

**SECTION 10 14 00**  
**EXTERIOR SIGNAGE**

SPEC WRITER NOTES:

1. Use this section only for NCA projects.
2. Delete all SPEC WRITER NOTES from final specification.
3. Delete between //----// if not applicable to project. Also delete any other items not applicable to project in the section and renumber the paragraphs.
4. Modify so paragraph headers do not get separated from body of text across page breaks. Table headers shall be duplicated across page breaks when the table gets split.
5. Spec Writer shall modify these specifications to reflect the signage design for the project site. New signage will match the existing unless directed otherwise by the PM.
6. Spec Writer shall coordinate the specifications with the drawings and indicate a specific location for each of the various sign types to be used for the "match existing" conditions.
7. Spec Writer shall edit the following paragraph to correspond to the project requirements.
8. Spec Writer shall coordinate specifications and drawings so the new sign system is in compliance with Section 12 - National Cemetery Signs, in the VA Signage Design Guide (SDG), unless specifically directed otherwise by the Project Manager.
9. Spec Writer shall modify this entire specification section as necessary, if the new signage is to match the existing signage at the Cemetery and the existing signage is NOT in full conformance with the SDG.

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This section specifies the work required to furnish and install the indicated and specified exterior cemetery site signage systems, including, but not limited to, posts//, and mow strips//.
- B. Signs shall be products of manufacturers regularly engaged in manufacturing signs of types specified.

## SPEC WRITER NOTES:

1. Spec Writer shall edit the following list of sign types to reflect the types applicable to this project.
2. Delete unused types or add new and renumber accordingly.
3. There are between one and three different styles and/or materials that can be used for mounting the various sign types indicated. The spec writer shall indicate clearly in the specifications or on the drawings, without causing conflicting information, which type of mounting style and materials are to be used for each sign type to be included in the project. If the type and material are not consistent throughout the project for the specific sign type, then the types of mounting and materials shall be based upon the specific sign location.

## C. Signs included are as follows:

1. Visitor Information/Regulations
  - a. Medium
  - b. Large
2. Orientation Map
  - a. Horizontal
  - b. Vertical
3. Traffic Regulatory
  - a. Low Profile
  - b. Tall
4. Post and Panel
  - a. One Line of Text
  - b. Two Lines of Text
  - c. Three Lines of Text
5. Street Signs
  - a. Pylon Type
  - b. Flag Type
  - c. Tall Flag Type
6. Pylon Section Marker
7. //Faucet Post with Sign Panel//Water Hydrant with Sign Decal//
8. Standard Granite Section Marker
9. Wall Signs - Small
10. Incised Letters

**11. DIMENSIONAL LETTERS// AND SEALS//.1.2 RELATED WORK**

- A. Post Setting Excavation, Material, Backfill, Section 31 20 00, EARTH MOVING.
- B. Concrete Bases for posts: //Section 03 30 53, (SHORT FORM) CAST-IN-PLACE CONCRETE//Section 03 30 00, CAST-IN-PLACE CONCRETE//.
  - C. Concrete Posts: Section 04 72 00, CAST STONE MASONRY.SPEC WRITER NOTES:
    - 1. Delete paragraph D except where existing granite posts are to be used for new signage.
- //D. Granite Posts: Shall match the existing. When granite is selected for a new installation, the selection and specifications shall be based upon the other uses for the product within the facility and the posts shall match the indicated products elsewhere on the site.//
- E. Flower Watering Station piping, appurtenances and mounting: Section 32 30 00 SITE FURNISHINGS.
- //F. Interior Signage: Section 10 14 05, INTERIOR SIGNAGE.//

**1.3 MANUFACTURER'S QUALIFICATIONS**

- A. Sign manufacturer shall regularly and presently manufacture signs similar to those specified as one of their principal products. Sign manufacturer shall submit qualifications demonstrating a minimum of three years of experience manufacturing the qualifying signs and shall, if possible, demonstrate the successful manufacturing of exterior site signs installed at one or more State or National Veteran Cemeteries.

**1.4 SUSTAINABILITY REQUIREMENTS**

- A. Materials in this section may contribute towards contract compliance with sustainability requirements. See Section 01 81 11, SUSTAINABLE DESIGN REQUIRMENTS and Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS, for project // local/regional materials, // low-emitting materials, // recycled content, // certified wood // \_\_\_\_\_// 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, please visit <http://www.biopreferred.gov/>.

**1.5 SUBMITTALS**

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

## SPEC WRITER NOTES:

1. Spec Writer shall edit the following sample requirements to reflect the types applicable to this project.
2. Delete unused types or add new and renumber accordingly.

- B. Samples: Submit //3// sets. One set to the Contractor, one set to the Contracting Officer's Representative (COR) and one set to the A/E Designer. The Contractor shall provide submittal documents that indicate each of the sign types, mounting types and materials to be used for the various combinations to be used for this project. Submittal materials shall indicate the location(s) for the various sign types including their mounting.

1. Post & panel sign mock-up, not less than 200 mm by 250 mm (8" by 10"), shall be constructed and submitted, showing typical color, texture and fonts shown on Contract Drawings. Mock-up shall show typical fabrication methods, including panel to post(s) connection. Sample shall be capable of demonstrating how the face panels can be removed, for repair or replacement, from the mounted location between the posts, for a two post sign system. Mock-ups of all other sign systems for post mounted signs shall be capable of demonstrating how the sign panels are to be removed and replaced from the posts, or mounting support system attached to the posts, without moving the posts. Post, other than concrete or stone types, shall include typical post cap secured with tamperproof screws. Top surface of the sign panel shall not contain screws or metal joints that could trap or allow water to enter the sign assembly.
2. Rectangular tube post of each size indicated on the Contract Drawings, 150 mm (6") minimum length, showing typical color and finish. Attachments for the sign panels shall be provided to demonstrate the complete signage system materials and functionality.
3. Aluminum samples showing full range of finish colors available.
4. Cast Metal Letter, of each style, size and finish indicated.
5. Color samples of each color, 150 mm x 150 mm (6 inches x 6 inches). Show anticipated range of color and texture.
6. Sample of typeface, arrow, and symbols in a typical full-size layout.

7. Orientation Map panels and frames, not less than 200 mm by 250 mm (8" by 10"), with letters and symbols, each type.
- C. Shop Drawings: All signs showing material, finish, colors, size of members, details of construction, letter spacing, size and type, numbers, symbols or image details, and mounting details. Identify materials, show joints, welds, anchorage, accessory items, mounting and finishes. The details of construction shall clearly show how the sign is to be disassembled to replace the entire sign or just one side panel, where applicable.
- D. //Full size layout template of the cast lettering shown on the entry wall, showing pin locations and letter spacing of all words. Approved template shall be used during the actual installation of the lettering.//
- E. Full size layout in full color of the Sign Panels.
- F. Manufacturer's Literature and Data (Mark literature to indicate items proposed to be furnished): Signs, each type. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions. Manufacturer's recommendations for mounting the Sign Panels shall be provided.
- G. Manufacturer's Certificates: Provide certification from the coating installer, indicating exactly what they did to prepared the aluminum and apply the coating(s) to the specified thickness(es). The certification shall indicate that the coating has been installed according to specific and identified contract specifications and/or approved submittal materials so it is absolutely clear what was done.
- H. //Sample(s) shall be submitted of sign(s) of sufficient size to show the full scaled features of each of the sign types, including frame, mounting, panels, panelmounting, sign mounting facilities, lettering, color and texture. All aluminum signs shall have full exterior Powder Coated finish, with color and quality as specified herein.//

#### **1.6 DELIVERY AND STORAGE**

- A. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- B. Deliver signs only when the site, mounting materials, and equipment are ready for installation work to proceed.
- C. Store products in dry condition inside enclosed facilities.

SPEC WRITER NOTES:

1. Modify the following Paragraph as required, following discussion with the Project Manager.

#### **1.7 WARRANTY**

- A. Sign Manufacturer shall guarantee the text and symbols applied to the powder coated aluminum for an extended warranty period of five years following //final acceptance of the project//acceptance of the exterior signage system work//. A warranty inspection shall be performed no later than one year following //project final acceptance//acceptance of the exterior signage system work// and the Contractor shall be responsible for removing and replacing any text and/or symbols identified, during the inspection, that have started to fade, chip, peel or otherwise fail. The Contractor shall remove and replace any sign panel faces with new, where the applied lettering, or the paint system itself, is causing damage to, or failure of, the paint system. All work to produce replacement sign panels with new lettering and/or paint system shall be provided at no cost to the Government, as part of the Warranty work for the signage system.

#### **1.8 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.

**SPEC WRITER NOTES:**

1. Remove reference citations that do not remain in Part 2 or Part 3 of edited specification.
  2. Verify and make dates indicated for remaining citations the most current at date of submittal; determine changes from date indicated on the TIL download of the section and modify requirements impacted by the changes.
- B. Americans with Disabilities Act - 1990, as amended and in effect as of 01-01-2009.  
<https://www.ada.gov/law-and-regs/ada/>
  - C. Federal Highway Administration:  
Manuals on Uniform Traffic Control Devices for Street and Highways - Single Post Traffic Regulatory Signs.  
<https://mutcd.fhwa.dot.gov/pdfs/2003r1r2/mutcd2003r1r2complet.pdf>
  - D. American Society for Testing and Materials (ASTM):

- B117-19 Standard Practice for Operating Salt Spray (Fog) Apparatus
- B209/B209M-21a Aluminum and Aluminum-Alloy Sheet and Plate
- B221-21 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
- B449-93(2015) Standard Specification for Chromates on Aluminum
- D2247-11 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
- ASTM D3363-22 Standard Test Method for Film Hardness by Pencil Test
- E. American Architectural Manufacturer's Association (AAMA):
- AAMA 2605-05 Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum extrusions and Panels.
- F. Federal Specifications (Fed. Spec.):
- MIL-P-8184 Rev. F Plastic Sheet, Acrylic, Modified.
- A-A-59502 Plastic Sheet, Polycarbonate
- TT-P-645B Primer, Paint, Zinc-molybdate, Alkyd Type for use as a general primer for application to steel and aluminum.
- NPFC FED-STD-141 Paint, Varnish, Lacquer and Related Materials: Methods of Inspection, Sampling and Testing
- SPEC WRITER NOTES:
1. Spec writer should use the information in Paragraph G to complete the specifications and drawings for the Exterior Signage for this project, and then delete the paragraph as it isn't applicable for the Construction Documents.
- G. //VA Signage Design Guide:  
Section 12 National Cemetery Signs -  
<https://www.cfm.va.gov/til/signs/Signage12-Cemetery.pdf> //

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Aluminum, Extruded: ASTM B221, alloy 6063-T5, applicable as material.
- B. Aluminum, Sheet and Plate: ASTM B209
- C. Aluminum, Extrusions and Tubing: ASTM B221
- D. Zinc-Molybdate Primer: Fed. Spec. TT-P-645.

## SPEC WRITER NOTES:

1. Modify, or delete the following paragraphs as required according to the project specific conditions for the Exterior Signage.
2. Coordinate this specification with the drawing details and avoid conflicting information. Where necessary, because there is more complete and detailed information provided, indicate that the drawing details take precedence over the specifications.

**2.2 SIGNAGE GENERAL**

- A. Signs shall be of type, size and design shown on the drawings and as specified.
- B. Signs shall be complete with lettering, framing, and related components for a complete sign installation.
- C. Provide graphics items as completed units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.
- D. Do not scale drawings for dimensions. Verify all dimensions and conditions shown by the drawings. COR is to be notified of any discrepancy in drawing(s), in field directions or conditions, and/or of any changes required for any such related construction details.
- E. The Sign Contractor, by commencing work of this section, assumes overall responsibility, as part of his warranty of work, to assure that assemblies, components and parts shown or required within the work of the section, comply with the Contract Documents. Warrant: That all components, specified or required to satisfactorily complete the installation are compatible with each other and with conditions of installations.

## SPEC WRITER NOTE:

1. Unless specifically directed otherwise, by the Project Manager, spec writer shall select from the options indicated herein below as preferred Type Styles of the NCA.
2. Variation from the preferred type styles requires approval of the Project Manager.

**2.3 SIGN STANDARDS**

- A. Typography:

1. Type Style: //Optima Bold//Times Roman Bold//New Times Roman Regular//. Initial caps or and lower case as indicated in Site Signage Plan, unless otherwise indicated.
  2. Arrow: See graphic standards in drawings.
  3. Letter spacing: See graphic standards on drawings.
  4. All text, arrows, and symbols to be provided in size, colors, typefaces and letter spacing shown. Text shall be a true, clean, accurate reproduction of typeface(s) shown. Text shown in drawings are for layout purposes only. Text to be installed on specific signs shall be as submitted, reviewed and finally approved in shop drawings processed as submittal materials.
- B. Sign Colors and Finishes: As specified in this Specification Section and approved in the Shop Drawing & Submittal process.

SPEC WRITER NOTES:

1. Where site has Flower Watering Stations (FWS) using "Victor Stanley" fixtures the sign color selected shall match, unless specifically directed otherwise by the Project Manager.
  2. Spec Writer shall modify the following based upon acceptance of recommendations by the Project Manager.
1. Aluminum sign system color scheme shall have the background color of sign panels and the aluminum posts as powder coated matching // "Victor Stanley" //bronze/dark-brown//dark green//black//(identify color by standard color numbering system)// 'Cast Bronze' color Matthews # MP07458//.

SPEC WRITER NOTES:

1. Spec Writer shall modify the following paragraphs to match the specific project conditions.
2. Coordinate the sign type designations indicated in the specifications with those on the drawings.
3. Modify Paragraph A and delete between //...// and insure that the sign designations for the project are coordinated between these specs and the drawings and use the appropriate signage designations following the VA Signage Design Guide, as indicated.

**2.4 SIGNS TYPES**

- A. General: //The exterior sign system shall be comprised of sign type families that are derived from Chapter 12 - National Cemetery Signs, of

the VA Signage Design Guide (SDG). The sign designations used herein follow those in the SDG. An example sign designation, to identify what each of the elements is designated to represent is "NC-07.01 A - m1". "NC" Designates a National Cemetery sign. "07" the two digit numbers identify a particular sign type. "01" the two digit number following the period identifies a specific sign size within the sign type. "A" the letter designates a specific sign configuration, version and/or layout for graphics. "m1" the letter and number designates the post family and style. "c1" denotes concrete family with square insert style; "c2" denotes concrete family with round insert style; "m1" denotes metal family with square style; and "m2" denotes metal family with rectangular style. All of the above is duplicated herein, originally from the graphical indications in the SDG. //The basic sign designations for this project are indicated as follows:

SPEC WRITER NOTES:

1. Modify the following list of sign types to be specific for the project being constructed. Delete and renumber the items, do not renumber the sign types from those in the SDG.
2. Modify the number of size designations for each sign type to be correct for this specific project, and be consistent with the drawings.

- //1. NC-01 - Visitor Information/Regulations Signs.
- 2. NC-02 - You Are Here Orientation Map Signs.
- 3. NC-03 - Traffic Regulatory Signs.
- 4. NC-04 - Post and Panel Signs.
- 5. NC-06 - Pylon Street Signs.
- 7. NC-07 - Pylon Section Markers.
- 8. NC-08 - Wall Sign - Small.
- 9. NC-09 - Incised Letters.
- 10. NC-10 - Dimensional Letters.
- 11. NC-11 - Dimensional Seal.//

- B. Location, layout and construction details for all of the project exterior signs shall be found in the Construction Drawings. Refer to the signage details for the specific sign panel sizes, text and graphic sizes as well as the layout and content for the text and images for the respective individual signs.

## 2.5 TEXT AND GRAPHICS

SPEC WRITER NOTES:

1. Modify the following as required based upon the coordination with the information provided on the drawing, details and notes regarding the specific sign sizes, locations, orientation, and messages.
  2. The preparation of the surfaces to which the text and graphics are to be applied, as well as the method of application, are critical to meeting or exceeding the manufacturer's published life expectancy for the applied text and graphics.
  3. Spec Writer shall modify to require that the Contractor provide documentation that demonstrated that the surface preparation and application of the text and graphics are to be performed as recommended by the manufacturer to maximize the life expectancy of the applied materials on the signage.
- A. There are multiple Message Layout types for some of the different size signs within the same type of sign. See the drawing layout and detail drawings for the specifics of the locations for the signs, as well as the size, types, materials and messages for the individual signs for the project.
1. Surface applied letters, numbers and graphics shall be of a published quality and life expectancy equal to or exceeding that for reflective white opaque Engineering Grade 3M™ Scotchlite™ vinyl, unless otherwise noted. //Color shall match existing.// //Color shall be selected from the manufacturer's standard color selection, during the submittal process.// Font Type Style shall be as indicated in Paragraph "SIGN STANDARDS" as approved during the submittal process.
- B. All text and graphics for the exterior signage shall be provided in detailed submittal information. Each sign face shall be represented in scaled drawings, with exact font, letter style, font, letter spacing, graphics being shown. Only signs and or sign faces approved in the submittal process shall be manufactured.

## **2.6 FABRICATION**

- A. Design components to allow for expansion and contraction for a minimum material temperature range of 56 °C (100 °F), without causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.

- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Use concealed fasteners unless otherwise noted in the construction drawings.
- C. Shop fabricate signs. Joints fastened flush to conceal reinforcement, or welded where thickness or section permits. Welds shall be ground smooth.
- D. Contact surfaces of connected members shall be true. Assemble so joints will be tight and practically unnoticeable, without use of filling compound.
- E. Signs shall have fine, even texture and be flat and sound. Lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern. Plane surfaces shall be smooth flat and without oil-canning, free of rack and twist. Maximum variation from true plane of surface shall be plus or minus 0.4mm (1/64 inch). Restore texture to filed or cut areas.
- F. Level or straighten wrought work. Members shall have sharp lines and angles and smooth surfaces.
- G. Extruded members to be free from extrusion marks. Members shall have square turns and corners sharp, and curves shall be true.
- H. Drill holes for bolts and screws. Conceal fastenings unless noted otherwise in the construction drawings. Exposed ends and edges mill smooth, with corners slightly rounded. Form joints exposed to weather to exclude water.
- I. All painted surfaces properly primed. Finish coating of paint to have complete coverage with no light or thin applications allowing substrate or primer to show. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, peeling, foreign matter and other imperfections.
- J. Movable parts, including hardware, are be cleaned and adjusted to operate as designed without binding or deformation of members. All contact surfaces fit tight and even without forcing or warping components.
- K. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

- L. Completed sign installations shall not have any exposed openings so insect nesting inside of signs will be prevented.
- M. No signs are to be manufactured until final sign message schedule and location review has been completed by the COR & forwarded to contractor.
- N. Final sign fabrication shall not proceed until samples and shop drawings detailing the sign system as it will be installed, have been submitted and approved during the submittal process.

## 2.7 PROTECTION OF ALUMINUM

### SPEC WRITER NOTES:

- 1. Coordinate the signage details to ensure that all fasteners for the aluminum signs are stainless steel, or otherwise in compliance.

- A. Isolate aluminum in contact with or fastened to dissimilar metals other than stainless steel, white bronze or other metals compatible with aluminum by one of the following:
  - 1. Painting the dissimilar metal with a prime coat of zinc-chromate or other suitable primer, followed by two coats of aluminum paint.
  - 2. Placing an approved caulking compound, or a non-absorptive tape, or gasket between the aluminum and the dissimilar metal.

### SPEC WRITER NOTES:

- 1. Coordinate the following note with the construction details on the drawings.

- B. Paint aluminum in contact with or built into mortar, concrete, or other masonry materials with bituminous paint or zinc chromate primer.

### SPEC WRITER NOTES:

- 1. Spec writer shall discuss the design of the aluminum sign posts with the Project Manager. The size for the posts indicated in these specifications comes from those in the signage design guide and may not be appropriate for the wind loading conditions at this project site. The sizes in the design guide are just recommendations for aesthetic issues and are not based upon specific design wind load conditions for a specific project location.
- 2. The project designer shall determine if the size of the posts as indicated herein are adequate for the project location, as well as the agreed to operational and replacement requirements. Provide recommendations to the Project Manager of the element

sizes and the design wind loads, and confirm in writing the agreed to loads and sizes for this project.

3. Modify the sizing of the signage elements in the following paragraphs and in the drawings, as required. The indicated size for the posts and frame elements shall be as determined by structural engineering design. The design wind speed for this project location shall be as agreed, following recommendation by the designer and acceptance by the Project Manager.

## 2.8 DOUBLE-POST-PANEL SIGNS

A. Post and Panel Signs: Furnish the standard post style for each of the Post and Panel Signs, as designated in the construction drawings. The two standard types of posts are metal and concrete as follows:

### 1. Metal post signs:

- a. The posts, frame and panel(s) that make up the metal post sign system shall be constructed of an aluminum tubing system with **approved post caps**. Posts and frame elements for supporting the panels at individual sign locations shall be sized using the minimum sizes, as indicated herein, or as indicated on the drawings, with the drawing sizes taking precedence. The minimum size for the metal posts, if not indicated in the drawings, shall be 50 mm x 100 mm x 3 mm (2-inch by 4-inch by 1/8").
- b. The minimum size for the tubular aluminum frame system (extruded slide body frame), if not indicated in the drawings, shall be 25 mm x 25 mm x 3 mm (1-inch x 1-inch x 1/8-inch) with the 3 mm (1/8 - inch) aluminum sign panels anchored to the tubular aluminum frame system, with all corners mitered and welded and ground smooth. When the sign panel system is mounted to the posts, there shall be no openings for insects to enter. Mounting holes for attaching the sign panel and frame to the posts shall be pre-drilled before the coating system is applied. The entire sign panel and frame system (sign cabinet assembly) shall be coated with the submitted and approved powder coating system, as indicated herein or on the drawings. The sign panels shall be secured to the frame system with tamperproof screws and each panel face shall be removable, without removing the sign cabinet assembly from the posts.

- c. Sign cabinet assembly shall be constructed with extruded aluminum support channels and fasteners that secure a removable powder-coated aluminum sign panel assembly. Aluminum sign panel faces shall be 3 mm (1/8") minimum thick, unless noted otherwise in the construction drawings. The design for the sign panel system shall be such that the sign panels can be removed and replaced, without having to move the posts that secure the sign panel assembly. The sign panel assembly shall be constructed so there are no gaps or holes in the assembly that could let insects enter and construct nests or otherwise become a nuisance. The top of the sign panel assembly shall be constructed such that it is water tight from above and shall not have unsealed joints where water can collect or enter the assembly. The sign configuration and mounting shall be as depicted in the drawings.
- d. Lettering shall be as indicated on the applicable "Site Details" type of Drawing(s).
- e. Exposed fasteners shall be stainless-steel, tamper-proof type, and shall be colored to match the color for the sign panels.
- f. Finishes of exposed aluminum surfaces:
  - 1) Pretreatment: Before the finish is applied, a five-stage pretreatment must be applied to assure maximum adhesion and corrosion resistance:
    - a) Stage 1: High alkaline cleaner to prepare the surface
    - b) Stage 2: Water rinse
    - c) Stage 3: Combination of chromic, phosphoric and hydrofluoric acids that produce the chrome-phosphate conversion coating for maximum adhesion and corrosion resistance.
    - d) Stage 4: Water rinse
    - e) Stage 5: Water rinse
  - 2) Coating: The coatings for the metal signs shall produce results that meet or exceed the testing results indicated in AAMA 2605-05. After pretreatment, the metal is dried and paint is then applied. The aluminum shall have an electrostatically applied baked-on flexible acrylic finish that meet or exceeds industry standard tests, achieving a 75 - 125 micron (3.0 - 5.0 mil) thickness, super-tough finish with maximum exterior

durability and superior adhesion characteristics. Color as indicated on the drawings and approved submittal.

3) Tests:

- a) AAMA 2605-05 (covers Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum extrusions and Panels)
- b) ASTM D2247 (Humidity resistance of 1,000 hours)
- c) ASTM B117 (Salt spray resistance of 1,000 hours)
- d) Accelerated weathering for 500 hours under Method 6152 of Federal Test Method 141 shall show no adhesion loss, with only slight fading, chalking and water staining.
- e) Outdoor weathering shall show no adhesion loss, checking or crazing, with only slight fade and chalk when exposed for one year in Florida facing south at a 45 degree angle.
- f) Minimum hardness of 2H using ASTM D3363.
- g) Color of exposed portions of fastenings shall match sign panel being attached.

SPEC WRITER NOTES:

- 1. Coordinate the specifications and drawings regarding the concrete posts, and unless specifically directed otherwise by the Project Manager, the information in the contract documents shall match the details in the SDG.

2. Concrete post signs:

- a. The posts shall be precast concrete with the face for mounting the metal frame and panel(s) being smooth and flat. The precast concrete posts shall be of the required height (to be imbedded in the ground and extending above finished grade as indicated on the drawings), and shall be //140 mm x 140 mm (5 1/2" x 5 1/2")//190 mm x 190 mm (7 1/2" x 7 1/2") with the concrete detailing as indicated on the drawings. Concrete posts are to be manufactured according to the concrete specifications for Section 04 72 00, Cast Stone Masonry, as detailed on the construction drawings. The precast concrete posts shall be installed and the sign panels mounted as indicated in the drawings, or as approved in the submittal materials, see paragraph below. The Concrete post signs shall be installed at the locations indicated on the construction drawings.

SPEC WRITER NOTES:

1. Modify the following and adjust the sizes of the frames in the drawings and herein below, based upon the design for the sign elements as indicated above.
- b. The minimum size for the tubular aluminum frame system, if not indicated in the drawings, shall be 25 mm x 25 mm x 3 mm (1-inch x 1-inch x 1/8-inch) with the 3 mm (1/8 - inch) aluminum panels anchored to the tubing, with all corners mitered and welded and ground smooth. When the sign panel system is mounted to the posts, there shall be no openings for insects to enter. Mounting holes for attaching the sign panel and frame to the posts shall be pre-drilled before the coating system is applied. The entire sign panel and frame system shall be coated with the submitted and approved powder coating system, as indicated herein or on the drawings. The sign panels shall be secured to the frame system with tamperproof screws and each panel face shall be removable, without removing the sign system from the posts.
3. Insulating sleeves, gaskets, bolts and concrete anchors shall be provided and signs anchored to sign posts generally as indicated on the drawings and specifically as submitted and approved on the shop drawings as meeting or exceeding the drawing requirements.

#### **2.9 SINGLE-POST TRAFFIC REGULATORY SIGNS**

- A. Signs shall be constructed of square tubular galvanized steel post with an aluminum plate sign panel.
- B. Sign panel shall be a 2 mm (0.080") aluminum plate with surface applied reflective vinyl traffic regulatory decals. Panel, text & graphics shall comply with the Department of Transportation, Manual for Uniform Traffic Control Devices in color, shape, proportions, text and symbols. Panel shall mechanically fasten to support post with tamper resistant fasteners. Onsite "STOP" signs shall use all caps, unless specifically directed otherwise by the Project Manager.
- C. Posts shall be a minimum thickness of 2.5 mm (12 gauge) finished as specified on the Drawing Detail(s).

#### **2.10 FLAG TYPE STREET SIGNS**

- A. Sign posts shall be constructed with extruded tubular aluminum, 3 mm (1/8") minimum thick with corners that are crisp and true to line. Aluminum cap with concealed, tamper-proof attachments shall be provided.

B. Lettering shall be as indicated on the applicable "Site Details" type of Drawing(s).

C. Finish shall match Double-Post-Panel signs.

**2.11 ELECTRONIC READERBOARD SIGN**

A. Outdoor, weatherproof, computer controlled LED display sign fully encased in its own aluminum frame, approximately 700 mm (28") high by 1600 mm (64") long, by approximately 200 mm (8") deep.

B. Sign shall contain its own fan system to control heat and humidity in sign. Provide at least 75 mm (3") clearance below fan covers and fresh air intakes for proper circulation of air through the sign.

C. LED Display:

1. Rated 100,000 hours
2. 128 x 48 pixel Red Lamp
3. Full matrix display capable of presenting text in multiple character heights.
4. Pixel luminance shall be viewable in direct sunlight.

D. Message Capacity: Shall be such that a minimum of 60 different messages can be stored and scheduled to be displayed according to time and date.

E. Connectivity to the controlling government PC shall be accomplished by RS232 or RS485 cable, phone modem, Ethernet or fiber optic line //and shall be compatible with existing computer control system for the previous electronic readerboard sign.//

F. Electrical requirements:

1. Input voltage: 120V
2. Input Frequency: 60 Hertz

**SPEC WRITER NOTES:**

1. Modify the following to match the project conditions and delete if not applicable.
2. Adjust the mounting requirements for the various plaques and emblems after discussion with the Project Manager.  
NOTE: There have been project where the bronze seal on the front entry have been stolen. Either mount the bronze plaques so they are in a recessed installation (where the back edge of the plaque isn't accessible), or insure that there are two or more mounting pins that are installed through the wall or pier, with washer and nut installed recessed on the back side, with the back side connection

being recessed and covered over with appropriate patching material.

3. Modify to provide information for the sign types to be provided for this project.

## **2.12 BRONZE PLAQUES - SERVICE EMBLEMS - SEALS**

- A. Furnish and install the Bronze Plaques, Emblems and Seals as indicated on the contract drawings. Bronze elements shall be cast of a lead free tin bronze, such as C900300 (Navy "G" Bronze) or similar alloy approved by the VA. The Bronze elements shall be BAS relief casting based upon the //VA Drawing// electronic graphic image included in the contract drawings// previously approved and used casting mold// as submitted and approved.
- B. BAS relief castings shall be of uniform quality and condition, free from injurious blow holes and porosity, cracks and other defects and not warped or distorted, well finished, free from burrs, sharp edges, scratches and defects that may affect appearance or service ability. Casting shall not be repaired, plugged, welded or burned. Finish to be detailed, hand chased for true alignment, filed, belt polished, sides ground smooth, raised surfaces and borders to be polished and buffed to a bright satin finish, background textures to be reverse medium pebble background, fine pebble background, moss as cast. Bronze to be chemically oxidized to a statuary medium color and finish with one coat of clear protective exterior metal lacquer. Fasteners to be corrosion resistant metal compatible with material or casting. Details for the size, thickness, content, and mounting for the Bronze signage elements shall be as indicated on the contract drawings and as described as follows:"
  1. Service Emblem Plaques - The six bronze service emblem plaques shall be of the sculpted BAS relief style. The six emblems include one of each military branch: Army, Navy, Marine Corps, Air Force, Space Force, and Coast Guard. Examples of previously accepted BAS relief sculpted casting molds are available at the manufacturer, United States Bronze, 811 Second Avenue, Hyde Park, NY 11040, telephone 516-352-5155, as a basis of design. Shop drawings, as well as samples of material showing color, texture and border, and photos of sculpted molds of all sculpted BAS relief elements shall be submitted for approval prior to fabrication.

## SPEC WRITER NOTE:

1. Adjust the mounting requirements and attachment method as appropriate for the substrate to which the bronze castings are to be attached to insure adequate security. Coordinate final design with the Project Manager.
  - a. Plaques shall be provided with four threaded bosses, 13 mm x 50 mm (1/2" x 2") nominal size. Space as shown on Contract Drawings. Contractor shall provide threaded bronze bolts, 13 mm x 50 mm (1/2" x 2") nominal size to fit treaded bosses.
2. Department of Veteran Affairs Bronze Seal - Shall be of the sculpted BAS relief style with the size and graphics //matching that of previously approved seals//as provided in the VA Graphic files// and as approved during the submittal review and approval process. The size, location and attachment for the seal shall be as indicated on the construction drawings, with the seal between 600mm and 1200mm (2 and 4 feet) in diameter.
3. Gettysburg Address Plaque (Government Provided) - Shall be mounted as indicated on the contract drawings. The size and configuration of the plaque shall be generally as indicated on the contract drawings, with the final configuration, and mounting to be as submitted and approved during the submittal review process.
4. Bivouac of the Dead Plaque (Government Provided) - Shall be mounted as indicated on the contract drawings. The size and configuration of the plaque shall be generally as indicated on the contract drawings, with the final configuration, and mounting to be as submitted and approved during the submittal review process.

**2.13 PYLON STREET SIGNS**

- A. Signs shall be non-illuminated posts with street name messages directed specifically to vehicles. They shall be metal or concrete, with location, materials, color, messages and configuration as indicated on the Drawings. Position sign to provide vehicles and pedestrians with a clear unobstructed view of the sign, or position according to the drawings, if so indicated. Unless indicated differently on the drawing details, the signs shall be as follows:

## SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the detail information provided on the drawing details and notes.

2. If drawing details indicate the information below in a) and b) then delete the paragraphs and renumber.

### 1. Metal Signs

- a. //150mm x 150mm x 1200mm (6" x 6" x 4') above finished grade, and depth as indicated on the drawings (minimum depth for bottom of concrete holding the sign shall be //600mm (2')//900mm (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
- b. //Metal thickness shall be 3mm (1/8") minimum aluminum with top piece secured with tamper-proof screws or other method as approved in the submittal process.//
- c. Submit a sample sign at least 300mm (12-inches) in length with all manufacturing methods and elements indicated, including color and finish as well as lettering, for review and approval.
- d. Color and material for the background and lettering shall be //the same as for the other signs//match the FWS facilities//be powder coated color to be determined during submittal//.
- e. Provide a //precast concrete//cast-in-place concrete// mow collar that is:
  - 1) Reinforced and free floating from the sign
  - 2) As detailed on the drawings
  - 3) Submitted and approved during the submittal process

#### SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the detail information provided on the drawing details and notes.
2. If drawing details clearly indicate the information below in paragraphs "a thru e" then delete the corresponding paragraph(s) and renumber.

### 2. Concrete Signs

- a. //190mm x 190mm x 1200mm (7.5" x 7.5" x 4') above finished grade, and depth as indicated on the drawings (minimum depth of concrete holding the sign shall be //600mm (2')//900mm (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
- b. //The style for the posts shall have //rectangular//round// ends cast into the four sides of the post. The text panels shall be indented with beveled transition to the text panel mounting surface. The mounting surface for the aluminum text panel for

each indent, shall be equal to the dimensions for the aluminum text panels +3mm, -0mm (+1/8", -0") as the gap between the aluminum panel and the flat mounting surface for the panel cast into the concrete.//

- c. //The text panel shall be 3mm (1/8") thick powder coated aluminum //with two mounting holes, one at the top and bottom of the aluminum panel, drilled and ground smooth before the powder coating//. The color and finish shall be as approved in the submittal process and shall match the other aluminum signs.//
  - d. //The dimensions for the aluminum text panels shall be 89mm (3.5") wide with the text being 63mm (2.5") in height. The height of the aluminum panel shall be coordinated to fit within the casting for the panel in the concrete posts, with a 3mm (1/8") gap all around between the aluminum and the concrete, as submitted and approved and meeting the standards established in the approved sample for the concrete sign post with the aluminum text panel, as complete. The approximate height for the aluminum text panels is 900mm (3'). Dimensions shown on detailed construction drawings shall take precedence over these specifications.//
  - e. //The aluminum text panels shall be mounted using Stainless Steel tamper-proof screws, with matching powder coating with approved concrete anchors. //The text panels shall be furnished without mounting holes and shall be attached to the concrete with a permanent exterior adhesive designed for securing metal to concrete, as submitted and approved.//
  - f. Posts shall be manufactured in accordance with Section 04 72 00 Cast Stone Masonry using reinforced wet cast concrete with finish made to emulate stone by the use of acid etching process following casting. Finish, color and texture, as well as dimensional conformance shall be demonstrated by submitting samples of the post, minimum of 300mm (12") in length, during the submittal process. Submit shop drawings indicating all dimensions and tolerances, as well as reinforcing. An acceptable sample must be obtained prior to manufacturing the units.
- B. The approved shop drawings and sample(s) of the complete pylon street sign shall be the basis for manufacturing and assembly.

## 2.14 PYLON SECTION MARKERS

- A. Pylon section markers are non-illuminated type with messages directed specifically at vehicles and pedestrians. Markers can present a maximum of three characters on a side, as indicated in the drawing details. Position each marker to provide vehicles and pedestrians with a clear unobstructed view of the marker, or locate and orientate according to the drawings, where so indicated. Unless indicated differently on the drawing details, the markers shall be as follows:

### SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the detail information provided on the drawing details and notes.
2. If drawing details indicate the information below in a) and b) then delete the paragraphs and renumber.

#### 1. Metal Markers

- a. //200mm x 200mm x 400mm (8" x 8" x 1'-4") above finished grade, and depth as indicated on the drawings (minimum depth for bottom of concrete holding the marker shall be //600mm (2')//900mm (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
- b. //Metal thickness shall be 3mm (1/8") minimum aluminum with top piece secured with tamper-proof screws or other method as approved in the submittal process.//
- c. Submit a sample marker at least 300mm (12-inches) in length with all manufacturing methods and elements indicated, including color and finish as well as lettering, for review and approval.
- d. Color and material for the background and lettering shall be //the same as for the other signs//match the FWS facilities//be powder coated color to be determined during submittal//.

### SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the information provided on the drawing details and notes.
2. If drawing details clearly indicate the information below in paragraphs "a thru e" then delete the corresponding paragraph(s) and renumber.

#### 2. Concrete Markers

- a. //190mm x 190mm x 400mm (7.5" x 7.5" x 1'-4") above finished grade, and depth as indicated on the drawings (minimum depth of concrete holding the sign shall be //600mm (2')//900mm

- (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
- b. //The style for the markers shall have //rectangular//round// ends cast into the four sides of the marker. The text panels shall be indented with beveled transition to the text panel mounting surface. The mounting surface for the aluminum text panel for each indent, shall be equal to the dimensions for the aluminum text panels +3mm, -0mm (+1/8", -0") as the gap between the aluminum panel and the flat mounting surface for the panel cast into the concrete.//
- c. //The text panel shall be 3mm (1/8") thick powder coated aluminum //with two mounting holes, one at the top and bottom of the aluminum panel, drilled and ground smooth before the powder coating//. The color and finish shall be as approved in the submittal process and shall match the other aluminum signs.//
- d. //The dimensions for the aluminum text panels shall be 95mm (3.75") wide with the text being 75mm (3") in height. The height of the aluminum panel shall be coordinated to fit within the casting for the panel in the concrete markers, with a 3mm (1/8") gap all around between the aluminum and the concrete, as submitted and approved and meeting the standards established in the approved sample for the concrete pylon section markers with the aluminum text panel, as complete. The approximate height for the aluminum text panels is 178mm (7"). Dimensions shown on detailed construction drawings shall take precedence over the specifications.//
- e. //The aluminum text panels shall be mounted using Stainless Steel tamper-proof screws, with matching powder coating with approved concrete anchors. //The text panels shall be furnished without mounting holes and shall be attached to the concrete with a permanent exterior adhesive designed for securing metal to concrete, as submitted and approved.//
- f. Pylon Section Markers shall be manufactured in accordance with Section 04 72 00 Cast Stone Masonry using reinforced wet cast concrete with finish made to emulate stone by the use of acid etching process following casting. Finish, color and texture, as well as dimensional conformance shall be demonstrated by submitting samples of the marker, minimum of 300mm (12") in

length, during the submittal process. Submit shop drawings indicating all dimensions and tolerances, as well as reinforcing. An acceptable sample must be obtained prior to manufacturing the units.

- B. The approved shop drawings and sample(s) of the complete Pylon Section Marker shall be the basis for manufacturing and assembly.

SPEC WRITER NOTES:

1. Modify the following and select the appropriate Paragraph "A". Delete the remaining.

**2.15 GRANITE SECTION MARKERS**

- A. //Details for the Granite Section Markers are to be as indicated on the drawings and associated notes.//
- A. //Granite Section Markers shall match existing.//
- A. //Granite Section Markers shall have honed smooth inscription face and all other surfaces shall be smooth saw cut finish. All corners and edges including 50mm (2") below ground shall be rounded to 10mm (3/8") radius. Dimensions and graphics details are as follows:
1. Dimensions:
    - a. Height above finished grade - 600mm (2').
    - b. Width and Depth of the Marker - 150mm (6").
    - c. Beveled sign face - 150mm (6") wide x 200mm (8") high on the angled surface.
    - d. Top edge of beveled sign face from back edge of marker - 50mm (2").
    - e. Bottom edge of beveled sign face from top of marker - 175mm (7").
    - f. Bottom of marker below finished grade - 600mm (2') with concrete setting bed around the granite extending to max frost depth area or 6" below granite minimum, whichever is greater total depth.
  2. Graphics:
    - a. "SEC" shall be engraved letters; 38mm (1 1/2") ht., 5mm (3/16") depth, 5mm (3/16") stems & bars, located with bottom edge 57mm (2 1/4") from top of the beveled face; text for section ID numbers shall be as shown on the drawings, approved by the COR and be engraved 50mm (2") ht., 5mm (3/16") depth, 10mm (3/8") stems & bars, and bottom edge 165mm (6 1/2") from top of the beveled face.//

- B. Granite Section Markers shall be of materials that match those existing on the site, or are as approved by Memorial Program Services (MPS) for use as niche covers.

#### 2.16 FAUCET POST WITH SIGN

- A. Faucet posts with signs are non-illuminated pylon style with attached message and graphic decals. The decals are mounted directly on the metal post on a separate metal panel attached to the concrete post.
- B. The posts contain and/or are used to mount the water pipe and the spigot at the Flower Watering Stations. Details for the water pipe, appurtenances, and mounting are included in the related Section 32 30 00 SITE FURNISHINGS.
- C. The posts shall be metal or concrete, with location, materials, color, messages and configuration as indicated on the Drawings. Position sign to provide pedestrians with a clear unobstructed view of the sign, or position according to the drawings, if so indicated.

SPEC WRITER NOTES:

1. Modify the following and select the appropriate Paragraph "1". Delete the remaining.
1. //Details for the Faucet Posts with Signs are as indicated on the drawings and associated notes.//
1. //Faucet Posts and Signs shall match existing.//
1. //Unless indicated differently on the drawing details, the faucet posts with signs shall be as follows:

SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the detail information provided on the drawing details and notes.
  2. If drawing details indicate the information below in 1) and 2) then delete the paragraphs and renumber.
- a. Metal Faucet Posts
- 1) //200mm x 200mm x 710mm (8" x 8" x 2'-4") above finished grade, and depth as indicated on the drawings (minimum depth for bottom of concrete holding the marker shall be //600mm (2')//900mm (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
  - 2) //Metal thickness shall be 3mm (1/8") minimum aluminum with top piece secured with tamper-proof screws or other method as approved in the submittal process.//

- 3) Submit a sample marker at least 300mm (12-inches) in length with all manufacturing methods and elements indicated, including color and finish as well as lettering, for review and approval.
- 4) Color and material for the background and lettering shall be //the same as for the other signs//match the FWS facilities//be powder coated color to be determined during submittal//.

## SPEC WRITER NOTES:

1. Modify the following paragraphs based upon the information provided on the drawing details and notes.
2. If drawing details clearly indicate the information below in paragraphs 1) thru 6) then delete the corresponding paragraph(s) and renumber.

## b. Concrete Faucet Posts

- 1) //190mm x 190mm x 710mm (7 1/2" x 7 1/2" x 2'-4") above finished grade, and depth as indicated on the drawings (minimum depth of concrete holding the sign shall be //600mm (2')//900mm (3')//maximum frost depth for the location//). Drawing details shall take precedence.//
- 2) //The style for the markers shall have //rectangular//round// ends cast into the four sides of the marker. The text panels shall be indented with beveled transition to the text panel mounting surface. The mounting surface for the aluminum text panel for each indent, shall be equal to the dimensions for the aluminum text panels +3mm, -0mm (+1/8", -0") as the gap between the aluminum panel and the flat mounting surface for the panel cast into the concrete.//
- 3) //The text panel shall be 3mm (1/8") thick powder coated aluminum //with two mounting holes, one at the top and bottom of the aluminum panel, drilled and ground smooth before the powder coating//. The color and finish shall be as approved in the submittal process and shall match the other aluminum signs.//
- 4) //The dimensions for the aluminum text panels shall be 95mm (3 3/4") wide with the symbol being 75mm (3") in height and 30 mm (1 1/4") from top of text panel to the top of the symbol. The text height shall be 19mm (3/4"). The height of the aluminum

panel shall be coordinated to fit within the casting for the panel in the concrete markers, with a 3mm (1/8") gap all around between the aluminum and the concrete, as submitted and approved and meeting the standards established in the approved sample for the concrete pylon section markers with the aluminum text panel, as complete. The approximate height for the aluminum text panels is 400mm (1'-3 3/4"). Dimensions shown on detailed construction drawings shall take precedence over the specifications.//

- 5) //The aluminum text panels shall be mounted using Stainless Steel tamper-proof screws, with matching powder coating with approved concrete anchors. //The text panels shall be furnished without mounting holes and shall be attached to the concrete with a permanent exterior adhesive designed for securing metal to concrete, as submitted and approved.//
- 6) Concrete Faucet Posts shall be manufactured in accordance with Section 04 72 00 Cast Stone Masonry using reinforced wet cast concrete with finish made to emulate stone by the use of acid etching process following casting. Finish, color and texture, as well as dimensional conformance shall be demonstrated by submitting samples of the marker, minimum of 300mm (12") in length, during the submittal process. Submit shop drawings indicating all dimensions and tolerances, as well as reinforcing. The shop drawings and sample shall include the details space for the pipes, appurtenances, and spigot as well as room for assembly and attachment to produce the fully functional FWS spigot assembly as specified. An acceptable sample must be obtained prior to manufacturing the units.

SPEC WRITER NOTES:

1. Modify the following paragraphs by selecting the applicable paragraph "D" and deleting the other based upon the information provided on the drawing details and notes.
- D. //"Do Not Drink" symbol shall be as indicated on the drawing details, and as approved during the submittal process.//
- D. //"Do Not Drink" decal - The "Do Not Drink" decal shall be the universal symbol with a faucet above a glass with water, and a red circle and diagonal line through the symbol. Decal has black background with white text and black and red symbol (Spanish

translation recommendation). The text "Do Not Drink" shall be stacked vertically below the international symbol. Decal shall be aligned vertically to fit the metal or concrete post location, as submitted and approved.//

#### **2.17 INCISED LETTERS**

- A. Incised letters shall be cast into wall panels. The lettering shall be as indicated on the design drawings.
- B. Lettering text content, size, location and style shall be as shown on the design drawings and as approved in a submittal reviewed and approved during the shop drawing submittal and review process.
- C. Unless otherwise noted on the drawings and details, the font for the incised lettering shall be New Times Roman Regular. Color and staining inside of the incised lettering shall be as indicated on the drawings.
- D. Incised lettering shall be sized and depth as follows for the size lettering indicated on the drawings:
  - 1. 200mm (8") lettering - 13mm (1/2") deep.
  - 2. 250mm (10") lettering - 19mm (3/4") deep.
  - 3. 300mm (12") lettering - 25mm (1") deep.

#### **SPEC WRITER NOTES:**

- 1. Delete the following paragraph if all of the information is provided in the drawing details and notes. Modify to coordinate with the drawings and renumber as applicable.

#### **2.18 //CONCRETE MOW COLLARS OR STRIPS//**

- A. Reinforced concrete mow collars shall be provided for all new single elements in this Specification Section, where they are to be located in lawn areas and are not connected to another adjoining element. For all elements that are connected to another adjoining element, like double post signs, provide a continuous reinforced concrete mow strip. The requirements for the collars and strips are as follows:
  - 1. Reinforced and free floating, concrete not in contact with the element.
    - a. //As detailed on the drawings//
    - b. Submitted and approved during the submittal process
    - c. Separated from the element with expansion joint material the fill depth of the concrete.
    - d. Closed steel rebar, with overlap at joint, 50mm (2") minimum distance from surrounding earth.

- e. Minimum 10mm (#3) diameter rebar as enclosing the element or elements approximately 50mm (2") inside the perimeter of the concrete. On the strips, there shall be an additional bar in the middle between the elements that extends to within 50mm (2") from the closest parts of the adjoining elements.
- f. Cast-in-place concrete shall be same as for other flatwork elements.
- g. Construct the collars and/or strips to be 25mm (1") above finished grade at the junction with the lawn, and with a slope up toward the element(s) and or middle, for drainage, of 13mm (1/2") to 19mm (3/4").

SPEC WRITERS NOTES:

1. Modify the following as appropriate by selecting the applicable paragraph "A" based upon the coordination between the drawings and specifications.

**2.19 DIMENSIONAL LETTERS**

- A. //Dimensional Letters shall be individually mounted on the provided substrate material. The location, alignment, letter configuration, size, font, material and finish shall be as indicated on the Drawings.//
- A. //Cast dimensional metal letters shall be surface mounted tight to the wall unless otherwise noted//. //Letters to be mounted to other than flat surfaces, like stone masonry veneer walls with irregular shaped and faced stones, and with random joints shall be mounted based upon the wall construction. Before manufacturing the letters, a full sized template of the letters, with correct size and spacing, shall be placed on the wall at the correct location and temporarily secured. The letter template shall be marked for each letter indicating where the joints are located immediately below the letter placement. The marking of the template is to locate where the relatively flat portions of the stones are below the letters so the pins can be manufactured and installed out of the joints between the stones. The template with the joint locations (or flatter portions of the stones) shall be provided to and/or used by the letter manufacturer so the pin placement supporting the individual letters can be adjusted and placed so the pins do not extend into the joints below the letters during the installation of the letters.// //Lettering shall be Times New Roman

Regular with layout, font, style, size and spacing as indicated on the Drawings.//

- B. Unless otherwise indicated on the drawings, dimensional lettering shall be sized and depth as follows for the size lettering indicated on the drawings:

1. 200mm (8") lettering - 38mm (1 1/2") deep.
2. 250mm (10") lettering - 50mm (2") deep.
3. 300mm (12") lettering - 64mm (2 1/2") deep.

SPEC WRITER NOTES:

1. Modify the following to indicate the specific requirements for the project for the features indicated below.

- C. Materials, color, and finish for the individual letters shall be as indicated.

SPEC WRITER NOTES:

1. Coordinate the following section with the details on the drawings.
2. Modify or delete the following paragraph depending upon the completeness of the drawings, details and notes.
3. Modify paragraph C to be appropriate for the project, and approved by the PM.

**2.20 VERTICAL/HORIZONTAL YOU ARE HERE MAP**

- A. Each graphic panel shall be sized to fit onto the designated double faced post and panel sign with the sign panel and posts as indicated on the drawings. The maximum size for the sign panel shall be 900mm x 1200mm (3' x 4') or as indicated on the drawings, either horizontal or vertical as shown on the drawings, based upon the image to be displayed. The overall sign height shall be 1800mm (6').
- B. Graphics for these panels shall be as indicated on the drawing details and final graphics will be provided by the designer prior to the submittal process.

SPEC WRITER NOTES:

1. Spec Writer shall review the products available and their published performance as far as life expectancy and shall select the appropriate number of years, using the longest possible life expectancy.

- C. Graphic process shall be performed by a manufacturer that regularly produces similar products using materials, colors and sizes as indicated, and has performed this work for a minimum of three years.

The graphics process shall produce sign panels that are curable, UV resistant, have crisp colors, shall not delaminate, be designed so surfaces scratches do not remove or damage the graphics, have been used for similar signs that have been exposed to the elements while mounted tipped up from horizontal to facilitate viewing, and have performed without failure for long periods of time. The longer the performance life of comparable products used elsewhere, the better. Minimum acceptable performance of similar signs shall be //5//10//15//20// years or more. Samples of the graphic sign panel, with the colors and detail that will be provided for the final sign shall be submitted, reviewed, modifications made as required, and eventually approved if fully compliant, prior to the signs being manufactured. The graphics process shall //match existing//be //surface applied reflective vinyl for text//, //map is surface silkscreened on the //powder coated aluminum//porcelain enamel// panel //large format "printer/plotter" print on vinyl with UV resistant ink and clear UV resistant overcoat//.

- D. Colors for the graphic image shall be white and necessary colors to create the map as indicated in the graphic file provided by the design A/E.

SPEC WRITER NOTES:

1. Modify or delete the following paragraph depending up the use in the project, and whether all of the details for the sign are clearly indicated on the design drawings, details and notes.

**2.21 //TRAFFIC REGULATORY - TALL//**

- A. Sign faces shall be 450mm x 300 mm (1'-4" x 12") and shall be mounted so the bottom of message panel is 2.1m (7'-0") above finished grade.
- B. //These signs shall match existing.//
- B. //The background color for the signs shall //match existing//be as selected from the Signage Design Guide (SDG) color chart during the submittal process//be as indicated on the drawings// insert the desired color from the SDG during the spec editing//.
- C. Text and graphics shall be white surface applied vinyl of same material used for the text on the other signs.
- D. The post for mounting the message panels shall be //as indicated on the drawings//50mm (2") square extruded aluminum with powder coating //black//dark bronze//.

SPEC WRITERS NOTES:

1. Modify or delete the following paragraphs based upon the sign type for the project and the completeness of the details for this sign type on the drawings, details and notes.

## 2.22 //FLAG TYPE STREET SIGN//

- A. Message types for the signs shall be //Layout A//Layout B//Layout C//with respective lengths of //900mm (3')//760mm (2'6")//600mm (2'-0")// with text 50mm (2") in height centered in the 150mm (6") height panel dimension and starting 75mm (3") from the left edge of the message panel.
- B. The layout types for the signs as well as the text to be included in the respective sign panels shall be //as indicated on the drawings//as provided prior to the submittal process for the sign text with Layout A size being included in the bid//.

### SPEC WRITER NOTES:

1. Select and edit the applicable paragraph "C" delete the others and edit as applicable.
- C. //Sign post types shall be extruded aluminum 100mm (4") square and //1200mm (4')//1800mm (6')// in height above finished grade. Color shall be created using a powder coated system, like that used by Victor Stanley for their benches or receptacles, //designer - select from SDG color chart//black//dark bronze// powder coated.//
  - C. //Sign post types shall be concrete as specified in 04 30 00 Cast Stone Masonry concrete in two sections as follows:
    1. Overall sign post height shall be 1200mm (4'), with lower portion being 960mm (3'-2") in height and 140mm (5 1/2") square and upper portion being 250mm (10") in height and 100mm (4") square with flat top.
    2. The lower portion of the post shall be cast with a decorative recessed panel on each side of the post. The indent panels shall be 70mm (2 3/4") wide and 660mm (2'-2") high starting 75mm (3") below the top of the lower portion of the sign.
    3. Edges of the posts shall be beveled with 75mm (3/4") bevels to create flat side faces 100mm (4") wide.
    4. The 75mm (3/4") bevels shall go around the top of the lower portion of the post create a flat surface onto which the upper portion 250mm (10") high shall be cast.

5. The concrete post shall be reinforced as needed to prevent cracking, or other failure, if an external load is applied to the message panel sufficient to bend the panel. Design for the reinforcement shall be by a structural engineer// provided by the concrete manufacturer//provided by the project designer with details as indicated on the drawings//.
- C. //Sign post type shall be a combination concrete and metal in three different sections as follows:
1. Overall sign post height shall be 1800mm (6'), with lowest portion being 960mm (3'-2") in height and 140mm (5 1/2") square and middle portion being 600mm (2') in height and 100mm (4") square with flat top, with the upper portion being 50mm (2") square aluminum being set into the top of the 100mm (4") square middle section.
  2. The lowest portion of the post shall be cast with a decorative recessed panel on each side of the post. The indent panels shall be 70mm (2 3/4") wide and 660mm (2'-2") high starting 75mm (3") below the top of the lower portion of the sign.
  3. Edges of the lowest section of the posts shall be beveled with 75mm (3/4") bevels to create flat side faces 100mm (4") wide.
  4. The 75mm (3/4") bevels shall go around the top of the lowest portion of the post create to create a flat surface onto which the upper portion 600mm (2') high sharp cornered precast concrete section shall be cast.
  5. The lower two sections of the concrete post shall be reinforced as needed to handle the loads and attachment of the upper metal portion and the message panel, to prevent cracking, or other failure, if an external load is applied to the message panel sufficient to bend the panel. Design for the reinforcement shall be by a structural engineer// provided by the concrete manufacturer//provided by the project designer with details as indicated on the drawings//.
  6. The metal portion of this sign and its metal attachments shall have powder coated color system, like that of Victor Stanley for their benches or receptacles, that shall be //designer- select from SDG color chart//black//dark bronze// powder coated.//
- D. The message layout panels for all of these signs shall be assembled 50mm (2") down from the top of the sign post, regardless of the post type. They shall have the corners eased with a 6mm (1/4") radius.

- E. All of the construction details, including but not limited to, attachments, mounts, reinforcement, finish, texture, color, text, graphics shall be submitted as part of samples and shop drawings for the signs and shall be reviewed, modified as needed, until they are approved, before the actual signs are approved for manufacturing.

### **2.23 PYLON HANDICAPPED SIGN**

- A. Pylon style signs shall be powder coated aluminum with powder coating system like that used by Victor Stanley for their benches and receptacles. The color shall be Handicapped Blue with a white handicapped symbol, and sized to be 50mm (2") deep, 150mm (6") wide, and 1500mm (5') above finished grade.
- B. Submit shop drawing showing the details of the physical pylon, the coating system as well as the colors and graphics as part of the submittal process.

### **PART 3 - EXECUTION**

#### **SPEC WRITER NOTES:**

1. Modify the following paragraphs to be coordinated with the information indicated in the Drawings. Make sure that all of the items indicated herein below related to installation are clearly indicated in the drawings or specifications and that there is not conflicting information, or duplication of information.

### **3.1 INSTALLATION**

- A. Set work accurately, in alignment and where shown. Signs shall be plumb, level, free of rack and twist and set parallel or perpendicular as required to line and plane the surface.
- B. Signs shall be installed with direct burial of post into concrete as shown on Contract Drawings. Depth of posts shall be such that the bottom of the concrete surrounding the posts is at least below the frost, or as indicated in the drawings, whichever is the greater depth.
- C. Protect aluminum in contact with dissimilar metals or mortar as specified in Paragraph "PROTECTION OF ALUMINUM".
- D. Furnish setting drawings and instructions for installation of anchors and for the positioning of items having anchors or sleeves to be built into construction. Provide temporary bracing for such items until permanent anchors are set.
- E. Provide anchoring devices and fasteners as shown and as necessary for securing signs to construction as specified.

- F. Utilize approved layout template for the installation of the cast metal lettering on the entry wall. Pins shall be securely anchored as detailed. Face of all lettering shall be in a constant plane, while at the same time minimizing the distance between the back of the letters and the stone wall. Maintain a minimum gap as detailed between the back of the letter and the face of the stone wall.
- G. Verify that behind or beneath each sign location there are no utility lines, or other buried infrastructure elements, that will be affected by installation of signs. Any damage during installation of signs to utilities, or other buried infrastructure will be the sole responsibility of the Contractor to correct and repair.
- H. Furnish inserts and anchoring devices which must be set in concrete or other material for installation of signs. Provide setting drawings, templates, instructions and directions for installation of anchorage devices which may involve other trades.
- I. ELECTRONIC READER BOARD SIGN INSTALLATION
  1. Extend separate 2" power and communication wire electrical conduits from location of existing electronic reader board sign conduits where shown to location of new electronic reader board sign. Replace or extend all existing power and communication wiring as required from Public Information Building to location of new electronic reader board sign. Verify power and communication wiring requirements with sign manufacturer.
  2. Install concrete footing and architectural precast concrete base to support electronic reader board sign. Verify sign location with Cemetery Director and Resident Engineer. Install sufficient anchors in concrete in accordance with sign manufacturer's instructions to support sign and wind loads. Verify architectural precast concrete base dimensions with sign manufacturer.
  3. Furnish setting drawings and instructions for installation of anchors and for the positioning of items having anchors or sleeves to be built into construction. Provide temporary bracing for such items until permanent anchors are set.
  4. Set work accurately, in alignment and where shown. Signs shall be plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.
  5. Install new reader board sign in accordance with sign manufacturer's written instructions.

6. Conduct on-site sign maintenance and operation training session with cemetery personnel. Schedule session in advance to meet cemetery personnel schedules.
- J. Furnish and install concrete collars and/or mow strips, with reinforcing to prevent cracking as well as expansion joints around the posts, or other elements of this section installed in the lawn areas, to allow for movement due to frost action. The mow strips shall be set so they are parallel to the finished grade around the sign posts, so mowers can drive around them without hitting the concrete, or going into a depression.
- K. Sign message panels shall be mounted using tamper-proof mechanical fasteners that are coated and colored to match the message panels.
- L. Install permanent caps on top of all aluminum posts.
- M. Mounting details and materials shall be provided as samples during the submittal process, and complete demonstration of all of the installation features, materials and methods shall be provided during the submittal process.

SPEC WRITER NOTES:

1. Modify the following as required to make the plaque installation match the details on the drawings and produce the intended mounting that addresses the substrate and provides the security desired for the mounting, following the discussion with the Project Manager.

**3.2 PLAQUE - SERVICE EMBLEM - SEAL INSTALLATION**

- A. Install plaques / service emblems / seals as detailed on Contract Drawings and as follows:
  1. For all plaques / service emblems / seals, a 25 mm (1-inch) diameter hole shall be drilled in the unit masonry or stone to receive the mounting pins. The plaque/emblems shall be attached with non-shrink grout placed into the holes with the plaques/emblems being set when the mortar is wet. Contractor shall hold the plaques until the mortar has set. The plaques shall be set no more than 6 mm (1/4 inch) from the mounting substrate and shall be set plumb. A template of the mounting pins shall be made for each installation and the locations transferred to the masonry or stone substrate and locations approved by the owner's designated representative before the mounting holes are drilled.

2. Provide samples and drawings indicating all details of the installation as part of the submittal process. Submittals shall be revised and resubmitted until approved, and installation shall not proceed without approved submittals and/or samples.

**3.3 CLEANING**

- A. After installation, all items shall be cleaned as recommended by the manufacturer and protected from damage until completion of the project.

**3.4 PROTECTION**

- A. Protect finished surfaces from damage during fabrication, erection and after completion of the work.

- -END- - -