

Project No. 904CM3028  
October 14, 2013  
Construction Documents



## Specifications

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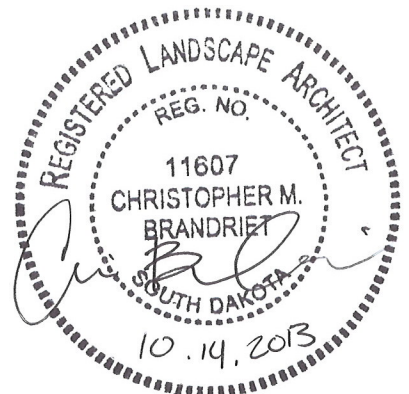
DEPARTMENT OF VETERANS AFFAIRS  
SANTA FE NATIONAL CEMETERY  
SANTA FE, NEW MEXICO

CONSTRUCT COLUMBARIUM AND CREMAINS

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**DEPARTMENT OF VETERANS AFFAIRS  
NCA MASTER SPECIFICATIONS**

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**SECTION 01 00 00  
GENERAL REQUIREMENTS**

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**SECTION 01 00 00  
GENERAL REQUIREMENTS**

**1.1 GENERAL INTENTION**

- A. Contractor shall completely prepare site for building operations, including demolition and removal of existing structures, and furnish labor and materials and perform work for columbarium walls, retaining walls, and in-ground cremain plots as required by drawings and specifications.
- B. Visits to the site by Bidders may be made only by appointment with the Cemetery Director.
- C. Offices of FourFront Design, Inc., as Architect-Engineers, will render certain technical services during construction. Such services shall be considered as advisory to the Government and shall not be construed as expressing or implying a contractual act of the Government without affirmations by RE/COTR or his duly authorized representative.
- D. All employees of general contractor and subcontractors shall comply with VA security management program and obtain permission of the VA police, be identified by project and employer, and restricted from unauthorized access.
- E. Prior to commencing work, general contractor shall provide proof that a OSHA certified "competent person" (CP) (29 CFR 1926.20(b)(2)) will maintain a presence at the work site whenever the general or subcontractors are present.
- F. Training:
  - 1. All employees of general contractor or subcontractors shall have the 10-hour OSHA certified Construction Safety course and /or other relevant competency training, as determined by VA CP
  - 2. Submit training records of all such employees for approval before the start of work.

**1.2 STATEMENT OF BID ITEM(S)**

- A. ITEM I, GENERAL CONSTRUCTION: Work includes general construction, alterations, roads, walks, grading, drainage, mechanical and electrical work, utility systems, and necessary removal of existing structures and construction and certain of other items.

### 1.3 SPECIFICATIONS AND DRAWINGS FOR CONTRACTOR

- A. Specifications and drawings may be made by the contractor, at their expense, downloaded from the solicitation.

### 1.4 CONSTRUCTION SECURITY REQUIREMENTS

#### A. Security Plan:

1. The security plan defines both physical and administrative security procedures that will remain effective for the entire duration of the project.
2. The General Contractor is responsible for assuring that all sub-contractors working on the project and their employees also comply with these regulations.

#### B. Security Procedures:

1. General Contractor's employees shall not enter the project site without signing in at the cemetery office. They may also be subject to inspection of their personal effects when entering or leaving the project site.
2. For working outside the "regular hours" as defined in the contract, The General Contractor shall give 3 days notice to the RE/COTR so that security arrangements can be provided for the employees. This notice is separate from any notices required for utility shutdown described later in this section.
3. No photography of VA premises is allowed without written permission of the RE/COTR.
4. VA reserves the right to close down or shut down the project site and order General Contractor's employees off the premises in the event of a national emergency. The General Contractor may return to the site only with the written approval of the RE/COTR.

#### C. Key Control:

1. The General Contractor shall provide duplicate keys and lock combinations to the RE/COTR for the purpose of security inspections of every area of project including tool boxes and parked machines and take any emergency action.

#### D. Document Control:

1. Before starting any work, the General Contractor/Sub Contractors shall submit an electronic security memorandum describing the approach to following goals and maintaining confidentiality of "sensitive information".
2. The General Contractor is responsible for safekeeping of all drawings, project manual and other project information. This



information shall be shared only with those with a specific need to accomplish the project.

3. Certain documents, sketches, videos or photographs and drawings may be marked "Law Enforcement Sensitive" or "Sensitive Unclassified". Secure such information in separate containers and limit the access to only those who will need it for the project. Return the information to the RE/COTR upon request.
4. These security documents shall not be removed or transmitted from the project site without the written approval of RE/COTR.
5. All paper waste or electronic media such as CD's and diskettes shall be shredded and destroyed in a manner acceptable to the VA.
6. Notify RE/COTR immediately when there is a loss or compromise of "sensitive information".
7. All electronic information shall be stored in a specified location following VA standards and procedures using an Engineering Document Management Software (EDMS).
  - a. Security, access and maintenance of all project drawings, both scanned and electronic shall be performed and tracked through the EDMS system.
  - b. "Sensitive information" including drawings and other documents may be attached to e-mail provided all VA encryption procedures are followed.

#### E. Motor Vehicle Restrictions

1. Vehicle authorization request shall be required for any vehicle entering the site and such request shall be submitted 24 hours before the date and time of access. Access shall be restricted to picking up and dropping off materials and supplies.

### 1.5 FIRE SAFETY

A. Applicable Publications: Publications listed below form part of this Article to the extent referenced. Publications are referenced in text by basic designations only.

1. American Society for Testing and Materials (ASTM):
  - E84-2009a.....Surface Burning Characteristics of Building Materials
2. National Fire Protection Association (NFPA):
  - 10-2010.....Standard for Portable Fire Extinguishers
  - 30-2008.....Flammable and Combustible Liquids Code
  - 51B-2009.....Standard for Fire Prevention During Welding, Cutting and Other Hot Work
  - 70-2008.....National Electrical Code

241-2009.....Standard for Safeguarding Construction,  
Alteration, and Demolition Operations

3. Occupational Safety and Health Administration (OSHA):

29 CFR 1926.....Safety and Health Regulations for Construction

- B. Fire Safety Plan: Establish and maintain a fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to RE/COTR/Cemetery Director for review for compliance with contract requirements in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. Prior to any worker for the contractor or subcontractor's beginning work, they shall undergo a safety briefing provided by the General Contractor's competent person per OSHA requirements. This briefing shall include information on the construction limits, safety guidelines, means of egress, break areas, work hours, locations of restrooms, use of NCA equipment, etc. Documentation shall be provided to the RE/COTR that individuals have undergone the Contractor's safety briefing.
- C. Site and Building Access: Maintain free and unobstructed access to emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- D. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).
- E. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- F. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with RE/COTR/Cemetery Director.
- G. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to RE/COTR.
- H. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- I. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.

- K. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with RE/COTR. Obtain permits from

RE/COTR at least 24 hours in advance . L. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to RE/COTR.

OM. Smoking: Smoking is prohibited in and adjacent to construction areas inside existing buildings and additions under construction. In separate and detached buildings under construction, smoking is prohibited except in designated smoking rest areas.

N. Dispose of waste and debris in accordance with NFPA 241. Remove from buildings daily.

O. Perform other construction, alteration and demolition operations in accordance with 29 CFR 1926.

#### **1.6 OPERATIONS AND STORAGE AREAS**

A. The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the RE/COTR. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

B. Temporary buildings (e.g., storage trailers, office trailers) and utilities may be erected by the Contractor only with the approval of the RE/COTR and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the RE/COTR, the buildings and utilities may be abandoned and need not be removed.

C. The Contractor shall, under regulations prescribed by the RE/COTR, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the RE/COTR. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads. **(FAR 52.236-10)**

D. Working space and space available for storing materials shall be as shown on the drawings.

E. Workmen are subject to rules of the Cemetery applicable to their conduct.

- F. Execute work so as to interfere as little as possible with normal functioning of Cemetery as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others.
1. Do not store materials and equipment in other than assigned areas.
  2. Schedule delivery of materials and equipment to immediate construction working areas within buildings in use by the Department of Veterans Affairs in quantities sufficient for not more than two work days. Provide unobstructed access to the Cemetery all areas required to remain in operation.
  3. Where access by Cemetery personnel to vacated portions of buildings is not required, storage of Contractor's materials and equipment will be permitted subject to fire and safety requirements. All such actions shall be coordinated with the Utility Company involved:
    - a. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- G. Phasing: To insure such executions, the Contractor shall furnish the RE/COTR with a schedule of approximate phasing dates on which the Contractor intends to accomplish work in each specific area of site, building or portion thereof. In addition, the Contractor shall notify the RE/COTR two weeks in advance of the proposed date of starting work in each specific area of site, building or portion thereof. Arrange such phasing dates to insure accomplishment of this work in successive phases mutually agreeable to the Cemetery Director, RE/COTR and Contractor, as follows:

**Phase I: Retaining Walls and Columbarium Walls**

**Phase II: Cremain Plots and Landscaping**

- H. Construction Fence: Before construction operations begin, the Contractor shall provide a chain link construction fence, 2.1m (seven feet) minimum height, around the construction area indicated on the drawings. Provide gates as required for access with necessary hardware, including hasps and padlocks. Fasten fence fabric to terminal posts with tension bands and to line posts and top and bottom rails with tie wires spaced at maximum 375mm (15 inches). Bottom of fences shall extend to 25mm (one inch) above grade. Remove the fence when directed by RE/COTR.

- I. Utilities Services: Maintain existing utility services for the Cemetery at all times. Provide temporary facilities, labor, materials, equipment, connections, and utilities to assure uninterrupted services. Where necessary to cut existing water, sewer or air pipes, or conduits, wires, cables, etc. of utility services or of fire protection systems and communications systems (including telephone), they shall be cut and capped at suitable places where shown; or, in absence of such indication, where directed by RE/COTR.
1. No utility service such as water, gas, steam, sewers or electricity, or fire protection systems and communications systems may be interrupted without prior approval of RE/COTR. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished, work on any energized circuits or equipment shall not commence without the RE/COTR, and Cemetery Director's prior knowledge and written approval. Refer to specification Sections 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS, for additional requirements.
  2. The Contractor shall submit a request to interrupt any such services to RE/COTR, and Cemetery Director, in writing, 48 hours in advance of proposed interruption. Request shall state reason, date, exact time of, and approximate duration of such interruption.
  3. The Contractor will be advised (in writing) of approval of request, or of which other date and/or time such interruption will cause least inconvenience to operations of the Cemetery . 4. Major interruptions of any system must be requested, in writing, at least 15 calendar days prior to the desired time and shall be performed as directed by the RE/COTR.
  5. In case of a contract construction emergency, service will be interrupted on approval of RE/COTR. Such approval will be confirmed in writing as soon as practical.
  6. Whenever it is required that a connection fee be paid to a public utility provider for new permanent service to the construction project, for such items as water, sewer, electricity, gas or steam, payment of such fee shall be the responsibility of the Government and not the Contractor.
- L. Abandoned Lines: All service lines such as wires, cables, conduits, ducts, pipes and the like, and their hangers or supports, which are to be abandoned but are not required to be entirely removed, shall be sealed, capped or plugged. The lines shall not be capped in finished areas, but shall be removed and sealed, capped or plugged in ceilings,

within furred spaces, in unfinished areas, or within walls or partitions; so that they are completely behind the finished surfaces.

- M. To minimize interference of construction activities with flow of Cemetery traffic, comply with the following:
  - 1. Keep roads, walks and entrances to grounds, to parking and to occupied areas of buildings clear of construction materials, debris and standing construction equipment and vehicles. Wherever excavation for new utility lines cross existing roads, at least one lane must be open to traffic at all times.
  - 2. Method and scheduling of required cutting, altering and removal of existing roads, walks and entrances must be approved by the RE/COTR.
- N. Coordinate the work for this contract with other construction operations as directed by RE/COTR. This includes the scheduling of traffic and the use of roadways, as specified in Article, USE OF ROADWAYS.
- O. Coordination of Construction with Cemetery Director: The burial activities at a National Cemetery shall take precedence over construction activities. The Contractor must cooperate and coordinate with the Cemetery Director, through the RE/COTR, in arranging construction schedule to cause the least possible interference with Cemetery activities in actual burial areas. Construction noise during the interment services shall not disturb the service. Trucks and workmen shall not pass through the service area during this period:
  - 1. The Contractor is required to discontinue his work sufficiently in advance of Easter Sunday, Mother's Day, Father's Day, Memorial Day, Veteran's Day and/or Federal holidays, to permit him to clean up all areas of operation adjacent to existing burial plots before these dates.
  - 2. Cleaning up shall include the removal of all equipment, tools, materials and debris and leaving the areas in a clean, neat condition.

#### **1.7 ALTERATIONS**

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the RE/COTR of areas in which alterations occur and areas which are anticipated routes of access, and furnish a report, signed by to the Contracting Officer. This report shall list by areas and spaces:
  - 1. Shall note any discrepancies between drawings and existing conditions at site.

2. Shall designate areas for working space, materials storage and routes of access to areas within buildings where alterations occur and which have been agreed upon by Contractor and RE/COTR.
- B. Any items required by drawings to be either reused or relocated or both, found during this survey to be nonexistent, or in opinion of RE/COTR, to be in such condition that their use is impossible or impractical, shall be furnished and/or replaced by the Contractor with new items in accordance with specifications which will be furnished by the Government. Provided the contract work is changed by reason of this subparagraph B, the contract will be modified accordingly, under provisions of clause entitled "DIFFERING SITE CONDITIONS" (FAR 52.236-2) and "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).
- C. Re-Survey: Thirty days before expected partial or final inspection date, the Contractor and RE/COTR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions then existing, of resilient flooring, doors, windows, walls and other surfaces as compared with conditions of same as noted in first condition survey report:
  1. Re-survey report shall also list any damage caused by the Contractor to such flooring and other surfaces, despite protection measures; and, will form the basis for determining extent of repair work required of the Contractor to restore damage caused by the Contractor's workmen in executing work of this contract.
- D. Protection: Provide the following protective measures:
  2. Temporary protection against damage for portions of existing structures and grounds where work is to be done, materials handled and equipment moved and/or relocated.

#### **1.8 ENVIRONMENTAL CONTROLS**

- A. In general, following preventive measures shall be adopted during construction to keep down dust.
- B. Final Cleanup:
  1. Upon completion of the project, or as work progresses, remove all construction debris from the site daily.

#### **1.9 DISPOSAL AND RETENTION**

- A. Materials and equipment accruing from work removed shall be disposed of as follows:
  1. Items not reserved shall become property of the Contractor and be removed by Contractor from the Cemetery.

2. Relocation of fill material on site must be approved by COTR and Cemetery Director. Location and haul route must be approved prior to any relocation.

#### **1.10 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS**

- A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the RE/COTR.
- B. The Contractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the RE/COTR may have the necessary work performed and charge the cost to the Contractor. **(FAR 52.236-9)**
- C. Refer to Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, for additional requirements on protecting vegetation, soils and the environment. Refer to Articles, "Alterations", "Restoration", and "Operations and Storage Areas" for additional instructions concerning repair of damage to structures and site improvements.
- D. Refer to FAR clause 52.236-7, "Permits and Responsibilities," which is included in General Conditions. A National Pollutant Discharge Elimination System (NPDES) permit is required for this project. The Contractor is considered an "operator" under the permit and has extensive responsibility for compliance with permit requirements. VA will make the permit application available at the (appropriate NCA Central/Cemetery) office. The apparent low bidder, contractor and affected subcontractors shall furnish all information and certifications



that are required to comply with the permit process and permit requirements. Many of the permit requirements will be satisfied by completing construction as shown and specified. Some requirements involve the Contractor's method of operations and operations planning and the Contractor is responsible for employing best management practices. The affected activities often include, but are not limited to the following:

1. Designating areas for equipment maintenance and repair;
2. Providing waste receptacles at convenient locations and provide regular collection of wastes;
3. Locating equipment wash down areas on site, and provide appropriate control of wash-waters;
4. Providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
5. Providing adequately maintained sanitary facilities.

#### **1.11 RESTORATION**

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work, and do not disturb any ducts, plumbing, steam, gas, or electric work without approval of the RE/COTR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the RE/COTR before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.
- B. Upon completion of contract, deliver work complete and undamaged. Existing work (walls, ceilings, partitions, floors, mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before commencing work.
- C. At the Contractor's own expense, the Contractor shall immediately restore to service and repair any damage caused by the Contractor's workmen to existing piping and conduits, wires, cables, etc., of utility services or of fire protection systems and communications systems (including telephone) which are indicated on drawings and which are not scheduled for discontinuance or abandonment.
- D. Expense of repairs to such utilities and systems not shown on drawings or locations of which are unknown will be covered by adjustment to contract time and price in accordance with clause entitled "CHANGES"

(FAR 52.243-4 and VAAR 852.236-88) and "DIFFERING SITE CONDITIONS" (FAR 52.236-2).

#### **1.12 PHYSICAL DATA**

A. Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

1. The indications of physical conditions on the drawings and in the specifications are the result of site investigations by Terracon Consultants, Inc., 4905 Hawkins NE, Albuquerque, NM 87109.

##### **(FAR 52.236-4)**

- B. Subsurface conditions have been developed by core borings and test pits. Logs of subsurface exploration are shown diagrammatically on drawings.
- C. A copy of the soil report will be made available for inspection by bidders upon request to the Contracting Officer, and shall be considered part of the contract documents.
- D. The Government does not guarantee that other materials will not be encountered nor that proportions, conditions or character of several materials will not vary from those indicated by explorations. Bidders are expected to examine the site of work and logs of borings and, after investigation, decide for themselves the character of materials and make their bids accordingly. Upon proper application to the Department of Veterans Affairs, bidders will be permitted to make subsurface explorations of their own at site.

#### **1.13 PROFESSIONAL SURVEYING SERVICES**

A registered professional land surveyor or registered civil engineer whose services are retained and paid for by the Contractor shall perform services specified herein and in other specification sections. The Contractor shall certify that the land surveyor or civil engineer is not one who is a regular employee of the Contractor, and that the land surveyor or civil engineer has no financial interest in this contract.

#### **1.14 LAYOUT OF WORK**

- A. The Contractor shall lay out the work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at the Contractor's own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to

lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the RE/COTR. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the RE/COTR until authorized to remove them. If such marks are destroyed by the Contractor or through Contractor's negligence before their removal is authorized, the RE/COTR may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

**(FAR 52.236-17)**

- B. Establish and plainly mark center lines for each site element, lines for each gravesite control monument, and such other lines and grades that are reasonably necessary to properly assure that location, orientation, and elevations established for each such structure and/or addition, roads, parking lots, gravesite control monuments, are in accordance with lines and elevations shown on contract drawings.
- C. Following completion of general mass excavation and before any other permanent work is performed, establish and plainly mark (through use of appropriate batter boards or other means) sufficient additional survey control points or system of points as may be necessary to assure proper alignment, orientation, and grade of all major features of work. The Survey shall include, but not be limited to, location of lines and grades of footings, , center lines of columns in both directions, major utilities and elevations of slabs:
  - 1. Such additional survey control points or system of points thus established shall be checked and certified by a registered land surveyor or registered civil engineer. Furnish such certification to the RE/COTR before any work (such as footings, floor slabs, columns, walls, utilities and other major controlling features) is placed.
- D. During progress of work, and particularly as work progresses from floor to floor, the Contractor shall have line grades and plumbness of all major form work checked and certified by a registered land surveyor or registered civil engineer as meeting requirements of contract drawings. Furnish such certification to the RE/COTR before any major items of concrete work are placed. In addition, the Contractor shall furnish to the RE/COTR certificates from a registered land surveyor or registered civil engineer that the following work is complete in every respect as required by contract drawings.
  - 1. Lines of each building and/or addition.
  - 2. Elevations of bottoms of footings and tops of floors of each building and/or addition.

3. Lines and elevations of sewers and of all outside distribution systems.
  4. Lines of grave plot documentation.
  5. Lines of elevations of all swales and interment areas.
  6. Lines and elevations of roads, streets and parking lots.
  7. Lines and elevations of top of pre-placed crypts.
  8. Lines and elevations of grade over pre-placed crypts.
  9. Northing/Easting coordinate locations of all water, sanitary, storm, gas and irrigation structures, directional fittings, control wire and lines.
- E. Upon completion of the work, the Contractor shall furnish the RE/COTR with reproducible drawings, in Autocad form, at the scale of the contract drawings, showing the finished grade on the grid developed for constructing the work, including burial monuments and fifty foot stationing along new road centerlines. These drawings shall bear the seal of the registered land surveyor or registered civil engineer.
- F. The Contractor shall perform the surveying and layout work of this and other articles and specifications in accordance with the provisions of Article "Professional Surveying Services".

#### **1.15 AS-BUILT DRAWINGS**

- A. The Contractor shall maintain two full size sets of as-built drawings which will be kept current during construction of the project, which will include all contract changes, modifications and clarifications.
- B. All variations shall be shown in the same general detail as used in the contract drawings. To insure compliance, as-built drawings shall be made available for the RE/COTR's review, as often as requested.
- C. The Contractor shall deliver two approved completed sets of as-built drawings to the RE/COTR within 15 calendar days after each completed phase and after the acceptance of the project by the RE/COTR.

#### **1.16 USE OF ROADWAYS**

- A. For hauling, use only established public roads and roads on Cemetery property and, when authorized by the RE/COTR, such temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed by the Contractor at the Contractor's expense. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.

**1.17 TEMPORARY TOILETS**

- A. Provide where directed, (for use of all Contractor's workmen) ample temporary sanitary toilet accommodations with suitable sewer and water connections, or when approved by RE/COTR provide suitable dry closets where directed. Keep such places clean and free from flies, and all connections and appliances connected therewith are to be removed prior to completion of contract, and premises left perfectly clean.

**1.18 AVAILABILITY AND USE OF UTILITY SERVICES**

- A. The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. The Contractor shall carefully conserve any utilities furnished without charge.
- B.
- C. Water (for Construction and Testing): Furnish temporary water service.
  - 1. Obtain water by connecting to the Cemetery water distribution system. Provide reduced pressure backflow preventer at each connection. Water is available at no cost to the Contractor.
  - 2. Maintain connections, pipe, fittings and fixtures and conserve water-use so none is wasted. Failure to stop leakage or other wastes will be cause for revocation (at RE/COTR's discretion) of use of water from the Cemetery's system.

**1.19 TESTS**

- A. Conduct final tests required in various sections of specifications in presence of an authorized representative of the RE/COTR. Contractor shall furnish all labor, materials, equipment, instruments, and forms, to conduct and record such tests.
- B. All related components as defined above shall be functioning when any system component is tested. Tests shall be completed within a reasonably short period of time during which operating and environmental conditions remain reasonably constant.
- C. Individual test result of any component, where required, will only be accepted when submitted with the test results of related components and of the entire system.

## 1.20 INSTRUCTIONS

- A. The Contractor shall furnish Maintenance and Operating manuals and verbal instructions when required by the various sections of the specifications and as hereinafter specified.
- B. Manuals: Maintenance and operating manuals (four copies each) for each separate piece of equipment shall be delivered to the RE/COTR coincidental with the delivery of the equipment to the job site. Manuals shall be complete, detailed guides for the maintenance and operation of equipment. They shall include complete information necessary for starting, adjusting, maintaining in continuous operation for long periods of time and dismantling and reassembling of the complete units and sub-assembly components. Manuals shall include an index covering all component parts clearly cross-referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment, component, accessory and control shall be clearly and thoroughly explained. All necessary precautions for the operation of the equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of a different model, style, and size than that furnished will not be accepted.
- C. Instructions: the Contractor shall provide qualified, factory-trained manufacturers' representatives to give detailed instructions to assigned Department of Veterans Affairs personnel in the operation and complete maintenance for each piece of equipment. All such training will be at the job site. These requirements are more specifically detailed in the various technical sections. Instructions for different items of equipment that are component parts of a complete system; shall be given in an integrated, progressive manner. All instructors for every piece of component equipment in a system shall be available until instructions for all items included in the system have been completed. This is to assure proper instruction in the operation of inter-related systems. All instruction periods shall be at such times as scheduled by the RE/COTR and shall be considered concluded only when the RE/COTR is satisfied in regard to complete and thorough coverage. The Department of Veterans Affairs reserves the right to request the removal of, and substitution for, any instructor who, in the opinion of the RE/COTR, does not

demonstrate sufficient qualifications in accordance with requirements for instructors above.

#### **1.21 CONSTRUCTION SIGN**

- A. Provide a Construction Sign where directed by the RE/COTR. All wood members shall be of framing lumber. Cover sign frame with 0.7 mm (24 gage) galvanized sheet steel nailed securely around edges and on all bearings. Provide three 100 by 100 mm (4 inch by 4 inch) posts (or equivalent round posts) set 1200 mm (four feet) into ground. Set bottom of sign level at 900 mm (three feet) above ground and secure to posts with through bolts. Make posts full height of sign. Brace posts with 50 x 100 mm (two by four inch) material as directed.
- B. Paint all surfaces of sign and posts two coats of white gloss paint. Border and letters shall be of black gloss paint, except project title which shall be blue gloss paint.
- C. Maintain sign and remove it when directed by the RE/COTR.
- D. Detail Drawing of construction sign showing required legend and other characteristics of sign is shown on the drawings.

#### **1.22 CONSTRUCTION DIGITAL IMAGES**

- A. During the construction period through completion, furnish Department of Veterans Affairs with 250 views of digital images, including one color print of each view and one Compact Disc (CD) per visit containing those views taken on that visit. Digital views shall be taken of exterior and/or interior and aerial photographs as selected and directed by RE/COTR (RE). Each view shall be taken with a professional grade camera with minimum size of 6 megapixels (MP) and the images will be a minimum of 2272 x 1704 pixels for the 200x250mm (8x 10 inch) prints and 2592 x 1944 pixels for the 400x500 mm (16 x 20 inch) prints, as per these specifications:
  - 1. Normally such images including aerial photographs of the site will be taken at monthly intervals. However, the RE/COTR may also direct the taking of special digital images at any time prior to completion and acceptance of contract. If the number of trips to the site exceeds an average of one per month of the contract performance period then an adjustment in contract price will be made in accordance with clause

entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88) of Section 00 72 00, GENERAL CONDITIONS.

2. In event a greater or lesser number of images than specified above are required by the RE/COTR, adjustment in contract price will be made in accordance with clause entitled "CHANGES" (FAR 52.243-4 and VAAR 852.236-88).
- B. Images shall be taken by a commercial photographer and must show distinctly, at as large a scale as possible, all parts of work embraced in the picture.
- C. Prints shall be made on 200 x 250 mm (8 by 10 inch) regular-weight matte archival grade photographic paper and produced by a process with a minimum of 300 pixels per inch (PPI). Prints must be printed using the commercial RA4 process (inkjet prints will not be acceptable). Photographs shall have 200 x 200 mm (8 by 8 inch) full picture print with no margin on three sides and a 50 mm (2 inches) margin on the bottom for pre-typed self-adhesive identity label to be added by RE/COTR. It is required that the prints are professionally processed so the quality will meet or exceed that of the same size print made with a film camera. Prints must be shipped flat to the RE/COTR.
- D. Images on CD-ROM shall be recorded in JPEG format with a minimum of 24 bit color and no reduction in actual picture size. Compressed size of the file shall be no less than 80% or the original with no loss of information. File names shall contain the date the image was taken, the Project number and a unique sequential identifier. The CD-ROM shall also contain an index of all the images contained therein in either a TXT or Microsoft Word format.
- E. In case any set of prints are not submitted within five days of date established by RE/COTR for taking thereof, the RE/COTR may have such images/photographs taken and cost of same will be deducted from any money due to the Contractor.

### **1.23 HISTORIC PRESERVATION**

Where the Contractor or any of the Contractor's employees, prior to, or during the construction work, are advised of or discover any possible archeological, historical and/or cultural resources, the Contractor shall immediately notify the RE/COTR verbally, and then with a written follow up.



**1.24 PROJECT HEALTH AND SAFETY PLAN**

A. Prior to commencing any construction, the Contractor shall submit a site specific Project Health and Safety Plan (PHSP). At a minimum, the PHSP shall cover the following topics:

1. Organizational structure (including Responsible Persons)
2. Site Characterization and Job Hazard Identification
3. Site Control and Security
4. Training
5. Medical Surveillance
6. PPE
7. Exposure Monitoring
8. Heat Stress<sup>9</sup>
9. Spill Containment
10. Decontamination
11. Emergency Response
12. Confined Spaces
13. Hosting Operations
14. Trench Safety
15. Lockout/Tagout

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**SECTION 01 33 23**  
**SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

- 1-1. Refer to Articles titled SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FAR 52.236-21) and, SPECIAL NOTES (VAAR 852.236-91), in GENERAL CONDITIONS.
- 1-2. For the purposes of this contract, samples(including laboratory samples to be tested), test reports, certificates, and manufacturers' literature and data shall also be subject to the previously referenced requirements. The following text refers to all items collectively as SUBMITTALS.
- 1-3. Submit for approval, all of the items specifically mentioned under the separate sections of the specification, with information sufficient to evidence full compliance with contract requirements. Materials, fabricated articles and the like to be installed in permanent work shall equal those of approved submittals. After an item has been approved, no change in brand or make will be permitted unless:
  - A. Satisfactory written evidence is presented to, and approved by Contracting Officer, that manufacturer cannot make scheduled delivery of approved item or;
  - B. Item delivered has been rejected and substitution of a suitable item is an urgent necessity or;
  - C. Other conditions become apparent which indicates approval of such substitute item to be in best interest of the Government.
- 1-4. Forward submittals in sufficient time to permit proper consideration and approval action by Government. Time submission to assure adequate lead time for procurement of contract - required items. Delays attributable to untimely and rejected submittals will not serve as a basis for extending contract time for completion.
- 1-5. Submittals will be reviewed for compliance with contract requirements by Architect-Engineer, and action thereon will be taken by Resident Engineer on behalf of the Contracting Officer.
- 1-6. Upon receipt of submittals, Architect-Engineer will assign a file number thereto. Contractor, in any subsequent correspondence, shall refer to this file and identification number to expedite replies relative to previously approved or disapproved submittals.
- 1-7. The Government reserves the right to require additional submittals, whether or not particularly mentioned in this contract. If additional submittals beyond those required by the contract are furnished pursuant

to request therefor by Contracting Officer, adjustment in contract price and time will be made in accordance with Articles titled CHANGES (FAR 52.243-4) and CHANGES - SUPPLEMENT (VAAR 852.236-88) of the GENERAL CONDITIONS.

- 1-8. Schedules called for in specifications and shown on shop drawings shall be submitted for use and information of Department of Veterans Affairs and Architect-Engineer. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer and Architect-Engineer assumes no responsibility for checking schedules or layout drawings for exact sizes, exact numbers and detailed positioning of items.
- 1-9. Submittals must be submitted by Contractor only and shipped prepaid. Contracting Officer assumes no responsibility for checking quantities or exact numbers included in such submittals.
  - A. Submit other samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in quadruplicate, except where a greater number is specified.
  - B. Submittals will receive consideration only when covered by a transmittal letter signed by Contractor. Letter shall be sent via first class mail and shall contain the list of items, name of Cemetery, name of Contractor, contract number, applicable specification paragraph numbers, applicable drawing numbers (and other information required for exact identification of location for each item), manufacturer and brand, ASTM or Federal Specification Number (if any) and such additional information as may be required by specifications for particular item being furnished. In addition, catalogs shall be marked to indicate specific items submitted for approval.
    1. A copy of letter must be enclosed with items, and any items received without identification letter will be considered "unclaimed goods" and held for a limited time only.
    2. Each sample, certificate, manufacturers' literature and data shall be labeled to indicate the name and location of the Cemetery, name of Contractor, manufacturer, brand, contract number and ASTM or Federal Specification Number as applicable and location(s) on project.
    3. Required certificates shall be signed by an authorized representative of manufacturer or supplier of material, and by Contractor.
  - C. In addition to complying with the applicable requirements specified in preceding Article 1.9, samples which are required to have Laboratory

Tests (those preceded by symbol "LT" under the separate sections of the specification shall be tested, at the expense of Contractor, in a commercial laboratory approved by Contracting Officer.

1. Laboratory shall furnish Contracting Officer with a certificate stating that it is fully equipped and qualified to perform intended work, is fully acquainted with specification requirements and intended use of materials and is an independent establishment in no way connected with organization of Contractor or with manufacturer or supplier of materials to be tested.
  2. Certificates shall also set forth a list of comparable projects upon which laboratory has performed similar functions during past five years.
  3. Samples and laboratory tests shall be sent directly to approved commercial testing laboratory.
  4. Contractor shall send a copy of transmittal letter to COTR and to Architect-Engineer simultaneously with submission of material to a commercial testing laboratory.
  5. Laboratory test reports shall be sent directly to COTR for appropriate action.
  6. Laboratory reports shall list contract specification test requirements and a comparative list of the laboratory test results. When tests show that the material meets specification requirements, the laboratory shall so certify on test report.
  7. Laboratory test reports shall also include a recommendation for approval or disapproval of tested item.
- D. If submittal samples have been disapproved, resubmit new samples as soon as possible after notification of disapproval. Such new samples shall be marked "Resubmitted Sample" in addition to containing other previously specified information required on label and in transmittal letter.
- E. Approved samples will be kept on file by the Resident Engineer at the site until completion of contract, at which time such samples will be delivered to Contractor as Contractor's property. Where noted in technical sections of specifications, approved samples in good condition may be used in their proper locations in contract work. At completion of contract, samples that are not approved will be returned to Contractor only upon request and at Contractor's expense. Such request should be made prior to completion of the contract. Disapproved samples that are not requested for return by Contractor will be discarded after completion of contract.
- F. Submittal drawings (shop, erection or setting drawings) and schedules, required for work of various trades, shall be checked before submission

by technically qualified employees of Contractor for accuracy, completeness and compliance with contract requirements. These drawings and schedules shall be stamped and signed by Contractor certifying to such check.

- 1-10. Samples shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to

FourFront Design, Inc., Attn: Santa Fe NC Project Manager, 517 7th Street, Rapid City SD 57701.

(Architect-Engineer)

- 1-11. At the time of transmittal to the Architect-Engineer, the Contractor shall also send a copy of the complete submittal directly to the COTR.

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**SECTION 01 42 19**  
**REFERENCE STANDARDS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

This section specifies the availability and source of references and standards specified in the project manual under paragraphs APPLICABLE PUBLICATIONS and/or shown on the drawings.

**1.2 AVAILABILITY OF SPECIFICATIONS LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS FPMR PART 101-29 (FAR 52.211-1) (AUG 1998)**

- A. The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 and copies of specifications, standards, and commercial item descriptions cited in the solicitation may be obtained for a fee by submitting a request to - GSA Federal Supply Service, Specifications Section, Suite 8100, 470 East L'Enfant Plaza, SW, Washington, DC 20407, Telephone (202) 619-8925, Facsimile (202) 619-8978.
- B. If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

**1.3 AVAILABILITY FOR EXAMINATION OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-4) (JUN 1988)**

The specifications and standards cited in this solicitation can be examined at the following location:

DEPARTMENT OF VETERANS AFFAIRS  
Office of Construction & Facilities Management  
Facilities Quality Service (00CFM1A)  
811 Vermont Avenue, NW - Room 462  
Washington, DC 20420  
Telephone Number: (202) 461-8217  
Between 9:00 AM - 3:00 PM

**1.4 AVAILABILITY OF SPECIFICATIONS NOT LISTED IN THE GSA INDEX OF FEDERAL SPECIFICATIONS, STANDARDS AND COMMERCIAL ITEM DESCRIPTIONS (FAR 52.211-3) (JUN 1988)**

The specifications cited in this solicitation may be obtained from the associations or organizations listed below.

AA	Aluminum Association Inc. <a href="http://www.aluminum.org">http://www.aluminum.org</a>
AABC	Associated Air Balance Council <a href="http://www.aabchq.com">http://www.aabchq.com</a>
AAMA	American Architectural Manufacturer's Association <a href="http://www.aamanet.org">http://www.aamanet.org</a>
AAN	American Nursery and Landscape Association <a href="http://www.anla.org">http://www.anla.org</a>
AASHTO	American Association of State Highway and Transportation Officials <a href="http://www.aashto.org">http://www.aashto.org</a>
ACGIH	American Conference of Governmental Industrial Hygienists <a href="http://www.acgih.org">http://www.acgih.org</a>
ACI	American Concrete Institute <a href="http://www.aci-int.net">http://www.aci-int.net</a>
ACPA	American Concrete Pipe Association <a href="http://www.concrete-pipe.org">http://www.concrete-pipe.org</a>
ACPPA	American Concrete Pressure Pipe Association <a href="http://www.acppa.org">http://www.acppa.org</a>
ADC	Air Diffusion Council <a href="http://flexibleduct.org">http://flexibleduct.org</a>
AGA	American Gas Association <a href="http://www.aga.org">http://www.aga.org</a>
AGC	Associated General Contractors of America <a href="http://www.agc.org">http://www.agc.org</a>
AISC	American Institute of Steel Construction <a href="http://www.aisc.org">http://www.aisc.org</a>

AISI	American Iron and Steel Institute <a href="http://www.steel.org">http://www.steel.org</a>
AITC	American Institute of Timber Construction <a href="http://www.aitc-glulam.org">http://www.aitc-glulam.org</a>
ANLA	American Nursery & Landscape Association <a href="http://www.anla.org">http://www.anla.org</a>
ANSI	American National Standards Institute, Inc. <a href="http://www.ansi.org">http://www.ansi.org</a>
APA	The Engineered Wood Association <a href="http://www.apawood.org">http://www.apawood.org</a>
ARI	Air-Conditioning and Refrigeration Institute <a href="http://www.ari.org">http://www.ari.org</a>
ASAE	American Society of Agricultural Engineers <a href="http://www.asae.org">http://www.asae.org</a>
ASCE	American Society of Civil Engineers <a href="http://www.asce.org">http://www.asce.org</a>
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers <a href="http://www.ashrae.org">http://www.ashrae.org</a>
ASME	American Society of Mechanical Engineers <a href="http://www.asme.org">http://www.asme.org</a>
ASSE	American Society of Sanitary Engineering <a href="http://www.asse-plumbing.org">http://www.asse-plumbing.org</a>
ASTM	American Society for Testing and Materials <a href="http://www.astm.org">http://www.astm.org</a>
AWI	Architectural Woodwork Institute <a href="http://www.awinet.org">http://www.awinet.org</a>
AWS	American Welding Society <a href="http://www.aws.org">http://www.aws.org</a>
AWWA	American Water Works Association <a href="http://www.awwa.org">http://www.awwa.org</a>



BHMA	Builders Hardware Manufacturers Association <a href="http://www.buildershardware.com">http://www.buildershardware.com</a>
BIA	Brick Institute of America <a href="http://www.bia.org">http://www.bia.org</a>
CAGI	Compressed Air and Gas Institute <a href="http://www.cagi.org">http://www.cagi.org</a>
CGA	Compressed Gas Association, Inc. <a href="http://www.cganet.com">http://www.cganet.com</a>
CISCA	Ceilings and Interior Systems Construction Association <a href="http://www.cisca.org">http://www.cisca.org</a>
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">http://www.cispi.org</a>
CLFMI	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">http://www.chainlinkinfo.org</a>
CRA	California Redwood Association <a href="http://www.calredwood.org">http://www.calredwood.org</a>
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">http://www.crsi.org</a>
DHI	Door and Hardware Institute <a href="http://www.dhi.org">http://www.dhi.org</a>
EGSA	Electrical Generating Systems Association <a href="http://www.egsa.org">http://www.egsa.org</a>
EEI	Edison Electric Institute <a href="http://www.eei.org">http://www.eei.org</a>
EPA	Environmental Protection Agency <a href="http://www.epa.gov">http://www.epa.gov</a>
ETL	ETL Testing Laboratories, Inc. <a href="http://www.etl.com">http://www.etl.com</a>
FCC	Federal Communications Commission <a href="http://www.fcc.gov">http://www.fcc.gov</a>

FPS	The Forest Products Society <a href="http://www.forestprod.org">http://www.forestprod.org</a>
GANNA	Glass Association of North America <a href="http://www.cssinfo.com/info/ganna.html/">http://www.cssinfo.com/info/ganna.html/</a>
FM	Factory Mutual Insurance <a href="http://www.fmglobal.com">http://www.fmglobal.com</a>
GA	Gypsum Association <a href="http://www.gypsum.org">http://www.gypsum.org</a>
GSA	General Services Administration <a href="http://www.gsa.gov">http://www.gsa.gov</a>
HI	Hydraulic Institute <a href="http://www.pumps.org">http://www.pumps.org</a>
HPVA	Hardwood Plywood & Veneer Association <a href="http://www.hpva.org">http://www.hpva.org</a>
ICBO	International Conference of Building Officials <a href="http://www.icbo.org">http://www.icbo.org</a>
ICEA	Insulated Cable Engineers Association Inc. <a href="http://www.icea.net">http://www.icea.net</a>
IEEE	Institute of Electrical and Electronics Engineers <a href="http://www.ieee.org/">http://www.ieee.org/</a>
NBMA	Metal Buildings Manufacturers Association <a href="http://www.mbma.com">http://www.mbma.com</a>
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">http://www.naamm.org</a>
NAPHCC	Plumbing-Heating-Cooling Contractors Association <a href="http://www.phccweb.org.org">http://www.phccweb.org.org</a>
NBS	National Bureau of Standards See - NIST
NEC	National Electric Code See - NFPA National Fire Protection Association

NEMA      National Electrical Manufacturers Association  
<http://www.nema.org>

NFPA      National Fire Protection Association  
<http://www.nfpa.org>

NHLA      National Hardwood Lumber Association  
<http://www.natlhardwood.org>

NIH        National Institute of Health  
<http://www.nih.gov>

NIST      National Institute of Standards and Technology  
<http://www.nist.gov>

NLMA      Northeastern Lumber Manufacturers Association, Inc.  
<http://www.nelma.org>

NPA        National Particleboard Association  
 18928 Premiere Court  
 Gaithersburg, MD 20879  
 (301) 670-0604

NSF        National Sanitation Foundation  
<http://www.nsf.org>

NWWDA    Window and Door Manufacturers Association  
<http://www.nwwda.org>

OSHA      Occupational Safety and Health Administration  
 Department of Labor  
<http://www.osha.gov>

PCA        Portland Cement Association  
<http://www.portcement.org>

PCI        Precast Prestressed Concrete Institute  
<http://www.pci.org>

PPI        The Plastic Pipe Institute  
<http://www.plasticpipe.org>

PEI        Porcelain Enamel Institute, Inc.  
<http://www.porcelainenamel.com>

PTI                    Post-Tensioning Institute  
<http://www.post-tensioning.org>

RFCI                The Resilient Floor Covering Institute  
<http://www.rfci.com>

RIS                  Redwood Inspection Service  
 See - CRA

RMA                  Rubber Manufacturers Association, Inc.  
<http://www.rma.org>

SCMA                Southern Cypress Manufacturers Association  
<http://www.cypressinfo.org>

SDI                  Steel Door Institute  
<http://www.steeldoor.org>

IGMA                Insulating Glass Manufacturers Alliance  
<http://www.igmaonline.org>

SJI                    Steel Joist Institute  
<http://www.steeljoist.org>

SMACNA            Sheet Metal and Air-Conditioning Contractors  
 National Association, Inc.  
<http://www.smacna.org>

SSPC                The Society for Protective Coatings  
<http://www.sspc.org>

STI                    Steel Tank Institute  
<http://www.steeltank.com>

SWI                  Steel Window Institute  
<http://www.steelwindows.com>

TCA                  Tile Council of America, Inc.  
<http://www.tileusa.com>

TPI                    Truss Plate Institute, Inc.  
 583 D'Onofrio Drive; Suite 200  
 Madison, WI 53719  
 (608) 833-5900

UBC        The Uniform Building Code  
            See ICBO

UL         Underwriters' Laboratories Incorporated  
            <http://www.ul.com>

ULC        Underwriters' Laboratories of Canada  
            <http://www.ulc.ca>

WCLIB      West Coast Lumber Inspection Bureau  
            6980 SW Varns Road, P.O. Box 23145  
            Portland, OR 97223  
            (503) 639-0651

WRCLA      Western Red Cedar Lumber Association  
            P.O. Box 120786  
            New Brighton, MN 55112  
            (612) 633-4334

WWPA      Western Wood Products Association  
            <http://www.wwpa.org>

- - - E N D - - -

**SECTION 01 45 29**  
**TESTING LABORATORY SERVICES - RETAINED BY THE CONTRACTOR**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

This section specifies materials testing activities and inspection services required during project construction to be provided by a Testing Laboratory retained and paid for by Contractor.

**1.2 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. American Association of State Highway and Transportation Officials (AASHTO):
  - T27-06.....Sieve Analysis of Fine and Coarse Aggregates
  - T99-01 (R2004).....The Moisture-Density Relations of Soils Using a 2.5 Kg (5.5 lb.) Rammer and a 305 mm (12 in.) Drop
  - T104-99 (R2003).....Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
  - T180-01 (R2004).....Moisture-Density Relations of Soils using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop
  - T191-02(R2006).....Density of Soil In-Place by the Sand-Cone Method
- C. American Society for Testing and Materials (ASTM):
  - C31/C31M-08.....Making and Curing Concrete Test Specimens in the Field
  - C33-08.....Concrete Aggregates
  - C39/C39M-05.....Compressive Strength of Cylindrical Concrete Specimens
  - C109/C109M-08.....Compressive Strength of Hydraulic Cement Mortars
  - C138-08.....Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
  - C143/C143M-08.....Slump of Hydraulic Cement Concrete
  - C172-08.....Sampling Freshly Mixed Concrete
  - C173-08.....Air Content of freshly Mixed Concrete by the Volumetric Method
  - C330-05.....Lightweight Aggregates for Structural Concrete
  - C567-05.....Density Structural Lightweight Concrete
  - C780-08.....Pre-construction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

A. Accreditation Requirements: Testing Laboratory retained and paid for by Contractor must be accredited by one or more of the National Voluntary Laboratory Accreditation Program (NVLAP) programs acceptable in the geographic region for the project. Furnish to the RE/COTR a copy of the Certificate of Accreditation and Scope of Accreditation. For testing laboratories that have not yet obtained accreditation by a NVLAP program, submit an acknowledgement letter from one of the laboratory

accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the RE/COTR for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

1. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E329.
  2. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C1077.
  3. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D3666.
  4. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D3740.
  5. Laboratories engaged in inspection and testing of steel, stainless steel, and related alloys will be evaluated according to ASTM A880.
  6. Laboratories engaged in non-destructive testing (NDT) shall meet the requirements of ASTM E543.
  7. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.
- B. Inspection and Testing: Testing laboratory shall inspect materials and workmanship and perform tests described herein and additional tests requested by RE/COTR. When it appears materials furnished, or work performed by Contractor fail to meet construction contract requirements, Testing Laboratory shall direct attention of RE/COTR to such failure.
- C. Written Reports: Testing laboratory shall submit test reports to RE/COTR, Contractor, and Local Building Authority within 24 hours after each test is completed unless other arrangements are agreed to in writing by the RE/COTR. Submit reports of tests that fail to meet construction contract requirements on colored paper.
- D. Verbal Reports: Give verbal notification to RE/COTR immediately of any irregularity.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 EARTHWORK**

- A. General: The Testing Laboratory shall provide qualified personnel, materials, equipment, and transportation as required to perform the services identified/required herein, within the agreed to schedule and/or time frame. The work to be performed shall be as identified herein and shall include but not be limited to the following:



1. Observe fill and subgrades during proof-rolling to evaluate suitability of surface material to receive fill or base course. Provide recommendations to the RE/COTR regarding suitability or unsuitability of areas where proof-rolling was observed. Where unsuitable results are observed, witness excavation of unsuitable material and recommend to RE/COTR extent of removal and replacement of unsuitable materials and observe proof-rolling of replaced areas until satisfactory results are obtained.
2. Provide part time observation of fill placement and compaction and field density testing in building areas and provide part time observation of fill placement and compaction and field density testing in pavement areas to verify that earthwork compaction obtained is in accordance with contract documents.
3. Provide supervised geotechnical technician to inspect excavation, subsurface preparation, and backfill for structural fill.

B. Testing Compaction:

1. Determine maximum density and optimum moisture content for each type of fill, backfill and subgrade material used, in compliance with ASTM D698 and/or ASTM D1557.
2. Make field density tests in accordance with the primary testing method following ASTM D2922 wherever possible. Field density tests utilizing ASTM D1556, or ASTM D2167 shall be utilized on a case by case basis only if there are problems with the validity of the results from the primary method due to specific site field conditions. Should the testing laboratory propose these alternative methods, they should provide satisfactory explanation to the RE/COTR before the tests are conducted.
  - a. Pavement Subgrade: One test for each 335 m<sup>2</sup> (400 square yards), but in no case fewer than two tests.
  - b. Curb, Gutter, and Sidewalk: One test for each 90 m (300 feet), but in no case fewer than two tests.
  - c. Trenches: One test at maximum 30 m (100 foot) intervals per 1200 mm (4 foot) of vertical lift and at changes in required density, but in no case fewer than two tests.
  - d. Footing Subgrade: At least one test for each layer of soil on which footings will be placed. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested subgrade when acceptable to RE/COTR. In each compacted fill layer below wall

footings, perform one field density test for every 30 m (100 feet) of wall. Verify subgrade is level, all loose or disturbed soils have been removed, and correlate actual soil conditions observed with those indicated by test borings.

- C. Testing for Footing Bearing Capacity: Evaluate if suitable bearing capacity material is encountered in footing subgrade.
- D. Testing Materials: Test suitability of on-site and off-site borrow as directed by RE/COTR.

### **3.2 LANDSCAPING**

- A. Test topsoil for organic materials, pH, phosphate, potash content, and gradation of particles.
  - 1. Test for organic material by using ASTM D2974.
  - 2. Determine percent of silt, sand, clay, and foreign materials such as rock, roots, and vegetation.
- B. Submit laboratory test report of topsoil to RE/COTR.

### **3.3 ASPHALT CONCRETE PAVING**

- A. Aggregate Base Course:
  - 1. Determine maximum density and optimum moisture content for aggregate base material in accordance with ASTM D1557, Method D
  - 2. Make a minimum of three field density tests on each day's final compaction on each aggregate course in accordance with ASTM D1556.
  - 3. Sample and test aggregate as necessary to insure compliance with specification requirements for gradation, wear, and soundness as specified in the applicable state highway standards and specifications.
- B. Asphalt Concrete:
  - 1. Aggregate: Sample and test aggregates in stock pile and hot-bins as necessary to insure compliance with specification requirements for gradation (AASHTO T27), wear (AASHTO T96), and soundness (AASHTO T104).
  - 2. Temperature: Check temperature of each load of asphalt concrete at mixing plant and at site of paving operation.
  - 3. Density: Make a minimum of two field density tests in accordance with ASTM D1188 of asphalt base and surface course for each day's paving operation.

### **3.4 SITE WORK CONCRETE**

Test site work concrete including materials for concrete as required in Article CONCRETE of this section.

### 3.5 CONCRETE

#### A. Batch Plant Inspection and Materials Testing:

1. Perform continuous batch plant inspection until concrete quality is established to satisfaction of RE/COTR with concurrence of Contracting Officer and perform periodic inspections thereafter as determined by RE/COTR.
2. Periodically inspect and test batch proportioning equipment for accuracy and report deficiencies to RE/COTR.
3. Sample and test mix ingredients as necessary to insure compliance with specifications.
4. Sample and test aggregates daily and as necessary for moisture content. Test the dry rodded weight of the coarse aggregate whenever a sieve analysis is made, and when it appears there has been a change in the aggregate.
5. Certify, in duplicate, ingredients and proportions and amounts of ingredients in concrete conform to approved trial mixes. When concrete is batched or mixed off immediate building site, certify (by signing, initialing or stamping thereon) on delivery slips (duplicate) that ingredients in truck-load mixes conform to proportions of aggregate weight, cement factor, and water-cement ratio of approved trial mixes.

#### B. Field Inspection and Materials Testing:

1. Provide a technician at site of placement at all times to perform concrete sampling and testing.
2. Review the delivery tickets of the ready-mix concrete trucks arriving on-site. Notify the Contractor if the concrete cannot be placed within the specified time limits or if the type of concrete delivered is incorrect. Reject any loads that do not comply with the Specification requirements. Rejected loads are to be removed from the site at the Contractor's expense. Any rejected concrete that is placed will be subject to removal.
3. Take concrete samples at point of placement in accordance with ASTM C172. Mold and cure compression test cylinders in accordance with ASTM C31. Make at least three cylinders for each 40 m<sup>3</sup> (50 cubic yards) or less of each concrete type, and at least three cylinders for any one day's pour for each concrete type. After good concrete quality control has been established and maintained as determined by RE/COTR make three cylinders for each 80 m<sup>3</sup> (100 cubic yards) or less of each concrete type, and at least three cylinders from any one day's pour for each concrete type. Label each cylinder with an

identification number. RE/COTR may require additional cylinders to be molded and cured under job conditions.

4. Perform slump tests in accordance with ASTM C143. Test the first truck each day, and every time test cylinders are made. Test pumped concrete at the hopper and at the discharge end of the hose at the beginning of each day's pumping operations to determine change in slump.
5. Determine the air content of concrete per ASTM C173. For concrete required to be air-entrained, test the first truck and every 20 m<sup>3</sup> (25 cubic yards) thereafter each day. For concrete not required to be air-entrained, test every 80 m<sup>3</sup> (100 cubic yards) at random. For pumped concrete, initially test concrete at both the hopper and the discharge end of the hose to determine change in air content.
6. If slump or air content fall outside specified limits, make another test immediately from another portion of same batch.
7. Perform unit weight tests in compliance with ASTM C138 for normal weight concrete and ASTM C567 for lightweight concrete. Test the first truck and each time cylinders are made.
8. Notify laboratory technician at batch plant of mix irregularities and request materials and proportioning check.
9. Verify that specified mixing has been accomplished.
10. Environmental Conditions: Determine the temperature per ASTM C1064 for each truckload of concrete during hot weather and cold weather concreting operations:
  - a. When ambient air temperature falls below 4.4 degrees C (40 degrees F), record maximum and minimum air temperatures in each 24 hour period; record air temperature inside protective enclosure; record minimum temperature of surface of hardened concrete.
  - b. When ambient air temperature rises above 29.4 degrees C (85 degrees F), record maximum and minimum air temperature in each 24 hour period; record minimum relative humidity; record maximum wind velocity; record maximum temperature of surface of hardened concrete.
11. Inspect the reinforcing steel placement, including bar size, bar spacing, top and bottom concrete cover, proper tie into the chairs, and grade of steel prior to concrete placement. Submit detailed report of observations.
12. Observe conveying, placement, and consolidation of concrete for conformance to specifications.
13. Observe condition of formed surfaces upon removal of formwork prior to repair of surface defects and observe repair of surface defects.

14. Observe curing procedures for conformance with specifications, record dates of concrete placement, start of preliminary curing, start of final curing, end of curing period.
  15. Observe preparations for placement of concrete:
    - a. Inspect handling, conveying, and placing equipment, inspect vibrating and compaction equipment.
    - b. Inspect preparation of construction, expansion, and isolation joints.
  16. Observe preparations for protection from hot weather, cold weather, sun, and rain, and preparations for curing.
  17. Observe concrete mixing:
    - a. Monitor and record amount of water added at project site.
    - b. Observe minimum and maximum mixing times.
  18. Measure concrete flatwork for levelness and flatness as follows:
    - a. Perform Floor Tolerance Measurements  $F_F$  and  $F_L$  in accordance with ASTM E1155. Calculate the actual overall F- numbers using the inferior/superior area method.
    - b. Perform all floor tolerance measurements within 48 hours after slab installation and prior to removal of shoring and formwork.
    - c. Provide the Contractor and the RE/COTR with the results of all profile tests, including a running tabulation of the overall  $F_F$  and  $F_L$  values for all slabs installed to date, within 72 hours after each slab installation.
  19. Other inspections:
    - a. Grouting under base plates.
    - b. Grouting anchor bolts and reinforcing steel in hardened concrete.
- C. Laboratory Tests of Field Samples:
1. Test compression test cylinders for strength in accordance with ASTM C39. For each test series, test one cylinder at 7 days and one cylinder at 28 days. Use remaining cylinder as a spare tested as directed by RE/COTR. Compile laboratory test reports as follows: Compressive strength test shall be result of one cylinder, except when one cylinder shows evidence of improper sampling, molding or testing, in which case it shall be discarded and strength of spare cylinder shall be used.
  2. Make weight tests of hardened lightweight structural concrete in accordance with ASTM C567.
  3. Furnish certified compression test reports (duplicate) to RE/COTR. In test report, indicate the following information:
    - a. Cylinder identification number and date cast.
    - b. Specific location at which test samples were taken.

- c. Type of concrete, slump, and percent air.
- d. Compressive strength of concrete in MPa (psi).
- e. Weight of lightweight structural concrete in kg/m<sup>3</sup> (pounds per cubic feet).
- f. Weather conditions during placing.
- g. Temperature of concrete in each test cylinder when test cylinder was molded.
- h. Maximum and minimum ambient temperature during placing.
- i. Ambient temperature when concrete sample in test cylinder was taken.
- j. Date delivered to laboratory and date tested.

### **3.6 REINFORCEMENT**

- A. Review mill test reports furnished by Contractor.
- B. Make one tensile and one bend test in accordance with ASTM A370 from each pair of samples obtained.
- C. Written report shall include, in addition to test results, heat number, manufacturer, type and grade of steel, and bar size.
- D. Perform tension tests of mechanical and welded splices in accordance with ASTM A370.

### **3.7 ARCHITECTURAL PRECAST CONCRETE**

- A. Inspection at Plant: Forms, placement of reinforcing steel, concrete cover, and placement and finishing of concrete.
- B. Concrete Testing: Test concrete including materials for concrete as required in Article CONCRETE of this section, except make two test cylinders for each day's production of each strength of concrete produced.
- C. Inspect members to insure specification requirements for curing and finishes have been met.

### **3.8 MASONRY**

- A. Mortar Tests:
  - 1. Laboratory compressive strength test:
    - a. Comply with ASTM C780.
    - b. Obtain samples during or immediately after discharge from batch mixer.
    - c. Furnish molds with 50 mm (2 inch), 3 compartment gang cube.
    - d. Test one sample at 7 days and 2 samples at 28 days.
  - 2. Two tests during first week of operation; one test per week after initial test until masonry completion.
- B. Grout Tests:
  - 1. Laboratory compressive strength test:

- a. Comply with ASTM C1019.
  - b. Test one sample at 7 days and 2 samples at 28 days.
  - c. Perform test for each 230 m<sup>2</sup> (2500 square feet) of masonry.
- C. Masonry Unit Tests:
  - 1. Laboratory Compressive Strength Test:
    - a. Comply with ASTM C140.
    - b. Test 3 samples for each 460 m<sup>2</sup> (5000 square feet) of wall area.
- D. Prism Tests: For each type of wall construction indicated, test masonry prisms per ASTM C1314 for each 460 m<sup>2</sup> (5000 square feet) of wall area. Prepare one set of prisms for testing at 7 days and one set for testing at 28 days.

### 3.9 TYPE OF TEST

	Estimated Number of Tests Required
A. Earthwork:	
Laboratory Compaction Test, Soils:	
(ASTM D1557)	
	6
Field Density, Soils ASTM D2922	100
B. Landscaping:	
Topsoil Test	4
C. Aggregate Base:	
Laboratory Compaction, //(ASTM D1557)	_____
Field Density, ASTM 2922	_____
Aggregate, Base Course	
D. Asphalt Concrete:	
Field Density, ASTM D1188	10
Aggregate, Asphalt Concrete	
E. Concrete:	
Making and Curing Concrete Test Cylinders (ASTM C31)	25

Compressive Strength, Test Cylinders (ASTM C39)	25
Concrete Slump Test (ASTM C143)	15
Concrete Air Content Test (ASTM C173)	_____

Aggregate, Lightweight	
Gradation (ASTM C330)	5

#### F. Masonry:

Making and Curing Test Cubes (ASTM C109)	2
Compressive Strength, Test Cubes (ASTM C109)	2
Sampling and Testing Mortar, Comp. Strength (ASTM C780)	4
Sampling and Testing Grout, Comp. Strength (ASTM C1019)	4

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**SECTION 01 57 19**  
**TEMPORARY ENVIRONMENTAL CONTROLS**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the control of environmental pollution and damage that the Contractor must consider for air, water, and land resources. It includes management of visual aesthetics, noise, and solid waste, as well as other pollutants and resources encountered or generated by the Contractor. The Contractor is obligated to consider specified control measures with the costs included within the various contract items of work.
- B. Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which:
  - 1. Adversely effect human health or welfare.
  - 2. Unfavorably alter ecological balances of importance to human life.
  - 3. Effect other species of importance to humankind.
  - 4. Degrade the utility of the environment for aesthetic, cultural, and historical purposes.

**1.2 DEFINITIONS OF POLLUTANTS**

- A. Chemical Waste: Petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.
- B. Debris: Combustible and noncombustible wastes, such as leaves, tree trimmings, ashes, and waste materials resulting from construction or maintenance and repair work.
- C. Sediment: Soil and other debris that has been eroded and transported by runoff water.
- D. Solid Waste: Rubbish, debris, garbage, and other discarded solid materials resulting from project construction activities.
- E. Surface Discharge: The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "waters of the United States" and require a permit to discharge water from the governing agency.
- F. Rubbish: Combustible and noncombustible wastes such as, but not limited to, paper, plastic, metal and plastic containers and cans, boxes, metal and lumber scrap, .
- G. Sanitary Wastes: Domestic Sanitary Sewage.

### 1.3 QUALITY CONTROL

- A. Contractor shall establish and maintain quality control for the environmental protection of all items set forth herein.
- B. Contractor shall record on daily reports any problems in complying with laws, regulations, ordinances and note any corrective action taken.

### 1.4 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. U.S. National Archives and Records Administration (NARA):  
33 CFR 328.....Definitions, Waters of the United States.
- C. Federal Environmental Regulatory Requirements: Comply with applicable regulations. The following is for Contractor's information only:
  - 1. Storm water permits; refer to The Office of Wastewater Management, NPDES Storm Water Program: <http://www.epa.gov/npdes/stormwater>
  - 2. Dredge and fill (Section 404) permits; refer to U.S. EPA Office of Wetlands, Oceans, and Watersheds (OWOW): <http://www.epa.gov/owow/>
  - 3. RCRA hazardous and non-hazardous solid waste requirements; refer to EPA's Office of Solid Waste and Emergency Response:  
<http://www.epa.gov/epaoswer/osw/laws-reg.htm>
  - 4. Oil spill requirements for construction activities; refer to EPA Oil Program web site: <http://www.epa.gov/oilspill/>
  - 5. Hazardous substances (Superfund Liability) requirements for construction activities; refer to EPA's Superfund website:  
<http://www.epa.gov/superfund/index.htm>
  - 6. Polychlorinated Biphenyl (PCB) waste requirements; refer to EPA's Polychlorinated Biphenyl (PCB) Homepage: <http://www.epa.gov/pcb/>
  - 7. Air quality requirements for construction activities; refer to EPA'S Air Program Mobile Sources Page:  
<http://www.epa.gov/ebtpages/airmobilesources.html>
  - 8. Asbestos requirements for construction activities; refer to EPA's Asbestos Management and Regulatory Requirements Website:  
<http://www.epa.gov/fedsite/cd/asbestos.html>
  - 9. National Environmental Policy Act (NEPA) requirements for construction activities
  - 10. Endangered Species Act; refer to The US Fish and Wildlife Service Endangered Species Program: <http://endangered.fws.gov/>
  - 11. National Historic Preservation Act

C. State and Local Environmental Regulatory Requirements: Comply with applicable regulations. The following is for Contractor's information only:

1. State Office/Department of Environmental Quality.
2. Local Office/Department of Environmental Quality.
3. The Construction Industry Compliance Assistance Center:  
<http://www.cicacenter.org/index.cfm>
4. The National Environmental Compliance Assistance Clearinghouse:  
<http://cfpub.epa.gov/clearinghouse/>

#### **1.5 SUBMITTALS**

A. In accordance with Section, 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, the Contractor shall furnish the following:

1. Environmental Protection Plan: After the contract is awarded and prior to the commencement of the work, the Contractor shall meet with the Resident Engineer/COTR to discuss the proposed Environmental Protection Plan and to develop mutual understanding relative to details of environmental protection. Not more than 20 days after the meeting, the Contractor shall prepare and submit to the COTR for approval, a written and/or graphic Environmental Protection Plan including, but not limited to, the following:
  - a. Name(s) and qualifications of person(s) within the Contractor's organization who is (are) responsible for:
    - i. ensuring adherence to the Environmental Protection Plan.
  - b. Description of the Contractor's environmental protection personnel training program.
  - c. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, noise control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
  - d. Methods for protection of features to be preserved within authorized work areas including trees, shrubs, vines, grasses, ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, and archeological and cultural resources.
  - e. Procedures to provide environmental protection that complies with the applicable laws and regulations. Describe the procedures to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures as described in the Environmental Protection Plan.

- f. Permits, licenses, and the location of the solid waste disposal area.
  - g. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials. Include as part of an Erosion Control Plan approved by the District Office of the U.S. Soil Conservation Service and/or mandated state agency, and the Department of Veterans Affairs.
  - h. Environmental Monitoring Plans for the job site including land, water, air, and noise.
  - i. Work Area Plan showing the proposed activity in each portion of the area and identifying the areas of construction limits or protected areas. Plan should include measures for marking the limits of use areas. This plan may be incorporated within the Erosion Control Plan.
- B. Within 20 days after the date of its submittal, the Resident Engineer/COTR shall approve the Contractor's Comprehensive Environmental Protection Plan, or respond with an explanation for its rejection and resubmittal.
- C. Approval of the Contractor's Environmental Protection Plan will not relieve the Contractor of responsibility for adequate and continued control of pollutants and other environmental protection measures.

#### **1.6.PROTECTION OF ENVIRONMENTAL RESOURCES**

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the duration of this contract. Confine construction activities to areas defined by construction limits, the specifications and drawings.
  - B. Protection of Land Resources: Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, land forms, wetlands or wetland buffers without prior approval from the Resident Engineer/COTR. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or dictated by special emergency use.
1. Work Area Limits: Prior to any construction, mark/fence/protect the areas that require work to be performed under this contract. Mark/fence/protect monuments, works of art, and markers prior to construction. Convey to all personnel the purpose of marking and protecting all marked and protected objects.

2. Protection of Specific Regulated Elements: Wetlands and wetland buffers and other landscape features shown on the drawings to be preserved by marking, fencing, or using any other approved protective techniques.
  - a. Protect trees and shrubs to remain on site to protect from damage per contract details.
  - b. All damage to existing trees and shrubs shall be immediately repaired by trimming, cleaning, and painting with antiseptic tree paint. See Section 02 41 19.
  - c. Do not store building materials or perform construction activities closer to existing trees or shrubs than the farthest extension of their limbs.
3. Reduction of Exposure of Unprotected Erodible Soils: Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Clear areas only as needed to use to work the area to be developed. Form earthwork to final grade as shown as quickly as possible to minimize potential erosion damage. Immediately protect side slopes and back slopes upon completion of rough grading or clearing with appropriate material as defined in the Sediment and Erosion Control Plan.
4. Temporary Protection of Disturbed Areas: Construct diversion ditches, benches, check dams and berms to retard and divert runoff from the construction site to protected drainage areas as intended under paragraph 208 of the Clean Water Act.
  - a. Sediment Basins: Trap sediment from construction areas in temporary or permanent sediment basins that accommodate the runoff of a local 50 (design year) storm. After each storm, pump the basins dry and remove the accumulated sediment. Control overflow/drainage with paved weirs or by vertical overflow pipes, draining from the surface.
  - b. Reuse or conserve the collected topsoil sediment as directed by the Resident Engineer/COTR. Topsoil use and requirements are specified in Section 31 20 11, EARTH MOVING.
  - c. Institute effluent quality monitoring programs as required by Federal, State, and local environmental agencies.
5. Erosion and Sedimentation Control Devices: Construct or install all temporary and permanent erosion and sedimentation control features shown. Maintain temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and

- mulching, until permanent drainage and erosion control facilities are completed and operative.
6. Manage and control borrow and spoil areas on Government property to minimize erosion and to prevent soil and/or sediment from entering nearby water courses or lakes.
  7. Protect adjacent areas from despoilment by temporary excavations and embankments.
  8. Handle and dispose of solid wastes in such a manner that will prevent contamination of the environment. Place solid wastes (excluding clearing debris) in containers that are emptied on a regular schedule. Transport all solid waste off Government property and dispose of waste in compliance with Federal, State, and local requirements.
  9. Store chemical waste away from the work areas in corrosion resistant containers and dispose of waste in accordance with Federal, State, and local regulations.
  10. Handle discarded materials other than those included in the solid waste category as directed by the Resident Engineer/COTR.
- C. Protection of Water Resources: Keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters and sewer systems. Implement management techniques to control water pollution by the listed construction activities that are included in this contract.
1. Washing and Curing Water: Do not allow wastewater directly derived from construction activities to enter water areas. Collect and place wastewater in sediment basins prior to entering retention/detention ponds, allowing the suspended material to settle, the pollutants to separate, or the water to evaporate.
  2. Monitor water areas, wetlands and wetland buffers affected by construction.
- D. Protection of Fish and Wildlife Resources: Keep construction activities under surveillance, management, and control to minimize interference with, disturbance of, or damage to fish and wildlife. Prior to beginning construction operations, list protected species that require specific attention along with measures for their protection.
- E. Protection of Air Resources: Keep construction activities under surveillance, management, and control to minimize pollution of air resources. Burning is not permitted on the job site. Keep activities, equipment, processes, and work operated or performed, in strict accordance with the State of New Mexico and Federal emission and

performance laws and standards. Maintain ambient air quality standards set by the Environmental Protection Agency, for those construction operations and activities specified.

1. Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities, processing, and preparation of materials at all times, including weekends, holidays, and hours when work is not in progress.
2. Particulates Control: Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause a hazard or a nuisance. Sprinklering, chemical treatment of an approved type, light bituminous treatment, or other methods are permitted to control particulates in the work area as approved in the Environmental Protection Plan.
3. Hydrocarbons and Carbon Monoxide: Control monoxide emissions from equipment to Federal and State allowable limits.
4. Odors: Control odors of construction activities and prevent obnoxious odors from occurring.

F. Noise Control: Minimize noise using every action possible. Perform noise-producing work in less sensitive hours of the day or week as directed by the Resident Engineer/COTR. Maintain noise-produced work at or below the decibel levels and within the time periods specified.

1. Perform construction activities involving repetitive, high-level impact noise only between 6:00 a.m. and 6:00p.m unless otherwise permitted by local ordinance or the Resident Engineer/COTR. Repetitive impact noise on the property shall not exceed the following dB limitations:

Time Duration of Impact Noise	Sound Level in dB
More than 12 minutes in any hour	70
Less than 30 seconds of any hour	85
Less than three minutes of any hour	80
Less than 12 minutes of any hour	75

2. Provide sound-deadening devices on equipment and take noise abatement measures that are necessary to comply with the requirements of this contract, consisting of, but not limited to, the following:

- a. Maintain maximum permissible construction equipment noise levels at 15 m (50 feet) (dBA):

EARTHMOVING		MATERIALS HANDLING	
FRONT LOADERS	75	CONCRETE MIXERS	75
BACKHOES	75	CONCRETE PUMPS	75
DOZERS	75	CRANES	75
TRACTORS	75	DERRICKS IMPACT	75
SCAPERS	80	PILE DRIVERS	95
GRADERS	75	JACK HAMMERS	75
TRUCKS	75	ROCK DRILLS	80
PAVERS, STATIONARY	80	PNEUMATIC TOOLS	80
PUMPS	75	BLASTING	//--//
GENERATORS	75	SAWS	75
COMPRESSORS	75	VIBRATORS	75

- b. Provide soundproof housings or enclosures for noise-producing machinery.
- c. Use efficient silencers on equipment air intakes.
- d. Use efficient intake and exhaust mufflers on internal combustion engines that are maintained so equipment performs below noise levels specified.
- e. Line hoppers and storage bins with sound deadening material.
- f. Conduct truck loading, unloading, and hauling operations so that noise is kept to a minimum.
3. Measure sound level for noise exposure due to the construction at least once every five successive working days while work is being performed above 75 dB(A) noise level. Measure noise exposure at the property line or 15 m (50 feet) from the noise source, whichever is greater. Measure the sound levels on the A weighted sound level of a General Purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, take measurements at 900 to 1800 mm (three to six feet) in front of any building face. Submit the recorded information to the Resident Engineer/COTR noting any problems and the alternatives for mitigating actions.

G. Restoration of Damaged Property: If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no



additional cost to the Government. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.

- H. Final Clean-up: On completion of project and after removal of all debris, rubbish, and temporary construction, Contractor shall leave the construction area in a clean condition as approved by the Resident Engineer/COTR. Cleaning shall include off-cemetery disposal of all items and materials not required to be salvaged, as well as all debris and rubbish resulting from demolition and new work operations, clearing, logging and general construction in accordance with state and local regulations and the contract.

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