

PWGSC	GUIDE RAIL	Section 34 71 13
Neils Brook Bridge		Page 1
Replacement		
Job No. R.074443.001		2016-01-13

PART 1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 01 33 00 - Submittal Procedures.
	.2	Section Section 31 23 33.01 - Excavating, Trenching and Backfilling.
<u>1.2 REFERENCES</u>	.1	American Association of State Highway and Transportation Officials (AASHTO) .1 AASHTO M180-2011, Corrugated Sheet Steel Beams for Highway Guardrails.
	.2	American Society for Testing and Materials (ASTM International) .1 ASTM A 307-10, Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
	.3	Canadian General Standards Board (CGSB) .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
	.4	Canadian Standards Association (CSA International) .1 CAN/CSA-O80 Series-97(February 2000), Wood Preservation.
	.5	CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
	.6	Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) .1 Standard Specification - Highway Construction and Maintenance (2011).
<u>1.3 SAMPLES</u>	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Inform Departmental Representative at least 4 weeks prior to beginning Work, of proposed sources of guide rail and components.

PWGSC	GUIDE RAIL	Section 34 71 13
Neils Brook Bridge		Page 2
Replacement		
Job No. R.074443.001		2016-01-13

PART 2 - PRODUCTS

- | | |
|----------------------|---|
| <u>2.1 MATERIALS</u> | <p>.1 Steel W-beam guide rail as indicated and to following requirements:</p> <p>.1 Steel rail, channel, terminal sections and installation hardware (all galvanized): to Division 5, Section 6 of NSTIR Standard Specification - Highway Construction and Maintenance (latest edition).</p> <p>.2 Treated wooden posts and treated wooden off-set blocks:</p> <p>.1 Species, type and grade: to Division 5, Section 6 of NSTIR Standard Specification - Highway Construction and Maintenance (latest edition).</p> <p>.2 Dimensions: as indicated.</p> |
|----------------------|---|

PART 3 - EXECUTION

- | | |
|---------------------|---|
| <u>3.1 ERECTION</u> | <p>.1 Erect guide rail in accordance with following NSTIR Standard Drawings, attached in Appendix C.</p> <p>.1 Standard Drawing HS518 - Guard Rail and Post Details.</p> <p>.2 Standard Drawing HS519 - Guard Rail Post Details.</p> <p>.3 Standard Drawing HS520 - Steel Beam Guard Rail Buried End Treatment.</p> <p>.4 Standard Drawing HS525 - Guard Rail Anchor Base on Concrete.</p> <p>.2 Set posts by instrument for alignment, and locations as indicated and as directed by Departmental Representative.</p> <p>.3 Excavate post holes to depths as indicated and to diameter of 360 mm plus or minus 20 mm. Compact bottom to provide firm foundation. Set post plumb and square in hole.</p> <p>.4 Backfill around posts using excavated material and compact in uniform layers not exceeding 150 mm compacted thickness.</p> <p>.5 Cut off tops of posts as indicated, with tops parallel to grade of pavement edge.</p> |
|---------------------|---|

PWGSC	GUIDE RAIL	Section 34 71 13
Neils Brook Bridge		Page 3
Replacement		
Job No. R.074443.001		2016-01-13

- | | |
|----------------------------------|--|
| <u>3.1 ERECTION
(Cont'd)</u> | <p>.6 Worker protection: workers must wear appropriate breathing, eye, and clothing protection when handling, drilling, sawing, cutting or sanding preservative treated wood and applying preservative materials.</p> <p>.7 Treat cut tops with two coats of same type of wood preservative used to pressure treat posts.</p> <p>.8 Construct anchorages to details as indicated. Place and compact backfill for anchors as directed by Departmental Representative.</p> <p>.9 Erect steel W-beam components to details as indicated. Lap joints in direction of traffic. Tighten nuts to 100 N.m torque. Maximum protrusion of bolt 12 mm beyond nut.</p> |
| <u>3.2 PAINTING TOUCH
UP</u> | <p>.1 Galvanized steel-touch up:
 .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturer's instructions for zinc-rich paint.</p> <p>.2 Major abrasions shall be repaired by re-galvanizing.</p> |

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 Measurement procedures.
- .2 Waste management and disposal.
- .3 Materials.
- .4 Installation.
- .5 Removal and salvage.
- .6 Cleaning.

1.2 RELATED
SECTIONS

- .1 Section 01 35 00 - Traffic Regulation
- .2 Section 01 35 43 - Environmental Procedures

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM A276-91a, Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
 - .2 ASTM B209M-92a, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - .3 ASTM B210M-92a, Specification for Aluminum-Alloy Drawn Seamless Tubes.
 - .4 ASTM B211M-92a, Specification for Aluminum and Aluminum-Alloy Bar, Rods and Wire.
 - .2 Canadian General Standards Board (CGSB)
 - .1 CGSB1-GP-12c-65, Standard Paint Colours:
 - .2 CAN/CGSB-1.28-M89, Alkyd, Exterior House Paint.
 - .3 CAN/CGSB-1.59-M89, Alkyd, Exterior Gloss Enamel.
 - .4 CAN/CGSB-1.94-M89, Xylene Thinner (Xylol)
 - .5 CAN/CGSB-1.99-92, Exterior and Marine Phenolic Resin Varnish.
 - .6 CAN/CGSB-1.104-M91, Semigloss Alkyd Air Drying and Baking Enamel.
 - .7 CAN/CGSB-1.132-M90, Zinc Chromate Primer, Low Moisture Sensitivity.
 - .8 CGSB 1-GP-189M-78, Primer, Alkyd, Wood, Exterior.
 - .9 CGSB 31-GP-3M-88, Corrosion Preventative Compound, Cold Application, Soft Film.
 - .10 CGSB 62-GP-9M-80, Prefabricated Markings, Positioning, Exterior, for Aircraft Ground Equipment and Facilities.
 - .11 CGSB 62-GP-11M-78, Marking Materials,
-

Retroreflective, Enclosed Lens, Adhesive Backing.

- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-G40.21-M92, Structural Quality Steels.
 - .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-080 Series-M89, Wood Preservation.
 - .4 CSA 0121-M1978, Douglas Fir Plywood.
 - .5 CSA W47.2-M1987, Certification of Companies for Fusion Welding of Aluminum.CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped.
- .4 Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR)
 - .1 Standard Specification, Highway Construction and Maintenance.

1.4 WATSE MANAGEMENT
AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Divert unused metal and/or plastic materials to recycling facility approved by Departmental Representative.
- .3 Damaged signs and posts from any removals to be transported to recycling facility approved by the Departmental Representative.

PART 2 - PRODUCTS

2.1 SIGNS

- .1 Signs as indicated on drawings.

2.2 MATERIALS

- .1 All materials shall be in accordance with NSTIR Standard Specification Highway Construction and Maintenance and Parks Canada Specifications.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 The Contractor shall load, haul and install posts and existing signs (see detail sheet for typical sign) and bases in the following manner:
 - .1 The Contractor is responsible for locating power/telephone/gas lines/services/utilities at all proposed sign locations.

.2 The Contractor is responsible for layout and measurements to ensure signs are installed as per drawings and as directed by the Departmental Representative.

.3 Sign bases: Excavate hole for the post at the location and depth provided by the Departmental Representative. Using some of the excavated materials, level and compact bottom of hole. Place post with one side parallel to the edge of asphalt and level.

.4 Adjust the post height by using a cut off saw. All post cuts will be determined in the field by the Departmental Representative. The Departmental Representative will measure existing elevations at each site and calculate the cuts needed. The Contractor is required to provide the Departmental Representative with a minimum of 48 hours notice in order to perform the calculations.

.5 Assemble the signs on the forks on the ground. Slide forks onto posts and place the cap.

.6 Drill 1 hole in the base sleeves and posts for $\frac{1}{2}$ " bolts, as shown in the detail sheet and as verified by the Departmental Representative, and shim to plumb if necessary.

.7 Bases must be perfectly plumbed. Vertical and horizontal tolerances for the base are 0.075m. Tolerance for the plumb of the posts is 0.01 m per 1.0 m or $\frac{1}{4}$ " on a two foot carpenters level. Tolerances for the signs are 0.075 m for distance from asphalt and 0.075 m for height above white line.

.8 The Contractor is responsible for hauling all materials to and from each work site.

.9 Landscape so the top of the base is flush or 25 mm above finished grade.

.10 Remove all excess material on site including, boulders larger than 100 mm.

.11 All signs are to be covered until the Departmental Representative advises to uncover.

.12 Payment for this item shall be based on the number of signs installed and shall include all material, labour and equipment required to satisfactorily complete this item of work.

3.2 CLEANING

- .1 Upon completion of installation remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION