

Project Number 813-M&R17-06

Paint Maintenance Building Roofs

at the

Indiantown Gap National Cemetery (813)

TECHNICAL SPECIFICATION SECTIONS AND DRAWINGS - TABLE OF CONTENTS

SPECIFICATION SECTIONS:

01 00 02	General Requirements
01 33 23	Shop Drawings, Product Data, and Samples
01 57 19	Temporary Environmental Controls
01 74 19	Construction Waste Management
07 92 00	Joint Sealants
09 91 00	Painting
32 31 19	Decorative Metal Fences & Gates

DRAWINGS:

None

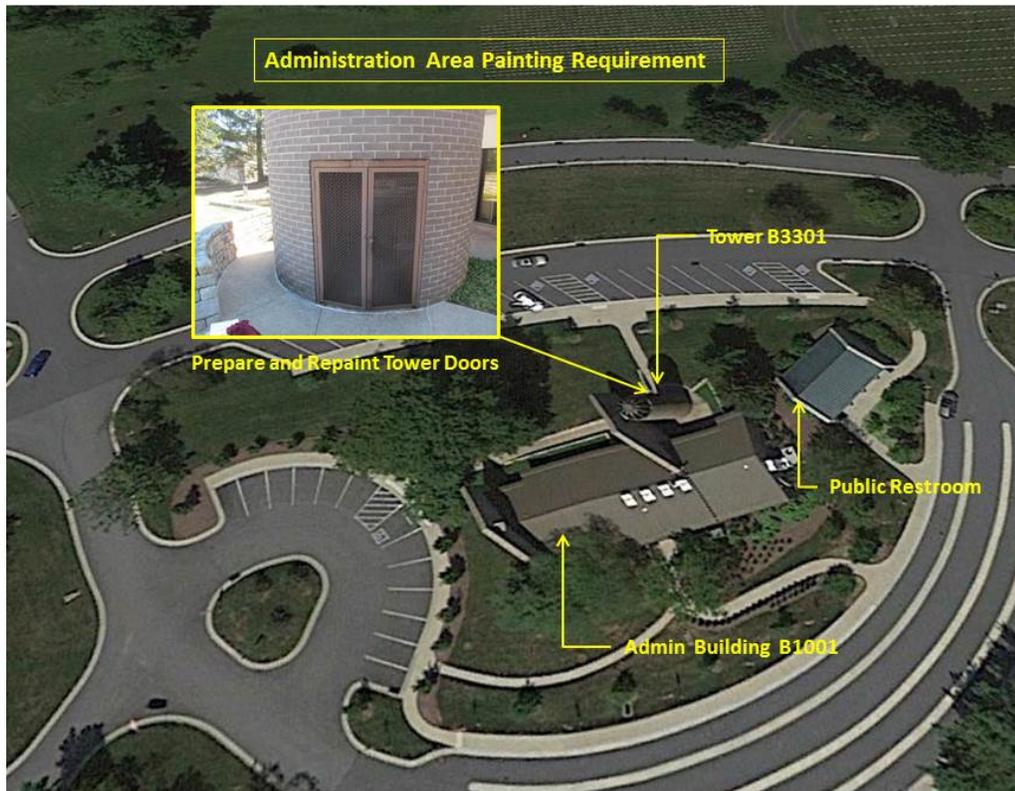
SECTION 01 00 02
GENERAL REQUIREMENTS

1.1 STATEMENT OF BID ITEM(S)

A. General

The contractor shall pressure wash, sand, and repaint sections of the existing Indiantown Gap National Cemetery Maintenance Complex metal roof, prepare and repaint the maintenance garage door frames, and remove, prepare, and repaint the Administration Area Tower door and door frame highlighted in the below photos.





B. Work shall be in compliance with all applicable Federal, State, & Local Codes, and Department of Veterans Affairs (VA) specifications. The VA specifications include, but are not limited to, the following requirements:

1. Submit project health and safety plan, schedule, and other submittals to the Contracting Officer Representative (COR) for approval before commencing any work at the cemetery.
2. Buildings B3001 and B3003 Roof Sections

The Contractor shall prepare and repaint roof sections 1-4 of maintenance buildings B3001 and B3002 constructed in 1981. Preparation requirements and efforts per roof section are dependent on the degree to which the existing paint has deteriorated and the extent of rust on the galvanized metal roof. Preparation and repainting requirements by section include the following:

- a. Roof Section 1 (Includes Ridge Cap).
 - 1) Block off area around the roof to avoid damage to cars and equipment and harm maintenance staff near the roof.

- 2) Tighten or replace any loose or missing roof panel bolts to avoid causing water damage from power washing the panels.
- 3) Power wash the roof with water at 2500 psi to remove all the remaining paint that has not flaked off.
- 4) Remove all snow guards (see below) and store any undamaged guards on site for potential use on other roof sections.



- 5) Screw the snow guard bolts back into the roof and then mechanically remove the paint and glue (if any) from under the snow guard.
- 6) Mechanically remove rust from roof panels with a wire brush.
- 7) Treat the entire roof with a light solution of phosphoric acid and let it dwell for 30 minutes.
- 8) Pressure wash the roof with clean water at 1500 psi and let thoroughly dry for 30 minutes.
- 9) Tape and cover around the 3 roof pipe penetrations, to ensure clean lines and avoid spills on cleaned roof, then apply fiber asphaltic roof coating over existing sealant

around penetration. Remove tape and cover before coating has dried.

- 10) Clean paint flakes and debris out of gutters.
- 11) Apply a three step acrylic direct to metal (DTM) coating system to the roof via brush, roller, spray or combination thereof to achieve the proper build up. Application on this roof section may not be applied during direct sunlight or when the roof surface temperature is below 50 degrees or above 90 degrees. Spray applications may not be performed when winds in any direction exceed 5 miles per hour (MPH).
- 12) Primer coat shall be a red oxide acrylic DTM. First finish acrylic DTM coat shall be a slightly different color than the final finish coat and the red oxide primer to allow the COR to inspect each coat.
- 13) Replace all snow guards in this section with new to match.
- 14) Remove all paint flakes and debris on the ground around the roof section.

b. Roof Section 2.

Same as B.1. (Roof Section 1) above except as follows:

- 1) There is only 1 roof penetration.
- 2) Replace existing snow guards with original from this section or section 1.

c. Roof Section 3 (Includes ridge cap).

Same as B.1. (Roof Section 1) above except as follows:

- 1) Do not prepare or paint 4 translucent skylight panels.
- 2) There are no roof penetrations.
- 3) Replace existing snow guards with original from this section or section 1.

d. Roof Section 4.

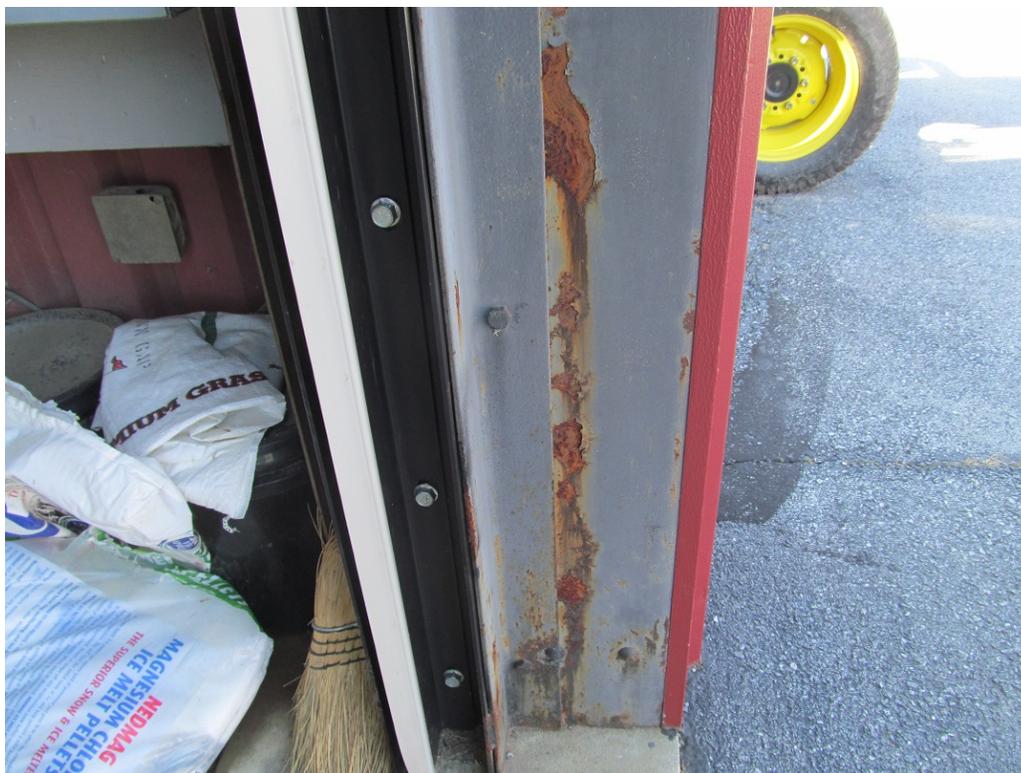
Excessive paint deterioration in this section is limited to the overlapping panel ridges; accordingly the preparation and painting of this section shall be to the following:

- 1) Block off area around the roof to avoid damage to cars and equipment and harm maintenance staff near the roof.
- 2) Tighten or replace any loose or missing roof panel bolts to avoid causing water damage from power washing the panels.
- 3) Mechanically removed flaking paint from panel overlap ridges.

- 4) Hand clean or pressure wash the entire roof section with a light solution of trisodium phosphate (TSP) and 5% sodium hypochlorite to remove grime, bird droppings, mildew, chalking. Water pressure should not exceed 1250 psi.
- 5) Rinse roof with clean water and let dry thoroughly.
- 6) Clean paint flakes and debris out of gutters.
- 7) Apply a three step acrylic direct to metal (DTM) coating system to the bare metal panel overlapping ridges via brush and roller.
- 8) Primer coat shall be a red oxide acrylic DTM. First finish acrylic DTM coat shall be a slightly different color than the final finish coat and the red oxide primer to provide the COR visual assurance of complete coverage. Finish coat shall be applied to the entire roof section, not just the panel overlap ridges.
- 9) Replace any damaged snow guards with existing from section 1 prior to applying the finish coat.

3. Building 3002 Roll-Up Door Frames

- a. Contractor shall sand then clean six building B3002 roll-up garage door frames (4 -10' x 18' and 2 - 10' x 12' doors) in preparation to repaint. Areas of excessive rust scale and pitting similar to the below shall be mechanically brushed then treated with a rust inhibitor. All frames shall be painted with two coats of a flat grey inorganic zinc primer.



4. Tower B3301 Doors.

- a. Contractor shall remove the door hinge bolts, lift the doors away from the frame, then ship the doors to an off cemetery location to be sand blasted to remove all existing paint and rust. Areas of excessive rust, like below at the bottom of the doors, shall be cutout and repairs welded into place that continue to allow any accumulated water in the doors to drain. At the same time any cracked welds on the door shall be replaced. Any broken hinges, pins, or bolts are to be replaced with the same material of equal or higher strength and with a minimum yield strength of 45ksi.



- b. Contractor shall remove all caulking between the door frame and brick wall, then sand all frame surfaces. Areas of excessive rust scale and pitting shall be mechanically brushed then treated with a rust inhibitor.
- c. Door and door frame coating system shall consist of a red oxide inorganic zinc primer, inhibitive polyamide epoxy intermediate coat, and aliphatic polyurethane finish coat to match existing color. Each successive coating is to be a contrasting color to provide the COR visual assurance of complete coverage. Door coatings applied away from the cemetery shall be documents in photos provided to the COR.
- d. After paint coatings have been accepted by the COR; replace caulking and sealing between door frame and brick wall, then hang doors. Patch any scratches to the paint from shipping and hanging the doors.

1.2 DRAWINGS

None

1.3 SITE VISIT

A. Bidders may inspect the site, investigate by observation, and Request Information via (RFI) and responses through the Contracting Office to satisfy their understanding of the work to be done, all general, local and technical conditions that may affect the cost and the feasibility of their proposal. In no event shall failure to inspect the site constitute grounds for a claim after award. Visitors planning to conduct a site visit shall contact the Cemetery Director to make arrangements:

Cemetery POC(s):

Indiantown Gap National Cemetery (Station #813) -
James R. Metcalfe II, Cemetery Director; (717) 865-5254
John Jerrigan, Cemetery Foreman, (717) 865-5254

District Technical POC:

Timothy P. Sullivan, North Atlantic District (NAD) Engineer; (215) 381-3787 (ext. 4664)

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 site without following the procedures approved by the COR. 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 COR so that appropriate arrangements can be provided for the Cemetery 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 COR.
 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 COR.
- C. Guards: NOT USED
- D. Key Control: NOT USED
- E. 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 COR upon request.
 4. These security documents shall not be removed or transmitted from the project site without the written approval of COR.
 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 COR 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.

F. 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 COR/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 COR 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 Construction Partitions: NOT USED
- F. Temporary Heating and Electrical: Install, use and maintain installations in accordance with 29 CFR 1926, NFPA 241 and NFPA 70.
- G. Means of Egress: Do not block exiting for occupied buildings, including paths from exits to roads. Minimize disruptions and coordinate with COR/Cemetery Director.
- H. Egress Routes for Construction Workers: Maintain free and unobstructed egress. Inspect daily. Report findings and corrective actions weekly to the COR.
- I. Fire Extinguishers: Provide and maintain extinguishers in construction areas and temporary storage areas in accordance with 29 CFR 1926, NFPA 241 and NFPA 10.
- J. Flammable and Combustible Liquids: Store, dispense and use liquids in accordance with 29 CFR 1926, NFPA 241 and NFPA 30.
- K. Existing Fire Protection: Do not impair automatic sprinklers, smoke and heat detection, and fire alarm systems, except for portions immediately under construction, and temporarily for connections. Request interruptions in accordance with Article, OPERATIONS AND STORAGE AREAS, and coordinate with COR. All existing or temporary fire protection systems (fire alarms) located in construction areas shall be tested as coordinated with the Cemetery. Parameters for the testing and results of any tests performed shall be recorded by the Cemetery and copies provided to the COR.
- L. Smoke Detectors: Prevent accidental operation. Remove temporary covers at end of work operations each day. Coordinate with COR.
- M. Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with COR.

- N. Fire Hazard Prevention and Safety Inspections: Inspect entire construction areas weekly. Coordinate with, and report findings and corrective actions weekly to COR.
- O. 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.
- P. Dispose of waste and debris in accordance with NFPA 241. Remove from the site weekly.
- Q. 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 COR. 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 COR 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.
- C. The Contractor shall, under regulations prescribed by the COR, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the COR. 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.
- D. Working space and space available for storing materials shall be as determined by the COR with agreement of the Cemetery. Contractor parking will be only in areas and on roadways designated and agreed to by the COR in agreement of the Cemetery.

- 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 Cemetery in quantities sufficient for not more than two work days. Provide unobstructed access to the Cemetery 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 COR 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 COR 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, COR and Contractor.
- H. The Contractor shall take all measures and provide all material necessary for protecting existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used in the Cemetery are not affected.
- K. Utilities Services: Maintain existing utility services for the Cemetery at all times.
- L. Abandoned Lines: NOT USED

- 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 COR.
- N. Coordinate the work for this contract with other construction operations as directed by COR. 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 COR, in arranging construction schedule to cause the least possible interference with Cemetery activities in actual burial areas. Construction noise during the committal 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. Clean up shall include the removal of all equipment, tools, materials and debris and leaving the areas in a clean, neat condition.
- P. Dignity Clause:
1. Every action by contractor personnel at a national cemetery must be performed with the special care, reverence, dignity, and respect that acknowledges the cemetery as the final resting place that commemorates the service and sacrifice that service members, Veterans and their families made for our Nation. Critically important is the awareness required of the Contractor employees of the remains buried in the grounds where the work is performed. The utmost care must be given to these remains and the headstones and

flat grave markers that mark those gravesites and memorialize the service of individuals.

2. Contractors cannot walk, stand, lean, sit or jump on headstones or markers. Nor can they drive over them. Contractor personnel should use tools approved by the Contracting Officer Representative (COR), such as shovels, pry bars or pinch bars to lift flat markers out of the ground; pick axes are not an acceptable tool.

1.7 ALTERATIONS

- A. Survey: Before any work is started, the Contractor shall make a thorough survey with the COR of buildings, areas in which alterations occur, areas which are anticipated routes of access, and furnish a signed report, to the Contracting Officer. This report shall list:
 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 COR.
- 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 COR, 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 COR together shall make a thorough re-survey of the areas of buildings involved. They shall furnish a report on conditions present 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:

1. 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 CONTROL: NOT USED

1.9 DISPOSAL AND RETENTION

A. Materials and equipment accruing from work removed and from demolition of buildings or structures, or parts thereof, shall be disposed of as follows:

1. Reserved items which are to remain property of the Government are described as such in the scope of work above. Items that remain property of the Government shall be removed or dislodged from present locations in such a manner as to prevent damage which would be detrimental to re-installation and reuse. Store such items where directed by COR.
2. Items not reserved shall become property of the Contractor and be removed by Contractor from the Cemetery.
3. Items of portable equipment and furnishings located in rooms and spaces in which work is to be done under this contract shall remain the property of the Government. When rooms and spaces are vacated by the Department of Veterans Affairs during the alteration period, such items which are NOT required by drawings and specifications to be either relocated or reused will be removed by the Government in advance of work to avoid interfering with Contractor's operation.

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 COR.

- 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 COR may have the necessary work performed and charge the cost to the Contractor.

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, water/irrigation or electric work without approval of the COR. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to the COR 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, landscape stone, 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 installations and improvements.
- 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: NOT USED**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 by contracting with a professional surveying company, 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 COR. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the COR until authorized to remove them. If such marks are destroyed by the Contractor or through Contractor's negligence before their removal is authorized, the COR 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 building and/or addition to each existing building, 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 developed by the professional surveying company discussed above.
- 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, exterior walls, center lines of columns in both directions, major utilities and elevations of floor 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 COR before any work (such as footings, floor slabs, columns, walls, utilities and other major controlling features) is placed.

D. During progress of work, the Contractor shall have lines, grades, locations and plumbness of all major form work checked and certified by a registered land surveyor or registered civil engineer. Furnish such certification to the COR before any major items or concrete work are placed. In addition, furnish to the COR 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 and location of top of pre-placed crypts within their respective plots.
8. Lines and elevations of grade over pre-placed crypts.
9. Northing/Easting coordinate locations, and elevation, depth below finished grade of all water, sanitary, storm, gas and irrigation structures, directional fittings, control wire and lines.
10. Northing/Easting coordinate locations, and elevation for each gravesite grid monument.

E. Upon completion of the work, the Contractor shall furnish the COR with reproducible scaled drawings, in AutoCAD format, pdf format and in full size 42x30" hard copy, showing the finished grade on the grid developed for constructing the work. These drawings shall bear the seal of the registered land surveyor or registered civil engineer.

These drawings shall show all new work and provide a scaled record of the entire project area including all improvements, monuments, and items contained both on the existing site and included in this scope of work.

- 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 COR's review, as often as requested.
- C. The Contractor shall deliver two approved completed sets of as-built drawings to the COR within 15 calendar days after acceptance of the project by the COR.
- D. Paragraphs A, B, & C shall also apply to all shop drawings.

1.16 USE OF ROADWAYS

- A. For hauling, use only established public roads and designated permanent roads on Cemetery property and, or where authorized by the COR, such existing or Contractor constructed and/or modified temporary roads which are necessary in the performance of contract work. Temporary roads shall be constructed or modified by the Contractor at the Contractor's expense following approved plans that include: construction, operation, maintenance and restoration. When necessary to cross curbing, sidewalks, or similar construction, they must be protected by well-constructed bridges.
- B. When new permanent roads are to be a part of this contract, the Contractor may construct them immediately to facilitate building operations. These roads may be used by all who have business thereon within zone of building operations.
- C. When certain buildings (or parts of certain buildings) are required to be completed in advance of general date of completion, all roads

leading thereto must be completed and available for use at the time set for completion of such buildings or parts thereof.

1.17 COR'S FIELD OFFICE: NOT USED

1.18 TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT - NOT USED

1.19 TEMPORARY TOILETS

- A. Provide for use of all Contractor's workers ample temporary sanitary toilet accommodations with suitable sewer and water connections, or when approved by COR 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.
- B. Contractor may have for use of the Contractor's workmen, such toilet accommodations as may be assigned to the Contractor by the Cemetery. The Contractor shall keep such places clean and be responsible for any damage done thereto by the Contractor's workmen. Failure to maintain satisfactory condition in toilets will deprive the Contractor of the privilege to use such toilets.

1.20 NEW TELEPHONE EQUIPMENT: NOT USED

1.21 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 COR 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 COR and shall be considered concluded only when the COR 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 COR, does not demonstrate sufficient qualifications in accordance with requirements for instructors above.

1.22 RELOCATED EQUIPMENT AND ITEMS

- A. Contractor shall disconnect, dismantle as necessary, remove and reinstall in new location, all existing equipment and items indicated by symbol "R", stated herein these specifications, or otherwise shown to be relocated by the Contractor.
- B. Perform relocation of such equipment or items at such times and in such a manner as directed by the COR.
- C. Suitably cap existing service lines, such as water, drain, gas, air, and/or electrical, whenever such lines are disconnected from equipment to be relocated. Remove abandoned lines in finished areas and cap as specified herein before under paragraph "Abandoned Lines".

- D. Provide all mechanical and electrical service connections, fittings, fastenings and any other materials necessary for assembly and installation of relocated equipment; and leave such equipment in proper operating condition.
- E. All service lines such as noted above for relocated equipment shall be in place at point of relocation ready for use before any existing equipment is disconnected. Make relocated existing equipment ready for operation or use immediately after reinstallation.

1.23 FINAL ELEVATION PHOTOGRAPHS: NOT USED

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. PPE
 - 6. Heat Stress
 - 7. Spill Containment
 - 8. Decontamination
 - 9. Emergency Response
 - 10. Trench Safety
- B. General contractor shall provide proof that an 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.
- C. Training
 - 1. All employees of general contractor or subcontractors shall, at the minimum, have successfully completed the 10-hour OSHA certified Construction Safety course and/or other relevant competency training, as determined by VA COR.
 - 2. Submit OSHA training records of all employees for approval before the start of work.

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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 including any laboratory samples to be tested will not serve as a basis for extending contract time for completion.
- 1-5. Submittals will be reviewed for compliance with contract requirements by the Contracting Officer's Representative (COR).
- 1-6. Upon receipt of submittals, COR 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 shall be submitted for use and information of Department of Veterans Affairs. However, the Contractor shall assume responsibility for coordinating and verifying schedules. The Contracting Officer 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 samples in single units unless otherwise specified. Submit shop drawings, schedules, manufacturers' literature and data, and certificates in duplicate, 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 or e-mail in DF format; 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 the Contracting Officer's Representative with submission of material to a commercial testing laboratory.
 5. Laboratory test reports shall be sent directly to COR 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 COR 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. For each drawing required, submit one legible photographic paper or vellum reproducible.
 2. Reproducible shall be full size.
 3. Each drawing shall have marked thereon, proper descriptive title, including Cemetery location, project number, manufacturer's number, reference to contract drawing number, detail Section Number, and Specification Section Number.
 4. A space 4-3/4 by 5 inches) shall be reserved on each drawing to accommodate approval or disapproval stamp.
 5. Submit drawings, ROLLED WITHIN A MAILING TUBE, fully protected for shipment.
 6. One reproducible print of approved or disapproved shop drawings will be forwarded to Contractor.
 7. When work is directly related and involves more than one trade, shop drawings shall be submitted to an Architect-Engineer under one cover for them to stamp and sign.
- 1-10. Samples, shop drawings, test reports, certificates and manufacturers' literature and data, shall be submitted for approval to the contractor's hired Architect-Engineering firm (also discussed in these specifications as Professional Design firm).
- 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 COR.

1.12. Submittals shall be sent to the COR. Coordinate address for shipment with the COR.

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

1.4 REFERENCES

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
- 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 SUSTAINABILITY REQUIREMENTS

- A. Materials in this section may contribute towards contract compliance with sustainability requirements.
- B. Biobased Material: For products designated by the USDA's BioPreferred® program, provide products that meet or exceed USDA recommendations for biobased content, subject to the products compliance with performance requirements in this Section. For more information regarding the product categories covered by the BioPreferred® program, visit <http://www.biopreferred.gov>.

1.6 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, meet with the Resident Engineer/Contracting Officer's Representative (RE/COR) 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, prepare and submit to the

RE/COR 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:
 - 1) Ensuring adherence to the Environmental Protection Plan.
 - 2) Manifesting hazardous waste to be removed from the site.
 - 3) Training the Contractor's environmental protection personnel.
- 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, stream crossings, 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 RE/COR 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.

1.7 PROTECTION OF ENVIRONMENTAL RESOURCES

- A. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract and after the project is complete, based upon leaving the site that has yet to mature of hydro-seeding. 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 RE/COR. 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. Prior to construction, mark/fence/protect monuments, works of art, and any other markers to remain. 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.

- 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 10 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, that drain from the surface of the basin.
 - b. Reuse or conserve the collected topsoil sediment as directed by the RE/COR. Topsoil use and requirements are specified in Section 31 20 11, EARTH MOVING short form.
 - 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 to avoid violating water quality in accordance with federal and state regulations. Maintain temporary erosion and sediment control measures such as berms, dikes, drains, sedimentation basins, grassing, and mulching, straw waddles, fiber rolls, until permanent drainage and erosion control facilities are completed and operative.
6. Manage and control borrow and spoil areas on or off Government property (coordinate with COR) 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 RE/COR.
- 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. Control movement of materials and equipment at stream crossings during construction to prevent violation of water pollution control standards of the Federal, State, or local government.
 3. 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 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 from asphaltic batch plants if onsite, or other onsite material processing operations 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, plant sites, 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. Sprinkling, 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/COR. 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 the hours permitted by the RE/COR. Reference other specification sections for cemetery operations hours. Repetitive impact noise on the property shall not exceed the following Decibel A-scale (dBA) limitations:

Time Duration of Impact Noise	Sound Level in dBA
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 as measured with an A-scale decibel measuring device at 15 m (50 feet) (dBA):

CATEGORY OF EQUIPMENT			
EARTHMOVING		MATERIALS HANDLING	
EQUIPMENT STYLE	SOUND LEVEL dBA	EQUIPMENT STYLE	SOUND LEVEL dBA
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	95
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/COR 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 RE/COR. The site shall be left meeting the requirements of the local and state environmental requirements associated with the (SWPPP) Storm Water Pollution Protection Plan as submitted. 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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SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies the requirements for the management of non-hazardous building construction and demolition waste.
- B. Waste disposal in landfills shall be minimized to the greatest extent possible. Of the inevitable waste that is generated, as much of the waste material as economically feasible shall be salvaged, recycled or reused.
- C. Contractor shall use all reasonable means to divert construction and demolition waste from landfills and incinerators, and facilitate their salvage and recycle not limited to the following:
 - 1. Waste Management Plan development and implementation.
 - 2. Techniques to minimize waste generation.
 - 3. Sorting and separating of waste materials.
 - 4. Salvage of existing materials and items for reuse or resale.
 - 5. Recycling of materials that cannot be reused or sold.
- D. At a minimum the following waste categories shall be diverted from landfills:
 - 1. Soil.
 - 2. Inerts (eg, concrete, masonry and asphalt).
 - 3. Clean dimensional wood and palette wood.
 - 4. Green waste (biodegradable landscaping materials).
 - 5. Engineered wood products (plywood, particle board and I-joists, etc).
 - 6. Metal products (eg, steel, wire, beverage containers, copper, etc).
 - 7. Cardboard, paper and packaging.
 - 8. Bitumen roofing materials.
 - 9. Plastics (eg, ABS, PVC).
 - 10. Carpet and/or pad.
 - 11. Gypsum board.
 - 12. Insulation.
 - 13. Paint.
 - 14. Fluorescent lamps.

1.3 QUALITY ASSURANCE

- A. Contractor shall practice efficient waste management when sizing, cutting and installing building products. Processes shall be employed

to ensure the generation of as little waste as possible. Construction /Demolition waste includes products of the following:

1. Excess or unusable construction materials.
 2. Packaging used for construction products.
 3. Poor planning and/or layout.
 4. Construction error.
 5. Over ordering.
 6. Weather damage.
 7. Contamination.
 8. Mishandling.
 9. Breakage.
- B. Establish and maintain the management of non-hazardous building construction and demolition waste set forth herein. Conduct a site assessment to estimate the types of materials that will be generated by demolition and construction.
- C. Contractor shall develop and implement procedures to recycle construction and demolition waste to a minimum of 50 percent.
- D. Contractor shall be responsible for implementation of any special programs involving rebates or similar incentives related to recycling. Any revenues or savings obtained from salvage or recycling shall accrue to the contractor.
- E. Contractor shall provide all demolition, removal and legal disposal of materials. Contractor shall ensure that facilities used for recycling, reuse and disposal shall be permitted for the intended use to the extent required by local, state, federal regulations. The Whole Building Design Guide website <http://www.wbdg.org/tools/cwm.php> provides a Construction Waste Management Database that contains information on companies that haul, collect, and process recyclable debris from construction projects.
- F. Contractor shall assign a specific area to facilitate separation of materials for reuse, salvage, recycling, and return. Such areas are to be kept neat and clean and clearly marked in order to avoid contamination or mixing of materials.
- G. Contractor shall provide on-site instructions and supervision of separation, handling, salvaging, recycling, reuse and return methods to be used by all parties during waste generating stages.
- H. Record on daily reports any problems in complying with laws, regulations and ordinances with corrective action taken.

1.4 TERMINOLOGY

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial and industrial waste resulting from construction, remodeling, repair and demolition operations.
- B. Clean: Untreated and unpainted; uncontaminated with adhesives, oils, solvents, mastics and like products.
- C. Construction and Demolition Waste: Includes all non-hazardous resources resulting from construction, remodeling, alterations, repair and demolition operations.
- D. Dismantle: The process of parting out a building in such a way as to preserve the usefulness of its materials and components.
- E. Disposal: Acceptance of solid wastes at a legally operating facility for the purpose of land filling (includes Class III landfills and inert fills).
- F. Inert Backfill Site: A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring or other soil engineering operation.
- G. Inert Fill: A facility that can legally accept inert waste, such as asphalt and concrete exclusively for the purpose of disposal.
- H. Inert Solids/Inert Waste: Non-liquid solid resources including, but not limited to, soil and concrete that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board, and does not contain significant quantities of decomposable solid resources.
- I. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- J. Mixed Debris Recycling Facility: A solid resource processing facility that accepts loads of mixed construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing non-recyclable materials.
- K. Permitted Waste Hauler: A company that holds a valid permit to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.
- L. Recycling: The process of sorting, cleansing, treating, and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

1. On-site Recycling - Materials that are sorted and processed on site for use in an altered state in the work, i.e. concrete crushed for use as a sub-base in paving.
 2. Off-site Recycling - Materials hauled to a location and used in an altered form in the manufacture of new products.
- M. Recycling Facility: An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of new products. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a solid waste facilities permit or be regulated by the local enforcement agency.
- N. Reuse: Materials that are recovered for use in the same form, on-site or off-site.
- O. Return: To give back reusable items or unused products to vendors for credit.
- P. Salvage: To remove waste materials from the site for resale or re-use by a third party.
- Q. Source-Separated Materials: Materials that are sorted by type at the site for the purpose of reuse and recycling.
- R. Solid Waste: Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- S. Transfer Station: A facility that can legally accept solid waste for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling.

1.5 SUBMITTALS

- A. Prior to final invoice, location of facility where concrete materials were taken for recycling; along with weight tickets indicating amount of material recycled.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. List of each material and quantity to be salvaged, recycled, reused.
- B. List of each material and quantity proposed to be taken to a landfill.
- C. Material tracking data: Receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices, net total costs or savings.

PART 3 - EXECUTION**3.1 COLLECTION**

- A. Provide all necessary containers, bins and storage areas to facilitate effective waste management.
- B. Clearly identify containers, bins and storage areas so that recyclable materials are separated from trash and can be transported to respective recycling facility for processing.
- C. Hazardous wastes shall be separated, stored, disposed of according to local, state, federal regulations.

3.2 DISPOSAL

- A. Contractor shall be responsible for transporting and disposing of materials that cannot be delivered to a source-separated or mixed materials recycling facility to a transfer station or disposal facility that can accept the materials in accordance with state and federal regulations.
- B. Construction or demolition materials with no practical reuse or that cannot be salvaged or recycled shall be disposed of at a landfill or incinerator.

3.3 REPORT

- A. With each application for progress payment, submit a summary of construction and demolition debris diversion and disposal including beginning and ending dates of period covered.
- B. Quantify all materials diverted from landfill disposal through salvage or recycling during the period with the receiving parties, dates removed, transportation costs, weight tickets, manifests, invoices. Include the net total costs or savings for each salvaged or recycled material.
- C. Quantify all materials disposed of during the period with the receiving parties, dates removed, transportation costs, weight tickets, tipping fees, manifests, invoices. Include the net total costs for each disposal.

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SECTION 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section covers interior and exterior sealant and their application, wherever required for complete installation of building materials or systems.

1.2 RELATED WORK (INCLUDING BUT NOT LIMITED TO THE FOLLOWING):

- A. Masonry Control and Expansion Joint: Section 04 20 00, UNIT MASONRY.

1.3 QUALITY ASSURANCE:

- A. Installer Qualifications: An experienced installer with a minimum of three (3) years' experience and who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance. Submit qualification.
- B. Source Limitations: Obtain each type of joint sealant through one (1) source from a single manufacturer.
- C. Product Testing: Obtain test results from a qualified testing agency based on testing current sealant formulations within a 12-month period.
1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021.
 2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C920, and where applicable, to other standard test methods.
 3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C920 for adhesion and cohesion under cyclic movement, adhesion-in peel, and indentation hardness.
 4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. Lab Tests: Submit samples of materials that will be in contact or affect joint sealants to joint sealant manufacturers for tests as follows:
1. Adhesion Testing: Before installing elastomeric sealants, test their adhesion to protect joint substrates according to the method in ASTM C794 to determine if primer or other specific joint preparation techniques are required.

2. Compatibility Testing: Before installing elastomeric sealants, determine compatibility when in contact with glazing and gasket materials.
 3. Stain Testing: Perform testing per ASTM C1248 on interior and exterior sealants to determine if sealants or primers will stain adjacent surfaces. No sealant work is to start until results of these tests have been submitted to the Contracting Officer Representative (COR) and the COR has given written approval to proceed with the work.
- E. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to joint substrates according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
1. Locate test joints where indicated in construction documents or, if not indicated, as directed by COR.
 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of non-elastomeric sealant and joint substrate indicated.
 3. Notify COR seven (7) days in advance of dates and times when test joints will be erected.
 4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
- F. Mockups: Before installing joint sealants, apply elastomeric sealants as follows to verify selections and to demonstrate aesthetic effects and qualities of materials and execution:
1. Joints in mockups of assemblies that are indicated to receive elastomeric joint sealants.

1.4 CERTIFICATION:

- A. Contractor is to submit to the COR written certification that joints are of the proper size and design, that the materials supplied are compatible with adjacent materials and backing, that the materials will properly perform to provide permanent watertight, airtight or vapor tight seals (as applicable), and that materials supplied meet specified performance requirements.

1.5 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

- B. Sustainable Design Submittals, as described below:
 - 1. Volatile organic compounds per volume as specified in PART 2 - PRODUCTS.
- C. Installer qualifications.
- D. Contractor certification.
- E. Manufacturer's installation instructions for each product used.
- F. Cured samples of exposed sealants for each color.
- G. Manufacturer's Literature and Data:
 - 1. Primers
 - 2. Sealing compound, each type, including compatibility when different sealants are in contact with each other.
- H. Manufacturer warranty.

1.6 PROJECT CONDITIONS:

- A. Environmental Limitations:
 - 1. Do not proceed with installation of joint sealants under following conditions:
 - a. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C (40 degrees F).
 - b. When joint substrates are wet.
- B. Joint-Width Conditions:
 - 1. Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions:
 - 1. Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.7 DELIVERY, HANDLING, AND STORAGE:

- A. Deliver materials in manufacturers' original unopened containers, with brand names, date of manufacture, shelf life, and material designation clearly marked thereon.
- B. Carefully handle and store to prevent inclusion of foreign materials.
- C. Do not subject to sustained temperatures exceeding 32 degrees C (90 degrees F) or less than 5 degrees C (40 degrees F).

1.8 DEFINITIONS:

- A. Definitions of terms in accordance with ASTM C717 and as specified.
- B. Backing Rod: A type of sealant backing.

- C. Bond Breakers: A type of sealant backing.
- D. Filler: A sealant backing used behind a back-up rod.

1.9 WARRANTY:

- A. Construction Warranty: Comply with FAR clause 52.246-21 "Warranty of Construction".
- B. Manufacturer Warranty: Manufacturer shall warranty their sealant for a minimum of five (5) years from the date of installation and final acceptance by the Government. Submit manufacturer warranty.

1.10 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. ASTM International (ASTM):
 - C509-06.....Elastomeric Cellular Preformed Gasket and Sealing Material
 - C612-14.....Mineral Fiber Block and Board Thermal Insulation
 - C717-14a.....Standard Terminology of Building Seals and Sealants
 - C734-06(R2012).....Test Method for Low-Temperature Flexibility of Latex Sealants after Artificial Weathering
 - C794-10.....Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
 - C920-14a.....Elastomeric Joint Sealants.
 - C1021-08(R2014).....Laboratories Engaged in Testing of Building Sealants
 - C1193-13.....Standard Guide for Use of Joint Sealants.
 - C1248-08(R2012).....Test Method for Staining of Porous Substrate by Joint Sealants
 - C1330-02(R2013).....Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants
 - C1521-13.....Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints
 - D412-06a(R2013).....Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
 - D1056-14.....Specification for Flexible Cellular Materials-Sponge or Expanded Rubber

E84-09.....Surface Burning Characteristics of Building
Materials

C. Sealant, Waterproofing and Restoration Institute (SWRI).
The Professionals' Guide

D. Environmental Protection Agency (EPA):
40 CFR 59(2014).....National Volatile Organic Compound Emission
Standards for Consumer and Commercial Products

PART 2 - PRODUCTS

2.1 SEALANTS:

A. Exterior Sealants:

1. Vertical surfaces, provide non-staining ASTM C920, Type S or M, Grade NS, Class 25, Use NT.
2. Horizontal surfaces, provide ASTM C920, Type S or M, Grade P, Class 25, Use T.
3. Provide location(s) of exterior sealant as follows:
 - a. Joints formed where frames and subsills of windows, doors, louvers, and vents adjoin masonry, concrete, or metal frames. Provide sealant at exterior surfaces of exterior wall penetrations.
 - b. Metal to metal.
 - c. Masonry to masonry or stone.
 - d. Stone to stone.
 - e. Cast stone to cast stone.
 - f. Masonry expansion and control joints.
 - g. Wood to masonry.
 - h. Masonry joints where shelf angles occur.
 - i. Voids where items penetrate exterior walls.
 - j. Metal reglets, where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels.

B. Floor Joint Sealant: Not Used

C. Interior Sealants:

1. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system are to comply with the following limits for VOC content when calculated according to 40 CFR 59, (EPA Method 24):
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant Primers for Nonporous Substrates: 250 g/L.

- c. Sealant Primers for Porous Substrates: 775 g/L.
- 2. Vertical and Horizontal Surfaces: ASTM C920, Type S or M, Grade NS, Class 25, Use NT.
- 3. Food Service: Use a Vinyl Acetate Homopolymer, or other low VOC, non-toxic sealant approved for use in food preparation areas.
- 4. Provide location(s) of interior sealant as follows:
 - a. Typical narrow joint 6 mm, (1/4 inch) or less at walls and adjacent components.
 - b. Perimeter of doors, windows, access panels which adjoin concrete or masonry surfaces.
 - c. Interior surfaces of exterior wall penetrations.
 - d. Joints at masonry walls and columns, piers, concrete walls or exterior walls.
 - e. Perimeter of lead faced control windows and plaster or gypsum wallboard walls.
 - f. Exposed isolation joints at top of full height walls.
 - g. Joints between bathtubs and ceramic tile; joints between shower receptors and ceramic tile; joints formed where nonplanar tile surfaces meet.
 - h. Joints formed between tile floors and tile base cove; joints between tile and dissimilar materials; joints occurring where substrates change.
 - i. Behind escutcheon plates at valve pipe penetrations and showerheads in showers.

D. Acoustical Sealant: Not Used

2.2 COLOR:

- A. Sealants used with exposed masonry are to match color of mortar joints.
- B. Sealants used with unpainted concrete are to match color of adjacent concrete.
- C. Color of sealants for other locations to be light gray or aluminum, unless otherwise indicated in construction documents.

2.3 JOINT SEALANT BACKING:

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

- B. Cylindrical Sealant Backings: ASTM C1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1. Type C: Closed-cell material with a surface skin.
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056 or synthetic rubber (ASTM C509), nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 32 degrees C (minus 26 degrees F). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 WEEPS:

- A. Weep/Vent Products: Provide the following unless otherwise indicated or approved.
 - 1. Round Plastic Tubing: Medium-density polyethylene, 10 mm (3/8-inch) OD by thickness of stone or masonry veneer.

2.5 FILLER:

- A. Mineral fiberboard: ASTM C612, Class 1.
- B. Thickness same as joint width.
- C. Depth to fill void completely behind back-up rod.

2.6 PRIMER:

- A. As recommended by manufacturer of caulking or sealant material.
- B. Stain free type.

2.7 CLEANERS-NON POROUS SURFACES:

- A. Chemical cleaners compatible with sealant and acceptable to manufacturer of sealants and sealant backing material. Cleaners to be free of oily residues and other substances capable of staining or harming joint substrates and adjacent non-porous surfaces and formulated to promote adhesion of sealant and substrates.

PART 3 - EXECUTION**3.1 INSPECTION:**

- A. Inspect substrate surface for bond breaker contamination and unsound materials at adherent faces of sealant.

- B. Coordinate for repair and resolution of unsound substrate materials.
- C. Inspect for uniform joint widths and that dimensions are within tolerance established by sealant manufacturer.

3.2 PREPARATIONS:

- A. Prepare joints in accordance with manufacturer's instructions and SWRI (The Professionals' Guide).
- B. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, lacquer paint, or other foreign matter that would tend to destroy or impair adhesion.
 - 1. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants.
 - 2. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include but are not limited to the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous surfaces include but are not limited to the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- C. Do not cut or damage joint edges.
- D. Apply non-staining masking tape to face of surfaces adjacent to joints before applying primers, caulking, or sealing compounds.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- E. Apply primer to sides of joints wherever required by compound manufacturer's printed instructions or as indicated by pre-construction joint sealant substrate test.
 - 1. Apply primer prior to installation of back-up rod or bond breaker tape.
 - 2. Use brush or other approved means that will reach all parts of joints. Avoid application to or spillage onto adjacent substrate surfaces.

3.3 BACKING INSTALLATION:

- A. Install backing material, to form joints enclosed on three sides as required for specified depth of sealant.
- B. Where deep joints occur, install filler to fill space behind the backing rod and position the rod at proper depth.
- C. Cut fillers installed by others to proper depth for installation of backing rod and sealants.
- D. Install backing rod, without puncturing the material, to a uniform depth, within plus or minus 3 mm (1/8 inch) for sealant depths specified.
- E. Where space for backing rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.

3.4 SEALANT DEPTHS AND GEOMETRY:

- A. At widths up to 6 mm (1/4 inch), sealant depth equal to width.
- B. At widths over 6 mm (1/4 inch), sealant depth 1/2 of width up to 13 mm (1/2 inch) maximum depth at center of joint with sealant thickness at center of joint approximately 1/2 of depth at adhesion surface.

3.5 INSTALLATION:

- A. General:
 - 1. Apply sealants and caulking only when ambient temperature is between 5 degrees C and 38 degrees C (40 degrees and 100 degrees F).
 - 2. Do not install polysulfide base sealants where sealant may be exposed to fumes from bituminous materials, or where water vapor in continuous contact with cementitious materials may be present.
 - 3. Do not install sealant type listed by manufacture as not suitable for use in locations specified.
 - 4. Apply caulking and sealing compound in accordance with manufacturer's printed instructions.

5. Avoid dropping or smearing compound on adjacent surfaces.
 6. Fill joints solidly with compound and finish compound smooth.
 7. Tool exposed joints to form smooth and uniform beds, with slightly concave surface conforming to joint configuration per Figure 5A in ASTM C1193 unless shown or specified otherwise in construction documents. Remove masking tape immediately after tooling of sealant and before sealant face starts to "skin" over. Remove any excess sealant from adjacent surfaces of joint, leaving the working in a clean finished condition.
 8. Finish paving or floor joints flush unless joint is otherwise detailed.
 9. Apply compounds with nozzle size to fit joint width.
 10. Test sealants for compatibility with each other and substrate. Use only compatible sealant. Submit test reports.
 11. Replace sealant which is damaged during construction process.
- B. Weeps: Place weep holes and vents in joints where moisture may accumulate, including at base of cavity walls, above shelf angles, at all flashing, and as indicated on construction documents.
1. Use round plastic tubing to form weep holes.
 2. Space weep holes formed from plastic tubing not more than 406 mm (16 inches) o.c.
 3. Trim tubing material used in weep holes flush with exterior wall face after sealant has set.
- C. For application of sealants, follow requirements of ASTM C1193 unless specified otherwise. Take all necessary steps to prevent three-sided adhesion of sealants.
- D. Interior Sealants: Where gypsum board partitions are of sound rated, fire rated, or smoke barrier construction, follow requirements of ASTM C919 only to seal all cut-outs and intersections with the adjoining construction unless specified otherwise.
1. Apply a 6 mm (1/4 inch) minimum bead of sealant each side of runners (tracks), including those used at partition intersections with dissimilar wall construction.
 2. Coordinate with application of gypsum board to install sealant immediately prior to application of gypsum board.
 3. Partition intersections: Seal edges of face layer of gypsum board abutting intersecting partitions, before taping and finishing or application of veneer plaster-joint reinforcing.

4. Openings: Apply a 6 mm (1/4 inch) bead of sealant around all cutouts to seal openings of electrical boxes, ducts, pipes and similar penetrations. To seal electrical boxes, seal sides and backs.
5. Control Joints: Before control joints are installed, apply sealant in back of control joint to reduce flanking path for sound through control joint.

3.6 FIELD QUALITY CONTROL:

- A. Field-Adhesion Testing: Field-test joint-sealant adhesion to joint substrates according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 10 tests for first 305 m (1000 feet) of joint length for each type of elastomeric sealant and joint substrate.
 - b. Perform one test for each 305 m (1000 feet) of joint length thereafter or one test per each floor per elevation.
- B. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.
- C. Inspect tested joints and report on following:
 1. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
 2. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 3. Whether sealants filled joint cavities and are free from voids.
 4. Whether sealant dimensions and configurations comply with specified requirements.
- D. Record test results in a field adhesion test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
- E. Repair sealants pulled from test area by applying new sealants following same procedures used to originally seal joints. Ensure that

original sealant surfaces are clean and new sealant contacts original sealant.

- F. Evaluation of Field-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements, will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.7 CLEANING:

- A. Fresh compound accidentally smeared on adjoining surfaces: Scrape off immediately and rub clean with a solvent as recommended by manufacturer of the adjacent material or if not otherwise indicated by the caulking or sealant manufacturer.
- B. Leave adjacent surfaces in a clean and unstained condition.

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SECTION 09 91 00
PAINTING

PART 1-GENERAL

1.1 DESCRIPTION

- A. Section specifies field and shop painting.
- B. Section specifies prime coats which may be applied in shop under other sections.
- C. Painting includes shellacs, stains, varnishes, and coatings specified.

1.2 RELATED WORK

- A. Materials product data and samples: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Decorative administration metal door: Section 32 31 19, DECORATIVE METAL FENCES AND GATES.

1.3 SUSTAINABILITY REQUIREMENTS

- A. Materials in this section may contribute towards contract compliance with sustainability requirements.
- B. Biobased Material: For products designated by the USDA's BioPreferred® program, provide products that meet or exceed USDA recommendations for biobased content, subject to the products compliance with performance requirements in this Section. For more information regarding the product categories covered by the BioPreferred® program, visit <http://www.biopreferred.gov>.

1.4 REGULATORY REQUIREMENTS FOR RECYCLED CONTENT

- A. Products and Materials with Post-Consumer Content and Recovered Materials Content:
 - 1. Contractor is obligated by contract to satisfy Federal mandates for procurement of products and materials meeting recommendations for post-consumer content and recovered materials content; the list of designated product categories with recommendations has been compiled by the EPA - refer to <http://www.epa.gov/wastes/consERVE/tools/cpg/products/>.
 - 2. Materials or products specified by this section may be obligated to satisfy this Federal mandate and Comprehensive Procurement Guidelines program.
 - 3. The EPA website also provides tools such as a Product Supplier Directory search engine and product resource guides.

1.5 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
 - 1. Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.
- C. Samples:
 - 1. After painters' materials have been approved and before work is started submit samples showing each type of finish and color specified.
 - 2. Samples to show color: Composition board, 150 by 150 (6 inch by 6 inch).
 - 3. Panel to show transparent finishes: Wood of same species and grain pattern as wood approved for use, 100 by 250 by 3 mm (4 inch by 10 inch face by 1/4 inch) thick minimum, and where both flat and edge grain will be exposed, 250 mm (10 inches) long by sufficient size, 50 by 50 mm (2 by 2 inch) minimum or actual wood member to show complete finish.
- D. Manufacturers' Certificates indicating compliance with specified requirements:
 - 1. Manufacturer's paint substituted for Federal Specification paints meets or exceeds performance of paint specified.
 - 2. High temperature aluminum paint.
 - 3. Epoxy coating.
 - 4. Intumescent clear coating or fire retardant paint.
 - 5. Plastic floor coating.

1.6 DELIVERY AND STORAGE

- A. Deliver materials to site in manufacturer's sealed container marked to show following:

1. Name of manufacturer.
 2. Product type.
 3. Batch number.
 4. Instructions for use.
 5. Safety precautions.
- B. In addition to manufacturer's label, provide a label legibly printed as following:
1. Federal Specification Number, where applicable, and name of material.
 2. Surface upon which material is to be applied.
 3. If paint or other coating, state coat types; prime, body or finish.
- C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.
- D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
- B. American Conference of Governmental Industrial Hygienists (ACGIH):
- | | |
|---------------------|---|
| ACGIH TLV-BKLT-2009 | Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs) |
| ACGIH TLV-DOC-2009 | Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition) |
- C. Master Painters Institute (MPI):
- | | |
|---------|---|
| No. 8 | Exterior Alkyd, Flat MPI Gloss Level 1 |
| No. 9 | Exterior Alkyd Enamel MPI Gloss Level 6 |
| No. 19 | Primer, Zinc Rich, Inorganic |
| No. 25 | Cleaner, Etching, for Galvanized Metal |
| No. 72 | Polyurethane, Two Component, Pigmented, Gloss |
| No. 81 | Exterior Alkyd, Quick Dry, Semi-Gloss |
| No. 94 | Exterior Alkyd, Semi-Gloss (EO) |
| No. 95 | Fast Drying Metal Primer |
| No. 98 | Epoxy, High Build, Gloss |
| No. 101 | Primer, Epoxy, Anti-Corrosive, for Metal |

No. 108	Epoxy, High Build, Low Gloss
No. 134	Primer, Galvanized, Water Based
No. 161	Light Industrial Coating, Exterior, Water Based
No. 174	Polyurethane, Two Component, pigmented, Semi-Gloss

D. Steel Structures Painting Council (SSPC):

SSPC AB 1	Mineral and Slag Abrasives
SSPC Painting Manual	Good Painting Practice, Steel Structures Painting Manual, Volume 1
SSPC SP 1-04	Solvent Cleaning
SSPC SP 2-04	Hand Tool Cleaning
SSPC SP 3-04	Power Tool Cleaning
SSPC SP 6	Commercial Blast Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Abrasive Blasting Material: Ensure abrasive blasting materials conforms to SSPC Painting Manual Chapter 2.4, and SSPC AB 1.
- B. Plastic Tape:
 - 1. Pigmented vinyl plastic film in colors as specified.
 - 2. Pressure sensitive adhesive back.
- C. Submit mix design for each type of protective coating including a complete list of ingredients and admixtures. Submit applicable test reports verifying the mix has been successfully tested and meets design requirements.

2.2 PAINT PROPERTIES

- A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.
- B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

2.3 REGULATORY REQUIREMENTS

- A. Paint materials must conform to the restrictions of the local Environmental and Toxic Control jurisdiction or the requirements of this section, whichever is most stringent.
 - 1. Lead-Based Paint:
 - a. Lead based paint is not permitted to be used.
 - 2. Asbestos: Materials must not contain asbestos.

3. Chromate, Cadmium, Mercury, and Silica: Materials must not contain zinc-chromate, strontium-chromate, Cadmium, mercury or mercury compounds or free crystalline silica.
4. Human Carcinogens: Materials must not contain any of the ACGIH-BKLT and ACGHI-DOC confirmed or suspected human carcinogens.
5. Use high performance acrylic paints in place of alkyd paints, where possible.
6. VOC content for solvent-based paints must not exceed specified performance requirement; aromatic hydro carbons contained in solvent-based paints must not exceed one percent by weight.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

- A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.
 1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
 2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each day's work.
- B. Atmospheric and Surface Conditions:
 1. Do not apply coating when air or substrate conditions are:
 - a. Less than 3 degrees C (5 degrees F) above dew point.
 - b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the Contracting Officer and the product manufacturer.
 2. Do not exceed application conditions recommended by the manufacturer.
 3. Maintain interior temperatures until paint dries hard.
 4. Do no exterior painting when it is windy and dusty.
 5. Do not paint in direct sunlight or on surfaces that the sun will soon warm.
 6. Apply only on clean, dry and frost free surfaces except as follows:
 - a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces where allowed by manufacturer's printed instructions.

- b. Dampened with a fine mist of water on hot dry days concrete and masonry surfaces to which water thinned acrylic and cementitious paints are applied to prevent excessive suction and to cool surface.
7. Varnishing:
- a. Apply in clean areas and in still air.
 - b. Before varnishing vacuum and dust area.
 - c. Immediately before varnishing wipe down surfaces with a tack rag.

3.2 SURFACE PREPARATION

A. General:

1. Remove prefinished items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
3. See other sections of specifications for specified surface conditions and prime coat.
4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.

B. Wood: Not Used

C. Ferrous Metals:

1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).
2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). Exception: where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.
3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.

- a. This includes flat head countersunk screws used for permanent anchors.
 - b. Do not fill screws of item intended for removal such as glazing beads.
 4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge spot prime to produce smooth finish coat.
 5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.
- D. Abrasive Blasting (AB):
1. Ensure abrasive blasting conforms to SSPC SP 10/NACE No.2 and SSPC Painting Manual.
 2. Ensure compressed air used for abrasive blasting is free of moisture and oil.
 3. Maintain a minimum nozzle pressure of 620 kilopascal (90 pounds per square inch).
 4. Remove weld slag, weld spatter, and foreign matter from surfaces to be coated prior to abrasive blasting using mechanical methods as specified.
 5. Ensure blast cleaning achieves a 0.25 to 0.50 millimeter 1 to 2 mil anchor profile as indicated by a surface profile compactor, replica tape or similar device.
 6. Remove rust and corrosion from pits and depressions.
 7. Do not reuse abrasive blast aggregate.
 8. Remove all traces of abrasive residue and dust from the surface, leaving it clean and dry.
- E. Zinc-Coated (Galvanized) Metal, Aluminum, Copper and Copper Alloys Surfaces Specified Painted:
1. Clean surfaces to remove grease, oil and other deterrents to paint adhesion in accordance with SSPC-SP 1 (Solvent Cleaning).
 2. Spot coat abraded and damaged areas of zinc-coating which expose base metal on hot-dip zinc-coated items with Organic Zinc Rich Coating. Prime or spot prime with MPI 134 (Waterborne Galvanized Primer) depending on finish coat compatibility.
- F. Masonry, Concrete, Cement Board, Cement Plaster and Stucco: Not Used
- G. Gypsum Plaster and Gypsum Board: Not Used

3.3 PAINT PREPARATION

- A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.
- B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.
- C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.
- D. Mix two component and two part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.
- E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.4 APPLICATION

- A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.
- B. Unless otherwise specified, apply paint in three coats; prime, body, and finish. When two coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.
- C. Application on roofs may not be applied during direct sunlight or when the roof surface temperature is below 50 degrees or above 90 degrees. Spray applications may not be performed when winds in any direction exceed 5 miles per hour (MPH).
- D. Do not apply coating outside when rain is imminent or when humidity and temperature is outside the limits recommended by the coating manufacturer.
- E. Apply each coat evenly and cover substrate completely.
- F. Allow not less than 48 hours between application of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by COR.
- G. Finish surfaces to show solid even color, free from runs, lumps, brush marks, laps, holidays, or other defects.
- H. Do not paint in close proximity to operable items such as access doors and panels, window sashes, overhead doors, and similar items except overhead roll-up doors and shutters.

3.5 PRIME PAINTING

- A. After surface preparation, prime surfaces before application of body and finish coats, except as otherwise specified.
- B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.
- C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel. Apply an additional prime coat.
- D. Prime rebates for stop and face glazing of wood, and for face glazing of steel.
- E. Wood and Wood Particleboard: Not Used
- F. Metals:
 - 1. Steel and Iron: MPI 95 (Fast Drying Metal Primer).
 - 2. Zinc-coated Steel and Iron: MPI 134 (Waterborne Galvanized Primer).
 - 3. Machinery Not Factory Finished: MPI 9 (Exterior Alkyd Enamel (EO)).
- G. Gypsum Board or and Hardboard or: Not Used
- H. Gypsum Plaster and Veneer Plaster: Not Used
- I. Concrete Masonry Units except glazed or integrally colored and decorative units: Not Used
- J. Cement Plaster or stucco or Concrete Masonry, Brick Masonry or and Cement board or Interior Surfaces of Ceilings and Walls: Not Used

3.6 EXTERIOR FINISHES

- A. Apply following finish coats where specified.
- B. Steel and Ferrous Metal, or Including Tern or:
 - 1. Metal Roofs. MPI 19 Red oxide acrylic direct to metal (DTM) primer. Two coats of acrylic DTM to match color and gloss level.
 - 2. Roll-Up garage Door Frames. Two coats of MPI 19 flat grey inorganic zinc primer.
 - 3. Decorative Tower Doors. MPI 19, Red oxide inorganic zinc primer, inhibitive polyamide epoxy intermediate coat, and MPI 72, aliphatic polyurethane finish coat to match.

3.7 INTERIOR FINISHES - NOT USED**3.8 REFINISHING EXISTING PAINTED SURFACES**

- A. Clean, patch and repair existing surfaces as specified under surface preparation.
- B. Remove and reinstall items as specified under surface preparation.
- C. Remove existing finishes or apply separation coats to prevent non-compatible coatings from having contact.

- D. Patched or Replaced Areas in Surfaces and Components: Apply spot prime and body coats as specified for new work to repaired areas or replaced components.
- E. Except where scheduled for complete painting apply finish coat over plane surface to nearest break in plane, such as corner, reveal, or frame.
- F. In existing rooms and areas where alterations occur, clean existing stained and natural finished wood retouch abraded surfaces and then give entire surface one coat of or Polyurethane, Moisture Cured, Clear Gloss or Polyurethane, Moisture Cured, Clear Flat (PV) or.
- G. Refinish areas as specified for new work to match adjoining work unless specified or scheduled otherwise.
- I. Sand or dull glossy surfaces prior to painting.
- J. Sand existing coatings to a feather edge so that transition between new and existing finish will not show in finished work.

3.9 PAINT COLOR

- A. Color and gloss of finish coats is by COR.
- B. For additional requirements regarding color see Articles, REFINISHING EXISTING PAINTED SURFACE and MECHANICAL AND ELECTRICAL FIELD PAINTING SCHEDULE.
- C. Coat Colors:
 - 1. Color of priming coat: Lighter than body coat.
 - 2. Color of body coat: Lighter than finish coat.
 - 3. Color prime and body coats to not show through the finish coat and to mask surface imperfections or contrasts.
- D. Painting, Caulking, Closures, and Fillers Adjacent to Casework:
 - 1. Paint to match color of casework where casework has a paint finish.
 - 2. Paint to match color of wall where casework is stainless steel, plastic laminate, or varnished wood.

3.10 PROTECTION CLEAN UP, AND TOUCH-UP

- A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.
- B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.
- C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

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APPENDIX

Coordinate the following abbreviations used in Section 09 91 00, PAINTING, with other Sections. Use the same abbreviation and terms consistently.

Paint or coating	Abbreviation
Acrylic Emulsion	AE (MPI 10 - flat/MPI 11 - semigloss/MPI 119 - gloss)
Alkyd Gloss Enamel	G (MPI 48)
Alkyd Semigloss Enamel	SG (MPI 47)
Aluminum Paint	AP)
Cementitious Paint	CEP (TT-P-1411)
Exterior Latex	EL (MPI 10 / 11 / 119)
Exterior Oil	EO (MPI 9 - gloss/MPI 8 - flat/MPI 94 - semigloss)
Fire Retardant Paint	FR
Fire Retardant Coating (Clear)	FC (intumescent type)
Heat Resistant Paint	HR
Latex Emulsion	LE (MPI 53, flat/MPI 52, eggshell/MPI 54, semigloss/MPI 114, gloss Level 6
Latex Flat	LF (MPI 138)
Latex Gloss	LG (MPI 114)
Latex Semigloss	SG (MPI 141)
Latex Low Luster	LL (MPI 139)
Plastic Floor Coating	PL
Polyurethane Varnish	PV
Rubber Paint	RF (CID-A-A-3120 - Paint for Swimming Pools (RF))
Water Paint, Cement	WPC (CID-A-A-1555 - Water Paint, Powder).
Wood Stain	WS

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SECTION 32 31 19
DECORATIVE METAL FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removal and repair of existing decorative doors.

1.2 RELATED REQUIREMENTS

A. Materials product data and samples: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Door painting: Section 09 91 00, PAINTING.

1.3 APPLICABLE PUBLICATIONS

A. Comply with references to extent specified in this section.

B. American Institute of Steel Construction (AISC):

1. ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures.

C. ASTM International (ASTM):

1. A47, Ferric Malleable Iron Castings
2. A48, Grey Iron Castings
3. A242, High Strength Low-Alloy Structural Steel.
4. A500, Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
5. A510, General Requirements for Wire Rods and coarse Round Wire Carbon Steel
6. A588, High-Strength Low Alloy Structural Steel with 5- ksi Minimum Yield Point to 4-in Thick.
7. A1011, Standard Specifications for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
8. F626, Standard Specification for Fence Fittings.
9. F900, Standard Specifications for Industrial and Commercial Swing Gates.

D. American Welding Society (AWS):

1. D1.1/D1.1M-2015 - Structural Welding Code - Steel

E. Master Painters Institute (MPI):

1. No. 18 - Primer, Zinc Rich, Organic.

1.4 SUBMITTAL

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES:
- B. Submittal Drawings:
 - 1. Document existing gate and fence design with dimensioned sketches and photos.
 - 2. Show connections to adjacent construction, range of travel, and mechanical connections to gate post.
- C. Manufacturer's Literature and Data: Not Used.
- D. Samples: Section Not Used
- E. Certificates: Section Not Used.
- F. Delegated Design Drawings and Calculations: Not Used.

1.5 QUALITY ASSURANCE

- A. Qualifications: Substantiate qualifications to comply with specifications.
 - 1. Removal and installer shall have 3 years project experience.
 - 2. Utilize only AWS D1.1/D1.1m for any welding repairs that are necessary.
- B. Welders and Welding Procedures Qualifications: AWS D1.1/D1.1M.
- C. Delegated Design: Comply with system performance.

1.6 DELIVERY

- A. Before installation ensure doors are not damaged or distorted.

1.7 STORAGE AND HANDLING

- A. Protect products from damage during handling and construction operations.

1.8 WARRANTY

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

PART 2 - PRODUCTS**2.1 SYSTEM DESCRIPTION**

- A. Existing industrial decorative steel doors.

2.2 SYSTEM PERFORMANCE

- A. Doors to perform as currently designed.

2.3 PRODUCTS - GENERAL

- A. Repair and refinish existing decorative steel doors.

2.4 FABRICATION

- A. Make repairs as necessary to existing design.
- B. Pre-cut pickets, rails, and posts in lengths indicated on Drawings.
Pre-punch manufacturer's concealed design system rails to accept pickets.
- C. Fully insert rail inner slide into outer channel for internal retaining rod raceway.
- D. Insert pickets through grommets into pre-punched holes in rails; align pre-drilled picket holes with internal raceway.
- E. Insert retaining rods in rail passing through pre-drilled holes in each picket.
- F. Fabricate gates of reinforced concealed design system, picket and rails welded at joint intersections.

2.5 FINISHES

- A. Paint finish:
 - 1. Refer to 09 91 00 PAINTING

2.6 ACCESSORIES

- A. Grommets: PVC, High quality.
- B. Primer: Manufacturer's spray cans or paint pens.
- C. Welding Materials: AWS D1.1/D1.2M, type to suit application.
- D. Fasteners: As recommended by manufacturer.
- E. Galvanizing Repair Paint: MPI No. 18.
- F. Touch-Up Paint: Match shop finish.

PART 3 - EXECUTION**3.1 PREPARATION**

- A. Document with sketches and photos the existing door construction prior to disassembly the door for repairs.

3.2 DOOR INSTALLATION

- A. Removal of doors from the door frame and reassembly after post repairs have been completed per the original design.
- B. Installation:
 - 1. Install door according to existing design.
- C. Installation Tolerances: Not Used.
- D. Touch up damaged finishes.
 - 1. Repair painted surfaces with touch up primer.

3.3 FENCE INSTALLATION MAINTENANCE: Not Used

3.4 CLEANING

- A. Clean exposed surfaces. Remove contaminants and stains.
- B. Clean site of excess materials, post-hole excavations, and debris removed or scattered uniformly.

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