

**ITEM 01568.7501 M - BRIDGE RAIL TUBE REPLACEMENT TYPE 1**  
**ITEM 01568.7502 M - BRIDGE RAIL TUBE REPLACEMENT TYPE 2**  
**ITEM 01568.7503 M - BRIDGE RAIL TUBE REPLACEMENT TYPE 3**

**DESCRIPTION:**

This work shall consist of the removal and disposal of existing bridge rail tubes and hardware and the installation of new bridge rail tubes and hardware, as shown in the Contract Documents.

**MATERIALS:**

The provisions of Subsection 568-2, Bridge and Culvert Railing, shall apply. In addition, shims if used, shall conform to the following:

Steel - ASTM A36  
Length - 38 mm±6 mm  
Width - 18 mm ±2 mm  
Thickness 6 mm minimum

**CONSTRUCTION DETAILS:**

The existing bridge rail tubes and hardware shall be carefully removed in a manner satisfactory to the Engineer so as not to damage the existing rail posts which are to remain or any other hardware that is to remain.

All material that is removed from the existing bridge rail posts shall become the property of the Contractor and shall be removed from the work site.

All bridge rail tubes, clamps and associated hardware that are installed on the existing bridge rail posts shall be new and to the size and dimensions shown in the Contract Documents.

Immediately prior to erection, the new rail shall be inspected for damage. Bends or kinks in the new rail not specifically called for in the Contract Documents shall constitute sufficient cause for rejection. Straightening of such bends or kinks shall not be allowed.

Bending or curving rails, in order to fit alignment requirements, in the field shall not be permitted. The Engineer may order some bending or curving to allow for necessary minor adjustments.

Damage to galvanizing of steel bridge rail shall constitute sufficient cause for rejection except for the following conditions:

1. If the damaged area is not required to be repaired under the provisions of Subsection 710-23, Steel Bridge and Culvert Railing.
2. If the total damaged area of a single piece of rail is 3900 mm<sup>2</sup> or less, exclusive of the areas described under Subsection 710-23.

Field galvanizing repair shall be allowed to be performed upon damaged areas meeting the requirements of the aforesaid condition No. 2.

Field galvanizing repair shall be made by painting zinc repair material onto the damaged area in accordance with the requirements of Subsection 719-01, Galvanized Coatings and Repair Methods.

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All finished surfaces of welds and adjacent surfaces of rails and posts upon which galvanizing has been removed, due to any field welding operation, shall be field galvanized.

Any single piece of rail with a total damaged area in excess of the amount specified shall be rejected and replaced. All railing shall be erected in accordance with approved shop drawings prepared and submitted as specified in the New York State Steel Construction Manual.

Railing shall be erected so that the rails are parallel to each other and to the top of parapet, sidewalk or structural slab.

The new rail tubes shall span at least three posts.

All welding shall conform to the requirements of the NYS Department of Transportation's Steel Construction Manual.

Wherever the railing does not fit tightly to the post, due to the location of the connection angle, or plate, it will be necessary to weld shims to the post to provide a tight fit between rails and posts.

Shims shall be seal welded in their proper location by means of a 13 mm weld on each side of the shim. If more than one shim is required at a given location, then shims shall be welded together by means of a 13 mm seal weld on either side of the interface between shims. All welding work shall be done in accordance with the requirements of the NYS Steel Construction Manual.

All welding locations, and shims, shall be wire brush cleaned, or otherwise cleaned in a manner satisfactory to the Engineer, after welding is completed. The galvanizing shall then be repaired, and the shim painted, in accordance with the requirements of Subsection 719-01.

It is the Contractor's responsibility to determine the number of locations requiring shimming. No additional payment will be made for shimming work.

All components of the existing bridge railing system which are to remain and which are damaged due to the Contractor's operation shall be repaired or replaced to the satisfaction of the Engineer at no cost to the State. Such damaged material shall be repaired or replaced according to the provisions of Section 568, Bridge and Culvert Railing.

All erection shall be subject to the inspection of the Engineer who shall be given all facilities required for a visual inspection of workmanship and materials.

Galvanized metal surfaces required to be painted, shall be painted in accordance with the following:

1. Paint shall be one of the products on the Department's Approved List titled "Paints for Structural Steel, C. Finish Paint and Thinners". Acceptance shall be based on the appearance of the paint on the Approved List.
2. All galvanized surfaces shall be cleaned in the manner required by SSPC-SP1, Solvent Cleaning.
3. Abrade all galvanized surfaces by brush blast methods, or other mechanical means approved by the

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Engineer/Inspector. The purpose of abrading is to roughen the surface, not to remove material.

4. Apply the paint in accordance with the manufacturer's instructions to a minimum dry film thickness of 3.0 mils. Manufacturer's instructions for mixing and paint application shall be supplied to the Engineer/Inspector at least one week prior to the beginning of any painting work.
5. The color of the paint shall be noted in the Contract Documents. If no color is so noted, the Regional Landscape Architect shall select the proper color.
6. Paint application methods shall be in accordance with the following:
  - a. Shop: Spray, roller, or brush.
  - b. Field: Brush only.

Any paint removed from the existing railing system shall be collected in a manner approved by the Engineer and disposed of at an acceptable hazardous waste disposal facility.

**METHOD OF MEASUREMENT:**

Measurement will be taken as the number of linear meters of rail tube installed. Measurement will be taken along the centerline of each rail tube, end-to-end of each rail tube between the limits indicated in the Contract Documents or as directed by the Engineer. No deduction will be made for open joints.

**BASIS OF PAYMENT:**

The unit price bid per linear meter shall include the cost of all labor, materials and equipment necessary to complete the work.