

## SECTION 00813 - STEEL BACKED TIMBER GUARDRAIL

*(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include them in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and Senior Specifications Engineer for review and approval.)*

Section 00813, which is not a Standard Specification, is included in this Project by Special Provision.

### Description

**00813.00 Scope** - This work consists of constructing steel backed timber guardrail to the lines and grades shown and established.

**00813.02 Submittals** - For areas where horizontal and vertical alignments vary from the supplemental drawings, provide unstamped working drawings that show detailed connections at post installations according to 00150.35.

### Materials

#### 00813.10 Materials:

**(a) Timber** - Furnish rough sawn lumber for timber rail, posts, and blocks of Douglas fir, Hem-fir, or Southern Yellow Pine having a stress grade of at least 1,500 psi and meeting the requirements of AASHTO M 168 and the following:

##### (1) Grading:

- **Douglas Fir** - Conform to the requirements of either paragraph 80.11 of the current WWPA Grading Rules, or paragraph 131-b of the current WCLIB Grading Rules.
- **Hem-fir** - Conform to the requirements of either paragraph 80.10 of the current WWPA Grading Rules, or paragraph 131-a of the current WCLIB Grading Rules.
- **Southern Yellow Pine** - Conform to the requirements of section 402 of the current Southern Pine Inspection Bureau (SPIB) Grading Rules.

**(2) Preservative Treatment** - Treat timber rail, posts, and blocks, after boring all through holes, according to Section 02190.

**(b) Steel Rail and Plates** - Furnish steel rail, steel splice plates, steel bearing plates, and steel plate washers meeting the requirements of AASHTO M 270, Grade 50W

(ASTM A 709, Grade 50W). Galvanize them according to AASHTO M 111 (ASTM A 123).

**(c) Fasteners and Hardware** - Furnish bolts, nuts, washers, lag screws, and nails meeting the requirements of ASTM A 307. Galvanize them according to AASHTO M 232.

**(d) Coatings** - Furnish white primer and white top coat paints from one of the following manufacturers:

Primer	Sherwin-Williams	A-100 Exterior Oil Stain Blocking Primer
Top Coat	Sherwin-Williams	A-100 Exterior Latex Satin
Primer	Glidden	Stain Stomper Exterior Primer Sealer 2110-1200N
Top Coat	Glidden	FORTIS 350 Exterior Satin Paint 2402
Primer	Miller Paint	Pure Paint Primer
Top Coat	Miller Paint	Acri-Lite Satin 7400 Series

Use the same manufacturer's paint for the primer and the top coat.

Acceptance of material will be according to 00165.35.

### Construction

**00813.40 General** - Coordinate construction of steel backed timber guardrail to hold disturbance of bases, surfacings, and pavements to a minimum.

In areas of new installations, do not leave posts exposed to traffic for more than 24 hours before installing the steel and timber rail elements and anchors.

In areas where existing guardrail will be removed and replaced with new steel backed timber guardrail, either install the new steel backed guardrail the same working shift the existing guardrail is removed or protect the area with temporary precast concrete barrier with appropriate end treatment until the new steel backed timber guardrail is installed.

**00813.41 Excavation and Backfill** - Excavate to the lines, grades, and depths shown or established. Make cuts through pavement with knife-edge cutters or rotary drills. Make cuts below the pavement with augers or other methods that will not disturb abutting areas. Do not damage existing bases and pavements. Remove water and unsuitable material that would impair stability of the backfill, from areas to be backfilled.

In areas of aggregate and paved surface areas, backfill with like materials to the same thickness and density as the adjacent materials. In other areas, backfill with granular backfill materials meeting the requirements of 00330.14. Place all backfill in layers not exceeding 6 inches and compact each layer to a firm, dense condition.

Remove, replace, repair, or restore adjoining areas that become misshapen or disturbed during excavating and backfilling operations. Dispose of excess materials according to 00330.41(a-4).

**00813.42 Installation of Posts and Anchors** - Place posts and anchors as shown. Set posts in excavated holes or drive them in place. If posts are driven through the bases, surfacings, or pavement, repair all damage. Remove and replace posts or anchors damaged during installation with new components. Set all posts to the line, grade, and spacing shown and within a tolerance of  $\pm 1/2$  inch.

**00813.43 Installation of Steel and Timber Rails** - Install steel and timber rails as shown. Field cut timber elements as shown. Coat all field cuts with 3 brush coats of a wood field preservative from the QPL. Do not field cut steel elements.

**00813.44 Coating** - After installation, apply coatings to the entire exposed steel backed timber guardrail assembly according to the manufacturer's recommendations.

- For timber treated, except ACZA, apply coating as follows:
  - Prime with one coat of oil based primer.
  - Finish with two coats of acrylic latex paint.
  
- For ACZA treated timber, do the following:
  - Prepare a test section to determine the number of coats required.
  - At a minimum:
    - Prime with two coats of oil based primer.
    - Finish with two coats of acrylic latex paint.

**Measurement**

**00813.80 Measurement** - The quantities of steel backed timber guardrail will be measured on the length basis from end of rail at terminal anchor to end of rail at terminal anchor. The quantities of steel backed terminal concrete anchors will be measured on the unit basis.

**Payment**

**00813.90 Payment** - The accepted quantities of work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

- (a) Steel Backed Timber Guardrail..... Foot
- (b) Steel Backed Terminal Anchors..... Each

Payment will be payment in full for furnishing and placing all materials, and furnishing all equipment, labor, and incidentals necessary to complete the work as specified.