ITEM 013370

Item 0133701 - METAL BEAM RAIL (TYPE)
Item 0133702 - METAL BEAM RAIL R-B 350 (TYPE I, II, OR III) SECTION
Item 0133703 - (TYPE) ATTACHMENT
Item 0133704 - CONVERT METAL BEAM RAIL (TYPE) TO METAL BEAM RAIL (TYPE)
Item 0133705 - (TYPE) CURVED GUIDE RAIL TREATMENT

DESCRIPTION

Work under this item shall consist of the installation of or conversion to a single or double line of steel rail elements fastened to wood or steel posts with or without rubrail, and the appropriate treatment at bridge parapets, barriers, or other fixed objects as shown on the plans. This item shall include metal beam rail types: w-beam, thrie-beam and box-beam. It shall be installed or converted in the locations indicated and fabricated in conformity with the lines, designations, dimensions, and details on the plans or as ordered by the Engineer.

REFERENCED ITEMS

Item 0133800 and 0264001

REQUIRED SUBMITTALS

Material Certificate of Compliance:

Submit 5 copies of material certificate of compliance for metal beam rail in accordance with the contract general requirements.

Certified Test Report:

Submit 5 copies of certified test reports for metal beam rail in accordance with the contract general requirements.

Shop Drawings:

Submit 5 copies of shop drawings for metal beam rail in accordance with the contract general requirements.

MATERIALS

The material for metal beam rail shall meet the requirements of The State of Connecticut, Department of Transportation, Standard Specifications for Roads,

Bridges, and Incidental Construction, Form 816, 2004, Article M.10.02 and the following:

1. Chemical anchoring material shall meet the requirements of Form 816, Subarticle M.03.01-15.

2. Metal beam rail delineators shall meet the requirements of Form 816, Article M.18 and Form 816, Article M.18.13.

3. When converting rail, the Contractor shall reuse any undamaged existing rail elements, appropriate posts, delineators, and lap bolts within the project limits as approved by the Engineer to construct the converted rail. The Contractor shall use new materials when any components of the existing railing are damaged or missing and cannot be obtained from other rail systems being removed or converted within the Project limits.

CONSTRUCTION METHODS

Steel posts shall be driven. The Contractor shall use suitable driving caps and equipment to prevent damage to the posts during driving. Where rock, boulders or debris are encountered while driving the posts, the obstruction shall be removed to make each hole large enough to permit driving of the posts. Each hole shall then be backfilled with suitable material and thoroughly compacted before driving the posts. Any surplus or unsuitable material remaining after the completed installation shall be removed and disposed of by the Contractor.

The Contractor is cautioned that underground utilities, which may be energized, may be present within the Project limits.

The posts shall be located as shown on the plans, set plumb and in alignment with the rail or rail treatments. Where required, the blockouts, brackets, rubrails, back-up rails and rail elements shall then be erected to produce a smooth continuous rail as shown on the plans. The terminal connectors, rubrails, and rail elements shall be lapped in the direction of traffic.

Whenever metal beam rail or rail treatments are being constructed adjacent to areas open to traffic, the Contractor shall complete the installation up to and including the designated terminal treatment at the close of each day's work.

On long runs or other locations when it is not practical to complete the installation up to and including the designated terminal treatment by the end of the workday, the Contractor shall use temporary methods to terminate the metal beam rail.

Prior to any rail installations, the Contractor shall submit to the Engineer for review its proposed methods for temporarily terminating the end section.

The Contractor shall furnish posts of sufficient length where field conditions warrant to obtain the depth in the ground shown on the plans.

When existing metal beam rail is being converted, the Contractor may punch or drill a hole in the flange of the existing post to facilitate attachment of the blockout and rail element to the post. No other methods shall be used to create this hole.

End anchorages not needed for the converted rail shall be removed in their entirety. In the welding of steel plates to the steel posts, the welds shall be of the size and type shown on the plans and shall conform to the applicable requirements of the AWS and supplemented by the following:

1) The Engineer will make a visual inspection of welds. All welds found unacceptable by the Engineer shall be corrected by the Contractor at no additional cost.

Before final erection, all galvanized elements which have been cut or worked so as to damage the zinc coating and cause the base metal to be exposed shall have the exposed base metal thoroughly cleaned and brush coated with two coats of zinc-rich touch-up material in conformance with State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction Form 816, 2004, Subarticle M.10.02-8.

METHOD OF MEASUREMENT

1. Metal Beam Rail (Type): The length of metal beam rail measured for payment will be the number of linear feet of accepted rail of the type or designation installed, measured along the top of rail between centers of end posts in each continuous section.

2. Metal Beam Rail R-B 350 (Type I, II, or III) Section: Metal Beam Rail R-B 350 (Type I, II, or III) Section measured for payment will be the actual number of each type accepted and installed in accordance with the "Pay Limit" shown on the plans.

3. (Type) Attachment: The number of rail attachments to bridge parapets, barriers or other fixed objects measured for payment will be the actual number of accepted attachments of each type or designation installed in accordance with the "Pay Limit for Attachment" shown on the plans.

4. Convert Metal Beam Rail (Type) to Metal Beam Rail (Type): The conversion of existing metal beam rail (Type) to the (Type) specified will be measured for

payment by the number of linear feet of rail installed measured along the top of rail between centers of end posts in each continuous section. If a new end anchorage for the converted rail is needed, it shall be measured for payment in accordance with Item 0133801.

5. (Type) Curved Guide Rail Treatment: The (Type) Curved Guide Rail treatment measured for payment will be the actual number of each type installed and accepted in accordance with the "Pay Limit Curved Guide Rail Treatment" shown on the plans.

BASIS OF PAYMENT

1. Metal Beam Rail (Type): This will be paid for at the contract unit price per linear feet for the type or designation indicated on the plans or ordered by the Engineer, complete in place. Prices shall include all materials, posts of all lengths, equipment, tools, removal and disposal of surplus material, and labor incidental to the installation of the rail.

2. Metal Beam Rail R-B 350 (Type I, II or III) Section: This will be paid for at the contract unit price each for the types specified on the plans complete in place. Prices shall include all materials, CRT wood posts, equipment, tools, removal and disposal of surplus material, backfilling, and labor incidental to the installation of the rail.

3. (Type) Attachment: This will be paid for at the contract unit price each for the type of attachment complete in place. The price shall include all materials, drilling & grouting including anchor bolts, removal of existing rail system, removal and disposal of surplus material, equipment, tools, and labor incidental to the installation of the attachment.

4. Convert Metal Beam Rail (Type) to Metal Beam Rail (Type): The conversion of existing metal beam rail will be paid for at the contract unit price per linear feet for the type shown on the plans complete in place. The price shall include all materials (excluding new parts for damaged or missing parts), backfilling, punching or drilling of holes in existing posts, removal and resetting of existing railing, removal of the end anchorages where indicated on the plans, removal and disposal of surplus material, equipment, tools and labor incidental to the conversion of the existing rail. Surplus material not needed for the conversion, unless specified otherwise in the Contract, shall become the property of the Contractor.

Payment for new parts approved by the Engineer, which replace damaged or missing parts will be paid for at the applicable contract unit prices, or in their absence, in accordance with State of Connecticut, Department of Transportation,

Standard Specifications for Roads, Bridges and Incidental Construction Form 816, 2004 Article 1.04.05.

5. (Type) Curved Guide Rail Treatment: This will be paid for at the contract unit price for each type indicated or as ordered by the Engineer, complete in place. The price shall include all materials, excavation, backfilling, removal and disposal of surplus material, equipment, tools and labor incidental to the installation of the rail treatment.

Drilling in or removal of rock or boulders and backfilling with suitable material when required for the installation of posts will be paid for in accordance with State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction Form 816, 2004, Article 1.04.05, unless an item for the removal of rock appears in the Contract.

Payment for delineators if required on the drawings, or if ordered by the engineer, will be made under item 0264001 sign face sheet aluminum.

Payment for temporary terminations for metal beam rail and galvanized coating touch-up will be included in the general cost of the work.

PAY ITEM	DESCRIPTION	PAY UNIT
0133701	Metal Beam Rail (Type)	LF
0133702	Metal Beam Rail R-B 350 (Type I, II, or III) Section	EA
0133703	(Type) Attachment	EA
0133704	Convert Metal Beam Rail (Type) to Metal Beam Rail (Type)	LF
0133705	(Type) Curved Guide Rail Treatment	EA