DATE OF THIS VERSION (new)

May 1, 2013

TITLE OF DOCUMENT (new title if applicable):

Perimeter Security Fences and Gates, 32 31 53

DATE OF VERSION BEING SUPERSEDED (old):

December 1, 2011

DESCRIPTION OF DOCUMENT (previous title, number, other identifying data):

Perimeter Security Fences and Gates, 32 31 53

SUMMARY OF CHANGES IN THIS VERSION:

1.2 Added reference to General Requirements. Simplified references to the Specification sections.
1.5.B Added ASTM in front of all references.
2.1 Materials need to conform to references and removed a specific ASTM call out.
2.4 Removed reference to ASTM and stated information about concrete aggregate.
3.1.B Removed Registered Civil Engineer and stated the layout shall be per the plans and on the Owner's property.
SECTION 32 31 53
PERIMETER SECURITY FENCES AND GATES

SPEC WRITER NOTE:
1. Delete or add information between //---// and any other items applicable to project. Cover any item added to the text under Applicable Publications and Products and renumber the paragraphs. Use this specification in specifying permanent perimeter security fence. Specify impermanent type fencing, such as Construction Fence, elsewhere.
2. See VA Physical Security Design Guides for security requirements.

PART 1 - GENERAL

1.1 DESCRIPTION
This work consists of all labor, materials, and equipment necessary for furnishing and installing perimeter security fences, gates and accessories in conformance with the lines, grades, and details as shown.

1.2 RELATED WORK
A. Section 01 00 00, GENERAL REQUIREMENTS.
B. Section 26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.
C. Section 31 20 00, EARTH MOVING.
D. Section 32 90 00, PLANTING.
E. Section 13 34 19 METAL BUILDING SYSTEMS
F. Section 28 13 11, PHYSICAL ACCESS CONTROL SYSTEMS.
G. Section 28 16 11 INTRUSION DETECTION SYSTEM
H. Section 32 31 13, CHAIN LINK FENCES AND GATES.
I. Section 34 71 13, VEHICLE BARRIERS.
J. Section 34 75 13.13, ACTIVE VEHICLE BARRIERS.

1.3 MANUFACTURER'S QUALIFICATIONS
Fence, gates, and accessories shall be products of manufacturers regularly engaged in manufacturing items of type specified.

1.4 SUBMITTALS
A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, furnish the following:
   1. Manufacturer's Literature and Data: Fencing, gates and all accessories.
   2. Manufacturer's Certificates:
      //a. Zinc-coating complies with specifications.//
//b. Structural characteristics comply with indicated and criteria.//

//c. Connections comply with requirements indicated.//

SPEC WRITER NOTE: The requirement for shop drawings shall be included for special items, such as sliding gates. See TECHNICAL NOTES. Alignment Certification requirement is for property line fencing or similar purpose requiring accurate alignment.

//B. Shop Drawings for __________//.

//C. Certification that fence alignment meets requirements of contract documents //.

SPEC WRITER NOTE: Update applicable publications to current issue at time of project specifications preparation.

1.5 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

SPEC WRITER NOTE: Delete publications which do not apply to the project.


ASTM A853-04 (R2010)................Steel Wire, Carbon, for General Use
ASTM C94/C94M-11...........Ready-Mixed Concrete
ASTM F626-08.............Fence Fittings
ASTM F1083-10........Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM A853-04........Steel Wire, Carbon for General Use

SPEC WRITER NOTE: Update Product requirements to agree with applicable requirements (Types, Grades, Class, Tables, etc.) specified in the referred APPLICABLE PUBLICATIONS.

PART 2 - PRODUCTS

2.1 GENERAL

A. Materials shall conform to standards referenced above for ferrous metals, zinc-coated; and detailed specifications forming the various parts thereto; and other requirements specified herein. Zinc-coat metal members (including fabric, gates, posts, rails, hardware and other
ferrous metal items) after fabrication shall be reasonably free of excessive roughness, blisters and sal-ammoniac spots.

SPEC WRITER NOTE: In dry climates of Southwest States specify 1.2 oz./sq. ft. (340 g/m\(^2\)) coating in Paragraph 2.2 Elsewhere specify 2 oz./sq. ft. (570 g/m\(^2\)). Specify heavier coating or other material for use in salt-laden or corrosive industrial atmospheres.

2.2 PERIMETER SECURITY FENCE

A. The perimeter security fence shall be a metal palisade style fence system//other system to be specified by the specifications writer//. The system shall include all components such as pickets, pales, mesh, fabric, rails, posts, gates and hardware required.
1. Metal palisade style fence system //.
2. Other system //.

B. Material:

SPEC WRITER NOTE: Add paragraphs to describe materials as required such as posts, rails, pickets and mesh.

1. Strength requirements for posts shall // DESCRIBE MATERIAL REQUIREMENTS //.
   a. STATE MANUFACTURERS REQUIREMENTS //
   b. REFERENCE APPLICABLE MATERIALS STANDARDS //
2. Strength requirements for the wire shall conform to // ASTM A 853 Grade AISI 1006//, minimum tensile strength of // TENSILE STRENGTH PSI (MPa.) //

C. Heights:
1. Horizontal members that might be used as foot- or hand-holds shall be spaced at a minimum 8 feet (2400 mm) apart.
2. Extend fence // FEET (mm) // below grade.

D. Framework:
1. Framework strength shall provide //STATE FORCED ENTRY RESISTANCE// and RESISTANCE APPLIED FORCE// of structural members or other fence framework.
2. Fence shall withstand the// WIND LOAD REQUIREMENT//.
3. Fence panels shall be capable of supporting a //400 LB. (882 KG) LOAD APPLIED AT MIDSPAN//, //OTHER LOAD// without permanent deformation.
E. Gates:
   1. Gates shall be designed to meet the same forced entry and anti-climb characteristics as the other portions of the fence.
   2. Provide //motorized// //manually operated// sliding gates for vehicle access.
   3. Provide hinged pedestrian gates with //electric strike// //and// //card reader//.

F. Finishes:
   SPEC WRITER NOTE:
   Add paragraphs to describe finish such as coatings, coating process, locations, and colors as required. 
   SPEC WRITER NOTE: See TECHNICAL NOTES at end of this section.
   SPEC WRITER NOTE: Where barbed wire is not shown, omit Paragraphs 2.3 and 2.4. See TECHNICAL NOTES at end of this section.

2.3 ACCESSORIES

Accessories as necessary caps, rail and brace ends, wire ties or clips, braces and tension bands, tension bars, truss rods, and miscellaneous accessories conforming to ASTM as referenced above.

2.4 CONCRETE

Concrete to have a maximum size aggregate of 3/4 inch (19 mm), and have a minimum compressive strength of 3500 psig (25 mPa) at 28 days. Non-shrinking grout shall consist of one part Portland cement to three parts clean, well-graded sand, non-shrinking grout additive and the minimum amount of water to produce a workable mix.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fence by properly trained crew, on previously prepared surfaces, to line and grade as shown. Install fence in accordance with the manufacturers printed installation instructions, except as modified herein or as shown. Maintain all equipment, tools, and machinery while on the project in sufficient quantities and capacities for proper installation of posts, pickets, rails, pales, and accessories.

   SPEC WRITER NOTE: Use Subparagraph A for Property Line Fencing or similar purpose requiring accurate fence alignment.
B. Engage the services of a Registered Professional Land Surveyor as specified in Section 01 00 00, GENERAL REQUIREMENTS, to stake out and certify that the fence alignment meets the requirements shown on the plans and confirm the fence is totally on the Owner’s property.

SPEC WRITER NOTE: Use Paragraph 3.2 and 3.3 for fencing set in individual concrete footings. Use Paragraph 3.5 for fencing set in concrete slabs, walls, curbs, or similar structure.

3.2 EXCAVATION

Excavation for concrete-embedded items shall be of the dimensions shown, except in bedrock. If bedrock is encountered before reaching the required depth, continue the excavation to the depth shown or 18 inches (450 mm) into the bedrock, whichever is less, and provide a minimum of 2 inches (50 mm) larger diameter than the outside diameter of the post. Clear loose material from post holes. Grade area around finished concrete footings as shown and dispose of excess earth as directed by the Resident Engineer.

3.3 POST SETTING

Install posts plumb and in alignment. Set post in concrete footings of dimensions as shown, except in bedrock. Thoroughly compact concrete so as it to be free of voids and finished in a slope or dome to divert water running down the post away from the footing. // Straight runs between braced posts shall not exceed 500 feet (150 m) //. Install posts in bedrock with a minimum of one inch (25 mm) of non-shrinking grout around each post. Thoroughly work non-shrinking grout into the hole so as to be free of voids and finished in a slope or dome. Cure concrete and grout a minimum of 72 hours before any further work is done on the posts.

3.4 POST CAPS

Fit all exposed ends of post with caps. Provide caps that fit snugly and are weather tight. Where top rail is used, provide caps to accommodate the top rail. Install post caps as recommended by the manufacturer and as shown.

3.5 SUPPORTING ARMS

Design supporting arms, when required, to be weather tight. Where top rail is used, provide arms to accommodate the top rail. Install supporting arms as recommended by the manufacturer and as shown.
3.6 // TOP RAILS // AND BOTTOM RAILS //

Install rails before installing pickets. Provide suitable means for securing rail ends to terminal and intermediate post. // Top rails shall pass through intermediate post supporting arms or caps as shown. // The rails shall have expansion couplings (rail sleeves) spaced as recommended by the manufacturer. Where fence is located on top of a wall, install expansion couplings over expansion joints in wall.

3.7 ACCESSORIES

Supply accessories (post braces, truss rods, and miscellaneous accessories), as required and recommended by the manufacturer, to ensure complete installation.

3.8 GATES

Install gates plumb, level, and secure for full opening without interference. Set keepers, stops and other accessories into concrete as required by the manufacturer and as shown. Test gates, hardware, locking mechanisms and releases for proper operation. Adjust and lubricate as necessary.

3.9 REPAIR OF GALVANIZED SURFACES

Use galvanized repair compound, stick form, or other method, where galvanized surfaces need field or shop repair. Repair surfaces in accordance with the manufacturer's printed directions.

3.10 FINAL CLEAN-UP

Remove all debris, rubbish and excess material from the station.

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