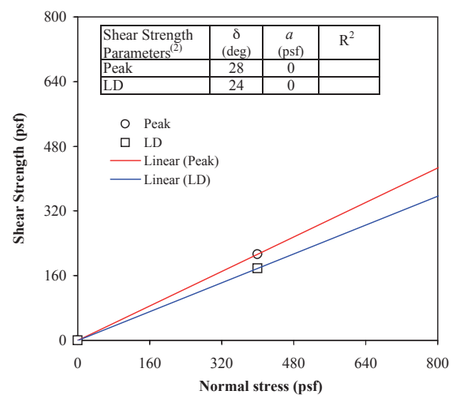
DATE OF TEST:	12/15/2012
FIGURE NO.	C-21
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

BENTOMAT® CL and CLT GCLs

CETCO LINING TECHNOLOGIES - 2012 ANNUAL SHEARING TEST PROGRAM
GCL DIRECT SHEAR TESTING (ASTM D 6243)

Upper Shear Box: Silty sand compacted to approximately 95% of max standard Proctor density at OMC (γ_{dmax} = 98.5 pcf, OMC = 19.0%)/
Bentomat CLT GCL (20 mil textured HDPE geomembrane) with textured HDPE geomembrane side up against silty sand
Lower Shear Box: Concrete sand





Test No.	Shear Box Size (in. x in.)	Normal Stress (psf)	Shear Rate (in./min)	GCL Soaking Stress (psf)	GCL Soaking Time (hours)	Consolidation Stress (psf)	Consolidation Time (hours)	GCL ω_i (%)	GCL ω_s (%)	GCL ω_f (%)	Soil Shear Strength Parameters ϕ_P (deg)	c_P (psf)	ϕ_{LD} (deg)	c_{LD} (psf)	Shear Strength(1) τ_P (psf)	τ_{LD} (psf)	Coefficient of Direct Sliding C_{DS-P}	C_{DS-LD}
17A	12 x 12	400	0.04	200	24	400	24			120.6	32	75	31	30	213	178	0.66	0.66
17B	12 x 12																	
17C	12 x 12																	

NOTES:
(1) Sliding (i.e., shear failure) occurred at the interface between silty sand and textured geomembrane f GCL.
(2)The reported total-stress secant friction angle was defined as δ_{secant} = arctan (shear strength/normal strength). Caution should be exercised in using the secant friction angle for applications involving normal stresses other than the test normal stress. The large-displacement (LD) shear strength was calculated using the shear force measured at the end of the test.

SGI TESTING SERVICES, LLC

DATE OF TEST:	11/23/2012
FIGURE NO.	C-1
PROJECT NO.	SGI12006
DOCUMENT NO.	
FILE NO.	

cetco.com

cetco@mineralstech.com | cetco .com | 800.527.9948

UPDATED: JULY 2020

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PM_DESIGNGUIDE_BENTOMAT_CL_CLT_AM_EN_202007_V11

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 078
Date: 12/9/2022
Description: Per Change Control Form #092: cost to provide and install supports for HVAC unit as detailed in RFI #172 response and revised drawings S-22-100 Rev-1 and typical detail S1601A.

Gerber Onsite Coordination & Management (see attached back-up):	$496.72
Gerber Materials & Fabrications (see attached back-up):	$1,259.53
Gerber Installation (see attached back-up):	$394.16
Bonds:	$22.48
Mark-up (15%):	$325.94
Total:	**$2,498.83**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $2,498.83 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-078 HVAC Support Area 22 CC#092	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-078	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	Central Valley Water Reclamation Facility, S. Salt Lake City, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Management	**1.00**	**LS**	**$496.72**	**$496.72**	**$577.21**	**$577.21**	**15.00%**
17 Draftsman	2.00	HR	$69.95	$139.90			
20 Shop Manager	1.00	HR	$100.17	$100.17			
20 Project Engineer	1.00	HR	$100.17	$100.17			
01 Superintendent	1.00	HR	$128.58	$128.58			
Truck, Pickup, 1 Ton	0.01	MO	$2,747.00	$15.97			
Truck, Pickup, 3/4 Ton	0.01	MO	$2,053.00	$11.94			
D 02 - Fabrication Of HVAC Support Area 22	**1.00**	**LS**	**$1,259.53**	**$1,259.53**	**$1,463.60**	**$1,463.60**	**15.00%**
D Material	1.00	LS	$945.56	$945.56			
L 1/4"x5"x3" (Galvanized)	20.00	LF	$47.28	$945.56			
D Fabrication	1.00	LS	$313.97	$313.97			
Welding Crew (Shop) (8.00 HR/DY, 0.50 DY)	4.00	HR	$78.49	$313.97			
Welding Shop	4.00	HR	$18.20	$72.80			
14 Welder	4.00	HR	$60.29	$241.17			
D 03 - Installation Of HVAC Support Area 22	**1.00**	**LS**	**$394.16**	**$394.16**	**$458.02**	**$458.02**	**15.00%**
Welding Crew (Field) (8.00 HR/DY, 0.38 DY)	3.00	HR	$131.39	$394.16			
Welder, Truck Mounted 1 Ton	0.02	MO	$1,858.00	$32.41			
14 Welder	3.00	HR	$60.29	$180.87			
14 Welder	3.00	HR	$60.29	$180.87			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,071.73	49.84%
Equipment Owned:	$133.11	6.19%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$945.56	43.97%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$2,150.40	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$2,150.40	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$22.49	0.90%
Total Overall Cost:	$2,172.89	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$325.94	13.04%
Total Margin:	$325.94	13.04%
Total Bid Price:	$2,498.83	

CHANGE CONTROL FORM 092
HVAC Supports Area 22

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 11/16/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

Provide supports for HVAC unit per RFI 172, revised drawing S-22-1002 Rev 1, and typical detail S1601A.

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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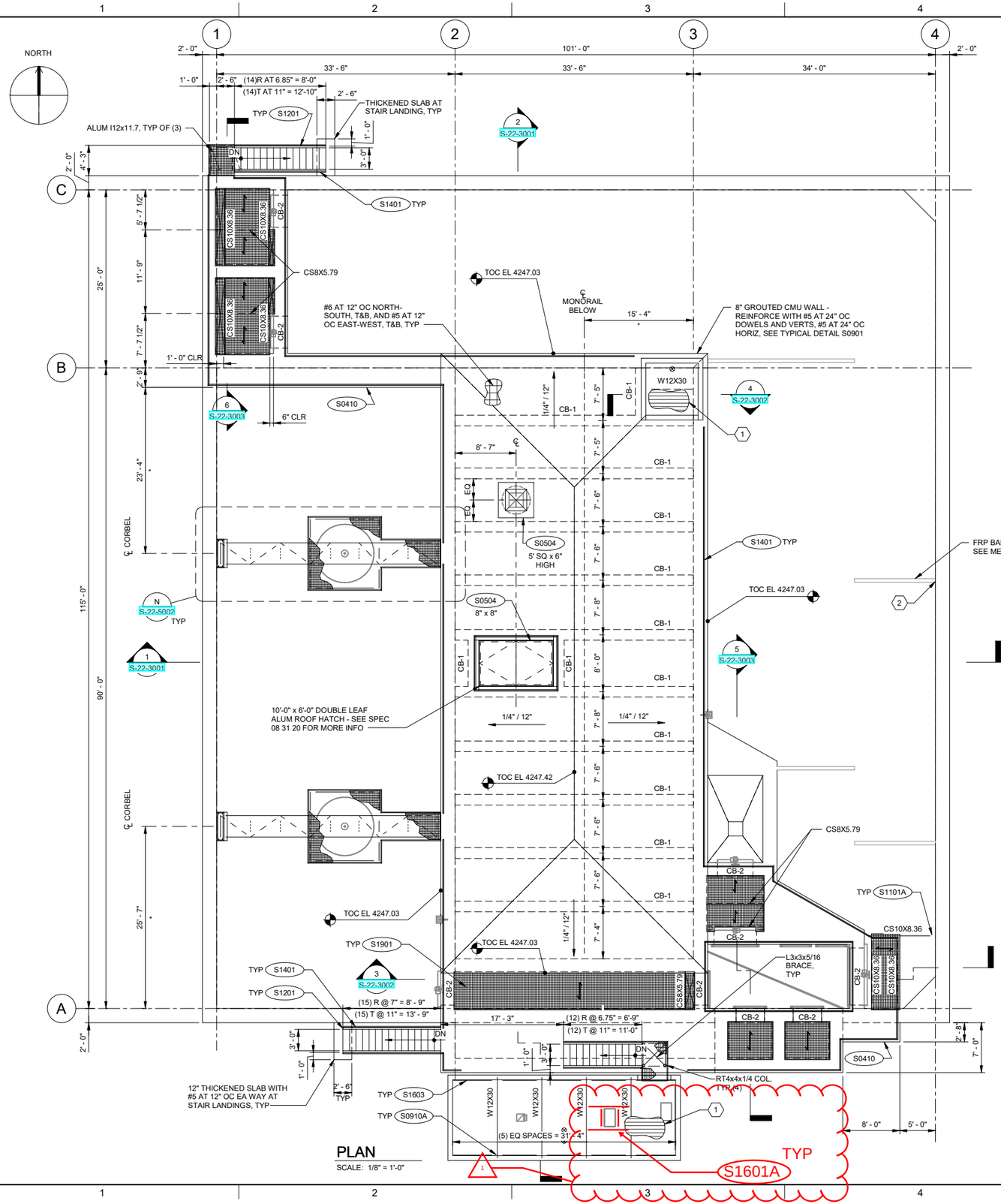

PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW/ APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION NOT SHOWN HEREIN.
7. COORDINATE ALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATION 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL AND HVAC EQUIPMENT PADS HEIGHT SHALL BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL AND HVAC DRAWINGS. SEE ELECTRICAL AND HVAC DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS AND FRAMING SHOWN ARE ALUMINUM, UNO.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. MIXER SUPPORT PLATFORM LOCATION AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.

* VERIFY WITH APPROVED EQUIPMENT SUBMITTAL.

KEYNOTES:

1. 1 1/2" VERCO TYPE "PLB-36" 20 GA METAL DECK. FASTEN DECK WITH 1/2" DIA PUDDLE WELDS AT 12" OC AT PERIMETER AND INTERIOR SUPPORTS, AND 3/8" x 2" LONG AT 9" OC ARC SEAM WELDS AT SIDE LAPS, (2) SPAN MINIMUM.
2. FRP BAFFLE WALL ATTACHMENT DESIGNED BY THE CONTRACTOR. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.

CONCRETE BEAM SCHEDULE

BEAM			REINFORCING			SHEAR		
MARK	WIDTH	DEPTH	TOP	BOTTOM	NOTES	ES	IS	NOTES
CB-1	18"	36"	(5) #10	(5) #10		#4 AT 12" OC		
CB-2	24"	12"	(4) #7	(4) #7		#4 AT 12" OC		

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	11/16/22	CCF 092 HVAC supports

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-22V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

RAS/WAS BASIN UPPER PLAN

DRAWING NUMBER
S-22-1002

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-22V18.rvt
Plot Date: 6/4/2020 12:37:58 PM

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

01/04/2023

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 016, BNR Time Extension

Dear Brandon,

Change Order 16 adds time to the Contract as requested by the Contractor.

Due to unprecedented supply chain issues, Gerber construction is requesting additional time to complete the BNR project. An unexpected price increase from the manufacturer of the fine and coarse bubble diffusers has resulted in severe delays on acquiring this equipment. Numerous breakdowns at Utah's primary Portland Cement plants resulted in Concrete suppliers operating at 12-20% of their normal capacity. Freezing temperatures in Texas in early 2021 damaged resin plants causing PVC and other plastic products to be in short supply. Repair of these resin plants has been slowed due to other supply chain issues. Electrical gear manufacturers claiming Covid-19 delays has led to lead times increasing from 12-18 to 52 weeks or more. Chromium shortages caused, in part, by the war in Ukraine have caused an extreme increase in the cost of stainless steel as well as increasing lead times. Long lead times and various supply chain issues have also increased the cost and lead times in acquiring Aluminum components. The Contractor is requesting **365 days** to alleviate time constraints caused the above supply chain issues. The contractors time extension letter has been reviewed and is in line with our expectations.

The total cost of Change Order 16 is **$0.00** and **Three Hundred Sixty Five (365) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Mark Hansen
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. BNR Time Extension Letter
3. Time Extension Request Meeting Recapture

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 16

Date of Issuance: 01/04/2022		Effective Date:	01/04/2022
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Change Order 16 includes a no-cost time extension

Attachments:
1. BNR Time Extension Letter
2. Time Extension Request Meeting Recapture

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 15.1 : $1,080,977.77	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 15.1 : Substantial Completion: 198 Ready for Final Payment: 198 Days
Contract Price prior to this Change Order: $ 124,348,658.77	Contract Times prior to this Change Order: Substantial Completion: 1,689 Ready for Final Payment: 1,797 days or dates
[Increase] [Decrease] of this Change Order: $0.00	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 365 Ready for Final Payment: 365 days or dates
Contract Price incorporating this Change Order: $124,348,658.77	Contract Times with all approved Change Orders: Substantial Completion: 2,054 Ready for Final Payment: 2,162 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:
Engineer (if required)	Owner (Authorized Signature)	Contractor (Authorized Signature)

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Title:	Construction Manager	Title	Asst GM.	Title	Project Manger
Date:	01/04/2022	Date	2/1/2023	Date	1/31/2023

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION

12/23/2022

Phillip Heck, Ph.D., P.E.
General Manager
Central Valley Water Reclamation Facility
800 Central Valley Rd
South Salt Lake, UT 84119

Reference: Potential Extension of Project Time

Dear Mr. Heck,

This letter is in regards to ongoing supply issues Gerber Construction, Inc. continues to encounter in the aftermath of the Covid pandemic which have a high probability of impacting the project schedule for the CC 30B BNR/PEPS/RAS Selector Project. Procurement of many materials continues to be problematic. We are seeing this in plastics such as PVC, CPVC, and HDPE. It is an ongoing issue with mechanical pieces such as valves and instrumentation. On the electrical side, gear in particular continues to be a large struggle even though it has been ordered for 18+ months.

A very large issue we have recently encountered has to do with the supply of the fine and coarse bubble diffusers which will be required for an operational aeration basin. Gerber Construction entered into a purchase order agreement with Environmental Dynamics International (EDI) over two years ago and steadily worked through the design and submittal process with EDI over the last two years. After several iterations of submittals, EDI was able to receive approval of their submittal in October 2022. Shortly after receiving approval, Gerber Construction received a change order from EDI in the amount of roughly 130% of their original pricing. This requested price increase came without any warning or notice on the part of EDI.

Gerber Construction held a conference call with EDI in which they committed to breaking down their costs and provide justification. However, instead of providing justification, we were given a "Mutual Termination and Release Agreement." Gerber Construction has not and will not sign that document and has retained counsel to help us with this issue.

With that said, at this current time, we know that EDI does not intend to perform on this contract which could potentially lead Gerber Construction to having to negotiate with and enter into a new purchase order with another supplier. This of course would lead to restarting the design and submittal process which will definitely extend an already delayed installation of the aeration diffusers.

Because of the uncertainty surrounding this situation, Gerber Construction requests an additional 12 months of project time to work through this issue. If provided with extra project time, this will not impact Gerber Construction's current efforts to maintain the current project schedule and all efforts will be taken to ensure the earliest completion possible given the aforementioned issues. Thank you for your understanding.
Sincerely,

Mark Nielsen
Project Principle

801.407.2000
info@1gerber.com
www.1gerber.com
815 East 675 South
Lehi, UT 84043

Mark Hansen

To: Shay Clark
Cc: Neil Kunz; Ryan Overman
Subject: CC 30B - BNR/PEPS/RAS Selector - Meeting Recap - Time Extension Request

Shay,

Gerber requested additional time then requested clarification on what that does to the Contract. This email is a recapture of that conversation:

- Gerber requested additional time to cover all experienced delays and all anticipated delays, e.g., procuring, installing, and commissioning the fine and coarse bubble diffusion systems, concrete delays, electrical equipment delays, handrail & other aluminum material delays, all experience & anticipated delays.
- Extending the contract time does not obligate the Contractor to remain on site, the work is done when the work is done.
- Gerber's obligations for the BNR project are primarily related to substantial completion of the major process systems (i.e., run everything in all modes processing water). Gerber, for example, will not be held accountable for achieving or maintaining mixed liquor suspended solids, or for achieving steady state operation; outside of ensuring everything is functional per spec. (pumps, instruments, piping, equipment, electrical, instrumentation, etc.). E.g., if Fermentate is not supplied in time by Thickening & Straining, Gerber will not be held accountable.

Thank you,

Mark Hansen
Senior Manager, Construction Services
Brown and Caldwell
T 801.316.9830 | C 801.367.6680 | MHansen@brwncald.com

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

02/15/2023

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 017.1_East RAS Pump Electrical Changes, Concrete Pads for Storm Drain Lift Station, Aluminum Roll Up Doors, Blower Expansion Joints, Area 19 Pipe Supports.

Dear Brandon,

Change Order 17.1 includes:

- **East RAS Pump Electrical Changes** per CCF 058
- **Concrete Pads for Storm Drain Lift Station** per CCF 085
- **Aluminum Roll Up Doors** per CCF 094
- **Blower Expansion Joints** per CCF 091
- **Area 19 Pipe Supports** per CCF 100

East Ras Pump Electrical Changes: These are the electrical changes required when the pumps were changed from the horizontal non-clog centrifugal to the Flygt horizontal dry pit submersible non-Clog pumps. The Flygt pumps are 45 HP where the design pumps were 40 hp. This required a 50HP VFD in lieu of the 40HP VFD. The Flygt pumps also require a Nema 4X SST terminal box at each pump for termination of the manufacturer's cable. The Contractor is requesting **$124,144.77** and **12 days** to complete this work. Pricing has been reviewed and is line with our expectations for this scope.

Concrete Pads for Storm Drain Lift Station: Concrete pads for the Storm Drain Lift Station were called in the specifications but no details were provided in the drawings. CCF 085 includes structural details for these concrete pads. The pads were changed from round to square foundations to reduce cost. CCF 085 also includes credits for deleting four (4) 36" manholes from the box culvert running from the Anaerobic Basin to the Aeration Basin. The Contractor is requesting **$9,662.91** and **2 days** to complete this work. Pricing was previously reviewed and appears fair and reasonable.

Aluminum Roll Up Doors: All overhead doors have been changed from Galvanized steel to Aluminum slats at the request of Central Valley. This change was made to ensure all overhead doors are consistent with existing doors for ease of maintenance. The Contractor is requesting **$3,740.85** and **1 day** to complete this work. Pricing has been reviewed and appears fair and reasonable.

Blower Expansion Joints: The original contract drawings directed the contractor to use the existing expansion joints on blower intakes for B33202, B33203 and B33203. During construction, it was noted that these existing expansion joints were cracked and leaking. CCF 091 was issued to provide new expansion joints to replace these existing damaged expansion joints. The Contractor is requesting **$8,239.98** to complete this work. Pricing has been reviewed and is in line with our expectations.

Area 19 Pipe Supports: During installation of the Area 19 Aeration pipe supports, it was noticed that many of the supports had a significant amount of flex in the lower beams. CCF 100 adds additional stiffeners in the webbing of the lower beams to reduce the amount of flex in the pipe supports. The Contractor is requesting **$13,728.15** and **4 Days** to complete this work. Pricing has been reviewed and is appears to be reasonable.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the standard conditions of the contract. The total cost of Change Order 17.1 is **$159,516.66** and **Nineteen (19) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Ryan Overman

Ryan Overman
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 058 w/Contractor Quotation
3. CCF 085 w/Contractor Quotation
4. CCF 094 w/Contractor Quotation
5. CCF 091 w/Contractor Quotation
6. CCF 100 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 17.1

Date of Issuance:	02/15/2023	Effective Date:	02/15/2023
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Change Order 17.1 includes a no-cost time extension

Attachments:
1. CCF 058_East RAS Pump Electrical Changes
2. CCF 085_Concrete Pads for Storm Drain Lift Station
3. CCF 094_Aluminum Roll Up Door
4. CCF 091_Blower Expansion Joints
5. CCF 100_Area 19 Pipe Supports

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 16 : $1,080,977.77	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 16 : Substantial Completion: 563 Ready for Final Payment: 563 Days
Contract Price prior to this Change Order: $ 124,348,658.77	Contract Times prior to this Change Order: Substantial Completion: 2,054 Ready for Final Payment: 2,162 days or dates
[Increase] [Decrease] of this Change Order: $159,516.66	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 19 Ready for Final Payment: 19 days or dates
Contract Price incorporating this Change Order: $124,508,175.43	Contract Times with all approved Change Orders: Substantial Completion: 2,073 Ready for Final Payment: 2,181 days or dates

RECOMMENDED: ACCEPTED: ACCEPTED:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

By:		By:		By:	
	Engineer (if required)		Owner (Authorized Signature)		Contractor (Authorized Signature)
Title:	Construction Manager	Title	General Manager	Title	Project Manager
Date:	02/15/2023	Date	2/15/23	Date	02/15/2023

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 074
Date: 10/13/2022
Description: Per Control Change Form #074: Cost to provide labor, material, and equipment for electrical changes in the East RAS WAS. **Per Brown and Caldwell, standard port plug valves will be used, 100% port plug valves will not be used.**

Skyline Electric (see attached back-up):	$108,644.38
Mark-up (5%):	$5,432.21
Gerber Onsite Coordination & Management (see attached back-up):	$9,836.34
Bonds:	$1,067.68
Mark-up (15%):	$1,635.60
Sub Total:	**$126,616.21**
Gerber Seal Water Credit (see attached back-up):	-$2,471.44
Total:	**$124,144.77**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $124,144.77 will be added to the contract price, and an additional 12 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-074 East RAS WAS Electrical Changes	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-074	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Electrical Subcontractor	**1.00**	**UNIT**	**$108,644.38**	**$108,644.38**	**$115,202.49**	**$115,202.49**	**5.09%**
S Electrical Sub	1.00	LS	$108,644.38	$108,644.38			
D 02 - Gerber Coordination Labor	**1.00**	**UNIT**	**$9,836.34**	**$9,836.34**	**$11,413.72**	**$11,413.72**	**15.00%**
01 Superintendent	27.00	HR	$133.91	$3,615.45			
03 Foreman	27.00	HR	$86.27	$2,329.17			
18 Project Manager	6.75	HR	$147.83	$997.82			
20 Project Engineer	18.00	HR	$103.59	$1,864.70			
Truck, Pickup, 1 Ton	0.28	MO	$2,747.00	$766.60			
Truck, Pickup, 3/4 Ton	0.13	MO	$2,053.00	$262.59			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$8,807.14	7.43%
Equipment Owned:	$1,029.20	0.87%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$108,644.38	91.70%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$118,480.72	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$118,480.72	93.57%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$1,067.68	0.84%
Total Overall Cost:	$119,548.40	94.42%
Total Overhead:	$0.00	0.00%
Total Profit:	$7,067.81	5.58%
Total Margin:	$7,067.81	5.58%
Total Bid Price:	$126,616.21	Cost

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-074A East RAS WAS Electrical Changes (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-074A	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Seal Water Pipe Credit	**8.00**	**UNIT**	**$308.93**	**$2,471.44**	**$308.93**	**$2,471.44**	**-0.00%**
Mechanical Crew, 2 Man (4.00 UNIT/DY, 2.00 DY)	8.00	UNIT	$255.20	$2,041.63			
03 Foreman	18.00	HR	$65.92	$1,186.54			
05 Skilled Labor	18.00	HR	$47.51	$855.10			
Copper Pipe, & Fittings	1.00	LF	$429.81	$429.81			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$2,041.63	82.61%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$429.81	17.39%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$2,471.44	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$2,471.44	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$2,471.44	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	-0.00%
Total Margin:	$0.00	-0.00%
Total Bid Price:	$2,471.44	CREDIT

-QUOTATION-

BNR CC30B
EAST RAS PUMP ELECTRICAL CHANGES

July 28, 2022

Attn: Shay Clark

Shay Clark
Gerber Construction
815 E 675 S
Lehi, UT 84043

Shay,

Here are the costs involved with the changes need involving CCF058 East Ras Pump electrical changes

Scope includes:
Change 8 VFD's to 50HP VFD's from 40HP
Change 8 100A breakers to 110A Breakers
Change 8 control stations to include MPR's
Add 8 terminal boxes with associated hardware and conduit
Add extra materials for bigger 8 stands
Remove conduit and wire to SV and FSL's

Please contact me with any questions.

Price: $ 108,644.38

Best regards,

Jeremy Jones
Project Engineer
Skyline Electric Co.

Contract Change

CTRL#:	
Rev #:	
RFI #:	
JOB #:	

Date:			
Project:	BNR CC30B	Submitted to:	Shay Clark
Project No:	2010010	Company:	Gerber Construction
Submitted by:	JEREMY JONES	Address:	815 E 675 S
Change Title:	**CCF058 EAST RAS PUMP ELECTRICAL CHANGES**	City/State/Zip:	Lehi, UT 84043

Change Description:

Change 8 VFD's to 50HP VFD's from 40HP
Change 8 100A breakers to 110A Breakers
Change 8 control stations to include MPR's
Add 8 terminal boxes with associated hardware and conduit
Add extra materials for 8 bigger stands
Remove conduit and wire to SV and FSL's

We are requesting a contract time extension for this change in scope by: ***Days.*** **Does not include CO processing time , time shall begin from date of approval.*

	Material $	Subcontracts $	Labor Hrs
MATERIAL COST (from pricing sheets; attached)……	$85,874.68		
SUBCONTRACTOR PRICING (from quote sheets; attached)……..		$2,672.00	
Base Labor Hours (from pricing sheets)……..			-48.60

LABOR FACTOR:

material handling		2.00%					-0.972
cleanup		3.00%					-1.458
safety		1.25%					-0.6075
other factors		0.00%					0
other impact*	OT	overmanning	stacking	shift	Composite	Tax $6,655.29	
cumulative Impact	0.00%	0.00%	0.00%	0.00%	0.00%		0.00

SUBTOTAL	loc 1 $ 92,529.97	loc 2 $ 2,672.00	-51.64
		RATE: $	59.00
extension:		$	-3,046.61

	%of hrs		hrs.		diff.	rate $		
Supervision Labor Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
GF Premium	0.00%	hrs	0.00	rate	$30.00	$92.00	$	0.00
F Premium	0.00%	hrs	0.00	rate	$27.00	$85.00	$	0.00
J Premium	0.00%	hrs	0.00	rate	$27.00	$80.00	$	0.00
F Double Time	0.00%	hrs	0.00	rate	$51.00	$107.00	$	0.00
J Double Time	0.00%	hrs	0.00	rate	$46.00	$100.00	$	0.00
TOTAL DIRECT LABOR COST	**O28*E32**						loc 3 $	-3,046.61

JOB EXPENSE:

permit				$0.00	FIELD Cont.				
OFFICE					Layout / Coordination	0	hrs@	$77.00	$0.00
project management	0	hrs@	$82.00	$0.00	Testing	0	hrs@	$77.00	$0.00
change estimating	0	hrs@	$82.00	$0.00	Shop Drawings / Submittals	0	hrs@	$82.00	$0.00
CAD coordination	0	hrs@	$82.00	$0.00	Freight				$0.00
CAD as-builds	0	hrs@	$82.00	$0.00	Fuel & Consumables				$0.00
FIELD					Tools & Equipment		2% of Labor Dollars		-$60.93
change management	0	hrs@	$77.00	$0.00	Jobsite Trailer / Storage Rental	0	mo@	$125.00	$0.00
change estimating	0	hrs@	$77.00	$0.00	Pick-up Truck	0	dy@	$80.00	$0.00
as-builds	0	hrs@	$77.00	$0.00	Equipment Rental	0	wk@	$600.00	$0.00
EXPENSE TOTAL								loc 4 $	-60.93

MATERIAL		from loc 1	$	92,529.97
SUBCONTRACTS		from loc 2	$	2,672.00
JOB EXPENSE		from loc 4	$	-60.93
LABOR		from loc 3	$	-3,046.61
WARRANTEE	1.50%		$	1,381.42
BOND	1.44%		$	1,346.05
subtotal			$	94,821.89
OVERHEAD + PROFIT	15.00%		$	13,822.48
TOTAL CHANGE			$	108,644.38

Date Accepted:		CO#	0
Accepted by:			

Signature: _____

*Skyline Electric Company reserves the right to assess the cumulative impact of this change and to adjust its schedule and price as necessary.

Job ID: FY2020-0187
Project: CVWRF CC30B BNR Basins

CO: CCF058: EAST RAS PUMP ELECTRICAL CHANGES

Takeoff

Vendor: Target | **Labor Level:** LABOR 2 | **27 Dec 2022 10:37:30**

Item: BASE BID
└**Phase:** ADDITIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
29	8.00		M		HOFFMAN 12X12X6 NEMA 4X TERMINAL BOX	1,200.0000	9,600.00	1.0000	8.00
100088	8.00	EA	M	2-CKT	30A TERMINAL STRIP	5.8400	46.72	0.2200	1.76
	0.00				**150A terminal block**				
1	8.00		M		90* Terminal block	59.6000	476.80	0.5000	4.00
10101	40.00	FT	M	1	PVC COATED GRC 40MIL	7.8803	315.21	0.1250	5.00
490014	16.00	EA	M	1	GRC/PVC CTD (MYERS TYPE) HUB	101.7200	1,627.52	1.6500	26.40
100539	8.00	EA	M	CBL OD .625 > .750	STRAIN RELIEF 3/4 & 1" AL CORD GRIP	98.6000	788.80	0.2100	1.68
	0.00				**BIGGER STAND MATERIALS**				
31	8.00		M		EQUIPMENT STAND	600.0000	4,800.00	1.0000	8.00
160645	20.00	FT	M	1/2-13	THREADED ROD (SS)	3.5000	70.00	0.1370	2.74
160591	2.00	OZ	M	OUNCE	CONCRETE DOWL EPOXY (2-PART)	32.0000	64.00	0.3000	0.60
10104	40.00	FT	M	2	PVC COATED GRC 40MIL	15.8724	634.90	0.2250	9.00
490017	8.00	EA	M	2	GRC/PVC CTD (MYERS TYPE) HUB	205.6700	1,645.36	2.2000	17.60
32	1.00		M		VENDOR QUOTE VFD SIZE CHANGES	115,528.0000	115,528.00	0.0000	0.00
						Phase Totals:	**135,597.31**		**84.78**

Item: BASE BID
└**Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
	0.00				**WIRE TO FSL'S**				
70060	-2,100.00	FT	M	14	XHHW CU (STR)	0.2205	-463.05	0.0120	-25.20
	0.00				**WIRE TO SV'S**				
70060	-2,100.00	FT	M	14	XHHW CU (STR)	0.2205	-463.05	0.0120	-25.20
10100	-1,200.00	FT	M	3/4	PVC COATED GRC 40MIL	6.4775	-7,773.00	0.0525	-63.00
50078	-40.00	FT	M	2	LIQUIDTITE CONDUIT	6.9740	-278.96	0.2500	-10.00
50089	-16.00	EA	M	2	LIQUIDTITE ANGLE CONNECTOR	38.5356	-616.57	0.6240	-9.98

Item: BASE BID
└**Phase:** DEDUCTIVE

Item #	Qty	U/M	Q/M	Size	Description	Material Unit	Material Result	Labor Unit	Labor Result
2	-1.00		M		VENDOR QUOTE VFD SIZE CHANGES	40,128.0000	-40,128.00	0.0000	0.00
						Phase Totals:	**-49,722.63**		**-133.38**
						Job Totals:	**85,874.68**		**-48.60**

CODALE ELECTRIC SUPPLY, INC.

7095 South 700 West Midvale, Ut 84047 801-262-6900

From: *Allen Page*
Quote # :
Bid Date: 12/23/2022

Direct: 801-233-5460

Revision #1

JOB NAME: CVWRF CC30B BNR
Attn: Jeremy

Item	Qty.	Description	Notes
		CCF058 CHANGE	
			EACH PRICE
	-4	Dual 100A HFD Feeder Bubuckets	($2,170.00)
	4	Change Dual 100A HFD Feeder Buckets to 125A HFD Feeders	$6,700.00/EA
	-8	40HP VFD's	($3,931.00)
	8	Change VFD's from 40HP to 50HP	$11,091.00/EA

TOTAL $75,400.00 ADDER

Clarifications:

Quotation includes ONLY items specifically in this bill of material and it's referenced attachments.
Lamps are included in package price for all listed fixtures. Installation of lamps is by contractor.
Emergency packs are contractor/field installed unless otherwise noted.
Quoted price includes standard ground freight to job site. (unless noted otherwise.)
Quoted price does NOT include tax.
Quotation good for 30 days from bid date.
(subject to standard factory terms & conditions, available upon request.)
Submittal lead time is 1 week after receipt of order.
Estimated material lead time is available upon request, (allow 1-2 days)
If you need modifications made to this quote please contact me at your earliest convenience.
No spares included unless specifically noted.

PDI Leading by Design…

1261 Wilson Ave Suite D, Pocatello, Idaho 83201. Office (208) 237-2529

CVWRF – CC30B BNR Basins Project:
Local Control Stations Change Order (CCF 058)
Quote Date: June 27th, 2022

Addenda 1 thru 6 have been recognized.

Scope of Supply:

1. Modify the Following Local Control Stations:

CCF 058 Local Control Stations, per Drawing I-00-6531 (Typ. Of 8).

- Add Customer Provided Motor Protection Relay per Detail "D."

Labor:

Work Includes:

- LCS Modification.
- Packaging for Shipping.
- Attend Construction Meetings as needed.
- Coordination with Vendors and Contractor as Needed.
- Startup and Job Closeout.

Project Pricing

LCS Modification Labor (CCF 058)	***$ 2,000***
LCS Materials	***$ 625***
Sales Tax on Materials	***$ 47***

Specifically Not Included

- Permits, Bonding and Licensing.
- Spare Parts.
- Equipment or Services not Mentioned Above.

PDI appreciates the opportunity to work with you. We will be available at any of the numbers below. Please do not hesitate to call if you have any questions.
Phone 208-240-7382, 208-237-2529.

Sincerely,

Russ Ekins

Russ Ekins

marathon™ Special Products

Product Data Sheet

142X121

Replace "x" with 1, 2, or 3 for number of poles

Power Terminal Block

150 Amps 600 Volts AC/DC

Wire Range

- Line: (1) 1/0 - #14 AWG
- Load: (1) 1/0 - #14 AWG

Electrical Ratings

- 150 Amps
- 600V per UL 1059 & CSA 22.2 No.158, class B & C requirements
- Short circuit current ratings (SCCR): See SCCR section below for specifications
- CU9 - 90°C connector terminal rating with copper wire
- Factory & Field Wiring

Agency Compliance

- UR - UL Recognized Terminal Block, Evaluated to UL 1059, File No.XCFR2.E62806
- CSA - certifed to C22.2 No. 158, File No. LR19766 (wire classes B & C only)
- CE compliant to IEC 60947-7-1

Material Information

- Insulator base:
  - Phenolic
  - Flammability rating of insulator base UL94V0
  - Insulator base temperature rating: -40°C to 150°C (UL RTI)
- Connector: copper, tin plated
- Terminal screws: steel, nickel plated
- Connector mounting screws: steel, zinc plated
- RoHS compliant

CHANGE CONTROL FORM 058
East RAS Pump Change

Owner: Central Valley Water Reclamation Facility	**Project: BNR Basins**	
Contractor: Gerber Construction	**Date: 06/13/2022**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Owner has indicated they will be substituting the horizontal non-clog variable speed centrifugal pumps specified in 43 23 05 for RAS pumps P210101, 2, 3, 4, 5, 6, 7 and 8 with Flygt horizontal dry pit submersible non-clog pumps by Xylem.

As a result of this substitution the following changes shall be made to the original design.

1. Provide 100% port plug valves on RAS piping.
2. The substitute pumps are rated at 45 HP in lieu of the specified 40 HP to meet the required process performance. As detailed in RFI 137 and depicted on the attached one-line diagrams E-21-7002 and E-21-7003, the contractor shall provide a 110 amp feeder circuit breaker in the MCC in lieu of the specified 100 amp and provide a 50HP, 72A VFD in lieu of the specified 40HP, 58A VFD.
3. The substitute pumps are provided with a factory sealed power/control cable. The contractor shall provide a NEMA 4X stainless steel terminal box at each pump for termination of the manufacturer's cable. The connection for the cable shall be similar to that depicted in attached detail E5013. As these pumps are in a dry pit, the cable shall enter directly into the terminal box using a liquid tight stainless steel mesh strain relief, Hubbell wiring device-Kellems #074011247 or equal, without the need for conduit and conduit seal. The power feeder cable from the associated VFD to the pump shall terminate at the terminal box in lieu of directly to the motor as depicted on plan drawing E-21-1111.
4. The substitute pumps are provided with internal moisture/temperature sensing along with a moisture/temperature monitoring relay that is shipped separately. The contractor shall provide a control station per detail D on contract drawing I-00-6531 for each pump in lieu of the specified detail B to accommodate the contractor installation of the manufacturer's relay, reference attached revised process control system panel schedule. The associated monitoring cable from the pump sensors, CBLC21010x-B, shall be routed between the new terminal box and control station in lieu of from the original specified TSH to the control station as depicted on the attached P&IDs, cable and raceway schedules, and plan drawings. The pump control circuits shall be wired per typical wiring schematic 6 on contract drawing E-00-7106 in lieu of the specified schematic 7 on contract drawing E-00-7107 as indicated on the attached revised motor schematic equipment schedule E-21-7151.
5. The substitute pumps do not require seal water. The seal water solenoid, flow switch, monitoring and control wiring and all associated seal water piping shall be removed from the scope of work as depicted on the attached P&IDs, cable and raceway schedules and plan drawing.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**

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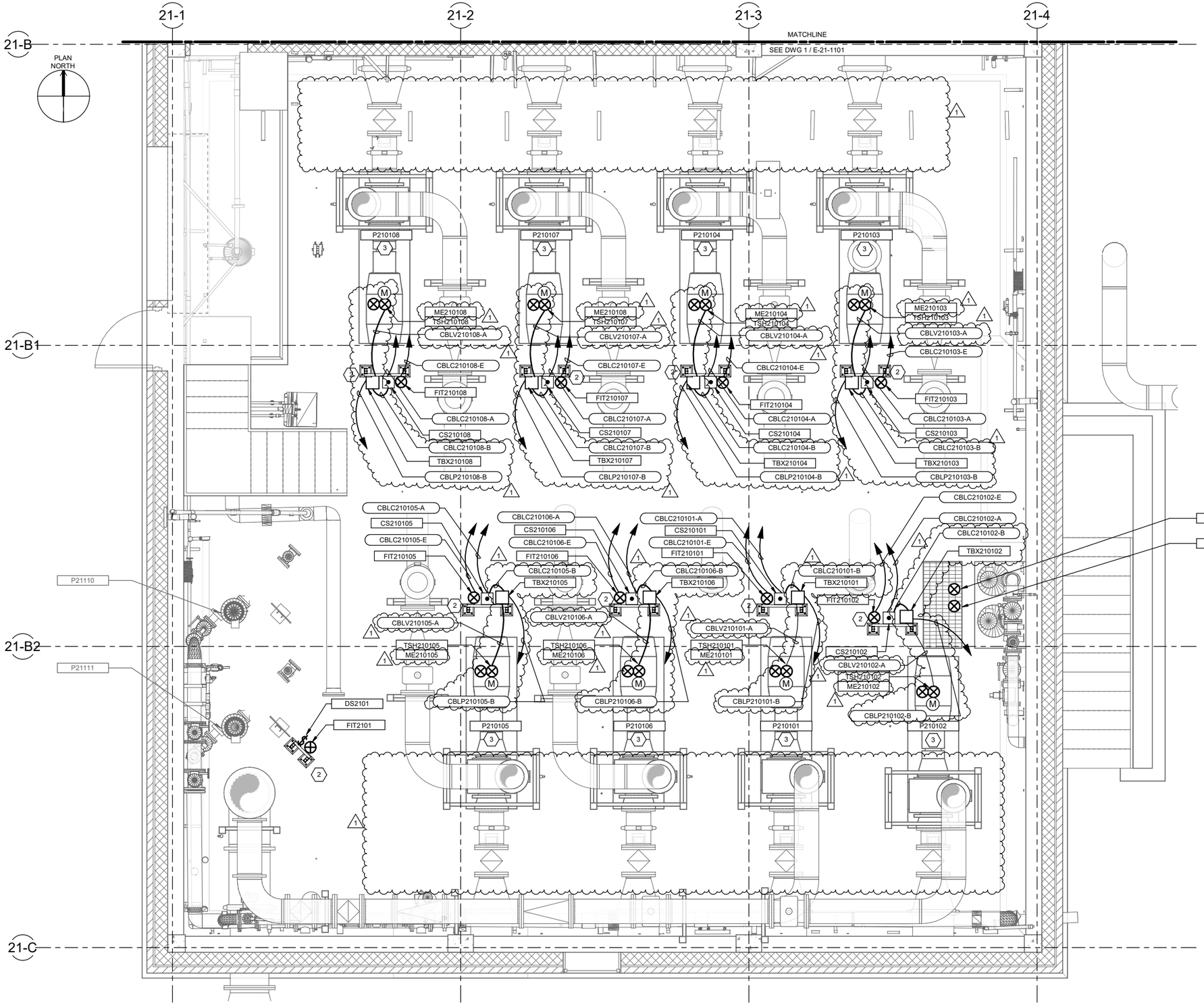
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive	
You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.	
Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:



PLAN

SCALE: 3/8" = 1'-0"

KEY PLAN

GENERAL NOTES:

1. ROUTE NEW CONDUIT ON WALLS BACK TO ELECTRICAL ROOM TO AVOID THE BRIDGE CRANE OPERATING SPACE.

KEYNOTES (CC30B):

1. RELOCATE LEVEL SWITCHES TO CENTER OF EAST WALL OF SUMP. INTERCEPT AND EXTEND EXISTING CONDUITS TO THE NEW DEVICE LOCATIONS. PROVIDE NEW CONDUCTORS OF THE SAME SIZE AND QUANTITY AND RECONNECT TO MAINTAIN EXISTING CIRCUITRY.
2. EQUIPMENT RACK PER DETAIL E4011. MOTOR RACEWAY OVERHEAD FEED PER DETAIL E2303.
3. NEW RAS PUMP AND ASSOCIATED EQUIPMENT LOCATIONS. REFER TO P&IDS, ONE-LINE DIAGRAMS, AND TYPICAL MOTOR SCHEMATICS FOR ADDITIONAL REQUIREMENTS.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: R. LEWIS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

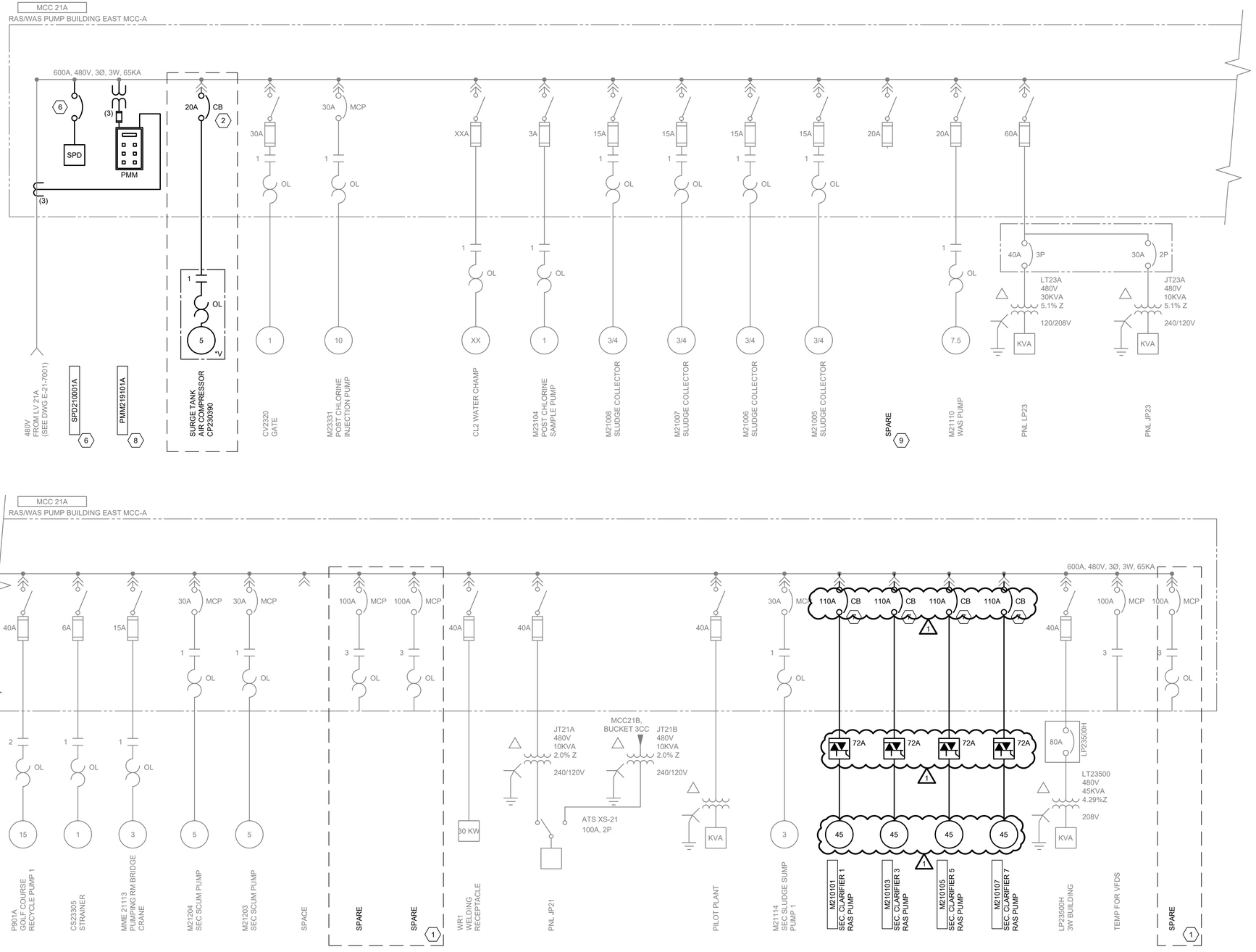
FILENAME 151600-E-21V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

ELECTRICAL

EAST RAS/WAS PUMP BUILDING PUMP ROOM POWER AND CONTROL PLAN

DRAWING NUMBER
E-21-1111

Path: BIM 360://151600 - Central Valley Nutrients/151600-E-21V21.rvt
Plot Date: 5/18/2022 12:45:22 PM



GENERAL NOTES :

1. THIS DRAWING ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.
2. VERIFY AFTERMARKET MCC CATALOG NUMBERS WITH MANUFACTURER PRIOR TO CONSTRUCTION.

KEYNOTES (CC5F):

1 LOAD REMOVED.

2 PROVIDE EATON FSF1B18 SERIES MCC BUCKET TO RETROFIT WESTINGHOUSE FIVE STAR MCC. REFER TO E-21-8002 FOR ADDITIONAL REQUIREMENTS.

3 NOT USED.

4 NOT USED.

5 NOT USED.

KEYNOTES (CC30B):

6 NEW SPD. PROVIDE EATON SPD100483J TO RETROFIT WESTINGHOUSE FIVE STAR MCC. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.

7 NEW CIRCUIT BREAKER. PROVIDE EATON FSF2LL12 SERIES MCC BUCKET TO RETROFIT WESTINGHOUSE FIVE STAR MCC. REFER TO E-21-8002 FOR ADDITIONAL REQUIREMENTS.

8 NEW PMM. CONNECT EATON CATALOG # 4710A55H03 CURRENT TRANSFORMER TO INCOMING FEED. COORDINATE WITH MANUFACTURER TO PROVIDE EATON SERIES MCC BUCKET TO RETROFIT WESTINGHOUSE FIVE STAR MCC (ORDER BY DESCRIPTION ONLY).

9 LOAD REMOVED.

10 NOT USED.

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Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: R. LEWIS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-21-7002.DWG

BC PROJECT NUMBER
151600

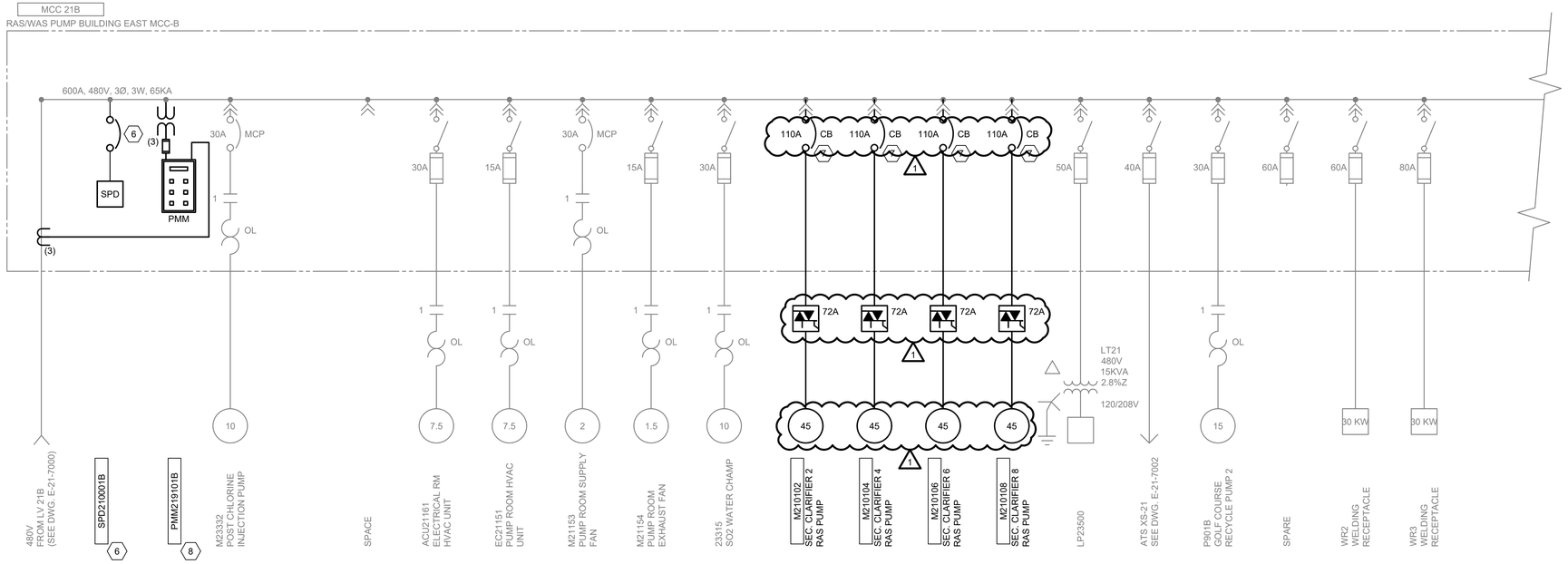
CLIENT PROJECT NUMBER
CC30B

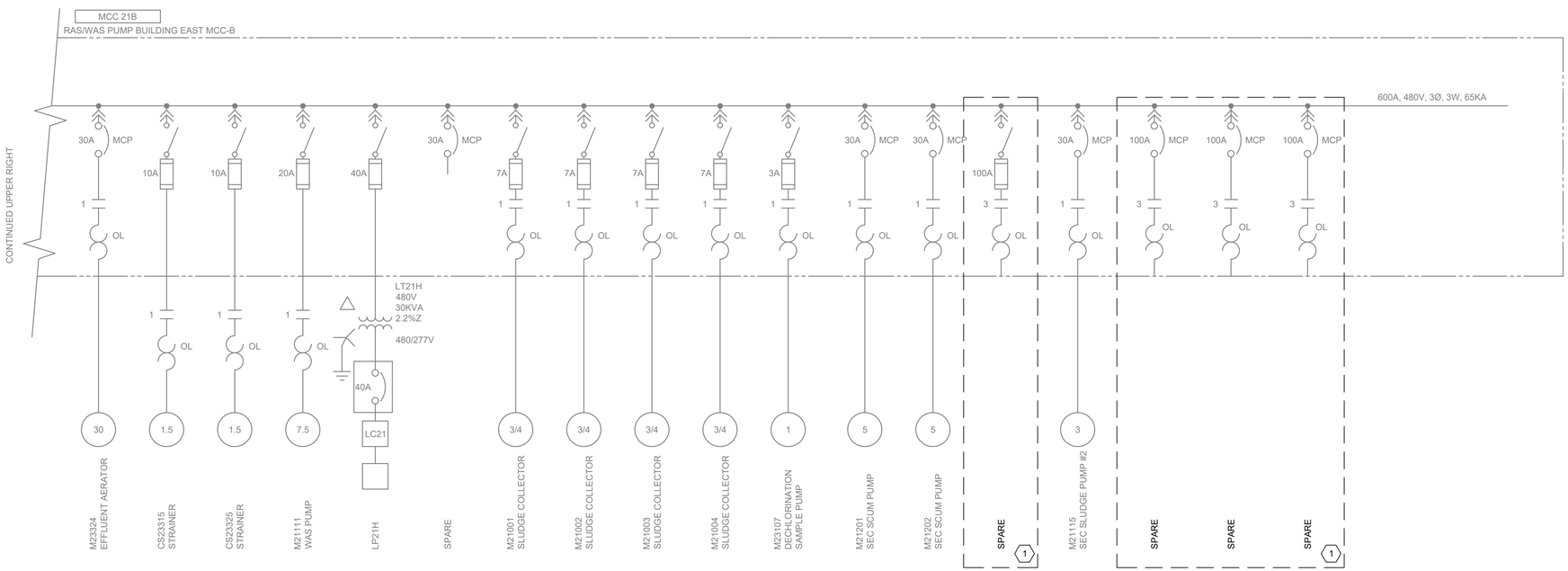
ELECTRICAL

EAST RAS-WAS PUMP BUILDING ONE LINE MCC21A

DRAWING NUMBER
E-21-7002

Path: C:\BCPW\D2160813 FILENAME: E-21-7002.DWG PLOT DATE: 5/9/2022 1:07 PM CAD USER: SAM MCBRIDE





GENERAL NOTES :

1. THIS DRAWING ISSUED IN MULTIPLE CONTRACTS. SEE NOTES BELOW FOR SCOPE DELINEATION.
2. VERIFY AFTERMARKET MCC CATALOG NUMBERS WITH MANUFACTURER PRIOR TO CONSTRUCTION.

KEYNOTES (CC5F):

1 LOAD REMOVED.
2 NOT USED.
3 NOT USED.
4 NOT USED.
5 NOT USED.

KEYNOTES (CC30B):

6 NEW SPD. PROVIDE EATON SPD100483J TO RETROFIT WESTINGHOUSE FIVE STAR MCC. PROVIDE CIRCUIT BREAKER SIZED AS REQUIRED BY SPD MANUFACTURER. ALL SETTINGS SHALL BE CONFIRMED WITH SHORT CIRCUIT AND COORDINATION STUDY.

7 NEW CIRCUIT BREAKER. PROVIDE EATON FSF2LL12 SERIES MCC BUCKET TO RETROFIT WESTINGHOUSE FIVE STAR MCC. REFER TO E-21-8003 FOR ADDITIONAL REQUIREMENTS.

8 NEW PMM. CONNECT EATON CATALOG # 4710A55H03 CURRENT TRANSFORMER TO INCOMING FEED. COORDINATE WITH MANUFACTURER TO PROVIDE EATON SERIES MCC BUCKET TO RETROFIT WESTINGHOUSE FIVE STAR MCC (ORDER BY DESCRIPTION ONLY).

9 NOT USED.

10 NOT USED.

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. GROSS
DRAWN: R. LEWIS
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-21-7003.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL
EAST RAS-WAS PUMP BUILDING ONE LINE MCC21B

DRAWING NUMBER
E-21-7003

Path: C:\BCPW\D2160813 FILENAME: E-21-7003.DWG PLOT DATE: 5/9/2022 1:07 PM CAD USER: SAM MCBRIDE

GENERAL NOTES:

1. THE TYPICAL MOTOR SCHEMATIC EQUIPMENT SCHEDULE ON THIS DRAWING PROVIDES REFERENCES TO THE TYPICAL MOTOR SCHEMATIC ASSOCIATED WITH SPECIFIC MOTORIZED EQUIPMENT PROVIDED BY THE CONTRACTOR. REFER TO THE REFERENCED MOTOR SCHEMATIC FOR CONTROL AND WIRING REQUIREMENTS SPECIFIC TO THE EQUIPMENT.

EQUIPMENT TAG	EQUIPMENT DESCRIPTION	TYPICAL MOTOR SCHEMATIC	NOTES
M210101	SECONDARY CLARIFIER 1 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210102	SECONDARY CLARIFIER 2 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210103	SECONDARY CLARIFIER 3 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210104	SECONDARY CLARIFIER 4 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210105	SECONDARY CLARIFIER 5 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210106	SECONDARY CLARIFIER 6 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210107	SECONDARY CLARIFIER 7 RAS PUMP	~~E-00-7107~~ E-00-7106	
M210108	SECONDARY CLARIFIER 8 RAS PUMP	~~E-00-7107~~ E-00-7106	

1

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CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: J. JACKSON
DRAWN: S. MCBRIDE
CHECKED: G. KUMATAKA
CHECKED:
APPROVED: J. COX

FILENAME
E-21-7151.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

ELECTRICAL

AREA 21 TYPICAL MOTOR SCHEMATIC EQUIPMENT SCHEDULE

DRAWING NUMBER
E-21-7151

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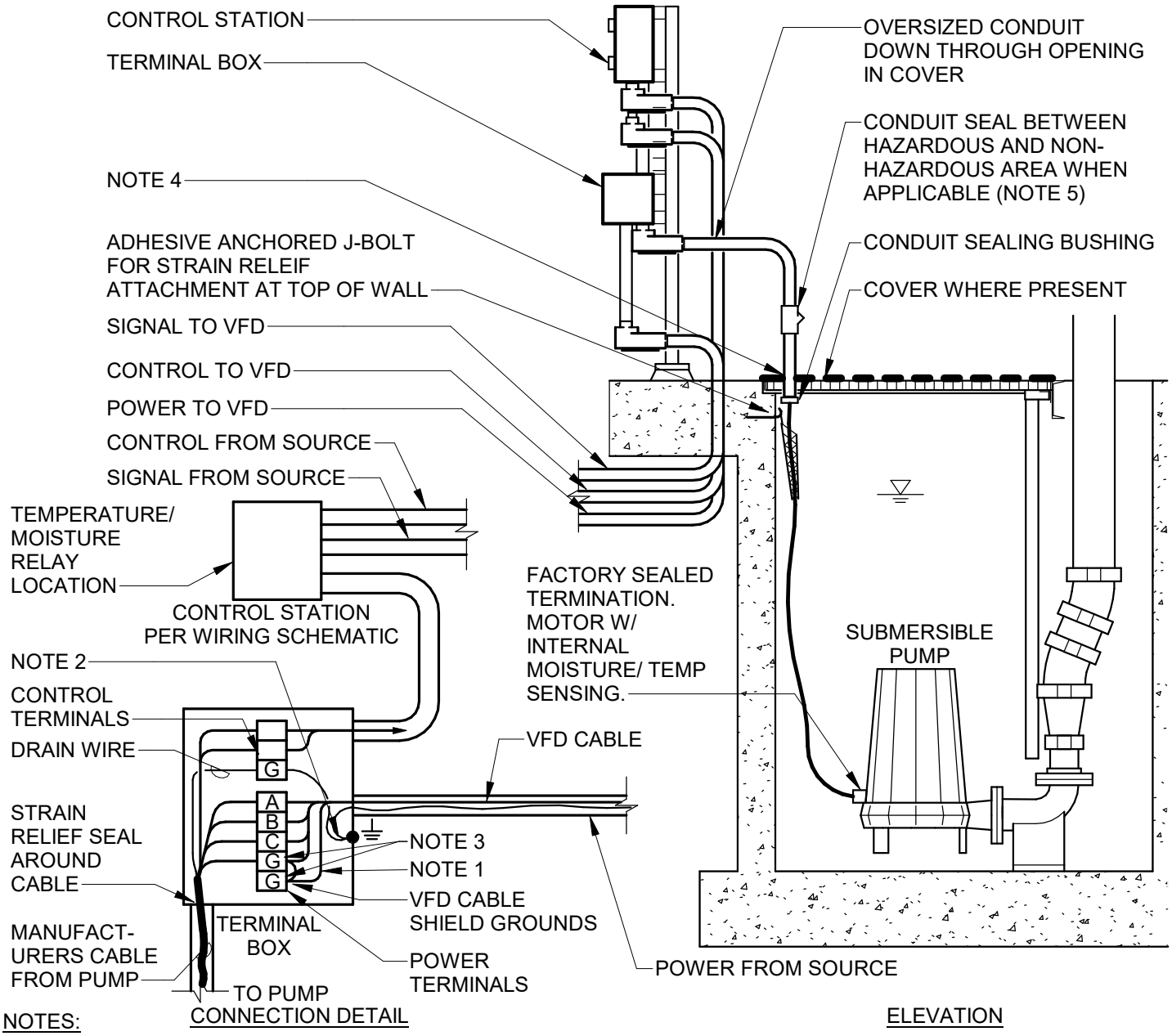

CONNECTION DETAIL

ELEVATION

NOTES:

1. ALL INTERNAL VFD CABLE GROUND CONDUCTOR(S) SHALL BE CONSIDERED SHIELD GROUNDS AND SHALL BE BONDED TO GROUND AT POWER SOURCE AND MOTOR ONLY. INTERNAL GROUNDS SHALL NOT BE USED FOR THE EGC FUNCTION.
2. PROVIDE SEPERATE EGC.
3. GROUND TERMINALS TO REMAIN FLOATING.
4. CONDUIT PENETRATION IS REPRESENTATIONAL DEPICTION ONLY. COORDINATE INSTALLATION WITH SHOP DRAWINGS.
5. REFERENCE AREA CLASSIFICATION PLANS FOR DETAILS ON HAZARDOUS AND NON HAZARDOUS AREAS. LOCATE TERMINAL BOX AND CONTROL STATION OUTSIDE OF CLASSIFIED ENVELOPE.

CVWRF

TYPICAL CONNECTION FOR VFD FED SUBMERSIBLE PUMP OR MIXER

DETAIL

E5013

SCALE: NONE

TYPICAL DETAILS

Brown AND Caldwell

Path: C:\Users\bbrittain\OneDrive - Brown and Caldwell\Documents\151600-TYPICAL_DETAILS-00V21_williambrittain2484.rvt

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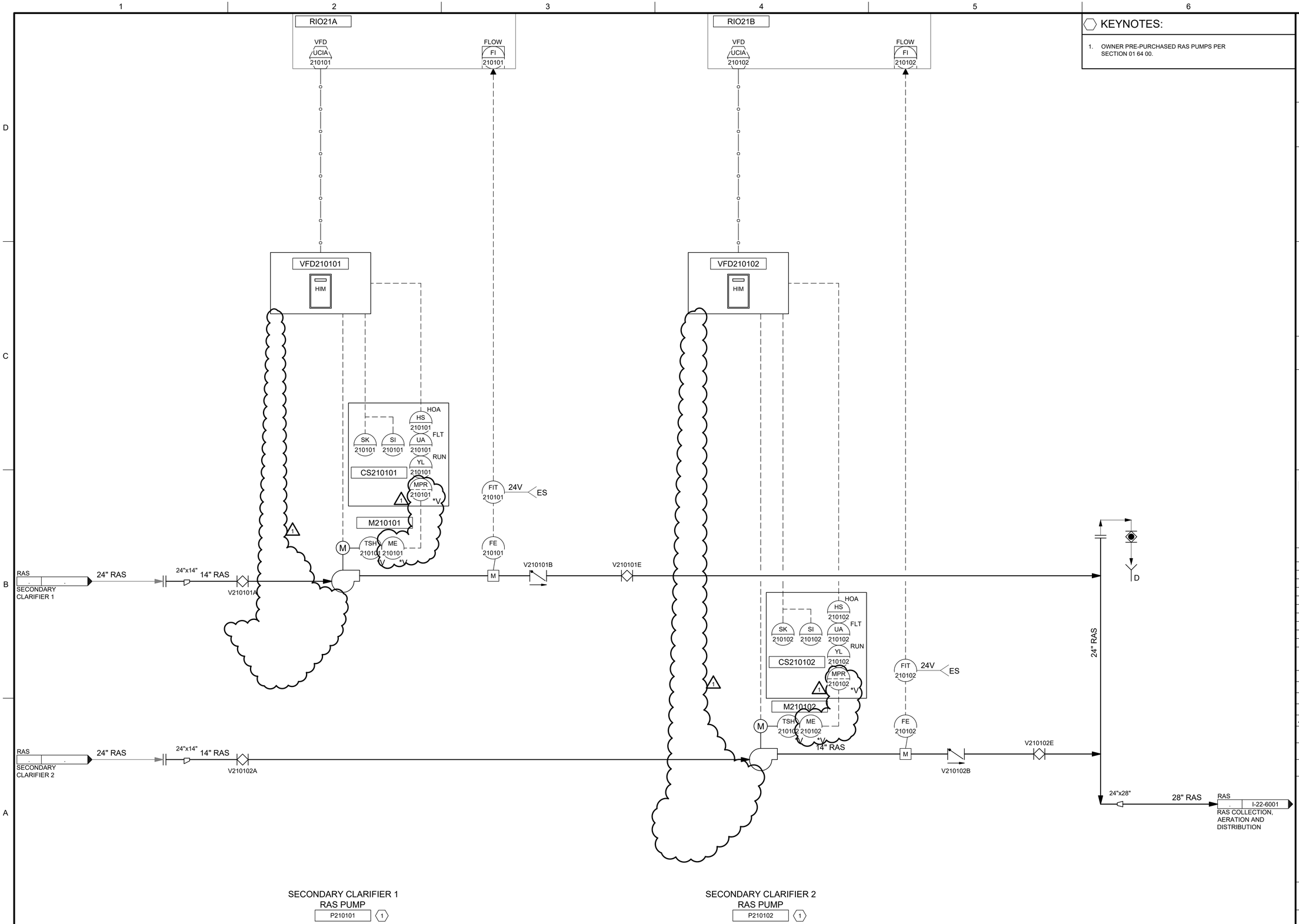

KEYNOTES:

1. OWNER PRE-PURCHASED RAS PUMPS PER SECTION 01 64 00.

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Salt Lake City, UT

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C V W R F

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: K. SEE
DRAWN: S. MCBRIDE
CHECKED: J. JACKSON
CHECKED:
APPROVED: N. KUNZ

FILENAME
I-21-6001.DWG
BC PROJECT NUMBER
151600
CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
SECONDARY
CLARIFIER 1 AND 2
RAS PUMPS

DRAWING NUMBER
I-21-6001

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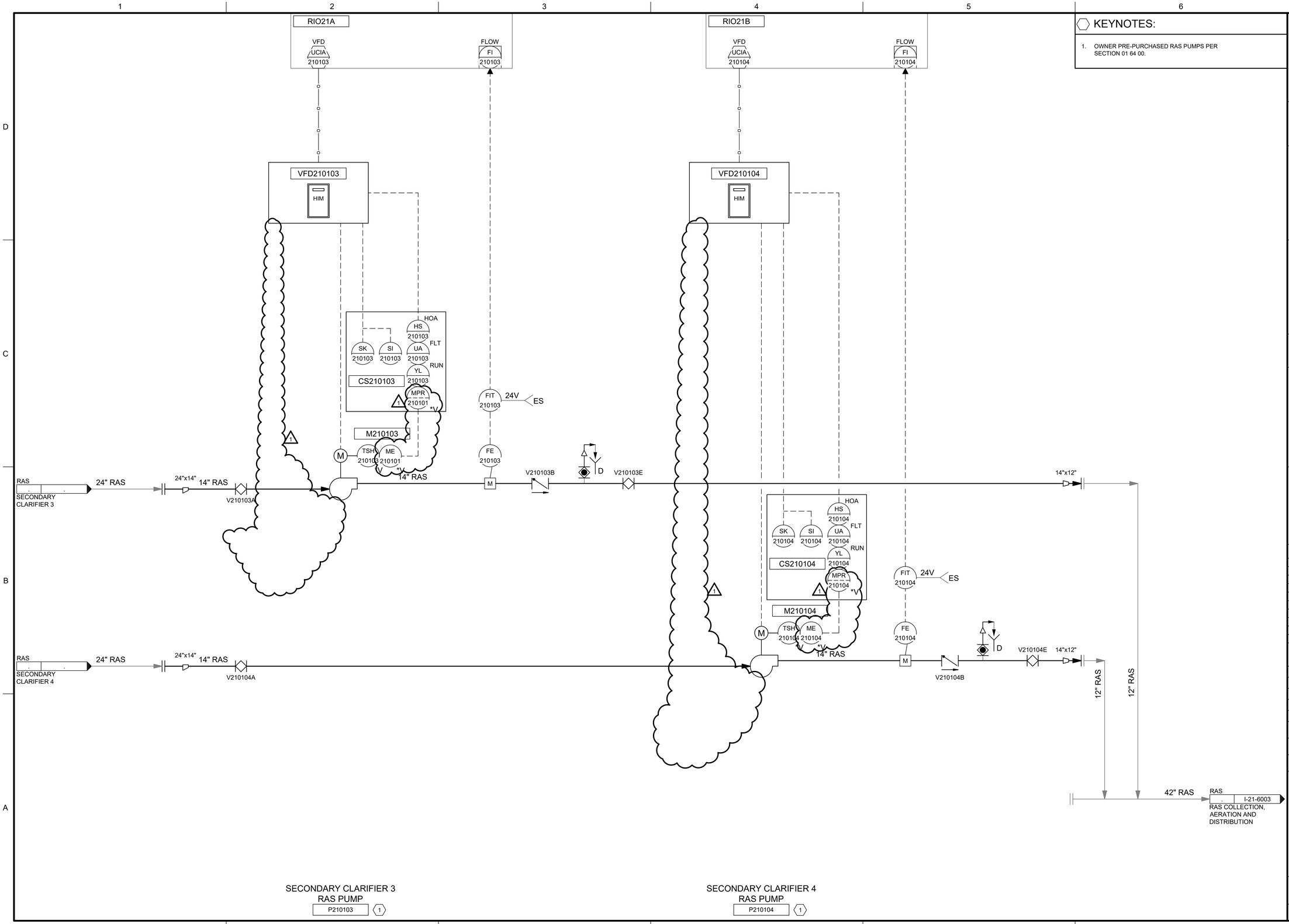

KEYNOTES:

1. OWNER PRE-PURCHASED RAS PUMPS PER SECTION 01 64 00.

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Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL
CC30B BNR
BASINS/PEPS/RAS
SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: K. SEE
DRAWN: S. MCBRIDE
CHECKED: J. JACKSON
CHECKED:
APPROVED: N. KUNZ

FILENAME
I-21-6002.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
SECONDARY
CLARIFIER 3 AND 4
RAS PUMPS

DRAWING NUMBER
I-21-6002

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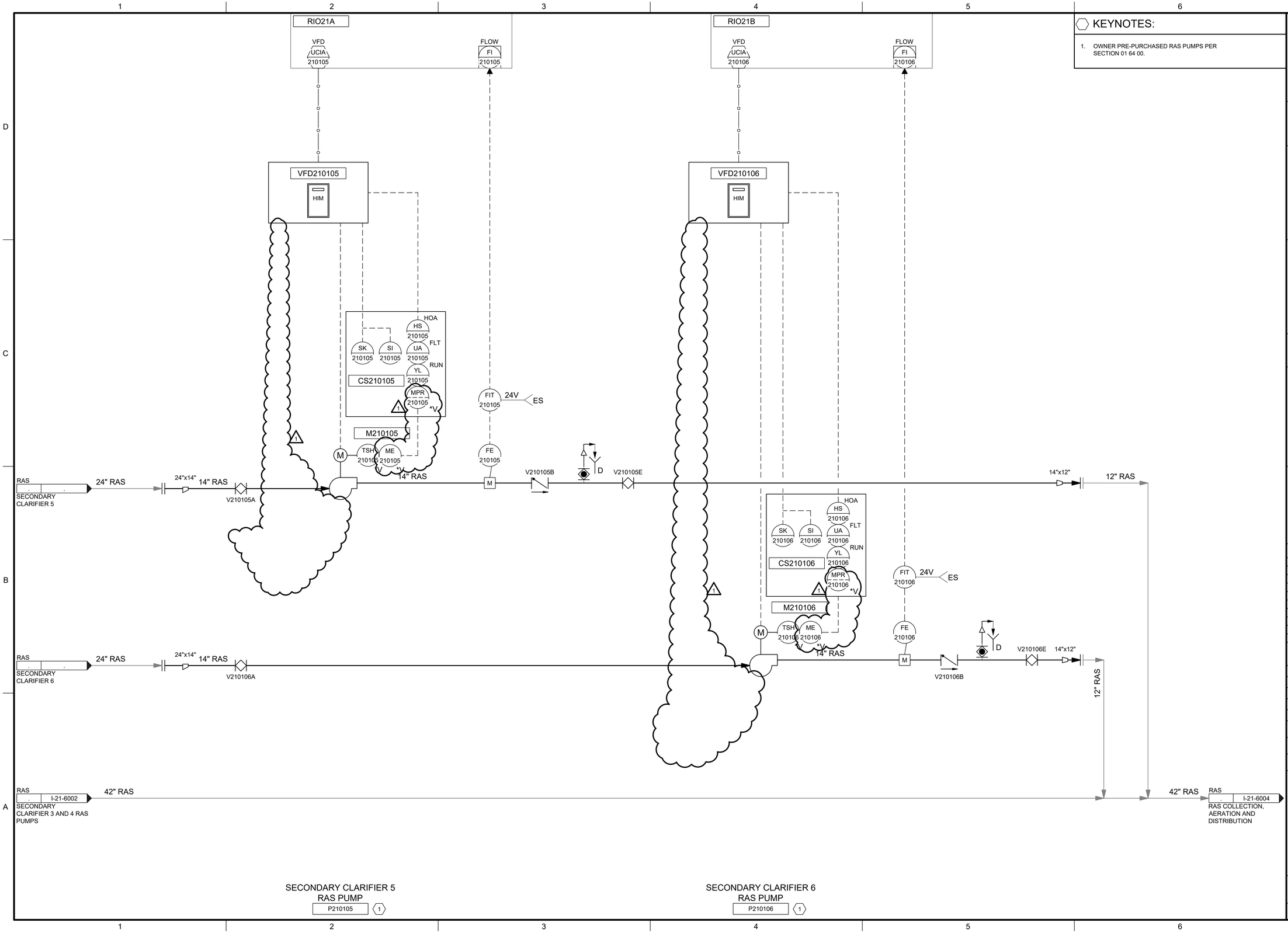

KEYNOTES:

1. OWNER PRE-PURCHASED RAS PUMPS PER SECTION 01 64 00.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: K. SEE
DRAWN: S. MCBRIDE
CHECKED: J. JACKSON
CHECKED:
APPROVED: N. KUNZ

FILENAME
I-21-6003.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION
SECONDARY CLARIFIER 5 AND 6 RAS PUMPS

DRAWING NUMBER
I-21-6003

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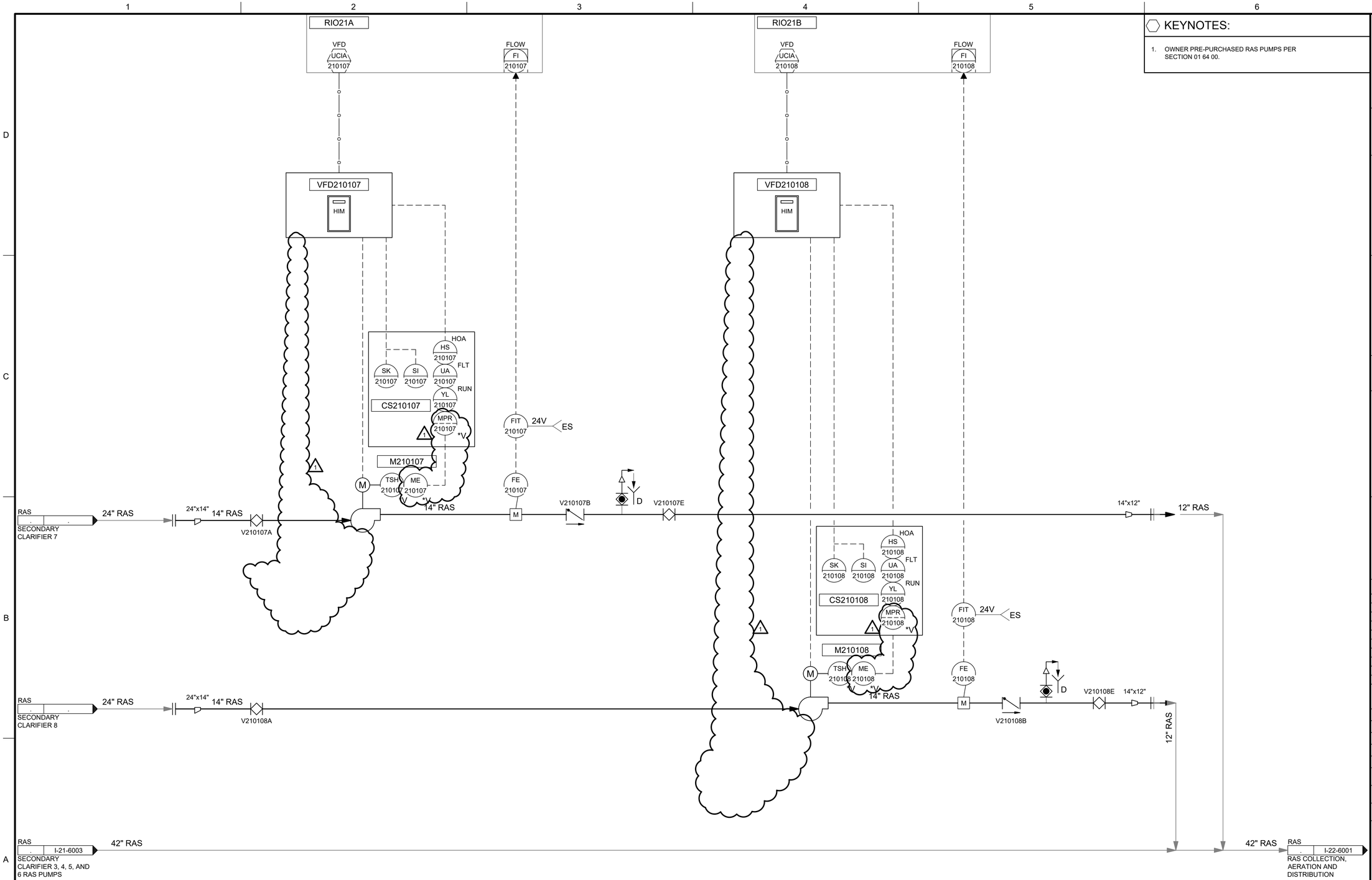

KEYNOTES:

1. OWNER PRE-PURCHASED RAS PUMPS PER SECTION 01 64 00.

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

C V W R F

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	05/2022	CC30B: CCF 058

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: K. SEE
DRAWN: S. MCBRIDE
CHECKED: J. JACKSON
CHECKED:
APPROVED: N. KUNZ

FILENAME
I-21-6004.DWG

BC PROJECT NUMBER
151600

CLIENT PROJECT NUMBER
CC30B

INSTRUMENTATION

SECONDARY CLARIFIER 7 AND 8 RAS PUMPS

DRAWING NUMBER
I-21-6004

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Process Control System Panel Schedule

Item	Area	Loop Number	Tag	Nameplate First Line	Nameplate Second Line	Nameplate Third Line	PID/Network Diagram	NEMA Rating	Features per Section 40 67 00	Panel Layout Drawing	Panel Wiring Diagram	Location Drawing	Application Notes
	21	0001	CAB210001	AREA 21 PLC PANEL			I-21-6101	12	1, 3	I-00-6501	I-00-6502	E-21-1101	
	21	0101	CS210101	SECONDARY CLARIFIER 1 RAS PUMP	CONTROL STATION		I-21-6001	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0102	CS210102	SECONDARY CLARIFIER 2 RAS PUMP	CONTROL STATION		I-21-6001	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0103	CS210103	SECONDARY CLARIFIER 3 RAS PUMP	CONTROL STATION		I-21-6002	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0104	CS210104	SECONDARY CLARIFIER 4 RAS PUMP	CONTROL STATION		I-21-6002	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0105	CS210105	SECONDARY CLARIFIER 5 RAS PUMP	CONTROL STATION		I-21-6003	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0106	CS210106	SECONDARY CLARIFIER 6 RAS PUMP	CONTROL STATION		I-21-6003	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0107	CS210107	SECONDARY CLARIFIER 7 RAS PUMP	CONTROL STATION		I-21-6004	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING
	21	0108	CS210108	SECONDARY CLARIFIER 8 RAS PUMP	CONTROL STATION		I-21-6004	4X	3	I-00-6531, ~~DET. B~~ DET. D	E-00-~~7107~~ 7106	E-21-1111	CC30B: CCF 058 CHANGE ORDER PENDING

CBLC	21	0101		-A			XHHW2	**10#14, 1#14G**	VFD210101	CS210101	RWYC210101-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0101		-B			XHHW2	2#14, 1#14G	CS210101	**TBX210101**	RWYC210101-B					E-21-1111	~~TSH210101~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0101**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210101**~~	~~**FSL210101**~~	~~**RWYC210101-C**~~					~~**E-21-1111**~~	~~**FSL210101**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0101**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210101**~~	~~**SV210101**~~	~~**RWYC210101-D**~~					~~**E-21-1111**~~	~~**SV210101**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0101		-B			VFD2	3#1, 3#6G	VFD210101	**TBX210101**	RWYP210101-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0101**		**-A**			**VENDOR**	**Special**	**TBX210101**	**M210101**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0102		-A			XHHW2	**10#14, 1#14G**	VFD210102	CS210102	RWYC210102-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0102		-B			XHHW2	2#14, 1#14G	CS210102	**TBX210102**	RWYC210102-B					E-21-1111	~~TSH210102~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0102**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210102**~~	~~**FSL210102**~~	~~**RWYC210102-C**~~					~~**E-21-1111**~~	~~**FSL210102**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0102**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210102**~~	~~**SV210102**~~	~~**RWYC210102-D**~~					~~**E-21-1111**~~	~~**SV210102**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0102		-B			VFD2	3#1, 3#6G	VFD210102	**TBX210102**	RWYP210102-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0102**		**-A**			**VENDOR**	**Special**	**TBX210102**	**M210102**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0103		-A			XHHW2	**10#14, 1#14G**	VFD210103	CS210103	RWYC210103-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0103		-B			XHHW2	2#14, 1#14G	CS210103	**TBX210103**	RWYC210103-B					E-21-1111	~~TSH210103~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0103**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210103**~~	~~**FSL210103**~~	~~**RWYC210103-C**~~					~~**E-21-1111**~~	~~**FSL210103**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0103**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210103**~~	~~**SV210103**~~	~~**RWYC210103-D**~~					~~**E-21-1111**~~	~~**SV210103**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0103		-B			VFD2	3#1, 3#6G	VFD210103	**TBX210103**	RWYP210103-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0103**		**-A**			**VENDOR**	**Special**	**TBX210103**	**M210103**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0104		-A			XHHW2	**10#14, 1#14G**	VFD210104	CS210104	RWYC210104-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0104		-B			XHHW2	2#14, 1#14G	CS210104	**TBX210104**	RWYC210104-B					E-21-1111	~~TSH210104~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0104**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210104**~~	~~**FSL210104**~~	~~**RWYC210104-C**~~					~~**E-21-1111**~~	~~**FSL210104**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0104**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210104**~~	~~**SV210104**~~	~~**RWYC210104-D**~~					~~**E-21-1111**~~	~~**SV210104**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0104		-B			VFD2	3#1, 3#6G	VFD210104	**TBX210104**	RWYP210104-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0104**		**-A**			**VENDOR**	**Special**	**TBX210104**	**M210104**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0105		-A			XHHW2	**10#14, 1#14G**	VFD210105	CS210105	RWYC210105-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0105		-B			XHHW2	2#14, 1#14G	CS210105	**TBX210105**	RWYC210105-B					E-21-1111	~~TSH210105~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0105**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210105**~~	~~**FSL210105**~~	~~**RWYC210105-C**~~					~~**E-21-1111**~~	~~**FSL210105**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0105**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210105**~~	~~**SV210105**~~	~~**RWYC210105-D**~~					~~**E-21-1111**~~	~~**SV210105**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0105		-B			VFD2	3#1, 3#6G	VFD210105	**TBX210105**	RWYP210105-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0105**		**-A**			**VENDOR**	**Special**	**TBX210105**	**M210105**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0106		-A			XHHW2	**10#14, 1#14G**	VFD210106	CS210106	RWYC210106-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0106		-B			XHHW2	2#14, 1#14G	CS210106	**TBX210106**	RWYC210106-B					E-21-1111	~~TSH210106~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0106**~~		~~**-C**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210106**~~	~~**FSL210106**~~	~~**RWYC210106-C**~~					~~**E-21-1111**~~	~~**FSL210106**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~**CBLC**~~	~~**21**~~	~~**0106**~~		~~**-D**~~			~~**XHHW2**~~	~~**2#14, 1#14G**~~	~~**VFD210106**~~	~~**SV210106**~~	~~**RWYC210106-D**~~					~~**E-21-1111**~~	~~**SV210106**~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0106		-B			VFD2	3#1, 3#6G	VFD210106	**TBX210106**	RWYP210106-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0106**		**-A**			**VENDOR**	**Special**	**TBX210106**	**M210106**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0107		-A			XHHW2	**10#14, 1#14G**	VFD210107	CS210107	RWYC210107-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0107		-B			XHHW2	2#14, 1#14G	CS210107	**TBX210107**	RWYC210107-B					E-21-1111	~~TSH210107~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**

~~CBLC~~	~~21~~	~~0107~~		~~-C~~			~~XHHW2~~	~~2#14, 1#14G~~	~~VFD210107~~	~~FSL210107~~	~~RWYC210107-C~~					~~E-21-1111~~	~~FSL210107~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~CBLC~~	~~21~~	~~0107~~		~~-D~~			~~XHHW2~~	~~2#14, 1#14G~~	~~VFD210107~~	~~SV210107~~	~~RWYC210107-D~~					~~E-21-1111~~	~~SV210107~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0107		-B			VFD2	3#1, 3#6G	VFD210107	**TBX210107**	RWYP210107-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0107**		**-A**			**VENDOR**	**Special**	**TBX210107**	**M210107**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0108		-A			XHHW2	**10#14, 1#14G**	VFD210108	CS210108	RWYC210108-A					E-21-1111	HAND-OFF-AUTO, TSH, RUN, FAULT **AND MSH - CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLC	21	0108		-B			XHHW2	2#14, 1#14G	CS210108	**TBX210108**	RWYC210108-B					E-21-1111	~~TSH210108~~ **MPR SENSORS CONTROL CABLE TO TBX - CC30B: CCF 058**	**CC30B**
~~CBLC~~	~~21~~	~~0108~~		~~-C~~			~~XHHW2~~	~~2#14, 1#14G~~	~~VFD210108~~	~~FSL210108~~	~~RWYC210108-C~~					~~E-21-1111~~	~~FSL210108~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
~~CBLC~~	~~21~~	~~0108~~		~~-D~~			~~XHHW2~~	~~2#14, 1#14G~~	~~VFD210108~~	~~SV210108~~	~~RWYC210108-D~~					~~E-21-1111~~	~~SV210108~~ **CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLP	21	0108		-B			VFD2	3#1, 3#6G	VFD210108	**TBX210108**	RWYP210108-B					E-21-1111	57.3A MOTOR RATED INPUT. CABLE SIZED PER MCC DESIGN GUIDELINE. (CCF 002 CHANGE ORDER PENDING) **TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**
CBLV	**21**	**0108**		**-A**			**VENDOR**	**Special**	**TBX210108**	**M210108**						**E-21-1111**	**VENDOR CABLE CC30B: CCF 058 CHANGE ORDER PENDING**	**CC30B**

WORKING

Cable Tray/Raceway Schedule

RWYC210101-B	3/4	Raceway		CBLC210101-B	CS210101	**TBX210101**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210101-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210101-C**~~	~~**VFD210101**~~	~~**FSL210101**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210101-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210101-D**~~	~~**VFD210101**~~	~~**SV210101**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210102-B	3/4	Raceway		CBLC210102-B	CS210102	**TBX210102**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210102-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210102-C**~~	~~**VFD210102**~~	~~**FSL210102**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210102-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210102-D**~~	~~**VFD210102**~~	~~**SV210102**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210103-B	3/4	Raceway		CBLC210103-B	CS210103	**TBX210103**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210103-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210103-C**~~	~~**VFD210103**~~	~~**FSL210103**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210103-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210103-D**~~	~~**VFD210103**~~	~~**SV210103**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210104-B	3/4	Raceway		CBLC210104-B	CS210104	**TBX210104**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210104-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210104-C**~~	~~**VFD210104**~~	~~**FSL210104**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210104-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210104-D**~~	~~**VFD210104**~~	~~**SV210104**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210105-B	3/4	Raceway		CBLC210105-B	CS210105	**TBX210105**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210105-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210105-C**~~	~~**VFD210105**~~	~~**FSL210105**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210105-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210105-D**~~	~~**VFD210105**~~	~~**SV210105**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210106-B	3/4	Raceway		CBLC210106-B	CS210106	**TBX210106**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210106-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210106-C**~~	~~**VFD210106**~~	~~**FSL210106**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210106-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210106-D**~~	~~**VFD210106**~~	~~**SV210106**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210107-B	3/4	Raceway		CBLC210107-B	CS210107	**TBX210107**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210107-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210107-C**~~	~~**VFD210107**~~	~~**FSL210107**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210107-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210107-D**~~	~~**VFD210107**~~	~~**SV210107**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYC210108-B	3/4	Raceway		CBLC210108-B	CS210108	**TBX210108**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210108-C**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210108-C**~~	~~**VFD210108**~~	~~**FSL210108**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
~~**RWYC210108-D**~~	~~**3/4**~~	~~**Raceway**~~		~~**CBLC210108-D**~~	~~**VFD210108**~~	~~**SV210108**~~	**REMOVE FROM SCOPE CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	25%	3/4	
RWYP210101-B	2	Raceway		CBLP210101-B	VFD210101	**TBX210101**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210102-B	2	Raceway		CBLP210102-B	VFD210102	**TBX210102**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210103-B	2	Raceway		CBLP210103-B	VFD210103	**TBX210103**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210104-B	2	Raceway		CBLP210104-B	VFD210104	**TBX210104**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210105-B	2	Raceway		CBLP210105-B	VFD210105	**TBX210105**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210106-B	2	Raceway		CBLP210106-B	VFD210106	**TBX210106**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210107-B	2	Raceway		CBLP210107-B	VFD210107	**TBX210107**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	
RWYP210108-B	2	Raceway		CBLP210108-B	VFD210108	**TBX210108**	**TO TBX CC30B: CCF 058 CHANGE ORDER PENDING**	CC30B	79%	2	

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 076.1
Date: 12/30/2022
Description: Per Control Change Form #085: Cost to provide material labor and equipment to install (3) storm drain lift station concrete pads. **(Pads will be formed and poured Square not Round to reduce costs).** This change also includes the credit for the (4) 36" manholes on the box culverts between the Anaerobic and Aeration Basins.

Rocky Mountain Rebar (see attached back-up):	$4,239.76
Mark-up (5%):	$211.99
Gerber Labor, Equipment & Material (see attached back-up):	$7,300.33
Gerber Onsite Coordination & Management (see attached back-up):	$938.87
Bonds:	$126.65
Mark-up (15%):	$1,254.88
Subtotal:	**$14,072.48**
36" Manhole at Box Culvert Credit (see attached back-up):	-$4,409.57
Total:	**$9,662.91**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $9,662.91 will be added to the contract price, and an additional 2 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-076 Concrete Pads For STD LS - CC#085	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-076	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Rebar Subcontractor (Rocky Mountain Rebar)	**1.00**	**UNIT**	**$4,239.76**	**$4,239.76**	**$4,501.23**	**$4,501.23**	**5.10%**
Rebar - Sub	1.00	LS	$4,239.76	$4,239.76			
D 02 - Gerber Labor And Material	**1.00**	**UNIT**	**$7,300.33**	**$7,300.33**	**$8,480.59**	**$8,480.59**	**15.00%**
Concrete Crew, 03 Men (1.50 UNIT/DY, 2.00 DY)	3.00	UNIT	$1,287.72	$3,863.17			
03 Foreman	18.00	HR	$86.27	$1,552.78			
04 Leadman	18.00	HR	$69.66	$1,253.87			
05 Skilled Labor	18.00	HR	$58.70	$1,056.52			
Footing Forms	216.00	SF	$1.07	$232.09			
Forming Materials	1.00	SF	$161.18	$161.18			
Concrete	14.18	CY	$199.23	$2,824.14			
Forklift, Telescoping, 10,000 Lb	6.00	HR	$36.63	$219.75			
D 03 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$938.87**	**$938.87**	**$1,090.66**	**$1,090.66**	**15.00%**
01 Superintendent	2.00	HR	$128.58	$257.15			
20 Project Engineer	3.00	HR	$103.59	$310.47			
18 Project Manager	2.00	HR	$143.13	$286.26			
Truck, Pickup, 3/4 Ton	0.03	MO	$2,053.00	$53.05			
Truck, Pickup, 1 Ton	0.01	MO	$2,747.00	$31.94			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,717.05	37.80%
Equipment Owned:	$304.74	2.44%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,217.41	25.78%
Subcontracted:	$4,239.76	33.98%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$12,478.96	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$12,478.96	88.68%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$126.65	0.90%
Total Overall Cost:	$12,605.61	89.58%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,466.87	10.42%
Total Margin:	$1,466.87	10.42%
Total Bid Price:	$14,072.48	

COST

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-076A Concrete Pads For STD LS (Box Culvert Manhole Credits)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-076A	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Shay Clark	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Box Culvert Manhole Credit	**1.00**	**UNIT**	**$4,409.57**	**$4,409.57**	**$4,409.57**	**$4,409.57**	**0.00%**
Pipe, RCP, 36"	16.00	LF	$72.84	$1,165.45			
Manhole, Ring & Cover, 36"	4.00	EACH	$443.66	$1,774.64			
Concrete, 4500 PSI Engineered	1.00	CY	$199.23	$199.23			
Pipe Crew, Small, 2 Man (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$806.41	$806.41			
Excavator, Crawler, 220	4.00	HR	$74.00	$296.00			
03 Foreman	4.50	HR	$65.92	$296.63			
05 Skilled Labor	4.50	HR	$47.51	$213.77			
Concrete Crew, 02 Men (2.00 UNIT/DY, 0.50 DY)	1.00	UNIT	$463.84	$463.84			
04 Leadman	4.50	HR	$55.57	$250.06			
05 Skilled Labor	4.50	HR	$47.51	$213.77			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$974.24	22.09%
Equipment Owned:	$296.00	6.71%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,139.32	71.19%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,409.57	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,409.57	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$4,409.57	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	0.00%
Total Margin:	$0.00	0.00%
Total Bid Price:	$4,409.57	

CREDIT

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	27
JOB NAME:	CVWRF CC30B
JOB NUMBER:	0179
RMR PROJECT MANAGER:	Shane
DATE:	October 28, 2022
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Addition of 3 9'0" square equipment pads per Form 85

Total Cost $ 4,239.76

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	0.57	0.57	$ 115.49	$ 65.83
Project Manager	1	2.83	2.83	$ 76.56	$ 216.66
Detailer Straight Time	1	1	1	$ 57.24	$ 57.24
Detailer OT Premium	1	0.1	0.1	$ 21.19	$ 2.12
Rebar Foreman Straight Time	1	6	6	$ 62.45	$ 374.70
Rebar Foreman OT Premium	1	0.6	0.6	$ 24.00	$ 14.40
Rebar Journeyman Straight Time	2	6	12	$ 49.72	$ 596.64
Rebar Journeyman OT Premium	2	0.6	1.2	$ 16.41	$ 19.69
				Sub Total	$ 1,347.29
				PD & Lodging	$ -
				Labor Total	$ 1,347.29

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ 2,187.00	$ 2,187.00
		Material Total	$ 2,187.00

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ 152.46	$ 152.46
		Total	$ 152.46

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ 1,347.29
Material Total	$ 2,187.00
TE&C Total	$ 152.46
Delivery	$ -
Total Cost	$ 3,686.75
OH&P	$ 553.01

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	4,239.76
Credit Total	$	-
Grand Total	**$**	**4,239.76**

CHANGE CONTROL FORM 085
Concrete Pads for Storm Drain Lift Stations

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 09/26/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☒**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

This field order provides the structural detail for the concrete pads for the three storm drain lift stations.

Specification 43 25 50 - 2.05.K, identifies the "contractor supplied concrete pad":

> K. The Wet Well bottom shall be constructed by vacuum infusing 3" 2 lb/ft³ polyurethane or polyisoyanurate foam board that is precision cut to the proper diameter of the wet well diameter. The foam board will be bagged and injected with resin to complete the vacuum infusing process. A composite stud plate will then be infused to the base to insure a leak proof installation of the discharge elbow studs. A 3" exterior anti-floatation ring will be part of the vacuum infused base. This will also allow anchor blots to secure the tank to the contractor supplied concrete pad.

Please see the attached sketch.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection		Date:
Owner Signature ☐Accepts Proposal ☐ Rejects Proposal		Date:

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	Date:
Authorized by Owner:	Date:
Accepted by Contractor:	Date:

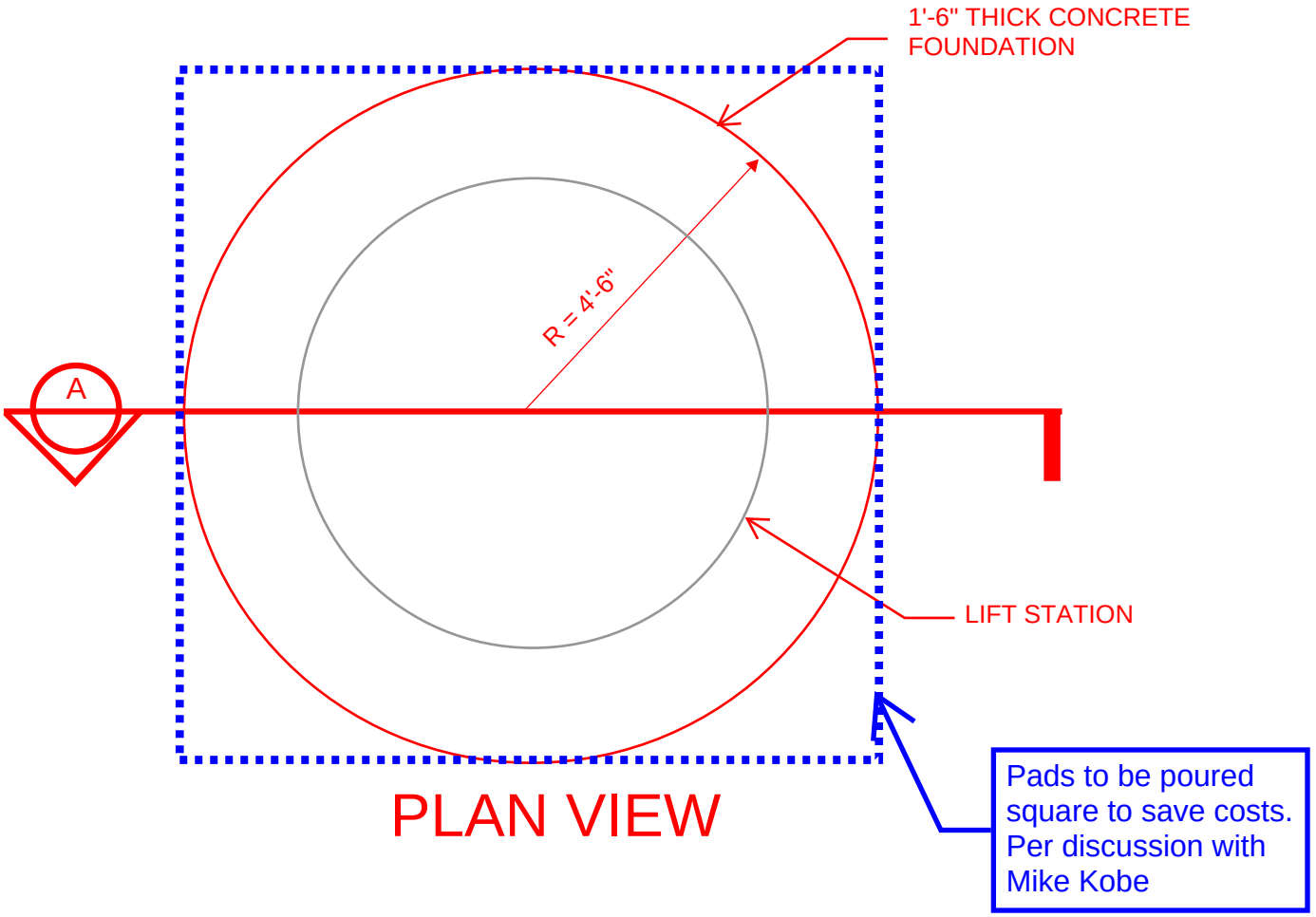
Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

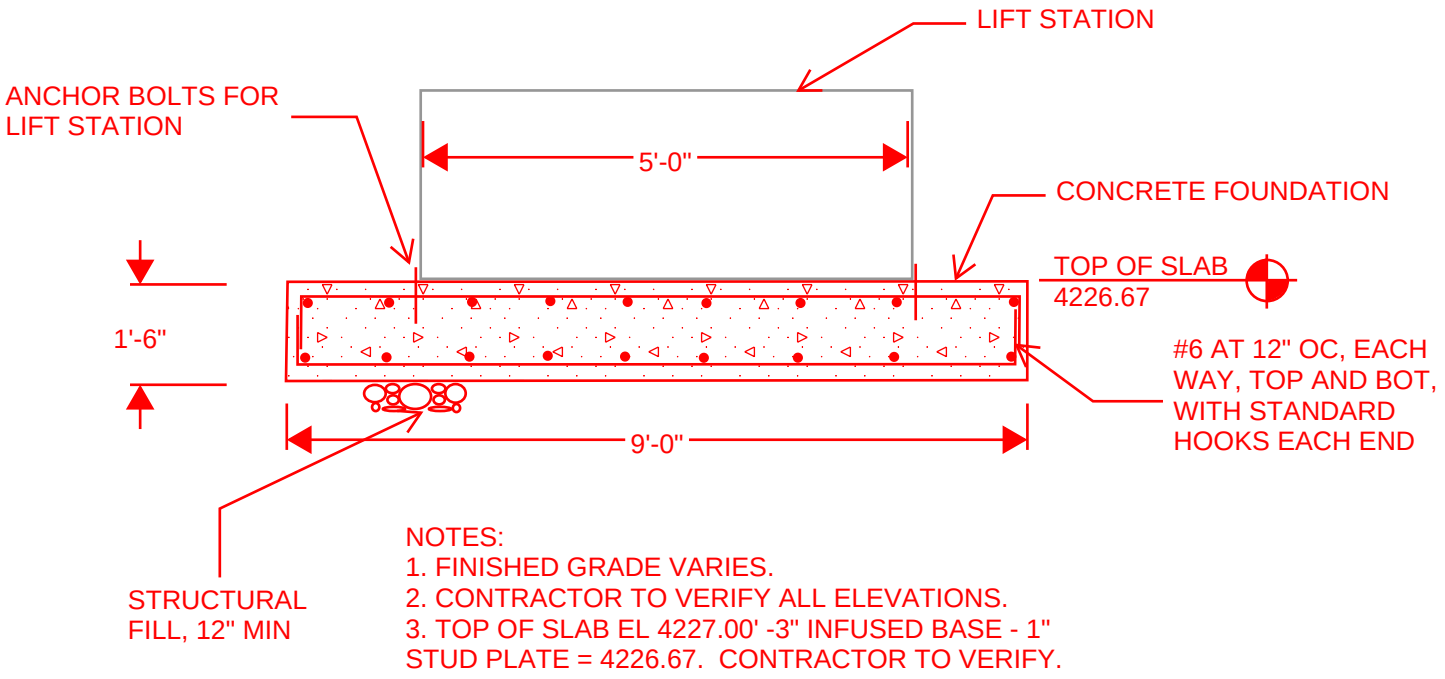
© 1997 Brown and Caldwell

Directed by RPR: Mark Hansen	Date: 09/26/2022
Accepted by Contractor:	Date:

CONCRETE PAD FOR STD LS 1, 2, 3
CCF #85 - CONSTRUCTION SKETCH



PLAN VIEW



NOTES:
1. FINISHED GRADE VARIES.
2. CONTRACTOR TO VERIFY ALL ELEVATIONS.
3. TOP OF SLAB EL 4227.00' -3" INFUSED BASE - 1" STUD PLATE = 4226.67. CONTRACTOR TO VERIFY.

SECTION A

CCF 085 FIELD ORDER
8/25/22
DH & MK

Shay Clark

From: Mark Hansen <MHansen@BrwnCald.com>
Sent: Monday, December 12, 2022 4:43 PM
To: Shay Clark
Cc: Ryan Overman; Neil Kunz; Jourdan Robertson; Jeromie Miner; Jordon Miller; Phillip Duncan
Subject: RE: PCO #076 for CCF #085 Concrete Pads for STD LS

Follow Up Flag: Follow up
Flag Status: Flagged

Shay,

Will you please apply the credit for removing all four (4) manholes into the box culverts, then revise and resend your PCO #076? These four (4) manholes are shown on S-17-1002/1005/1006/3001/4304.

Thank you,

Mark Hansen
Manager, Construction Services
Brown and Caldwell
T 801.316.9830 | C 801.367.6680 | MHansen@brwncald.com

From: Shay Clark <Shayc@1gerber.com>
Sent: Tuesday, November 8, 2022 3:44 PM
To: Mark Hansen <MHansen@BrwnCald.com>; Neil Kunz <Nkunz@BrwnCald.com>
Cc: Jourdan Robertson <Jrobertson@BrwnCald.com>; Jeromie Miner <jm@1gerber.com>; Jordon Miller <jordonm@1gerber.com>; Phillip Duncan <phild@1gerber.com>
Subject: PCO #076 for CCF #085 Concrete Pads for STD LS

Mark & Neil,

See the attached Proposed Change Order #076 for Change Control Form #085 for the BNR Project. I have also uploaded it to Procore. If you have any questions let me know.

Thanks,

Shay Clark
Project Manager
Phone: 801-407-2027
Cell: 801-380-0083

Office Hours: M-F 8-5

815 East 675 South
Lehi, UT 84043

Email: shayc@1gerber.com

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 082
Date: 2/7/2023
Description: Per Change Control Form #091: Cost to provide all material, labor, and equipment to install new blower expansion joints as called out in Change Control Form #091.

Gerber Labor, Materials and Equipment (see attached back-up):	$6,462.68
Gerber Onsite Coordination (see attached back-up):	$628.36
Bonds:	$74.16
Mark-up (15%):	$1,074.78
Total:	**$8,239.98**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

0 Calender days per discussion on 2/14/23

Upon approval the sum of $8,239.98 will be added to the contract price, and an additional ~~2~~ calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-082 Blower Expansion Joints - CC# 091	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-075	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Phillip Duncan	**Phone:**	
Project Address:	800 Central Valley Rd., Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Labor And Materials	**1.00**	**UNIT**	**$6,462.68**	**$6,462.68**	**$7,509.81**	**$7,509.81**	**15.00%**
Mechanical Crew, 2 Man (1.00 UNIT/DY, 0.50 DY)	0.50	UNIT	$1,304.65	$652.33			
03 Foreman	4.50	HR	$86.27	$388.19			
05 Skilled Labor	4.50	HR	$58.70	$264.13			
Bolt Kit, 12" Flanged, 150 PSI	3.00	EACH	$120.88	$362.64			
12", Rubber Expansion Joint, Single Arch	3.00	EACH	$1,815.91	$5,447.72			
D 02 - Gerber Onsite Coordination	**1.00**	**UNIT**	**$628.36**	**$628.36**	**$730.17**	**$730.17**	**15.00%**
01 Superintendent	1.00	HR	$128.58	$128.58			
20 Project Engineer	2.25	HR	$103.59	$233.09			
18 Project Manager	1.00	HR	$143.13	$143.13			
Truck, Pickup, 1 Ton	0.02	MO	$2,747.00	$63.88			
Truck, Pickup, 3/4 Ton	0.03	MO	$2,053.00	$59.68			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,157.12	16.32%
Equipment Owned:	$123.56	1.74%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$5,810.36	81.94%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$7,091.04	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$7,091.04	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$74.16	0.90%
Total Overall Cost:	$7,165.20	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,074.78	13.04%
Total Margin:	$1,074.78	13.04%
Total Bid Price:	$8,239.98	

MERCER RUBBER Co.

Manufacturer of Piping Expansion Joints, Duct Connectors and Industrial Hose

January 24, 2023

Attention: Phil Duncan,
Gerber Construction

Reference: RFQ

Quote No.	Date	Lead Time	Terms	Quoted By:
12423MC	01/24/23	1-2 Weeks	2% 10 Net 30	Matthew Cotter

Freight Terms: Best Way $30.00

Quantity	Description	Net Unit Price	Total Cost
6	12" Single Arch Flanged Spherical EPDM Expansion Joint with 150# Drilling Galvanized Back Up Rings	$1,690.00	$10,140.00

Best regards,
Matthew Cotter

Sales Manager
Mercer Rubber Company

350 Rabro Drive • Hauppauge, NY 11788-4256 Reply to: P.O. Box 410 • Smithtown, NY 11787-0410
Phone 631-582-1524 • FAX 631-348-0279 • Email info@Mercer-Rubber.com

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 079
Date: 12/22/2022
Description: Per Change Control Form #094: cost to provide rolling service doors with aluminum slats.

Crawford Doors (see attached back-up):	$3,104.00
Mark-up (5%):	$155.20
Gerber Onsite Coordination & Management (see attached back-up):	$385.16
Bonds:	$33.67
Mark-up (15%):	$62.82
Total:	**$3,740.85**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $3,740.85 will be added to the contract price, and an additional 1 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-094 Aluminum Roll Up Doors - CC#094	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** 2008-079	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Management	**1.00**	**LS**	**$385.16**	**$385.16**	**$447.21**	**$447.21**	**15.00%**
20 Project Engineer	3.38	HR	$103.59	$349.63			
Truck, Pickup, 3/4 Ton	0.02	MO	$2,053.00	$35.53			
S 02 - Aluminum Roll Up Doors (Increase) (Crawford Door Sales)	**1.00**	**LS**	**$3,104.00**	**$3,104.00**	**$3,293.64**	**$3,293.64**	**5.10%**

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$349.63	10.02%
Equipment Owned:	$35.53	1.02%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$0.00	0.00%
Subcontracted:	$3,104.00	88.96%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$3,489.16	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$3,489.16	93.27%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$33.67	0.90%
Total Overall Cost:	$3,522.83	94.17%
Total Overhead:	$0.00	0.00%
Total Profit:	$218.02	5.83%
Total Margin:	$218.02	5.83%
Total Bid Price:	$3,740.85	

155 West 2700 South
Salt Lake City, Utah 84115
Phone: 801-487-7442
Fax: 801-487-7445
Utah License # 380756-5501

CHANGE ORDER REQUEST

DATE: 10/26/22
PROJECT: CVWRF
LOCATION: SALT LAKE CITY, UTAH
ATTENTION: JORDON

CRAWFORD DOOR SALES PROPOSES AN CHANGE ORDER ADD FOR THE FOLLOWING:

CHANGING DOORS ES101, AND ES102 to ALUMINUM SLATS WITH POWDER COAT FINISH.

BASE BID AMOUNT: $3,104.00

INSTALLATION: By Crawford Door Sales to your prepared opening. Jambs, header and center pads (if necessary) built to the proper dimensions and structural requirements. Our standard workers compensation and general liability insurance apply. If endorsement adding waiver of subrogation or primary wording is requested an additional charge may be required. The scope of work , terms, and conditions stated in this proposal are incorporated by reference, and shall take precedence. Our standard labor warranty is one (1) year from time of substantial completion of our work, plus manufacturer's standard material warranty. Bonding rate is 2.5% up to $2,000,000, and is not included unless noted.

EXCLUSIONS: We exclude any and all electrical wiring, wiring material and labor (primary and low voltage), as well as the placement of all accessories such as pushbutton stations, photo eyes, etc. Finish painting by others.

TERMS: Estimate is contingent upon consistent pricing from Crawford Door Sales' suppliers. In the event of a supplier price increase greater than 5% above current pricing at the time of estimate, Crawford Door Sales reserves the right to re-bid the project and shall not be liable for any damages arising from cancellation or refiguring of this bid. Crawford Door Sales' conditions for completing this work are as follows: (1) Payment is per contractual agreement, or due upon completion of the work, with a finance charge of 1.5%/mo. or 18%/year accruing on all accounts not paid in full within 30 days of completion; (2) Customer agrees to pay all costs and reasonable legal fees associated with efforts to collect any unpaid amount owing; and (3) By signing below, Customer agrees to stated proposal, terms and conditions.

This proposal is subject to change if not accepted within 30 days of the above date, or written acceptance of this proposal.

By: Doug Phillips Estimator
Email:doug@crawford-doors.com

ACCEPTANCE OF PROPOSAL

SIGNATURE: _____ DATE: _____

CHANGE CONTROL FORM 094
Aluminum Roll up door

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 12/13/2022**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Provide insulated rolling service doors with aluminum slats per specification 08 33 20 paragraph 2.03 A.1.a. 2.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 080
Date: 1/27/2023
Description: Per Change Control Form #100: Cost to provide all material, labor, and equipment to install additional pipe supports stiffeners at Area 19.

Gerber Labor, Materials and Equipment (see attached back-up):	$11,813.97
Bonds:	$123.56
Mark-up (15%):	$1,790.62
Total:	**$13,728.15**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $13,728.15 will be added to the contract price, and an additional 4 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-080 Area 19 Pipe Support Stiffeners - CC#100	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-080	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
01 - Management	**1.00**	**LS**	**$1,042.71**	**$1,042.71**	**$1,211.66**	**$1,211.66**	**15.00%**
17 Draftsman	2.00	HR	$69.95	$139.76			
20 Project Engineer	3.00	HR	$100.17	$300.21			
01 Superintendent	3.00	HR	$128.58	$385.34			
18 Shop Manager	1.00	HR	$143.13	$142.99			
Truck, Pickup, 1 Ton	0.02	MO	$2,747.00	$42.58			
Truck, Pickup, 3/4 Ton	0.02	MO	$2,053.00	$31.83			
02 - Materials/Fabrication	**1.00**	**LS**	**$1,556.64**	**$1,556.64**	**$1,808.86**	**$1,808.86**	**15.00%**
Material	1.00	LS	$104.85	$104.85			
Flat Bar .25"x2.5"x20' (HDG)	2.00	EACH	$52.42	$104.85			
Fabrication	1.00	LS	$1,451.80	$1,451.80			
Welding Crew (Shop) (9.00 MH/DY, 2.00 DY)	2.00	DY	$725.90	$1,451.80			
Welding Shop	18.00	HR	$18.20	$327.60			
14 Welder	18.00	HR	$62.46	$1,124.20			
03 - Installation	**1.00**	**LS**	**$9,214.62**	**$9,214.62**	**$10,707.63**	**$10,707.63**	**15.00%**
Install Stiffeners	1.00	LS	$5,375.70	$5,375.70			
Iron Work Crew (3 Man) (27.00 MH/DY, 3.00 DY)	3.00	DY	$1,791.90	$5,375.70			
03 Foreman	27.00	HR	$86.27	$2,329.17			
05 Skilled Labor	27.00	HR	$58.70	$1,584.78			
06 General Labor	27.00	HR	$44.54	$1,202.49			
Welder, Truck Mounted 1 Ton	0.14	MO	$1,858.00	$259.26			
Hot Stick Welds	1.00	LS	$3,838.92	$3,838.92			
Iron Work Crew (2 Man) (27.00 MH/DY, 4.50 DY)	3.00	DY	$1,279.64	$3,838.92			
05 Skilled Labor	40.50	HR	$58.70	$2,377.18			
06 General Labor	27.00	HR	$44.54	$1,202.49			
Welder, Truck Mounted 1 Ton	0.14	MO	$1,858.00	$259.26			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$10,788.60	91.32%
Equipment Owned:	$920.52	7.79%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$104.85	0.89%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$11,813.97	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$11,813.97	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$123.55	0.90%
Total Overall Cost:	$11,937.53	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$1,790.62	13.04%
Total Margin:	$1,790.62	13.04%
Total Bid Price:	$13,728.15	

CHANGE CONTROL FORM 100
Area 19 Pipe Supports

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 01/10/2023**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Install additional stiffener plates on Area 19 pipe supports. On pipe supports with existing stiffeners, these shall be removed and replaced per the attached detail.

See attached markup for additional information.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	

Proposed by:	**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**	**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**	**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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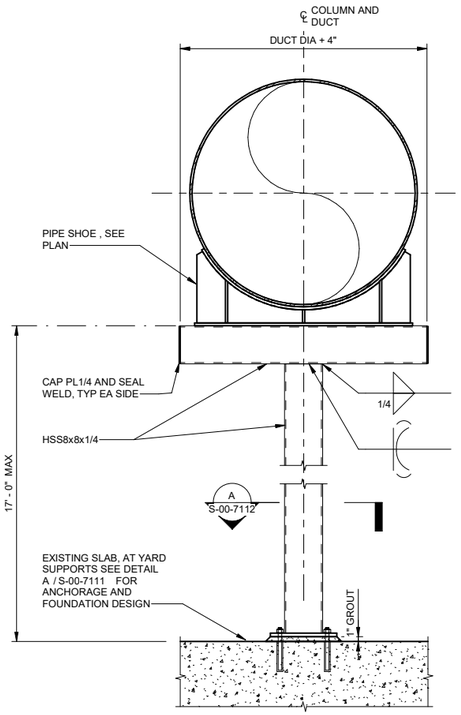
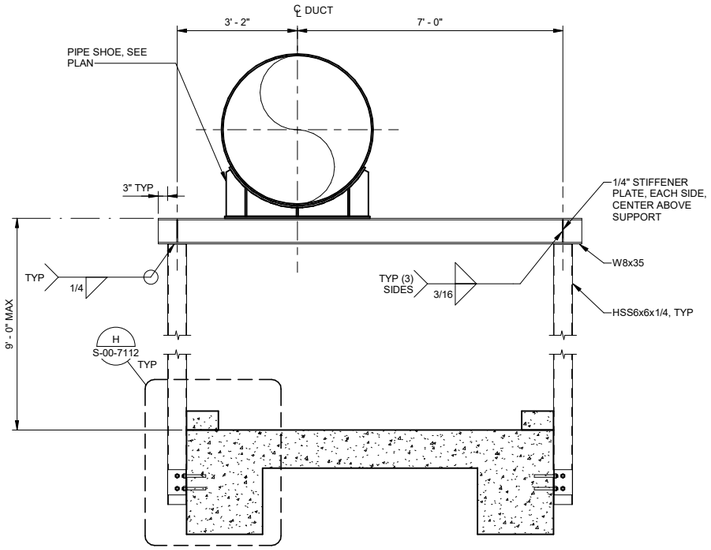
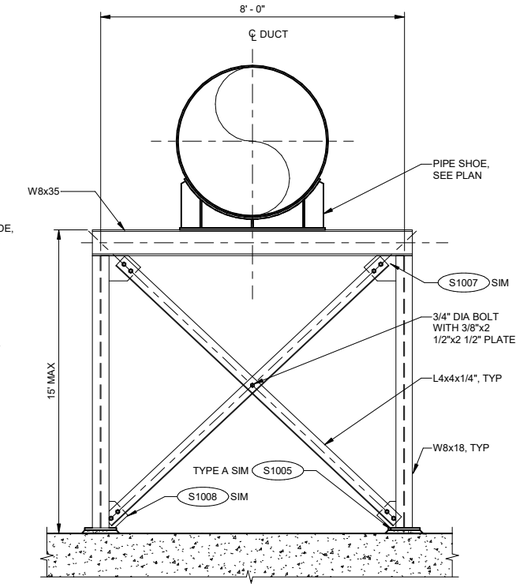
CONSTRUCTION SKETCH



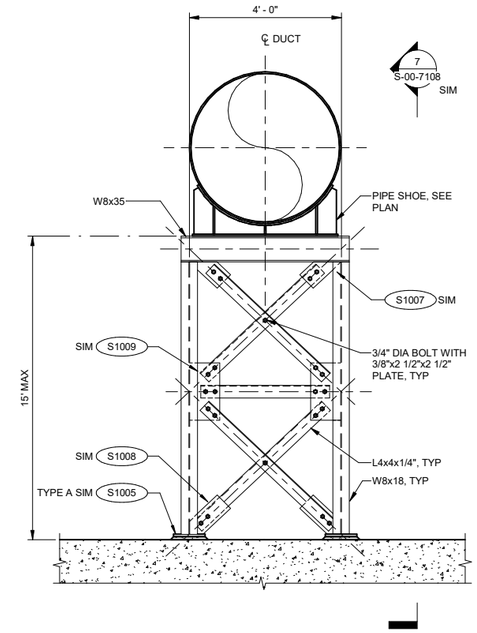
1 VAR PIPE SUPPORT
SCALE: 3/4" = 1'-0"



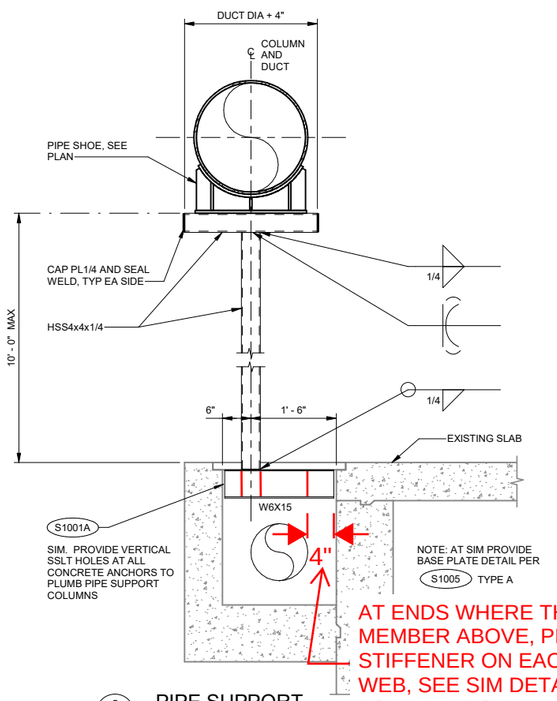
2 VAR PIPE SUPPORT
SCALE: 1/2" = 1'-0"



3 VAR PIPE SUPPORT
SCALE: 1/2" = 1'-0"

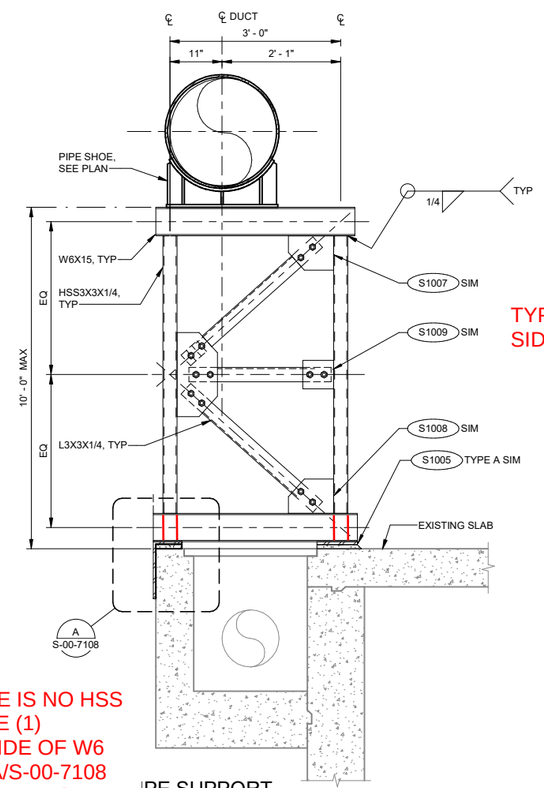


4 VAR PIPE SUPPORT
SCALE: 1/2" = 1'-0"



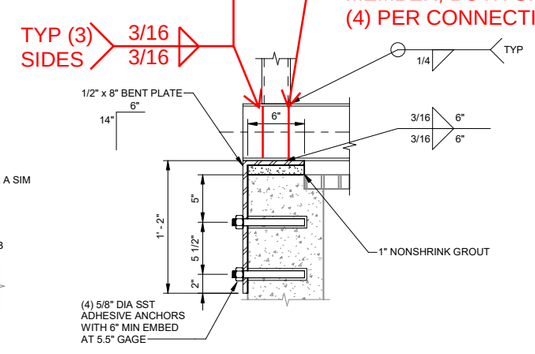
AT ENDS WHERE THERE IS NO HSS MEMBER ABOVE, PLACE (1) STIFFENER ON EACH SIDE OF W6 WEB, SEE SIM DETAIL A/S-00-7108 FOR ADDITIONAL INFORMATION

5 VAR PIPE SUPPORT
SCALE: 3/4" = 1'-0"

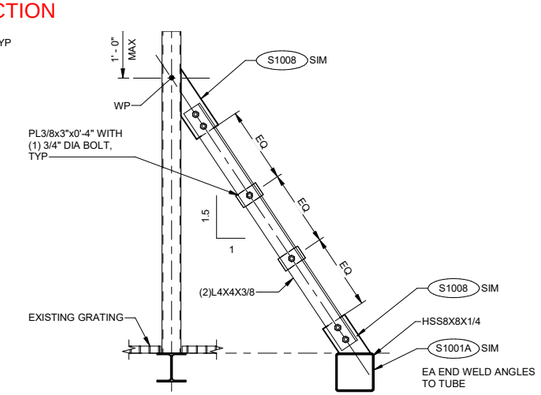


PE SUPPORT
LE: 3/4" = 1'-0"

PL 1/4 x 2 3/4 x FULL HEIGHT STIFFENER, WITH (2) 1/2" CHAMFERS FOR INSTALLATION, MATCH WIDE FLANGE MATERIAL, CENTER STIFFENER UNDER EACH SIDE OF HSS MEMBER, BOTH SIDES OF THE WIDE FLANGE BEAM WEB, TYP (4) PER CONNECTION



A VAR DETAIL
SCALE: 1 1/2" = 1'-0"



NOTE: AT YARD SUPPORTS, SEE DETAIL B / S-00-7112 FOR BRACING ANCHORAGE TO SLAB AND DO NOT OFFSET BRACE WORKPOINT.

7 VAR PIPE SUPPORT
SCALE: 3/4" = 1'-0"

Brown AND Caldwell
6975 Union Park Center
Salt Lake City, UT

Change Control Form #100 1/10/2023

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: S. BELLIS
DRAWN: T. BOUFFARD
CHECKED: J. HARPER
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-19V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

PIPE SUPPORTS FRAMES 1

DRAWING NUMBER
S-00-7108

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-19V18.rvt
Plot Date: 6/4/2020 12:29:24 PM

6975 Union Park Center, Suite 490
Midvale, UT 84047
Tel: 801-316-9800
www.brownandcaldwell.com

02/16/2023

Mr. Brandon Heidelberger, P.E.
Central Valley Water Reclamation Facility
800 Central Valley Road
Salt Lake City, UT 84119 151600

Subject: CC 30B BNR/PEPS/RAS Selector, Change Order 018_Fire Extinguishers and Hangers, Delete Encasement 42inch RAS. 36inch Pipe Support Mods.

Dear Brandon,

Change Order 18 includes:

- **Fire Extinguishers and Hangers** per CCF 101
- **Delete Encasement 42inch RAS** per CCF 103
- **36inch Pipe Support Mods** per CCF 106

Fire Extinguishers and Hangers: Per request from CVWRF, CCF 101 was issued to replace all Fire Extinguisher cabinets with wall mounted hangers in unoccupied areas. This CCF also instructs the Contractor to provide Amerex brand Fire Extinguishers to match extinguishers already in use at Central Valley. The Contractor is offering a credit of **($1,232.89)**. Pricing has been reviewed and is line with our expectations for this scope.

Delete Encasement 42inch RAS: CCF 103 was issued to delete the unnecessary concrete encasement of the 42” RAS piping running between the Anaerobic Basin and the SIN Channel. Civil drawings specify a reinforced concrete cap over this piping to address the lack of coverage over the pipe. The Contractor is offering a credit of **($16,455.8)**. Pricing was previously reviewed and appears fair and reasonable.

36inch Pipe Support Mods: Due to design clarification, the pipe supports specified for the 36” Aeration piping were undersized to accommodate the piping and restraining straps. CCF 106 was issued to revise typical details M2301 and M3115. These revisions increase the size of the pipe support beams and wall plates as well as increase the embedment depth of the anchor bolts. The Contractor is requesting **$93,893.73** and **7 days** to complete this work. Pricing has been reviewed and discussed with the Contractor and appears fair and reasonable.

This change order includes 15% overhead and profit for the work performed by the Contractor and 5% O&P for subcontracted work, which is in accordance with the

standard conditions of the contract. The total cost of Change Order 18 is **$76,205.03** and **Seven (7) days**.

I recommend that this change order be approved by Central Valley WRF. Please contact me if you have any questions.

Sincerely,

Brown and Caldwell

Ryan Overman

Ryan Overman
Salt Lake City

Enclosures:

1. EJCDC form C-941 (Change order)
2. CCF 101 w/Contractor Quotation
3. CCF 103 w/Contractor Quotation
4. CCF 106 w/Contractor Quotation

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

00 94 10
Change Order

Change Order No. 18

Date of Issuance: 02/16/2023		Effective Date:	02/16/2023
Owner:	Central Valley Water Reclamation Facility	Owner's Contract No.:	CC 30B
Contractor:	Gerber Construction	Contractor's Project No.:	20149
Engineer:	Brown and Caldwell	Engineer's Project No.:	151600
Project:	BNR/PEPS/RAS Selector	Contract Name:	Construction Contract 30B

The Contract is modified as follows upon execution of this Change Order:

Change Order 018 includes: Fire Extinguishers and Hangers, Delete Encasement 42inch RAS, 36inch Pipe Support Mods.

Attachments:
1. CCF 101_Fire Extinguishers & Hangers
2. CCF 103_Delete Encasement 42inch RAS
3. CCF 106_36inch Pipe Support Mods

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES *[note changes in Milestones if applicable]*
Original Contract Price: $ 123,267,681.00	Original Contract Times: Substantial Completion: 1,491 Ready for Final Payment: 1,581 days or dates
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 17.1 : $1,240,494.43	**[Increase]** [Decrease] from previously approved Change Orders No. 1 to No. 17.1 : Substantial Completion: 582 Ready for Final Payment: 582 Days
Contract Price prior to this Change Order: $ 124,508,175.43	Contract Times prior to this Change Order: Substantial Completion: 2,073 Ready for Final Payment: 2,181 days or dates
[Increase] [Decrease] of this Change Order: $76,205.03	**[Increase]** [Decrease] of this Change Order: Substantial Completion: 7 Ready for Final Payment: 7 days or dates
Contract Price incorporating this Change Order: $124,584,380.46	Contract Times with all approved Change Orders: Substantial Completion: 2,080 Ready for Final Payment: 2,188 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:	By:	By:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

	Engineer (if required)		Owner (Authorized Signature)		Contractor (Authorized Signature)
Title:	Construction Manager	Title	General Manager	Title	Project Manager
Date:	02/16/2023	Date	2/27/2023	Date	02/16/2023

Approved by Funding Agency (if applicable)

By: _____ Date:

Title: _____

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GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 084
Date: 2/15/2023
Description: Per Change Control Form #103: Credit to remove fire extinguisher cabinets and provide Amerex Brand extinguishers.

Fire Extinguisher Cabinets (see attached back-up):	-$1,232.89
Total:	**-$1,232.89**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$1,232.89 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-084 Fire Extinguishers And Hangers - CC#101 (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-084	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Fire Extinguisher Cabinet (Credit)	**1.00**	**LS**	**$1,232.89**	**$1,232.89**	**$1,232.89**	**$1,232.89**	**-0.00%**
D Materials	1.00	LS	$1,232.89	$1,232.89			
Halotron FE Cabinet	3.00	EACH	$253.53	$760.58			
Standard Extinguisher Cabinet	4.00	EACH	$118.08	$472.31			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$0.00	0.00%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$1,232.89	100.00%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$1,232.89	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$1,232.89	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$1,232.89	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.00	-0.00%
Total Margin:	$0.00	-0.00%
Total Bid Price:	$1,232.89	

CREDIT

BEACON Commercial Door & Lock
REX WILLIAMS Division 10 Specialties

Quote Valid for 30 Days from Receipt

SALES QUOTE

Page: 1
Sales Quote Number: SQ005310
Sales Quote Date: 2/1/2023

Job Name: 2008

Sell
To: CASH Rex Williams

Ship
To: CASH Rex Williams

Ship Via		Salesperson	Rick Rasmussen
Terms	CASH	Phone #	EXT. 204
Customer ID	CASH RW	Email	rick@rexwilliamsd10.com

Item No.	Description	Unit	Quantity	Unit Price	Total Price
LAR24096R	EXTINGUISHER CABINET 24"x9.5" 2409 6R FGD/LL FOR MP-10	EACH	4	109.89	439.56
NSDIV10	Halotron 397 Extinguisher	EACH	3	789.36	2,368.08
NSDIV10	Halotron FE Cabinet	EACH	3	235.95	707.85
LARMP-10WITHTAG	TAGGED FIRE EXTINGUISHER MP-10 Amerex MP-10	EACH	4	276.00	1,104.00

Amount Subject to Sales Tax	4619.49	**Subtotal:**	**4,619.49**
Amount Exempt from Sales Tax	0.00	Invoice Discount:	0.00
		Total Sales Tax:	344.15
		Total:	**4,963.64**

Merchandise Return Policy: Only stock items in resalable and unused condition may be returned. No credit will be given until merchandise has been inspected for quality. A 35% restocking fee will be charged on all returned merchandise. Special order materials will not be accepted for return or cancellation. On cash accounts, special order items must be paid in full before ordering.

CHANGE CONTROL FORM 101
Fire Extinguishers and Hangers

Owner: Central Valley Water Reclamation Facility	**Project: BNR Basins**	
Contractor: Gerber Construction	**Date: 01/24/2023**	**CC# 30B**

Originator: ☒ **Owner** ☐ **RPR** ☐ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

Provide a proposal to make the following changes to BNR:

1. Replace all Fire Extinguisher Cabinets with wall mounted hangers compatible with Amerex Fire Extinguishers.
2. All Fire Extinguishers shall be Amerex Brand meeting the requirements of specification 10 44 00-2.03.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	**Time (Days)**
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**

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Accepted by Contractor:	**Date:**
Field Order	
This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.	
Directed by RPR:	Date:
Accepted by Contractor:	Date:

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 085
Date: 2/15/2023
Description: Per Change Control Form #103: Credit to remove the 42" RAS pipe encasement.

Rebar Subcontractor (see attached back-up):	-$6,837.63
Pump Truck Subcontractor (see attached back:	-$546.00
Gerber Labor & Material (see attached back-up):	-$9,072.18
Total:	**-$16,455.81**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of -$16,455.81 will be added to the contract price.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-085 Delete Encasement 42" RAS - CC#103 (Credit)	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-085	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Subcontractor Work	**1.00**	**LS**	**$7,383.63**	**$7,383.63**	**$7,383.63**	**$7,383.63**	**0.00%**
S Rebar	1.00	LS	$6,837.63	$6,837.63			
S Pump Truck	3.00	HR	$182.00	$546.00			
D 02 - Gerber Labor & Material	**1.00**	**UNIT**	**$9,072.18**	**$9,072.18**	**$9,072.17**	**$9,072.17**	**-0.00%**
D Form/Pour	1.00	LS	$9,072.18	$9,072.18			
Concrete Crew, 03 Men (18.00 MH/DY, 1.00 DY)	2.00	DY	$891.38	$1,782.77			
05 Skilled Labor [3]	9.00	HR	$47.51	$1,282.64			
04 Leadman	9.00	HR	$55.57	$500.12			
Type E Concrete (2000 PSI)	53.00	CY	$137.54	$7,289.41			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$1,782.77	10.83%
Equipment Owned:	$0.00	0.00%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$7,289.41	44.30%
Subcontracted:	$7,383.63	44.87%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$16,455.81	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$16,455.81	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$16,455.81	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	($0.01)	-0.00%
Total Margin:	($0.01)	-0.00%
Total Bid Price:	$16,455.80	

CREDIT

ROCKY MOUNTAIN REBAR

CHANGE ORDER #:	29
JOB NAME:	CVWRF
JOB NUMBER:	0179
RMR PROJECT MANAGER:	Shane
DATE:	February 10, 2023
ATTENTION:	Jordon

Utah 7562745-5551
Idaho RCE-3005; 005964-4
Montana E1025932

Credit for deleted pipe encasement

Total Cost $ (6,837.63)

Labor Break Down

Classification	# Of Workers	Hours	Total Hours	Rate	Total
Superintendent	1	-1.44	-1.44	$ 115.49	$ (166.31)
Project Manager	1	1.00	1.00	$ 85.84	$ 85.84
Detailer Straight Time	1		0	$ 59.20	$ -
Detailer OT Premium	1	0	0	$ 21.19	$ -
Rebar Foreman Straight Time	1	-16	-16	$ 64.69	$ (1,035.04)
Rebar Foreman OT Premium	1	0	0	$ 22.91	$ -
Rebar Journeyman Straight Time	2	-16	-32	$ 50.83	$ (1,626.56)
Rebar Journeyman OT Premium	2	0	0	$ 17.39	$ -
				Sub Total	$ (2,742.07)
				PD & Lodging	$ -
				Labor Total	$ (2,742.07)

Materials

Description	Quantity	Unit Cost	Total
Rebar	1	$ (3,881.00)	$ (3,881.00)
		Material Total	$ (3,881.00)

Tools, Equipment & Consumables

Description	Quantity	Unit Cost	Total
Tie wire, dobie, chairs, saws, etc	1	$ (214.56)	$ (214.56)
		Total	$ (214.56)

Credit

Item	Quantity	Unit Cost	Total
		$ -	$ -
		Credit Total	$ -

Summary

Labor Total	$ (2,742.07)
Material Total	$ (3,881.00)
TE&C Total	$ (214.56)
Delivery	$ -
Total Cost	$ (6,837.63)
OH&P	$ -

Please respond by: _____

Contractors signature: _____

This is not a bill. This is just to acknowledge the price for the change order. Please respond by email with any comments or concerns about

this change order.

Total	$	(6,837.63)
Credit Total	$	-
Grand Total	**$**	**(6,837.63)**

CHANGE CONTROL FORM 103
Delete Encasement on 42-inch RAS

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 1/26/2023**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒ **Request for Proposal** ☐ **Work Change Directive** ☐ **Field Order** ☐ **Contractor Requested Change** ☐ **Claim**

Description of Change

Structural sheet S-17-1006 calls for the 42-inch RAS pipe between the Anaerobic Tank and the SIN Channel to be encased in concrete. Civil sheet C-00-1220 calls for a concrete cap to address the lack of cover identified on sheet C-00-3020.

Concrete encasement of this 42" RAS pipe is not required. Please see the attached sheet S-17-1006 Rev1.

Provide a deductive cost to eliminate the encasement of the 42" RAS pipe.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐ **Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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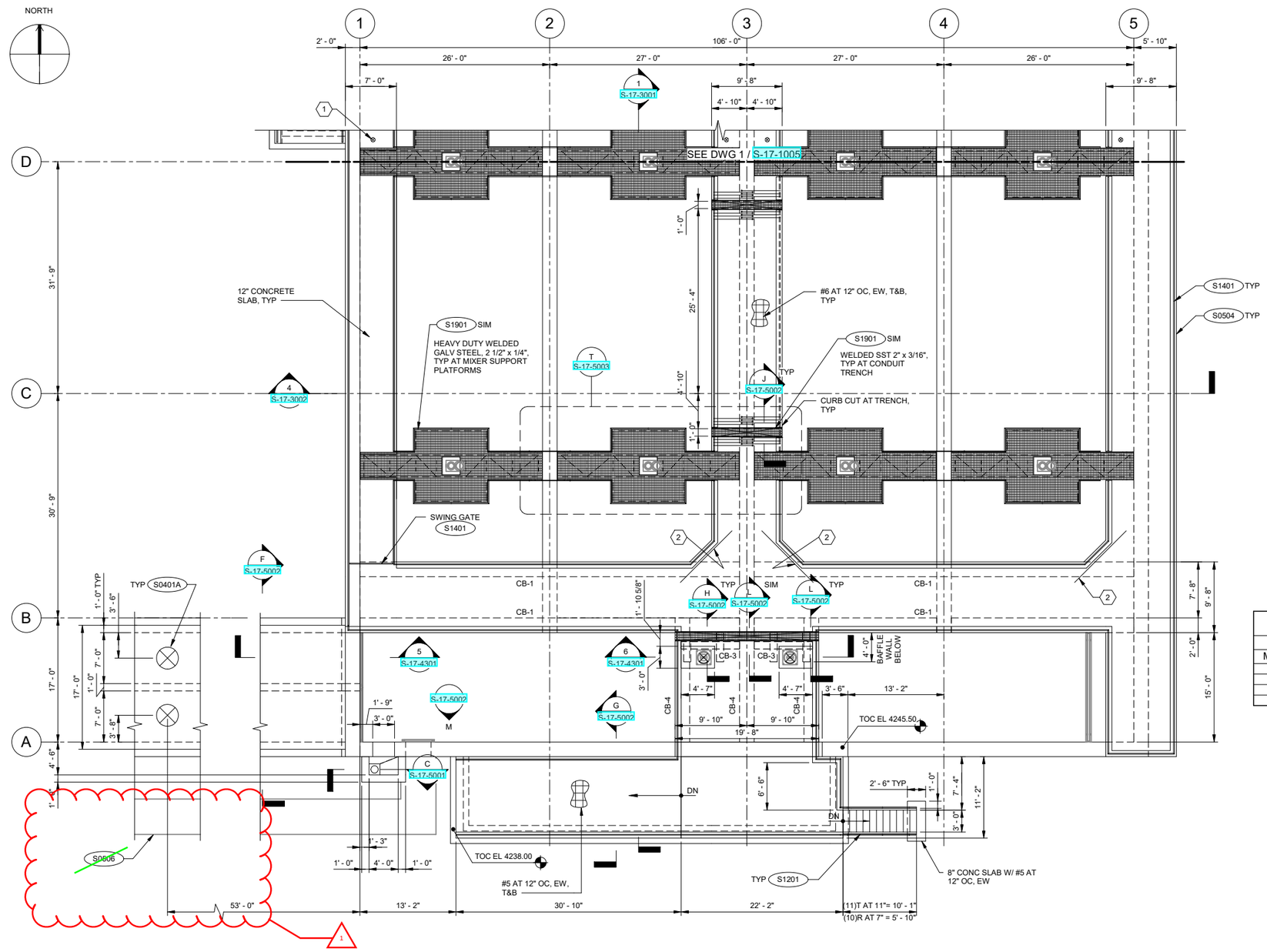


UPPER PLAN SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT PROPOSED CONCRETE PLACEMENT SEQUENCE TO ENGINEER FOR REVIEW / APPROVAL PRIOR TO ANY CONCRETE PLACEMENT.
2. NOT ALL TYPICAL DETAILS REFERENCED HEREIN. CONTRACTOR SHALL UTILIZE TYPICAL DETAILS UNLESS SPECIFICALLY SHOWN OTHERWISE.
3. FOR TYPICAL CONCRETE DETAILS SEE TYPICAL DETAILS S0101-S0103, S0201, S0301, AND S0401-S0404.
4. SEE TYPICAL DETAIL S0507 FOR EMBEDDED CONDUITS AND PIPES. NO EMBEDDED CONDUITS OR PIPES ALLOWED IN ELEVATED SLABS.
5. SEE MECHANICAL FOR PIPE PENETRATION DETAILS.
6. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
7. COORDINATE ALL OPENINGS WITH MECHANICAL AND ELECTRICAL DRAWINGS.
8. MECHANICAL EQUIPMENT PAD HEIGHT SHALL BE 6 INCHES, TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON MECHANICAL DRAWINGS. SEE MECHANICAL DRAWINGS FOR EQUIPMENT POSITION AND ELEVATION. EQUIPMENT PAD DIMENSIONS SHALL BE DETERMINED FROM DIMENSIONS OF SELECTED EQUIPMENT AND EQUIPMENT MOUNTING DETAILS. SEE TYPICAL DETAILS AND SPECIFICATIONS 43 05 13 FOR EQUIPMENT MOUNTING DETAILS.
9. ELECTRICAL EQUIPMENT PAD HEIGHT TO BE 4", TYPICAL, UNLESS OTHERWISE REQUIRED FOR EQUIPMENT PLACEMENT AS NOTED ON THE ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR EQUIPMENT LOCATIONS. SEE TYPICAL DETAIL M7006 FOR EQUIPMENT PAD DETAIL.
10. GUARDRAIL, GRATING, STAIRS, AND FRAMING SHOWN ARE ALUMINUM UNLESS NOTED OTHERWISE.
11. LEAK TEST SHALL BE PERFORMED PRIOR TO PLACING BACKFILL. SEE SPEC 03 30 00 FOR ADDITIONAL INFORMATION.
12. MIXER SUPORT STEEL TO BE HOT DIP GALVANIZED. ALL MIXER SUPPORT STEEL FRAMING BOLTS TO BE A193 B8M GRADE 2 STAINLESS STEEL. PROVIDE NEOPRENE WASHERS AT ALL FASTENER LOCATIONS TO ISOLATE DISSIMILAR METALS.
13. CB-"X" CONCRETE BEAM, SEE THIS SHEET FOR SCHEDULE.
14. MIXER SUPPORT PLATFORM LOCATIONS AND FRAMING LAYOUT TO BE COORDINATED BY CONTRACTOR WITH REVIEWED / APPROVED MIXER EQUIPMENT.
15. MAT FOUNDATION SLAB CONSIDERED MASS CONCRETE. SEE SPEC 03 30 00 AND 03 70 00 FOR ADDITIONAL INFORMATION.

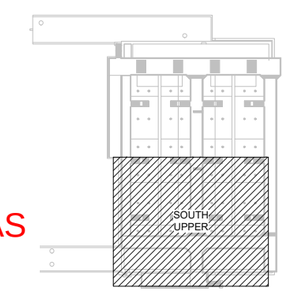
KEYNOTES:

1. ACTUATOR SLEEVE, SEE MECHANICAL, TYP
2. (4) ADDITIONAL #6 BARS x 10'-0" DIAGONAL BARS AT 12" OC SPACING, TOP AND BOT AT WALKWAY FILLETS.

CONCRETE BEAM SCHEDULE

	BEAM		REINFORCING		SHEAR
MARK	WIDTH	DEPTH	TOP	BOTTOM	ES
CB-1	24"	18"	(6) #9	(6) #9	#4 AT 8" OC
CB-2	24"	12"	(4) #7	(4) #7	#4 AT 12" OC
CB-3	12"	12"	(4) #6	(4) #6	#4 AT 12" OC
CB-4	24"	12"	(6) #9	(6) #9	#4 AT 4" OC

CCF 103 - DELETE ENCASEMENT ON 42" RAS 1/26/23



Key Plan

Brown AND Caldwell

6975 Union Park Center
Salt Lake City, UT

CONFORMED SET

CVWRF

NUTRIENT REMOVAL CC30B BNR BASINS/PEPS/RAS SELECTOR

REVISIONS

REV	DATE	DESCRIPTION
1	01/26/23	CCF103 DELETE ENCASEMENT

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. HENSHAW
DRAWN: R. KINGERY
CHECKED: E. FALKEN
CHECKED:
APPROVED: J. HARPER

FILENAME 151600-S-17V18
BC PROJECT NUMBER 151600
CLIENT PROJECT NUMBER CC30B

STRUCTURAL

ANAEROBIC BASINS UPPER PLAN SOUTH

DRAWING NUMBER
S-17-1006

Path: BIM 360://151600 - CVWRF Nutrients/151600-S-17V18.rvt
Plot Date: 6/4/2020 11:45:54 AM

CHANGE CONTROL FORM 106
36inch Pipe Support Modifications

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 02/01/2023**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☒**Request for Proposal** ☐**Work Change Directive** ☐**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

To provide adequate room for support installation, raise centerline of MLQ return pipes (and thus centerline of axial flow pumps) up 14 - 16 inches (contractor to coordinate the change and determine appropriate distance). Coordinate this change with baffle wall penetrations and any others that may be impacted by the change.

Modify support detail as noted below and as shown in the attached Revised Typical Detail M2301 and M3115.

1. Revise horizontal support beam to W6x20. Beam and supports shall be stainless steel.
2. Kicker beam may remain W4x13 or change to W6x20 at contractor's option.
3. Provide 12"x12"x5/8" wall plates for W6x20 beams
4. Keep wall plates shown on original detail where W4x13 beams are used
5. Pipe strap shall be 1” diameter Stainless Steel U-Bolt.
6. Anchor to wall with 5/8" diameter epoxy anchors with 11" embed. Anchor bolts shall be 316 Stainless Steel.
7. Scan wall with GPR at wall plates to avoid drilling through reinforcing bars.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	**$**	
Proposed by:		**Date:**
RPR Signature ☐ **Recommends Acceptance** ☐ **Recommends Rejection**		**Date:**
Owner Signature ☐**Accepts Proposal** ☐ **Rejects Proposal**		**Date:**

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	**Date:**
Authorized by Owner:	**Date:**
Accepted by Contractor:	**Date:**

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR:	Date:
Accepted by Contractor:	Date:

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TABLE A - SUPPORT SPACING AND ALLOWABLE ROD LOADS

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE AND MAXIMUM LOAD PER ROD - SEE NOTES 1 AND 2		MAXIMUM SUPPORT SPACING (FEET)			
	ROD SIZE (INCHES)	MAX LOAD (POUNDS)	STEEL	COPPER	PLASTIC SEE NOTE 4	CAST IRON SEE NOTE 5
3/8 TO 3/4	3/8	610	5	5	CONTINUOUS	- - -
1	3/8	610	5	5	5	- - -
1-1/4	3/8	610	5	5	5	- - -
1-1/2	3/8	610	5	5	5	- - -
2	3/8	610	10	5	5	
2-1/2	3/8	610	10	10	5	
3	3/8	610	10	20	5	
4	1/2	1130	10	20	5	12 FEET FOR PRESSURE PIPE 10 FEET FOR SOIL PIPE
6	5/8	1810	15	20	5	
8	3/4	2710	15	20	5	
10	3/4	2710	20	- - -	5	
12	1	4960	20	- - -	10	
14	1	4960	20	- - -	- - -	
16	1	4960	20	- - -	- - -	
18	1	4960	20	- - -	- - -	
20	1-1/4	8000	20	- - -	- - -	
24	1-1/4	8000	20	- - -	- - -	
30	1-1/2	11630	20	- - -	- - -	
36"	1"		20			

1

TABLE A NOTES:

1. DESIGN WEIGHT SHALL BE TWICE THE WEIGHT OF THE PIPE FULL OF WATER PLUS THE WEIGHTS OF VALVES, FITTINGS, INSULATING MATERIALS AND SUSPENDED HANGER COMPONENTS ON THE RUN OF PIPE BEING SUPPORTED.

2. ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING DESIGN WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS IN THE TABLE ABOVE.

3. PIPE SHALL NOT HAVE POCKETS FORMED IN THE SPAN DUE TO SAGGING OF THE PIPE BETWEEN SUPPORTS CAUSED BY THE WEIGHT OF THE PIPE, MEDIUM IN THE PIPE, INSULATION, VALVES AND FITTINGS.

4. SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100°F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES AND PIPES AT HIGHER TEMPERATURES SHALL BE SHORT- ENED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. "CONTINUOUS" MEANS PIPE SHALL BE IN UNISTRUT OR SIMILAR CHANNEL.

5. PROVIDE A MINIMUM OF ONE HANGER PER PIPE LENGTH, WITHIN 4-INCHES OF THE BELL.

6. PIPE HANGER AND SUPPORT SELECTION SHALL BE IN ACCORDANCE WITH TABLE B (M2302) AND SPECIFICATION SECTION 40 05 07.

CVWRF

SUPPORT SPACING AND ROD LOADS TABLE A

TYPICAL DETAILS

DETAIL

M2301

SCALE: NONE

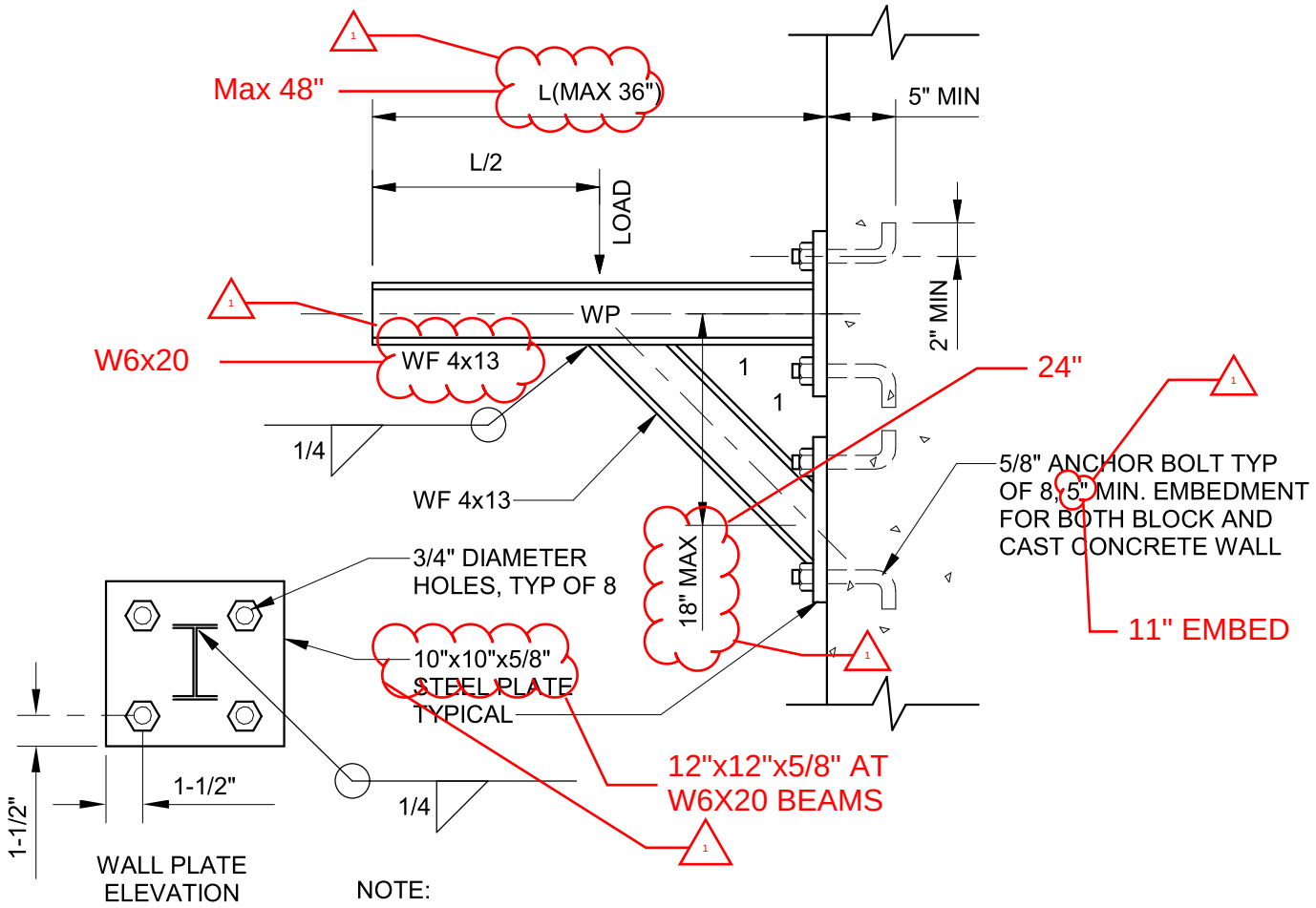
Brown AND Caldwell

Path: C:\Users\atasayco\Documents\151600-TYPICAL_DETAILS-00V18_atasayco9MB62.rvt

Plot Date: 7/22/2019 9:56:57 AM

36" Pipe Supports Inside Aeration Basin

STRUCTURAL ATTACHMENT MAY BE USED WITH
VARIOUS HANGER, GUIDE, AND ANCHOR ASSEMBLIES.



NOTE:

1. USE TYPE R ONLY WHERE SPECIFIED ON THE DRAWINGS. SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M2301.
2. CONTRACTOR SHALL LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.
3. SUBMERGED SUPPORTS SHALL BE STAINLESS STEEL

CVWRF

TYPE R STRUCTURAL ATTACHMENT

DETAIL

M3115

SCALE: NONE

TYPICAL DETAILS

Brown AND Caldwell

Path: C:\Users\atasayco\Documents\151600-TYPICAL_DETAILS-00V18_atasayco9MB62.rvt

Plot Date: 7/22/2019 9:56:00 AM

GERBER CONSTRUCTION INC.

815 EAST 675 SOUTH
LEHI, UT 84043
Phone: (801) 407-2000
Fax: (801) 407-2058

Proposed Change Order

To: CENTRAL VALLEY WATER REC. FAC.
800 WEST CENTRAL VALLEY ROAD
SALT LAKE CITY, UT 84119
Project: CVWRF BNR BASIN PROJECT

RFC No: 083
Date: 2/7/2023
Description: Per Change Control Form #106: Cost to provide all material, labor, and equipment for larger pipe supports on 36ML line in Aeration Basin.

Gerber Drafting Labor (see attached back-up):	$139.90
Gerber SS Structural Material (see attached back-up):	$70,243.93
Gerber Added Installation Material and Labor (see attached back-up):	$10,417.85
Bonds:	$845.04
Mark-up (15%):	$12,247.00
Total:	**$93,893.73**

The above work is subject to the same conditions as specified in the original contract unless otherwise stipulated.

Upon approval the sum of $93,893.73 will be added to the contract price, and an additional 7 calendar days will be added to the contract.

Pricing valid for 30 days from day of quotation.

Authorized Signature: _____ Date: _____
GERBER CONSTRUCTION INC.

Authorized Signature: _____ Date: _____
CENTRAL VALLEY WATER REC. FAC.

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Cost Detail With Pricing

Project Name:	2008-083 36in Pipe Support Mods - CC#106	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	2008 **Bid Number:** 2008-083	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Jordon Miller	**Phone:**	
Project Address:	800 Central Valley Rd, Salt Lake City, UT	**Contact:**	Phil Heck
Completion Date:			

Pay Items

Description	Quantity	UM	Unit Direct Cost	Total Direct Cost	Unit Price	Total Price	Markup Percent
D 01 - Gerber Management	**1.00**	**LS**	**$139.90**	**$139.90**	**$162.57**	**$162.57**	**15.00%**
17 Draftsman	2.00	HR	$69.95	$139.90			
D 02 - Materials	**1.00**	**LS**	**$70,243.93**	**$70,243.93**	**$81,625.34**	**$81,625.34**	**15.00%**
D Add 9" Of W6x20 Each	1.00	LS	$22,358.20	$22,358.20			
W6x20, 304 SS	120.00	LF	$186.32	$22,358.20			
D Switch From W4x13 To W6x20	1.00	LS	$31,301.47	$31,301.47			
W6x20, 304 SS	480.00	LF	$65.21	$31,301.47			
D Increase Baseplate For W6x20	1.00	LS	$4,783.67	$4,783.67			
304 SS, PL 5/8"x60"x120"	53.00	SF	$90.26	$4,783.67			
D Add 6" To Each Anchor	1.00	LS	$11,800.59	$11,800.59			
316 SS Anchor (6")	1,280.00	EACH	$9.22	$11,800.59			
D 03 - Installation	**1.00**	**LS**	**$10,417.85**	**$10,417.85**	**$12,105.82**	**$12,105.82**	**15.00%**
D Additional Epoxy (1280 Holes)	1.00	LS	$1,524.72	$1,524.72			
Epoxy, Simpson Set, AT-XP 30 OZ	33.00	EACH	$46.20	$1,524.72			
D Additional Drilling (1280 Holes)	1.00	LS	$8,893.14	$8,893.14			
05 Skilled Labor	80.00	HR	$56.38	$4,510.59			
3/4" Vacuum Bit	26.00	EACH	$161.18	$4,190.55			
Drill, Concrete 3/4"	80.00	HR	$2.40	$192.00			

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$4,650.49	5.76%
Equipment Owned:	$192.00	0.24%
Equipment Rented:	$0.00	0.00%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$75,959.20	94.01%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$80,801.69	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$80,801.69	86.06%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$845.04	0.90%
Total Overall Cost:	$81,646.73	86.96%
Total Overhead:	$0.00	0.00%
Total Profit:	$12,247.00	13.04%
Total Margin:	$12,247.00	13.04%
Total Bid Price:	$93,893.73	

CHANGE CONTROL FORM 090
Proposal for the Substitution of Stainless Steel Piping Materials

Owner: Central Valley Water Reclamation Facility	**Project: BNR**	
Contractor: Gerber Construction	**Date: 10/03/2022**	**CC# 30B**

Originator: ☐ **Owner** ☐ **RPR** ☒ **Engineer** ☐ **Contractor**

This Document is a:
☐**Request for Proposal** ☐**Work Change Directive** ☒**Field Order** ☐**Contractor Requested Change** ☐**Claim**

Description of Change

The attached letters detail the substitution agreement between the Owner and the Contractor. This Change Control Form limits the Contractor's potential losses by approximately $900,000.00 (via material substitutions) and the Contractor agrees not to seek price adjustments for the stainless steel piping under the COVID clause of the project contract.

Request for Proposal/Contractor Requested Change/Claim

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

	Cost	Time (Days)
Add / Deduct (Circle One)	$	
Proposed by:		Date:
RPR Signature ☐ Recommends Acceptance ☐ Recommends Rejection		Date:
Owner Signature ☐Accepts Proposal ☐ Rejects Proposal		Date:

Work Change Directive

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

Recommended by RPR:	Date:
Authorized by Owner:	Date:
Accepted by Contractor:	Date:

Field Order

This Field Order issued in accordance with the General Conditions for minor changes in the Work without changes in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Resident Project Representative immediately and before proceeding with the Work.

Directed by RPR: Mark Hansen	Date: 10/03/2022
Accepted by Contractor:	Date: 10/05/2022

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Central Valley Water
Reclamation
Facility

Board Members
Debra Armstrong, Chair
Don Russell, Vice Chair
Sharla Bynum
Giles Demke
Wesley Fisher
Brett Hales
Jeff Monson

General Manager
Phillip Heck, Ph.D., P.E.

September 20, 2022

Mark Nielsen
Gerber Construction
815 East 675 South
Lehi, UT 84043

Dear Mr. Nielsen:

We have reviewed your letter of September 20, 2022 and are in agreement with your proposal for the substitution of stainless steel piping materials with HDPE piping materials, the removal of dresser couplings, and the substitution of 8 gauge stainless steel for the Schedule 10 stainless steel air piping that was specified. We are also in agreement with the substitution cost amounts outlined in the cost estimate attached to your letter. These substitutions will decrease Gerber Construction's potential losses by over $900,000 while providing a similar quality construction project for Central Valley Water Reclamation Facility (CVWRF). With CVWRF's agreement to allow these changes, Gerber Construction agrees to not seek price adjustments for the stainless steel piping under the COVID clause of the project contract.

Please proceed with the changes outlined in your letter and procure the necessary materials for the project. Should you have any questions or require further clarification, please do not hesitate to contact me at the number below or at heckp@cvwrf.org.

Sincerely,

Phillip E. Heck, Ph.D., P.E.
General Manager

CC: Brandon Heidelberger (Assistant GM)
Mark Hansen (Brown and Caldwell)

GERBER
CONSTRUCTION

September 20, 2022

Phillip Heck, Ph.D., P.E.
General Manager
Central Valley WRF
800 West Central Valley Road
Salt Lake City, Utah 84119

Reference: Alternate Materials

Dear Phil:

This letter is to provide clarification and a proposed agreement to the material pricing hereafter attached. First, I would like to express appreciation to you and CVWRF in your willingness to partner with Gerber Construction (GCI) during these unprecedented and extraordinary times.

As you look at the attached pricing sheet, the bid items work in pairs. The first bid item of the pair outlines the cost of materials that GCI had included in its original scope and pricing plus a nominal percentage for typical inflation. The second bid item of the pair shows GCI's estimate to provide the equivalent materials in HDPE rather than Stainless Steel. As previously documented, GCI's actual costs to provide stainless piping would be much higher than what was included in the original proposal.

For example, bid items 1 and 2 outline the costs to provide the Aeration Basins 36" ML lines in both stainless steel and HDPE pipe materials. There is a potential for GCI to decrease its losses on material purchases by $627K. Bid items 9 and 10 show the price difference in providing 8 Gauge stainless steel pipe vs. Schedule 10 pipe for the Air piping. It was determined that this would be acceptable for Air piping in the 24" to 36" range.

The exception to the above is bid item 11. Bid item 11 provides the cost savings to eliminate the dresser couplers called for on project drawings. It was determined that these couplers could be deleted without a decrease of quality to the project.

Given the changes discussed, GCI can potentially decrease losses by just over $900,000 if all changes are accepted by Central Valley. If accepted, Gerber Construction would agree to discontinue pursuing any price adjustments for the stainless piping under the Covid clause of the contract. Please let us know if this is acceptable.

Sincerely,

Mark Nielsen
Project Principle

801.407.2000
info@1gerber.com
www.1gerber.com
815 East 675 South
Lehi, UT 84043

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

Phone: 801.407.2000
Fax: 801.407.2058
www.1gerber.com

GERBER CONSTRUCTION
Est. 1974

Item Price Summary

Project Name:	COV-01 Stainless Pipe To HDPE	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** COV-02	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Mark Nielsen	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Job Cost ID	Task JCID	Bid Quantity	UM	Unit Bid Price	Total Bid Price
D 01 - Aeration Basins 36" ML SS Option			1.00	LS	$1,558,850.96	$1,558,850.96
D 02 - Aeration Basins 36" ML HDPE Option			1.00	LS	$931,290.01	$931,290.01
D 03 - RAS/WAS 42" RAS SS Option			1.00	LS	$181,572.97	$181,572.97
D 04 - RAS/WAS 42" RAS HDPE Option			1.00	LS	$206,558.15	$206,558.15
D 05 - Aeration Basin 8" ML SS Option			1.00	LS	$54,883.12	$54,883.12
D 06 - Aeration Basin 8" ML HDPE Option			1.00	LS	$32,142.14	$32,142.14
D 07 - Anaerobic Basin 12" ML SS Option			1.00	LS	$65,446.28	$65,446.28
D 08 - Anaerobic Basin 12" ML HDPE Option			1.00	LS	$30,441.51	$30,441.51
D 09 - Deletion Phase I Dressers (CCF 062)			1.00	LS	$154,990.02	$154,990.02
D 10 - 24"-36" Air Piping Sch 10			1.00	LS	$584,878.76	$584,878.76
D 11 - 24"-36" Air Piping 8 Gauge			1.00	LS	$496,031.25	$496,031.25
Pay Items Total:						$4,297,085.17

Gerber Construction, Inc.
815 E 675 S
Lehi, UT 84043

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GERBER CONSTRUCTION
Est. 1974

Cost Detail With Man Hours

Project Name:	COV-01 Stainless Pipe To HDPE	**Customer:**	Central Valley Water Reclamation Facility
Job Number:	**Bid Number:** COV-02	**Billing Address:**	800 West Central Valley Road
Bid As:	General Contractor		Salt Lake City, UT 84119
Estimator:	Mark Nielsen	**Phone:**	
Project Address:		**Contact:**	
Completion Date:			

Pay Items

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
01 - Aeration Basins 36" ML SS Option	**1.00**	**LS**	**3,272.47**	**3,272.47**	**$1,558,850.95**	**$1,558,850.95**
Stainless And Install	1.00	LS	3,272.47	3,272.47	$1,558,850.95	$1,558,850.95
36" Shop Butt Weld (9.00 PH/JT, 108.00 DY)	96.00	JT	864.00	9.00	$440.02	$42,242.04
Welding Shop	864.00	HR			$18.20	$15,724.80
13 Welder	864.00	HR			$30.69	$26,517.24
36" Shop Miter Welds (11.00 PH/JT, 66.00 DY)	48.00	JT	528.00	11.00	$537.80	$25,814.58
Welding Shop	528.00	HR			$18.20	$9,609.60
13 Welder	528.00	HR			$30.69	$16,204.98
Pipe Fitter 3 Men (2.00 PH/PC, 24.00 DY)	96.00	PC	864.00	9.00	$651.21	$62,515.97
Manlift, 20', Scissor Lift, Electric	192.00	HR			$5.13	$984.00
Welder, Trailer Mounted, 200 Amp	192.00	HR			$13.08	$2,510.40
Crane, RT, 60 Ton	192.00	HR			$90.38	$17,352.00
Pipefitter	216.00	HR			$57.88	$12,501.85
Pipefitter	216.00	HR			$57.88	$12,501.85
04 Skilled Labor	216.00	HR			$36.62	$7,909.95
09 Crane Operator	216.00	HR			$40.54	$8,755.93
Welding Crew (Field) (6.00 PH/JT, 56.47 DY)	80.00	JT	1,016.47	12.71	$701.75	$56,139.77
13 Welder	508.24	HR			$31.40	$15,957.61
Welder, Truck Mounted 1 Ton	2.63	MO			$1,598.50	$4,198.52
Welder, Skid Mounted, 200 Amp	451.76	HR			$14.54	$6,567.53
Pipefitter	508.24	HR			$57.88	$29,416.11
304 SS, 36", Schedule 10 Pipe (Robert-James Sales, Inc.)	3,400.00	LF			$322.50	$1,096,500.00
304 SS 36" Flange Bolt Kit (Robert-James Sales, Inc.)	32.00	EACH			$2,030.68	$64,981.60
304 SS, 36", Flange, Plate (Robert-James Sales, Inc.)	32.00	EACH			$2,456.38	$78,604.00
304 SS, 36", Tapped Plate Flange (Robert-James Sales, Inc.)	32.00	EACH			$2,859.50	$91,504.00
304 SS, 24", Schedule 10 Pipe (Robert-James Sales, Inc.)	40.00	LF			$195.65	$7,826.00

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
(Item 01 - Aeration Basins 36" ML SS Option continued)						
304 SS, 24", Plate Flange (Robert-James Sales, Inc.)	8.00	EACH			$1,316.88	$10,535.00
304 SS, 24" Blind Flange (Robert-James Sales, Inc.)	8.00	EACH			$1,128.75	$9,030.00
304 SS 24" Flange Bolt Kit (Robert-James Sales, Inc.)	16.00	EACH			$822.38	$13,158.00
02 - Aeration Basins 36" ML HDPE Option	**1.00**	**LS**	**2,198.00**	**2,198.00**	**$931,290.01**	**$931,290.01**
Hdpe Materials	1.00	LS	128.00	128.00	$668,234.38	$668,234.38
36" DR 32.5 IPS Pipe	3,400.00	LF			$95.46	$324,574.97
36" 90 Deg Bend	20.00	EACH			$4,173.37	$83,467.31
36"x24" Tee	8.00	EACH			$3,677.15	$29,417.22
Pipe, IPS HDPE DR32.5, 24" Flange Adapter	8.00	EACH			$867.76	$6,942.08
Pipe, IPS HDPE 24" Backup Ring, SS	8.00	EACH			$2,581.35	$20,650.77
Pipe, IPS HDPE DR21, 36" Flange Adapter	8.00	EACH			$1,198.48	$9,587.81
Pipe, IPS HDPE DR21, 36" Backup Ring	8.00	EACH			$7,546.19	$60,369.48
Bolt Kit, 24" Flanged, 150 PSI 316 SS	8.00	EACH			$820.46	$6,563.70
Flang Bolt Kit 36" 316 SS	16.00	EACH			$2,025.95	$32,415.24
Wall Spools	1.00	LS	128.00	128.00	$79,639.64	$79,639.64
304 SS, 36" Pipe Sch. 40	20.00	LF			$738.47	$14,769.40
304 SS, 36", Flange, Plate	16.00	EACH			$3,535.71	$56,571.37
Welding Crew (Shop) (1.00 EACH/DY, 8.00 DY)	8.00	EACH	128.00	16.00	$1,037.36	$8,298.87
Welding Shop [2]	64.00	HR			$18.20	$2,329.60
13 Welder	64.00	HR			$32.41	$2,074.33
13 Welder Foreman	64.00	HR			$60.86	$3,894.94
304 SS, 24" Blind Flange	8.00	EACH			$1,825.77	$14,606.16
HDPE Welding	1.00	LS	1,710.00	1,710.00	$229,261.46	$229,261.46
Pipe Crew, HDPE Welding (3.00 EACH/DY, 38.00 DY)	114.00	EACH	1,710.00	15.00	$2,011.07	$229,261.46
Forklift, Telescoping, 8,000 Lb	304.00	HR			$21.38	$6,498.00
04 Leadman	342.00	HR			$54.23	$18,545.08
Crane, Crawler, 110 Ton	304.00	HR			$172.75	$52,516.00
HDPE Fusion Machine, 16"-48"	38.00	DY			$1,629.13	$61,906.75
Generator, Diesel, 20 KW	304.00	HR			$22.10	$6,718.40
02 Senior Foreman	342.00	HR			$73.79	$25,235.88
Pipefitter [3]	342.00	HR			$56.38	$57,841.35
HDPE Install	1.00	LS	360.00	360.00	$33,794.17	$33,794.17
Pipe Crew, Install (425.00 LF/DY, 8.00 DY)	3,400.00	LF	360.00	0.11	$9.94	$33,794.17
Forklift, Telescoping, 8,000 Lb	64.00	HR			$20.88	$1,336.00
04 Leadman	72.00	HR			$54.23	$3,904.23
Crane, Crawler, 110 Ton	64.00	HR			$167.75	$10,736.00
Manlift, 20', Scissor Lift, Electric	64.00	HR			$5.13	$328.00
02 Senior Foreman	72.00	HR			$73.79	$5,312.82
Pipefitter [3]	72.00	HR			$56.38	$12,177.13
03 - RAS/WAS 42" RAS SS Option	**1.00**	**LS**	**953.00**	**953.00**	**$181,572.97**	**$181,572.97**
Materials	1.00	LS	0.00	0.00	$130,346.22	$130,346.22
PL, 304 SS, .1875"x60"x60" (Affiliated Metals)	0.55	UNIT			$414.95	$228.22
304 SS, 42" Pipe .25" wall (Robert-James Sales, Inc.)	340.00	LF			$382.70	$130,118.00

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
(Item 03 - RAS/WAS 42" RAS SS Option continued)						
42" Seep Rings, Shop Weld (3.00 PH/JT, 1.50 DY)	4.00	JT	12.00	3.00	$146.67	$586.69
Welding Shop	12.00	HR			$18.20	$218.40
13 Welder	12.00	HR			$30.69	$368.29
42" Butt Joints Shop Weld (11.00 PH/JT, 24.75 DY)	18.00	JT	198.00	11.00	$537.80	$9,680.47
Welding Shop	198.00	HR			$18.20	$3,603.60
13 Welder	198.00	HR			$30.69	$6,076.87
42" Miter Joints Shop Weld (13.00 PH/JT, 39.00 DY)	24.00	JT	312.00	13.00	$635.59	$15,254.07
Welding Shop	312.00	HR			$18.20	$5,678.40
13 Welder	312.00	HR			$30.69	$9,575.67
42"x30" Tee Fabrication Shop Weld (13.00 PH/EACH, 3.25 DY)	2.00	EACH	26.00	13.00	$635.59	$1,271.17
Welding Shop	26.00	HR			$18.20	$473.20
13 Welder	26.00	HR			$30.69	$797.97
42" Butt Joints Pipe Fitter Field Weld (12.00 PH/JT, 15.00 DY)	10.00	JT	270.00	27.00	$1,567.80	$15,677.96
Truck, Pickup, 1 Ton	0.70	MO			$1,976.63	$1,379.04
Welder, Skid Mounted, 200 Amp	120.00	HR			$14.54	$1,744.50
Pipe Fitter Welder	135.00	HR			$56.38	$7,610.70
04 Skilled Labor	135.00	HR			$36.62	$4,943.72
42" Install Pipe Fitter 5 Men (2.00 PH/EACH, 3.00 DY)	12.00	EACH	135.00	11.25	$729.70	$8,756.38
01 Superintendent	27.00	HR			$58.81	$1,587.98
04 Skilled Labor	27.00	HR			$36.62	$988.74
05 General Labor	27.00	HR			$32.79	$885.20
Pipefitter [2]	27.00	HR			$57.88	$3,125.46
Crane, RT, 60 Ton	24.00	HR			$90.38	$2,169.00
04 - RAS/WAS 42" RAS HDPE Option	**1.00**	**LS**	**345.00**	**345.00**	**$206,558.14**	**$206,558.14**
Hdpe Materials	1.00	LS	0.00	0.00	$163,921.49	$163,921.49
42" DR 32.5 IPS Pipe	300.00	LF			$138.13	$41,438.18
42" 90 Deg Bend	2.00	EACH			$6,201.80	$12,403.59
42"x30" Tee	1.00	EACH			$5,986.32	$5,986.32
Pipe, IPS HDPE DR32.5, 42" Flange Adapter	4.00	EACH			$2,493.31	$9,973.22
Pipe, IPS HDPE 42" Backup Ring, SS	4.00	EACH			$15,346.15	$61,384.58
30" 90 Deg Bend	1.00	EACH			$3,753.75	$3,753.75
Pipe, IPS HDPE DR32.5, 30" Flange Adapter	1.00	EACH			$1,516.83	$1,516.83
Pipe, IPS HDPE 30" Backup Ring, SS	1.00	EACH			$5,132.78	$5,132.78
30" DR 32.5 IPS Pipe	20.00	LF			$85.80	$1,716.00
30" Flange Bolt Pack, 316 SS	1.00	EACH			$3,073.79	$3,073.79
Bolt Kit, 42", Flanged Class 125 316 SS	4.00	EACH			$4,385.61	$17,542.45
HDPE Welding	1.00	LS	255.00	255.00	$34,188.11	$34,188.11
Pipe Crew, HDPE Welding (3.00 EACH/DY, 5.67 DY)	17.00	EACH	255.00	15.00	$2,011.07	$34,188.11
Forklift, Telescoping, 8,000 Lb	45.33	HR			$21.38	$969.00
04 Leadman	51.00	HR			$54.23	$2,765.49
Crane, Crawler, 110 Ton	45.33	HR			$172.75	$7,831.33
HDPE Fusion Machine, 16"-48"	5.67	DY			$1,629.13	$9,231.71
Generator, Diesel, 20 KW	45.33	HR			$22.10	$1,001.87

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
(Item 04 - RAS/WAS 42" RAS HDPE Option continued)						
02 Senior Foreman	51.00	HR			$73.79	$3,763.25
Pipefitter [3]	51.00	HR			$56.38	$8,625.46
HDPE Install	1.00	LS	90.00	90.00	$8,448.54	$8,448.54
Pipe Crew, Install (150.00 LF/DY, 2.00 DY)	300.00	LF	90.00	0.30	$28.16	$8,448.54
Forklift, Telescoping, 8,000 Lb	16.00	HR			$20.88	$334.00
04 Leadman	18.00	HR			$54.23	$976.06
Crane, Crawler, 110 Ton	16.00	HR			$167.75	$2,684.00
Manlift, 20', Scissor Lift, Electric	16.00	HR			$5.13	$82.00
02 Senior Foreman	18.00	HR			$73.79	$1,328.20
Pipefitter [3]	18.00	HR			$56.38	$3,044.28
05 - Aeration Basin 8" ML SS Option	**1.00**	**LS**	**408.00**	**408.00**	**$54,883.12**	**$54,883.12**
Materials	1.00	LS	0.00	0.00	$35,191.20	$35,191.20
304 SS Pipe, 08" Schedule 10 (Robert-James Sales, Inc.)	600.00	LF			$31.18	$18,705.00
304 SS Wye, 08"x08"x08" (Robert-James Sales, Inc.)	8.00	EACH			$570.83	$4,566.60
304 SS Bend 45 08" Weld Joint (Robert-James Sales, Inc.)	8.00	EACH			$116.10	$928.80
304 SS Flange Bolt Kit 08" (Robert-James Sales, Inc.)	32.00	EACH			$136.53	$4,368.80
304 SS Flange, Plate, 08" (Robert-James Sales, Inc.)	48.00	EACH			$110.73	$5,314.80
304 SS Blind Flange 08" (Robert-James Sales, Inc.)	8.00	EACH			$122.55	$980.40
Multi Piece Valve Box, M-8030 (Lid = WATER) (Core & Main (West Jordan))	8.00	UNIT			$40.85	$326.80
Welding Crew (Shop) (2.00 PH/JT, 24.00 DY)	96.00	JT	192.00	2.00	$97.78	$9,387.12
Welding Shop	192.00	HR			$18.20	$3,494.40
13 Welder	192.00	HR			$30.69	$5,892.72
Pipe Fitter 4 Men (2.00 PH/PC, 6.00 DY)	24.00	PC	216.00	9.00	$429.37	$10,304.80
Manlift, 20', Scissor Lift, Electric	48.00	HR			$5.13	$246.00
Material Lift, Manual, 650 Lb Load	1.20	WK			$50.00	$60.00
04 Skilled Labor	54.00	HR			$36.62	$1,977.49
05 General Labor	54.00	HR			$32.79	$1,770.39
Pipefitter [2]	54.00	HR			$57.88	$6,250.92
06 - Aeration Basin 8" ML HDPE Option	**1.00**	**LS**	**225.00**	**225.00**	**$32,142.13**	**$32,142.13**
Hdpe Materials	1.00	LS	0.00	0.00	$13,382.01	$13,382.01
8" DR17 HDPE	600.00	LF			$10.27	$6,164.73
8" Wall Anchor	4.00	EACH			$356.64	$1,426.55
8" DR17 Wye	8.00	EACH			$317.52	$2,540.19
8"x4" Conc Reducer	8.00	EACH			$164.70	$1,317.63
4" 45 Deg Elbow	8.00	EACH			$17.44	$139.51
8" DR17 Flange Adapter	8.00	EACH			$39.83	$318.66
8" Back Up Ring	8.00	EACH			$28.89	$231.15
8" Electrofusion Coupling	8.00	EACH			$100.41	$803.26
4" DR11 Clean Out	8.00	EACH			$55.04	$440.33
HDPE Welding	1.00	LS	117.00	117.00	$10,171.68	$10,171.68
Pipe Crew, HDPE Welding (12.00 EACH/DY, 4.33 DY)	52.00	EACH	117.00	2.25	$195.61	$10,171.68

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
(Item 06 - Aeration Basin 8" ML HDPE Option continued)						
Forklift, Telescoping, 8,000 Lb	34.67	HR			$21.38	$741.00
04 Leadman	39.00	HR			$54.23	$2,114.79
Generator, Diesel, 20 KW	34.67	HR			$22.10	$766.13
02 Senior Foreman	39.00	HR			$73.79	$2,877.78
Pipefitter	39.00	HR			$56.38	$2,198.65
HDPE Fusion Machine, 04"-12"	4.33	DY			$340.00	$1,473.33
HDPE Install	1.00	LS	108.00	108.00	$8,588.44	$8,588.44
Pipe Crew, Install (150.00 LF/DY, 4.00 DY)	600.00	LF	108.00	0.18	$14.31	$8,588.44
Forklift, Telescoping, 8,000 Lb	32.00	HR			$20.88	$668.00
04 Leadman	36.00	HR			$54.23	$1,952.11
Manlift, 20', Scissor Lift, Electric	32.00	HR			$5.13	$164.00
02 Senior Foreman	36.00	HR			$73.79	$2,656.41
Pipefitter	36.00	HR			$56.38	$2,029.52
Manlift, 40' Boom	32.00	HR			$34.95	$1,118.40
07 - Anaerobic Basin 12" ML SS Option	**1.00**	**LS**	**268.00**	**268.00**	**$65,446.28**	**$65,446.28**
Fabricate	1.00	LS	160.00	160.00	$56,904.68	$56,904.68
Welding Crew (Shop) (2.50 PH/JT, 8.75 DY)	28.00	JT	70.00	2.50	$122.23	$3,422.39
Welding Shop	70.00	HR			$18.20	$1,274.00
13 Welder	70.00	HR			$30.69	$2,148.39
Sandblasting	40.00	HR	45.00	1.13	$145.63	$5,825.02
Sand Blast Crew, Yard (8.00 HR/DY, 5.00 DY)	40.00	HR	45.00	1.13	$125.59	$5,023.65
Sand Blaster, 10,000 Lb, Trailer Mounted	40.00	HR			$77.05	$3,082.00
03 Leadman	45.00	HR			$43.15	$1,941.65
Sandblast Grit	2.50	BAG			$320.55	$801.38
Painting, Yard	40.00	HR	45.00	1.13	$70.68	$2,827.17
Painting, Shop (8.00 HR/DY, 5.00 DY)	40.00	HR	45.00	1.13	$49.23	$1,969.17
Paint Booth	40.00	HR			$15.38	$615.00
14 Painter	45.00	HR			$30.09	$1,354.17
Paint, Epoxy	20.00	GAL			$42.90	$858.00
Cut Victualic Groove in 12" steel Pipe (Gerber Construction Plug Price)	24.00	EACH			$107.25	$2,574.00
304 SS, 12", Schedule 10 Pipe (Robert-James Sales, Inc.)	320.00	LF			$59.13	$18,920.00
304 SS, 12",90 bend LR (Robert-James Sales, Inc.)	4.00	EACH			$489.13	$1,956.50
304 SS, 12",45 bend (Robert-James Sales, Inc.)	8.00	EACH			$304.23	$2,433.80
304 SS 12" Flange Bolt Kit (Robert-James Sales, Inc.)	2.00	EACH			$270.90	$541.80
304 SS, 12", Plate Flange (Robert-James Sales, Inc.)	2.00	EACH			$204.25	$408.50
Grooved Coupler, 12", Sch. 10, 304 SS (Robert-James Sales, Inc.)	12.00	EACH			$1,499.63	$17,995.50
Install 3 Men (2.29 PH/PC, 4.00 DY)	14.00	PC	108.00	7.71	$610.11	$8,541.61
Manlift, 20', Scissor Lift, Electric	32.00	HR			$5.13	$164.00
Pipefitter	36.00	HR			$57.88	$2,083.64
Pipefitter	36.00	HR			$57.88	$2,083.64
04 Skilled Labor	36.00	HR			$36.62	$1,318.33
Crane, RT, 60 Ton	32.00	HR			$90.38	$2,892.00

Description	Quantity	UM	Man Hours	Man Hours per Unit	Unit Direct Cost	Total Direct Cost
08 - Anaerobic Basin 12" ML HDPE Option	**1.00**	**LS**	**135.00**	**135.00**	**$30,441.51**	**$30,441.51**
Hdpe Materials	1.00	LS	0.00	0.00	$19,105.36	$19,105.36
12" DR17 HDPE	300.00	LF			$22.46	$6,737.45
12" 45 Deg Elbow	8.00	EACH			$666.04	$5,328.35
12" Flange Adapter	4.00	EACH			$101.72	$406.86
12" Back Up Ring	4.00	EACH			$856.68	$3,426.72
12" 90 Deg Elbow	4.00	EACH			$666.04	$2,664.18
304 SS 12" Flange Bolt Kit (Robert-James Sales, Inc.)	2.00	EACH			$270.90	$541.80
HDPE Welding	1.00	LS	81.00	81.00	$7,041.93	$7,041.93
Pipe Crew, HDPE Welding (10.00 EACH/DY, 3.00 DY)	30.00	EACH	81.00	2.70	$234.73	$7,041.93
Forklift, Telescoping, 8,000 Lb	24.00	HR			$21.38	$513.00
04 Leadman	27.00	HR			$54.23	$1,464.09
Generator, Diesel, 20 KW	24.00	HR			$22.10	$530.40
02 Senior Foreman	27.00	HR			$73.79	$1,992.31
Pipefitter	27.00	HR			$56.38	$1,522.14
HDPE Fusion Machine, 04"-12"	3.00	DY			$340.00	$1,020.00
HDPE Install	1.00	LS	54.00	54.00	$4,294.22	$4,294.22
Pipe Crew, Install (150.00 LF/DY, 2.00 DY)	300.00	LF	54.00	0.18	$14.31	$4,294.22
Forklift, Telescoping, 8,000 Lb	16.00	HR			$20.88	$334.00
04 Leadman	18.00	HR			$54.23	$976.06
Manlift, 20', Scissor Lift, Electric	16.00	HR			$5.13	$82.00
02 Senior Foreman	18.00	HR			$73.79	$1,328.20
Pipefitter	18.00	HR			$56.38	$1,014.76
Manlift, 40' Boom	16.00	HR			$34.95	$559.20
09 - 24"-36" Air Piping Sch 10	**1.00**	**LS**	**0.00**	**0.00**	**$584,878.76**	**$584,878.76**
24" 10s Gauge Pipe, 304 SS	1,080.00	LF			$371.62	$401,350.95
28" 10s Gauge Pipe, 304 SS	40.00	LF			$559.36	$22,374.50
30" 10s Gauge Pipe, 304 SS	250.00	LF			$597.76	$149,439.47
36" 10s Gauge Pipe, 304 SS	20.00	LF			$585.69	$11,713.85
10 - 24"-36" Air Piping 8 Gauge	**1.00**	**LS**	**0.00**	**0.00**	**$496,031.25**	**$496,031.25**
24" 8 Gauge Pipe, 304 SS	1,080.00	LF			$327.11	$353,281.50
28" 8 Gauge Pipe, 304 SS	40.00	LF			$552.34	$22,093.50
30" 8 Gauge Pipe, 304 SS	250.00	LF			$439.73	$109,931.25
36" 8 Gauge Pipe, 304 SS	20.00	LF			$536.25	$10,725.00
11 - Deletion Phase I Dressers (CCF 062)	**1.00**	**LS**	**0.00**	**0.00**	**$154,990.02**	**$154,990.02**
54" Dresser Coupler	8.00	EACH			$11,797.50	$94,380.00
30" Dresser Coupler	4.00	EACH			$5,040.75	$20,163.00
12" Dresser Coupler	10.00	EACH			$1,056.41	$10,564.13
6" Dresser Coupler	8.00	EACH			$500.01	$4,000.08
4" Dresser Coupler	6.00	EACH			$375.38	$2,252.25
54" Sched. 40 Pipe, 304 SS	16.00	LF			$893.93	$14,302.86
30" Sched. 40 Pipe, 304 SS	8.00	LF			$597.76	$4,782.06
12" Sched. 40 Pipe, 304 SS	20.00	LF			$122.80	$2,456.03
6" Sched. 40 Pipe, 304 SS	16.00	LF			$91.55	$1,464.78
4" Sched. 40 Pipe, 304 SS	12.00	LF			$52.07	$624.84

Direct Cost Totals

	Amount	Percent of Direct Cost
Labor:	$364,162.74	8.47%
Equipment Owned:	$253,959.18	5.91%
Equipment Rented:	$2,553.33	0.06%
Materials Owned:	$0.00	0.00%
Materials Purchased:	$3,676,409.89	85.56%
Subcontracted:	$0.00	0.00%
Trucking Owned:	$0.00	0.00%
Trucking Hired:	$0.00	0.00%
Miscellaneous:	$0.00	0.00%
Plug:	$0.00	0.00%
Direct Cost:	$4,297,085.15	

Pay Item Summary

	Amount	Percent of Bid Price
Total Direct Cost:	$4,297,085.15	100.00%
Total DC Adds/Cuts:	$0.00	0.00%
Total Indirect Cost:	$0.00	0.00%
Total Bond:	$0.00	0.00%
Total Overall Cost:	$4,297,085.15	100.00%
Total Overhead:	$0.00	0.00%
Total Profit:	$0.02	0.00%
Total Margin:	$0.02	0.00%
Total Bid Price:	$4,297,085.17	

TENCATE GEOSYNTHETICS
Americas

March 18, 2021

Subject: COVID-19 Impact on Polypropylene Geotextile Supply and Pricing

Dear Valued Partner,

The past few months have seen historic increases in the cost of polypropylene resin. In the United States, the price of polypropylene resin has increased 250% during the COVID-19 pandemic.

Polypropylene is a thermoplastic polymer used in a wide variety of applications. It is produced via chain-growth polymerization from the monomer propylene. The vast majority of North American geotextiles are produced by extruding polypropylene and combining the fibers into different forms of textile products.

Polypropylene is produced from Polymer Grade Propylene (PGP). When examining the historic cost increase in polypropylene resin, the key driver has been the COVID-19 effects on the production of PGP. As a byproduct of the oil and gas refining process, the production of PGP monomer has been greatly impacted by low refinery rates, resulting from weak gasoline and jet fuel demand caused by the COVID-19 pandemic.

While demand for polypropylene has increased in the COVID-19 recovery, the available supply of PGP is still the main market dynamic behind the rise in prices. Currently, seven out of ten North American polypropylene resin producers are in force majeure or sales allocation.

Entering Q4, the United States polypropylene resin inventory levels were at record lows. The recovery in inventory, which was projected to happen in Q1, was also seriously impacted by weather in the chemical production sector. An Arctic blast with record low temperatures impacted the same area along the Texas and Louisiana border that was devastated by hurricanes this past fall. The normally warm petrochemicals-laden region was ill-prepared to withstand freezing temperatures and sheets of ice.

While we remain concerned about continued volatility in the polypropylene resin market, we are hopeful that the market will stabilize as we move into summer.

Considering these extraordinary market conditions, TenCate Geosynthetics is unable to honor previously issued quotations nor honor old pricing on material ordered or shipped after the implementation dates of announced price increases.

Please let me know if I can answer any further questions.

Sincerely,

John Henderson, PE
President

365 South Holland Drive
Pendergrass, GA 30567

Tel 706 693 2226
Tel 888 795 0808

Fax 706 693 4400
www.tencategeo.com

335 Athena Dr.
Athens, GA 30601
Tel 706 354 3700
Fax 706 354 3737
E-mail: - info@skaps.com

March 12. 2021

Re: Force Majeure Notice

Dear Valued Customer,

As we have communicated to you several times in recent months, the availability of raw material for SKAPS' geosynthetic products is going from bad to worse. The decline in the worldwide production of polypropylene and polyethylene coupled with the increases in demand for spunbond products to counter the COVID-19 pandemic have made the procurement of these basic feed stocks for our products difficult and uncertain. The recent weather event along the Gulf Coast, with single digit temperatures and wide spread electrical power outages, has only compounded the situation.

As we have worked through this difficult situation over the past months, SKAPS has endeavored to continue to supply products to our customers in as timely a manner as possible. However, the situation has degraded to the point where it is obvious this may no longer be possible. Our raw material suppliers (including, but not limited to, Chevron Phillips Chemical, Formosa Plastics, and LyondellBasell/Equistar Chemicals) have been forced to invoke a "Force Majeure" event due to their inability to secure basic raw materials for the resins and fibers they provide to SKAPS. Accordingly, SKAPS has no choice but to also declare a Force Majeure event effective today. We regret the impact that this may have on your business; but, under the present circumstances, we see no viable alternative.

At this time, the duration of this Force Majeure declaration is not known. Given the setbacks to the raw material production facilities along the Gulf Coast, it will be some time before the situation begins to resemble "normal." Please rest assured that we will do everything in our power to keep you supplied with our products as best as possible. SKAPS will work diligently to continue to provide you with the highest quality products, at competitive prices, in as timely a manner as possible. We will also diligently monitor the market conditions and continue to communicate with you as we work through this difficult situation. We value your business and thank you for your continued support during these times of raw material volatility.

Best regards,

Perry Vyas, President and CEO

SKAPS Industries

1830 Craig Park Court
St. Louis, MO 63146
314.432.4700
coreandmain.com

March 25, 2021

Dear Valued Customer,

We continue to experience significant price increases across all major product lines, including PVC pipe, ductile iron pipe and fittings, hydrants, valves, restraints, and many of our other major product categories.

In addition, we are beginning to see changes to the availability of these products, where many manufacturers are allocating product or declining to accept additional orders. These conditions may impact our ability to supply your material.

We anticipate that this supply chain disruption will continue in the future. We will continue to maintain strong lines of communication with our vendors to minimize this disruption and meet your needs in a timely fashion. Please contact your sales representative or local Core & Main branch for the latest updates.

Our goal is to work diligently to ensure these pricing and supply chain issues have a minimum impact on your current jobs. Thank you for your business and the trust that you place in Core & Main.

Sincerely,

Jack Schaller

Jack Schaller
President
Core & Main

1830 Craig Park Court
St. Louis, MO 63146
314.432.4700
coreandmain.com

May 7, 2021

Dear Valued Customer,

Price increases and supply chain issues continue to surface. Specifically, PVC pipe and fittings, ductile iron pipe and fittings, HDPE pipe, restraints, meters, hydrants and valves, as well as many other products, are experiencing significant shortages that could lead to extended lead times. Along with these supply chain problems, pricing continues to escalate. These problems exist with both domestic and import materials.

With demand high and supply limited, we anticipate a very challenging summer and balance of 2021. It is imperative that we work closely with you to plan and schedule jobs early on in order to avoid possible project delays.

Please continue to communicate with your local sales rep and Core & Main branch for continuous updates and communications regarding these pricing and supply chain issues.

We continue to value the trust you have placed in Core & Main and we will work diligently to service your material needs in this challenging environment.

Thank you for your continued support.

Sincerely,

Jack Schaller
President
Core & Main

Environmental DYNAMICS INTERNATIONAL
A Nexom BRAND

July 20, 2021

Shay Clark
Gerber Construction Inc.
815 East 675 South
Lehi, UT 84043
801-407-2000

SALT LAKE CITY – CENTRAL VALLEY

Material cost escalation

Since the beginning of 2021, a number of our suppliers (particularly Stainless steel piping, PVC piping and components) have declared force majeure which has resulted not only in massive price increases on commodity parts (150% - 200%) but also severe component shortages.

EDI has explored different options to handle these additional costs including:

1) Exploring alternate domestic and international chains to get better pricing and delivery,
2) Pre purchasing larger volumes (at much high unit costs),
3) Absorbing costs internally

However, the cost escalations have reached the point where we are forced to have price increase discussions with our clients as we have not been able to mitigate the cost increases the market as a whole has been experiencing.

For the Salt Lake City – Central Valley Project we have seen an increase in Stainless Steel, PVC and packaging costs of 26% compared to the time of bid.

In order for us to deliver the remainder of the project as per the schedule requested, we request a change order in the amount of $224,574.00.

COVID has placed many companies in difficult supply chain situations. We have absorbed as much of these extra costs as possible but unfortunately, we have reached a stage where we need your help and cooperation.

Sincerely,

Tom Mallory
Project Manager

5601 Paris Rd, Columbia, MO 65202
+1 573 474 9456 | www.wastewater.com

INVENT Environmental Technologies, Inc.
218 Little Falls Road • Cedar Grove, NJ 07009

Gerber Construction
815 East 675 South
Lehi, UT 84043

INVENT Environmental
Technologies, Inc.
218 Little Falls Road,
Units 7&8
Cedar Grove, NJ 07009 USA

Tel.: 973-571-2223
Fax: 973-571-2474
e-mail: info@invent-et.com
http://www.invent-et.com

Date: 06.04.22
Ref: CGO01

IET-60369 Central Valley#2: Delay of Equipment Delivery

Dear Sir or Madam,

Further to the approval obtained on our submittal #113.3 - Hyperboloid Mixers" on September 29th, 2021 related to the project IET-60369 Central Valley #2, INVENT has proceeded and managed to complete the manufacturing and made the items ready to ship on the 16th of March 2022. By this we fulfil the agreed contractual obligation of 24 weeks until readiness of shipment.

Nevertheless, and despite that above efforts, INVENT would like to inform you that we foresee a possible delay of the delivery of the goods resulted from the volatile and unpredictable transport situation all over the world and in particular to and from the US. To date we are unable to get a confirmed vessel date although we booked the two containers on the 14th of February 2022. This unforeseen situation with shipping and logistics is a worldwide issue that is impacting the world trade severely.

Please rest assure that we are doing our best to get the goods shipped out as soon as possible by continuing to check all other possibilities and shipping agencies. Additionally, we are also looking for quickest available route to avoid some long lead-times at ports on the West-coast of the US. We will inform you about the confirmed shipping dates soon.

Please do not hesitate to contact me with any questions or concerns.

Best regards,

INVENT Environmental
Technologies, Inc.

Chitanya Gopu

JACK B. PARSON
READY MIX CONCRETE
A CRH COMPANY

September 30, 2022

Dear Gerber Construction

Thank you for choosing Jack B. Parson Companies for your ready-mixed concrete needs in 2022. We greatly appreciate and value your business.

The current strong economy continues to create both opportunities and significant challenges. Competition for skilled employees, escalating material costs, overall growing inflation, and increasing environmental regulations are impacting our business, as it is with many others. We have been notified by our cement, fly ash, admixture suppliers, and freight carriers of additional price increases for 2023. As a result, our prices will increase on January 01, 2023, as follows:

All Concrete Mixes	+$12.00 per cubic yard

Please note the following supplemental charges

Full-bag mixes	$10.00 per cubic yard
Non-chloride accelerator (per 1%)	$9.00 per cubic yard
Calcium chloride (per 1%)	$9.00 per cubic yard
Fiber reinforcement (nonstructural)	$9.00 per cubic yard
Midrange Plasticizer	$4.50 per cubic yard
Super Plasticizer	$9.00 per cubic yard
Corrosion Inhibitor CNI /DCI	$9.00 per gallon
Hot Water – (Wasatch Front plants)	$8.00 per cubic yard
Weekend and After Hours (4PM-4AM)	$125.00 per load
Environmental Surcharge	$30.00 per load
Small-load (loads less than 5 cubic yards)	$225.00 per load

We understand the need for price clarity in your planning and bidding purposes and we hope this advanced notice will help you plan accordingly. Our vendors and suppliers have notified us that they will not offer any pricing protections. As a result, we will also will not be able to offer any price protection.

We have also been notified of additional price increases beginning July 1, 2023. While we do not know the impact these increases will have yet, we want to provide notice for your planning needs. Hopefully, by May we expect to inform you of the upcoming price changes for July 2023.

We recognize that you have many choices when selecting your concrete supplier. Thank you for making Jack B. Parson Companies your *Preferred Source*.

Best Regards,

Derrick Pack
Vice President

Eaton
8022 Southpark Circle
Suite 300
Littleton, CO 80120

October 4, 2022

Skyline Electric
C/O Brad Wilding
1848 W 2300 S
West Valley City, UT 84119

RE: MSL0010325 / CVWRF CC30B / 262300 LV Switchgear Lead Time Changes

Dear Sir,

Eaton schedules orders based on published lead times at the time the order is released off hold to engineering/manufacturing. Lead times can fluctuate depending on several factors such as engineering capacity, plant capacity, supply chain, market conditions, labor and/or complexity of the bill of material. Over the past 2-3 months we have seen an extension in lead times due primarily to capacity and global supply chain issues.

General Order# MSL0010325 was entered on 9/28/2020. The manufacturing lead times at time of order entry were 44 weeks after release. Due to the previously mentioned capacity and supply chain issues the manufacturing lead times after release for LV Switchgear Assemblies (LVA) is currently 70 weeks.

Release for the LVA was provided to Eaton on 9/13/2022. Based on this release date the plant has scheduled shipment for 01/14/2024.

Regards,

Aaron Farmer
Project Manager
aaroncfarmer@eaton.com

JACK B. PARSON
READY MIX CONCRETE
A CRH COMPANY

April 05, 2021

Dear valued customer,

As you may already be aware, the Utah ready-mix market is currently experiencing a serious cement shortage. With the mild winter Utah experienced this year and a significant increase on the demand for products, the local cement producers have not been able to build the necessary inventories. These factors have caused the cement producers to allocate cement to the ready-mix suppliers.

Because of these allocations, JBP is only be able to produce ready-mix 4 days a week. JBP will be open during regular business hours, Monday – Thursday. This schedule will need to remain in effect until allocations are eased and sufficient cement is available.

We understand the impacts this can have on your projects and we are working with the cement producers to find a solution. If you have any questions or need further information, please contact your salesperson.

Best Regards,

Derrick Pack
Vice President

JACK B. PARSON
READY MIX CONCRETE
A CRH COMPANY

May 10, 2022

Dear valued customer,

As you may already be aware, the Utah ready-mix market is currently experiencing a serious cement shortage. With the ongoing mild winters Utah has experienced the past couple of years and a significant increase in the demand for products, the local cement producers have not been able to build the necessary inventories. These factors along with operational breakdowns at their plants have caused the cement producers to allocate cement to the ready-mix suppliers.

Because of these severe allocations, JBP has had to close some plants this week and going forward will only produce ready-mix 4 days a week. JBP will be open during regular business hours, Monday – Thursday. This schedule will need to remain in effect until allocations are eased and sufficient cement is available.

We understand the impacts this can have on your projects, and we are working with the cement producers to find a solution. If you have any questions or need further information, please contact your salesperson.

Best Regards,

Derrick Pack
Vice President

Golden Harvest, Inc.

Golden Gates™

Phone: 360-757-4334
Fax: 360-757-1135
Email: sales@goldenharvestinc.com

Post Office Box 287
Burlington, WA 98233
Web: www.goldenharvestinc.com

To: Our Valued Customers

Ref: Covid-19

We hope this finds you well and healthy. We have received many emails and phone calls in recent days concerning the impact of Covid-19 in regards to Golden Harvest's ability to provide timely submittals, obtain approval, and provide product. We have had one known case in the manufacturing facility (about two months ago as of this writing). Some GHI employees determined to stay home for a two-week period of self-quarantine; several with underlying health concerns stayed home for over two months. Add to that the extra $600 per week for unemployment benefits, it is almost impossible to hire experienced welders. Of note it has affected schedules. Also, please note that GHI has no control over availability of supplies; while most of our suppliers have remained exceptional in their supply to GHI, some have not, and we cannot guarantee receipt of materials that are beyond our control. We are currently manufacturing gates and working six and a half days per week.

If there are any questions or comments please contact us.

Best regards

JACK B. PARSON
READY MIX CONCRETE
A CRH COMPANY

October 22, 2020

Dear valued customer,

As you may already be aware, the Utah market is currently experiencing a serious cement shortage. Multiple factors ranging from forest fires, plant breakdowns and increased demand have led to these shortages. These issues have caused the regional cement producers to allocate cement to the ready-mix suppliers and this is affecting our ability to service your projects.

We understand the frustrations and impacts these shortages are having on your projects and schedules. We are working with local cement producers as well as exploring out of market options to try to secure the needed cement to meet the current demands.

Please continue to communicate with your salesperson and dispatch and provide accurate volumes and orders.

As we have more information and a better understanding of the length and impacts of these allocations, we will be sure to share any updates.

Best Regards,

Derrick Pack
Vice President

TUTTLE
A DANT CLAYTON DIVISION

June 22, 2021

To Whom it May Concern:

In October 2020 the metal industry began experiencing a ripple effect lengthening material lead times, primarily caused by COVID 19 shutdowns/delays in Q2-Q3 2020. As priorities and consumer buying trends around the country shifted from in-person to nearly exclusive home delivery, freight also became a compounding factor for suppliers.

Current metal and freight markets are projecting longer material lead times throughout 2021. First quarter storms nationwide added a 2-3 week wrench in already extended wait times. Overseas container freight costs tripling, in conjunction with increasing petroleum prices and an all-time high demand for freight services, has further inflated supplier issues.

In addition to the raw materials shortage, suppliers are now communicating a lack of labor is further enhancing their delays.

TUTTLE A Dant Clayton Division is at the mercy of the aluminum mills and extruders that supply materials for railing fabrication. The lengthened lead times were a *prediction of possibility* in Q2-Q3 2020 and started coming to light at the beginning of Q4. Dant Clayton's purchasing/supply chain group immediately responded by placing orders for standard material in Q1 2021. No one within Dant Clayton nor the metals industry foresaw the current 1-4 month lead times (varies by material type), we are experiencing today.

Orders placed mid-January were not received until March 22nd. Our Louisville shop began working through the potpourri of delayed orders, setting goals to complete shipments within 2-4 weeks and optimistic our lead times would return decrease by the end of June. As production started to make headway, the quantity of materials available each week have become less and less.

Thank you for your patience and understanding throughout this industry wide predicament. We will keep all necessary customers or site contacts appraised of their railing order status on a weekly basis.

Sincerely,

Katie Jones
TUTTLE A Dant Clayton Division
Mechanical Railing Project Manager