

**ITEM 10606.4789 M - WOOD POST BLOCKED-OUT CORRUGATED BEAM
MEDIAN BARRIER (CONTROLLED OXIDIZING)**

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(SHOP CURVED)**

**ITEM 10606.3902 M - APPROACH ANCHORAGE UNITS FOR WOOD POST
BLOCKED-OUT CORRUGATED BEAM MEDIAN
BARRIER (CONTROLLED OXIDIZING)**

DESCRIPTION. The Contractor shall furnish and install weathering corrugated steel beam median barrier and anchorage units at the locations shown on the plans and where directed by the Engineer.

This specification is to provide a weathering steel median barrier system that, in a reasonable time period after erection, will develop a uniform, permanent, and tightly adhering protective oxide.

MATERIALS.

General.

1. Beams and Hardware. Corrugated beams, terminal sections, back-up plates and all accessory components and hardware shall be fabricated as shown on the plans. Bolt holes in the beam at the post hole and elsewhere, as necessary, shall be enlarged or slotted to permit expansion and contraction and to facilitate erection. The beams shall be straight, unless otherwise required by the plans or specifications, and of uniform section. The edges shall be rolled to eliminate sharp edges.

Weathering corrugated beams and back-up plates shall meet the requirements of ASTM A606, Type 4. The minimum yield point and elongation of the steel shall be 345 MPa and 22% in 50 mm gage length respectively. Any portion of weathering steel corrugated beam section which is to be buried in soil shall be galvanized. The galvanizing shall extend a minimum of 150 mm above the ground surface. At the Contractor's option, galvanized corrugated beams conforming to Subsection 710-20 may be used for corrugated beams which are to be buried in soil.

When shop curving of corrugated beams is required, the radius of curvature shall be stamped into the base metal of the beam. The stamping shall be on the back, at or near both ends of the beam, and in a location where it will be visible to a worker after erection.

Terminal sections shall be galvanized and shall meet the requirements of Subsection 710-20.

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Bolts, nuts, and washers for post, offset beam, and mounting bracket connections shall conform to ASTM A325 and shall be galvanized. Splice bolts, nuts, and washers shall conform to ASTM A307 and shall be galvanized. The splice bolts shall be M16 roundheaded bolts as detailed on the plans.

Certified copies of the test results conducted by the manufacturer of the base metal for the physical and chemical requirements shall be furnished for all steel in the manner and form requested by the Department.

2. Wood Posts and Offset Blocks. Wood posts and offset blocks shall be as detailed on the plans and shall be surfaced on four sides. The timber dimensions shown on the plans are nominal dimensions. The posts and offset blocks shall be either first-class Douglas Fir, No. 1 Grade, S4S, as described in the Standard Grading Rules for West Coast Lumber published by the West Coast Lumber Inspection Bureau, or first-class Southern Yellow Pine, No. 1 Grade, S4S, as described in the Standard Grading Rules for Southern Pine Lumber published by the Southern Pine Inspection Bureau.

The wood posts and offset blocks shall be pressure preservative treated. All wood members shall be completely fabricated and finished before the preservative treatment. The preservative treatment shall conform to either Subsection 708-31 Wood Preservative-Water Borne, or Subsection 708-32 Wood Preservative-Oil Borne except that the oil borne preservative solution shall consist of pentachlorophenol and an aromatic petroleum solvent. The net retention of pentachlorophenol, ammoniacal copper arsenite, or chromated copper arsenate shall be 9.6 kilograms per cubic meter of wood.

Basis of Acceptance. The Contractor shall certify that all wood posts and offset blocks were fabricated from timber and lumber which was measured and inspected by an inspector of the appropriate inspection bureau-West Coast Lumber Inspection Bureau or Southern Pine Inspection Bureau. The lumber inspectors certificates for the timber and lumber used to fabricate the posts and offset blocks shall also be furnished to the Engineer. A certificate of inspection from a recognized wood inspection service shall be furnished to the Engineer certifying that the preservative treatment of the wood posts and offset blocks conforms to the requirements of this specification.

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3. Concrete. Concrete shall meet the requirements specified for Class A Concrete in Section 501. If the concrete is precast, the concrete shall meet the requirements of Class A Concrete in Section 501, except that the requirements for inspection facilities, automated batching controls and recordation do not apply. The batching, mixing, and curing methods and the inspection facilities shall meet the approval of the Department or its representative. The Contractor may submit, for approval by Deputy Chief Engineer, Technical Services, a mix at least equivalent to the specified Class A Concrete.
4. Welding. Fabrication welding shall comply with the subsection "Welding" in the New York State Steel Construction Manual, except that radiographic inspection will not be required.
5. Galvanizing. Galvanizing shall conform to Subsection 719-01. The galvanizing type shall be as indicated on the plans.
6. Preparation and Painting of Steel Components. All materials used in the preparation and painting of galvanized components shall be as specified in the special note "Preparation and Painting of Steel Surfaces" found elsewhere in the proposal. The color of the topcoat shall be such that a properly prepared color chip shall be a reasonable visual match to Federal Color Standard No. 595, Color 20059. Viewing shall be done under North Standard Daylight.

Anchorage Units. Anchor plates, anchor rods and hardware, and galvanized mounting brackets shall conform to ASTM A36. Reinforcement for the anchor shall conform to Subsection 709-01, "Bar Reinforcement, Grade 60."

CONSTRUCTION DETAILS

General. All component parts shall be erected in the position and manner indicated on the plans and in a manner approved by the Engineer.

Wood posts shall be placed by excavating or by using vibratory driving or impact driving equipment approved by the Engineer. Post driving will be permitted only if alignment and grade tolerances are met and providing no damage is done to the posts during installation. Damaged or misaligned posts shall be removed and redriven or replaced by the Contractor as directed by the

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Engineer. To facilitate driving, the base of the wood posts may be tapered as shown in the plans.

Post and anchor excavations shall be backfilled, and backfilled material compacted in accordance with Subsection 203-3.15, "Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables."

All posts shall be aligned to a tolerance of 6 mm for plumb and grade line.

Shop curved corrugated beam median barrier will be required when the median barrier is to be erected on a radius of 45 m or less. When shop curving is required, the rail element shall be shop worked to the radius that the median barrier will be installed on.

In order to develop the inherent properties of weathering steel to its maximum the Contractor shall remove all mill scale from the surfaces of the fabricated components that will be exposed to view from the roadway. All surfaces are to be free of mud, grease, oil and paint. Special efforts must be extended when either material or finished product is in storage or transit, to prevent water stains and surface discoloration that will interfere with the uniform and sound weathering of the base metal.

Care shall be taken in the field erection of the barrier system to avoid surface scratches and gouges. The Contractor is put on notice that cleanliness is most important in obtaining the early and uniform weathered surface. Where soilage is too severe to be removed by hand cleaning, the soiled areas shall be cleaned by other methods such as power brush cleaning in a manner approved by the Engineer.

In order to give the galvanized components the same rustic appearance as the weathered corrugated beam, all galvanized surfaces exposed to traffic shall be prepared and painted in accordance with the special note "Preparation and Painting of Steel Surfaces" found elsewhere in the proposal.

At the Contractor's option, the galvanized parts may be painted before installation and any damage to the exposed painted surfaces repaired after erection in accordance with the special note "Preparation and Painting of Steel Surfaces."

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Upon completion of the installation of the median barrier components, the Contractor shall restore the area to its original state. This may require the Contractor to repave, resod, reseed and mulch all areas disturbed during the median barrier installation, including the areas adjacent to the anchor unit installation.

METHOD OF MEASUREMENT.

Wood Post Median Barrier. The median barrier will be measured by the number of meters measured along the axis of the median barrier and between its extreme outer limits as shown on the plans. Shop curved median barrier will be measured by the number of meters, measured along the axis of the curved median barrier. Shop curved median barrier is defined as that which will require shop working in accordance with the requirements of this specification and not that curvature which may be attained by springing or bending in the field.

Anchorage Units. Anchorage units will be measured by the number furnished and installed.

BASIS OF PAYMENT. The unit price bid for each item shall include the cost of all labor, materials, and equipment necessary to complete the work, including paint, concrete, reinforcement, excavation, backfill, removal and replacement of damaged or misaligned posts, and the costs of bending any rail element to the required curvature.

Unless otherwise indicated on the plans, the cost of restoring any disturbed areas, including paving, sodding, seeding, and mulching, shall be included in the unit price bid.

Progress payments will be made for the various items paid by meter for Wood Post Blocked-Out Corrugated Beam Median Barrier when the median barrier is erected in the position and manner indicated on the plans and in a manner approved by the Engineer, exclusive of restoration of disturbed areas and final alignment. Payment will be made, at the unit price bid, for 90% of the quantity erected. The balance of the quantity erected will be paid for upon proper repair of the disturbed areas and alignment of the median barrier to the specified tolerance.