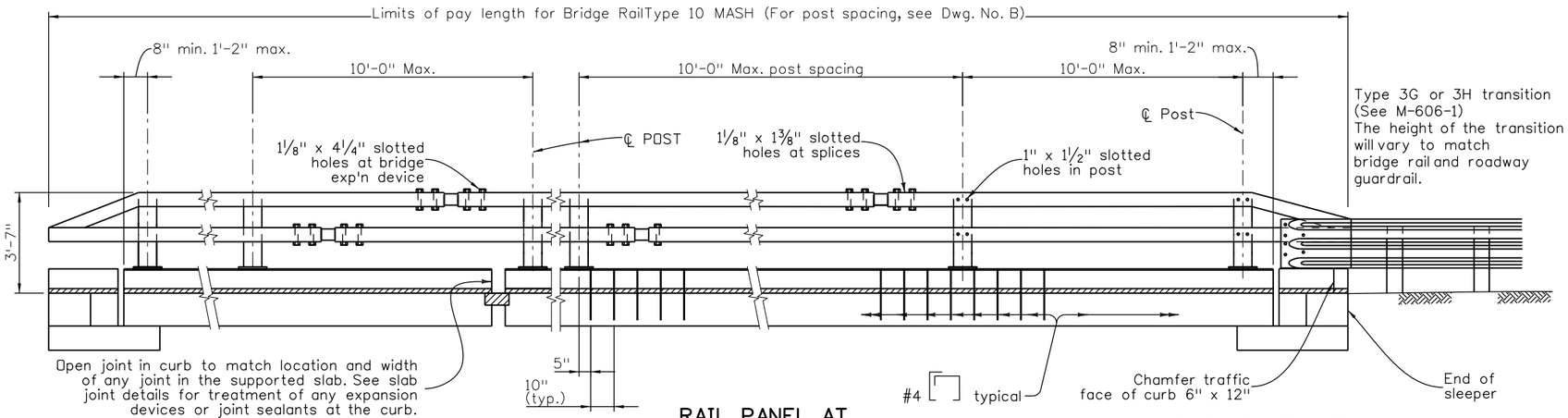


RAIL PANEL AT TERMINAL SECTION

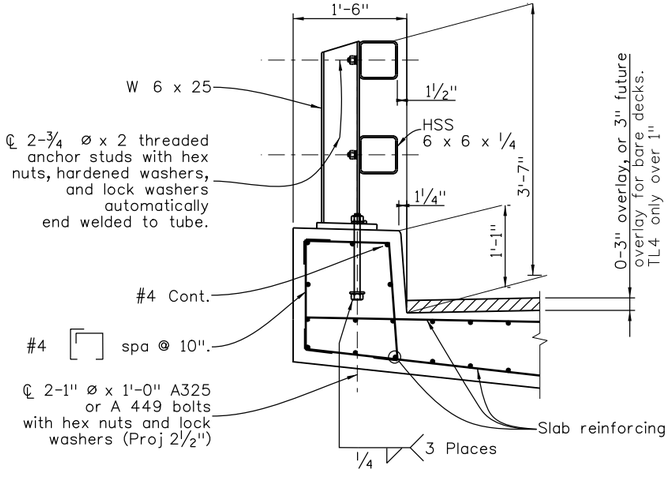
(See Roadway plans for ends not attached to Guard Rail.)

RAIL PANEL AT EXPANSION DEVICE

ELEVATION - BRIDGE RAIL

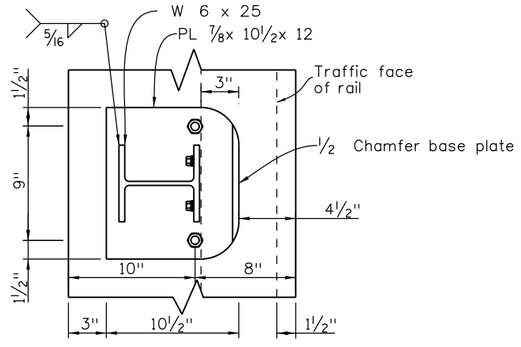
RAIL PANEL AT TRANSITION SECTION

(See roadway plans for ends requiring attachment to guard rail.)

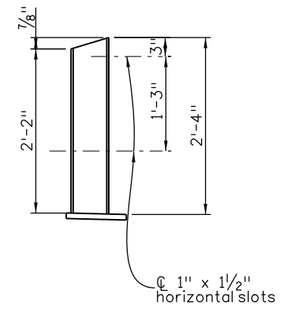


SECTION

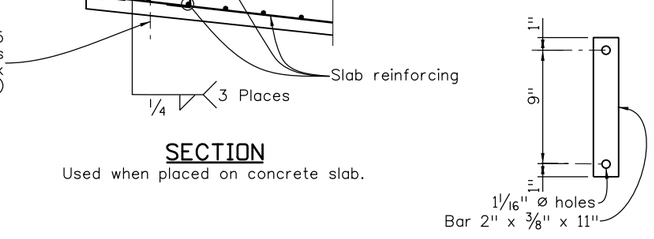
Used when placed on concrete slab.



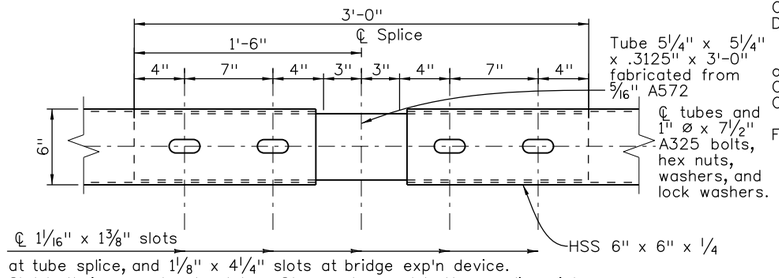
PLAN - POST DETAIL



ELEVATION



ANCHOR DETAIL



at tube splice, and 1⅛" x 4¼" slots at bridge exp'n device.
Slot both inner and outer tubes. Stagger top and bottom splices into different post spacings except at expansion joint, place at opposite ends of same post space. (Range of motion = 1'-0" at bridge expansion device.)

PLAN - TUBE SPLICE

NOTES:

All tubes shall be ASTM A-500 Grade C or ASTM A-1085.
All posts, base plates, and splice tubes fabricated by welding shall be ASTM A-572 Grade 50.
All other steel shall be ASTM A-36 unless otherwise noted.

The above material and all anchor bolts and miscellaneous bolts, nuts, and washers shall be galvanized after fabrication in accordance with Section 509. Concrete, reinforcing steel, and structural steel elements shall conform to the requirements of sections 601, 602, and 509, respectively.

Post anchor, encased in concrete, shall be ASTM A-36 (AASHTO M-183) steel and need not be galvanized.

The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,800 feet.

Tubes shall be continuous over not less than two posts, preferably 4 posts. No welded butt splices will be allowed in the tube sections.

The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.

All bolts that have lock washers shall be tightened to snug only.

Posts shall be perpendicular to the longitudinal roadway grade.

One or more 10'-0" post spaces may be reduced (6'-8" min.) in order to maintain dimensions from the end of the rail and expansion joints.

The top and inside face of the curb shall receive a coating of Item 515, Concrete Sealer, either a silane/siloxane, or a type consistent with the sealer used on the deck concrete.

Payment will be made under item 606, Bridge Rail type 10 MASH, for all posts, post anchors, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, curb concrete (Class D), curb reinforcing steel, curb concrete sealer, and reflector tabs.

Prior to fabrication of this item, three sets of working drawings which comply with the requirements of section 105, shall be submitted to the Engineer for information only.

Structural Steel:
AASHTO M270 Gr 36 (ASTM A709 Gr 36) fy = 50 ksi
AASHTO M270 Gr 50 (ASTM A992 Gr 50) fy = 50 ksi
COLD FORMED ASTM A500 GRADE C or ASTM A1085 fy = 50 ksi
Design: AASHTO MASH 2016 TL-5 for overlay thickness up to 1"
AASHTO MASH 2016 TL-4 for overlay thickness over 1" and resulting in a height of the top of rail over pavement of 36"
Curb Concrete: Class D, F'c 4.5 ksi
Curb Reinforcing Steel: ASTM A995 (2205 or 316LN), fy = 75 ksi min.
ASTM A1035 (Grade 100), fy = 100 ksi min.
For additional details see next rail sheets.

INFORMATION ONLY

DESCRIPTION	UNIT	PER LIN. FT.
Structural Steel (Galvanized)	LB.	48.9
Concrete Class D (Bridge)	CU.YD.	0.059
Reinforcing Steel (Epoxy Coated)	LB.	7.4

(Preliminary Stage Only)

Revision Dates	
12/17	

Quantities	INITIAL	DATE
Quantities By	XXX	MM/YY
Checked By	XXX	MM/YY

Detail	INITIAL	DATE
Detailed By	XXX	MM/YY
Checked By	XXX	MM/YY

Design	INITIAL	DATE
Designed By	XXX	MM/YY
Checked By	XXX	MM/YY

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Print Date: 12/11/2017	Sheet Revisions		
File Name: Sheet_B-606-10MASH.dgn	Date:	Comments	Init.
Horiz. Scale: NTS Vert. Scale: As Noted			
Staff Bridge Branch - Unit 022X Unit Leader Initials			

Colorado Department of Transportation
4201 East Arkansas Avenue
Room 107
Denver, CO 80222
Phone: 303-757-9309 FAX: 303-757-9197
Staff Bridge Branch Initials

As Constructed	BRIDGE RAIL TYPE 10 MASH			Project No./Code
No Revisions:				Project Number
Revised:	Designer: XXXXXXXX	Structure Numbers	X-XX-XX	Code
Void:	Detailer: XXXXXXXX		X-XX-XX	
	Sheet Subset: BRIDGE	Subset Sheets: BXX of XXX		Sheet Number