

10565.4202 M - REFURBISHING AND REINSTALLATION OF EXISTING BRIDGE BEARINGS
LIRR OVER I-495

DESCRIPTION

This work shall consist of detaching, refurbishing and reinstalling existing bridge bearings at locations as indicated on the plans. This work includes but is not limited to the following:

1. Detach existing fixed bearing and refurbish existing bearing and convert it to an expansion bearing by installing:
 - new self-lubricating bronze bearing plate
 - new retainer bars for the self-lubricating bronze plates (field welded to the existing base plate)
 - new machine-finished top bearing plate
 - new guide bars
 - new anchor bolt extensions
 - new steel bolster (shim) plates
2. Install new temporary restraining blocks to temporarily fix the refurbished bearings.
3. Remove temporary restraining blocks.

The locations for this work shall be a indicated on the plans. The furnishing of all materials and labor necessary to perform this work is included under this item.

MATERIALS

1. Structural Steel

Unless otherwise noted on the plans, structural steel plates including but not limited to the top bearing plate, retainer bars for the self-lubricating bronze plates, guide bars and steel bolster (shim) plates shall conform to the requirements of ASTM A36M ASTM A572M, ASTM A588M or ASTM A709M Grades 50 or 50W, and the applicable requirements of the New York State Steel Construction Manual.

External surfaces of plates fabricated from ASTM A36M, ASTM A572M or ASTM A709M Grade 50 steel shall be protected from rust until all exposed surfaces can be field painted. Any rust inhibitor used shall be removed from all surfaces to be welded, prior to welding.

Surfaces of the top bearing plate that will be in contact with the self-lubricating bronze plate shall be machined to an ANSI 125 finish, in accordance with Section 612 of the New York State Steel Construction Manual.

2. Anchor Bolts

Anchor bolts, hexagonal nuts, couplers and washers shall conform to the requirements Subsection 723-60 - Anchor Bolts of the Standard Specifications.

3. Bronze Bearing Plate (self-lubricating)

Self lubricating bronze bearing plates shall be of the size and thickness indicated on the plans.

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Bronze bearing plates shall conform to ASTM B22, copper alloy UNS designation C91100 or C91300, and to the requirements of Section 716-05 – Self Lubricating Bronze Plates of the Standard Specifications.

The self-lubricating bronze bearing plates shall have a minimum design unit loading of 13.8 MPa (2000 psi).

4. Concrete Grouting Material

Grout shall conform to the requirements of Subsection 701-05 – Concrete Grouting Material, of the Standard Specifications.

5. Protective Coatings

The provisions of Subsection 565-2.04 of the Standard Specifications shall apply.

6. Shop Drawings

Shop drawings are required for all new components of the refurbished bearings, including but not limited to the self-lubricating bronze bearing plate, top bearing plate, retainer bars for the self-lubricating bronze plates, guide bars, shim plates and anchor bolts. Shop drawings shall show details for attachment of the new bearing components to the existing bearing shoe and base plate.

Shop drawings shall be furnished in accordance with Section 2 of the New York State Steel Construction Manual.

CONSTRUCTION DETAILS

1. General

Except as otherwise indicated on the contract plans, the provisions of Subsection 565-3 of the Standard Specifications for Type S.S. Bearings and applicable provision of the New York State Steel Construction Manual shall apply, with the following modifications/additions.

2. Welding

All welding shall be done in accordance with the requirements of the New York State Steel Construction Manual.

The new top bearing plate shall be welded to the existing bearing shoe only after all necessary adjustments have been made.

Welding of the new top bearing plate to the existing bearing shoe shall be done in such a manner as to not cause heat damage to the self-lubricating bronze plate. This shall preferably be accomplished by

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welding the top bearing plate to the existing bearing shoe before the lower bearing assembly (base plate with self-lubricating bronze plate) is set in position. Alternatively, temperature-indicating devices such as temperature sticks can be used to ensure that the temperature of the self-lubricating bronze plate is within acceptable limits (as recommended by the manufacturer) during welding.

3. Grouting Anchor Bolts

The slotted holes in the steel shim plates and the holes in the base plates shall be fully grouted after the refurbished bearing is set in its final position. Grout material shall be placed so as to fill all voids to the top of the base plate, and excess grout shall be removed.

METHOD OF MEASUREMENT

The quantity to be paid for under this item shall be the number of existing bearings refurbished and reset. Payment will be made only once at each bearing location, regardless of the number of times the bearing is reset during the course of lifting operations.

BASIS OF PAYMENT

1. Payment for this Work

The unit price bid for each bearing shall include the cost of all labor, materials, equipment, adjustment necessary to complete the work. All new material between the bottom of the superstructure and the top of the substructure, including shim plates, shall be included in the unit price bid for this item.

2. Payment for Related Items of Work

Jacking the existing bridge structure in order to uniformly raising the bridge profile, detaching the eight (8) existing expansion bearings at existing Pier Nos. 1 and 3, and resetting the existing bearings on temporary shim plates in order to raise the bridge profile (Stage 1 construction) will be paid for separately.

Removing the eight (8) existing expansion bearings and temporary shim plates at existing Pier Nos. 1 and 3 during Stage 6 construction, after load is transferred to the temporary supports, will be paid for separately.

Furnishing and installing the four (4) new fixed bearings at new Pier Nos. 1 and 3 (Stage 7 construction) will be paid for separately.

Furnishing, installation and removal of the temporary jacking support structures will be paid for separately.