

SECTION 02445 - FENCES AND GATES

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SECTION 02445 - FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work involved includes the furnishing of all materials, labor, tools, and equipment required to install chain link fencing and swing gates as specified in the Special Provisions, on the Project Plans, applicable City Standard Drawings and these Specifications.

1.02 RELATED REQUIREMENTS

- A. Section 03300, "*Minor Concrete*"

1.03 REFERENCE STANDARDS

- A. State Specifications
- B. American Society for Testing and Materials (ASTM)

1.04 QUALITY ASSURANCE

Not used

1.05 MEASUREMENT AND PAYMENT

- A. Chain link fence will be determined by the linear foot of actual measurement made parallel to the ground slope. The number of gates will be determined by actual count.
- B. Payment shall be made in conformance with the contract price per linear foot, and the size and type of gate, as set forth in the Bid Schedule.
- C. Payment shall include all labor, materials, tools, equipment, and incidentals, for doing all work involved in constructing chain link fences and gates, complete in place, as shown on the plans and specifications, and as directed by the Engineer.

PART 2 - PRODUCTS

2.01 FABRIC

- A. Chain link fence fabric shall be two inch (2") mesh, Gauge 11 for sixty inches (60") or less wide, and Gauge 9 for over sixty inches (60") wide, hot-dipped galvanized conforming to ASTM A 392, "*Zinc-Coated Steel Chain-Link Fence Fabric*," with Class II zinc coating (2 ounces per Square Foot). Fabric shall have knuckled top and twisted bottom selvages.
- B. Chain link fence fabric with three and one-half inch (3-1/2") mesh, Gauge 9, shall be used when redwood slat inserts are required on the Plans and specified in these specifications.
- C. Vinyl covered fabric with two inch (2") mesh, 9 Gage, hot-dipped galvanized, shall be used where shown on the Plans. Polyvinyl Chloride coating shall have a minimum thickness of seven mils (0.007") and shall be bonded to chain link fence by the fusion method.
- D. Overall fence height shall be as indicated on the plans.

2.02 POSTS AND RAILS

- A. Posts and rails shall be hot-dipped galvanized standard pipe, Schedule 40, as per ASTM A 120, "*Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, For Ordinary Uses*." End corners and pull posts shall be two and one-half inch (2-1/2") nominal pipe size. Line posts shall be two-inch (2") nominal pipe size. All posts shall be provided with rainproof tops.
- B. Top rails shall be hot-dipped galvanized standard pipe, one and one-quarter inch (1-1/4") nominal pipe size, Schedule 40.
- C. Bottom of fence shall be provided with 7 Gage hot-dipped galvanized tension wire conforming to ASTM A 227, "*Steel Wire, Cold Drawn, For Mechanical Springs*," or a one and one-quarter inch (1-1/4") pipe, Schedule 40, when shown on the Plans.
- D. Post tops, extension arms, stretcher bars and other accessories and fittings shall be steel or malleable iron or wrought iron and shall be galvanized after fabrication conforming to ASTM 116, "*Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric*," Class 3 weight of coating.

2.03 FASTENINGS

- A. Fabric shall be fastened to posts, rails, and tension wires, using fabric ties of aluminum-alloy wire:
 - 1. Line Posts: 6 Gage fabric ties at fourteen-inch (14") spacing.

2. Top Rails: 6 Gage fabric ties at twenty-four inch (24") spacing.
3. Tension Wire: 9 Gage galvanized coil spring steel wire hog rings at twenty-four inch (24") spacing.
4. Stretcher Bars: One-quarter inch by three-quarter inch (1/4" x 3/4") flat bars shall be used to stretch the fabric at terminal and corner posts. Bars shall be attached to the posts with one-inch (1") wide steel band and three-eighth inch (3/8") diameter bolts and nuts.

2.04 BARBED WIRE

- A. Barbed wire, where required in the plans, shall conform to ASTM C 121, "*Zinc-Coated (Galvanized) Steel Barbed Wire*," Class B, 12-1/2 Gage wire with 4-point round barbs, and shall be attached to the top of the posts and gates with galvanized steel extension arms.

2.05 GATES

- A. Gate frames shall be all welded construction and shall be hot-dipped galvanized after construction. Top and bottom rails and vertical members shall be one and one-half inches (1-1/2") nominal size, Schedule 40 steel pipe.
- B. On gates more than eight feet (8') wide, equally spaced interior vertical members of one and one-half inches (1-1/2") nominal size pipe, Schedule 40 galvanized steel pipe shall be added such that no gate frame panel will be more than eight feet (8') wide.
- C. Gates shall be furnished with all necessary galvanized hardware including hinges, latches, and stops. Swing gate panels shall be cross-trussed with three-eighths inch (3/8") diameter truss rods with turnbuckles. Gates shall be hinged to swing open one hundred eighty (180⁰) degrees, and shall be furnished with keepers and plunger bars.
- D. Gates that provide emergency access for the Fire Department shall be a minimum of 12 feet wide.
- E. All motorized gates shall be provided with manual override.

2.06 CONCRETE FOR FOOTINGS

- A. Concrete for footings shall be Class B, containing five (5) bags of Portland cement per cubic yard, mixed with one inch (1") maximum size aggregate, maximum three inch (3") slump, producing minimum strength of 2,500 psi at twenty-eight (28) days.

2.07 OTHER SECTIONS

- A. For reasons of uniformity and appearance, these specifications require use of pipe sections. Alternate shapes may be considered if submitted for approval within five (5) working days before bid date, and are accompanied by strength calculations indicating equal or superior characteristics to those specified.

PART 3 - EXECUTION

3.01 POSTS AND RAILS

- A. All posts shall be embedded into the ground as per *Standard Drawing No. M-03*. Line posts shall be evenly spaced ten feet (10') or less apart. Allow concrete footings to cure for seven (7) days before installing fence. Top rails shall pass through line post tops and form a continuous brace within stretch and be securely fastened to terminal posts. Splices in top rail shall be made with couplings.

3.02 FENCE FABRIC

- A. Fence fabric shall be stretched and securely fastened to the outward side of the posts with the lower edge at the ground level.

3.03 BARBED WIRE

- A. Barbed wire shall be installed where required on the plans. Barbed wire shall be stretched with mechanical equipment. Number of strands shall be as required on the plans.

End of Section