

1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 05 50 00 - Metal Fabrications.
- .2 Section 05 12 33 - Structural Steel for Bridge.
- .3 Section 02 41 16 - Structure Demolition.
- .4 Section 10 14 53 - Traffic Signage.
- .5 Section 31 05 16 - Aggregate Materials.
- .6 Section 31 23 16.26 - Rock Removal.
- .7 Section 31 23 33.01 - Excavating and Backfilling.
- .8 Section 31 24 13 - Roadway Embankments.

1.2 UNIT PRICE

- .1 The work for vehicle W-Beam guide rail will be paid based on the actual quantities measured on site and the unit prices stated in the Bid and Acceptance Form. W-beam guide rails includes all work and incidental expenses required to provide documents and shop drawings, to demolish current guide rails and appropriate disposal, to excavate (earth) or drill/core (rock), to backfill, to compact, to provide all materials and aggregate materials, equipment and labor to install new guide rails and offset blocks, related work roadway embankment behind new guide rails, to tie connexion w-beam guide rails and "C" channel to bridge, to supply and install end treatments. Note that it includes W-beam guide rails along the approach decks located on each side of the bridge. No additional payment will be made for over-excavation (i.e. Earth or Rock excavation beyond the limits necessary to complete the work). Only the approach W-beam guide rails are paid by unit price.
 - .1 Approach W-Guide rails requiring drilling and/or coring in rock is paid in meters, according to actual length installed, at unit price provided on bit and Acceptance form.
 - .2 Approach W-Guide rails requiring drilling and/or coring in rock is paid in meters, according to actual length installed, at unit price provided on bit and Acceptance form.

1.3 REFERENCE STANDARDS

- .1 Ontario Provincial Standard Specifications, Ministry of Transportation, Ontario.
- .2 Ontario Provincial Standard Drawings, Ministry of Transportation.
- .3 ASTM International
 - .1 ASTM A307 - 14e1, Standard Specification for Carbon Steel Bolts,

Studs, and Threaded Rod 60 000 PSI Tensile Strength.

- .4 CSA International
 - .1 CAN/CSA O80 Series-15, Wood Preservation.
 - .2 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA G40.20/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for [guide rail, wood, and coatings] and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by an experienced professional engineer (P.Eng.) member of the Professional Engineer's of Ontario (PEO).
- .3 Certificate:
 - .1 The contractor as to provide a certificate of compliance after new guide rails installation; this certificate of compliance must be signed by a professional engineer registered and licensed in the Province of Ontario, Canada.

2 PRODUCTS

2.1 MATERIALS

- .1 W-beam guide rail as indicated and as follows:
 - .1 Steel rail and terminal sections: in accordance with CSA G40.20/40.21.
 - .2 Bolts, nuts and washers: to ASTM A307.
- .2 Galvanized in accordance with CAN/CSA-G164.
- .3 Steel posts per ASTM A36.
- .4 offset wooden blocks:
 - .1 As per OPSS 1601

3 EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed guide rail installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings and refer to section 01 35 43 - Environmental Protection.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until final surface finish is restoring as the original site area or at the satisfaction of the Departmental Representative.
 - .3 Remove erosion and sedimentation controls, restore, and stabilize areas disturbed during removal at the satisfaction of the Departmental Representative.

3.3 DEMOLITION

- .1 Refer to section 02 41 16 - Structure Demolition for the associate work demolition.

3.4 ERECTION

- .1 Set posts by instrument for alignment, and locations as indicated and as directed by shop drawings and the manufacture.
- .2 W-Beam of the guide rail on the bridge as to, mount directly to the Bailey panels as shown on drawing. Provide fasteners as indicated on drawings and refer to section 05 12 33 - Structural Steel for Bridge.
- .3 Replace and tighten new curb to bridge deck with hardware like bolts, nuts, washer, lag screws as indicated on drawings.
- .4 All hardware that used to tighten new curb are in galvanize.

- .5 Excavate or drill the rock surface for post at depths as indicated on drawings and to a diameter of 360 mm +/- 20 mm.
 - .1 Compact bottom to provide firm foundation.
 - .2 Set post plumb and square in hole.
- .6 Backfill around posts using excavated material and compact in uniform layers not exceeding 150 mm compacted thickness.
- .7 Leave or make depression approximately 150 mm deep around posts until painting is completed, then fill and compact to ground elevation.
- .8 Cut off tops of posts as indicated on drawings and OPSD, with tops parallel to grade of gravel edge.
- .9 Erect W-beam components to details as indicated on drawings. Lap joints in direction of the middle bridge.
 - .1 Tighten nuts to 100 N.m torque.
 - .1 Maximum protrusion of bolt 10 mm beyond nut.

END OF SECTION