

TECHNICAL SPECIFICATIONS

For the Construction of *Cell 4A Lining System*

**IUC White Mesa Mill
Blanding, Utah**

Prepared for:



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JUNE 2006

CERTIFICATION PAGE

**TECHNICAL SPECIFICATIONS
CELL 4A LINING SYSTEM CONSTRUCTION
INTERNATIONAL URANIUM (USA) CORPORATION
WHITE MESA MILL
BLANDING, UTAH**

The Engineering material and data contained in these Technical Specifications were prepared under the supervision and direction of the undersigned, whose seal as a registered Professional Engineer is affixed below.

Gregory T. Corcoran, P.E.
Engineer of Record

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**SECTION 01010
SUMMARY OF WORK**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. The Work generally involves the preparation of subgrade, installation of geosynthetic liner system, and associated piping.
- B. The Work will generally consist of:
 - 1. Initial topographic survey;
 - 2. Mass excavation and subgrade preparation;
 - 3. Anchor trench and leak detection system trench excavation;
 - 4. Installation of needle-punched geosynthetic clay liner (GCL) consisting of woven and nonwoven geotextiles;
 - 5. Installation of 60-mil HDPE secondary geomembrane;
 - 6. Installation of leak detection system 4-inch and 18-inch PVC pipe and fittings;
 - 7. Installation of aggregate within leak detection system pipe trench and sump;
 - 8. Installation of 300 mil geonet;
 - 9. Installation of 60-mil HDPE primary geomembrane;
 - 10. Installation of 16 oz./SY nonwoven geotextile cushion;
 - 11. Installation of slimes drain 4-inch and 18-inch PVC pipe and fittings;
 - 12. Installation of aggregate around slimes drain and within sump; and
 - 13. Installation of strip composite drainage layer.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Start, layout, construct, and complete the Project in accordance with the Technical Specifications, CQA Plan, and Drawings (Contract Documents).
- B. Provide a competent Site superintendent, capable of reading and understanding the Construction Documents, who shall receive instructions from the Construction Manager.
- C. Establish means, techniques, and procedures for constructing and otherwise executing the Work.
- D. Establish and maintain proper Health and Safety practices for the duration of the Project.
- E. Except as otherwise specified, furnish the following and pay the cost thereof:
 - 1. Labor, superintendent, and products.
 - 2. Construction supplies, equipment, tools, and machinery.
 - 3. Water, electricity, and other utilities required for construction.
 - 4. Other facilities and services necessary to properly execute and complete the Work.

5. A Registered Land Surveyor, licensed in the State of Utah, to survey and layout the Work, and to certify as-built Record Drawings.
- F. Pay cost of legally required sales, consumer, and use taxes and governmental fees.
- G. Perform Work in accordance with codes, ordinances, rules, regulations, orders, and other legal requirements of governmental bodies and public agencies bearing on performance of Work.
- H. Forward submittals and communications to the Construction Manager. Where applicable, the Construction Manager will coordinate submittals and communications with the representatives who will give approvals and directions through the Construction Manager.
- I. Maintain order, safe practices, and proper conduct at all times among Contractor's employees. The Owner, and its authorized representative, may require that disciplinary action be taken against an employee of the Contractor for disorderly, improper, or unsafe conduct. Should an employee of the Contractor be dismissed from his duties for misconduct, incompetence, or unsafe practice, or combination thereof, that employee shall not be rehired for the duration of the Work.
- J. Coordinate the Work with the utilities, private utilities, and/or other parties performing work on or adjacent to the Site. Eliminate or minimize delays in the Work and conflicts with those utilities or contractors. Coordinate activities with the Construction Manager. Schedule private utility and public utility Work relying on survey points, lines, and grades established by the Contractor to occur immediately after those points, lines and grades have been established.
- K. Coordinate activities of the several trades, suppliers, and subcontractors, if any, performing the Work.

1.03 NOTIFICATION

- A. The Contractor shall notify the Construction Manager in writing if he elects to subcontract, sublet, or reassign any portion of the Work. This shall be done at the time the bid is submitted. The written statement shall describe the portion of the Work to be performed by the Subcontractor and shall include an indication, by reference if desired by the Construction Manager, that the Subcontractor is particularly experienced and equipped to perform that portion of the Work. No portion of the Work shall be subcontracted, sublet, or reassigned without written permission of the Construction Manager. Consent to subcontract, sublet, or reassign any portion of the Work by the Construction Manager shall not be considered as a testimony of the Construction Manager as to the qualifications of the Subcontractor and shall not be construed to relieve the Contractor of any responsibilities for completion of the Work.

1.04 CONFORMANCE

- A. Work shall conform to the Technical Specifications, CQA Plan, and Drawings that form a part of these Contract Documents.
- B. Omissions from the Technical Specifications, CQA Plan, and Drawings or the misdescription of details of Work which are necessary to carry out the intent of the Contract Documents are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the Work, but they shall be performed as if fully and correctly set forth and described in the Technical Specifications, CQA Plan, and Drawings.

1.05 DEFINITIONS

- A. **OWNER** - The term Owner means the International Uranium (USA) Corporation for whom the Work is to be provided.
- B. **CONSTRUCTION MANAGER** - The term Construction Manager means the firm responsible for project administration and project documentation control. All formal documents will be submitted to the Construction Manager for proper distribution and/or review. During the period of Work the Construction Manager will act as an authorized representative of the Owner.
- C. **DESIGN ENGINEER** - The term Design Engineer means the firm responsible for the design and preparation of the Construction Documents. The Engineer is responsible for approving all design changes, modifications, or clarifications encountered during construction. The Design Engineer reports directly to the Owner.
- D. **CQA ENGINEER** - The term CQA Engineer refers to the firm responsible for CQA related monitoring and testing activities. The CQA Engineer's authorized personnel will include CQA Engineer-of-Record and Lead CQA Monitor. The CQA Engineer may also perform CQC work as appropriate. The CQA Engineer reports directly to the Owner.
- E. **CONTRACTOR** - The term Contractor means the firm that is responsible for the Work. The Contractor's responsibilities include the Work of any and all of subcontractors and suppliers. The Contractor reports directly to the Construction Manager. All subcontractors report directly to the Contractor.
- F. **SURVEYOR** - The term Surveyor means the firm that will perform survey and provide as-built Record Drawings for the Work. The Surveyor shall be a Registered Land Surveyor, licensed to practice in the State of Utah. The Surveyor is employed by and reports directly to the Contractor.
- G. **SITE** - The term Site refers to all approved staging areas, and all areas where the Work is to be performed, both public and privately owned.
- H. **WORK** - The term Work means the entire completed construction, or various separately identifiable parts thereof, required to be furnished under the Contract Documents. Work includes any and all labor, services, materials, equipment, tools, supplies, and facilities required by the Contract Documents and necessary for the completion of the project. Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.
- I. **DAY** - A calendar day on which weather and other conditions not under the control of the Contractor will permit construction operations to proceed for the major part of the day with the normal working force engaged in performing the controlling item or items of Work which would be in progress at that time.
- J. **CONTRACT DOCUMENTS** - Contract Documents consist of the Technical Specifications, CQA Plan, and Drawings.

1.06 CONTRACT TIMES

- A. The time stated for completion and substantial completion shall be in accordance with the Contract Times specified in the Agreement. Extensions to the Contract Time of performance shall be granted for those days when the Contractor is unable to work due to adverse weather conditions or as a result of abnormal conditions. Extension of time of performance based on adverse weather conditions shall be granted when requested by the Contractor and reviewed

in writing by the Construction Manager. All requests for extensions of time by the Contractor based on adverse weather conditions must be submitted in writing to the Construction Manager within five (5) working days of the time in question. No claims for damages shall be made by the Contractor for delays.

- B. Contractor shall adhere to the schedule provided in the Contract. Unapproved extensions to the schedule will result in the Contractor paying liquidated damages in the amount of \$4,000 per day to cover costs associated with Construction Management and construction oversight.

1.07 CONTRACTOR USE OF WORK SITE

- A. Confine Site operations to areas permitted by law, ordinances, permits, and the Contract Documents. The Contractor shall ensure that all persons under his control (including Subcontractors and their workers and agents) are kept within the boundaries of the Site and shall be responsible for any acts of trespass or damage to property by persons who are under his control. Consider the safety of the Work, and that of people and property on and adjacent to work Site, when determining amount, location, movement, and use of materials and equipment on work Site.
- B. The Contractor shall be responsible for protecting private and public property including pavements, drainage culverts, electricity, highway, telephone, and similar property and shall make good of, or pay for, all damage caused thereto. Control of erosion throughout the project is of prime importance and is the responsibility of the Contractor. The Contractor shall provide and maintain all necessary measures to control erosion during progress of the Work to the satisfaction of the Construction Manager and all applicable laws and regulations, and shall remove such measures and collected debris upon completion of the project. All provisions for erosion and sedimentation control apply equally to all areas of the Work.
- C. Contractor shall promptly notify the Construction Manager in writing of any subsurface or latent physical conditions at the Site that differ materially from those indicated or referred to in the Contract Documents. Construction Manager will promptly review those conditions and advise Owner in writing if further investigations or tests are necessary. If the Construction Manager finds that the results of such investigations or tests indicate that there are subsurface and latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by Contractor, a Change Order shall be issued incorporating the necessary revisions.
- D. At no time shall Contractor interfere with operations of businesses on or in the vicinity of the Site. Should the Contractor need to work outside the regular working hours, the Contractor is required to submit a written request and obtain approval by the Construction Manager.

1.08 PRESERVATION OF SCIENTIFIC INFORMATION

- A. Federal and State legislation provides for the protection, preservation, and collection of data having scientific, prehistoric, historical, or archaeological value (including relics and specimens) that might otherwise be lost due to alteration of the terrain as a result of any construction work. If evidence of such information is discovered during the course of the Work, the Contractor shall notify the Construction Manager immediately, giving the location and nature of the findings. Written confirmation shall be forwarded within two (2) working days.
- B. The Contractor shall exercise care so as not to damage artifacts uncovered during excavation operations, and shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Construction Manager or Government agency.

- C. Where appropriate, by reason of a discovery, the Construction Manager may order delays in the time of performance, or changes in the Work, or both. If such delays, or changes, or both, are ordered, the time of performance and contract price shall be adjusted in accordance with the applicable clauses of the Contract.

1.09 MEASUREMENT AND PAYMENT

- A. Measurement for Work will be according to the work items listed in Section 01025 of these Specifications.

1.10 EXISTING UTILITIES

- A. The Contractor shall be responsible for locating, uncovering, protecting, flagging, and identifying all existing utilities encountered while performing the Work. The Contractor shall request that Underground Service Alert (USA) locate and identify the existing utilities. The request shall be made 48 hours in advance.
- B. Costs resulting from damage to utilities shall be borne by the Contractor. Costs of damage shall include repair and compensation for incidental costs resulting from the unscheduled loss of utility service to affected parties.
- C. The Contractor shall immediately stop work and notify the Construction Manager of all utilities encountered and damaged. The Contractor shall also Survey the exact location of any utilities encountered during construction.

1.11 CONTRACTOR QUALIFICATIONS

- A. The Contractor, and all subcontractors, shall be licensed at the time of bidding, and throughout the period of the Contract, by the State of Utah to do the type of work required under terms of these Contract Documents. By submitting a bid, the Contractor certifies that he is skilled, competent, and knowledgeable on the nature, extent and inherent conditions of the Work to be performed and has been regularly engaged in the general class and type of work called for in these Contract Documents and meets the qualifications required in these Specifications.
- B. The Construction Manager shall disqualify a bidder that either cannot provide references, or if the references cannot substantiate the Contractor's qualifications.
- C. By submission of a bid for this Project, the Contractor acknowledges that he is thoroughly familiar with the Site conditions.

1.12 INTERPRETATION OF TECHNICAL SPECIFICATIONS, CQA PLAN, AND DRAWINGS

- A. Should it appear that the Work to be done or any matters relative thereto are not sufficiently detailed or explained in the Technical Specifications, CQA Plan, and/or Drawings, the Design Engineer will further explain or clarify, as may be necessary. In the event of any questions arising respecting the true meaning of the Contract Documents, the matter shall be referred to the Design Engineer, whose decision thereon shall be final.

1.13 HEALTH AND SAFETY

- A. The Contractor shall be responsible for health and safety of its own crew, subcontractors, suppliers, and visitors. Contractor shall adhere to the Contractor Safety Rules for the site.

1.14 GENERAL REQUIREMENTS

- A. **SURVEYING** - The Surveyor shall be responsible for all surveying required to layout and control the Work. Surveying shall be conducted such that all applicable standards required by the State of California.
- B. **PERMITS** - The Contractor shall be required to obtain permits in accordance with construction of the facility.
- C. **SEDIMENTATION, EROSION CONTROL, AND DEWATERING** - Contractor shall comply with all laws, ordinances, and permits for controlling erosion, water pollution, and dust emissions resulting from construction activities; the Contractor shall be responsible for any fines imposed due to noncompliance. The Contractor shall perform work in accordance with the Storm Water Pollution Prevention Plan (SWPPP) provided by the Owner. The Contractor shall pump all water generated from dewatering into Cell 3, as directed by the Construction Manager.
- D. **PROTECTION OF EXISTING SERVICES AND WELLS** - The Contractor shall exercise care to avoid disturbing or damaging the existing monitor wells, electrical poles and lines, permanent below-ground utilities, permanent drainage structures, and temporary utilities and structures. When the Work requires the Contractor to be near or to cross locations of known utilities, the Contractor shall carefully uncover, support and protect these utilities and shall not cut, damage, or otherwise disturb them without prior authorization from the Construction Manager. All utilities or wells damaged by the Contractor shall be immediately repaired by the Contractor to the satisfaction of the Construction Manager at no additional cost.
- E. **BURNING** - The use of open fires for any reason is prohibited.
- F. **TEMPORARY ROADS** - The Contractor shall be responsible for constructing and maintaining all temporary roads and lay down areas that the Contractor may require in the execution of the Work.
- G. **CONSTRUCTION WATER** - The Contractor shall obtain for water from the Owner for construction and dust control. The Contractor shall not add substances (such as soap) to construction water. The Contractor shall utilize measuring devices that allow him to track the volume of water used. Such usage records shall be maintained and provided to the Construction Manager.
- H. **COOPERATION** - The Contractor shall cooperate with all other parties engaged in project-related activities to the greatest extent possible. Disputes or problems should be referred to the Construction Manager for resolution.
- I. **FAMILIARIZATION** - The Contractor is responsible for becoming familiar with all aspects of the Work prior to performing the Work.
- J. **SAFEGUARDS** - The Contractor shall provide and use all personnel safety equipment, barricades, guardrails, signs, lights, flares, and flagmen as required by OSHA, state, or local codes and ordinances. No excavations deeper than 4 feet with side slopes steeper than 2:1 (horizontal:vertical) shall be made without the prior approval of the Design Engineer and the Construction Manager. When shoring is required, the design and inspection of such shoring shall be the Contractor's responsibility and shall be subject to the review of the Design

Engineer and Construction Manager prior to use. No personnel shall Work within or next to an excavation requiring shoring until such shoring has been installed, inspected, and approved by an engineer registered in the State of Utah. The Contractor shall be responsible for any fines imposed due to violation of any laws and regulations relating to the safety of the Contractor's personnel.

- K. CLEAN-UP - The Contractor shall be responsible for general housekeeping during construction. Upon completion of the Work, the Contractor shall remove all of his equipment, facilities, construction materials, and trash. All disturbed surface areas shall be re-paved, re-vegetated, or otherwise put into the pre-existing condition before performing the Work, or a condition satisfactory to the Construction Manager.
- L. SECURITY - The Contractor is responsible for the safety and condition of all of his tools and equipment.
- M. ACCEPTANCE OF WORK - The Contractor shall retain ownership and responsibility for all Work until accepted by Construction Manager. Construction Manager will accept ownership and responsibility for the Work: (i) when all Work is completed; and (ii) after the Contractor has submitted all required documentation, including manufacturing quality control documentation and manufacturing certifications.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

NOT USED.

[END OF SECTION]

**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This section covers measurement and payment criteria applicable to the Work performed under lump sum and unit price payment methods, and non-payment for rejected work.

1.02 RELATED SECTIONS

- A. This section relates to all other sections of the contract.

1.03 AUTHORITY

- A. Measurement methods delineated in the individual specification sections are intended to complement the criteria of this section. In the event of conflict, the requirements of the individual specification section shall govern.
- B. A surveyor, licensed in the State of Utah, hired by the Contractor will take all measurements and compute quantities accordingly. All measurements, cross-sections and quantities shall be stamped and certified by the licensed surveyor and submitted to the Construction Manager. The Construction Manager maintains the right to provide additional measurements and calculation of quantities to verify measurements and quantities submitted by the Contractor.

1.04 UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated in the Bid Schedule are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Construction Manager shall determine payment. If the actual work requires more or fewer quantities than those quantities indicated, the Contractor shall provide the required quantities at the lump sum and unit prices contracted unless modified elsewhere in these Contract Documents.
- B. Utah sales tax shall be included in each bid item as appropriate.

1.05 MEASUREMENT OF QUANTITIES

- A. Measurement by Volume: Measurement shall be by the cubic dimension using mean lengths, widths and heights or thickness, or by average end area method as measured by the surveyor. All measurement shall be the difference between the original ground surface and the design ("neat-line") dimensions and grades.
- B. Measurement by Area: Measurement shall be by the square dimension using mean lengths and widths and/or radius as measured by the surveyor. All measurement shall be the difference between the original ground surface and the design ("neat-line") dimensions and grades.
- C. Linear Measurement: Measurement shall be by the linear dimension, at the item centerline or mean chord. All measurement shall be the difference between the original ground surface and the design ("neat-line") dimensions and grades.
- D. Stipulated Lump Sum Measurement: Items shall be measured as a percentage by weight, volume, area, or linear means or combination, as appropriate, of a completed item or unit of Work.

1.06 PAYMENT

- A. Payment includes full compensation for all required labor, products, tools, equipment, transportation, services and incidentals; erection, application or installation of an item of the Work; and all overhead and profit. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Construction Manager multiplied by the unit price for Work which is incorporated in or made necessary by the Work.
- B. A monthly progress payment schedule will be used to compensate the Contractor for the Work. The monthly amount to be paid to the Contractor is calculated as the percent of completed work for each bid item multiplied by the total anticipated work for that bid item minus a 10 percent retainer.
- C. When the Contractor has completed all Work associated with completion of the project, the remaining 10 percent retainer of the contract amount will be paid to the Contractor after filing the Notice of Completion.

1.07 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment shall not be made for any of the following:
1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from the transporting vehicle.
 4. Products placed beyond the design lines, dimensions, grades and levels of the required Work.
 5. Products remaining on hand after completion of the Work.
 6. Loading, hauling, and disposing of rejected Products.
 7. Products rejected because of contamination (i.e. soil residues, fuel spills, solvents, etc.).

1.08 BID ITEMS

- A. The following bid items shall be used by the Owner and by the Contractor to bid the Work described in these bid documents.

BID ITEM	SECTION	DESCRIPTION	UNITS
1	01500	Construction Facilities	LS
2	01505	Mobilization / Demobilization	LS
3	02220	Subgrade Preparation	SF
4	02220	Anchor Trench	LF
5	02616	4-inch PVC Pipe and Fittings	LF
6	02616	18-inch PVC Pipe and Fittings	LF
7	02616	Strip Drain Composite	LF
8	02770	60-mil Smooth HDPE Geomembrane	SF
9	02772	Geosynthetic Clay Liner	SF

BID ITEM	SECTION	DESCRIPTION	UNITS
10	02773	300-mil Geonet	SF
11	03400	Cast-In-Place Concrete	LS

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

NOT USED.

[END OF SECTION]

**SECTION 01300
SUBMITTALS**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. This section contains requirements for administrative and work-related submittals such as construction progress schedules, Shop Drawings, test results, operation and maintenance data, and other submittals required by Contract Documents.
- B. Submit required materials to the Construction Manager for proper distribution and review in accordance with requirements of the Contract Documents.

1.02 CONSTRUCTION PROGRESS SCHEDULES

- A. The Contractor shall prepare and submit two (2) copies of the construction progress Schedule to the Construction Manager for review within 5 days after the effective date of Contract.
- B. Schedules shall be prepared in the form of a horizontal bar chart. The schedule shall include the following items.
 - 1. A separate horizontal bar for each operation.
 - 2. A horizontal time scale, which identifies the first workday of each week.
 - 3. A scale with spacing to allow space for notations and future revisions.
 - 4. Listings arranged in order of start for each item of the Work.
- C. The Construction Progress Schedule for construction of the Work shall include the following items where applicable.
 - 1. Submittals: dates for beginning and completion of each major element of construction and installation dates for major items. Elements shall include, but not be limited to, the following items which are applicable:
 - a. Mobilization schedule
 - b. Demobilization schedule.
 - c. Final site clean-up.
 - d. Show projected percentage of completion for each item as of first day of each week.
 - e. Show each individual Bid Item.
- D. Schedule Revisions:
 - 1. Bi-weekly to reflect changes in progress of Work.
 - 2. Indicate progress of each activity at submittal date.
 - 3. Show changes occurring since the previous schedule submittal. Changes shall include the following.
 - a. Major changes in scope.
 - b. Activities modified since previous submittal.

- c. Revised projections of progress and completion.
 - d. Other identifiable changes.
4. Provide narrative report as needed to define:
- a. Problem areas, anticipated delays, and impact on schedule.
 - b. Recommended corrective action and its effect.

1.03 CONSTRUCTION WORK SCHEDULE

- A. The Contractor shall submit an updated 14-day work schedule at the beginning of each week by Monday morning at 8:00 a.m. The schedule shall address applicable line items from the construction project schedule with a refined level of detail for special activities.

1.04 SHOP DRAWINGS AND SAMPLES

- A. Shop Drawings, product data, and samples shall be submitted as required in individual Sections of the Specifications.
- B. The Contractor's Responsibilities:
- 1. Review Shop Drawings, product data, and samples prior to submittal.
 - 2. Determine and verify:
 - a. Field measurements.
 - b. Field construction criteria.
 - c. Catalog numbers and similar data.
 - d. Conformance with Specifications.
 - 3. Coordinate each submittal with requirements of the Work and Contract Documents.
 - 4. Notify the Construction Manager in writing, at the time of the submittal, of deviations from requirements of Contract Documents.
 - 5. Begin no fabrication or Work pertaining to required submittals until return of the submittals with appropriate approval.
 - 6. Designate dates for submittal and receipt of reviewed Shop Drawings and samples in the construction progress schedule.
- C. Submittals shall contain:
- 1. Date of submittal and dates of previous submittals.
 - 2. Project title and number.
 - 3. Contract identification.
 - 4. Names of:
 - a. The Contractor.
 - b. Supplier.
 - c. Manufacturer.
 - 5. Summary of items contained in the submittal.

6. Identification of the product with identification numbers, and the Drawing and Specification section numbers.
 7. Clearly identified field dimensions.
 8. Details required on the Drawings and in the Specifications.
 9. Manufacturer, model number, dimensions, and clearances, where applicable.
 10. Relation to adjacent or critical features of the Work or materials.
 11. Applicable standards, such as ASTM or Federal Specification numbers.
 12. Identification of deviations from Contract Documents.
 13. Identification of revisions on re-submittals.
 14. 8-in. by 3-in. blank space for the Contractor's and proper approval stamp.
 15. The Contractor's stamp, signed, certifying to review of the submittal, verification of the products, field measurements, field construction criteria, and coordination of information within the submittal with requirements of Work and Contract Documents.
- D. Re-submittal Requirements:
1. Re-submittal is required when corrections or changes in submittals are required by the Construction Manager, Design Engineer, or CQA Engineer. Re-submittals are required until all comments by the Construction Manager, Design Engineer, or CQA Engineer is addressed and the submittal is approved.
 2. Shop Drawings and Product Data:
 - a. Revise initial drawings or data and resubmit as specified for initial submittal.
 - b. Indicate changes made other than those requested by the Construction Manager, Design Engineer, or CQA Engineer.
- E. Distribute reproductions of Shop Drawings and copies of product data which have been accepted by the Construction Manager to:
1. Job site file.
 2. Record documents file.
- F. Construction Manager's Duties:
1. Verify that review comments are technically correct and are consistent with technical and contractual requirements of the work.
 2. Return submittals to the Contractor for distribution or re-submittal.
- G. Design Engineer's Duties:
1. Review submittals promptly for compliance with contract documents and in accordance with the schedule.
 2. Affix stamp and signature, and indicate either the requirements for re-submittal or no comments.
 3. Return submittals to the Construction Manager.
- H. CQA Engineer's Duties:

1. Review submittals promptly for compliance with contract documents and in accordance with the schedule.
2. Affix stamp and signature, and indicate either the requirements for re-submittal or no comments.
3. Return submittals to the Construction Manager.

1.05 TEST RESULTS AND CERTIFICATION

- A. Results of tests conducted by the Contractor on materials or products shall be submitted for review.
- B. Certification of products shall be submitted for review.

1.06 SUBMITTAL REQUIREMENTS

- A. Provide complete copies of required submittals as follows.
 1. Construction Work Schedule:
 - a. Two copies of initial schedule.
 - b. Two copies of each revision.
 2. Construction Progress Schedule:
 - a. Two copies of initial schedule.
 - b. Two copies of each revision.
 3. Shop Drawings: Two copies.
 4. Certification Test Results: Two copies.
 5. Other Required Submittals:
 - a. Two copies if required for review.
 - b. Two copies if required for record.
- B. Deliver the required copies of the submittals to the Construction Manager.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

NOT USED.

[END OF SECTION]

**SECTION 01400
QUALITY CONTROL**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Monitor quality control over suppliers, Manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with Manufacturers' instructions, including each step in sequence.
- C. Should Manufacturers' instructions conflict with Technical Specifications, request clarification from Design Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce workmanship of specified quality.

1.02 TOLERANCES

- A. Monitor tolerance control of installed products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with Manufacturers' tolerances. Should Manufacturers' tolerances conflict with Technical Specifications, request clarification from Design Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.03 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, complies with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of current issue on date of Notice to Proceed with construction, except where a specific date is established by code.
- C. Obtain copies of standards where required by product Specification sections.

1.04 INSPECTING AND TESTING SERVICES

- A. The CQA Engineer will perform construction quality assurance (CQA) inspections, tests, and other services specified in individual Sections of the Specification.
- B. The Contractor shall cooperate with CQA Engineer; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
- C. CQA testing or inspecting does not relieve Contractor, subcontractors, and suppliers from their requirements to perform quality control Work as indicated in the Technical Specifications.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

NOT USED.

[END OF SECTION]

**SECTION 01500
CONSTRUCTION FACILITIES**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Construction facilities include furnishing of all equipment, materials, tools, accessories, incidentals, labor, and performing all work for the installation of equipment and for construction of facilities, including their maintenance, operation, and removal, if required, at the completion of the Work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Construction facilities include, but are not limited to, the following equipment, materials, facilities, areas, and services:
 - 1. Parking Areas.
 - 2. Temporary Roads.
 - 3. Storage of Materials and Equipment.
 - 4. Construction Equipment.
 - 5. Temporary Sanitary Facilities.
 - 6. Temporary Water.
 - 7. First Aid Facilities.
 - 8. Health and Safety.
 - 9. Security.
- B. Construct/install, maintain, and operate construction facilities in accordance with the applicable federal, state, and local laws, rules, and regulations, and the Contract Documents.

1.03 GENERAL REQUIREMENTS

- A. Contractor is responsible for furnishing, installing, constructing, operating, maintaining, removing and disposing of the construction facilities, as specified in this Section, and as required for the completion of the Work under the Contract.
- B. Contractor shall maintain construction facilities in a clean, safe and sanitary condition at all times until completion of the Work.
- C. Contractor shall minimize land disturbances related to the construction facilities to the greatest extent possible and restore land, to the extent reasonable and practical, to its original contours by grading to provide positive drainage and by seeding the area to match with existing vegetation or as specified elsewhere.

1.04 TEMPORARY ROADS AND PARKING AREAS

- A. Temporary roads and parking areas are existing roads that are improved, or new roads constructed by Contractor for convenience of Contractor in the performance of the Work under the Contract.

- B. Contractor shall coordinate construction with Construction Manager.
- C. If applicable, coordinate all road construction activities with local utilities, fire, and police departments.
- D. Keep erosion to a minimum and maintain suitable grade and radii of curves to facilitate ease of movement of vehicles and equipment.
- E. Furnish and install longitudinal and cross drainage facilities, including, but not limited to, ditches, structures, pipes and the like.
- F. Clean equipment so that mud or dirt is not carried onto public roads. Clean up any mud or dirt transported by equipment on paved roads both on-site and off-site.

1.05 STORAGE OF MATERIALS AND EQUIPMENT

- A. Make arrangements for material and equipment storage areas. Locations and configurations of approved facilities are subject to the acceptance of the Construction Manager.
- B. Confine all operations, including storage of materials, to approved areas. Store materials in accordance with these Technical Specifications and the Construction Drawings.
- C. Store construction materials and equipment within boundaries of designated areas. Storage of gasoline or similar fuels must conform to state and local regulations and be limited to the areas approved for this purpose by the Construction Manager.

1.06 CONSTRUCTION EQUIPMENT

- A. Erect, equip, and maintain all construction equipment in accordance with all applicable statutes, laws, ordinances, rules, and regulations or other authority having jurisdiction.
- B. Provide and maintain scaffolding, staging, hoists, barricades, and similar equipment required for performance of the Work. Provide hoists or similar equipment with operators and signals, as required.
- C. Provide, maintain, and remove upon completion of the Work, all temporary rigging, scaffolding, hoisting equipment, debris boxes, barricades around openings and excavations, fences, ladders, and all other temporary work, as required for all Work hereunder.
- D. Construction equipment and temporary work must conform to all the requirements of state, county, and local authorities, OSHA, and underwriters that pertain to operation, safety, and fire hazard. Furnish and install all items necessary for conformity with such requirements, whether or not called for under separate Sections of these Technical Specifications.

1.07 TEMPORARY SANITARY FACILITIES

- A. Provide temporary sanitary facilities for use by all employees and persons engaged in the Work, including subcontractors, their employees and authorized visitors, and the Construction Manager.
- B. Sanitary facilities include enclosed chemical toilets and washing facilities. These facilities must meet the requirements of local public health standards.
- C. Locate sanitary facilities as approved by Construction Manager, and maintain in a sanitary condition during the entire course of the Work.

1.08 TEMPORARY WATER

- A. Make all arrangements for water needs from the Owner.
- B. Provide drinking water for all personnel at the site.

1.09 FIRST AID FACILITIES

- A. Provide first aid equipment and supplies to serve all Contractor personnel at the Site.

1.10 HEALTH AND SAFETY

- A. Provide necessary monitoring equipment and personal protective equipment in accordance with Contractor prepared Site Health and Safety Plan.

1.11 SECURITY

- A. Make all necessary provisions and be responsible for the security of the Work and the Site until final inspection and acceptance of the Work, unless otherwise directed by the Construction Manager.

1.12 SHUT-DOWN TIME OF SERVICE

- A. Do not disconnect or shut down any part of the existing utilities and services, except by express permission of Construction Manager.

1.13 MAINTENANCE

- A. Maintain all construction facilities, utilities, temporary roads, and the like in good working condition as required by the Construction Manager during the term of the Work.

1.14 STATUS AT COMPLETION

- A. Upon completion of the Work, or prior thereto, when so required by Construction Manager:
 - 1. Repair damage to roads caused by or resulting from the Contractor's work or operations.
 - 2. Remove and dispose of all construction facilities. Similarly, all areas utilized for temporary facilities shall be returned to near original, natural state, or as otherwise indicated or directed by the Construction Manager.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

- A. Providing for and complying with the requirements set forth in this Section for Construction Facilities as lump sum (LS) and payment will be based on the unit price provided on the Bid Schedule.

B. The following are considered incidental to the Work:

1. Mobilization.
2. Temporary roadways and parking areas.
3. Temporary sanitary facilities.
4. Decontamination of equipment.
5. Security.
6. Demobilization.

[END OF SECTION]

**SECTION 01505
MOBILIZATION / DEMOBILIZATION**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Mobilization consists of preparatory work and operations, including but not limited to those necessary for the movement of personnel and project safety; including: adequate personnel, equipment, supplies, and incidentals to the project Site; establishment of facilities necessary for work on the project; premiums on bond and insurance for the project and for other work and operations the Contractor must perform or costs the Contractor must incur before beginning work on the project, which are not covered in other bid items.
- B. Demobilization consists of work and operations including, but not limited to, movement of personnel, equipment, supplies, and incidentals off-site.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

4.01 GENERAL

- A. Providing for and complying with the requirements set forth in this Section as lump sum (LS) and payment will be based on the unit price provided on the Bid Schedule.
- B. The Contract Price for Mobilization / Demobilization shall include the provision for movement of equipment onto the job site; removal of all facilities and equipment at the completion of the project; cost of bonds, both prime and subcontractors; permits; preparation of a Health and Safety Plan; all necessary safety measures; and all other related mobilization and demobilization costs. Price bid for mobilization shall not exceed 10 percent of the total bid for the Project. Fifty percent of the mobilization bid price, less retention, will be paid on the initial billing provided all equipment and temporary facilities are in place and bond fees paid. The remaining 50 percent of the mobilization bid price will be paid on satisfactory removal of all facilities and equipment on completion of the project.

[END OF SECTION]

**SECTION 01560
TEMPORARY CONTROLS**

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Temporary Controls required during the term of the Contract for the protection of the environment and the health and safety of workers and general public.
- B. Furnishing all equipment, materials, tools, accessories, incidentals, and labor, and performing all work for the installation of equipment and construction of facilities, including their maintenance and operation during the term of the Contract.
- C. Temporary Controls include:
 - 1. Dust Control.
 - 2. Pollution Control.
 - 3. Traffic and Safety Controls.
- D. Perform Work as specified in the Technical Specifications and as required by the Construction Manager. Maintain equipment and accessories in clean, safe and sanitary condition at all times until completion of the Work.

1.02 DUST CONTROL

- A. Provide dust control measures in-accordance with the Technical Specifications. Dust control measures must meet requirements of applicable laws, codes, ordinances, and permits.
- B. Dust control consists of transporting water, furnishing required equipment, testing of equipment, additives, accessories and incidentals, and carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust originating from construction operations throughout the duration of the Work.

1.03 POLLUTION CONTROL

- A. Pollution of Waterways:
 - 1. Perform Work using methods that prevent entrance or accidental spillage of solid or liquid matter, contaminants, debris, and other objectionable pollutants and wastes into watercourses, flowing or dry, and underground water sources.
 - 2. Such pollutants and wastes will include, but will not be limited to, refuse, earth and earth products, garbage, cement, concrete, sewage effluent, industrial waste, hazardous chemicals, oil and other petroleum products, aggregate processing tailings, and mineral salts.
- B. Dispose of pollutants and wastes in accordance with applicable permit provisions or in a manner acceptable to and approved by the Construction Manager.

C. Storage and Disposal of Petroleum Product:

1. Petroleum products covered by this Section include gasoline, diesel fuel, lubricants, and refined and used oil. During project construction, store all petroleum products in such a way as to prevent contamination of all ground and surface waters and in accordance with local, state, and federal regulations.
2. Lubricating oil may be brought into the project area in steel drums or other means, as the Contractor elects. Store used lubricating oil in steel drums, or other approved means, and return them to the supplier for disposal. Do not burn or otherwise dispose of at the Site.
3. Secondary containment shall be provided for products stored on site, in accordance with the Owner provided Storm Water Pollution Prevention Plan.

1.04 TRAFFIC AND SAFETY CONTROLS

- A. Post construction areas and roads with traffic control signs or devices used for protection of workmen, the public, and equipment. Signs and devices must conform to the American National Standards Institute (ANSI) Manual on Uniform Traffic Control Devices for Streets and Highways.
- B. Remove signs or traffic control devices after they have finished serving their purpose. It is particularly important to remove any markings on road surfaces that under conditions of poor visibility could cause a driver to turn off the road or into traffic moving in the opposite direction.
- C. Provide flag persons, properly equipped with International Orange protective clothing and flags, as necessary, to direct or divert pedestrian or vehicular traffic. A full-time flag person shall be required for the duration of importation of fill.
- D. Barricades for protection of employees must conform to the portions of the ANSI Manual on Uniform Traffic Control Devices for Streets and Highways, relating to barricades.
- E. Guard and protect all workers, pedestrians, and the public from excavations, construction equipment, all obstructions, and other dangerous items or areas by means of adequate railings, guard rails, temporary walks, barricades, warning signs, sirens, directional signs, overhead protection, planking, decking, danger lights, etc.
- F. Construct and maintain fences, planking, barricades, lights, shoring, and warning signs as required by local authorities and federal and state safety ordinances, and as required to protect all property from injury or loss and as necessary for the protection of the public, and provide walks around any obstructions made in a public place for carrying out the Work covered in this Contract. Leave all such protection in place and maintained until removal is authorized by the Construction Manager.

1.05 MAINTENANCE

- A. Maintain all temporary controls in good working conditions during the term of the Contract for the safe and efficient transport of equipment and supplies, and for construction of permanent works.

1.06 STATUS AT COMPLETION

- A. Upon completion of the Work, or prior thereto as approved by the Construction Manager, remove all temporary controls and restore disturbed areas.

PART 2 – PRODUCTS

NOT USED.

PART 3 – EXECUTION

NOT USED.

PART 4 – MEASUREMENT AND PAYMENT

4.01 TEMPORARY CONTROLS

- A. Temporary Controls: the measurement and payment of temporary controls shall be in accordance with and as a part of Mobilization / Demobilization, as outlined in Section 01505.

[END OF SECTION]