BOLLARDS

1. GENERAL
   * + 1. SUMMARY
          1. The General Conditions and Division - 1 Specification sections apply to the work of this section.
          2. The following documents form part of the Specifications to the extent stated. Where differences exist between Codes, Standards, and the Documents, the one affording the greatest protection shall apply.
          3. This Section includes the following:

Electro-Pneumatic Driven Retractable Bollards

* + - 1. SUBMITTALS
         1. Product Data: For each type of product indicated.
         2. Samples for Initial Selection: For units with factory-applied color finishes.
         3. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

Size: Not less than 6-inch- long linear components and 4-inch- square sheet components.

* + - * 1. Product Schedule: For site furnishings. Use same designations indicated on Drawings.
        2. Maintenance Data: For site furnishings to include in maintenance manuals.
      1. PROJECT CONDITIONS
         1. Site and Drawing Examination:

Any contractor submitting a proposal for this work shall first examine the site of the proposed work and all conditions at the site that he/she may fully understand any facilities, difficulties, and restrictions attending the execution of the contract. No subsequent allowances shall be made because of omission, error, or negligence, in connection with this provision.

* + - 1. QUALITY ASSURANCE
         1. Source Limitations: Obtain site furnishing(s) through one source from a single manufacturer.
         2. Contractor’s Quality Control Responsibilities: Contractor is solely responsible for quality control of the Work.
         3. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and Municipal authorities having jurisdiction. Obtain necessary approvals from all such authorities.
      2. WARRANTY
         1. Special Warranty:

Warranty Period: One year from date of Substantial Completion.

1. PRODUCTS
   * + 1. MATERIALS
          1. Carbon Steel:

Bollard Post: 10.5”, 1” Wall Pipe; ASTM 4130 Heat Treat P110

Casing: 11” Std. Pipe; AST, A53 Grd. B

Plate: ½” - 3/4” ASTM A36

* + - 1. BOLLARDS
         1. Basis-of-Design Product: Subject to compliance with requirements, provide Calpipe Security Bollards’ PDT Series, PDT1200P (Retractable Bollard)

Calpipe Security Bollards, 877-283-8518

* + - Bollards must be manufactured by Calpipe Security Bollards of Downey, California
    - Bollards must be manufactured by an American company in an American facility
    - Type 304 and Type 316 stainless steel must be polished and passivated by an American company in an American facility
    - Bollards must comply with ASTM, DOD / DOS, and BSI standards for crash-tested and crash-rated products
    - Bollard manufacturer must have documentation of crash test results and engineering specifications for crash-rated product
    - Bollard manufacturer must offer K12/M50 Shallow Mount option
    - Bollard manufacturer must offer Lighted K12/M50 option
      * 1. Site Requirement: Site must maintain K12/M50 Security Standard

Per manufacturer recommended spacing: “As Certified”

* + - 1. BOLLARD SCHEDULE—
         1. Bollard Type A – Calpipe Security Bollards’ K12/M50 Hydraulic Driven Retractable Bollard, PDT1200P

Carbon Steel Pipe: 10.50” O.D.; 1” Wall

Finish: Electrostatic Powder Coat or #4 Brushed Finish Stainless Steel

Style: Flat Cap

Deployed Height: 36”

Embedded Depth: 58”

4-Part Sub-Assembly:

Casing

Removable Housing

Cylinder Assembly

Bollard Post

Footing Width: As Indicated in Drawings

Footing Depth: As Indicated in Drawings

Installation Method: Cast in Reinforced Concrete

* + - 1. PERFORMANCE
         1. Experience

Bollard shall be of proven design utilizing proven components

Manufacturer shall have used similar bollard and sub-grade assembly structure for a minimum of 5 years with documented field experience.

* + - * 1. Evaluation

Bollards, equipment and workmanship shall be warranted by manufacturer for one year.

The manufacturer must provide detailed drawings (including foundations and sub-frames) to demonstrate that the barrier will meet the specified design criteria and to facilitate installation.

The manufacturer must provide detailed drawings for the placement, specifications, and electrical requirements for all controls and equipment.

* + - * 1. Qualification:

Bollard design shall have successfully passed in-field crash test certified by a qualified independent agency

Bollard shall be certified by the United States Department of State to have a performance evaluation in compliance Department of State standard "SD-STD-02.01 Rev. A" (March 2003) where the rating of a barrier is determined when a 15,000 lb. (6810 kg) gross-weight vehicle impacts a barrier from a perpendicular direction traveling 50 mph (80 kph).

Bollard shall be certified as a single bollard array in compliance with British Standards Institution’s PAS68 standard of a 7500 kg test vehicle traveling 80 kph.

Bollard shall be certified to be in compliance with ASTM standard F2656 Standard Test Method for Crash Testing of Vehicle Security Barriers specifically to meet or exceed a 15,000 lb. (6810 kg) test vehicle’s impact on a barrier in a horizontal direction at a rate of 50 mph (80 kph)

* + - * 1. Requirements:

PDT1200P must be installed in a minimum array of (3) bollards with a center on center spacing of no more than 39” to maintain as-tested certification to DOS: SD-STD-02.01 Rev. A. or ASTM: F2656.

PDT1200H may be installed as a single unit with no restriction on spacing to maintain as-tested certification to PAS68 standard.

* + - 1. FABRICATION
         1. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.
         2. Welded Connections: Weld connections continuously. Weld solid members with full-length, full-penetration welds and hollow members with full-circumference welds. At exposed connections, finish surfaces smooth and blended so no roughness or unevenness shows after finishing and welded surface matches contours of adjoining surfaces.
         3. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.
         4. Factory Assembly: Assemble components in the factory to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.
      2. FINISHES, GENERAL
         1. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
         2. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance.

Proceed with installation only after unsatisfactory conditions have been corrected.

* + - 1. INSTALLATION, GENERAL
         1. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated.
         2. Contractor shall be responsible for providing all necessary connections, supports, brackets, hardware, and anchors, whether shown or not shown on the drawings, as required for a full and complete installation and execution of the Bollard scope of work.
         3. Install bollards level, plumb, true, and at position locations indicated on Drawings.
         4. Install drainage system composed of PVC pipe, draining water to existing storm drain or pit with sump pump.

CLEANING AND PROTECTION

* + - * 1. Provide cardboard protection over and around bollards until substantial completion.
        2. After completing site furnishing installation, inspect components. Remove spots, dirt, and debris. Repair damaged finishes to match original finish or replace component.

END OF SECTION