SECTION 02820

EXPANDED METAL MESH FENCE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Section includes specifications for expanded metal mesh fence and gates (personal, and sliding or swing gates).

1.02 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM International):

1. A36 Specification for Carbon Steel.
2. A123 Specification for Zinc (hot-dip galvanized) Coatings on Iron and Steel Products
3. A1011 Specification for Steel, Sheet and Strip, Hot-rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
4. F626 Specification for Fence Fittings
5. F1083 Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized) Welded, for Fence Structures
6. F1267 Specification for Metal, Expanded, Steel

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.

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 expanded metal 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 fence

2. Render advice and assistance on the installation of the fence panels, posts, and fasteners

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, with required number of fittings for installation, including 2 line posts fitted with caps.

2. Fittings (in addition to fittings furnished with extra panels): 20 - 2-1/2 inches clamps; 20 - 1 5/8 inch clamps; 20 – 2-1/2 inches line rail clamps; 20 back straps.

PART 2 - PRODUCTS

2.01 RIGHT-OF-WAY FENCE

A. Secura Expanded Mesh Fence System as manufactured by Alabama Metal Industries Corporation (AMICO), or Engineer approved equal.

B. Fabric: Type I (expanded), Class 2 (hot-dip galvanized), Grade A (0.06 mm minimum coating thickness) Carbon HSLA steel conforming to ASTM A1011. Sheet steel slit and stretched into a rigid, open mesh diamond shape openings.

1. Maximum carbon content of 0.15 percent

2. Tensile strength shall be at least 40,000 psi with typical yield point of 38,000 psi

3. Mesh Strand (nominal minimum): 0.1 inch (width and thick)

4. Short way of diamond run horizontally.

C. Terminal Posts: Posts shall comply with ASTM F1083, and the following:

1. Mesh configuration, terminal posts, bracing, railings, etc.: see Caltrain Standard Drawing or Contract Drawing for details and dimensions.

2. Terminal Posts (end, corner, gate, line posts): 4 inch nominal diameter, schedule 40 pipe. Each cap shall have a cap to seal out moisture.

4. Post Cap: Pressed steel dome cap

5. Base Plates and Miscellaneous Hardware: ASTM A36

D. Horizontal Rails: Rails shall comply with ASTM F1083. All rails shall be cut between and securely fastened to the posts using the proper sized 11 gage line rail clamps.

E. Fasteners and Fittings: Manufacturer fittings, and all hot-dip galvanized.

1. Fittings: "No Access Fittings", heavy pressed steel construction conforming to ASTM F626

2. Bands: Secura Bands: 11 gauge by 1 inch steel with 3 inch neck and slotted hole

3. Clamps: Secura Clamps: 11 gauge by 1 inch steel with 2 slotted holes

4. Back Straps: Secura Back Straps: 11 gauge by 1 inch steel with 2 slotted holes

5. Bolts: Carriage bolts 3/8 inch by 2 inch to secure fittings. Tighten securely and peen or scarf threads to prevent removal.

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. 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

B. Footing hole shall be clear of roots or other organic materials. Moist hole prior to concrete pour. No water standing at bottom of hole.

C. Consolidate concrete and remove air pockets.

2.03 SHOP FINISHES

A. Zinc: Hot dip galvanized posts and expanded metal mesh after fabrication in accordance with ASTM A123.

PART 3 - INSTALLATION

3.01 INSTALLATION

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 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.

C. 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.

D. Fabric Panel to Post Attachment:

1. Attach panels to posts with bands sized to fit posts and spaced per manufacturer's recommendation.

2. To each terminal post, lap fence fabric over one half the width of the post to prevent any open space between the post and the fabric.

3. To each line post with the cant side of the fence fabric oriented in the same the same direction. Overlap fabric panels a minimum of three diamonds. Secure fabric panel to line posts using a minimum of seven (7) clamps, evenly spaced, per post with one above the top rail and one below the bottom rail.

4. Panels shall be placed within 2 inches of ground. High points which interfere with the placing of mesh panels shall be excavated to provide the clearance indicated on the Contract Drawings.

E. Fence Fabric: Pull fabric taut and tie to posts, rails and tension wires. Fabric shall remain under tension after pulling force is released.

F. Fabric to Horizontal Rail Attachment: Use a minimum of six (6) clamps per rail per panel. Evenly space clamps between posts.

G. Panel to Panel Attachment: Overlap fabric a minimum of 6 inches (three diamonds). Fasten using a minimum of six (6) back straps, evenly space, with one above the top rail and one below the top rail.

H. 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