

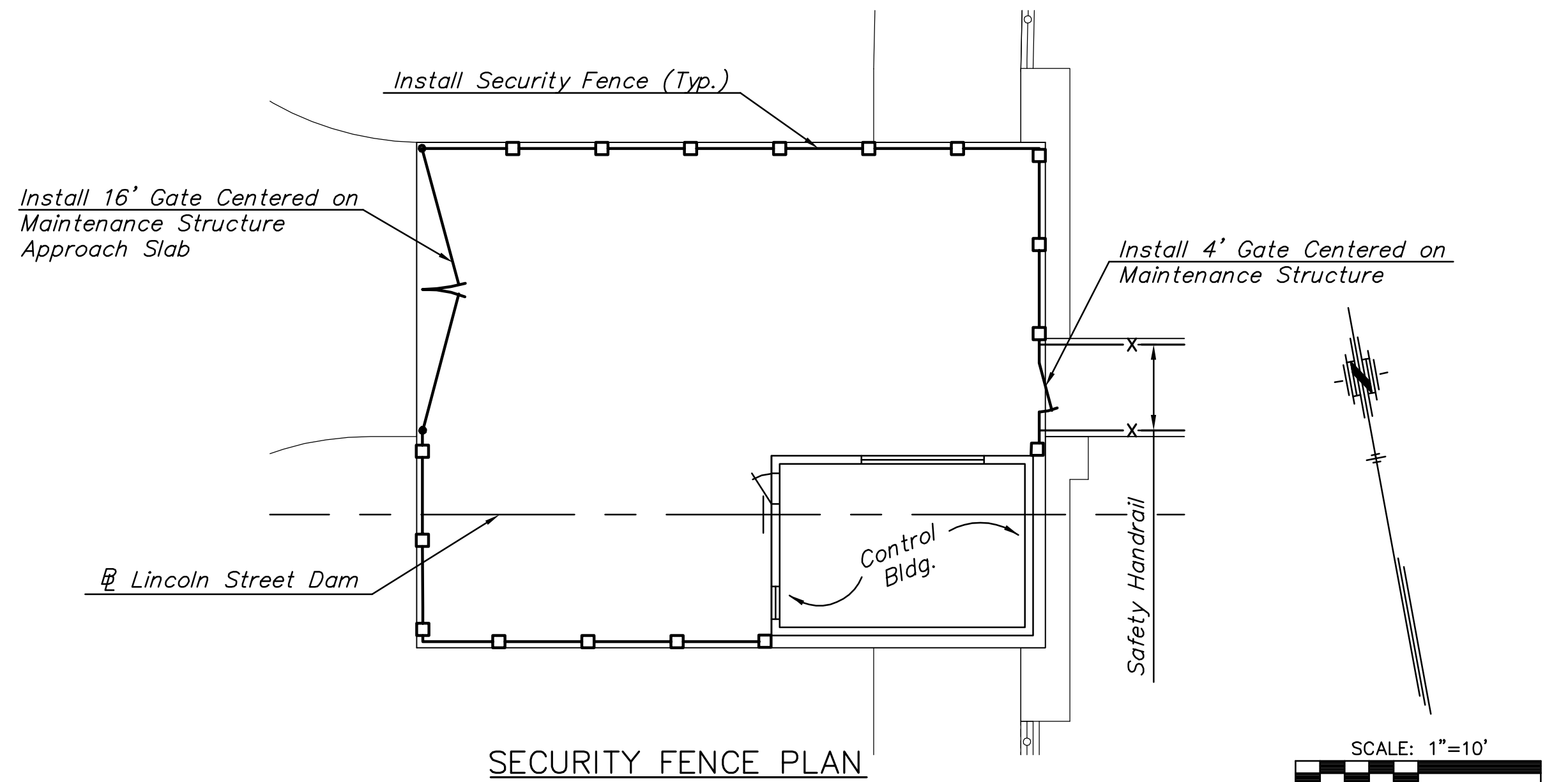
**LINCOLN STREET BRIDGE AND  
DAM IMPROVEMENTS OVER  
ARKANSAS RIVER**

**MAINTENANCE  
STRUCTURE  
FENCE  
DETAILS**  
SHEET TITLE  
472-84883  
PROJECT NUMBER

JRA  
DESIGN BY  
PJD  
DRAWN BY  
JRA  
CHECKED BY

ISSUED  
1/24/2011  
REVISED

SHEET NO.  
**104 of 169**

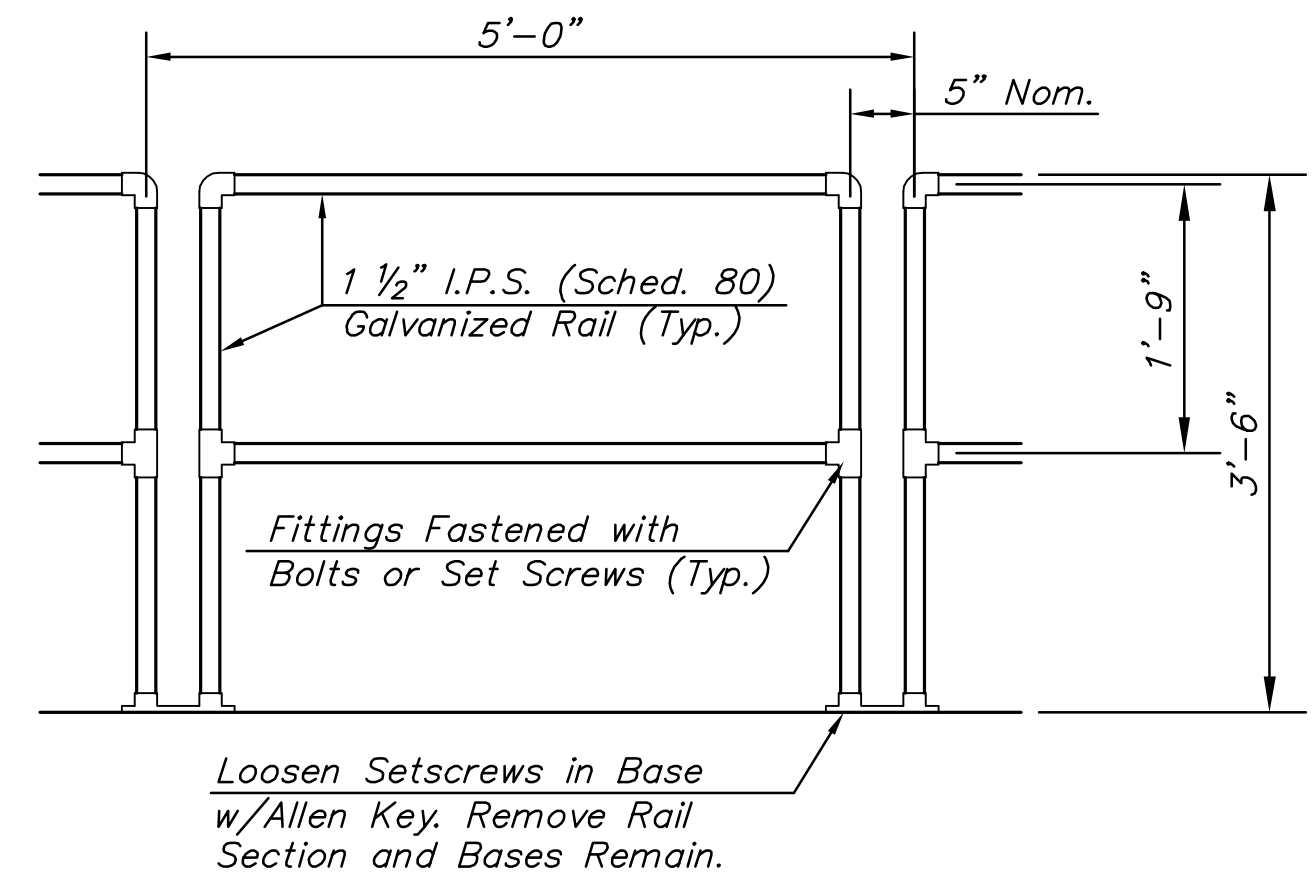


**SECURITY FENCE PLAN**

**Security Fence Notes:**

- The contractor shall provide all labor, materials and appurtenances necessary for installation of the welded ornamental steel fence system.
- The fence manufacturer shall supply a total fence system consisting of welded ornamental The system shall include all components (i.e., panels, posts, gates and hardware) required.
- The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.
- The following ASTM specifications shall apply to the fence and it's installation:
  - ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
  - ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.
  - ASTM D523 - Test Method for Specular Gloss.
  - ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
  - ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
  - ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
  - ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
  - ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
  - ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
  - ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets.
- The manufacturer's literature shall be submitted prior to installation.
- Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft<sup>2</sup> (276 g/m<sup>2</sup>), Coating Designation G-90.
- Pickets, rails and posts shall be pre-cut to specified lengths. Rails shall be pre-punched to accept pickets.
- Pickets shall be inserted into the pre-punched holes in the rails and shall be aligned to standard spacing. The aligned pickets and rails shall be joined at each picket-to-rail intersection by a process that produces a virtually seamless, spatter-free appearance, equally attractive from either side of the panel.
- The manufactured panels and posts shall be subjected to an inline electrodeposition coating (E-Coat) process consisting of a multi-stage pretreatment/wash (with zinc phosphate), followed by a duplex application of an epoxy primer and an acrylic topcoat. The minimum cumulative coating thickness of epoxy and acrylic shall be 2 mils (0.058 mm). The color shall be as approved by the Engineer. The coated panels and posts shall be capable of meeting the performance requirements for each quality characteristic shown in the table.
- The manufactured fence system shall be capable of meeting the vertical load, horizontal load, and infill performance requirements for Industrial weight fences under ASTM F2408.
- The fence shall be installed in accordance with the manufacturer's recommendations as shown in the plans. Gates of the specified size and type shall be provided and installed in accordance with the manufacturer's specifications.
- When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color.

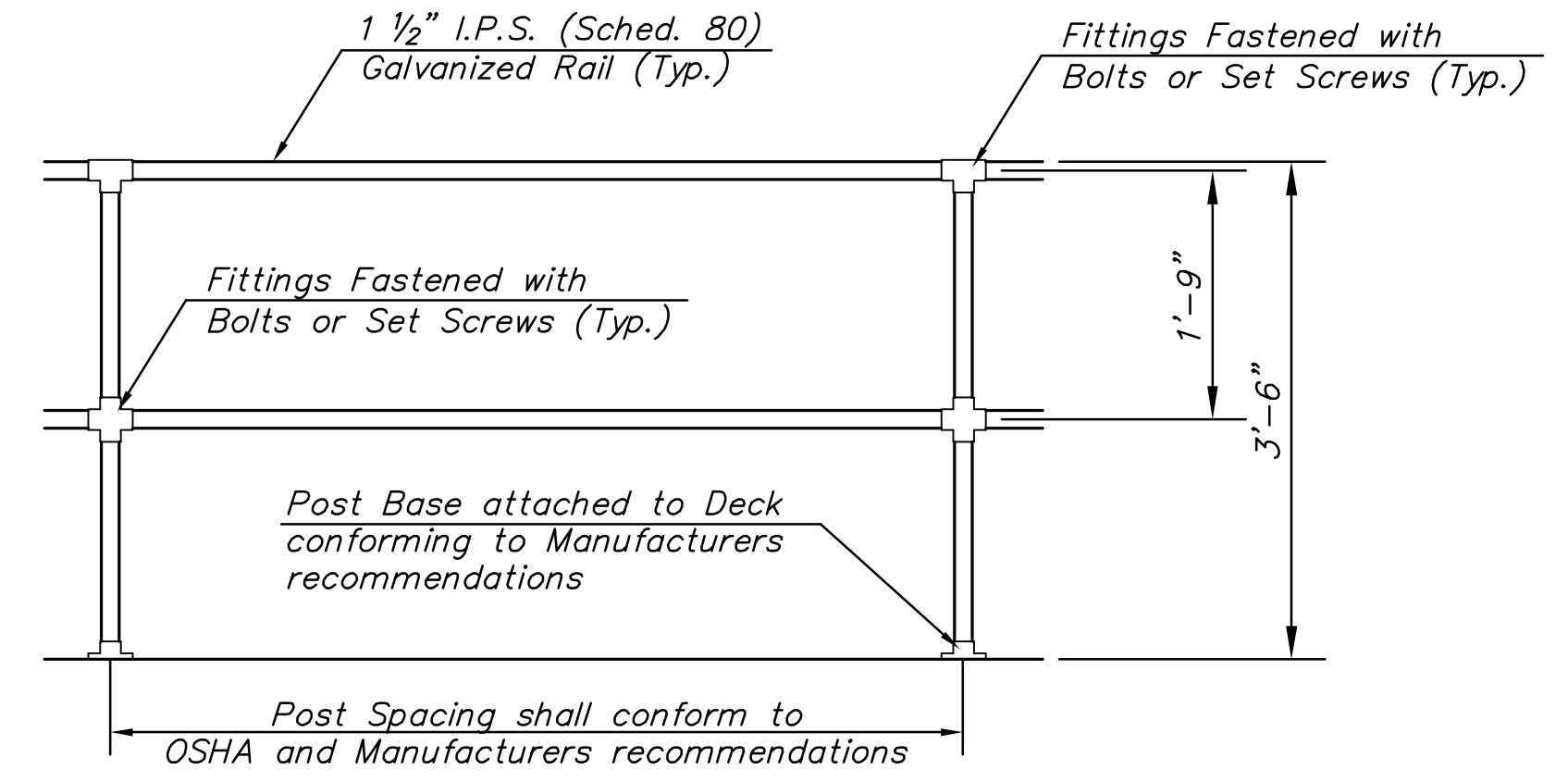
TABLE - COATING PERFORMANCE REQUIREMENTS		
Quality Characteristics	ASTM Test Method	Performance Requirements
Adhesion	D3359-Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 1,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822, D2244, D523 (60' Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).



**REMOVABLE PANEL DETAIL**

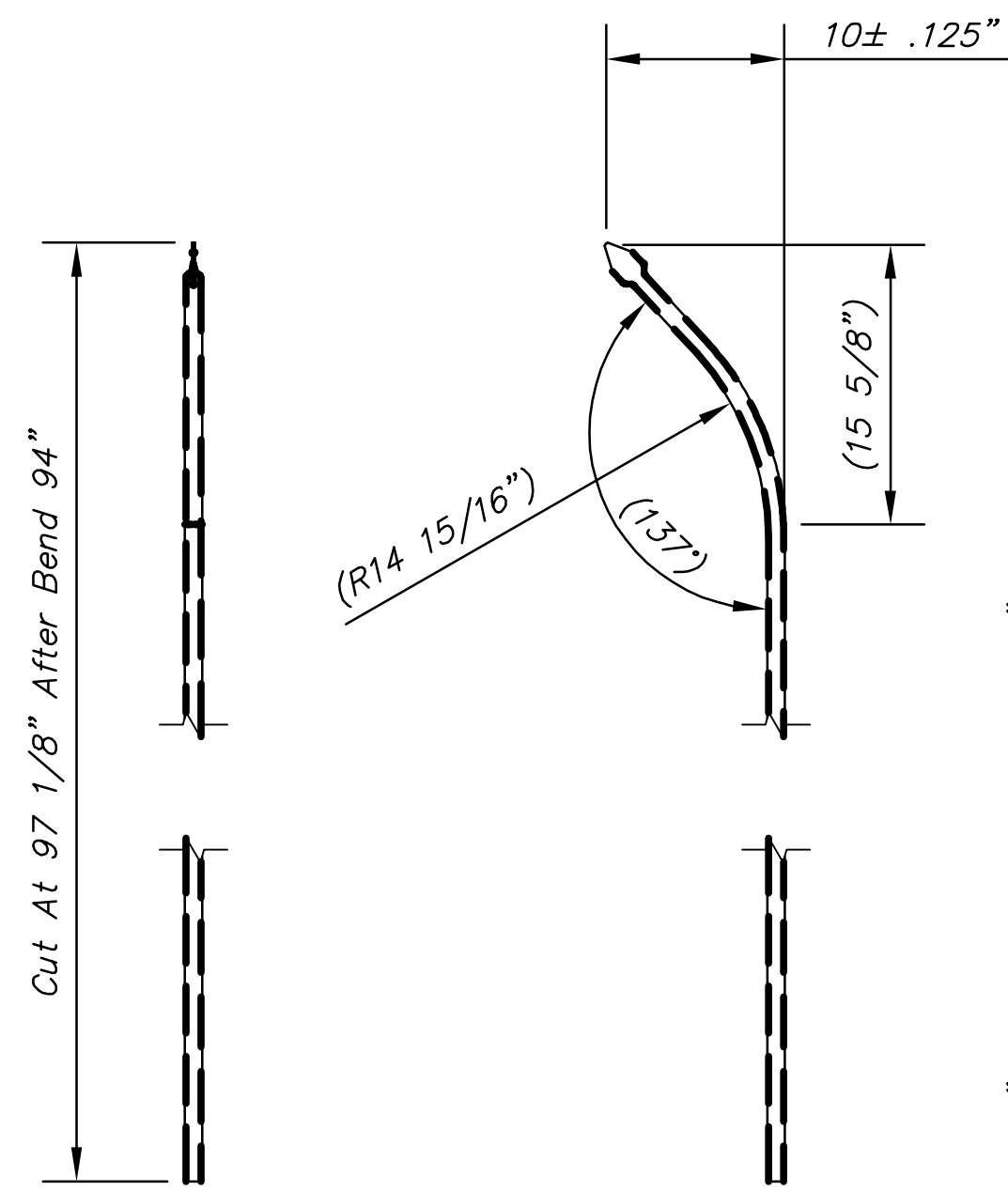
**Safety Handrail Notes:**

- The contractor shall provide all labor, materials and appurtenances necessary for installation of the pipe rail safety handrail system.
- The handrail shall be constructed using slip-on/bolt-on structural pipe fittings designed specifically for handrail use and provided by a manufacturer experienced in providing design and materials for handrail systems.
- The fittings shall be made from high-tensile aluminum-magnesium alloy 535.0 manufactured in compliance with ASTM B26 and cast from high-purity ingot 535.2 that conforms to ASTM B179.
- All fittings shall be securely fastened to the pipe with internal/external, reverse knurl, cup point, hexagon socket set screws that conform to FF-S-200 and ANSA/ASME B18.3-1986 Type C/G.
- Set screws made of alloy steel shall conform to ASTM F912 with zinc plating conforming to JS-600. Austenitic grade stainless steel set screws shall be 302 alloy.

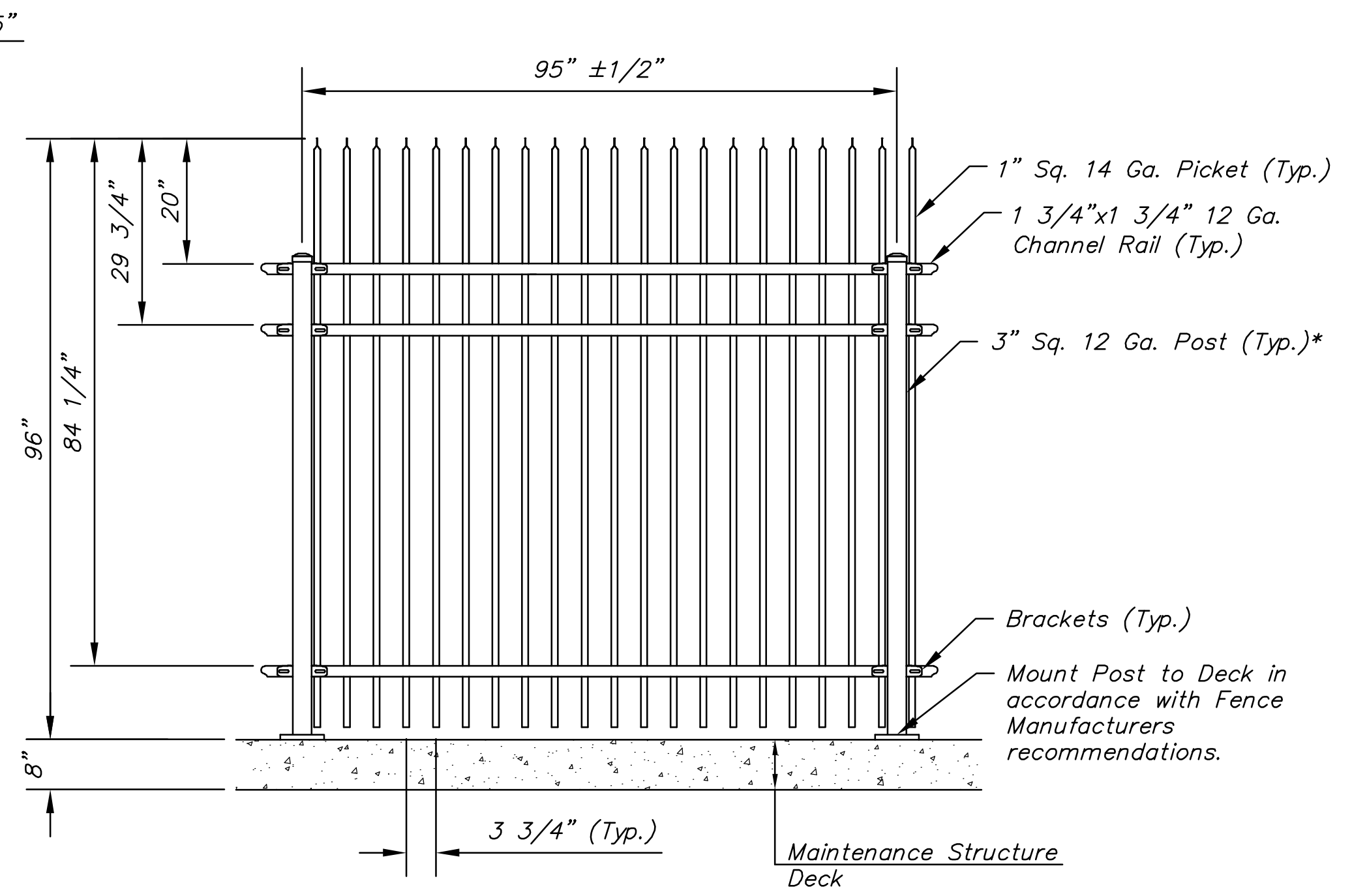


**SAFETY HANDRAIL DETAIL**

- The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.
- The completed handrail shall conform to OSHA and the fitting manufacturer's requirements.
- A removable panel shall be provided as shown to allow access to the dam hydraulic cylinders.
- All parts of the rail shall be painted. The primer coat shall conform to the inorganic zinc system. Surface preparation shall be in accordance with that for structural steel. The finish coat shall be in accordance with water-borne acrylic finish coat.
- The Contractor shall submit color chart for approval by the City.



**PICKET SECTION**



**ELEVATION**

**SECURITY FENCE DETAIL**

\* Gate posts shall conform to manufacturers recommendations base on the specified gate sizes.