

SECTION 02830

WELDED WIRE MESH FENCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes requirements for furnishing and installation of welded wire mesh fence and gates (personal, and swing or sliding gates). The Section includes furnishing extra materials.

1.02 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM International):
 - 1. A36 Specification for Carbon Structural Steel
 - 2. A123 Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 3. A500 Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
 - 4. A501 Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
 - 5. F626 Standard Specification for Fence Fittings
 - 6. F1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures
 - 7. D2201 Practice for Preparation of Zinc-Coated and Zinc-Alloy-Coated Steel Panels for Testing Paint and Related Coating Products

1.03 SUBMITTALS

- A. Submit shop drawings showing plan layout, grid, spacing of components, accessories, fittings and hardware.
- B. Submit manufacturer's product data.
- C. Submit manufacturer's installation instructions.
- D. Submit manufacturer's color palette to the Engineer for approval.

1.04 DELIVERABLES

- A. Submit manufacturer's certificates of compliance for fence materials.
- B. Qualifications: Submit name, business address and telephone number of manufacturer's field representative. Include certification by the manufacturer that proposed field representative is qualified to provide specified services.

- C. Certification of Installation: Subject affidavit by the manufacturer's field representative certifying that the installation of the welded wire mesh fence meets the Contract requirements.

1.05 QUALITY ASSURANCE

- A. Obtain the services of fencing manufacturer's field representative to provide the following services:
 - 1. Supervise the entire installation of the welded wire mesh fence.
 - 2. Render advice and assistance on the installation of the welded wire mesh fence panels, fasteners and bracing; clip installation and fastening to post; and on tensioning of panels.

1.06 EXTRA MATERIALS

- A. Extra materials shall match that installed in the Work. Furnish the following extra materials for every 1,000 linear feet (or fraction thereof) of each separate height and type of fence.
 - 1. Two panels, including 2 line posts, including caps
 - 2. Fittings (in addition to fittings furnished with extra panels): 20 each hat brackets; 20 each gouge ties; 20 each fasteners.
- B. The panels shall be rolled and tightened with the posts; all hardware shall be in plastic or steel container(s) clearly marked "Fence and year of project". Deliver these materials to the Engineer's warehouse within 25 miles from project site.

PART 2 - PRODUCTS

2.01 RIGHT-OF-WAY FENCE

- A. Typhoon style welded wire mesh fence system as manufactured by Secure Technology, or by CE Shepard, or Engineer approved equal.
- B. Mesh configuration, terminal posts, bracing, railings, etc.: see Caltrain Standard Drawing or Contract Drawing.
- C. Wire: Hardened elongated, 7 gage, stretched diameter.
 - 1. The material breaking point of the welded mesh shall be at least 62,000 psi
 - 2. The tensile strength of the wire mesh shall be at least 71,000 psi
 - 3. The elongation factor of the wire mesh shall be 7 percent
 - 4. Welding points shall be able to withstand force of at least 1200 lbs

- D. Terminal Posts:
 - 1. The square steel tubing can be substituted with schedule 40 steel pipe only if the fence manufacturer has confirmed in writing that the tubular member is compatible to installation of the mesh fence panels.
 - 2. Post Caps: Each post shall have a square cap to seal out moisture. Flat and form plastic to the shape of the post. Coating to match the fabric.
 - 3. Base Plates and Miscellaneous Hardware: ASTM A36.
- E. Bottom Rails and Bracing:
 - 1. The rectangular steel tubing can be substituted with schedule 40 steel pipe only if the fence manufacturer has confirmed in writing that the tubular member is compatible to installation of the mesh fence panels.
- F. Fence hardware: Manufacturer fittings, and all hot-dip galvanized.
 - 1. Fasteners Connecting Panels to Each Post: 3 mm diameter "U" shaped wire fastener.
 - 2. Hat brackets (horizontal connectors of the welded wire mesh fence): 0.05-inch thick by 1.18 inches long pre-molded clip fastener.
 - 3. Gouge ties (vertical connectors of the welded wire mesh fence): 0.05-inch thick by 0.59 inches long pre-molded clip fastener.
- F. Gate Hardware: Hinges, latches, drop rods, as needed, shall be hot dip galvanized steel and sized to assure proper gate operation. Finish to match the fabric.

2.02 CONCRETE

- A. Alignment and Grade: Verify horizontal alignment and grades as established by survey and plan dimensions and elevations. Securely set posts in alignment at proper depth and height, and rigid bracing where needed.
- B. Concrete: Concrete shall conform to the following:
 - 1. Portland Cement: ASTM C-150, type 2 or 5 (Low alkali)
 - 2. Aggregates:
 - a. coarse aggregates: crushed rock, max 1-1/2 inch, #200: 2% maximum
 - b. Sand: 3/8 inch maximum, #200: 2% maximum
 - 3. Compressive strength (minimum): 2,500 psi @7 days, 4,000 psi @ 28 days
 - 4. Slumps: 2 to 4.5 inches
- C. Footing hole shall be clear of roots or other organic materials. Moist hole prior to concrete pour. No water standing at bottom of hole.
- D. Consolidate concrete and remove air pockets.

2.03 SHOP FINISHES

- A. Zinc: Hot dip galvanized posts and welded wire mesh after fabrication in accordance with ASTM A123.

PART 3 - INSTALLATION

3.01 INSTALLATION

- A. Concrete Footings: Drill or dig holes for post footings in firm, undisturbed or compacted soil. Depth and post embedment as indicated in the Caltrain Standard Drawing. Trowel tops of footings and slope or dome to direct water away from posts. Slope, do not dome, in pedestrian paving.
- B. Posts: Set in concrete footings, plumbed vertical. Post depth and spacing as indicated on the Standard Drawing or Contract Drawing. Space posts at lesser distance between centers to compensate for terrain variation such as sharp variations in incline or decline.
- C. Install welded mesh panels according to manufacturer's instructions and generally as follows:
 - 1. Begin at corner/start post. Layout each piece of the welded wire mesh fence. Connect mesh panels with a minimum of 8 junction clips per panel.
 - 2. Connect one end of tensioning device to the intermediate post that is fastened to support brace. Connect other end of tensioning device to the connected panels. Tension mesh panels with 2000 lb. pull in tensioning device. Leave tensioning device connected until the adjacent section is installed and tensioned. Repeat this operation until the welded mesh fence is installed from corner post to corner post.
 - 3. Trim panels as needed for landscaped purposes.
- D. Fence Fabric: Pull fabric taut and tie to posts, rails and tension wires. Fabric shall remain under tension after pulling force is released.
- E. Gates shall be installed plumb, level, and secure for full opening without interference. Install ground-set items in concrete as recommended by the fence manufacturer. Adjust hardware for smooth operation and lubricate. Sliding gates shall operate smoothly and easily under minimum pressure.

3.02 REPAIR

- A. Repair abraded or damaged galvanized surfaces with hot process field galvanizing in accordance with ASTM A780 and manufacturer's published instructions.

END OF SECTION