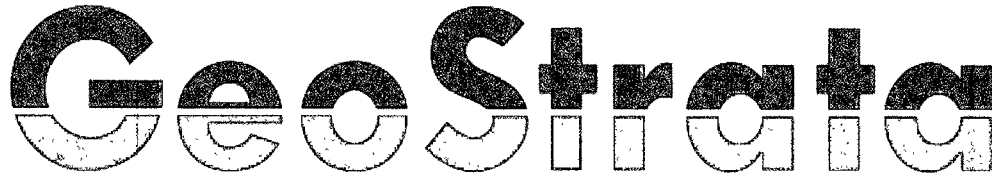


DEC 28 2020

DSHW-2020-018771



Ace Landfill Permit Application

GeoStrata Job No. 524-099

December 23, 2020

Prepared for:

Division of Waste Management and Radiation Control

Utah Department of Environmental Quality

PO Box 144880

Salt Lake City, Utah 84114-4880

Attention: Ty L. Howard, Director



Ace Landfill Permit Application

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Attention: Ty L. Howard, Director


Prepared for:

Ty L. Howard, Director
Doug Taylor, Permit Manager
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
PO Box 144880
Salt Lake City, Utah 84114-4880

Ace Landfill Permit Application

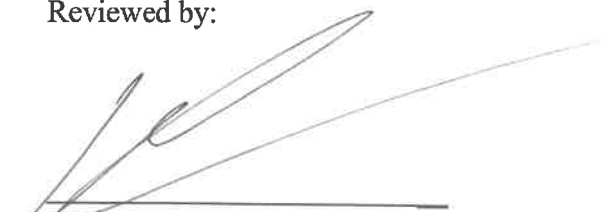
GeoStrata Job No. 524-099

Prepared by:



Jon Peadar
Environmental Scientist

Reviewed by:



Mike Vorkink P.G.
Senior Geologist

GeoStrata
14425 South Center Point Way
Bluffdale, UT 84065
(801) 501-0583

December 23, 2020

PERMIT APPLICATION TO OPERATE AN E&P LANDFILL

FOR

DALBO INC

UINTAH COUNTY, UTAH

PART I – LANDFILL APPLICATION FORM

INTRODUCTION

This application and technical report is an application to permit and operate an Exploration & Production (E&P) landfill on land owned and operated by Dalbo Inc, a wholly owned subsidiary of Dalbo Holdings Inc. (DHI). The landfill is to be created in an area that is currently being used as an evaporation pond for produced water from the oil and gas industry. The pond and associated liners was constructed in 1996 and have been in operation since that time.

The facility is located approximately 10 miles southwest of Vernal, Utah. The area to be permitted is located in Section 3 of Township 6 South, Range 21 West of the Salt Lake Base and Meridian in Uintah County, Utah. The location of the facility in relation to surrounding areas is presented on Plate A-1 in Appendix A.

This permit application is segregated into 3 distinct parts, Part I outlines the general information pertaining to the landfill application form. Part II is a general report that includes a facility description and proposed landfill operations and activities. Part III is an engineering technical report that provides details on the design of the facility, design of the site closure, describes details of closure and post closure activities and financial assurances as required by State Code.

PERMIT APPLICATION TO OPERATE AN E&P LANDFILL

FOR

DALBO INC

DUCHESNE COUNTY, UTAH

APPLICATION CHECKLIST



Division of Waste Management and Radiation Control

Solid Waste Management Program

**WASTE MANAGEMENT
& RADIATION CONTROL**

Mailing Address Office Location
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Phone (801) 536-0200
195 North 1950 West
Salt Lake City, Utah 84116

Fax (801) 536-0222
www.deq.utah.gov

APPLICATION FOR A PERMIT TO OPERATE A CLASS III LANDFILL

Please read the instructions that are found in the document, INSTRUCTIONS FOR APPLICATION FOR A PERMIT TO OPERATE A CLASS III LANDFILL. This application form shall be used for all Class III solid waste disposal facility permits and modifications. Part I, GENERAL INFORMATION, must accompany a permit application. Part II, APPLICATION CHECKLIST, is provided to assist applicants and, if included with the application, will assist review. Part II is provided to assist in preparation and review of a permit application; it is not required by rule. The text of the rule governs all permit application contents and should be consulted when questions arise.

Please note the version date of this form found on the lower right of the page; if you have received this form more than six months after this date it is recommended you contact our office at (801) 536-0200 to determine if this form is still current. When completed, please return this form and support documents, forms, drawings, and maps to:

Scott T. Anderson, Director
Division of Waste Management and Radiation Control
Utah Department of Environmental Quality
PO Box 144880
Salt Lake City, Utah 84114-4880

Utah Class III Landfill Permit Application Form

Part I General Information APPLICANT: PLEASE COMPLETE ALL SECTIONS.					
I. Landfill Type	<input type="checkbox"/> Class IIIa <input checked="" type="checkbox"/> Class IIIb	II. Application Type	<input checked="" type="checkbox"/> New Application <input type="checkbox"/> Renewal Application	<input type="checkbox"/> Facility Expansion <input type="checkbox"/> Modification	
For Renewal Applications, Facility Expansion Applications and Modifications Enter Current Permit Number _____					
III. Facility Name and Location					
Name of Facility Ace Disposal Facility					
Site Address (street or directions to site) 18500 E Hwy 40				County Uintah	
City Vernal		Zip Code 84078		Telephone 435-722-2800	
Township 6	Range 21	Section(s) 03	Quarter/Quarter Section NE		Quarter Section NE
Main Gate Latitude degrees 40 minutes 20 seconds 1			Longitude degrees 109 minutes 38 seconds 38		
IV. Facility Owner(s) Information					
Name of Facility Owner Dalbo Inc					
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
V. Facility Operator(s) Information					
Name of Facility Operator Dalbo Inc					
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
VI. Property Owner(s) Information					
Name of Property Owner Dalbo Inc					
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
VII. Contact Information					
Owner Contact Austin Weddle			Title Operations Manager		
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
Email Address aweddle@dalboholdings.com			Alternative Telephone (cell or other)		435-790-6690
Operator Contact Austin Weddle			Title Operations Manager		
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
Email Address aweddle@dalboholdings.com			Alternative Telephone (cell or other)		435-790-6690
Property Owner Contact Austin Weddle			Title Operations Manager		
Address (mailing) PO Box 1168					
City Vernal		State UT	Zip Code 84078		Telephone 435-722-2800
Email Address aweddle@dalboholdings.com			Alternative Telephone (cell or other)		435-790-6690

Utah Class III Landfill Permit Application Form

Part I General Information (Continued)																																									
VIII. Waste Types (check all that apply)	IX. Facility Area																																								
<input type="checkbox"/> All types of non-hazardous industrial waste generated by the facility OR the following specific waste types <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Waste Type</th> <th style="text-align: center; border-bottom: 1px solid black;">Combined Disposal Unit</th> <th style="text-align: center; border-bottom: 1px solid black;">Monofill Unit</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Construction & Demolition</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Industrial</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Incinerator Ash</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Animals</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Asbestos</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other <u>E & P Wastes</u></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>	Waste Type	Combined Disposal Unit	Monofill Unit	<input type="checkbox"/> Construction & Demolition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Incinerator Ash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Asbestos	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Other <u>E & P Wastes</u>	<input type="checkbox"/>	<input type="checkbox"/>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">Facility Area.....</td> <td style="text-align: right; border-bottom: 1px solid black;">146</td> <td style="text-align: right;">acres</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Disposal Area.....</td> <td style="text-align: right; border-bottom: 1px solid black;">3.8</td> <td style="text-align: right;">acres</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Design Capacity</td> <td colspan="2"></td> </tr> <tr> <td style="padding-left: 20px; border-bottom: 1px solid black;">Years.....</td> <td style="text-align: right; border-bottom: 1px solid black;">3.75</td> <td></td> </tr> <tr> <td style="padding-left: 20px; border-bottom: 1px solid black;">Cubic Yards.....</td> <td style="text-align: right; border-bottom: 1px solid black;">105.863</td> <td></td> </tr> <tr> <td style="padding-left: 20px; border-bottom: 1px solid black;">Tons.....</td> <td style="text-align: right; border-bottom: 1px solid black;">157,736</td> <td></td> </tr> </table>		Facility Area.....	146	acres	Disposal Area.....	3.8	acres	Design Capacity			Years.....	3.75		Cubic Yards.....	105.863		Tons.....	157,736	
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I HEREBY CERTIFY THAT THIS INFORMATION AND ALL ATTACHED PAGES ARE CORRECT AND COMPLETE.																																									
Signature of Authorized Owner Representative _____ Austin Weddle Name typed or printed	Title Operations Manager	Date 11-12-19																																							
Email Address <u>aweddle@dalboholdings.com</u>	Alternative Telephone (cell or other) <u>435-790-6690</u>																																								
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Email Address _____	Alternative Telephone (cell or other) _____																																								

Utah Class III Landfill Permit Application Checklist

Important Note: The following checklist is for the permit application and addresses only the requirements of the Division of Waste Management and Radiation Control . Other federal, state, or local agencies may have requirements that the facility must meet. The applicant is responsible to be informed of, and meet, any applicable requirements. Examples of these requirements may include obtaining a conditional use permit, a business license, or a storm water permit. The applicant is reminded that obtaining a permit under the *Solid Waste Permitting and Management Rules* does not exempt the facility from these other requirements. Please take note of the heading of each section for the facilities that the section applies to.

An application for a permit to construct and operate a landfill is the documentation that the landfill will be located, designed, constructed, operated, and closed in compliance with the requirements of Utah Administrative Code R315-301 through 320 (*Utah Solid Waste Permitting and Management Rules*) and Utah Code Annotated 19-6-101 through 123 (*Utah Solid and Hazardous Waste Act*). The application should be written to be understandable by regulatory agencies, landfill operators, and the general public. The application should also be written so that the landfill operator, after reading it, will be able to operate the landfill according to the requirements with a minimum of additional training.

Copies of the *Solid Waste Permitting and Management Rules*, the *Utah Solid and Hazardous Waste Act*, along with many other useful guidance documents can be obtained by contacting the Division of Waste Management and Radiation Control at 801-536-0200. Most of these documents are available on the Division's web page at <https://deq.utah.gov/division-waste-management-radiation-control>. Guidance documents can be found at the solid waste section portion of the web page.

Part II Application Checklist

I. Facility General Information	
Description of Item	Location In Document
<i>Ia. General Information For All Facilities</i>	
Completed Part I General information	Part I
General description of the facility (R315-310-3(1)(b))	Part II, 1.1
Legal description of property (R315-310-3(1)(c))	Appendix F
Proof of ownership, lease agreement, or other mechanism (R315-310-3(1)(c))	Appendix F
A demonstration that the landfill is not a commercial facility (see Utah Code Annotated 19-6-102(3) for definition of Commercial)	Part II, 1.7
Waste type and anticipated daily volume (R315-310-3(1)(d))	Part II, 1.3, 3.1
Intended schedule of construction (R315-302-2(2)(a))	Part II, 3.1
<i>Ib. General Information for New Or Laterally Expanding Class III Landfills</i>	
Documentation that the facility has met the historical survey requirement of R315-302-1(2)(f) (R315-304-4(1)(a) or R315-304-4(2)(a)(iv))	Part II, 1.8
Name and address of all property owners within 1000 feet of the facility boundary (R315-310-3(2)(i))	Appendix G
Documentation that a notice of intent to apply for a permit has been sent to all property owners listed above (R315-310-3(2)(ii))	Appendix G
Name of the local government with jurisdiction over the facility site (R315-310-3(2)(iii))	Part II, 1.9
<i>Ic. Location Standards for New Class IIIa Landfills (R315-304-4(1))</i>	

Utah Class III Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
Geology	
Geologic maps showing significant geologic features, faults, and unstable areas	Part III, 2.2
Maps showing site soils	Appendix A, A-4
Surface water	Part III, 1.2
Magnitude of 24 hour 25 year and 100 year storm events	Part III, 1.2
Average annual rainfall	Part III, 1.2
Maximum elevation of flood waters proximate to the facility	Part III, 1.3
Maximum elevation of flood water from 100 year flood for waters proximate to the facility	Part III, 1.3
Wetlands	Part III, 1.4
Ground water	Part III, 2.2.7
Historic Preservation Survey	Part II, 1.8
<i>Id.</i> Additional Location Standards for New Class IIIa Landfills Not On Waste Generation Site	
Land use compatibility (R315-304-4(1)(a))	Part III, 1.5
Maps showing the existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the site boundary	Appendix A. A-1, A-3
Certifications that no ecologically or scientifically significant areas or endangered species are present in site area	Part III, 1.6
List of airports within five miles of facility and distance to each	Part III, 1.5
<i>Ie.</i> Location Standards for New Class IIIb Landfills	
Floodplains as specified in R315-302-1(2)(c)(ii) (R315-304-4(2)(a)(i))	Part III, 1.3
Wetlands as specified in R35-302-1(2)(d) (R315-304-4(2)(a)(ii))	Part III, 1.4
The landfill is located so that the lowest level of waste is at least ten feet above the historical high level of ground water (R315-304-4(2)(a)(iii))	Part III, 2.2.7
Historical Preservation Survey (R315-304-4(2)(a)(iv))	Part II, 1.8
<i>If.</i> Plan of Operations for All Class III Landfills (R315-310-3(1)(e) and R315-302-2(2))	
Description of on-site waste handling procedures and an example of the form that will be used to record the weights or volumes of waste received (R315-302-2(2)(b) And R315-310-3(1)(f))	Part II, 3.2
Schedule for conducting inspections and monitoring, and examples of the forms that will be used to record the results of the inspections and monitoring (R315-302-2(2)(c), R315-302-2(5)(a), and R315-310-3(1)(g))	Part II, 3.3
Contingency plans in the event of a fire or explosion (R315-302-2(2)(d))	Part II, 3.3.3

Utah Class III Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
Plan to control fugitive dust generated from roads, construction, general operations, and covering the waste (R315-302-2(2)(g))	Part II, 3.3.1
Plan for letter control and collection (R315-302-2(2)(h))	Part II, 3.3.2
Procedures for excluding the receipt of prohibited hazardous or PCB containing wastes (R315-302-2(2)(j))	Part II, 3.2.4
Procedures for controlling disease vectors (R315-302-2(2)(k))	Part II, 3.2.4
A plan for alternative waste handling (R315-302-2(2)(l))	Part II, 3.3.4
A general training plan for site operations (R315-302-2(2)(o))	Part II, 3.3.5
Any recycling programs planned at the facility (R315-303-4(6))	Part II, 3.2.3
Any other site-specific information pertaining to the plan of operation required by the Director (R315-302-2(2)(p))	
Ig. Ground Water Monitoring for Class IIIa landfills	
Ground Water Monitoring Plan (R315-304-5(4)(a))	Part III, 2.2.7
II Facility Technical Information	
I/a. Maps for All Class III Landfills	
Topographic map drawn to the required scale with contours showing the boundaries of the landfill unit, ground water monitoring well locations (if required), and the borrow and fill areas (R315-310-4(2)(a)(i))	Appendix B
Most recent U.S. Geological Survey topographic map, 7-1/2 minute series, showing the waste facility boundary; the property boundary; surface drainage channels; any existing utilities and structures within one-fourth mile of the site; and the direction of the prevailing winds (R315-310-4(2)(a)(ii))	Appendix A, A-1, A-3
I/b. Geohydrological Assessment for Class IIIa Landfills (R315-310-4(2)(b))	
Local and regional geology and hydrology including faults, unstable slopes and subsidence areas on site (R315-310-4(2)(b)(i))	Part III, 2.2
Evaluation of bedrock and soil types and properties including permeability rates (R315-310-4(2)(b)(ii))	Part III, 2.2.4
Depth to ground water (R315-310-4(2)(b)(iii))	Part III, 2.2.7
Quantity, location, and construction of any private or public wells on-site or within 2,000 feet of the facility boundary (R315-310-4(2)(b)(v))	Appendix A, A-3
Tabulation of all water rights for ground water and surface water on-site and within 2,000 feet of the facility boundary (R315-310-4(2)(b)(vi))	Appendix A, A-3
Identification and description of all surface waters on-site and within one mile of the facility boundary (R315-310-4(2)(b)(vii))	Part III, 1.2

Utah Class III Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
For an existing facility, identification of impacts upon the ground water and surface water from leachate discharges (R315-310-4(2)(b)(viii))	Part III, 2.5
Calculation of site water balance (R315-310-4(2)(b)(ix))	Part III, 2.5
<i>IIc. Engineering Report - Plans, Specifications, And Calculations for All Class III Landfills</i>	
Unit design to include cover design; fill methods; and elevation of final cover including plans and drawings signed and sealed by a professional engineer registered in the State of Utah, when required (R315-310-3(1)(b))	Appendix B
Design and location of run-on and run-off control systems (R315-310-5(2)(b))	Appendix B
<i>IIId. Engineering Report - Plans, Specifications, And Calculations for Class IIIa Landfills</i>	
Engineering reports required to meet the location standards of R315-304-4 including documentation of any demonstration or exemption made for any location standard (R315-310-4(2)(c)(i))	Part III, 1.0
Anticipated facility life and the basis for calculating the facility's life (R315-310-4(2)(c)(ii))	Part II, 3.1
Equipment requirements and availability (R315-310-4(2)(c)(iii))	Part II, 1.5
Identification of borrow sources for daily and final cover and for soil liners (R315-310-4(2)(c)(iv))	Part III, 3.2
Run-off treatment and disposal and documentation to show that any treatment system being used has been reviewed by the Division of Water Quality (R315-310-4(2)(c)(v) and R315-310-3(1)(i))	Part III, 2.5
<i>IIe. Closure Requirements for All Class III Landfills</i>	
Closure plan (R315-310-3(1)(h))	Part III, 3.0
Closure schedule (R315-310-4(2)(d)(i))	Part III, 3.1
Design of final cover (R315-310-4(2)(c)(iii))	Part III, 3.2
Capacity of site in volume and tonnage (R315-310-4(2)(d)(ii))	Appendix B
Final inspection by regulatory agencies (R315-310-4(2)(d)(iii))	Part III, 3.4
<i>IIIf. Post-Closure Care Requirements for All Class III Landfills</i>	
Post-closure care plan (R315-310-3(1)(h))	Part III, 4.0
Changes to record of title, land use, and zoning restrictions (R315-310-4(2)(e)(v))	Part III, 4.2
Maintenance activities to maintain cover and run-on/run-off control systems (R315-310-4(2)(e)(iii))	Part III, 4.1
List the name, address, and telephone number of the person or office to contact about the facility during the post-closure care period (R315-310-4(2)(e)(vi))	Part III, 4.3

Utah Class III Landfill Permit Application Checklist

I. Facility General Information	
Description of Item	Location In Document
<i>IIg. Financial Assurance Requirements for All Class III Landfills</i>	
Identification of closure costs including cost calculations (R315-310-4(2)(d)(iv))	Part III, 5.0
Identification of post-closure care costs including cost calculations (R315-310-4(2)(e)(iv))	Appendix H
Identification of the financial assurance mechanism that meets the requirements of Rule R315-309 and the date that the mechanism will become effective (R315-309-1(1) and R315-310-3(1)(j))	Part III, 5.0

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**PERMIT APPLICATION TO OPERATE AN E&P LANDFILL
FOR
DALBO INC
UINTAH COUNTY, UTAH**

PART II – GENERAL REPORT

TABLE OF CONTENTS

1.0 FACILITY DESCRIPTION	1
1.1 FACILITY GENERAL DESCRIPTION	1
1.2 AREA SERVED	2
1.3 WASTE TYPES	2
1.4 FACILITY HOURS	2
1.5 LANDFILL EQUIPMENT	2
1.6 LANDFILL PERSONNEL	3
1.7 NON-COMMERCIAL EXCLUSION	3
1.8 HISTORICAL PRESERVATION SURVEY	3
1.9 LOCAL GOVERNMENT WITH JURISDICTION	4
2.0 LEGAL DESCRIPTION.....	5
3.0 OPERATIONS PLAN.....	6
3.1 SCHEDULE OF CONSTRUCTION	6
3.2 DESCRIPTION OF WASTE HANDLING PROCEDURES	8
3.2.1 <i>General Procedures</i>	8
3.2.2 <i>Waste Shipment Records</i>	9
3.2.3 <i>Waste Disposal</i>	9
3.2.4 <i>Plans for Excluding Waste</i>	10
3.3 WASTE FACILITY INSPECTION AND MONITORING.....	10
3.3.1 <i>Fugitive Dust Control</i>	10
3.3.2 <i>Plan for Litter Control</i>	11
3.3.3 <i>Contingency Plan for Fire or Explosion</i>	11
3.3.4 <i>Alternative Waste Handling Plan</i>	11
3.3.5 <i>General Training Plan</i>	11
3.4 RECORD KEEPING.....	12
3.4.1 <i>Daily Permanent Record</i>	12
3.4.2 <i>Other Records</i>	12

1.0 FACILITY DESCRIPTION

1.1 FACILITY GENERAL DESCRIPTION

The proposed site of the Ace Landfill is located at the existing Ace Disposal Facility (Facility) operated by Dalbo Inc, a wholly owned subsidiary of Dalbo Holdings Inc. (DHI). The entire site is approximately 146 acres of land located approximately 10 miles southwest of Vernal, Utah. The area to be permitted as a landfill is in Sections 3 of Township 6 South, Range 20 East of the Salt Lake Meridian in Uintah County, Utah. The location of the site in relation to surrounding areas is presented on Plate A-1 in Appendix A with a USGS Topographic Map as a background map.

The site is currently utilized as a wastewater disposal facility for water produced from oil and gas exploration and production. The water disposal facility, equipment and evaporation ponds are regulated through the Utah Division of Oil Gas and Mining (UDOGM). The facility also includes a landfarm for the remediation of soils contaminated with hydrocarbons. The proposed landfill will consist of a single cell that will be constructed from an existing wastewater disposal pond. This pond was originally permitted and regulated by the UDGOM and will be closed for water disposal as the landfill is permitted. RNI has worked with officials at the UDGOM to have the pond properly closed for water disposal and removed from the UDGOM jurisdiction to have it converted to a landfill. A map of the current facility layout with proposed landfill boundaries and other waste processing components is provided in Appendix A as plate A-2. The pond that will be converted to a landfill cell is currently identified as Pond 6.

The prevailing wind direction is from the west. An unnamed ephemeral stream crosses the site from the north to the east approximately 0.25 miles northeast of the proposed landfill. All other streams that are within a quarter mile of the landfill site are ephemeral or seasonal drainages and there are no other annual bodies of water. Plate A-3 identifies structures within a quarter mile of the site, drainages within a quarter mile, and the prevailing wind direction.

1.2 AREA SERVED

The Ace Landfill is to be permitted as non-commercial landfill and will not receive waste disposal from outside sources. The Ace landfill will only accept Resource Conservation and Recovery Act (RCRA) exempt waste that originate from DHI facilities.

1.3 WASTE TYPES

As recommended by the Utah Division of Waste Management and Radiation Control (DWMRC), the proposed landfill will be permitted as a Class IIIb landfill. The Class IIIb landfill will receive RCRA Exempt waste from DHI facilities and operations. As a non-commercial facility no third-party sourced waste will be accepted at the Ace Landfill. DHI sourced wastes include but are not limited to hydrocarbon contaminated soils, landfarm soils, pond sediments, pond liners, etc. that are defined as RCRA Exempt E&P solid waste.

As required by the DWMRC standards for design, the operator must minimize liquids admitted into the landfill by prohibiting waste that contains free liquids (R315-303-3(1)). All the waste will need to pass the paint filter test (EPA Method 9095B) to be accepted and disposed into the landfill.

1.4 FACILITY HOURS

The Ace Disposal Facility has an active water disposal operation that may be manned 24 hours a day and 365 days a year if necessary. The proposed landfill will be available to accommodate waste from DHI sources at their convenience.

1.5 LANDFILL EQUIPMENT

The Facility currently has equipment to support the existing landfarm operation that will also be used for the landfill operations. This equipment includes a John Deere 624 Wheel Loader, Caterpillar D6 Dozer, John Deere 310 Backhoe, and several dump trucks. Additional equipment may be acquired to facilitate the operation of the proposed E&P landfill to dry waste material, properly place waste material and maintain daily cover. This equipment may include a stationary mixing tank for drying waste, a conveyor system to distribute and place the E&P waste across the landfill area, and a bulldozer to spread daily cover.

1.6 LANDFILL PERSONNEL

The DHI facilities are managed by Mr. Austin Weddle who has 8 years of experience managing wastewater disposal facilities. Table 1.1 lists the current managing staff of responsible for the Ace Disposal Facility, current responsibilities, and additional duties relating to the landfill that will be incorporated into their respective assigned tasks. Other DHI employees assigned to work at the proposed landfill will receive direction from the managing staff.

Table 1.1 – RNI Managing Staff

Employee Name	Current Title	Years of Experience	Current Duties	Landfill Duties
Austin Weddle	Facilities Manager	8	Operations manager for all RNI Facilities	Operations manager
Tony Dalson	Disposal Operator	3	Wastewater Disposal and Landfarm Equipment Operator	Landfill Equipment Operator
Billy Angie	Disposal Operator	3	Wastewater Disposal and Landfarm Equipment Operator	Landfill Equipment Operator

1.7 NON-COMMERCIAL EXCLUSION

The proposed landfill will only accept RCRA exempt E&P waste as defined in Section 1.3 of this application. It is our understanding that this type of landfill will be considered a non-commercial landfill if and only if E&P waste as defined in Section 1.3 of this document is accepted into the landfill. The operational plan will define quality control steps to ensure the acceptance of only approved E&P waste to meet the requirements of a non-commercial facility.

1.8 HISTORICAL PRESERVATION SURVEY

GeoStrata conducted a review of the proposed landfill site and prepared a letter for the State Historical Preservation Officer (SHPO). Based on our evaluation of the site and area of potential effects from the permitting of the new landfill, we found that the site has no historical properties or structures. We provided our findings to the SHPO in a letter report on April 16, 2019. The SHPO has sent a formal response to our report and findings and they concur with our assessment that there are no historical properties or structures at the Ace facility. A copy of the letter report prepared for the SHPO and their response are provided in this permit application in Appendix G.

1.9 LOCAL GOVERNMENT WITH JURISDICTION

The local government with jurisdiction over the Facility is Uintah County. The mailing address is provided below:

152 East 100 North
Vernal, Utah 84078

2.0 LEGAL DESCRIPTION

A legal description of the property is provided in the Uintah County property tax report that is included in Appendix F. Dalbo Inc. is the owner of this property and proof of this ownership is provided in Appendix F. Proof documents presented in the Appendix F include tax records.

3.0 OPERATIONS PLAN

3.1 SCHEDULE OF CONSTRUCTION

The Ace Disposal Facility was originally permitted and constructed as a wastewater disposal site in 1988 by Ace Oil Field Disposal Inc. The original permit was for the construction of 3 evaporation ponds. Additional ponds were permitted, and authorization was given from DOGM to construct Pond 6 as an evaporation pond in 1996. There are no available records from DOGM that include construction records, documentation, or certifications of Pond 6. The facility was then purchased from Ace Oil Field Disposal Inc by Dalbo Inc, a subsidiary of Dalbo Holdings Inc. in 2005.

There are no available records of the completed construction of Pond 6 from the time of original construction. There is some correspondence from DOGM outlining the general requirements for evaporation ponds and leak detections systems that was sent at the time of the permit application for Pond 6. A site visit conducted at Pond 6 of the Ace facility confirmed that the pond was constructed with a single liner of 60 mil HDPE Geomembrane. There is also a leak detection system located at the south end of the pond. There are no records from DOGM of water observed in the leak detection system. All records for the Ace Facility that were obtained from DOGM are included in Appendix D.

GeoStrata conducted a survey of the pond 6 liners to evaluate the integrity of the liners in April 2019. The results of the liner integrity survey indicated that there were no observable holes in the liner at the time of the survey.

The pond has operated as a wastewater disposal and evaporation pond since the time it was constructed. The pond will be drained of all wastewater before landfill construction and the HDPE liner will remain intact for the operational use of the landfill. To the east adjacent to Pond 6 there is wastewater pond. This pond was also constructed using 60 mil HDPE liner and the liners are welded together and are covering the earthen berm that separates the two ponds. The HDPE covered berm is used as a sprinkler pad for enhancing the evaporation of the wastewater. The construction of the landfill cell will require the removal this pad.

As part of the landfill design a waste staging area will be constructed. This staging area will be used for parking heavy equipment and equipment storage, waste inspection and truck unloading. The staging area will also have a waste mixing area to stabilize any wastes that do not meet the requirements of waste disposal in Ace Landfill. Ramps will also be

constructed to allow heavy equipment into the cell and to allow trucks to unload directly within the landfill. A set of plans for the landfill cell is provided in Appendix B.

At the start of landfill operation DHI anticipates that approximately 1 to 7 truckloads of E&P waste will be transported to the facility per day. Each truck load will have a volume of approximately 15 cubic yards. All waste accepted to the landfill will be from internal DHI sources during the remediation of their facilities and landfarm soils. Some of the waste may consist of soils that have high moisture content that will require processing prior to disposal. DHI is considering using several different techniques and processes to meet the states requirement of waste to be free of liquids and pass a paint filter test. Some of the techniques that may be utilize include but are not limited to a pugmill mixer or mixing basin where the waste may be combined with sawdust, fly ash, native soils, or other components to stabilize the more liquid waste. Waste acceptance procedures and quality control of waste being disposed in the landfill are out line in sections 3.2.1 and 3.2.2 of this report.

As the landfill is put into operation, the waste acceptance and mixing processes will be further refined and modified throughout the life of the landfill based on available equipment and characteristics of the landfill waste. Adjustments to the design life of the landfill will be made based on adjustments made to the mixing process and characteristics of the waste.

Using the throughput assumptions described in the previous paragraph, the life duration of the landfill is defined assuming that half of the waste arriving at the landfill will be suitable for direct placement into the land fill and the remaining waste will be needing to be processed (drying or mixing) prior to placement in the landfill. Waste that will be mixed with additional material will need to reach a moisture content that corresponds with passing the paint filter test. It is assumed that mixing of native soils with waste at a ratio of approximately 1:0.5 will reach a waste moisture content that will pass the paint filter test. For example, every 1 ton of waste there will be approximately 0.5 tons of native soils added to reach a moisture content that will pass the paint filter. Calculations used to estimate the mixing ratio are provided in Appendix E as plate E-1.

Based on waste mixing assumptions described above and assuming waste throughput of 3 truckloads per day and a 10% growth rate over the life of the landfill, the projected life of the landfill is approximately 3 years and 9 months. However, the projected life may increase or decrease based on the type of processing and or mixing methods utilized. A copy of the spreadsheet used to calculate this estimated life is included in Appendix E. All

the assumptions presented in the previous paragraphs were used in the spreadsheet calculations.

3.2 DESCRIPTION OF WASTE HANDLING PROCEDURES

The following section describe the general procedures that will be followed under this permit application for accepting, disposing, recording, and excluding landfill waste at the Ace Landfill.

3.2.1 General Procedures

Waste from other DHI facilities will be hauled to the Ace Landfill using commercial or independently owned trucks. Trucks will enter at the main gate and check in with the landfill office. Every truck load of waste will be inspected for liquids prior to disposal and a paint filter test will be performed on each load of waste. On site sourced waste will be transported to the waste staging area for inspection. Waste that is free of liquids and passes the paint filter test will be directed to the landfill cell for direct placement in the landfill. Waste that has liquids and fails to pass the paint filter test will be placed in a temporary storage basin for further processing. The temporary storage basin will be constructed to ensure that the waste will be isolated from the underlying soils and liquids will collect at one end of the basin. The liner material for the storage basin will be composed of either concrete, clay, or an HDPE liner. Liquids that are collected in the temporary storage basin will be removed as needed and disposed at a proper facility for accepting RCRA exempt liquids. Collected liquids from the temporary storage are may also be mixed with sufficient dry soils or other materials as to allow them to pass a paint filter test.

Additional paint filter tests will be conducted every 15 cubic yards of waste that requires processing prior to being disposed into the landfill. Waste that fails the second paint filter test will remain in the temporary storage area and will be reprocessed by mixing with other materials and re-tested after mixing. Paint filter test procedures are attached to this application in Appendix D.

After passing the paint filter test waste will be removed from the temporary storage area and then placed in the landfill using heavy equipment or a conveyor system. All Waste will then be placed in a uniform layer in the landfill as described in section 3.2.3 Waste Disposal.

3.2.2 Waste Shipment Records

The landfill manager will retain waste shipment records as part of the daily record keeping of disposal activities. Each truck load of E&P waste delivered to the facility will have a waste shipment ticket completed. The waste shipment ticket will be completed by the truck driver and then verified by the landfill operating staff. An example of the waste shipment ticket is included in Appendix D. The waste shipment ticket will include the following data for record keeping:

- Date and time of arrival
- Load ID number
- Quantity in cubic yards and estimated tons based on unit weight
- Type of waste
- Origin of waste
- Name of trucking company and truck number
- Truck drivers name and signature

3.2.3 Waste Disposal

The E&P waste will be transported into the landfill cell by means of either direct placement by dumping from the delivery truck or placed by heavy equipment conveyor system. Waste will be deposited at the bottom of the landfill cell and will be placed in 1ft thick lifts. Lifts will be distributed by use of an onsite dozer and then compacted with the dozer and other truck traffic. Waste will be compacted to reach a firm and unyielding surface to maximize landfill capacity.

Waste deposited in the landfill will not come in contact with the HDPE liner. A protective 12-inch layer of fill material will be in place between the waste and HDPE liner. The 12-inch fill layer will be comprised of a free draining soil. The protective layer will be placed on all surfaces of the HDPE liner that will be covered with the landfill waste. All equipment moving in or on the landfill will not have contact with the liner and will remain on the fill layer. Waste will also be placed in such a way as to avoid puncturing liner during the compaction process.

DHI does not have any plans currently to introduce any recycling programs at the facility. In addition, due to the nature of the type of waste accepted at the facility it is unfeasible to recycle the waste that is generally accepted.

3.2.4 Plans for Excluding Waste

DHI will maintain a comprehensive waste screening process prior to receiving waste from potential sources and waste generators. Waste that is not RCRA exempt E&P waste will not be accepted at the Ace landfill. All third-party or outside sources of waste apart from other DHI sourced waste delivered to the site will be excluded.

3.3 WASTE FACILITY INSPECTION AND MONITORING

DHI personnel will inspect the facility to prevent malfunctions and deterioration, operator errors, and discharges which may cause or lead to the release of wastes to the environment that may be a threat to human health or other natural resources. Facility inspections will be conducted weekly and will be recorded using the weekly inspection log. Some items will be monitored daily. An example of these inspection logs is provided in this permit application in Appendix D.

3.3.1 Fugitive Dust Control

As required in Utah Administrative Code R315-302-2(2)(g) RNI has prepared a plan for controlling fugitive dust as part of this permit application. As part of the daily operations of the facility, fugitive dust will be monitored, and controls will be put in place as deemed necessary by the landfill operations manager.

During the construction and operational phases of the landfill, sources of dust within the landfill cell will be identified by the landfill operations manager. These sources of dust will be controlled by watering and proper placement of waste in the landfill. DHI will have staff on site that are trained in monitoring opacity and will periodically check the facility for dust control issues. When opacity of the dust exceeds 10% watering controls will be put in place.

The landfill operations manager will also monitor dust on all haul roads on DHI property. Haul roads leading from the main gate to the landfill cell are unpaved. Proper maintenance of haul roads, speed limit controls and watering when dust opacity exceeds 10% will aid in reducing fugitive dust emissions.

3.3.2 Plan for Litter Control

DHI does not anticipate accepting waste materials that will cause a wind-blown litter problem. DHI personnel will complete a daily inspection of the landfill and surrounding area and identify any potential waste material that may escape the facility.

3.3.3 Contingency Plan for Fire or Explosion

In the event of a fire or explosion at the facility, the landfill operations manager will be notified. The landfill operations manager will then contact local emergency authorities to initiate emergency response. A list of the local emergency responders is provided in Appendix D of this permit application.

3.3.4 Alternative Waste Handling Plan

In the event of a landfill closure due to an emergency or repairs, DHI will make arrangements to have the waste disposed at alternative DHI landfill facilities if necessary. If in the case that Ace landfill must close due to an emergency, waste will be transported to the Wonsit landfill or the Bluebell Landfill that are owned and operated by DHI.

3.3.5 General Training Plan

As required in R315-302-2(2), each permitted landfill must have a detailed training program. DHI currently has a training program that educates their employees on how to handle E&P waste and how to operate the existing components of the waste facility. DHI will utilize the Personnel Training Program that is in place for the Wonsit Landfill. The site-specific training is modified for application to the Ace facility. A copy of the existing Personnel Training Program is part of this permit application and is included in Appendix D.

All personnel that will be working on the landfill will be required to participate in monthly safety meetings and morning tailgate safety meetings held on site. All employees are to review this landfill permit semi-annually. Annual refresher training of the above-mentioned training program will be conducted for all employees involved with the permitted landfill. Any new information relevant to the permitted landfill will also be

covered in the annual refresher training. New employees that are assigned to work associated with the landfill will receive training during the first month of employment and will be trained by a supervisor that has completed the required training. Records of this training will be kept in the DHI database.

3.4 RECORD KEEPING

During the operation of the landfill, the operator will maintain records of landfill activities as required by the division (315-302-2-(3)). These records will be stored electronically in the DHI database at their main office in Vernal.

3.4.1 Daily Permanent Record

The landfill manager will record the following data daily and maintain the data in a permanent file:

- Waste shipment records as described in section 3.2.2
- The estimated weight in tons and volume in cubic yards of E&P waste received for the day
- The estimated weight in tons and volume in cubic yards of E&P waste that required treatment prior to disposal in the landfill cell.
- The estimated weight in tons and volume in cubic yards of material added to treat the waste and the total weight and volume of treated waste
- Number of trucks visiting the Landfill
- Type of E&P waste received
- Paint filter test results
- Deviations from the DWMRC approved Operations Plan
- Staff training records
- Status of groundwater, leachate, and gas monitoring
- A written report of daily activities at the landfill site

3.4.2 Other Records

The landfill manager will also include the following data in the permanent records:

- Design documentation of the placement or recirculation of leachate or gas condensate into the landfill

- Closure and post closure care plans and activities
- Cost estimates and financial assurance documentation
- Safety training and landfill specific training for all employees associated with the landfill

**PERMIT APPLICATION TO OPERATE AN E&P LANDFILL
FOR
DALBO INC
UINTAH COUNTY, UTAH**

**PART III
ENGINEERING TECHNICAL REPORT**

TABLE OF CONTENTS

1.0 LOCATION STANDARDS	1
1.1 GEOLOGIC FAULTS AND UNSTABLE AREAS	1
1.2 SURFACE WATER.....	1
1.3 FLOODPLAINS.....	1
1.4 WETLANDS	1
1.5 LAND USE COMPATIBILITY	2
1.6 ECOLOGICALLY SENSITIVE AREAS	2
2.0 ENGINEERING REPORT	3
2.1 CELL DESIGN	3
2.2 GEOHYDROLOGICAL ASSESSMENT.....	3
2.2.1 <i>Regional Geology</i>	3
2.2.2 <i>Local Geology</i>	4
2.2.3 <i>Facility Soils</i>	4
2.2.4 <i>Evaluation of Bedrock</i>	4
2.2.7 <i>Groundwater and Surface Water Monitoring Plan</i>	5
2.3 SLOPE STABILITY	7
2.3.1 <i>Subsurface Investigation</i>	7
2.3.2 <i>Laboratory Testing</i>	7
2.3.4 <i>Pond Embankment Stability</i>	8
2.4 EMBANKMENT AND LINER CONSTRUCTION	10
2.5 STORM WATER MANAGMENT.....	10
3.0 CLOSURE PLAN	11
3.1 CLOSURE SCHEDULE	11
3.2 DESIGN OF FINAL COVER.....	11
.....	14
3.3 CAPACITY OF LANDFILL	14
3.4 FINAL INSPECTION	15
4.0 POST CLOSURE CARE	16
4.1 POST CLOSURE CARE PLANS.....	16
4.2 RECORD OF TITLE, LAND USE, ZONING.....	17
4.3 POST CLOSURE CONTACTS	17
5.0 FINANCIAL ASSURANCES	18
5.1 CLOSURE COSTS	18

5.2 POST CLOSURE CARE COSTS18

5.3 FINANCIAL ASSURANCE.....19

WORKS CITED20

1.0 LOCATION STANDARDS

1.1 GEOLOGIC FAULTS AND UNSTABLE AREAS

An engineering geologist with GeoStrata reviewed geologic maps and identified that the nearest Holocene fault is the Strawberry fault located approximately 52 miles west of the Ace disposal facility (Quaternary Fault and Fold Database of the United States, 2014). The proposed landfill cell is not located in a subsidence area, a dam failure flood area, above an underground mine, above a salt dome, above a salt bed, or on or adjacent to geologic features which could compromise the structural integrity of the facility. Further details of the geologic setting are provided in the Engineering Report. A geologic map of the facility and surrounding area is provided in this report in Appendix A as plate A-4.

1.2 SURFACE WATER

There are no year-round surface waters that are located on the Ace Disposal Facility. There are several minor ephemeral drainages that cross the site from the Northwest to the southeast. These ephemeral drainages are tributaries to Twelve Mile Wash. Twelve Mile Wash is also an intermittent stream that has only seasonal flow. The magnitudes of the 24-hour, 25-year and 100-year storm events are 1.75 inches and 2.25 inches, respectively. The average annual precipitation near the facility is approximately 9.31 inches (NOAA Vernal Station).

1.3 FLOODPLAINS

The FEMA Flood hazard maps that cover the area of the proposed facility and the facility located in areas that are mapped as Zone X. Zone X is classified as areas of minimal flood hazard. Numerous ephemeral drainages are located near the Landfill cell. None of the ephemeral or intermittent drainages are restricted or significantly impacted by the existing landfill cell.

1.4 WETLANDS

A search of the National Wetland Inventory of the U.S. Fish and Wildlife Service indicated that there is one freshwater emergent wetland area located on the facility (National Wetlands Inventory, 2019). Plate A-5 in Appendix A of this report contains an image of the location of the wetland. Based on a review of the maps, the proposed Landfill cell is not located in a wetland. Further investigation into wetlands was also

conducted during the Biological Assessment of the facility and determined that the proposed landfill contains no permanent water or wetlands. More details of this assessment are described in section 1.6 of the Engineering Technical Report and the Biological Assessment report in Appendix G.

1.5 LAND USE COMPATIBILITY

Plate A-3 shows the location standards requested for this permit application including existing land use, topography, residences, parks, monuments, recreation areas or wilderness areas within 1000 feet of the facility boundary. No parks, monuments, recreation areas or wilderness areas were identified within 1000 ft of the facility boundary. A single property owner was identified in a record search of the Uintah County Recorders property ownership database. The owner of the property has been notified of the intent to permit. Documentation of the notice to the property owner within 1000 ft is in Appendix G of this permit application. A The site has operated as a wastewater disposal facility for 31 years and any residents nearby are likely aware of the nature of this facility.

There are 3 water-right point of diversions located within 2000 feet of the facility. All water rights are for surface water. They are identified as Water Rights 45-2893, 45-405, and 45-2894. Plate A-3 identifies each location of the water right point of diversions. There are no private or public wells within 2000 feet of the facility.

The nearest airport is in Vernal, Utah approximately 10 miles Northeast of the proposed landfill.

1.6 ECOLOGICALLY SENSITIVE AREAS

As required in R315-302-1(2)(a)(ii) no new facility shall be in ecologically and scientifically significant natural areas, including wildlife management areas and habitat for threatened or endangered species as designated pursuant to the Endangered Species Act of 1982. A survey of the facility was conducted by Dr. Lindsey Nesbit on April 19, 2019 to assess the ecological attributes of the facility and surrounding area. Dr. Nesbit's letter is included in Appendix G of this permit application. The results of this survey revealed that two threatened species of cactus are known to occur in the general area of the facility. Dr. Nesbit visited the site and conducted a field assessment to examine the vegetation. None of the threatened species of cactus were found during the survey. If any of the listed species in Dr. Nesbit's report is encountered on the facility in the future, will contact the Utah Ecological Services Field Office for species identification and preservation.

2.0 ENGINEERING REPORT

2.1 CELL DESIGN

The Ace Landfill will consist of a single cell that will be designed and constructed using the existing layout of Ponds 6 of the wastewater disposal facility. The permit drawings show the proposed location in relation to the remaining site and surrounding land features. The pond has historically been used as produced water evaporation pond. The existing Pond 6 is approximately 430 feet long and 380 feet wide across the top. The pond is also approximately 10 feet deep with 3:1 (horizontal: vertical) interior slopes and exterior slopes.

Based on our engineering assessment, many of the pond features can be used to meet the E&P landfill requirements as presented in R315-303. Details of the existing features will be presented in subsequent sections of this report.

2.2 GEOHYDROLOGICAL ASSESSMENT

2.2.1 Regional Geology

As noted previously, the Ace facility is located approximately 10 Miles Southwest of Vernal, Utah on the south flanks of the Uinta Mountains. The Uinta Mountains began uplifting in the Cretaceous, about 66 million years ago (Ma) and continued till the Eocene about 37 Ma (Hintze, 1988). Topographic basins formed on the north and south of the Uinta Mountains eventually accumulating up to 15,000 ft of sediment (Bradley, 1925; Fouch, 1985).

During the early Tertiary, these basins filled with sediments from alluvial, fluvial, and lacustrine deposits. The strata deposited in these alluvial (floodplain and delta) and inter fingered lacustrine (lake) deposits, are referred to as the Colton and Wasatch Formations. During this same time large freshwater lakes (Lake Flagstaff and Lake Uinta) occupied the Uintah basin. The depositional environment in and around these lakes consisted of open to marginal lacustrine and the rocks deposited in these environments are referred to as the Green River Formation. The Uinta and Duchesne formations are largely alluvial deposits that overlie the Green River formation and were in place by the end of the Oligocene (Hintze, 1988). The landscape during the Holocene has continued to be incised by streams as well as some glacial outwash deposits from the Uinta Mountains (Bryant, 1992).

2.2.2 Local Geology

The facility is in the northwestern portion of the Uinta basin. The facility is underlain by the Brennan Basin Member of the Duchesne River Formation (Tdb) and Mixed Eolian and Alluvium deposits (Qae) (Plate A-3). The proposed landfill cells are located on the mapped Eolian and Alluvium deposits. The Qae deposits are described as unconsolidated alluvial mud and wind-blown sand and silt. This is consistent with observations from site visits. The Tdb is an Eocene unit that consists of varicolored lithic siltstone and sandstone with minor amounts of mudstone and conglomerate (Sprinkle, 2007).

2.2.3 Facility Soils

The online National Resource Conservation Service (NRCS) was used to identify the soil units that are present at the Target Property (NRCS 2018). The soil map indicated that at least two (2) units are present at the Target Property. The primary unit is called the Begay Series that is described as well drained soils formed in eolian and alluvial deposits. GeoStrata performed backpressure permeability tests on a sample from the south sample location. The results of the permeability of the site soils are 2.46×10^{-7} cm/sec.

2.2.4 Evaluation of Bedrock

The proposed landfill cell is underlain primarily by the mixed eolian and alluvium deposits (Qae). The Tdb formation consists of 1-2-meter-thick discontinuous fluvial sandstone lenses inter-fingered with dark green and purplish red siltstone and shale (Sprinkle, 2007). During the installation of the groundwater monitoring wells it was noted that bedrock that appeared to be like the Brennan Basin Member was encountered approximately 4 to 5 feet below the ground surface.

GeoStrata advanced three borings in the vicinity of the proposed Landfill impoundment (Plate A-6) to characterize the geology of the site. Bedrock consisted of thinly bedded varicolored sandstones, siltstones, and shale.

2.2.5 Ground Water

Three monitor wells have been installed near the proposed landfill cells. Plate A-6 shows the locations of the monitor wells. There are one up-gradient (MW-1) and two down gradient monitor wells (MW-2 and MW-3). Water levels have been measured multiple times and were measured most recently on September 9, 2019. Ground water elevation data are included in table 2.2.5.a.

Table 2.2.5.a

		9-19-2019
Well No.	Surface Elevation (ft)	Water Elevation (ft)
MW-1	4980	4890.5
MW-2	4977	4875.5
MW-3	4983	4878.5

Plate A-6 show the location these borings and monitoring wells. Based on the geographic setting near surface ground water if present would likely flow to the Southeast towards Twelve Mile Wash. However Geologic Structure measurements show that bedrock in the general vicinity is North to Northeast dipping (Sprinkles 2007).

Based on our finding of groundwater at the facility, groundwater is measured as being greater than 5-feet below the lowest portion of the proposed landfill.

2.2.6 Surface Water

The water rights database lists a spring in the south east corner of the site (see Plate A-3). There are no mapped springs in the 7.5-minute USGS topographic map. As previously discussed, there are multiple ephemeral streams that are on the facility and there appears to be no perennial streams or water sources on site ore within 2000 of the facility. A map locating these seasonal surface water drainages is provided in Appendix A as plate A-3. Landfill related activities are not expected to impact these drainages. According to the NOAA climate data online the average total annual rainfall for the general area of the landfills is approximately 9.31 inches.

2.2.7 Groundwater and Surface Water Monitoring Plan

Groundwater was encountered at the subject site in the three monitor wells. The groundwater resides in the varicolored siltstone and sandstone of the Brennan Basin Member (Tdb). DHI proposes to sample groundwater from the three monitor wells on a semiannual basis. Water will be analyzed for the following analytes as required in R315-308-4:

- Heavy Metals including Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc
- Inorganic Constituents including Ammonia, Carbonate/Bicarbonate, Calcium, Chemical Oxygen Demand (COD), Chloride, Iron, Magnesium, Manganese, Nitrate, pH, Potassium, Sodium, Sulfate, Total Dissolved Solids (TDS), Total Organic Carbon (TOC)
- Acetone, Acrylonitrile, Bromochloromethane, Bromodichloromethane, Bromoform, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Dibromochloromethane, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane, 1,2-Dichlorobenzene (ortho), 1,4-Dichlorobenzene (para), trans-1,4-Dichloro-2-butene, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, 1,2-Dichloropropane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 2-Hexanone, Methyl bromide, Methyl chloride, Methylene bromide, Methylene chloride, Methyl ethyl ketone, Methyl iodide, 4-Methyl-2-pentanone, Styrene, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Trichlorofluoromethane, 1,2,3-Trichloropropane, Vinyl acetate, Vinyl Chloride
- Gasoline Range Organics (Method SW-846 8260C)

As required in R315-308-2(8) DHI will use a statistical method for determining whether a significant change has occurred as compared to background. To establish a background range of groundwater constituents, DHI will use the procedure as required in R315-308-2(5)(a) where eight independent samples will be collected from the upgradient well and four independent samples will be collected from down gradient wells. This sampling to establish background will occur in the first year of the landfill operation. Based on the sampling results after the first year, the 95% upper confidence interval will be calculated for each constituent. Resulting data will be normally distributed and will assume homoscedasticity.

During operations of the landfill semiannual samples will be collected and results of each constituent will be compared using a parametric analysis of variance. If concentrations of a constituent are greater than the 95% confidence interval, it will be considered an outlier and will be further evaluated to determine if it is a normal fluctuation in the groundwater or if it is a result of possible leachate or other contaminated water from the water disposal facility. A report of the data and outliers will be provided to the division and an appropriate response will be determined.

2.3 SLOPE STABILITY

GeoStrata has completed a geotechnical investigation for the proposed conversion of Pond 6 into a landfill cell for the Ace Landfill facility located approximately 11 miles southwest of the City of Vernal, Utah (see Plate A-1, Site Vicinity Map). Information concerning the nature of the improvements were obtained from a drawing titled “RN Industries, Ace Disposal Facility, Pond 6 Landfill Conversion” dated October 8, 2019 and prepared by GeoStrata. On page B-4, “Plan and Profile Pond 6 East to West”, a cross section of the proposed landfill as it will appear after capacity is reached is presented. This cross section is labeled as A-A’.

GeoStrata visited the site on October 23, 2019 to obtain soil parameters of pertinent earthen materials. The following paragraphs summarize the results of our field investigation, laboratory testing, and slope stability modeling.

2.3.1 Subsurface Investigation

As discussed previously, GeoStrata completed a visit to the subject property to assess the nature of the embankment and obtain soil samples of pertinent earthen materials. As part of this investigation, samples of existing embankments located along the northern and southern side of Pond 6 were obtained using hand-held equipment. The approximate locations of our soil sampling are shown on Plate A-2, Site Exploration Map. No deep explorations in the form of boreholes or test pits were advanced as part of our investigation at the subject facility. The soil sample obtained from the southern embankment visually appeared to have a greater fine-grained content, and as such this sample was utilized in our laboratory testing.

In general, the soils observed along the accessible embankments homogenous, and consisted of a stiff, moist, red-brown Sandy Lean CLAY (CL). No evidence of perched groundwater such as seeps or springs were observed during our inspection of the accessible embankments. However, to account for potential infiltration of rainwater or other surface water into the pond, the elevation of the groundwater has conservatively been modeled as existing approximately 2 feet above the bottom of the pond. Finally, our slope stability modeling has been completed assuming that Pond 5 is empty, which represents the worst-case scenario for the stability of the embankment of Pond 6.

2.3.2 Laboratory Testing

Geotechnical laboratory tests were conducted on samples obtained during our field investigation. The laboratory testing program was designed to evaluate the engineering

characteristics of onsite earth materials. Laboratory tests conducted during this investigation include:

- Natural Moisture Content
- Grain Size Distribution Analysis (ASTM D422)
- Atterberg Limits (ASTM D4318)
- Direct Shear Test (ASTM D3080)

Based on the results of the laboratory testing summarized above, the sample obtained from the eastern embankment consists of a Sandy Lean CLAY (CL) with 65.9 percent of the sample consisting of fine-grained material (silt and clay). The fine-grained portion of the sample classify as low plasticity clay. Results of our direct shear testing indicate that the embankment soils tested have an effective shear strength consisting of an angle of internal friction of 33 degrees and cohesion of approximately 20 psf.

In order to obtain soil strength parameters for the proposed landfill material, the results of a triaxial testing completed on a sample of the landfill waste soils obtained from the Wonsit Landfill facility were utilized. This test indicated that the soil strength parameters for the potential waste soils may be characterized using a friction angle of 29 degrees and cohesion of 160 psf. The following table is given as a summary of the information described above;

Sample Location	Effective Friction Angle (deg)	Effective Cohesion (psf)	Soil Type
Wonsit Facility	29	160	CL
Bluebell Facility - Southern Embankment	33	20	CL

The results of all laboratory tests are presented on the Laboratory Summary Table and the test result plates presented in Appendix C (Plates C-1 to C-9).

2.3.4 Pond Embankment Stability

GeoStrata has evaluated the stability of the proposed landfill cell embankments as well as the proposed landfill waste material. Based on our understanding of the project, the landfill material will be sloped at an approximate 3H:1V grade with an approximate 300-foot-wide, 2 percent grade area at the top of the fill pad. The stability of the embankments and slopes was completed using SLIDE, a computer application incorporating (among others) Bishop's Simplified Method of analysis. Calculations for stability were developed

by searching for the minimum factor of safety for a circular-type failure. Stability analyses were conducted at two representative cross-sections; one through the eastern embankment of Pond 6 and another through the western embankment of pond 6 as shown on Plate A-2. The exterior of both these cross sections were analyzed under static and pseudo-static conditions. The pseudo static condition is used to assess stability of slopes during seismic events. The peak ground acceleration for the Maximum Credible Earthquake (MCE) was estimated using the site’s approximate latitude and longitude and the United States Geological Survey 2009 ground motion calculator version 5.1.0 which correlates the MCE to a 2 percent probability of exceedance in 50 years. Using this procedure, the peak ground acceleration is estimated to be 0.16g. In accordance with Hynes-Griffin (1984), half of this value was used in our analyses. This methodology assumes that no greater than 3 meters of deformation will occur if the calculated factor of safety is greater than 1.0.

The strength value for the embankment soils was based on the results of our direct shear testing described above, and consisted of a friction angle of 33 degrees and a cohesion value of 20 psf. The strength value for the landfill waste material was based on the results of our triaxial testing, and consisted of a friction angle of 29 degrees and a cohesion of 160 psf. We understand that the landfill will incorporate a geosynthetic liner. We therefore assumed no seepage from the landfill cell.

The results of our stability modeling indicate the following factors of safety for embankment slope failure:

Stability Assessment	Factor of Safety
Cross Section A-A’ Eastern Buttress Static	1.87
Cross Section A-A’ Eastern Buttress PStatic	1.54
Cross Section A-A’ Western Buttress Static	2.84
Cross Section A-A’ Western Buttress PStatic	2.20

Results of the slope stability modeling are presented in Appendix C as Plates C-1 to C-4. Slopes with factors of safety greater than 1.5 and 1.1 for the static and pseudo static conditions respectively are typically considered stable. As indicated above the embankments have factors of safety for the static and pseudo static conditions greater than 1.5 and 1.1, respectively. It is therefore our opinion that the existing embankments are suitable for use for the planned landfill.

2.4 EMBANKMENT AND LINER CONSTRUCTION

The existing embankments and liner were constructed in 1996. Records relating to the quality of the construction of the embankments were not found by DOGM. Permit documentation is included in Appendix D. Results of our slope stability analysis have indicated that the existing embankments are suitable for use as the proposed Landfill. Results of the liner integrity survey conducted in April 2019 indicate that there are no holes in the liner at the time of the survey.

2.5 STORM WATER MANAGEMENT

The original construction of the evaporation ponds is located away from existing drainages so that storm water would have minimal impact on the pond embankments. With the modified use of the pond embankments for landfill, run-on storm water is diverted around the embankments to minimize liquids admitted to the active landfill area and would meet the requirement of R315-303-3(c). The storm water is also diverted around the proposed staging area for landfill waste.

To minimize run-off waters from the active areas of the landfill as required by R315-303-3(d), the landfill has been designed to control run-off waters from the active area of the landfill resulting from a maximum flow of a 25-year storm. Once the landfill capacity has exceeded the height of the existing embankments, run-off water from the landfill will be diverted into the existing secondary containment basin located north and east of the proposed landfill. The secondary containment basin has a capacity of at least 600,000 cubic feet (13.77-acre feet). The estimated run-off volume of water from the landfill in a 25-year storm event is approximately 10,500 cubic feet (0.57-acre feet) of run-off. The volume of the secondary containment basin exceeds the potential 24-hour run-off volume of a 25-year storm event. Drawings of the retention basins are included in appendix B. Run-off storm water from a 25-year storm event will remain in the containment basin and will not be released off-site.

Run-off of storm waters was estimated using a site water balance calculation. This calculation was based on the soils and run-off curve number. Site soils are classified as Herbaceous soil that are in poor to fair hydraulic condition. Based on the National Resources Conservation Service (NRCS) the precipitation total for a 24-hour 25-year storm event is 1.75 inches. Using the curve number of 87 the estimated run-off is 0.71 inches.

3.0 CLOSURE PLAN

3.1 CLOSURE SCHEDULE

The Ace landfill cell will be closed in a single operation that includes the final grading of the waste material and the placement of the final cover. The expected duration of the land fill operation is approximately 3 years and 9 months at a 10% growth rate. Sixty days prior to the expected final receipt of waste, DHI will notify the division of their intent to begin closure operations. DHI will begin its closure operations after the final receipt of waste is obtained. It is anticipated that the closure operation will take place over an anticipated duration of 90 to 120 days. During this period, the landfill cell will be graded, covered and surveyed. As-built plans will be generated for reference for the final inspection by the division.

3.2 DESIGN OF FINAL COVER

The final cover will consist of two soil layers. The lower layer will consist of a compacted clay soil liner which will be overlain by an upper layer of soil that will be seeded with native grasses. The construction of the lower layer portion of the final cover will be an Alternative Design that will achieve equivalent requirements as the Standard Design as prescribed in R315-303-3(4)(c)(i). The upper layer will follow the Standard Design requirements as explained in R315-303-3(4)(a)(ii). Cover soils will be constructed from soils that are available at the Ace Disposal site. All testing and calculations are based on samples of the native soils at the site.

The Utah regulation R315-303-3(4)(c)(i) requires that the alternative final cover of a soil liner must achieve an equivalent reduction in infiltration as achieved by the standard design. Standard design calls for at least 18 inches of compacted soil, or equivalent, with a permeability of 1×10^{-5} cm/sec or less, or equivalent. On site Soils used for the final cover are far less permeable than this requirement. The proposed lower layer will use 6 inches of clayey soils that have a permeability of no greater than 1×10^{-6} cm/s. Based on engineering calculations 6 inches of soils with a permeability no more than 1×10^{-6} cm/sec is equivalent to 18 inches of soils that are permeable up to 1×10^{-5} cm/second. The equivalency is based on calculated infiltration rates. These calculations are included as part of our mathematical model included in Figure 1 and explained in the following paragraph.

As part of the requirements of an alternative final cover design, expected performance of the alternative cover has been documented by use of a mathematical model as required in R315-303-3(4)(d). Line item 3 of the model includes a hydraulic conductivity test that

was performed on a sample of cover soils obtained from the Ace facility. The lab test was performed in accordance with ASTM D5084 method C that resulted in a lab measurement of 2.46×10^{-7} cm/second. This result exceeds minimum requirement of 1×10^{-5} cm/second of the standard design, i.e., the soil is less permeable. The mathematic model also includes other lab tests on the soil that demonstrate that the soil is non-dispersive (see line 1 of calculations). Lines 5 through 15 include the model that demonstrates the performance of the soils used for the alternative cover. Climatic conditions are referenced in line Item 5 and includes the normal precipitation and wettest 5 years on record as required in R315-303-3(4)(d)(i) and (ii). Using this data, we then calculated the annual soil erosion rate using the Revised Universal Soil Loss Equation that is commonly used by the EPA and NRCS. Using this equation, we are able to show that the proposed cover design would lose annually 0.006 inches of soil over the entire cap (line 14). Applying a factor of safety of 10, the unattended and unrepaired cover would lose half of the 6 inches of soil after 50 years. It is our engineering opinion that this alternative design is equivalent to the Standard Design.

In addition, R315-303-3(4)(a)(ii) also requires that a second layer of soil is to be use for reducing erosion consisting of at least 6 inches of soil capable of sustaining vegetative growth placed over the compacted soil cover and seeded with grass, other shallow rooted vegetation, or other native vegetation. Our proposed design follows the standard design requirements in that the compacted clay liner soils will be covered with a second soil layer that will be a minimum of 6 inches of soil as prescribed in R315-303-3(4)(a)(ii). This soil layer will be capable of sustaining vegetative growth and will be seeded with native shallow root vegetation or native vegetation to minimize erosion of the final cover. It is our understanding that locally available topsoil suitable for vegetative growth may be readily available to be utilized at the time of closure. These soils may be tested for organic content, permeability, and cohesion prior to use as final cover soil.

The final cover for the landfill cell will be graded to a slope no steeper than 3:1 around the outer perimeter. The top elevation of the landfill cap will be rectangular and will have a slope of no less than 2%. To control the run-off of storm water and minimize erosion of the final cover material, it is intended that the final cover soils be seeded with native grasses and use other erosion controls as may be needed. The final cover may be reseeded as needed during the post closure phase of the landfill. The final cover plans of each landfill cell are included in Appendix B of this permit application.

Figure 1:

RN Industries
Proposed Bluebell Landfill
Alternative Closure Cap Equivalency to Standard Design prescribed by Rule R315-303-3

Alternative Closure Cap Equivalency to Standard Design prescribed by Rule R315-303-3(4)(c)
Infiltration and Erosion Equivalency

RN Industries proposes a six-inch thick Alternative Final Cover in place of Standard Design specified in Rule **R315-303-3 (4) (a) (i)**. Because Rule **R315-303-3(4)** does not provide a quantitative erosion standard, the equivalency of proposed Final Cover erosion will be demonstrated by showing geotechnical testing for and calculating annual erosion of the Alternative Final Cover Design. The following uses mathematical model based on the geotechnical testing to demonstrate equivalency as required in **R315-303-3(4)(d)**. This model will demonstrate that the alternative cover achieves an equivalent infiltration rate and protection from erosion as required in **R315-303-3(4)(c)(i and ii)**.

The Alternative Final Cover will be constructed from compacted soil native available in sufficient quantity at the Bluebell Disposal Site.

The following summary of soil test lab results, tables and narrative outline various geotechnical and agronomic characteristics of the Alternative Final Cover Design. These characteristics were chosen because they are parameters used both for geotechnical design of the Landfill and for USEPA/NRCS/USDA Revised Universal Soil Loss Equation.

References

- 1 EPA Stormwater Phase II Final Rule - EPA has updated its Rainfall Erosivity Factor Calculator to correct known problems and to use updated data from the Natural Resources Conservation Service's (NRCS) Revised Universal Soil Loss Equation, Version 2 (RUSLE2) database, 2012-09-26
- 2 Wischmeier, W. H., and Smith, D.D. 1978. Predicting rainfall erosion losses -- a guide to conservation planning. U.S. Department of Agriculture, Agriculture Handbook No. 537.
- 3 Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder, coordinators. 1997. Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture, Agriculture Handbook No. 703, 404 pp.

Qualitative and Quantitative Effect of Erosion Computation Parameters Affecting RN Industries Alternative Landfill Cap Design				
Line	Erosion Computation Parameter	Alternative Design Final Cover		
1	ASTM D4647, Standard Test Methods for Identification and Classification of Dispersive Clay Soils Tests performed on sample compacted to optimum Proctor Density confirmed Bluebell soil of interest is Non-Dispersive.	Exfiltration from sample had non-detectable turbidity which identifies a non-dispersive soil having a low erosion rate.		
2	ASTM D698 - 12e2, Standard Test Methods for Laboratory Compaction Characteristics.	Proctor optimum is 122 lb/cf at 14.6% moisture.		
3	ASTM D5084 - Method C, Standard Test Methods for Measurement of Hydraulic Conductivity. Lab measured Conductivity 7.74 X 10 ⁻⁷ cm/sec	Site soil used to construct the Alternative Design was selected and compacted to its Standard Proctor Optimum Density. It had a lab measured K value of 2.46 X 10 ⁻⁷ cm/sec. The lab measured conductivity is lower than 3.33 X 10 ⁻⁶ cm/sec required for Alternative Design infiltration equivalency. This meets the requirement of R315-303-3(4)(c)(i) .		
4	ASTM C117 - Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve.	Classification	Sieve Size	Sieve Size (in)
				Passing (%)
		Cobble	100.0 mm	4"
			75.0 mm	3"
		Very Coarse Gravel	50.0 mm	2"
			37.5 mm	1.5"
		Coarse Gravel	25.0 mm	1"
			19.0 mm	3/4"
		Medium Gravel	12.5 mm	1/2"
		Fine Gravel	9.5 mm	3/8"
			4.75 mm	No. 4
		Very Fine Gravel	2.36 mm	No. 8
		Coarse Sand	2.00 mm	No. 10
			1.18 mm	No. 16
		Medium Sand	0.60 mm	No. 30
			0.43 mm	No. 40

	Fine Sand	0.30 mm	No. 50	92
	Very Fine Sand	0.15 mm	No. 100	81
	Silt & Clay	0.08 mm	No. 200	66

5	Five Wettest Year Total Precipitation & Average Annual Precipitation from USU Climatological Center for the Vernal Station. Data used as required in R315-303-3(4)(d)(i) and (ii)			
	9.31 Inches-Avg Annual Precip	Rank	Year	Precip
		1	1938	13.18"
		2	1941	14.78"
		3	1983	11.47"
		4	1997	12.01"
5	2016	13.03"		
Ratio of Wettest Year to Average Year = 13.18 Inches / ##### = 1.42 To adjust Rainfall-Runoff Factor for the five wettest years, multiply Rainfall-Runoff Factor from NRCS Iso Erodant map by 1.42				
6	The following calculation uses procedures and data from USDA Handbooks No. 537 and its later revisions used by EPA and NRCS. NRCS has updated the original research for Handbook No. 537 and 703. The equations are now listed as Revised Universal Soil Loss Equation or RUSLE. Both the original and ongoing research to update, calibrate and automate RUSLE calculations were performed by University of Indiana, College of Agriculture staff over the past 40 years.			
7	Rainfall/Runoff Factor (EI Parameter NRCS Fig 1)	= 10 from Fig 1, Isoerodant Map	14.15682062	
8	Erodability Factor (NRCS Fig. 3 Nomograph)	using ASTM Gradation results	K = 0.64	
9	Topographic Factor (NRCS Slope-Length Nomograph)	Cap Slope = 3 on 1 or 33%	LS = 6	
10	Cover & Management Factor (NRCS Table 6)	using no cover and 80% mulch	S = 0.10	
11	Support Practice Factor (NRCS P Value limits for Contouring)	using 250 Ft slope length	C = 1.0	
12	Annual Soil Loss	A = R * K * LS * C (Tons/ Year)	A = 5.1 Ton/ Yr	
13	Erosion Equivalency Soil erosion equivalency is demonstrated by the applying the standard model for erosion assessment used by US EPA. It is based on the empirical Revised Universal Soil Loss Equation.			
14	Calculated Annual Soil Erosion Annual soil volume loss a. The soil density determined by ASTM D4647 lab test is 126 Lb per CF b. The RUSLE equation estimates an annual soil loss of 5.1 Tons / Yr c. The corresponding volume of soil loss will be 80 CF / Yr d. Each proposed Landfill cap has a finished surface area of 171,000 SF e. The annual uniform soil loss over entire cap will be 0.006 Inches			
15	Allowance for non-uniform soil loss and a reasonable Factor of Safety Applying a Factor of Safety of 10 The estimated uniform soil loss over the entire cap will increase to 0.06 Inch / Yr Unattended & unrepaired, the top half of the 6" thick cap has a life of about 50 Years			
16	Conclusions GeoStrata engineers submits that the above geotechnical tests showing non-dispersive soils and the subsequent erosion calculations support the claim of the equivalency of the proposed Alternative Design for Bluebell Landfill Cap to the Standard Cap Design prescribed in Rule R315-303-3(4)(a)(i and ii) . The infiltration rate in Line 3 and Erosion rate in Line 15 of this model demonstrate that the cover design meets the rerequirements of R315-303-3(4)(c)(i and ii) . Line 3 demonstrates that the infiltration rate is less than the standard design. Line 15 shows that the cover after 20 years without any maintenance will have only lost 6 inches of soil. The post closure plan will have cover soils replaced.			

3.3 CAPACITY OF LANDFILL

The estimated capacity of the Ace landfill cell up to the final cover is 105,836 cubic yards. With the assumptions of an average daily rate of 67.5 cubic yards of waste delivered at the site and half the waste being mixed with additional material and 10% growth every year, the combined life of the two landfills is estimated to be at least 3

years. A table with the projected duration for each landfill is provided in appendix E as Plate E-1. When the landfill cell reaches capacity limits DHI will initiate the closure process and notify the Division in advance as required.

3.4 FINAL INSPECTION

After the completion of the final cover, the final inspection of the landfill cell will be conducted by officials from DWMRC. DHI will notify the division of the anticipated date of completion and make arrangements for scheduling the inspection.

4.0 POST CLOSURE CARE

Immediately after the completion of construction for the final cover of the landfill cell, the post closure care plan will be implemented. As required in R315-302-3(5) the post closure care activities will take place for 30 years or as long as the Director determines is necessary for the facility or unit to become stabilized and to protect human health and the environment. A licensed engineer with the state of Utah will direct the post-closure care of the facility and will provide DHI with recommendations to properly maintain the landfill site and prevent any release of harmful substances. The engineer will also provide the division with documentation if he determines that the site is safe to reduce or discontinue site monitoring prior to the end of the 30-year period.

4.1 POST CLOSURE CARE PLANS

During the post closure period the following activities will take place:

Site Monitoring: Portions of the Ace facility is operated 24 hours a day, 7 day a week. DHI personnel will be may be onsite daily to monitor activities at the facility and restrict access to the landfill. Access to the landfill will be restricted with fencing and locked gates at the roadway entrance. Signs will be posted advising of the potential dangers associated with the landfill. Only authorized personnel of DHI will have access to the landfill site.

On a quarterly basis the landfill cover will be inspected to check for rutting and depressions that could result in rapid erosion. If rutting or depressions in the cover are identified, they will be repaired by grading and seeding the surface. Slopes of the final cover will also be inspected and maintained. DHI will check that a 2% slope will be maintained on the top of the cover and a 3:1 slope will be maintained around the perimeter of the landfill.

Run-off water from the final cover will be directed into the existing drainages to the south of the landfill cell. DHI will on a quarterly basis inspect the run-off collection system and ensure that they are properly diverting water into the existing storm water drainages. Repairs will be made as needed.

Surface and Ground Water Monitoring: Samples will be collected of groundwater from the monitoring wells on site. No samples of surface waters will be collected because there are no observed streams, springs, or other surface waters at the site of the proposed landfill. All sampling will be completed by a Utah certified groundwater sampler. Sampling will take place every six months during the post-closure care period.

The water will be field tested for pH, water temperature, and water conductivity. Samples will also be collected for lab analysis, testing for heavy metals and organic constituents will be conducted as required in R315-308-4. The results of the water sample testing will be recorded and statistically analyzed for significant changes in concentrations of constituents utilizing a parametric analysis of variance (ANOVA). If significant changes are detected, then DHI will follow the guidelines in R315-308-2(13).

4.2 RECORD OF TITLE, LAND USE, ZONING

The Uintah County Recorder will be notified during the closure period of the completion of the disposal site. The county recorder will be provided with documentation and plats of the location of the disposal site. Notification of the closure, and location of the land fill will also be sent to the county recorder and zoning changes will be made if necessary. Documentation of the history of the landfill will permanently appended to the title of record and land use restrictions will be put in place.

4.3 POST CLOSURE CONTACTS

The point of contact during the post closure care period for this facility is Austin Weddle. His contact information is provided below:

Austin Weddle (435) 790-6690

5.0 FINANCIAL ASSURANCES

5.1 CLOSURE COSTS

The landfill cell at the Ace facility is planned to close in a single operation when the waste reaches final design grade. The closure costs for the Ace landfill are based on the cost to construct the final cover. The final cover construction is to include 6 inches of clay liner placement, the placement and grading of the 6-inch topsoil cover, and the seeding of topsoil. Detailed financial assurance cost estimates are presented in Appendix H of this permit application.

5.2 POST CLOSURE CARE COSTS

Post closure care of inactive sections of the landfill will consist of maintaining the integrity of the final and vegetative covers. Any areas subject to erosion will be corrected and appropriate measures will be implemented to identify and eliminate the run-on source. No active or technical devices are proposed for at the DHI Ace Landfill. Best management practices will be implemented to minimize the infiltration and assure the integrity of the run-on/run-off system. Evaluation of the system will be made during the quarterly inspections and corrective measures if any will be implemented. All run-on and run-off from events smaller than the 25-year storm will be controlled through drainage design.

Leachate collection devices are proposed for the facility. The closed landfill will be inspected as part of the quarterly reviews performed by the landfill operator. The closed landfill will also be inspected as a part of the in-depth annual inspection. Any deficiencies will be repaired as soon as practical. For those failures which jeopardize the environmental integrity of the facility or permit, the uncontrolled infiltration of significant amounts of moisture, corrective measures will be initiated immediately.

Ground water monitoring is also proposed for the post closure care. Ground water will be sampled biannually and tested for the listed constituents provided in section 2.2.6 of this report. The results of this testing will be included in the in-depth annual inspections report.

Post closure care costs are estimated by the cost of maintaining the previously described activities for a 30-year period. A detailed financial assurance cost is provided in Appendix H.

5.3 FINANCIAL ASSURANCE

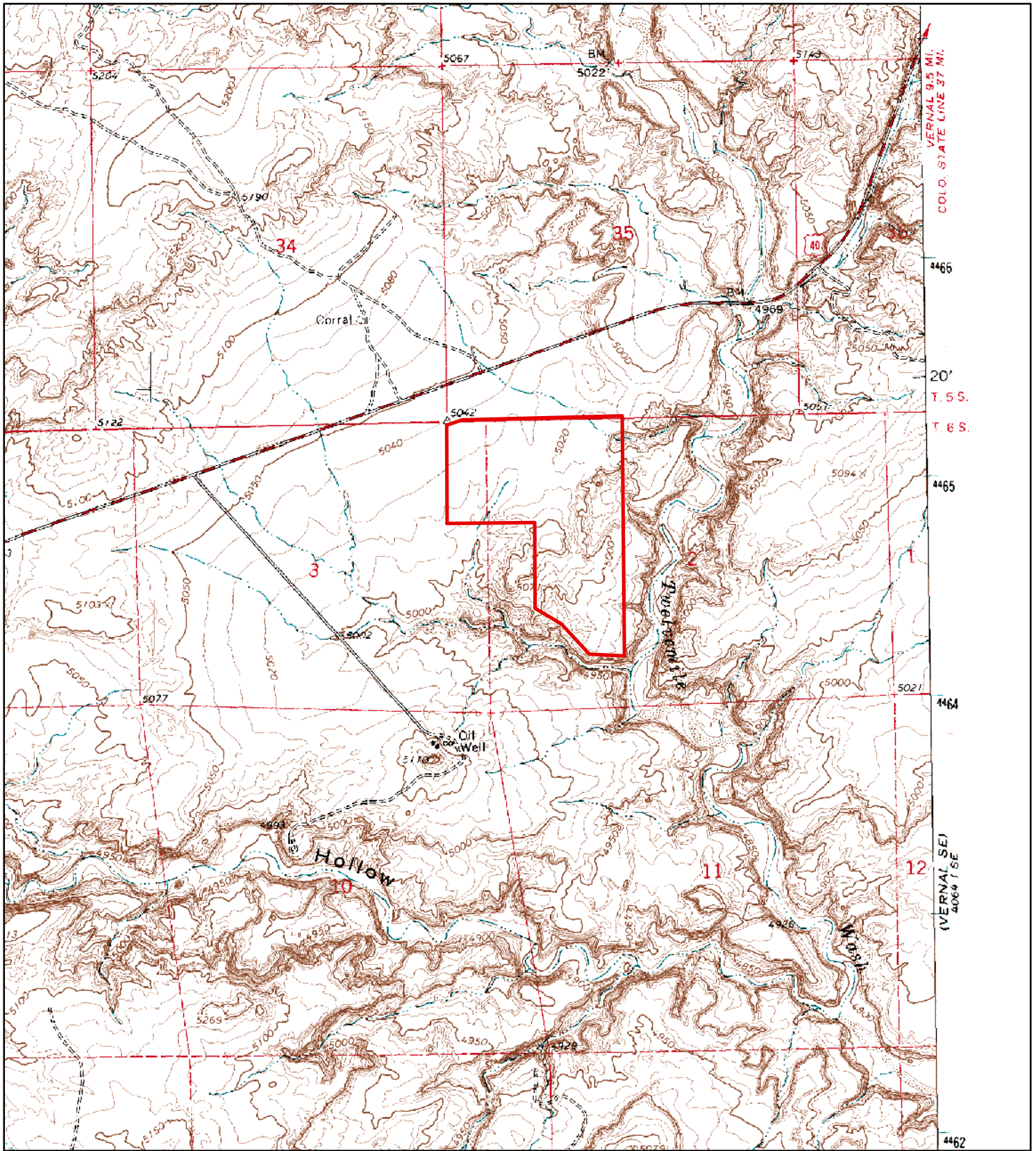
This section of the permit describes compliance with Subsection R315-309-2, Financial Assurance of the Administrative Rules for Solid Waste Permitting and Management. Cost estimates consider the most expensive option during the period and are based on a third-party performing closure and post closure care.

The DHI team complies with financial assurance test requirements for private entities based on 1) acceptable bond ratings, and 2) financial statements prepared in conformity with generally accepted accounting principles for private entities audited by independent CPA's. Financial Assurance funds will be put in place as required by the Division after the application process is complete.

WORKS CITED

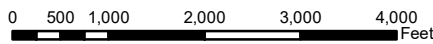
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Appendix A



Legend

 Site Boundary



1:24,000



GeoStrata
 Engineering & Geosciences
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Ace Landfill Permit Application
 RN Industries
 Project Number 524-099

**Plate
 A-1**

Ace Disposal Facility



Legend

-  Ace Landfill
-  Site Boundary

0 130 260 520 780 1,040 Feet

1:6,000



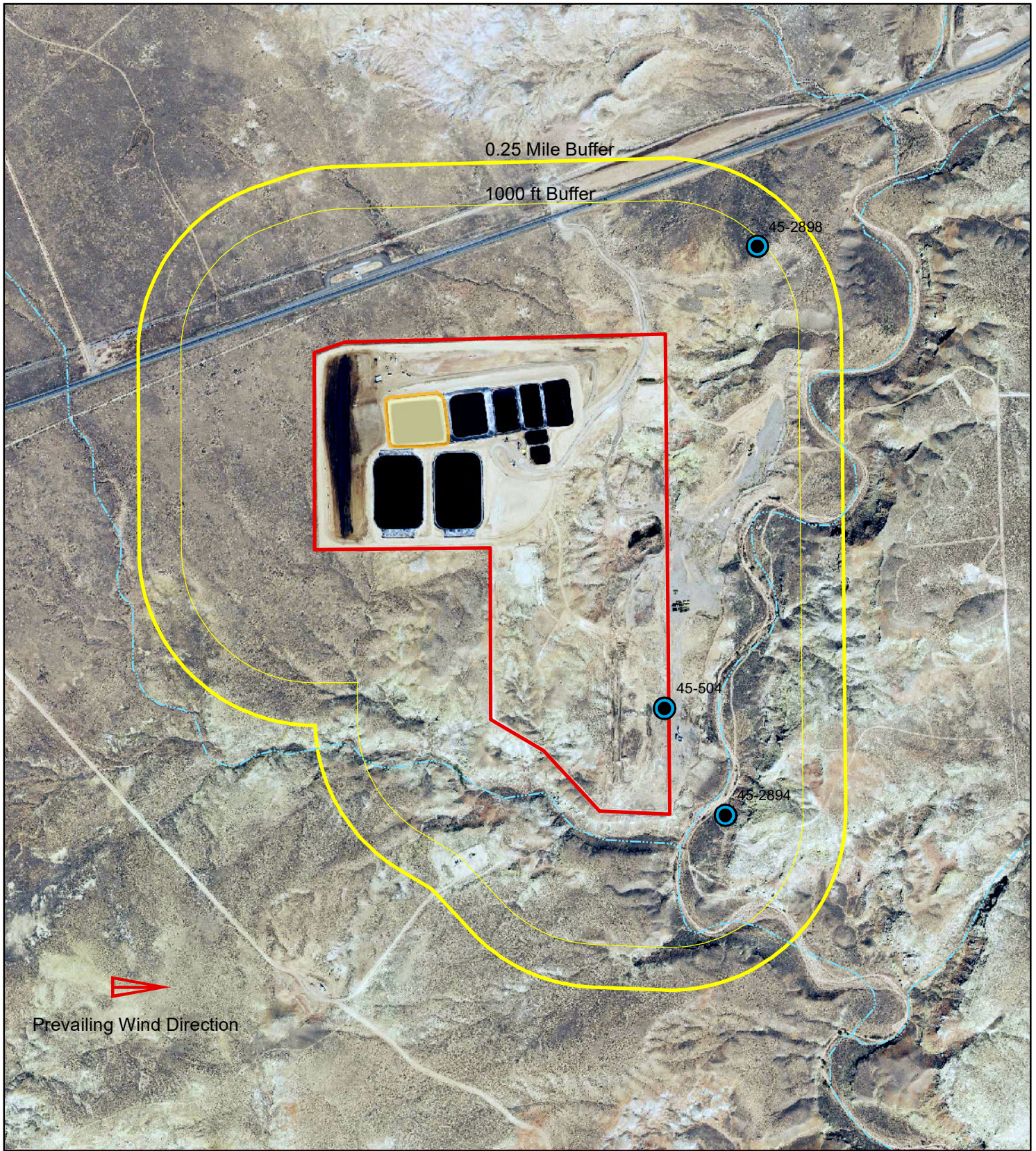
GeoStrata
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Ace Landfill Permit Application
RN Industries
Project Number 524-099

Ace Disposal Facility

**Plate
A-2**



0.25 Mile Buffer

1000 ft Buffer

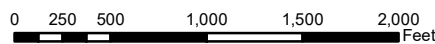
45-2898

45-504

45-2894

Prevailing Wind Direction

Base Map; NAIP 2018
Streams: NHD High Resolution Stream Map



1:12,000

Legend

- Water Right
- Streams Intermittant
- Quarter Mile Buffer
- 1000 ft Buffer
- Ace Disposal Site Boundary
- Proposed Ace Landfill

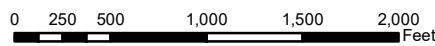
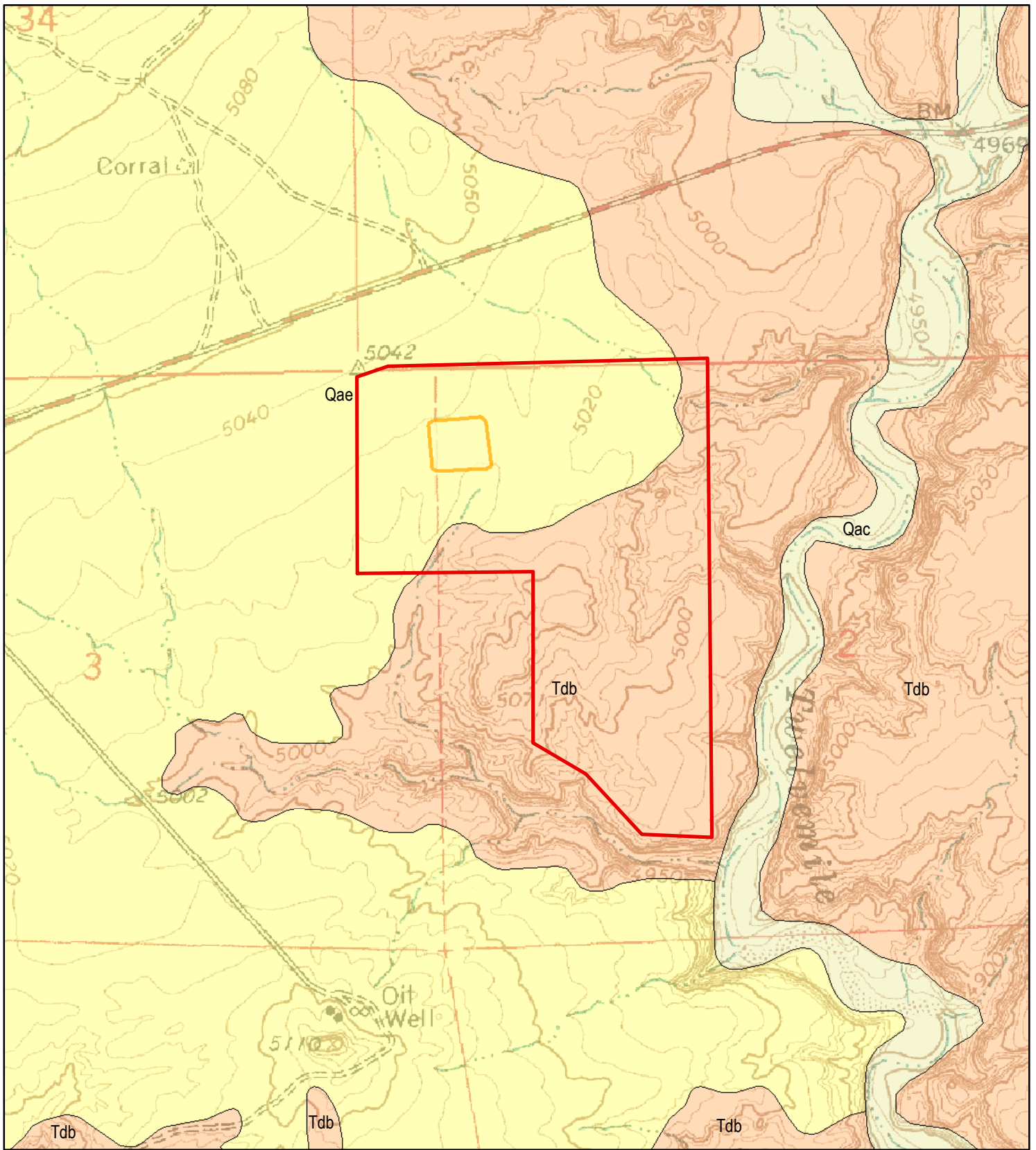


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RN Industries
Project Number 524-099

Plate
A-3

Ace Disposal Facility
Location Standards



1:12,000

Legend

- Site Boundary
- Ace Landfill
- Geologic Contact
- Qac - Mixed alluvium and colluvium
- Qae - Mixed alluvium and eolian deposits
- Tdb - Brennan Basin Member of Duchesne River Formation

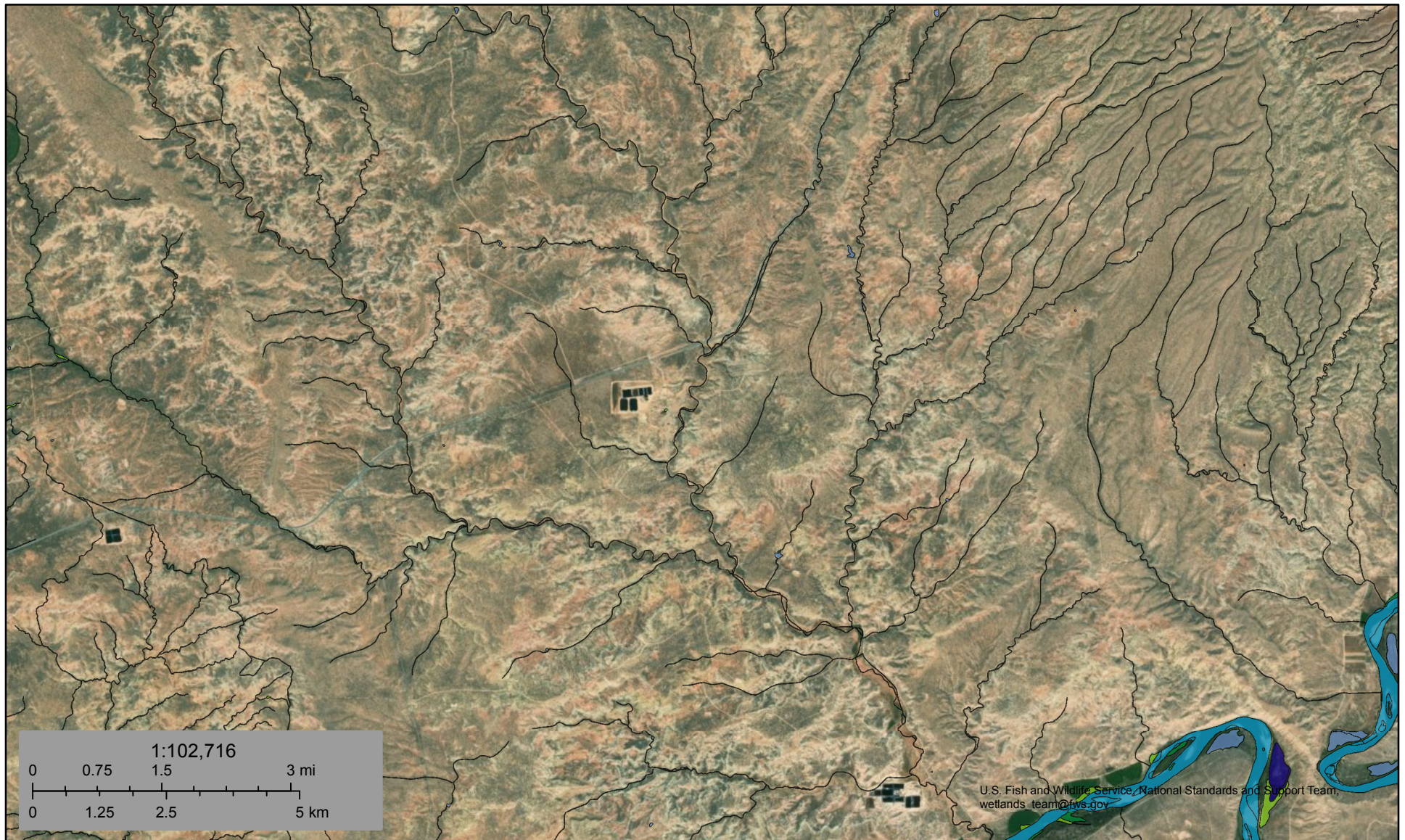


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RN Industries
Project Number 524-099








**Ace Disposal Facility
Geologic Map**

**Plate
A-4**

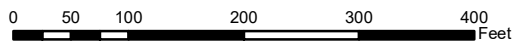


March 18, 2019

Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |





This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



1:2,000



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- Legend**
-  Soil Sample
 -  Monitoring Well
 -  Ace Disposal Site Boundary
 -  Proposed Ace Landfill

Ace Landfill Permit Application
RN Industries
Project Number 524-099

**Ace Disposal Facility
Exploration Location Map**

**Plate
A-6**

Appendix B

BINDING EDGE

RN INDUSTRIES ACE DISPOSAL FACILITY

POND 6 LANDFILL CONVERSION

November 13, 2019

SECTION 3, TOWNSHIP 6 SOUTH, RANGE 20 EAST,
UINTAH SPECIAL BASE AND MERIDIAN



				SCALE NONE		LOCATION	UINTAH COUNTY, UTAH	
						PROJECT	ACE DISPOSAL LANDFILL	
A	10-18-19	BER	PERMIT DRAWINGS			TITLE	COVER SHEET	
REV	DATE	BY	DESCRIPTION					

BINDING EDGE

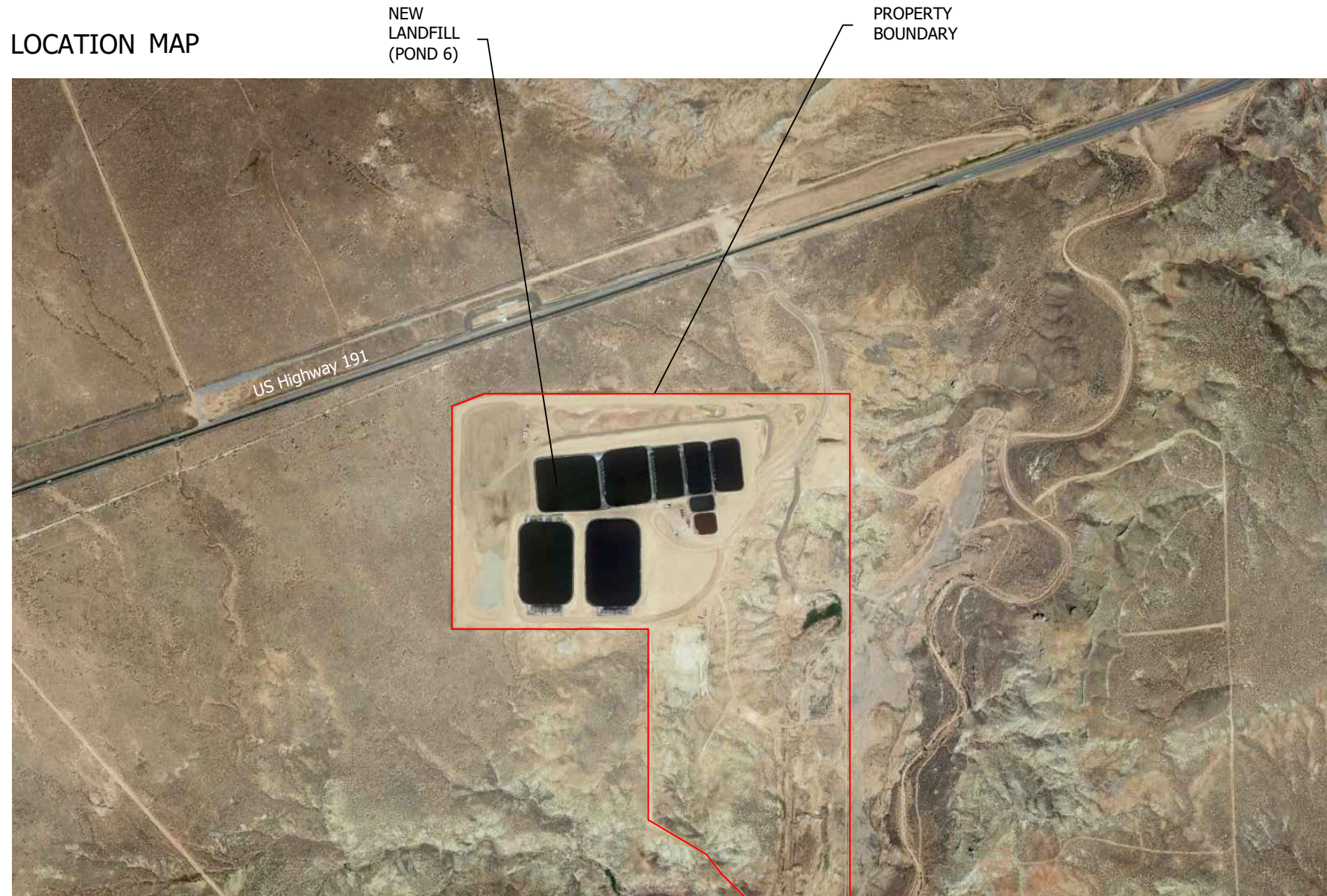
ABBREVIATIONS

ADJ	ADJUST
ADS	ADVANCE DRAINAGE SYSTEM
ARV	AIR RELEASE VALVE
BC	BAR AND CAP
BOW	BACK OF WALK
BVCE	BEGINNING VERTICAL CURVE ELEV.
BVCS	BEGINNING VERTICAL CURVE STATION
CB	CATCH BASIN
CH	CHORD BEARING
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
COR	SECTION CORNER
D	DELTA ANGLE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EG	EXISTING GRADE
ELEV	ELEVATION
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
EVCE	END VERTICAL CURVE ELEV.
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FO	FIBER OPTICS
FT	FOOT
GB	GRADE BREAK
HC	HANDICAP
HDPE	HIGH DENSIT POLYETHYLENE
HP	HIGH POINT
INV	INVERT
IRR	IRRIGATION
LF	LINEAR FEET
LIP	LIP OF CURB
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
OC	ON CENTER
OHP	OVER HEAD POWER
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REDUCING
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
ROW	RIGHT OF WAY
RT	RIGHT
S	SEWER
SD	STORM DRAIN
SER	SOUTH END RADIUS
SSMH	SEWER MANHOLE
STA	STATION
STD	STANDARD
SW	SECONDARY WATER
TBC	TOP BACK OF CURB
TOA	TOP OF ASPHALT
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND POWER
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
WM	WATER METER
WV	WATER VALVE

SHEET INDEX

	COVER SHEET
B1	INDEX AND LEGEND
B2	GENERAL NOTES
B3	OVERALL SITE PLAN
B4	PLAN 7 PROFILE POND 6 EAST TO WEST
B5	PLAN 7 PROFILE POND 6 NORTH TO SOUTH
B6	LANDFILL DETAILS
B7	WORK SITE DETAIL
B8	STAGING AREA DETAIL
B9	COMPLETED DETAIL

LOCATION MAP



REV	DATE	BY	DESCRIPTION
A	10-18-19	BER	PERMIT DRAWINGS

SCALE
AS SHOWN



LOCATION	UINTAH COUNTY, UTAH	B-1
PROJECT	ACE DISPOSAL LANDFILL	
TITLE	INDEX & LEGEND	NO

BINDING EDGE

GENERAL NOTES

1. THE DESIGN IS AN ORIGINAL UNPUBLISHED WORK AND MAY NOT BE DUPLICATED, PUBLISHED AND/OR USED WITHOUT THE WRITTEN CONSENT OF GEOSTRATA, LLC.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH PERTINENT JURISDICTIONAL CODES, RESTRICTIONS, COVENANTS, AND/OR ORDINANCES. ANY CONFLICT BETWEEN DESIGN AND REQUIREMENT SHALL BE REPORTED TO GEOSTRATA, LLC BEFORE PROCEEDING. FAILURE TO DO SO VOIDS THE DESIGN.
3. ANY AND ALL PROPOSED CHANGE, MODIFICATIONS AND/OR SUBSTITUTION SHALL BE REPORTED TO GEOSTRATA, LLC BEFORE PROCEEDING. ANY DEVIATION FROM THE CONTRACT DOCUMENTS, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF GEOSTRATA, LLC VOIDS THE DESIGN.
4. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN DOCUMENTS AND/OR JURISDICTIONAL REQUIREMENTS, THE MORE RESTRICTIVE FROM THE STANDPOINT OF SAFETY AND PHYSICAL SECURITY SHALL APPLY.
5. ANY INSTALLATION OR WORK NEXESSARY TO THE FUNCTIONING, SAFETY AND/OR PHYSICAL SECURITY OF DESIGN THAT IS TO BE ENCAPSULATED OR OTHERWISE PERMANENTLY OBSCURED FROM INSPECTION SHALL BE REPORTED TO GEOSTRATA, LLC A MINIMUM OF TWO (2) WORKING DAYS BEFORE ENCLOSURE.
6. ANY DAMAGE, DISRUPTION OR COMPROMISE OF AMBIENT RIGHTS-OF-WAY, UTILITIES, OR ENVIRONMENTAL QUALITY SHALL BE IMMEDIATELY RECTIFIED BY THE CONTRACTOR TO THE SATISFACTION OF GEOSTRATA, LLC AT NO COST TO THE OWNER.
7. ALL WORK SHALL BE INSPECTED BY GOVERNING AGENCIES IN ACCORDANCE WITH THEIR REQUIREMENTS. JURISDICTIONAL APPROVAL SHALL BE SECURED BEFORE PROCEEDING WITH WORK BY CONTRACTOR.

CONSTRUCTION NOTES

1. ALL WORK WITHIN THE SITE SHALL CONFORM TO CURRENT JURISDICTIONAL STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL OF THE REQUIREMENTS ESTABLISHED FOR SAFE TRENCHING. (SEE OSHA AND UOSHA REQUIREMENTS, LATEST EDITIONS).
3. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES BEFORE EXCAVATING WITHIN 200 FEET OF SAID UTILITIES WHICH MAY BE EXPOSED, DAMAGED, OR CROSSED AS SHOWN ON THE DRAWINGS OR AS "BLUE STAKED". THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO MOVE THE UTILITY IF NECESSARY OR OBTAIN PERMISSION FROM GEOSTRATA, LLC TO MODIFY GRADES OF PROJECT LINES IN ORDER TO GO AROUND EXISTING UTILITIES.
4. BURIED UTILITIES ARE SHOWN ON THE PLANS IN A GENERAL SCHEMATIC WAY ACCORDING TO INFORMATION RECEIVED FROM OTHERS. THE ACCURACY OR COMPLETENESS OF THE LOCATIONS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF EXISTING SERVICE CONNECTIONS AND UTILITIES, VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS AND TAKE THE NECESSARY STEPS TO AVOID THEM.

EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING THE EROSION STORM WATER CONTROL FACILITIES READ BY CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED. ROADWAYS SHALL BE KEPT CLEAN OF CONSTRUCTION DEBRIS.
3. FUGITIVE DUST SHALL BE CONTROLLED BY SPRAYING WATER ON THE DRY AREAS OF THE SITE.
4. NO RUBBISH, TRASH, GARBAGE, OR THE OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
5. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS SHALL BE REMOVED IMMEDIATELY.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) DUE TO GRADE CHANGES OR OTHER UNFORESEEN CONDITIONS DURING DEVELOPMENT OF THE PROJECT.

LANDFILL #1 (POND 6 CONVERSION)

1. BOTTOM OF LANDFILL, NOMINAL EL. = 5,030 FT
2. TOP OF LANDFILL, NOMINAL EL. = 5,062 FT
3. INBOARD SLOPE = 3:1
4. OUTBOARD SLOPE = 3:1
5. FINAL COVER GRADE = 2%
6. LANDFILL VOLUME (EXCLUDING BASE AND CAP MATERIAL) = 105,863 CY
7. VOLUME OF 6" LEACHATE SAND = 2,500 CY
8. VOLUME OF 6" PROTECTIVE SOIL = 2,550 CY
9. VOLUME OF 8" OF TOP SOIL CAP = 4,400 CY
10. VOLUME OF 6" OF CLAY CAP (K=10^-6) = 3,300 CY
11. SURFACE AREA OF TOP SOIL = 180,000 SF



CAUTION NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO STAKING OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

CONTRACTOR AGREES THAT IT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY: THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS; AND THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXPECTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.



				SCALE AS SHOWN		LOCATION	UINTAH COUNTY, UTAH	B-2
						PROJECT	ACE DISPOSAL LANDFILL	
A	10-18-19	BER	PERMIT DRAWINGS			TITLE	GENERAL NOTES	NO
REV	DATE	BY	DESCRIPTION					

BINDING EDGE



WORK SITE

GeoStrata

2016 PHOTOGRAPHY

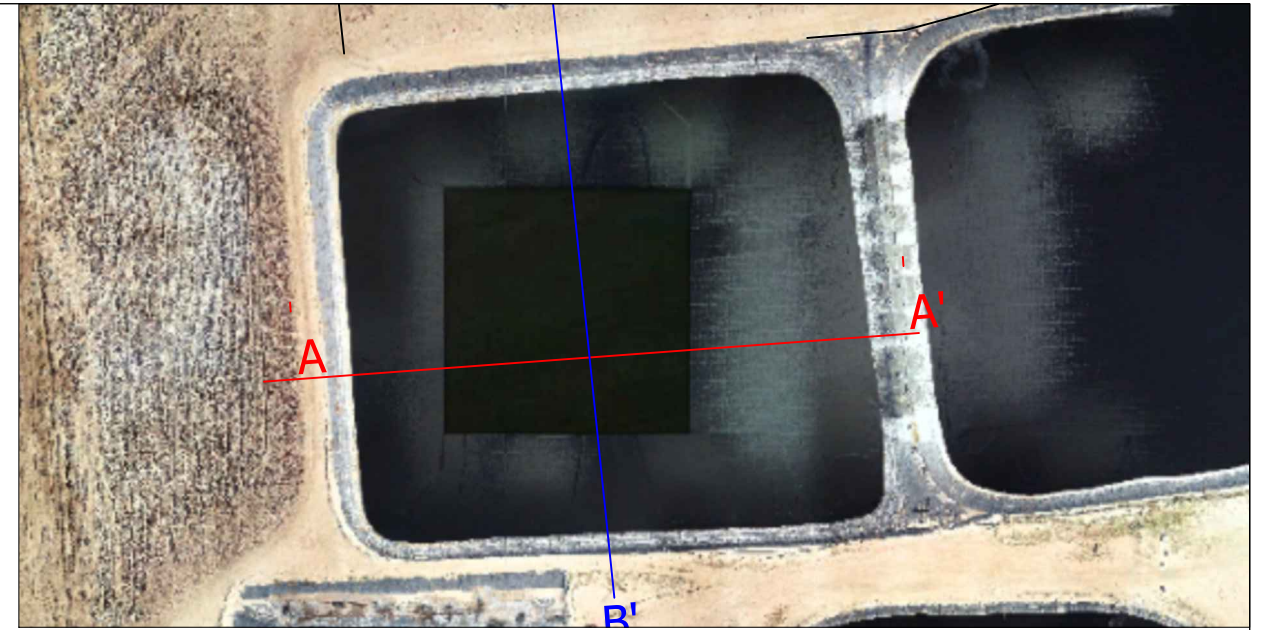
REV	DATE	BY	DESCRIPTION
A	10-18-19	BER	PERMIT DRAWINGS

SCALE
AS SHOWN



LOCATION	UINTAH COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	OVERALL SITE PLAN

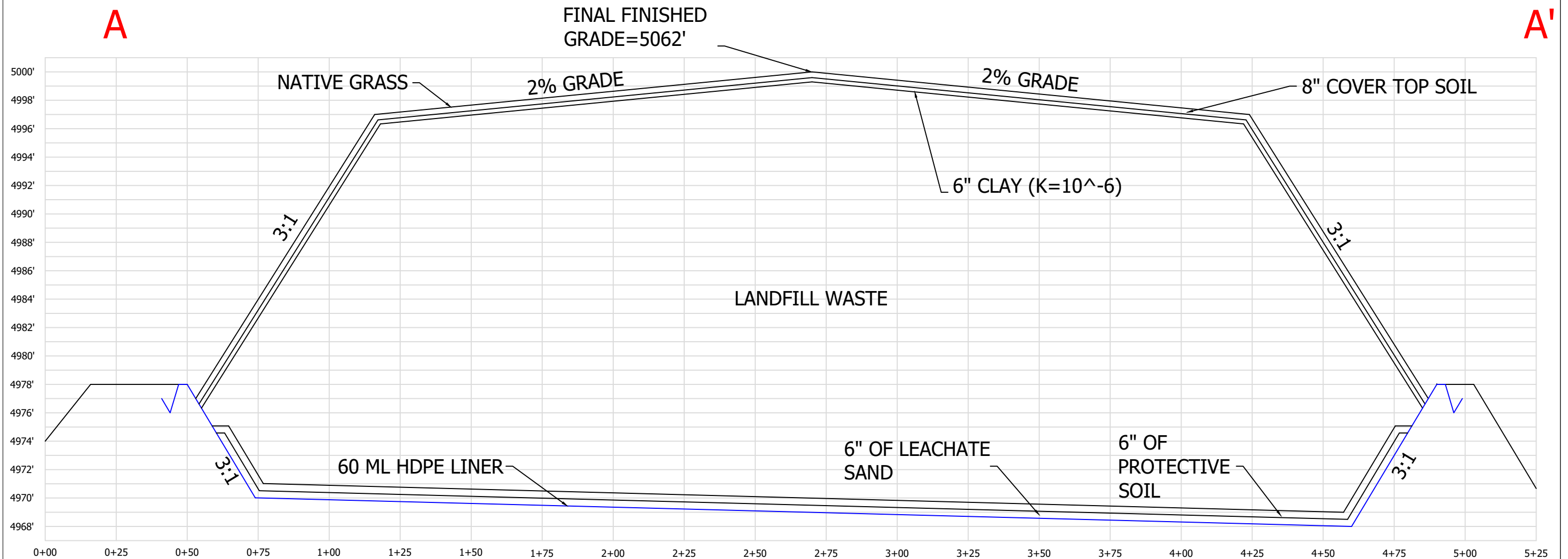
B-3
NO



BINDING EDGE

A

A'



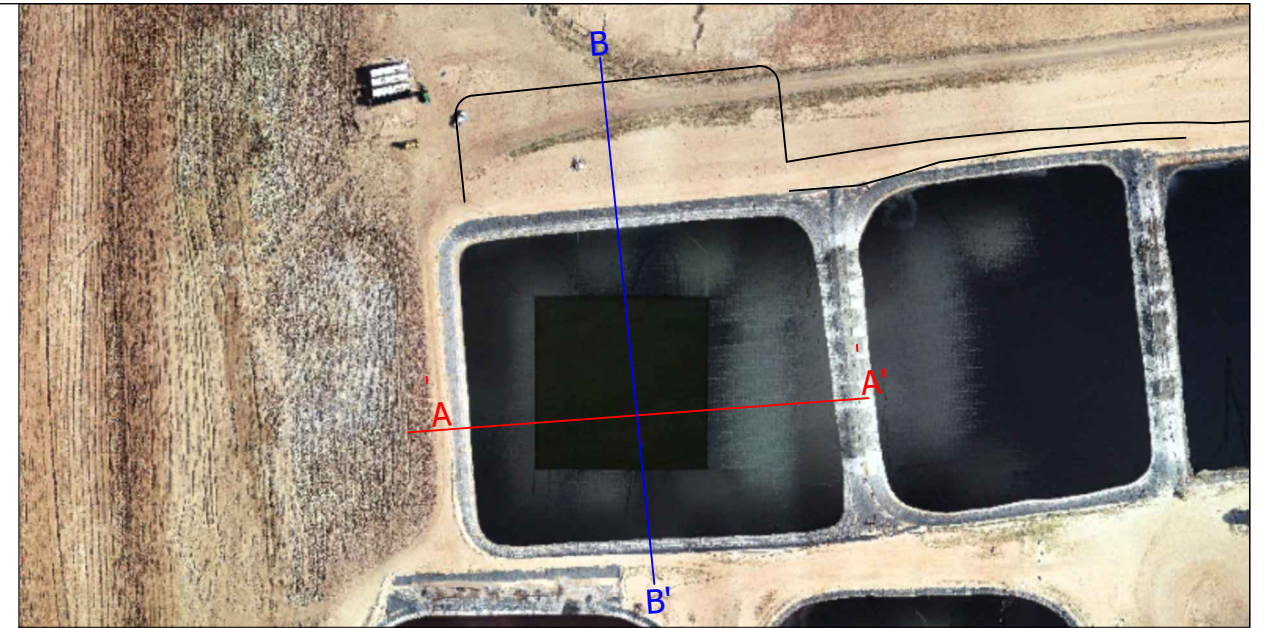
REV	DATE	BY	DESCRIPTION
A	10-18-19	BER	PERMIT DRAWINGS

SCALE AS SHOWN



LOCATION	DUCHESNE COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	PLAN & PROFILE POND 6 EAST TO WEST

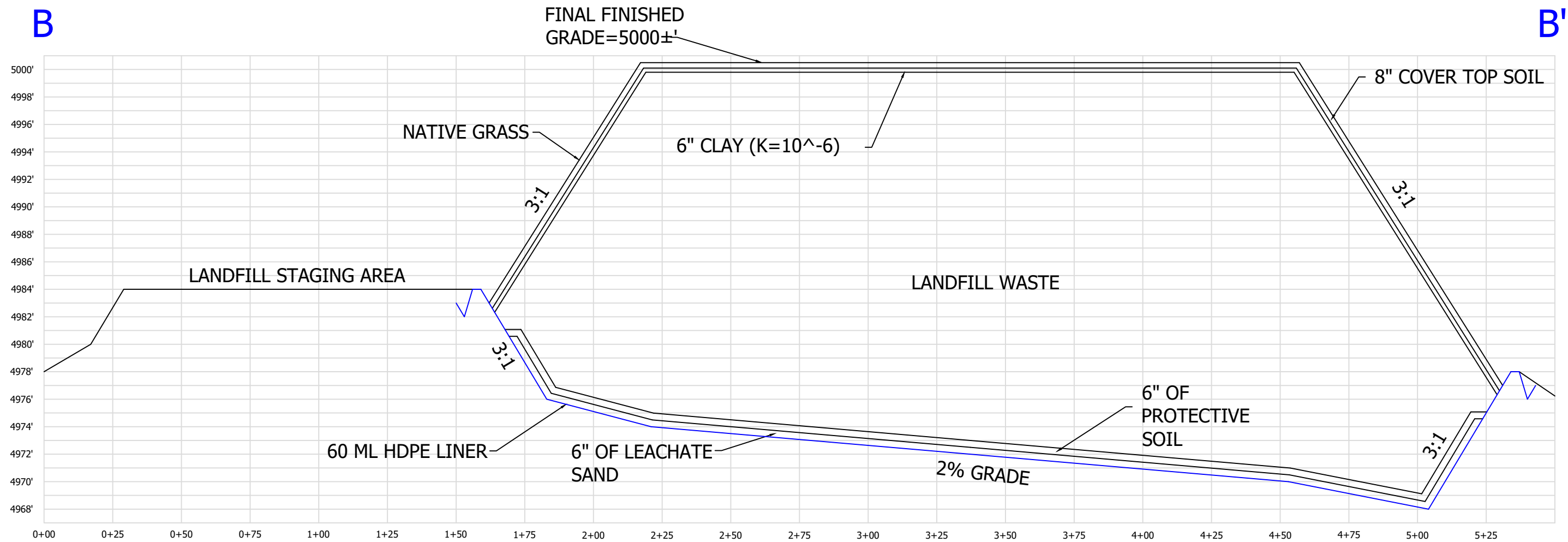
B-4
NO



BINDING EDGE

B

B'



REV	DATE	BY	DESCRIPTION
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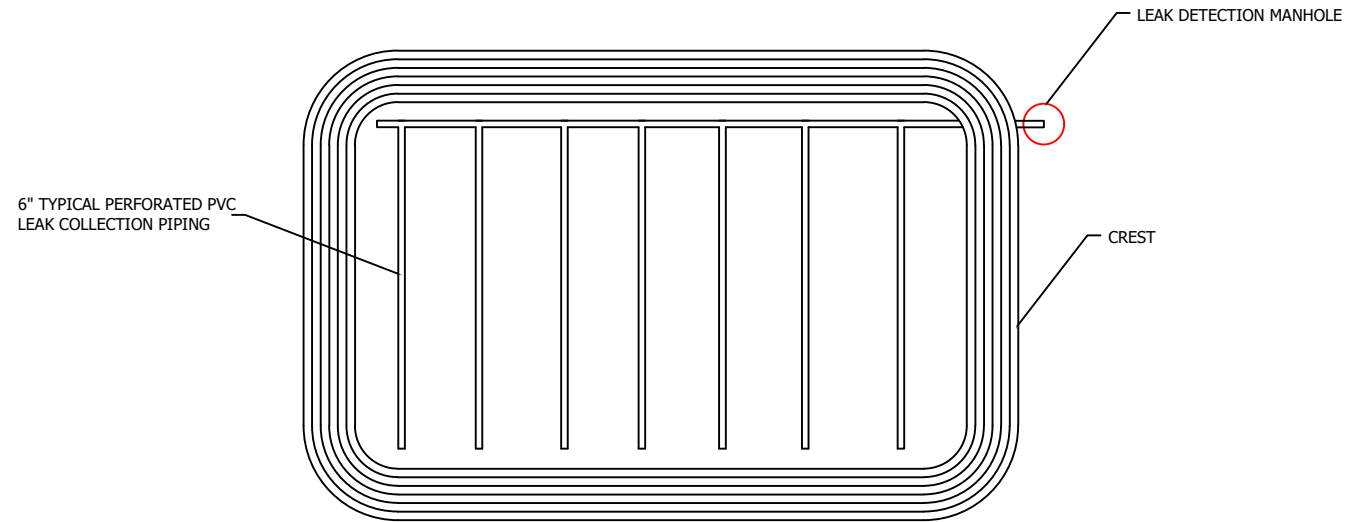
SCALE AS SHOWN



LOCATION	DUCHESNE COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	PLAN & PROFILE POND 6 NORTH TO SOUTH

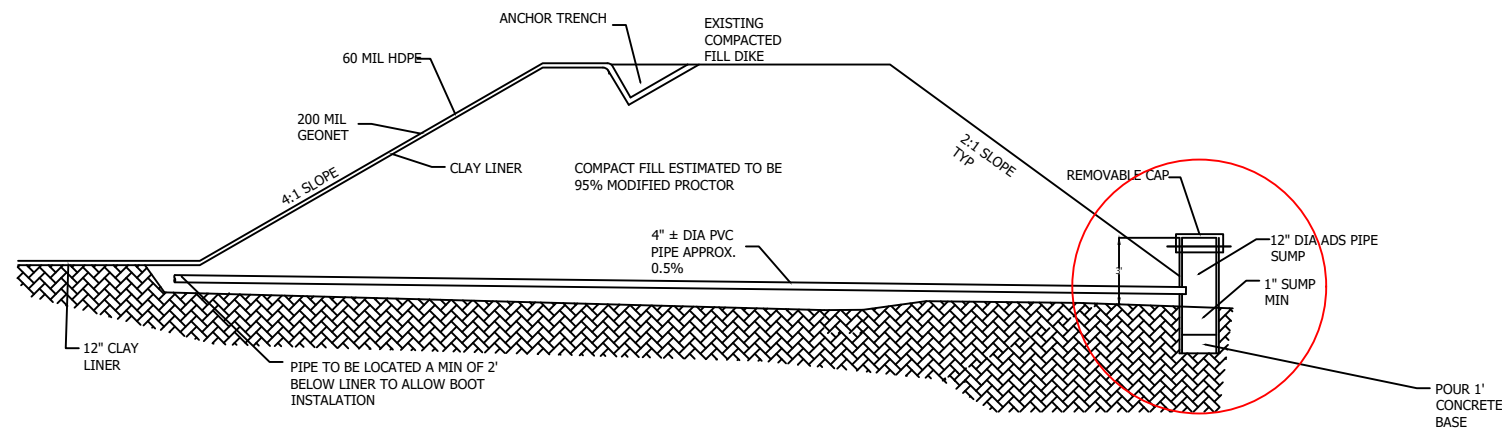
B-5

NO



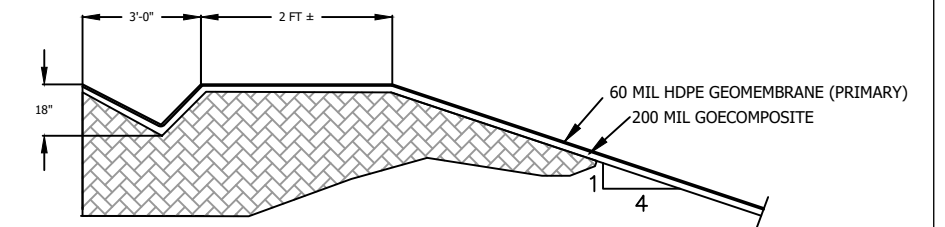
TYPICAL LEAK PIPING PLAN

LEAK COLLECTION PIPING IS SHOWN AS HAS BEEN DESCRIBED BY THE POND BUILDERS. IT IS AT BEST AN APPROXIMATE REPRESENTATION OF WHAT HAS BEEN INSTALLED. ACTUAL PIPE MATERIALS, SLOPES, PERFORATIONS, AND INSTALLATION DETAILS ARE UNKNOWN.



LEAK DETECTION DETAIL

(VERTICAL OR HORIZONTAL)
NOT TO SCALE



TYPICAL ANCHOR TRENCH (4:1 SLOPE)

NOT TO SCALE

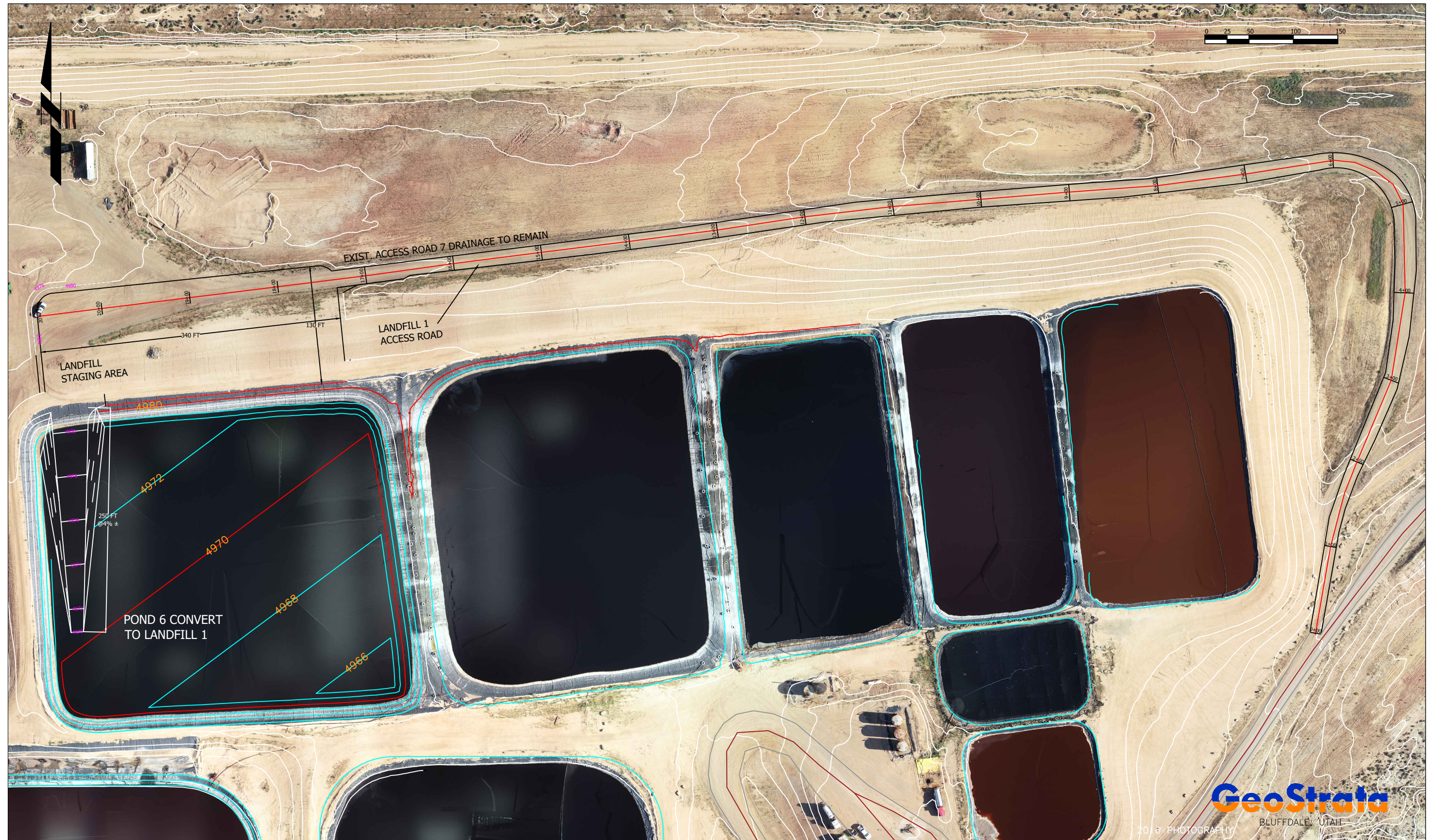


REV	DATE	BY	DESCRIPTION
A	10-18-19	BER	PERMIT DRAWINGS

SCALE
AS SHOWN



LOCATION	UINTAH COUNTY, UTAH	B-6
PROJECT	ACE DISPOSAL LANDFILL	
TITLE	LANDFILL DETAIL	NO



REV	DATE	BY	DESCRIPTION
A	10-18-19	BER	PERMIT DRAWINGS

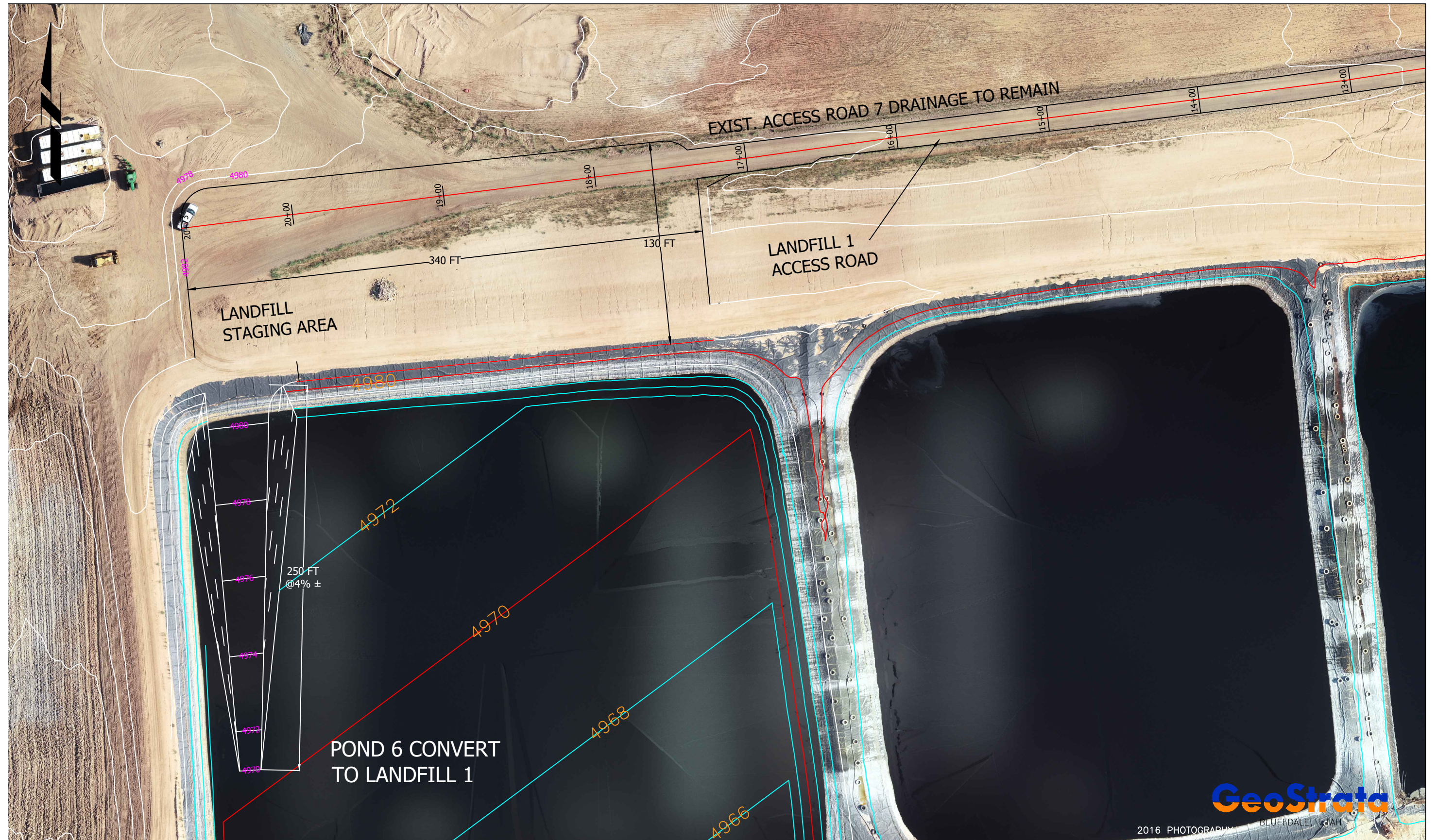
SCALE
AS SHOWN



LOCATION	UINTAH COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	WORK SITE DETAIL

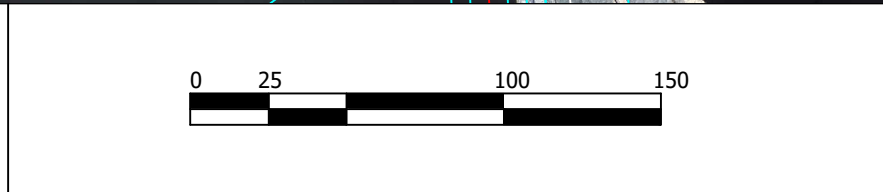
NO

B-7
NO



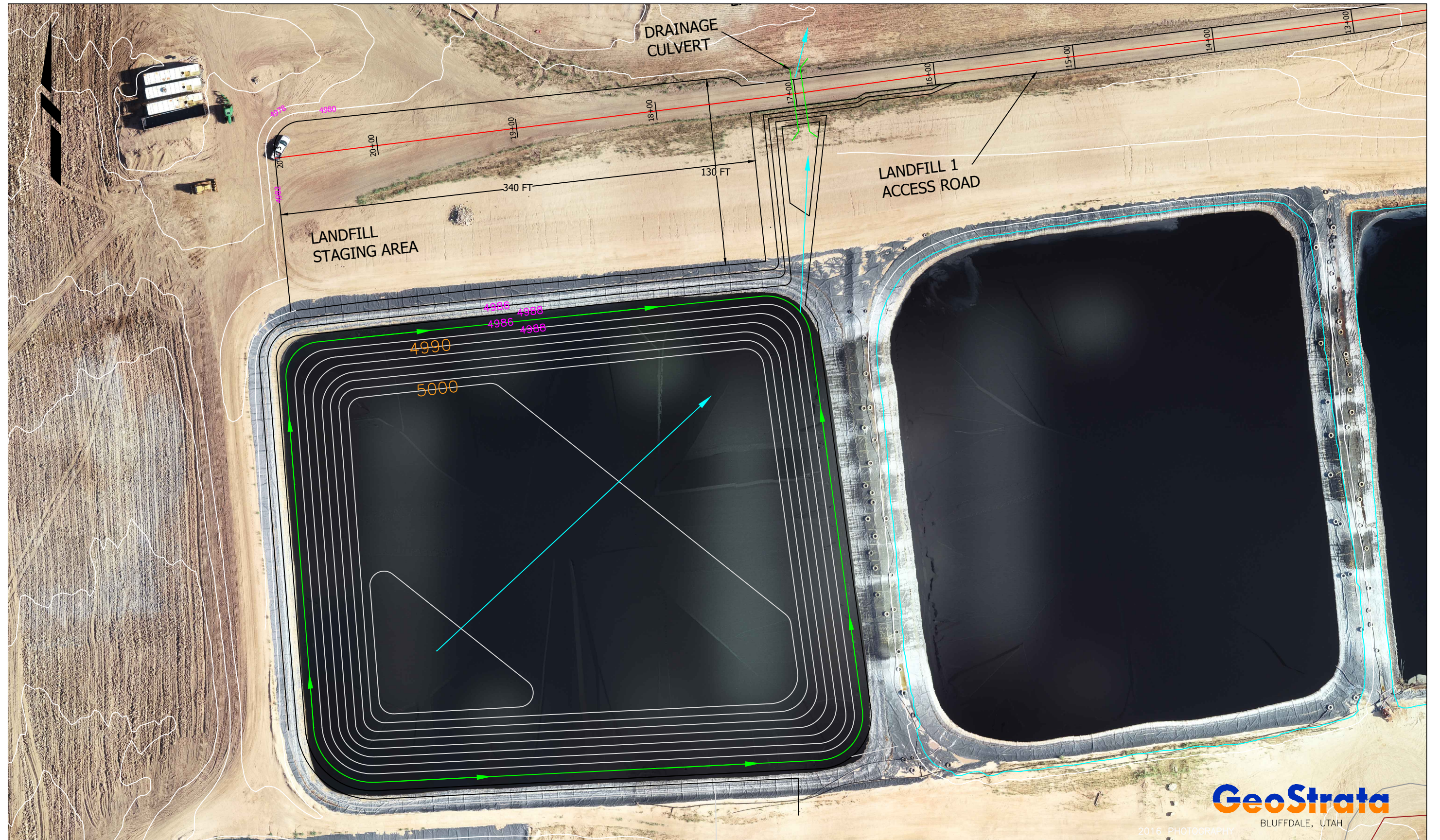
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A	10-18-19	BER	PERMIT DRAWINGS

SCALE
AS SHOWN



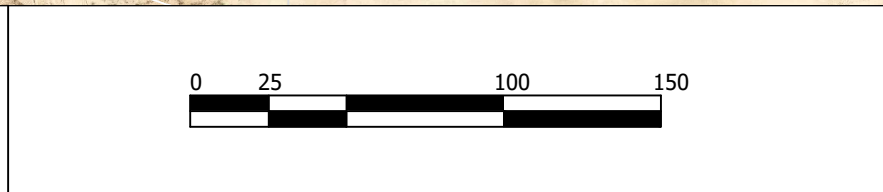
LOCATION	UINTAH COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	STAGING AREA DETAIL

B-8
NO



A	10-18-19	BER	PERMIT DRAWINGS
REV	DATE	BY	DESCRIPTION

SCALE
AS SHOWN

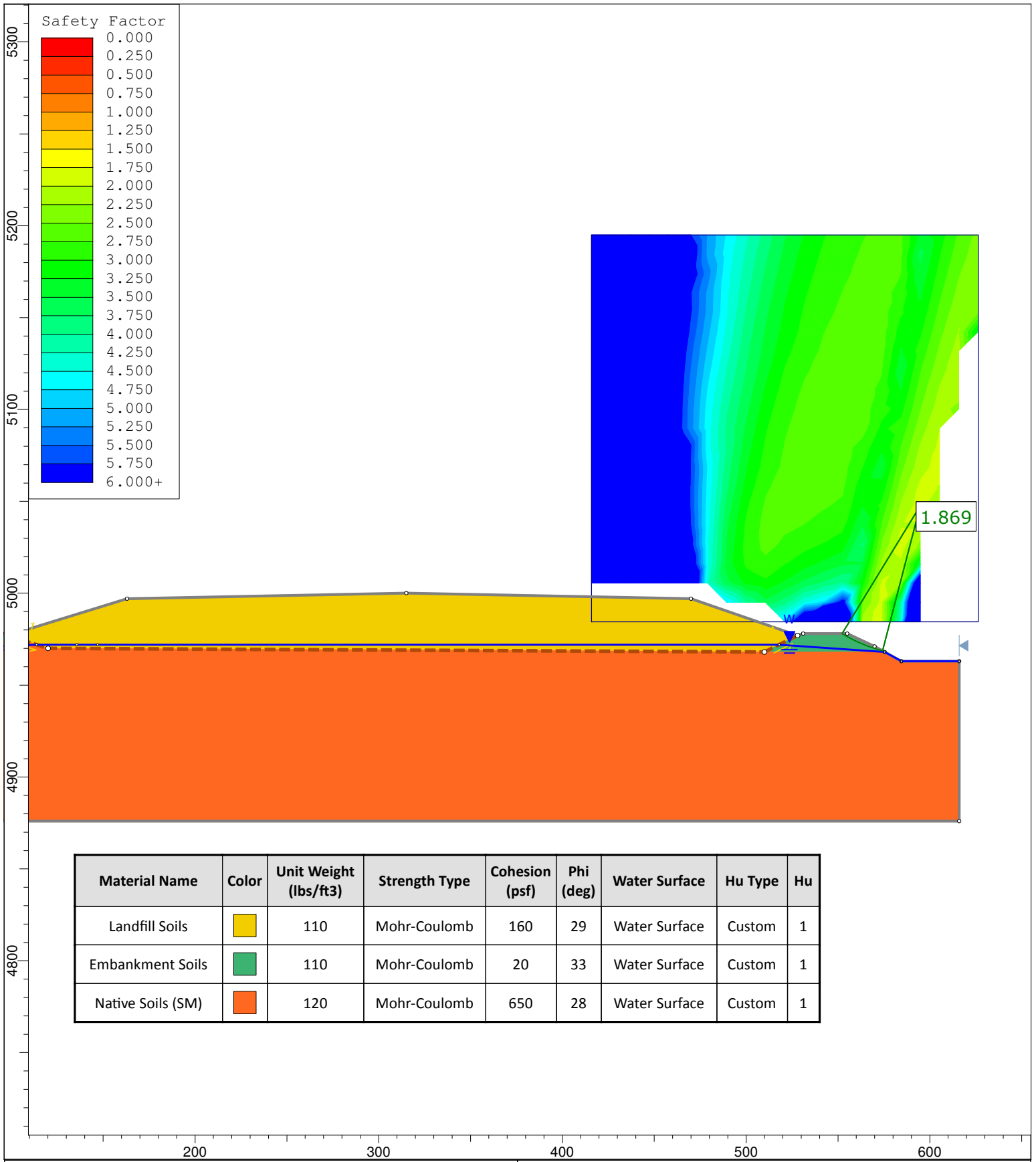
LOCATION	UINTAH COUNTY, UTAH
PROJECT	ACE DISPOSAL LANDFILL
TITLE	STORMWATER DETAIL

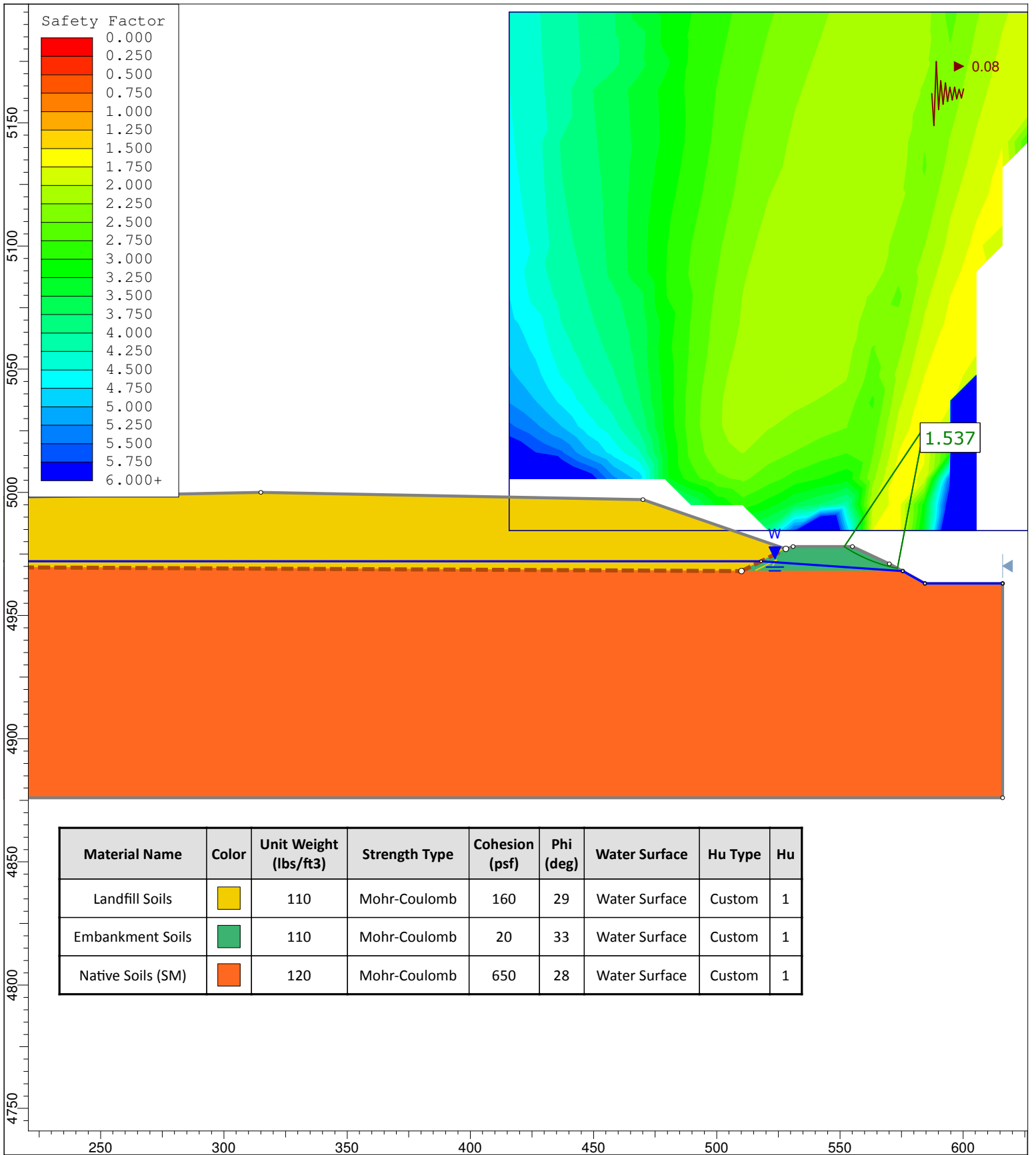
B-9
NO

GeoStrata
BLUFFDALE, UTAH

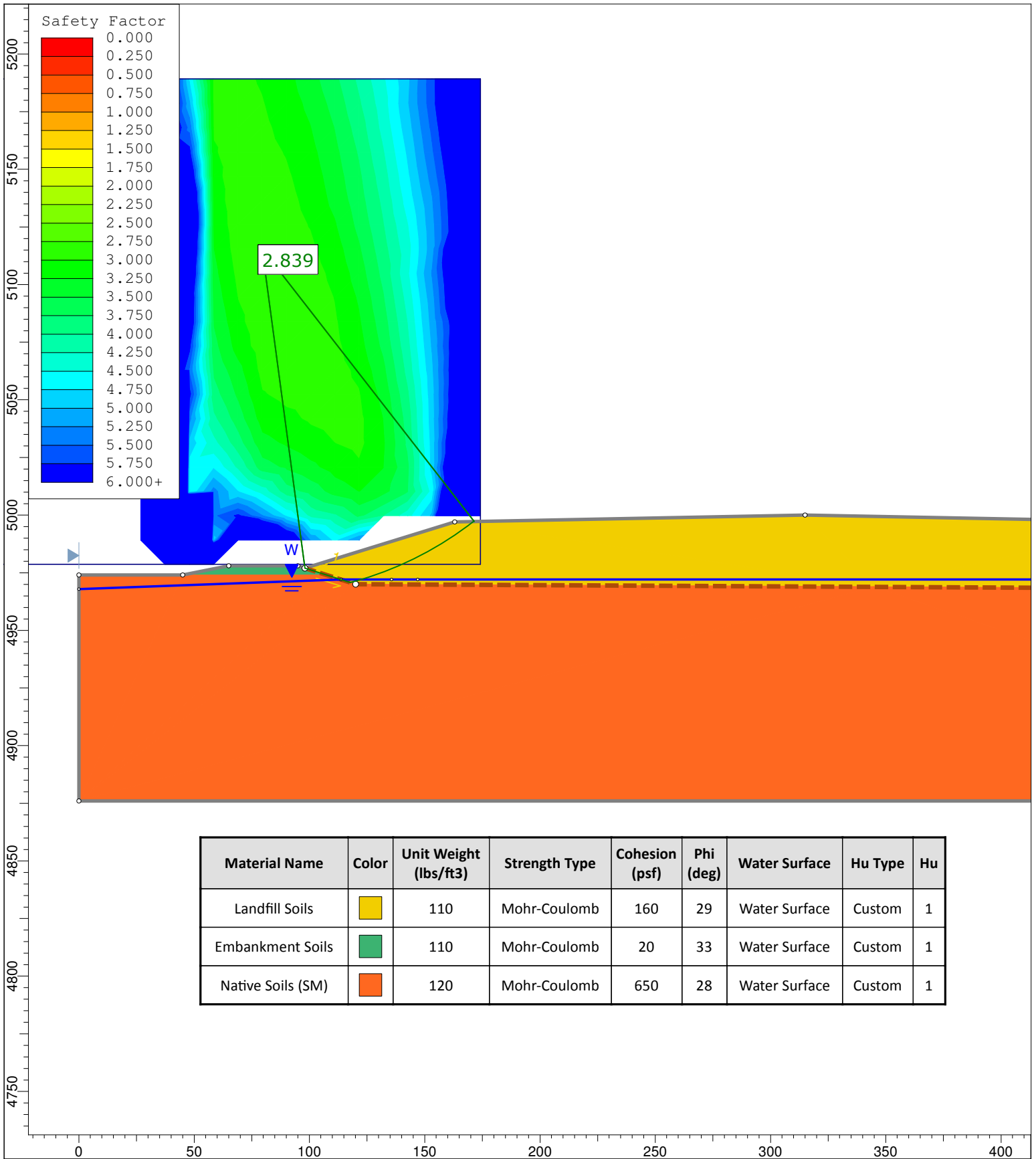
2016 PHOTOGRAPHY




Appendix C

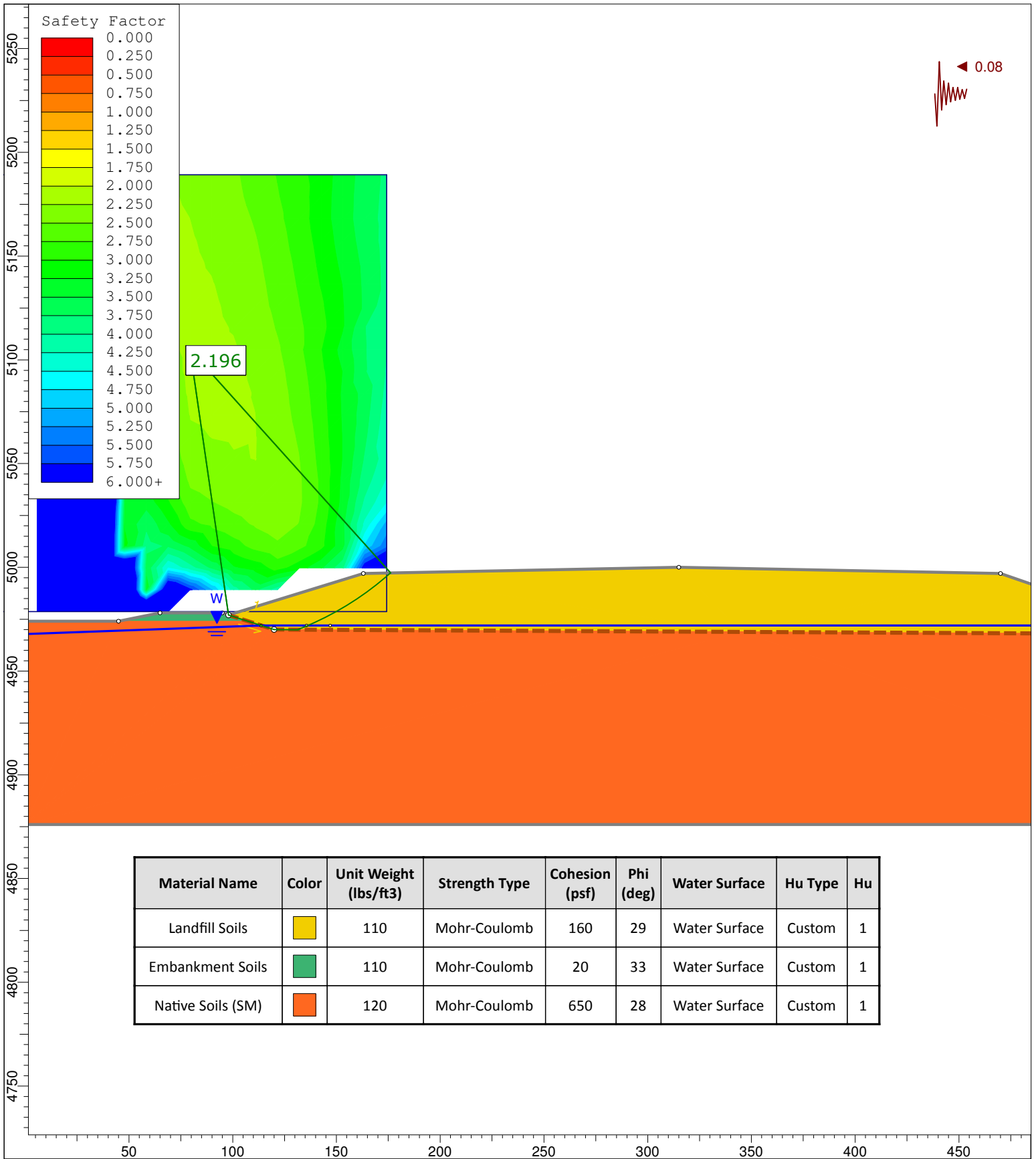







Eastern Embankment PStatic

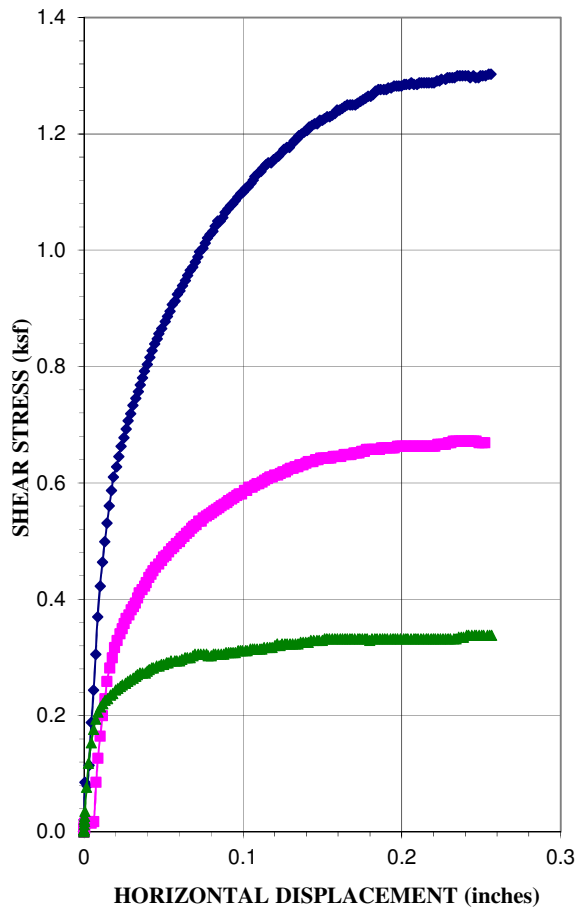
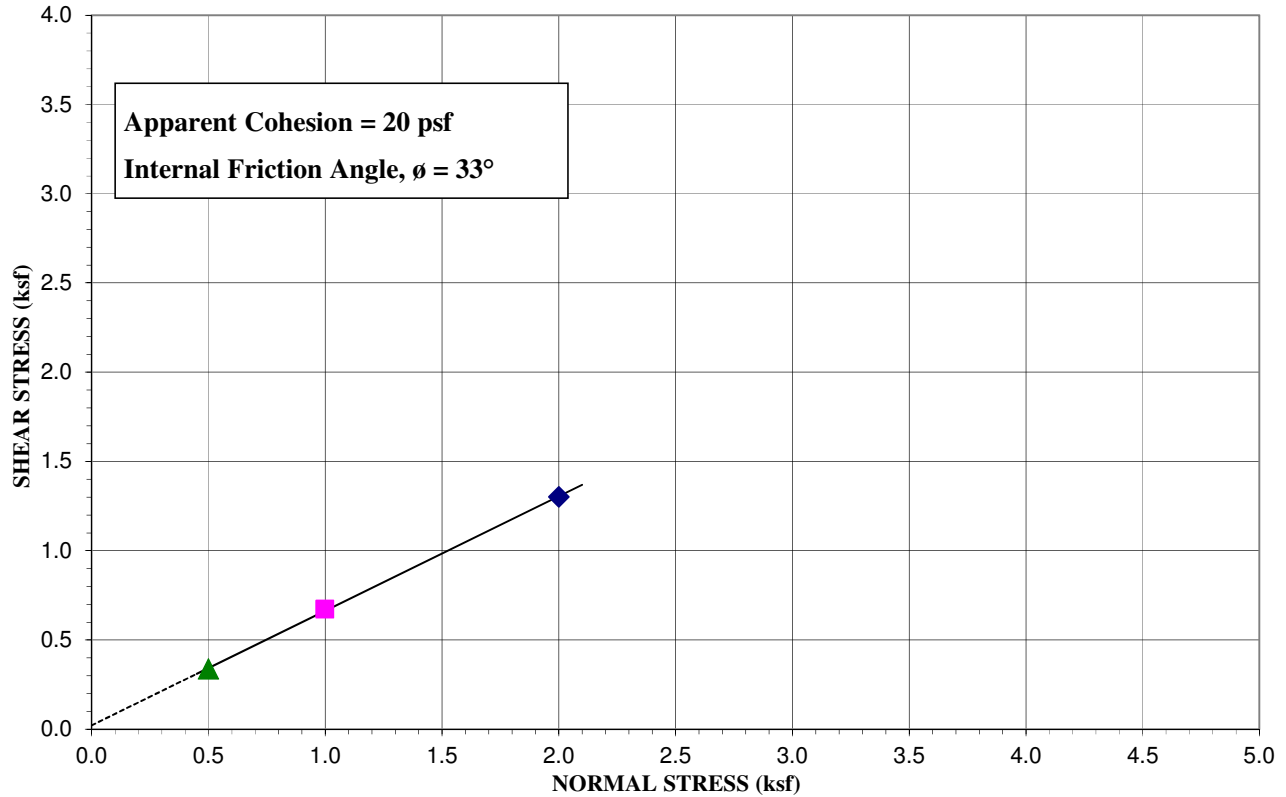


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Landfill Soils		110	Mohr-Coulomb	160	29	Water Surface	Custom	1
Embankment Soils		110	Mohr-Coulomb	20	33	Water Surface	Custom	1
Native Soils (SM)		120	Mohr-Coulomb	650	28	Water Surface	Custom	1



Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Hu
Landfill Soils		110	Mohr-Coulomb	160	29	Water Surface	Custom	1
Embankment Soils		110	Mohr-Coulomb	20	33	Water Surface	Custom	1
Native Soils (SM)		120	Mohr-Coulomb	650	28	Water Surface	Custom	1

DIRECT SHEAR TEST



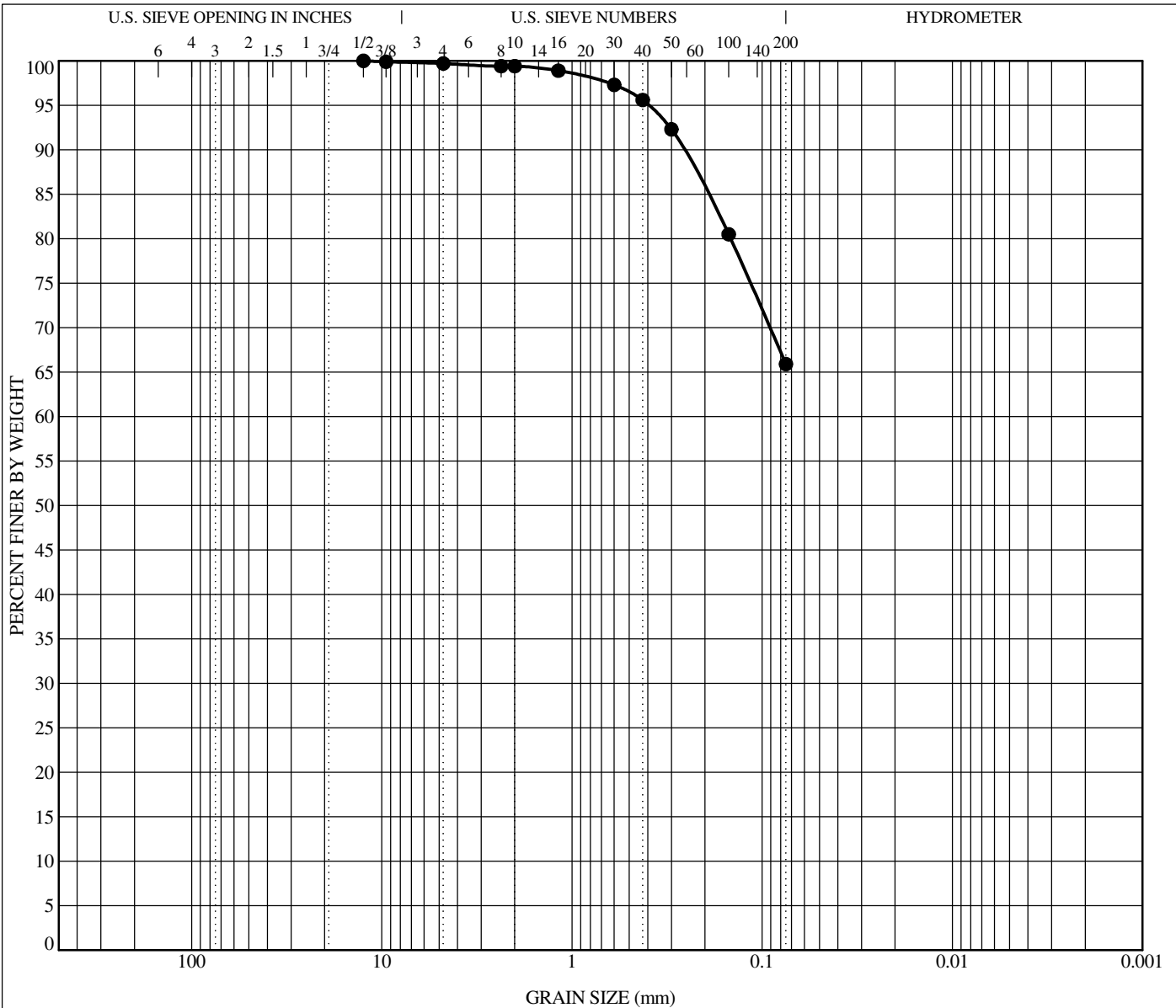
Source:	South @ 0-1 ft
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	1 (◆)	2 (◻)	3 (▲)
Sample Type	Remolded		
Initial Height, in.	1.149	1.158	1.152
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	106.2	106.1	106.4
Dry Density After, pcf	107.5	107.3	107.6
Moisture % Before	2.0	3.2	2.2
Moisture % After	17.8	19.1	20.7
Saturation, % Before	9.7	15.1	10.6
Saturation, % After	87.7	93.5	102.2
Normal Load, ksf	2.0	1.0	0.5
Shear Stress, ksf	1.30	0.67	0.34
Strain Rate	IN/MIN		

Sample Properties	
Cohesion, psf	20
Friction Angle, ϕ	33
Liquid Limit, %	28
Plasticity Index, %	15
Percent Gravel	
Percent Sand	
Percent Passing No. 200 sieve	
Classification	

PROJECT: Ace Landfill Permit

PROJECT NO.: 524-099



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample Location	Depth	Classification					LL	PL	PI	Cc	Cu
● TP-01	1.0	Sandy Lean CLAY					24	13	11		

Sample Location	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP-01	1.0	12.5				0.3	33.8	65.9	

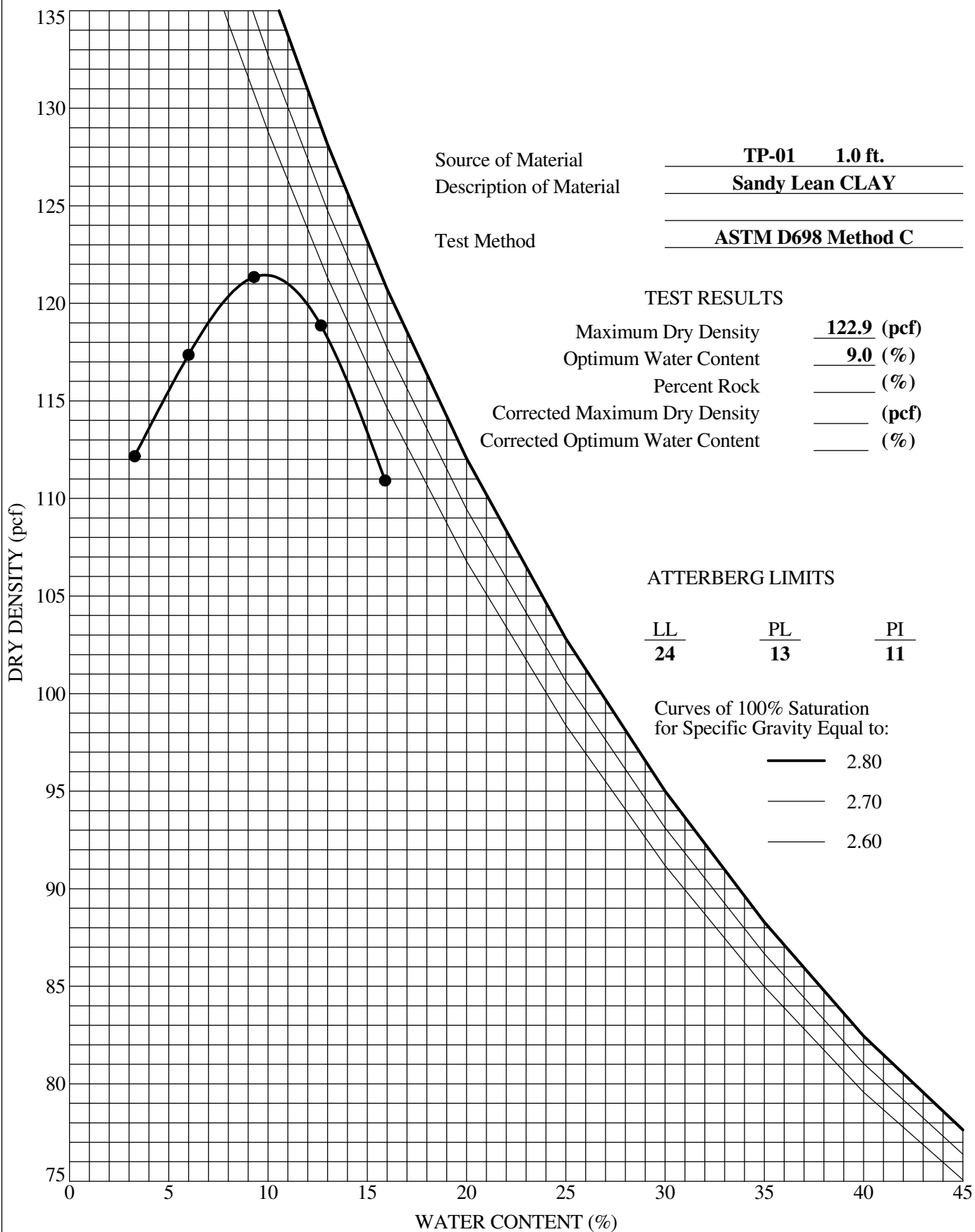
GRAIN SIZE DISTRIBUTION - ASTM D422

RN Industries
Ace Disposal Facility
Utntah County, Utah
Project Number: 524-099

Plate
C - 8



C_GSD_EXPLORATION LOGS.GPJ GEOSTRATA.GDT 11/8/19



Source of Material TP-01 1.0 ft.
 Description of Material Sandy Lean CLAY
 Test Method ASTM D698 Method C

TEST RESULTS

Maximum Dry Density 122.9 (pcf)
 Optimum Water Content 9.0 (%)
 Percent Rock _____ (%)
 Corrected Maximum Dry Density _____ (pcf)
 Corrected Optimum Water Content _____ (%)

ATTERBERG LIMITS

LL PL PI
24 **13** **11**

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.80
- 2.70
- 2.60

COMPACTION TEST



RN Industries
 Ace Disposal Facility
 Uintah County, Utah
 Project Number: 524-099

Plate
C - 9

Appendix D

WASTE SHIPMENT RECORD

Date: _____

Departure Time from Origin: _____

Load ID No.: _____

Arrival Time at Landfill: _____

Generator of Waste: _____

Origin: _____

Quantity (cubic yards):
Estimated Tons (based on unit weight):
Type of Waste:
Description of Waste:

Name of Trucking Company:
Truck Number:
Truck Driver's Name:
Truck Driver's Signature:

COMMENTS:

DATE : _____ TIME : _____

DAILY PERMANENT RECORD

ITEM	YES	NO	COMMENTS
SITE SECURITY			
Perimeter fence and security gate are in good condition?			
Lock functioning and in place?			
ROADS			
Do roads require watering? If so, record in the operator's log the volume of water used and the section of road watered.			
OPERATIONS			
Collect daily landfill gas monitoring levels and compare to Integrated Water Management Health and Safety Plan Action levels. Upgrade PPE if necessary.			
Estimated Weight in Tons of E&P waste received today			
Estimated Volume in Cubic Yards of E&P waste received today			
Estimated Weight in Tons of E&P waste that required treatment prior to disposal in the landfill cell			
Estimated Volume in Cubic Yards of E&P waste that required treatment prior to disposal in the landfill cell			
Estimated Weight in Tons of material added to treat the waste			
Estimated Volume of material added to treat the waste			
Estimated Total Weight in Tons of treated waste			
Estimated Volume in Cubic Yards of treated waste			
Record daily volumes and weights of wastes received, solidified, and placed in the landfill cell.			
Record volume and weight of solidification material used each day.			
Are slopes at which the waste is placed in accordance with the guidance provided by the Project Geotechnical Engineer? If not, contact the Waste Disposal Facility Manager.			
INSPECTION OF GEOCOMPOSITE AND HDPE LINER UNTIL FULLY COVERED			
Are geocomposite and HDPE anchors in place and in good condition?			
Is the geocomposite and/or HDPE systems free of rips, excessive weathering, or excessive tension? Monitor daily until the geocomposite layer is completely covered with waste or a protective layer of soil.			
SURFACE WATER MONITORING			
Check daily during March, April and May of each year. Is there water flowing in the ephemial stream near monitoring wells XXXX and YYYYY? If so, call the Waste Disposal Facility Manager by the end of the day to make arrangements for annual surface water sampling.			
EMBANKMENT			
Inboard Slope			
Has the geofabric material been covered by soil or water within two weeks of placement? If not, cover with at least 4 inches of soil by the end of the day.			
NOTES: (Record any other significant issues below. Fill out additional pages and attach if necessary.)			
If any checks appear in the "No" column, provide a detailed description of what you observed, including: accurate location, extent of affected area, and a description of the condition. Refer to the Operations Manual, initiate the prescribed corrective action and estimate time of completion. Inform the appropriate Integrated Water Management personnel (Supervisor, and/or Environmental Manager) per the Operations Manual and document the corrective action taken (notes, photos, etc.)			
Completed By:			
Name _____	Signature _____		

DATE: _____

TIME: _____

WEEKLY PERMANENT RECORD

ITEM	YES	NO	COMMENTS
SITE SECURITY			
Fire extinguisher is charged, not exceeding inspection deadline?			
Spill kits are stocked on site?			
Emergency eyewash stations are functioning properly and well stocked?			
Signage visible and in good condition?			
Warning signage every 250 feet of exterior fencing and at closest approach of gravel road?			
OPERATIONS			
If there is water in the leachate collection system? If so, remove and record volume transferred to Evaporation Pond 1.			
If there is water in the leak detection sump? If so, remove and record volume transferred to Evaporation Pond 1. Call the landfill Supervisor to inform him.			
Estimated Weight in Tons of E&P waste received this week			
Estimated Volume in Cubic Yards of E&P waste received this week			
Estimated Weight in Tons of E&P waste that required treatment prior to disposal in the landfill cell this week			
Estimated Volume in Cubic Yards of E&P waste that required treatment prior to disposal in the landfill cell this week			
Estimated Weight in Tons of material added to treat the waste this week			
Estimated Volume of material added to treat the waste this week			
Estimated Total Weight in Tons of treated waste this week			
Estimated Volume in Cubic Yards of treated waste this week			
Record weekly volumes and weights of wastes received, solidified, and placed in the landfill cell.			
Record volume and weight of solidification material used each week.			
GROUNDWATER MONITORING			
Check depth to groundwater from top of well casing weekly during March, April and May.			
Is there groundwater present in wells XXXX, YYYYY and ZZZZ?. If so, call the Waste Disposal Facility Manager by the end of the day to arrange for annual groundwater sampling. (Once sampling is completed, monitoring of groundwater levels can be discontinued for the year. Measure water levels from the top of well casing to the nearest 1/100 th of a foot)			
EMBANKMENT			
Crest			
Are there any signs of erosion gullies greater than 6 inches deep?			
Are there any signs of settlement, cracks slides, slumps, boils, sinkholes or other?			
Outboard Slope to 10 feet past the Toe			
Are there any signs of erosion gullies greater than 6 inches deep?			
Are there any signs of settlement, cracks slides, slumps, boils, sinkholes or other?			
Are ther any debris or weeds that prevent the inspection?			
Are there new signs of seepage (ie: flows of water, wet spots, or ponding)?			
Is there evidence of burrowing animals?			
Are the diversion channels serviceable and unobstructed?			
NOTES:			
(Record any other significant issues below. Fill out additional pages and attach if necessary.)			
If any checks appear in the "No" column, provide a detailed description of what you observed, including: accurate location, extent of affected area, and a description of the condition. Refer to the Operations Manual, initiate the prescribed corrective action and estimate time of completion. Inform the appropriate Integrated Water Management personnel (Supervisor, and/or Environmental Manager) per the Operations Manual and document the corrective action taken (notes, photos, etc.)			
Completed By:			
_____	_____		
Name	Signature		

RNI Emergency Response	
RNI Incident Manger	Phone Number
Austin Weddle	435-790-6690

Local Emergency Contacts		
Local Reponders	Phone Number	Address
Uintah County Emergency Management	435-781-5466	24554 W 9000 S Duchesne, Ut 84021
Uintah Fire District	435-781-6755	21554 W 9000 S Duchesne, Ut 84021
Uintah County Sheriff's Office	435-789-2511	21554 W 9000 S Duchesne, Ut 84021
Uintah Basin Medical Center	435-722-4691	250 W 300 N Roosevelt, Ut 84066

OPERATIONS PLAN

ACE LANDFILL

PERSONNEL TRAINING PLAN



2019

Prepared by:

**RN INDUSTRIES
355 South 1000 East
Vernal, Utah 84078**

TABLE OF CONTENTS

<u>Section No.</u>	<u>Page No.</u>
1.0 TRAINING PLAN.....	1
1.1 Initial Training Program	1
1.2 General Safety Training	1
1.3 E & P Waste General Training.....	2
1.4 Site-Specific Training for EP Waste Management Operations	3
2.0 ANNUAL REFRESHER TRAINING.....	3
3.0 IMPLEMENTING THE TRAINING PROGRAM.....	3
4.0 OPTIONAL EXTERNAL TRAINING.....	4
5.0 JOB TITLES AND JOB DESCRIPTIONS.....	4
6.0 PERSONNEL TRAINING RECORDS	5

ATTACHMENTS

Attachment 6-A Employee Training Record Form

1.0 TRAINING PLAN

Personnel involved in the onsite management and disposal of exploration and production (E & P) wastes are required to undergo an initial and continuing training program designed to ensure safe and efficient handling of E & P wastes and to maintain compliance with applicable regulations found in 6 CCR 1007-2 Section 17.2.2(H). The training consists of a program of classroom instruction, on-the-job training, general safety training, and specific training for E & P waste management operations. The training teaches employees how to operate the evaporation pond waste management units in ways to ensure that the facility remains in compliance with applicable regulations and the facility operates safely and efficiently. Employees will complete the required training within two months of the date of their employment, transfer, or new assignment at the facility. Employees hired will not work in unsupervised positions until they have completed the training requirements covered in the following sections.

1.1 Initial Training Program

The initial training program consists of classroom instruction directed by a person trained in all facets of the RN Industries (RNI) prepared Compliance and Task Training (CATT). The CATT consists of an initial 5 day course that covers health, safety and environmental training, which incorporates the Department of Transportation (DOT) Compliance, Defensive Driving (Certified through Smith System), Exxon Pre-mobilization, OSHA 10-hour Compliance, Brake Certification, H₂S Certification, and CPR/First Aid Certification. The majority of the information provided is supplied by a training professional who incorporates numerous types of media including videos, handouts, manuals, and props to train RNI employees. Actual certification documents are given to each employee at the end of the course and when all portions of the CATT are completed, a CATT "Passport" is provided to them showing full compliance with the CATT training requirements. Operation and maintenance supervisors, health and safety personnel, technicians, truck drivers, and all support staff that work at the facility are required to attend the training.

1.2 General Safety Training

As part of the CATT, RNI personnel will be trained in general site safety and contingency plan procedures. These procedures include:

- Site safety;
- Emergency procedures and equipment;
- Fire prevention and control;
- Spill prevention and control;
- Contingency plan implementation;
- Safe waste loading and unloading;
- Proper inspection of facilities and equipment; and
- Proper record keeping.

Employees are trained in the following emergency response procedures:

- Use, inspection, repair, and replacement of monitoring and emergency equipment;
- Use of the communication and alarm systems that consist of two-way radios, telephones, and fire pull boxes;
- Response to chemical hazards;
- Use of personal protective equipment required for the job function;
- Response to fire, explosion, or spills, including use of the proper fire extinguishing agent for a particular type of fire, and proper containment practices for spills;
- Response to surface discharge incidents;
- Shutdown of operations;
- Implementation of contingency plans; and
- Evacuation procedures.

1.3 E & P Waste General Training

The initial training program for E & P wastes consists of classroom instruction by a person trained in E & P waste management procedures. Specific E & P waste training is provided to each RNI employee as part of the CATT. The majority of the E & P waste information provided is supplied by a training professional who incorporates numerous types of media including videos, handouts, manuals, and props to train RNI employees. The training provides general information concerning the management of E & P waste and information about the training required before employees can handle E & P wastes. The training is aimed at understanding the principle operations of the facility. It advances the employees knowledge of produced water and hydrocarbon management and should help ensure a safer working environment.

The training describes the systems that are utilized and operated at the facility. The facility layout, basic design principles, hazards associated with working with produced water and large evaporation ponds, and the precautions and safety measures are presented to each employee to promote understanding of the facility and to raise the employees' awareness of the health and safety hazards on the site.

The information covered shall include:

- An overview of the regulatory framework covering E & P waste;
- Defining E & P wastes;
- Segregation of wastes (incompatible wastes);
- Recognition of hazardous and prohibited wastes;
- Waste determination;
- Record Keeping; and
- Emergency procedures.

1.4 Site-Specific Training for E & P Waste Management Operations

As part of the on-site site-specific training, Bluebell facility personnel will also be trained according to their specific job descriptions where they involve E & P waste management activities. Training shall include:

- Operational procedures for the specific area;
- The hazards of the waste managed in the area;
- Review of Material Safety Data Sheets (MSDS);
- Facility monitoring and inspection procedures;
- Record keeping and any reporting requirements;
- Spill response and proper disposal of any E & P waste that is remediated;
- Execution of emergency and contingency plans;
- Sampling procedures for analytical testing;
- General inspection and maintenance;
- Procedures for accepting bulk deliveries;
- Procedures for inspecting trucks and feed lines before and after bulk deliveries;
- Spill containment aspects of facility design; and
- Spill containment equipment such as absorbent materials.

Site specific training will involve the new or transferred employee spending at least 3 days with his/her supervisor learning the facility processes, operations, documentation, site specific health and safety hazards, site specific environmental hazards, site specific emergency procedures, site specific contingency plans, and knowledge of the Ace Landfill Permit Application and UDWMRC Permit. The new or transferring employee will be directly supervised by the supervisor a minimum of 3 days after the employee has received his/her RNI "Passport." If the employee has not received the RNI "Passport," he/she will not be allowed on the site unsupervised until the RNI "Passport" is received.

2.0 ANNUAL REFRESHER TRAINING

As part of the overall CATT refresher training, personnel assigned to E & P waste management activities shall complete an annual continuing training program. The annual training, specific to E & P wastes, will include a review of the E & P waste training information presented in the initial training as well as any new information relevant to the handling of E & P waste, including safety incidents or infractions observed or noted within the industry.

3.0 IMPLEMENTING THE TRAINING PROGRAM

All new employees will complete the required training within two months of beginning employment. During the initial two months of employment, on-the-job training will be provided by a supervisor that has completed the required training in each of the preceding subject areas.

4.0 OPTIONAL EXTERNAL TRAINING

External training resources may be utilized to provide or supplement the required training. Personnel may be trained by various private companies or governmental agencies to meet the requirements specified in this training plan.

5.0 JOB TITLES AND JOB DESCRIPTIONS

Environmental Manager: The Environmental Manager is responsible for ensuring that personnel receive the required training from qualified personnel or other sources regarding all aspects of E & P waste management at the Ace facility. The Environmental Manager will periodically attend formal seminars on E & P waste management. The Environmental Manager will not be located at the facility; however, through periodic visits, established compliance programs, and supervision of operation personnel, the Environmental Manager will support compliance of the Ace facility.

Operations Manager: The Operations Manager is responsible for overall operation of the facility and operational compliance with environmental and safety requirements. The Operations Manager directs all activities of the facility consistent with permit conditions and applicable environmental regulations.

Landfarm Supervisor: The Landfarm Supervisor directs all personnel and operations involving the landfarm, mud pits, and filter press. The Landfarm Supervisor will provide direction to equipment operators, perform regulatory compliance sampling of landfarmed soils, and coordinate with the Operations Manager and the Fluids Supervisor.

Landfill Supervisor: The Landfill Supervisor directs all personnel and operations involving the landfill, The Landfill Supervisor will provide direction to the equipment operators and coordinate with the Operations Manager.

Fluids Supervisor: The Fluids Supervisor manages produced water offloading, condensate and crude oil decanting, delivery of waste semisolids to the mud pits, and leak detection monitoring. The Fluids Supervisor will provide direction to equipment operators and coordinate with the Operations Manager and the Landfarm Supervisor.

Field Technician: The Field Technician is responsible for overseeing the offloading of the produced water from the tanker trucks. The Field Technician verifies that there is sufficient capacity in the oil water separator, surge/skim pond, evaporation ponds and other vessels so that the transfer of wastewater can occur efficiently and without incident.

Equipment Operator: The Equipment Operator is responsible for operating the heavy equipment on the site. Equipment may include forklifts, backhoes, excavators, bull dozers, or other heavy equipment.

Truck Driver: The Truck Driver is responsible for ensuring the produced water is safely transported to the facility. The Truck Driver is responsible for offloading wastewater from the truck in a safe and efficient manner.

6.0 PERSONNEL TRAINING RECORDS

Records of personnel training will be documented and maintained at the facility. The records need to incorporate the following information:

- The name of the employee performing that job and the job title for each position at the Bluebell facility related to E & P waste management
- A written job description for each position involved in E & P waste management. This description will include the requisite skill, education, or other qualifications and duties of employees assigned to each position
- A written description of the type and amount of both introductory and continuing training that will be given to the person filling the position
- Records documenting that the required training or job experience has been completed by the employee filling the position.

Training records on current personnel will be kept until closure of the facility. Training records on former employees will be kept for at least three years from the termination date of the employee. Non-site specific training records may accompany an employee that is being transferred within the company. Attachment 6-A contains an Employee Training Record Form specific to E & P Waste Management.

Attachment 6-A Employee Training Record Form

Personnel Training Plan

Name: _____

Hire Date: _____

Job Title: _____

Job Description: _____

Initial Training

Annual Refresher Training

The above employee has received the following RNI-specific training which is appropriate for the job description. Check all boxes that apply.

I have completed the initial RNI-prepared Compliance and Task Training (CATT) and received my "Passport."

I have completed general training that describes health and safety issues associated with working with exploration and production wastes.

I have received site-specific health and safety training at all of the facilities I will be expected to work at.

I understand how to distinguish hazardous wastes and incompatible wastes from wastes normally received by RNI facilities.

I understand how to implement the contingency plan in the event of a large spill or release.

I understand how to implement emergency response measures in the event there is an emergency onsite.

I understand that annual refresher training is required while I am employed with RNI.

Employee Signature

Date

Supervisor/Trainer Signature

Date

METHOD 9095B

PAINT FILTER LIQUIDS TEST

1.0 SCOPE AND APPLICATION

1.1 This method is used to determine the presence of free liquids in a representative sample of waste.

1.2 The method is used to determine compliance with 40 CFR 264.314 and 265.314.

2.0 SUMMARY OF METHOD

2.1 A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-min test period, the material is deemed to contain free liquids.

3.0 INTERFERENCES

3.1 Filter media were observed to separate from the filter cone on exposure to alkaline materials. This development causes no problem if the sample is not disturbed.

3.2 Temperature can affect the test results if the test is performed below the freezing point of any liquid in the sample. Tests must be performed above the freezing point and can, but are not required to, exceed room temperature of 25 °C.

4.0 APPARATUS AND MATERIALS

4.1 Conical paint filter -- Mesh number 60 +/- 5% (fine meshed size). Available at local paint stores such as Sherwin-Williams and Glidden.

4.2 Glass funnel -- If the paint filter, with the waste, cannot sustain its weight on the ring stand, then a fluted glass funnel or glass funnel with a mouth large enough to allow at least 1 in. of the filter mesh to protrude should be used to support the filter. The funnel should be fluted or have a large open mouth in order to support the paint filter yet not interfere with the movement, to the graduated cylinder, of the liquid that passes through the filter mesh.

4.3 Ring stand and ring, or tripod.

4.4 Graduated cylinder or beaker -- 100-mL.

5.0 REAGENTS

5.1 None.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

A 100-mL or 100-g representative sample is required for the test. If it is not possible to obtain a sample of 100 mL or 100 g that is sufficiently representative of the waste, the analyst may use larger size samples in multiples of 100 mL or 100 g, i.e., 200, 300, 400 mL or g. However, when larger samples are used, analysts shall divide the sample into 100-mL or 100-g portions and test each portion separately. If any portion contains free liquids, the entire sample is considered to have free liquids. If the sample is measured volumetrically, then it should lack major air spaces or voids.

7.0 PROCEDURE

7.1 Assemble test apparatus as shown in Figure 1.

7.2 Place sample in the filter. A funnel may be used to provide support for the paint filter. If the sample is of such light bulk density that it overflows the filter, then the sides of the filter can be extended upward by taping filter paper to the inside of the filter and above the mesh. Settling the sample into the paint filter may be facilitated by lightly tapping the side of the filter as it is being filled.

7.3 In order to assure uniformity and standardization of the test, material such as sorbent pads or pillows which do not conform to the shape of the paint filter should be cut into small pieces and poured into the filter. Sample size reduction may be accomplished by cutting the sorbent material with scissors, shears, a knife, or other such device so as to preserve as much of the original integrity of the sorbent fabric as possible. Sorbents enclosed in a fabric should be mixed with the resultant fabric pieces. The particles to be tested should be reduced smaller than 1 cm (i.e., should be capable of passing through a 9.5 mm (0.375 inch) standard sieve). Grinding sorbent materials should be avoided as this may destroy the integrity of the sorbent and produce many "fine particles" which would normally not be present.

7.4 For brittle materials larger than 1 cm that do not conform to the filter, light crushing to reduce oversize particles is acceptable if it is not practical to cut the material. Materials such as clay, silica gel, and some polymers may fall into this category.

7.5 Allow sample to drain for 5 min into the graduated cylinder.

7.6 If any portion of the test material collects in the graduated cylinder in the 5-min period, then the material is deemed to contain free liquids for purposes of 40 CFR 264.314 and 265.314.

8.0 QUALITY CONTROL

8.1 Duplicate samples should be analyzed on a routine basis.

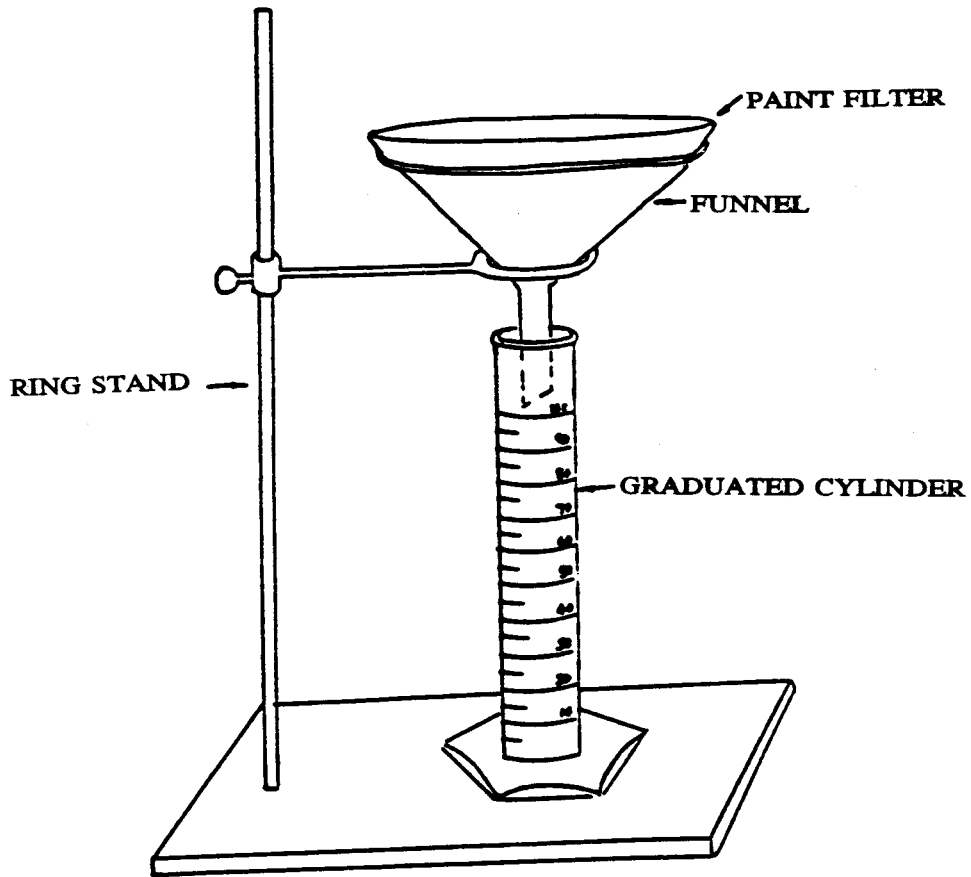
9.0 METHOD PERFORMANCE

9.1 No data provided.

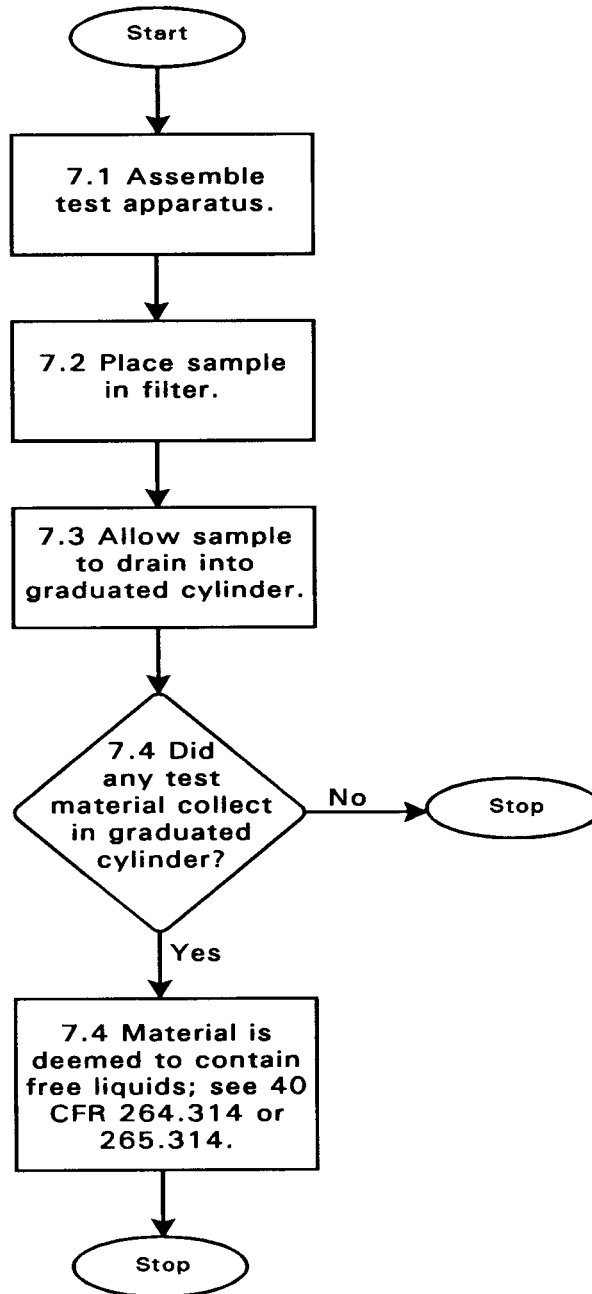
10.0 REFERENCES

10.1 None provided.

FIGURE 1
PAINT FILTER TEST APPARATUS

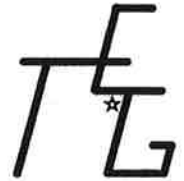


METHOD 9095B
PAINT FILTER LIQUIDS TEST





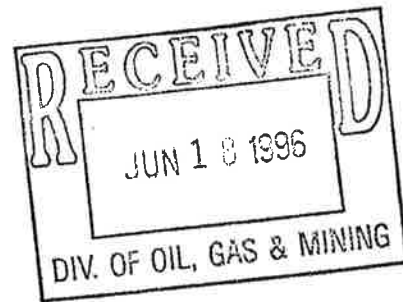
Freston Ostler Vernon & Associates, Inc.
The Engineering Group



P.O. Box 1758 • 185 North Vernal Avenue, Suite 2 • Vernal, Utah 84078
Telephone: (801) 789-0541 • Fax: (801) 789-4485 • Lab: (801) 781-2113

June 12, 1996

James W. Carter, Director
Division of Oil, Gas & Mining
355 West North Temple, Suite 350
Salt Lake City, Utah 84180



Re: Ace Disposal Ponds near Vernal, Utah

Dear Mr. Carter:

This letter is being written to request the addition of four (4) disposal ponds to the existing disposal site. The attached drawing will show the location of these four proposed pond (#5-#8). The location of these ponds is consistent with the original application file on March 1, 1988 by Valley Engineering, Inc. and the original permit as approved by your office. We have examined the site and determined the soils are consistent with the original reports. I am enclosing for your review a copy of the original application and reports for this project along with the revised site plan showing the new disposal ponds.

Your review and approval of this request will be greatly appreciated.

If you have any additional question or require any additional information, please feel free to contact me.

Sincerely,

Troy D. Ostler, PE
The Engineering Group

enclosure

TDO:tdo

cc: Mike Keele - Owner
Project File

Randy L. Freston
Res. 722-3034

Troy D. Ostler, P.E.
Res. 789-8529

Russell M. Vernon, P.E.
Res. 789-6466

(Formerly Uintah Engineering, Inc.)

July 11, 1996

Troy D. Ostler
The Engineering Group
P.O. Box 1758
185 North Vernal Avenue, Suite 2
Vernal, Utah 84078

Re: Permit Application For Ponds #5-#8, Ace Disposal, Uintah
County, Utah

Dear Mr. Ostler,

The Division has received and reviewed the application for construction and use of four additional ponds at the Ace Disposal facility. Additional information is needed in order for DOGM to grant an approval to this application.

1. Specific information concerning the proposed artificial liner is needed. The information dated 1988 describes a soil-bentonite liner, which is no longer allowed at commercial facilities.
2. A description and diagram of the proposed leak detection system should also be included. DOGM currently prefers that leak detection lines be placed on 50 foot centers with a horizontal drain line to an observation manhole or sump.
3. Please also include a set of updated cross-sectional diagrams indicating the proposed design parameters for construction of the dikes.

I am enclosing a current set of the oil and gas rules with the pertinent sections highlighted. If you have any questions concerning this request please call Brad Hill (801-538-5315) or Gil Hunt (801-538-5297).

Sincerely,

Brad Hill
Geologist

Division of Oil, Gas & Mining

General Requirements for the Leak Detection System

- 1.1 The material directly underneath the artificial pit liner shall have a permeability rate of at least 1.0×10^{-2} cm/sec. or greater. Underneath this material there will be at least one foot thick of compacted native soil, compacted in six inch lifts.
- 1.2 A trench will be dug down the center of the pond, and trunk lines will be dug every 50' on both sides of the main lateral line leading to the Leak Detection Sump. The trunk lines will reach out 75' on both sides of the main lateral line.
- 1.3 4" perforated pipe will lay in the bottom of the main lateral and trunk lines. The 4" perforated pipe will have ¼" holes in the top of the pipe spaced every 3" apart.
- 1.4 The main lateral leading to the Leak Detection Sump will have 2" to 3" drop every 100'.
- 1.5 After the piping is in, 6" to 8" of ½" to 1" max drain rock will be put on top of the pipe. Then there will be a layer of permeable material on top of the drain rock.
- 1.6 If leakage is detected, a pump will be placed in the bottom of the leak detection sump and water will be pumped back into the pond. Every possible effort will be made to locate and repair the damaged area with a heat seal patch.
- 1.7 The artificial material (Poly-flex) 60 mil. Polypropolene used in lining the pits is impervious and resistant to weather, sunlight, hydrocarbons, aqueous acids, alkalies, salt, fungi, or other substance; which might be contained in the produced water.
- 1.8 The flexible material will be of sufficient thickness and strength to be resistant to tears and punctures.
- 1.9 The pit will be constructed in relatively impermeable soils and will have an underlying gravel-filled sump and lateral system or suitable leak detection system.
- 2.0 The bottom of the pond is a minimum of 5 feet above any groundwater. 10 holes were dug to depths of 5 to 9 feet. No seepage was found after 24 hours. The closest water well is 360 feet lower and 4.5 miles to the Southeast of the proposed pond site. The wells are along the Green River.



Freston Ostler Vernon & Associates, Inc.
The Engineering Group



P.O. Box 1758 • 185 North Vernal Avenue, Suite 2 • Vernal, Utah 84078
Telephone: (801) 789-0541 • Fax: (801) 789-4485 • Lab: (801) 781-2113

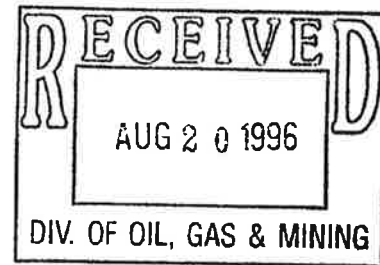
July 30, 1996

James W. Carter, Director
Division of Oil, Gas & Mining
355 West North Temple, Suite 350
Salt Lake City, Utah 84180

Attn: Brad Hill

Re: Ace Disposal Ponds Near Vernal, Utah

Dear Mr. Hill:



This letter is being written to inform you and your office that The Engineering Group will be providing the materials testing and certification of the construction of the above mentioned disposal ponds for Ace Disposal, Inc. of Vernal, Utah

The Engineering Group will provide testing of the materials being placed in the detection system, pond bottoms and dikes. Along with this testing we will also provide on site inspections by a certified materials technician and a Registered Professional Engineer. By providing these services we will be able to certify to your office the construction is in accordance with the permit issued by the State.

If you have any questions or comments concerning this matter, please feel free to contact me.

Sincerely,

Troy D. Ostler, P.E.
The Engineering Group

TDO:kh

cc: Project File (KEELSTAT.TDO)

Randy L. Freston
Res. 722-3034

Troy D. Ostler, P.E.
Res. 789-8529

Russell M. Vernon, P.E.
Res. 789-6466

(Formerly Uintah Engineering, Inc.)



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84100-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 20, 1996

Mike Keele
Ace Oilfield Disposal Inc.
827 South 1500 West
Vernal, Utah 84078

Re: Approval to Construct - Produced Water Disposal Pits #5-#8,
Ace Oilfield Disposal Facility, Section 2, Township 6 South,
Range 20 East, Uintah County, Utah

Dear Mr. Keele:

Your application to construct additional produced water disposal pits was received on June 12, 1996 and amendments to the application on August 20, 1996. The application has been reviewed by Division staff. The application complies with the requirements for produced water disposal facilities in accordance with Utah Administrative Code R649-9 et al., Oil and Gas General Rules.

Approval to commence construction of the proposed pits is hereby granted. This approval does not exempt you from complying with all other federal, state and local rules and ordinances.

The Division requires that our staff be informed of all phases of construction and be allowed the opportunity for inspection during the construction and installation activities including dike construction, leak detection system emplacement and liner installment.

If you have any questions concerning this approval please contact Brad Hill or Gil Hunt at this office.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. J. Firth'.

R. J. Firth
Associate Director, Oil and Gas

cc: James W, Carter, Director
Lowell P. Braxton, Deputy Director

DIVISION OF OIL, GAS AND MINING

STATEMENT OF BASIS

Hwy 40 Facility ("the Facility")
(Evap. Pit's 7 & 8, & Land Farm)

Applicant: Dalbo, Inc. ("Dalbo") **Facility Type:** Commercial/Evap & Land Farm

Location: Sec. 35, T5S, R20E & Sec. 2, T6S, R20E, Uintah County, Ut

Ownership, Local Setting, & History:

The Facility is located south of Hwy 40, approx. 12 miles SW of Vernal, Utah, on Fee lands owned by Dalbo, surrounded by Federal lands to the north, west, & south, and State lands to the east & northeast (S36, T5S, R20E). Approval to operate Pit's 1 & Mud Pit 2 at the Facility was granted by the Division on 5/8/91, followed by approval to operate Pit's 3 & Mud Pit 3A on 11/8/93. No permit information or approval to construct & operate Pit's 4 & Mud Pit 4A on file (constructed & in operation). Approval to construct Pit's 5 & 6, and Mud Pit's 7 & 8 was granted on 8/20/96, followed by approval to operate Pit 5 on 4/20/99. No approval to operate Pit 6 on file (constructed & in operation). Mud Pit 2 was removed & replaced with a partially buried tank/concrete separator (see BH insp. dated 4/12/01). Approval to operate an Oilfield Waste Composting Site/Pit (60'X30'X6') at the Facility was granted on 6/18/02 (SW area of facility). Mud Pit's 7 & 8 not constructed. On 12/1/05 Dalbo purchased the Facility from Ace Oilfield Disposal, and replaced the concrete separator (10'X15'X6') with a 3-stage concrete separator (24'X36'X12' deep) (still referred to as Pit 2), converted Mud Pit 3A to a netted skim pit (still referred to as Pit 3A), & reclaimed/land farmed the mud soils from the Composting Site/Pit that consisted of 3-4 trenches (ea. 30'X20'X10' deep); the mud soils were land farmed onsite in the Pit 7 & 8 areas (without Division approval) to allow for construction of amended Pit's 7 & 8. An application & eng. maps (Eng. Services, Inc./Daren Anderson, P.E.) to amend proposed Pit's 7 & 8 from mud pits to evap. pits was received on 5/31/07, amended 6/18/07 (R649-9-3.2 & R649-9-3.5.2); the application was put on hold per Dalbo request. An onsite review was conducted on 7/1/08; then the application put on hold again per Dalbo request. On 9/29/08 DOGM/RP witnessed soils testing of remediated mud soils from the Composting Site/Pit. On 10/7-24/08 amended eng. maps (Daren Anderson, P.E.), soils testing results, and a Land Farm application was received. Following approval to construct, onsite reviews of the leak detection systems/monitoring stations, liners, berms, and unloading station/tank battery will be conducted during and/or following installation (R649-9-5.1 & 2). Final approval to operate will be granted upon completion of the construction phase and compliance with all stipulations (R649-9-5.3 & 4 & 5).

Pit Design Specifications / Evap. Pit's 7 & 8:

- Daren Anderson, P.E. - Engineering Services, Inc. (R649-9-3.2.2).
- 2' freeboard required at all times (R649-9-3.2.3.3 & R649-9-3.5.7).
- 5:1 interior slopes, 3:1 exterior slopes (R649-9-3.2.3.7).

- Secondary liners consisting of native and/or imported clay soils, 1' thick throughout entire pit floors, with an acceptable PI/permeability rate (as determined by a professional engineer (R649-9-3.3.4), & 60 mil HDPE "primary" liners impervious and resistant to weather, sunlight etc. (R649-9-3.2.3.9).
- Liners sufficient thickness, strength and life span (R649-9-3.3.1-2 & R649-9-3.5.8).
- Evaporative Pit's 7 & 8 (ea.):
540' X 360' X 13' deep (not including 2' FB), 263,772 bbl or 34 ac ft capacity (R649-9-3.5.2).
- Dike construction - keyed into native soil, 8" lifts compacted to 96% MDD, Sheepsfoot Method (R649-9-3.2.3.5 & R649-9-3.2.3.7).
- Leak detection systems with collection trenches/pipes & monitoring sumps (R649-9-3.5.9 & R649-9-3.2.3.5 & R649-9-3.3.4).
- Secondary containment "berm", 325,836 bbl or 42 ac ft capacity (R649-9-1.1 & R649-9-2.2.3).

Site Characteristics:

The terrain in the area consists of rolling hills & shallow draws. The ground is stable and slopes gently toward the W/SW (R649-9-3.2.3.1). Dirt work operations were recently conducted in the proposed pit areas (see Composting/Land Farm portion of SOB). Pit's 7 & 8 will be located directly south of Evap. Pit's 5 & 6. Overall, there is minimal natural erosion at the site.

Current surface use in the area is grazing and wildlife habitat, O&G waste water disposal operations (Dalbo), and oil & gas exploration and production activities - numerous oil wells have been drilled and/or are in the process of being drilled south of the Facility (Gusher Field/Gusher Deep Unit) by Newfield Production Company (& Flying J O&G in portions of Sec. 14), see map dated 6/23/08.

Local flora consists of sagebrush, rabbit brush, prickly pear, native grasses, & large areas of bare soils devoid of any growth. Local fauna consists of mule deer, coyote, antelope, small mammals, birds, etc.

Test boring samples were previously taken at the Facility (Northern Eng. & Testing, Inc); 10 test holes were drilled to a depth of 5-9', surface & substrate soils were described as "clear-translucent quartz-chert grains, unconsolidated, very fine-medium grain, subround-subangular, redbrown, cream-tan, slight-moderately silty, slight-very calcareous, some organic material, slight-moderate mottled mudstone clasts, trace gypsum" (R649-9-3.3.5), see permit application dated 5/9/88. The surface formation is the Uinta Formation, +/-1500' thick in this area, consisting of inter-bedded mudstones & fluvial sandstones (R649-9-3.2.3.2); the sandstones are not generally continuous over a large area and should not constitute a significant aquifer.

Surface and Ground Water Protection:

The Facility is not in a floodplain or wetland area, and is an acceptable distance (+1/4 mile) away from Twelvemile Wash (a seasonal, intermittent watercourse that carries

winter runoff & storm water) that is located east of the site (R649-9-3.2.3.2); Twelvemile Wash drains into the Green River - its' closest point is approx. 6 miles SE. No major drainages bisect the pit/land farm areas; minor drainage(s) will be diverted around the Facility & secondary containment (R649-9-3.2.3.4).

Secondary containment (design & placement to be determined by a registered professional engineer) is required at the Facility to prevent pit waters and solid & semi-solid waste material (see Land Farm section of SOB) from leaving the site in the event of catastrophic pit failure or other breach (R649-9-3.2.3.5); a "berm" will be constructed & maintained per eng. specifications (see maps/Sheet 2 & 6).

Secondary liner's consisting of native and/or imported clay material, 1' thick throughout the entire pit floors, compacted in 8" lifts, with an acceptable plastic index & permeability rate (as determined by a professional engineer); eng. testing & certification required prior to installation of the leak detection system.

Measures taken to protect Twelvemile Wash & the Green River include; 1) Pit's 7 & 8, Land Farm, secondary containment, and drainage diversion(s) designed & constructed under the supervision of a registered professional engineer; 2) 60 mil HDPE primary pit liners, underlying leak detection systems with monitoring stations, and underlying secondary clay liners; 3) compliance with the construction & inspection requirements set forth under R649-9-5; 4) compliance with the operating, monitoring, reporting, and recordkeeping requirements set forth under R649-9 et al; 5) construction operations monitored by Division staff, and periodic facility inspections thereafter; and 6) Dalbo advised to contact Water Rights/Dam Safety, DEQ/Water Quality, and Uintah County to obtain their approval of facility "expansion" operations.

Measures taken to help prevent pit waters from lapping over pit dikes/levees during occasional high wind episodes include; 1) pit wind breaks utilized as deemed necessary; 2) two feet of freeboard (or more if deemed necessary by the Div.) maintained in the pits at all times; 3) compliance with the operating, monitoring, reporting, and recordkeeping requirements set forth under R649-9 et al.

A search of the Division of Water Rights database reveals that there are eight (8) "Point to Point" water permits issued within 10,000' of the Facility; five (5) issued to the BLM, #45-4606 (source water Tributary to Halfway Hollow for stockwatering purposes/175), #45-2898 (source water Tributary to Halfway Hollow for stockwatering purposes/53), #45-2913 (source water Halfway Hollow Stream for stockwatering purposes/340), #45-2994 (source water Desert Spring for stockwatering purposes/132), & #45-2907 (source water Tributary to Twelve Mile Wash for stockwatering purposes/53), one (1) issued to SITLA, #45-2897 (source water Tributary to Twelve Mile Wash for stockwatering purposes/53), and one (1) issued to John Siddoway, #45-504 (source water Unnamed Spring for stockwatering/600). In addition, there are two (2) "Surface" water permits issued; one (1) to the BLM, #45-5276 (source water Twelve Mile Reservoir 2 for stockwatering purposes/270 & wildlife purposes), and one (1) to John Jacobs, #45-503 (source water Deseret Spring for stockwatering purposes/500).

No reports of Water Encountered During Drilling were filed for surrounding area oil wells (3/43-047-15590, 2-1A/43-047-31431, 6-11-6-20/43-047-37558) within a +1-mile radius of the Facility; and no water wells. See map dated 6/23/08. The distance to groundwater was reported as being approx. 1700' deep in the permit application (dated 6/18/02) filed for the Composting Site/Pit (the information source was not disclosed).

The pit floor elevation's for Pit's 7 & 8 is 5025' GL; the base of moderately saline ground water is 3000' (Technical Publication No. 92, Plate 1), 2025' below surface. The average annual rainfall is 11 (in.), and the average annual pan evaporation rate is 39.75 (in.) (Western Regional Climate Center) (R649-9-3.5.4). Meteoric waters are expected to evaporate and/or will be diverted around the Facility & secondary containment.

The maximum daily quantity of water to be disposed of is 1000-1500 bpd. A representative water analysis of such water was submitted (R649-9-3.5.3).

Composting Site/Pit - Operations, Waste Handling, & Mud Soil Remediation:

60' X 30' X 6' deep (approved 6/18/02, SW area of facility).

Permit valid for RCRA exempt E&P oily wastes only, such as waste crude oil, tank bottoms, drilling mud & cuttings. No freestanding oil allowed within the confines of the composting area at any time. Compliance with the operating, monitoring, reporting, and recordkeeping requirements set forth under R649-9 et al. The Division shall be notified prior to moving any remediated material from the composting area. Prior to abandonment, the land farmed material must meet the cleanup levels for salinity and hydrocarbons as follows:

Electrical conductivity < 4mmho/cm or background, whichever is less, and
Total petroleum hydrocarbons of 10,000 ppm or background, whichever is less.
Or in accordance with the Divisions most current Cleanup Levels.

Dalbo remediated (land farmed) the mud soils from the Composting Site/Pit which consisted of 3-4 trenches (30' X 20' X 10' deep ea.) onsite in the Pit 7 & 8 areas "without Division approval" to allow for construction of Pit's 7 & 8, prior to onsite (discussed at 7/1/08 onsite - operator advised to seek Division approval in the future - soils testing required to ensure that remediated mud soils meet the Divisions' cleanup levels). Soils sampling, witnessed by a Division representative, was conducted on 9/29/08 & analyzed by American West Analytical Laboratories on 9/30/08; testing results were received 10/7-24/08 (TPH 5300 mg/kg, salinity/TDS 4400 mg/kg).

Land Farm / Operations & Waste Handling:

375' X 1200' (10.33 acres)

Eng. maps (Daren Anderson, P.E./Eng. Services Inc), baseline soils testing results (SAR & pH/American West Analytical laboratories/9/29/08), & Land Farm application received 10/7-23/08 (R649-9-4.3 et al).

The Land Farm area will be surrounded by a 1' high containment berm, and will be located at the far west end of the Facility. Soils will be spread or disked into native surface soils, no load will be allowed to sit for an extended period of time, and no soils will be buried.

Secondary containment (design & placement to be determined by a registered professional engineer) is required at the Facility to prevent Land Farm wastes (& pit waters) from migrating off the project area in the event of catastrophic pit failure or other breach. Minor drainage(s) will be diverted around the Land Farm area/facility, and secondary containment.

Solid or semi-solid waste material "stockpiled" in the Land Farm area is subject to additional bonding at the rate of \$30.00 per cubic yard (R649-9-9.1.3.3). If waste material is treated/land farmed in accordance with the approved plan then no additional bonding will be required.

Permit valid for RCRA exempt E&P oily wastes only, such as waste crude oil, tank bottoms, drilling mud & cuttings. No freestanding oil allowed within the confines of the Land Farm area at any time. Compliance with the operating, monitoring, reporting, and recordkeeping requirements set forth under R649-9 et al is required. The Division shall be notified prior to moving any remediated material from the Land Farm area, and must meet the Divisions' cleanup levels for salinity and hydrocarbon content (see Environmental Handbook located at www.ogm.utah.gov)(R649-9-4.1).

Site Security:

Facility fencing will be upgraded to prevent access by livestock, wildlife, and unauthorized personnel. Dalbo field staff will be onsite during regular business hours, and fence gate(s) will be locked after hours. A facility sign is posted (R649-9-3.2.3.8).

Produced water will be trucked and unloaded (concrete pad) at the unloading station that consists of a 3-stage separator for separating water from hydrocarbons (R649-9-3.5.6), and 3/400 bbl upright oil recover tanks. Precipitated solids will be disposed of at an approved landfill and/or land farmed onsite. Separated water will gravity feed into Pit 3A (netted skim pit) for further processing before being diverted (above ground hoses/pumps) to the evaporation pits (Pits 1, & 3-8); water will be pumped to Pits 7 & 8 from Pits 5 & 6. The evaporative pits shall be closely monitored for hydrocarbons; any accumulation will be skimmed off immediately and placed in a tank to be sold (R649-9-3.5.6). Spray systems used to enhance evaporation, pit windbreaks (if deemed necessary), and pit freeboard shall be closely monitored to ensure that overspray/overlapping does not occur (R649-9-3.2.3.5). Pit dikes/levees, land farm berms, secondary containment, and drainage diversion(s) shall be closely monitored to ensure integrity. Routine weekly inspections of the leak detection monitoring systems shall be conducted and reported to the Division quarterly (R649-9-3.5.9.1). Any leaks shall be reported to the Division immediately and corrective measures shall be taken (R649-9-3.5.9.2). In addition, DOGM staff shall conduct periodic facility inspections.

Bonding:

Facility bonding has been determined using the following formula from R649-9-9.1.3.3, Bonding of Disposal Facilities, of the Oil & Gas Conservation General Rules (see facility bonding spreadsheet).

\$14,000 per acre of pit, partial acres will be calculated at the rate of \$14,000 per acre; plus
\$1.00 per barrel of produced water for one-quarter of the total storage capacity of the facility; plus
\$30 per cubic yard of solid or semi-solid waste material stockpiled at the facility.

16 acres X \$14,000.00 = \$224,000.00
\$1.00 X 783,207.70 barrels = \$783,207.70 X .25 = \$195,801.93
\$30 X 0 cubic yards of stockpiled solid or semi-solid waste material = \$0.00

Total Bond Calculation:

\$224,000.00 (Acreage)
\$195,801.93 (Water Storage Capacity)
\$0.00 (Stockpiled Solid or Semi-Solid Waste)

Total Facility Bond Required:

\$419,801.93 - *\$184,489.00 = \$235,312.93 (Amended Pit's 7 & 8).

*Existing Letter of Credit No. SM218562W, issued by Wachovia Bank NA (eff. 2/24/06).

Actions Taken and Further Approvals Needed:

Properly designed, constructed, and maintained pits/facilities, including secondary containment & drainage diversions(s), land farm waste handling conducted in accordance with approved plans, and compliance with the operating, monitoring, reporting, and recordkeeping requirements set forth under R649-9 et al, should pose no threat to fresh or useable surface and groundwater supplies.

The Division did not issue a public notice for the Facility (permitted prior to establishment of rule); public noticing is not required at this time/BH.

A facility onsite review was conducted on 7/1/08, in attendance; Nick Richins (Dalbo), Daren Anderson, P.E. & David Lawson (Eng. Services, Inc), and Richard Powell & Lisha Cordova (DOGM). Ben Williams (DWR) was invited but was unable to attend.

Daren Anderson, P.E./Dalbo planning to submit amended eng. maps, Land Farm application, and will arrange soils testing of remediated mud soils & LF/baseline.
*Amended maps, soils testing results, and Land Farm Application received 10/7-24/08.

Other items discussed at the onsite:

1. Recent land farm operations that were performed at the Facility “without Division approval”; Nick Richins/Dalbo apologized and said Dalbo would seek Division approval in the future.
2. Land purchase; Todd Moon to ITL in progress. Private property - cultural resource clearance & paleo survey not required.
3. Facility fencing upgrades.

Other approvals needed:

1. Uintah County; Conditional Use Permit (approved 5/20/91/Mike Keele).
*Dalbo referred to Uintah County “Facility Expansion Operations”.
2. DEQ/Water Quality; Storm Water Pollution Prevention Plan “SWPPP”.
*Dalbo referred to Mike George (801) 538-6146 or Scott Hacking/Vernal.
2. Water Rights/Dam Safety; Small Dam (<20 acre ft) or Other (>=>20 acre ft).
*Dalbo referred to Dave Marble (801) 538-7376 or Robert Leake/Vernal.
3. Compliance with all other federal, state and local rules and ordinances.

Reviewer: Lisha Cordova, Petroleum Specialist

Date: October 27, 2008

Appendix E

Landfill Capacity

Landfill Cell Volume (cy)	Landfill
105836	Pond 6

Average Daily Volume*

Annual Growth %	Year End										
	1	2	3	4	5	6	7	8	9	10	11
10%	68	74	82	90	99	109	120	132	145	159	175

Cumulative Volume over 10 Years

Waste Volume	Year End										
	1	2	3	4	5	6	7	8	9	10	11
Combined	24,638	51,739	81,550	114,343	150,414	190,093	233,740	281,752	334,564	392,658	456,562

* - Assumes Mixing Ratio: 0.5 Cubic Yards of soil to 1 Cubic Yard of waste for a total of 90 Cubic Yards of waste per day.

Volume – Year that cumulative volume of waste reached max capacity.

Appendix F

UINTAH COUNTY LAND INFORMATION REPORT

Year: 2020

Serial #: 07:013:0004

Acct #: 97527

TaxDist #: 401

Page A

Owner(s)

Percent

DALBO INC

Mailing Address:

PO BOX 1168

VERNAL

UT

84078

Property Address

PROPERTY INFORMATION

18500 E HWY 40

EAST GUSHER

Type: 850 MINING ACTIVITY AND RELATED SERVICES

Priors

Futures

LEGAL DESCRIPTION

Acres: 46.94

LOT 1, SE/4 NE/4 SECTION 3, T6S, R20 E, SLM. CONT 46.94 ACRES, M/L.

Do Not Use Above Legal Description on Legal Documents

UINTAH COUNTY LAND INFORMATION REPORT

Year: 2020

Serial #: 07:013:0002

Acct #: 97528

TaxDist #: 401

Owner(s)

Percent

DALBO INC

Mailing Address:

PO BOX 1168

VERNAL

UT

84078

Property Address

PROPERTY INFORMATION

18861 E HIGHWAY 40

VERNAL

Type: 850 MINING ACTIVITY AND RELATED SERVICES

Priors

Futures

07:013:0001

LEGAL DESCRIPTION

Acres: 132.34

BEG AT THE NW COR OF SEC 2, T6S, R20E, SLB&M BRASS CAP MARKER; TH N 89*39'10" E ALG THE N SEC LN - 1333.89 FT TO A BRASS CAP MARKER (S/4 COR SEC 35); TH S 00*21'00" W - 1583.59 FT PAR TO W SEC LN; TH S 00*20'16" W - 2693.29 FT PAR TO W SEC LN; TH S 89*26'48" W - 1333.95 FT ALG THE S SEC LN TO A BRASS CAP MARKER (SW COR SEC 2); TH N 00*20'16" E - 2698.09 FT ALG W SEC LN TO A BRASS CAP MARKER (W/4 COR SEC 2); TH N 00*21'00" E - 1583.59 FT ALG THE W SEC LN TO POB. CONT 132.34 ACRES, M/L.

Do Not Use Above Legal Description on Legal Documents

14663.2

WHEN RECORDED RETURN TO:
Dalbo, Inc.
365 South 1000 East
Vernal, UT 84078

DALBO, INC.

AFFIDAVIT

Entry 2006012657
Book 1007 Page 868-875 \$25.00
15-DEC-06 01:18
RANDY SIMMONS
RECORDER, UINTAH COUNTY, UTAH
ADVANCED TITLE CO INC
71 N 100 W VERNAL, UT 84078
Rec By: BRENDA MC DONALD, DEPUTY

State of New York s.s.
County of Kings

Entry 2006012657
Book 1007 Page 868

Dalbo, Inc., being duly sworn, depose(s) and say(s):

1. New Ace Oilfield Disposal, LLC merged with Dalbo, Inc. on November 30, 2005 with Dalbo, Inc. as the surviving entity.
2. The articles of merger of the merger above-referenced, a copy of which is attached hereto as Exhibit A, were filed with the Utah Division of Corporations and Commercial Code.
3. Attached hereto as Exhibit B is the legal description of the property transferred to Dalbo, Inc. by operation of law pursuant to the above-referenced merger.

[The remainder of this page is intentionally left blank]

Entry 2006012657
Book 1007 Page 869

EXECUTED as of the date first written above.

Signed, sealed and delivered in the presence
of:

DALBO, INC., a Utah corporation

Prudence May
WITNESS

By *[Signature]*
Name: Charles C. Mills
Title: Vice-President

Mark Behr
WITNESS

STATE OF NEW YORK)
)
COUNTY OF New York)

ss:

The foregoing instrument was acknowledged before me the 12th day of December, 2006, by Charles C. Mills as Vice President of Dalbo, Inc., as Agent.

Witness my hand and official seal the day and year aforesaid.

My commission expires 3/20/07

Ricarda V. Augusty
Notary Public

RICARDA V. AUGUSTY
Notary Public, State of New York
No. 43-8040535
Qualified in Richmond County
Certificate Filed in New York County
Commission Expires March 20, 2007





Entry 2006012857
Book 1007 Page 870

EXHIBIT A
ARTICLES OF MERGER

Entry 2006012657
Book 1007 Page 871

ARTICLES OF MERGER

OF

NEW ACE OILFIELD DISPOSAL, LLC,
a Utah limited liability company

WITH AND INTO

DALBO, INC.,
a Utah corporation

RECEIVED
DEC 01 2005
Utah Div. Of Corp. & Comm. Code

Pursuant to §1105 of the Utah Revised Business Corporation Act (the "Act"), the undersigned authorized representative of Dalbo, Inc., a Utah corporation ("Acquisition"), as the surviving corporation in a merger with New Ace Oilfield Disposal, LLC, a Utah limited liability company ("New Ace"), does hereby certify:

FIRST: That a Plan of Merger (the "Plan"), has been adopted and approved by Acquisition and New Ace, the parties to the merger, in accordance with the requirements of §1101 of the Act, which Plan is summarized and attached hereto as Exhibit A.

SECOND: There are 50,000 shares of common stock of Acquisition currently outstanding and entitled to vote on the Plan. There are 100 membership units of New Ace issued and entitled to vote on the Plan.

THIRD: 50,000 of the outstanding shares of common stock of Acquisition and 100 of the membership units of New Ace were voted in favor of the Plan, which was sufficient to approve the Plan.

FOURTH: The effective date of the merger shall be on the date of filing of these Articles of Merger with the Utah Division of Corporations and Commercial Code.

IN WITNESS WHEREOF, the undersigned executes these Articles of Merger, on this 24 day of November, 2005.

Dalbo, Inc.,
a Utah corporation

By: Thomas W. Jones
Name: THOMAS W. JONES
Title: VICE PRESIDENT

12-01-05P12:51 RCVD

EXHIBIT A
PLAN OF MERGER

A. Merger of New Ace into Acquisition.

1. Plan of Merger and Surviving Company. New Ace Oilfield Disposal, LLC, a Utah limited liability company ("New Ace"), shall be merged with and into Dalbo, Inc., a Utah corporation ("Acquisition"), and the separate corporate existence of New Ace shall thereupon cease. Acquisition shall be the surviving company in the merger and shall continue its existence under the provisions of the Utah Revised Business Corporation Act (the "Act") after the merger.

2. Effective Date of the Merger. The Merger shall become effective at the date and time (the "Effective Date") at which the Articles of Merger are duly filed with the Division of Corporations and Commercial Code of the State of Utah as provided in §1105 of the Act.

B. Effect of Merger.

1. Effects. The merger shall have the effects set forth in the Act.

2. Conversion of Shares. Upon the filing of the Articles of Merger with the Division of Corporations and Commercial Code of the State of Utah, each membership unit in New Ace presently issued and outstanding shall be cancelled and retired and, inasmuch as Acquisition and New Ace are both wholly-owned by Dalbo Holdings, Inc., no shares of Acquisition common stock shall be issued in respect thereof.


3. Articles of Incorporation and Bylaws of Surviving Company. The Articles of Incorporation and Bylaws of Acquisition as in effect immediately prior to the Effective Date shall be the Articles of Incorporation and Bylaws of Acquisition after the Effective Date.

4. Directors and Officers of Surviving Corporation. The directors and officers of Acquisition shall remain as the directors and officers of Acquisition after the Effective Date. Such directors and officers shall hold office in accordance with Acquisition's Articles of Incorporation and Bylaws.

5. Assignment of Assets and Liabilities to Surviving Company. Upon filing of the Articles of Merger, all liabilities of New Ace shall be assumed by Acquisition, and all of the rights, privileges, powers, properties, real and personal, and every other asset of New Ace will be vested in Acquisition without further act or deed. New Ace hereby agrees, from time to time, as and when requested by Acquisition or by its successors or assigns, to execute and deliver or cause to be executed and delivered all such deeds and instruments and to take or cause to be taken such further or other action as Acquisition

Entry 2006012657
Book 1007 Page 873

may deem necessary or desirable in order to vest in and confirm to Acquisition title to and possession of any property of New Ace acquired or to be acquired by reason of or as a result of the merger herein provided for and otherwise to carry out the intent and purposes hereof. All rights of creditors and all liens upon the property of either Acquisition or New Ace shall be preserved unimpaired, and all debts, liabilities and duties of New Ace shall thenceforth attach to Acquisition and may be enforced against it to the same extent as if said debts, liabilities and duties had been incurred or contracted by it.



Entry 2006012657
Book 1007 Page 874

EXHIBIT B
LEGAL DESCRIPTION

Entry 2005010264
Book 953 Page 8

EXHIBIT A

Entry 2006012657
Book 1007 Page 875

LEGAL DESCRIPTION

PARCEL 4: Acc Disposal Pit

7-013-0004 "R", Township 6 South, Range 20 East, Salt Lake Base and Meridian, Section 3: Lot 1 and the Southeast quarter of the Northeast quarter.

7-013-0002 "R": Beginning at the Northwest corner of Section 2, Township 6 South, Range 20 East, Salt Lake Base and Meridian, brass cap marker; thence N89°39'10" East along the North Section line - 1333.890 feet to a brass cap marker (South quarter corner Section 3); thence S00°21'00" West - 1583.59 feet parallel to West Section line; thence South 00°20'16" West - 2693.09 feet parallel to West Section line; thence South 89°26'48" West - 1333.95 feet along the South Section line to a brass cap marker (Southwest corner Section 2); thence North 00°20'16" East - 2693.09 feet along the West section line to a brass cap marker (West quarter corner Section 2); thence North 00°21'00" East - 1583.59 feet along the West section line to point of beginning. 20 foot easement given for roads through property.

Appendix G

April 16, 2019

Chris Hansen, Preservation Planner
Utah State History
300 S. Rio Grande Street
Salt Lake City, Utah 84101
801-245-7239

Subject: Historical Preservation Survey

Dear Mr. Hansen,

GeoStrata is currently preparing a Class III Exploration and Production Waste Landfill Permit on behalf of R.N. Industries (RNI) to be submitted to the Utah Division of Solid and Hazardous Waste (DSHW). RNI is a waste water disposal company in the Uinta Basin that services the Oil and Gas Industry. The RNI Ace Facility is located in Uintah County approximately 11.5 miles southwest of Vernal, Utah on two parcels totaling approximately 175 Acres in NW/4 of Section 2 and the NE/4 of section 3 of T 6S, R 20E, SLB&M. DSHW requires a State Historical Preservation Survey when permitting new Utah Exploration and Production Waste Landfills (R315-304-4(2)(a)(iv)). At the request of RNI, GeoStrata conducted an evaluation of the proposed landfill sites located on their Ace Facility property 18861 East Highway 40 Uintah County, Utah 84078. A USGS 7.5 Minute Topographic map with the location of the RNI Ace Facility and the proposed landfill cells is attached to the end of this letter as Attachment 1 - Figure 1 with a zoomed-in image in Figure 2.

The RNI Ace Facility takes waste water extracted during oil and gas exploration and production processes and stores the water in evaporation ponds. Additionally, the Ace Facility accepts contaminated solids for treatment in their on-site land farm. RNI is considering converting Pond 5 and/or Pond 6, two of their evaporation ponds, into landfill cells. These cell options will be utilized for the permanent disposal of oil and gas production and exploration solid wastes meeting the definition of RCRA-Exempt, Exploration and Production (E&P) Waste. There will be some minor alteration to the size and shape existing facilities when Pond 5 and/or Pond 6 are converted to landfill cells; however, none of these alterations will affect any existing structures. The initial ponds at RNI's Ace Facility were granted approval to operate by the Utah Division of Oil Gas and Mining (DOG M) in May of 1991. The original permit was for the construction of 6 evaporation ponds. Subsequently, Pond 5 was approved in 1999, Pond 6 in 2006, and Ponds 7 and 8 were approved and constructed in 2009.

Ponds 5 and 6 at the RNI Ace Facility are constructed with a dual liner system, one being the lower engineered clay liner with the second being a single 60 mil HDPE Geomembrane on top. Ponds 5 and 6 have been operating as waste water evaporation ponds since their inception, in 1999 and 2006 respectively. The ponds will be drained of all waste water with the liner configurations remaining intact for the

operational use of the landfill cells. A staging area will be used for parking heavy equipment and equipment storage, waste inspection and truck unloading. The staging area will also have a waste mixing area to stabilize any liquid wastes. Ramps will also be constructed to allow heavy equipment into the cells and to allow trucks to unload directly within the landfill. The approximate location for each landfill cell is provided in Attachment 1- Figure 3.

The Area of Potential Effects for the proposed landfill cells will be minimal since there will be limited to no construction associated with the conversion of Ponds 5 and/or 6 into landfill cells. These locations have already been disturbed through previous construction at the facility since 1991. Since the proposed landfill cells are currently used for waste water disposal, it is expected that the Area of Potential Effects will be limited to the area of the existing Ponds 5 and/or 6. The area of Ponds 5 and/or 6 to be converted into landfill cells is approximately 6.9 acres, approximately 3.1 acres at Pond 5 and 3.8 acres at Pond 6.

There are numerous buildings and structures located on the RNI facility, none of which are older than 50 years and none of the structures are potentially eligible to be listed on the National Registry of Historic Places. A list of all structures on the subject RNI property and their respective construction dates are provided in the following table:

Building/Structure	Approximate Construction Date
Office building	1991
One (1) covered concrete oil/water separation vault (OWS),	1991
Four (22) Storage Tanks	1991
Nine (9) Operational Evaporation Ponds	1991-2009
One (1) 9-Acre Land Farm	2002

Based on our evaluation of the facility and Area of Potential Effects from the permitting of the new landfill cells, the Ace Facility property has no historical properties and/or structures. None of the above-mentioned buildings will be impacted by the construction of the proposed landfill. If you have any questions or need any other information about our historical evaluation of the RNI property, please contact us at (801) 501-0583.

Sincerely,

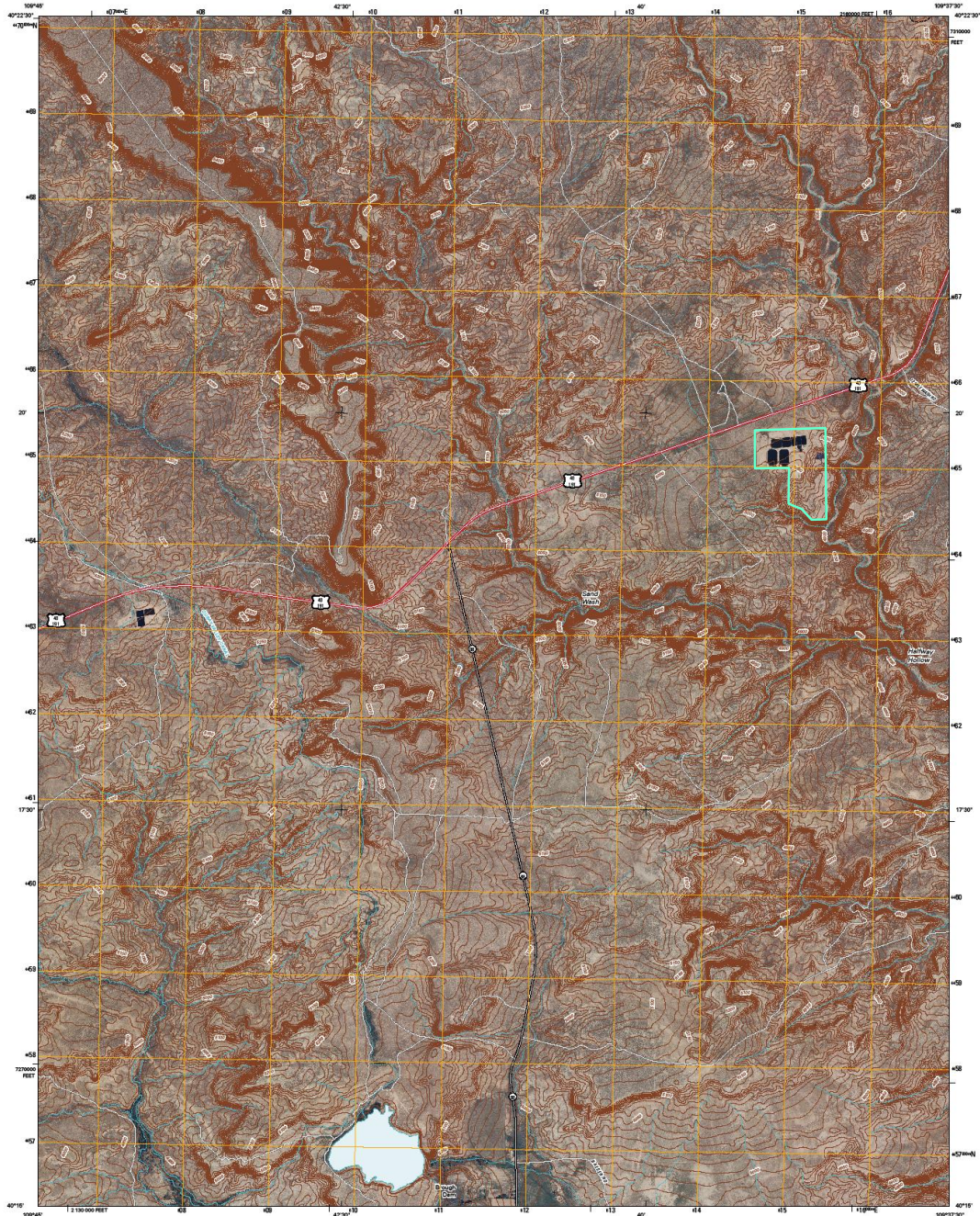
Mike Vorkink
GeoStrata Engineering & Geosciences



U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

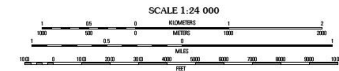
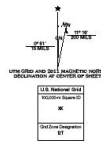


VERNAL SW QUADRANGLE
UTAH
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
2,000-meter grid. Universal Transverse Mercator, Zone 12 T
1000-foot scale. Utah Coordinate System of 1983
(united.html)

Source: NAD, June 2009
Data: 02/04-02/10 Topo
System: National Hydrography Dataset, 2009
Contour: National Wetlands Dataset, 2009



CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1983
This map was produced in conformance with section 0.5.10 of the
April 2010 Edition of the 7-Volume "Cartographic Manual"
A metadata file associated with this product is available at 0.5.11

VERNAL SW QUADRANGLE

Legend	Unlabeled	Unlabeled
Peak	Unlabeled	Unlabeled
Contour	Unlabeled	Unlabeled
Water	Unlabeled	Unlabeled
Other	Unlabeled	Unlabeled

ROAD CLASSIFICATION

Interstate Route	State Route	Local Road
US Route	Local Road	Other
Other	Other	Other

VERNAL SW, UT
2011

Approximate
Facility Location

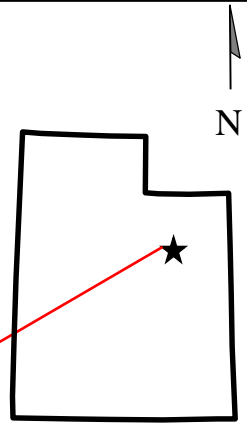
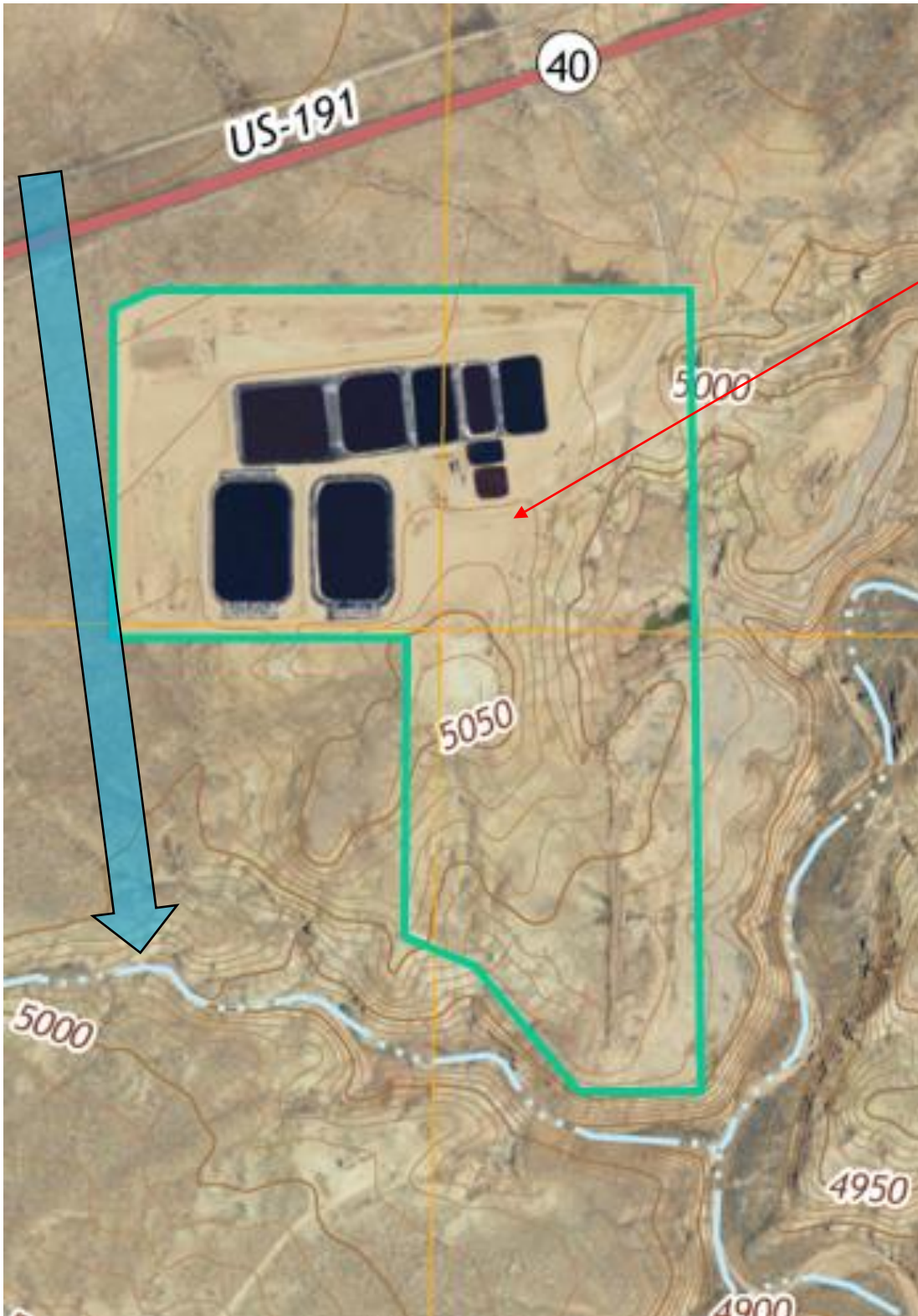


Copyright GeoStrata, 2019

RNI - Ace Disposal Facility Topo Map

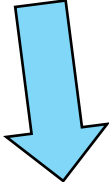
RNI
Ace Disposal Facility
Roosevelt, UT


Plate
1

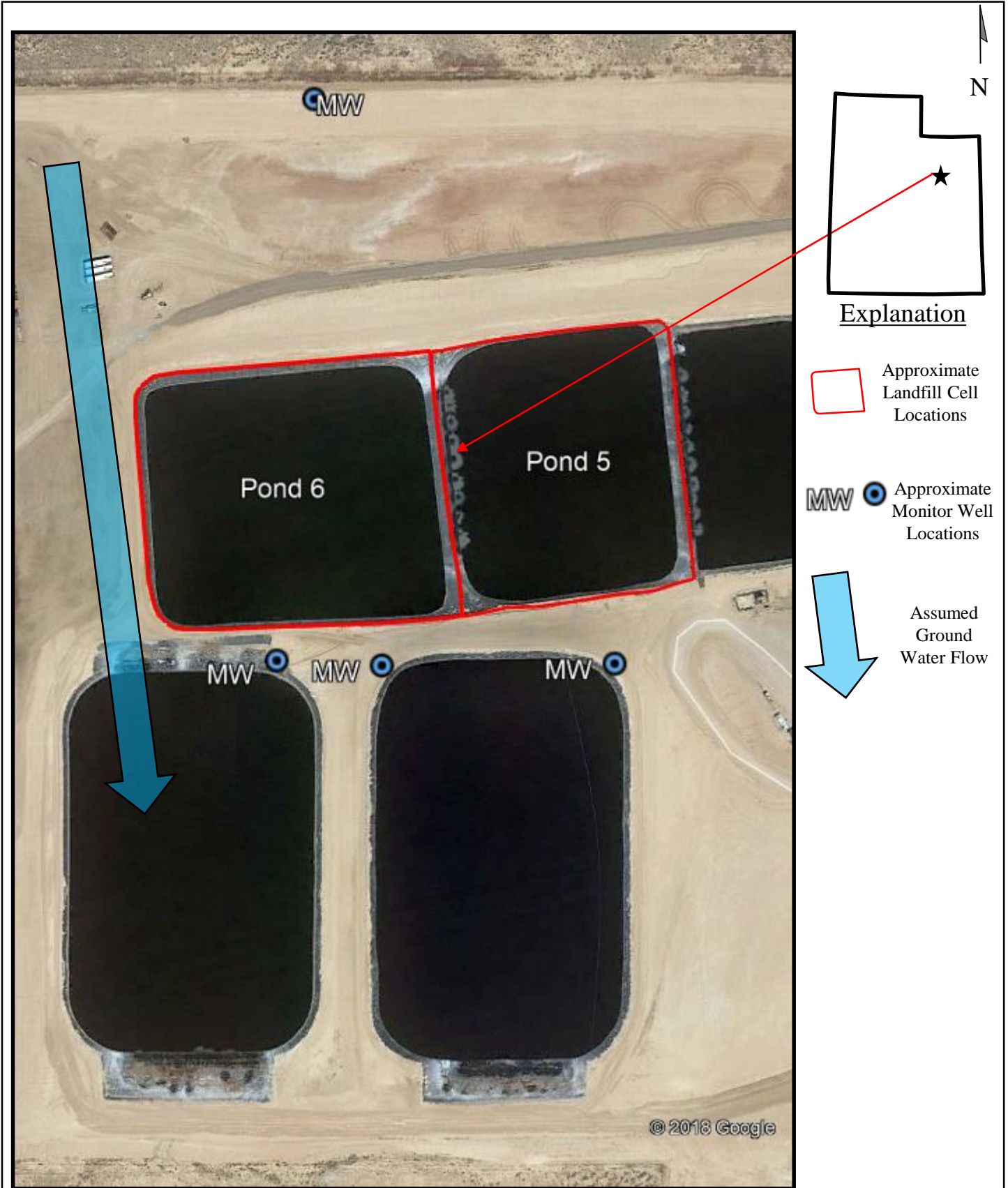


Explanation

 Approximate Ace Facility Boundary

 Assumed Ground Water Flow

 Approximate Facility Location





GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Jill Remington Love
Executive Director
Department of
Heritage & Arts



Don Hartley
Director
State Historic Preservation Officer

October 21, 2019

Jon Peaden
Environmental Regulatory Compliance Specialist
GeoStrata Engineering and Geosciences
14425 South Center Point Way
Bluffdale, Utah 84065

RE: Ace Landfill

For future correspondence, please reference Case No. 19-2305

Dear Mr. Vorkink:

The Utah State Historic Preservation Office received your submission and request for our comment on October 18, 2019. Based on the information provided to our office, we concur with determination of eligibility (property not historic) and with a finding of No Historic Properties Affected for the proposed undertaking.

This information is provided upon request to assist with state law responsibilities as specified in U.C.A. 9-8-404. If you have questions, please contact me at (801) 245-7239 or by email at clhansen@utah.gov.

Sincerely,

Christopher Hansen
Preservation Planner/Utah SHPO

November 11, 2019

Property Owner
633 S 1850 E
Vernal, UT 84078

Subject: Notice of Intent – Exploration and Production Waste Landfill Permit Application

Dear Property Owner:

This letter has been prepared to inform you of R.N. Industries' intent to apply for permit to operate an Exploration and Production Waste Landfill at their Ace Disposal Facility located approximately 10 miles southwest of Vernal, Utah. This letter is prepared as required by the Utah Department of Environmental Quality regulations. The landfill cell to be permitted will be regulated by the Utah Division of Waste Management and Radiation Control (DWMRC).

R.N. Industries (RNI) currently operates a production water disposal facility located at 18500 E Hwy 40. The area to be permitted as a landfill is in Sections 3 of Township 6 South, Range 20 East of the Salt Lake Meridian in Uintah County, Utah. This facility is applying for a permit to operate a solid waste landfill under the DWMRC in addition to its currently permitted operations to dispose production water under the Utah Division of Oil Gas and Mining. You are receiving this letter of notification, as required by Utah Regulation R315-310-3(2)(a)(ii), because your property is located within 1000 feet of the proposed landfill.

The proposed landfill will occupy the current location of an existing water disposal ponds. Minor new construction of roadways will be constructed on RNI's Property; however, no new disposal pits will be necessary for this landfill. The solid waste landfill will be utilized for the permanent disposal of production and exploration solid wastes meeting the definition of RCRA-Exempt, Exploration and Production (E&P) Waste.

After RNI submits their application to operate an E&P landfill to the DWMRC, a draft permit will be prepared by the division and a 30-day comment period will follow that you may participate in. The division will also send a you a letter with information on how to request to be placed on a list to receive public information in relation to this proposed landfill facility.

Respectfully,

Jon Peaden
GeoStrata

Austin Weddle
RNI



Appendix H

Task	Description	Unit Cost	No. Units Landfill #1	Unit Type	Total Cost	Details
Engineering	QCA (Laboratory/field Testing)	\$ 15,000.00	1	Estimate	\$ 15,000.00	Liner testing, lab testing, engineering support
	Construction Surveying	\$ 1,500.00	1	Estimate	\$ 1,500.00	Aerial drone imaging and processing
	As built survey	\$ 2,000.00	1	Estimate	\$ 2,000.00	GeoStrata As built survey and CAD drawing
	Letter of notification of closure	\$ 1,500.00	1	Estimate	\$ 1,500.00	Letter to DWMRC and County
Construction Cost	Topsoil Material	\$ -	4400	Cu Yd	\$ -	Topsoil is available on site
	Topsoil Testing	\$ 250.00	1	Estimate	\$ 250.00	Soil sampling and testing to ensure top soil is adequate
	Topsoil Graded	\$ 29.50	180	Sq Yd	\$ 5,310.00	RS Means 2019 - 31 22 16.10 - Steep Slope Large Quantities
	Trucking Topsoil	\$ 1.38	4400	Cu Yd	\$ 6,072.00	RS Means 2019 - 20 cyd truck, 15 min. wait/lid/uld, 20MPH, cycle 2 miles
	Clay Liner Soils	\$ -	3300	Cu yd	\$ -	Clay soils are on site
	Clay Soils Trucking	\$ 1.38	3300	Cu Yd	\$ 4,554.00	RS Means 2019 - 20 cyd truck, 15 min. wait/lid/uld, 20MPH, cycle 2 miles
	Clay Soils Graded	\$ 29.50	180	Sq ft	\$ 5,310.00	RS Means 2019 - 31 22 16.10 - Steep Slope Large Quantities
	Clay Soils Compacted	\$ 0.99	3300	Cu Yd	\$ 3,267.00	RS Means 2019 31 23 23.23 - Sheepsfoot 6" lift, 2 passes
	Clay Soils Testing	\$ 500.00	1	Estimate	\$ 500.00	Soil sampling and testing to ensure Clay liner is adequate
	Hydro Seeding with mulch and fertilizer	\$ 63.00	180	1000 Sq ft	\$ 11,340.00	RS Means
	Mobilization /Demobilization	\$ 3,000.00	3	Each	\$ 9,000.00	\$1500 per mobilization per piece of quipment
Contingency	10% of constuction cost	\$ 4,560.30			\$ 4,560.30	GeoStrata Estimate
TOTAL COST:					\$ 70,163.30	

Engineers opinion of probable Costs



Closure Cost Summary

RN Industries
Ace Landfill Permit
Unitah County, UT
Project Number: 524-099

**Plate
H-1**

Task	Description	Unit Cost	No. Units	Unit Type	Total Cost	Total units 30 yrs.	Total cost 30 yrs.	Details/Source
Inspections	Quarterly 1st 2 years; Semiannually for 28 years	\$ 85.00	4	hours	340.00	64	\$ 21,760.00	4 inspections/year for the first 2 years and then 2 inspections/year for 28 years
Report	Quarterly 1st 2 years; Semiannually for 28 years	\$ 85.00	2	hours	170.00	64	\$ 10,880.00	4 reports/year for the first 2 years and then 2 reports/year for 28 years
TOTAL for 30 yrs							\$ 32,640.00	

Groundwater Monitoring	Groundwater Sampling labor	\$ 85.00	6	hour	510.00	13	\$ 6,630.00	Annual monitoring for first 5 years, biennial for next 10 years, then monitoring every 5th year for final 15 years. Sampling from 2 monitoring wells for 13 rounds of sampling
	GRO	\$ 130.00	2	sample	260.00	13	\$ 3,380.00	
	Heavy Metals	\$ 178.00	2	sample	356.00	13	\$ 4,628.00	
	Inorganic Constituents/other	\$ 234.00	2	sample	468.00	13	\$ 6,084.00	
	Groundwater sampling report	\$ 1,200.00	1	report	1200.00	13	\$ 15,600.00	
	Transport to lab	\$ 100.00	1	vehicle	100.00	13	\$ 1,300.00	
TOTAL for 30 yrs							\$ 37,622.00	

Maintenance	Re-grading top Soil	\$ 29.50	42.75	Sq Yd	1261.13	1	\$ 2,641.13	Assumes 25% of topsoil of final cover of both cells will have to be replaced over 30 years
	Soil replacement	\$ 1.38	1000	Cu Yd	1380.00	1	\$ -	
	Reseeding	\$ 63.00	171	1000 Sq Ft	10773.00	1	\$ 10,773.00	Assumes 1 total reseeding of final cover over 30 years
TOTAL for 30 yrs							\$ 13,414.13	

TOTAL for all tasks 30 yrs	\$ 83,676.13
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Contingency	10% of total cost for all tasks	\$ 8,367.61
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TOTAL POST CLOSURE COST	\$ 92,043.74
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Engineers opinion of probable Costs