

ITEM 08606.2801 M - MERRITT PARKWAY GUIDE RAIL END ANCHORAGE-Type I
ITEM 08606.2802 M - MERRITT PARKWAY GUIDE RAIL END ANCHORAGE-Type II
ITEM 08606.2803 M - MERRITT PARKWAY GUIDE RAIL END ANCHORAGE-Type III
ITEM 08606.2804 M - MERRITT PARKWAY GUIDE RAIL END ANCHORAGE-Type IV

DESCRIPTION:

This item shall consist of furnishing and installing terminals for sections of Merritt Parkway Guide Rail (MPG) as shown on the plans. It contains appropriate treatments for anchorage of MPG end sections that are buried outside of the roadway clear zone, buried in earth-cut slopes, anchored in rock-cut slopes, and at impact-attenuation devices as shown on the plans or as directed by the Engineer.

MATERIALS:

All steel posts, back rails and splice plates shall conform to Section 710-25, and be manufactured from ASTM A 588 Steel. The dimensions of each component shall conform to the plans and ASTM A 6. All steel posts shall be galvanized after fabrication to meet the requirements of ASTM A 123. The galvanized coating shall conform to the limits and tolerances shown on the plans. Back rails, splice plates, and non-galvanized portions of posts shall be uncoated, except where these elements are to be buried in earth or in contact with concrete, they shall be galvanized in accordance with ASTM A 123.

A single 19 mm diameter hole may be drilled 50 mm from the top of each post, in the center of the web, to facilitate the galvanizing process.

All timber rail and block-out components shall be rough-sawn, pressure treated Southern Yellow Pine or Douglas Fir-Larch, and be in conformance with the following:

- A. Section 712-14
- B. AASHTO M 168
- C. Commercial Lumber Grade No. 1 or better, after treatment.
- D. Minimum stress grade of 9.3 MPa.
- E. All timbers shall receive preservative treatment in accordance with AASHTO M133 after holes and cuts are made. Any drilling or cutting performed after preservative treatment shall be treated in accordance with American Wood Preservers Association (AWPA) Standards.
- F. Kiln Dried to maximum moisture content of 25% after treatment after pressure treatment (KDAT-15)
- G. Grade-marked after treatment by an agency certified by the American Lumber Standard Committee (ALSC).

Class A concrete for anchors shall conform to the requirements of Section 501. Non-Shrink Grout shall conform to the requirements of Section 721-03.

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Carriage bolts shall be manufactured according to the geometric specifications included in ANSI B18.5.2.2M. Corrosion resistant bolt material shall conform to ASTM F 568, Class 8.8.3 (830 MPa minimum tensile strength and 660 MPa minimum yield strength). Threads shall conform to ANSI B1.13M for Class 6g threads. Corrosion resistant carriage bolts shall be marked with the symbol "8.8.3" as specified in Section 12 of ASTM F 568. These Carriage Bolts are AASHTO Designation FBC16 and FBC20 in "A Guide to Standardized Highway Barrier Hardware," AASHTO Report No. TF-13, 1995.

Hex lag screws shall be manufactured according to the geometric specifications included in ANSI B18.2.3.8M, and shall conform to the requirements of ASTM F 568 for Class 4.6 material (400 MPa minimum tensile strength 240 MPa minimum yield strength). Hex screw heads shall be marked with the symbol "4.6" as specified in Section 12 of ASTM F 568. All Hex Lag Screws shall be galvanized in accordance with ASTM A 153. These Hex Lag Screws are AASHTO Designation FBL16 in "A Guide to Standardized Highway Barrier Hardware," AASHTO Report No. TF-13, 1995.

All other fasteners shall conform to the requirements of Section 606-2.03.

Construction Details

Anchorage, channels, rails, terminal sections and fittings shall be placed as indicated on the plans and in a workmanlike manner. In excavating for the anchorages, the excavation shall be backfilled with suitable material and compacted in 150 mm layers. Any surplus material remaining after the completed installation shall be removed by the contractor.

When the rail is to be attached to rock, the necessary rock shall be removed and the holes drilled in the rock in the proper locations. The diameter of the holes shall be sufficient to permit the placement of the bolts and the non-shrink grout, but shall not exceed twice the diameter of the bolts to be installed. The holes shall then be blown clean with an air jet.

The bolts shall be installed in the holes and the holes filled with non-shrink grout. After the steel plate is installed it and any spalled areas shall be backfilled with non-shrink grout.

When the rail is to be attached to a concrete surface, the bolts shall be installed and grouted as indicated above for installation in rock.

The rail elements shall be lapped in the direction of traffic.

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Method of Measurement

The number of anchorages to be measured for payment will be the actual number of anchorages of each type installed and accepted.

Basis of Payment

The unit price bid for each type of anchorage shall include the cost of furnishing all labor, materials and equipment necessary to complete the work, including the necessary excavation backfill and fittings to complete the installation.