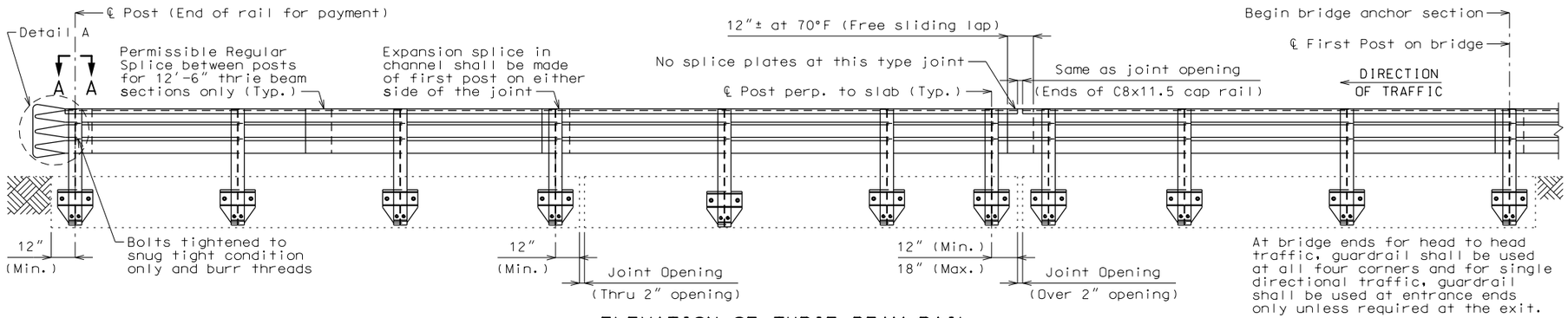
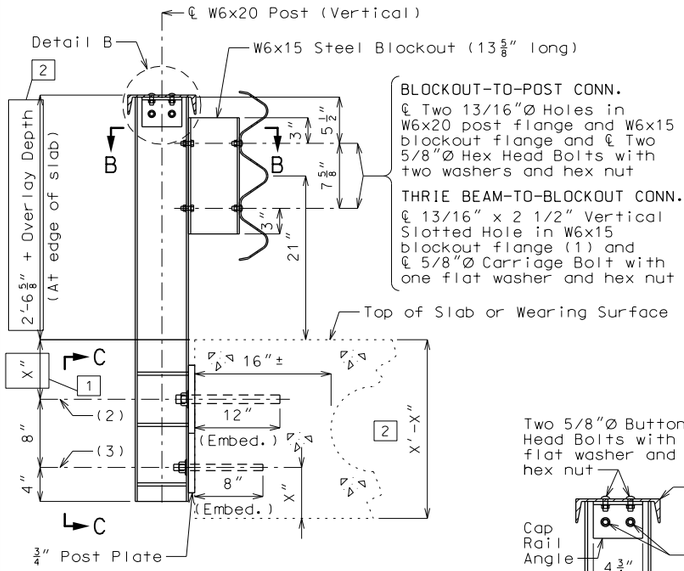


ELEVATION OF THRIE BEAM RAIL



PART SECTION AT RAIL POST

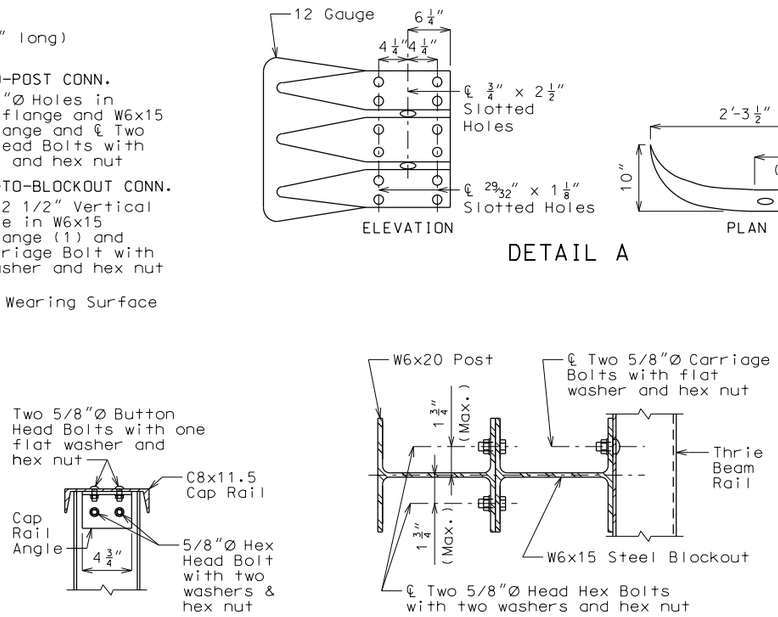
For Elevation C-C see Sheet No. __.

See slab sheet for rail post spacing.

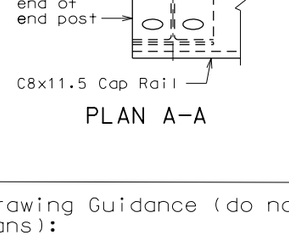
(1) Required on one side of web only, but may be provided on both sides of web at the contractor's option.

(2) ℄ Two Resin Anchor Systems each with a minimum ultimate pullout strength of 72 kip in f'c = 4,000 psi concrete and each to include:
- 1 1/8"Ø (Min.) Drilled Hole in slab or as recommended by manufacturer
- 1 1/4"Ø Hole in post plate and inside post flange
- 1"Ø A449 High Strength Threaded Rod snug tight and embedded 12 inches in slab
- Hex Nut and 2 1/2"Ø Hardened Locking Washer

(3) ℄ Two Resin Anchor Systems each with a minimum ultimate pullout strength of 20.4 kip in f'c = 4,000 psi concrete and each to include:
- 7/8"Ø (Min.) Drilled Hole in slab or as recommended by manufacturer
- 1"Ø Hole in post plate and inside post flange
- 3/4"Ø A449 High Strength Threaded Rod snug tight and embedded 8 inches in slab
- Hex Nut and Hardened Locking Washer



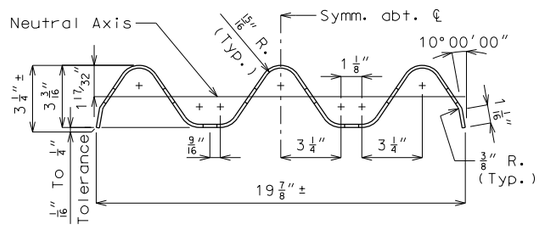
DETAIL A



PLAN A-A

DETAIL B

SECTION B-B



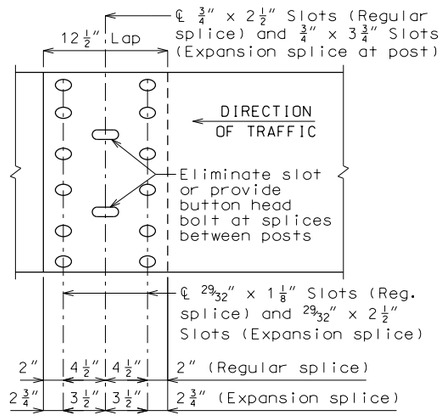
SECTION THRU THRIE BEAM RAIL

Standard Drawing Guidance (do not show on plans):

Design weight of 12-gauge thrie beam bridge rail equals 35 lb/lf.

1 For 22 thru 31-inch voided slab depth, use 10 inches from top of original slab plus overlay depth. For 20-inch voided slab depth, reduce to 8 inches plus overlay depth.

2 Remove and show total of 2'- 6⅝" plus overlay depth; give total depth of slab plus overlay depth.



THRIE BEAM RAIL SPLICE

General Notes:

Design Specifications: 2002 AASHTO LFD (17th Ed.) Standard Specifications

Guardrail delineators shall be attached to the top of the guardrail and shall similarly use the delineator details of Missouri Standard Plan 617.10, except that the delineator body shall be attached to the top of the cap rail using galvanized anchorage as shown on Missouri Standard Plan 606.00. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Guardrail delineators will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

Panel lengths of channel members shall be attached continuously to a minimum of four posts and a maximum of six posts (except at end bents).

All bolts, nuts, washers and plates will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

All steel connecting bolts and fasteners for posts and railing, and all anchor bolts, nuts, washers and plates shall be galvanized after fabrication. Protective coating and material requirement of steel railing shall be in accordance with Sec 1040.

Rail posts shall be set perpendicular to roadway profile grade, vertically in cross section and aligned in accordance with Sec 713 except that the rail posts shall be aligned by the use of 3 x 1 3/4-inch shims such that the post deviates not more than 1/2 inch from true horizontal alignment after final adjustment. The shims shall be placed between the blockout and the thrie beam rail. The thickness of the shims shall be determined by the contractor and verified by the engineer before ordering material for this work.

At the expansion slots in the thrie beam rails and channels, the bolts shall be tightened and backed off one-half turn and the threads shall be burred.

At the thrie beam connection to blockout on wings, the bolts shall be tightened and backed off one-half turn and the threads shall be burred.

Minimum length of thrie beam sections is equal to one post space.

A 5/8-inch diameter button-head, oval shoulder bolt with a minimum 3/8-inch thick hex nut shall be used at all slots.

Thrie beam guardrail on the bridge shall be 12-guage steel.

Posts, cap rail angles, post plates, channels and channel splice plates shall be fabricated from ASTM A709 Grade 36 steel and galvanized.

Flat washers 3 x 1 3/4 x 3/16-inch minimum shall be used at all post bolts between the bolt head and beam. The washers shall be rectangular in shape with an 11/16 x 1-inch slot, or when necessary of such design as to fit the contour of the beam. Rectangular washers 3 x 1 3/4 x 5/8-inch shall be used between the blockout and the thrie beam rail.

Special drilling of the thrie beam may be required at the splices. All drilling details shall be shown on the shop drawings.

Fabrication of structural steel shall be in accordance with Sec 1080.

Expansion splices in the thrie beam rail shall be made at either the first or second post on either side of the joint and on structure at bridge ends. When the splice is made at the second post, an expansion slot shall be provided in the thrie beam rail for connection to the first post to allow for movement.

In addition to the expansion provisions at the expansion joints, expansion splices in the thrie beam rail and the channel shall be provided at other locations so that the maximum length without expansion provisions does not exceed 200 feet.

Shim plates 6 x 6 x 1/16-inch may be used between the top of the post and the channel member as required for vertical alignment.

Shim plates shall be galvanized after fabrication.

Contractor shall verify all dimensions in field before ordering materials.

See Missouri Standard Plan 606.00 for details not shown.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 8/1/2019

ROUTE * | STATE MO

DISTRICT BR | SHEET NO. *

COUNTY *

JOB NO. *

CONTRACT ID.

PROJECT NO.

BRIDGE NO. THRIE 2A

DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Designed
Detailed
Checked

Note: This drawing is not to scale. Follow dimensions.

Sheet No. of