

BRIDGE RAILING, GALVANIZED 3 RAIL

**\*\*From Jamaica BRO 1442(27)**

- xx. DESCRIPTION. This work shall consist of furnishing and erecting galvanized 3-rail box beam bridge railing as shown in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 525 of the Standard Specifications.

- xx. MATERIALS.

- (a) Railing Tubes. Tubing for rails shall conform to the requirements of Subsection 714.11, except as noted below:

- (1) The manufacturer shall test both welded and formed tubular material for the physical properties specified. Results of all tests shall be submitted with material certifications.
- (2) Longitudinal welds may be made by the resistance, gas shielded arc, or plasma arc process. Welds shall be sound, free of defects, and have no repairs. Transverse mill welds will not be permitted.
- (3) Longitudinally welded tubing shall have a tensile strength of 400 MPa (58,000 psi) when tested in accordance with AASHTO T 68M (AASHTO T 68).

- (b) Rail Posts, Baseplates, and Angles.

- (1) The manufacturer shall test post material for the physical properties specified. Results of all tests shall be submitted with material certifications.
- (2) Materials for posts, baseplates, and angles shall meet the requirements of AASHTO M 270M/M 270, Grade 345 (Grade 50) or ASTM A 709/A 709M, Grade 345 (Grade 50).
- (3) Materials for posts, baseplates, and angles shall be tested for impact properties in accordance with the requirements for Charpy Impact Testing in AASHTO T 244, using a Type A specimen. The sampling procedure shall be in accordance with AASHTO T 243M/T 243 using frequency "H" testing. Full size, 10 mm x 10 mm (3/8 inch x 3/8 inch) specimens shall be used whenever materials thickness permits. Subsize specimens may be used when material thickness is less than 10 mm (3/8 inch). To qualify, the average energy absorbed by a full size specimen shall not be less than 33.9 J at 5°C (25 pounds-force foot at 40°F). The average energy absorbed by a subsized specimen shall be prorated for the actual thickness of the specimen.

- (c) Railing Tubes, Rail Posts, Baseplates, and Angles.

- (1) Fabrication welding shall comply with the requirements of Subsection 506.10.
- (2) A traceable identification number shall be placed on each piece of material in a form that can be read after the galvanizing process.
- (d) Structural Carbon Steel. Structural carbon steel for plates shall conform to the requirements of AASHTO M 270M/M 270, Grade 250 (Grade 36) or ASTM A36/A 36M.
- (e) Bolts, Nuts, and Washers. Bolts, nuts, and washers for railing and rail post connections shall conform to the requirements of Subsection 714.05.
- (f) Anchor Plates. Anchor plates shall be stainless steel conforming to the requirements of ASTM A 666 Type 304 UNS S30400.
- (g) Anchor Bolts. Anchor bolts shall be stainless steel and meet the requirements of F 738M, property class C3-80, condition H, Alloy F 738U.
- (h) Nuts and Washers. All nuts and washers cast in the deck shall be stainless steel. Nuts shall meet the requirements of F 836M. Washers shall be stainless steel Type 304 or 316.
- (i) Certification. A Type D Certification shall be furnished in accordance with Subsection 700.02 for all railing tubes, rail posts, base plates, anchor plates, angles, bolts, nuts, and washers.
- xx. CONSTRUCTION REQUIREMENTS. Bridge railing shall be provided and erected to the configuration shown in the Plans.
- xx. METHOD OF MEASUREMENT. The quantity of Special Provision (Bridge Railing, Galvanized 3 Rail Box Beam) to be measured for payment will be the number of meters (linear feet) of rail used in the complete and accepted work. Measurement will be made along the face of rail from end to end or between the pay limits specified.
- xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (Bridge Railing, Galvanized 3 Rail Box Beam) will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for detailing, furnishing, handling, placing, delineating, and galvanizing the railing components and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Bridge Railing, Galvanized 3 Rail Box Beam)	Meter (Linear Foot)