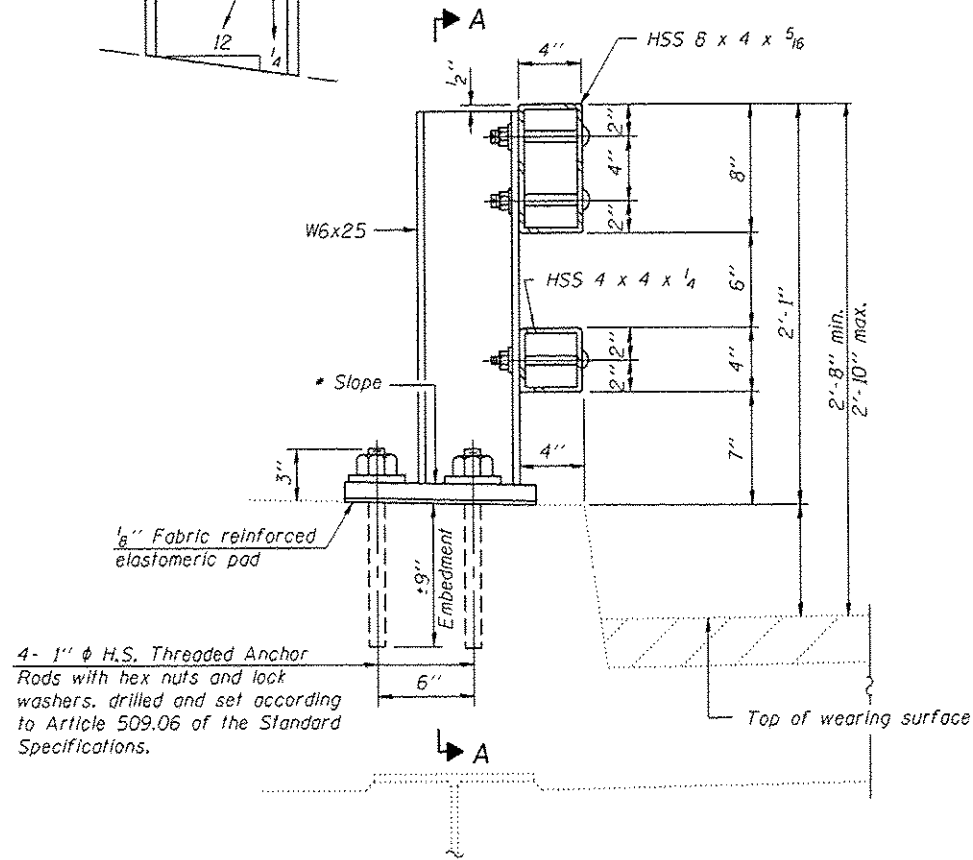
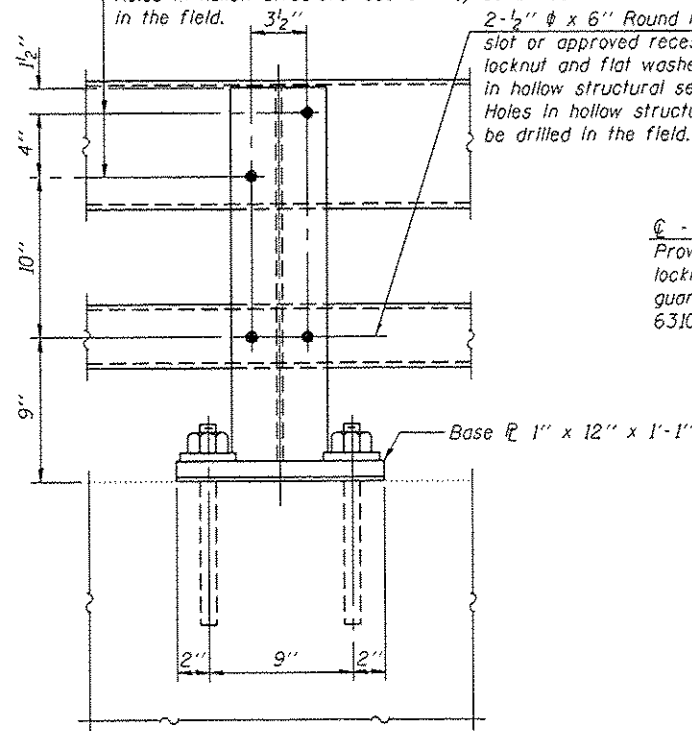


\* Cut bottom end of post to curb slope.



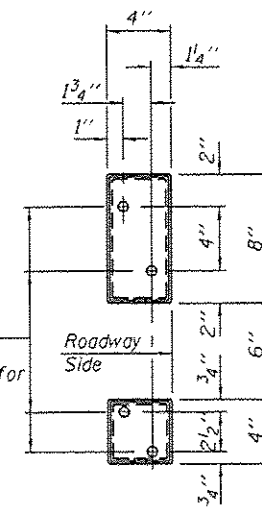
SECTION AT RAIL POST

2-3/4"  $\phi$  x 6" Round Head Bolts (With slot or approved recess in head.) with locknut and flat washer. 7/8"  $\phi$  Holes in tubing and posts. Holes in hollow structural section may be drilled in the field.

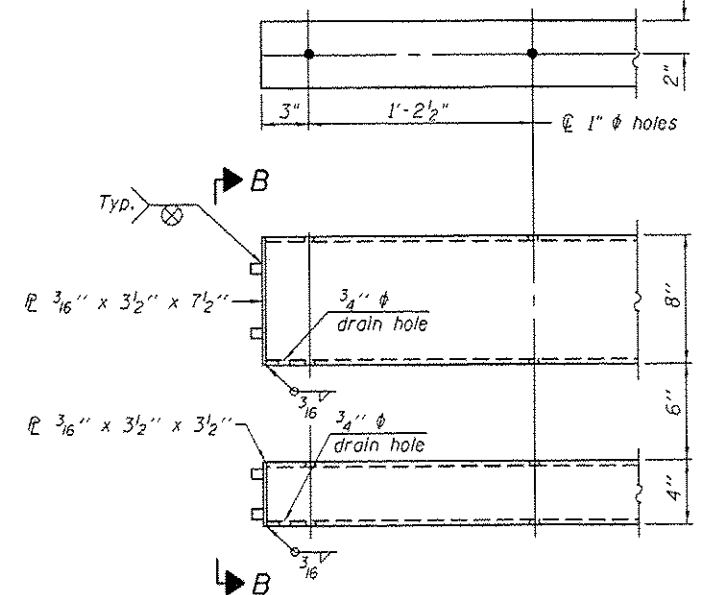


SECTION A-A

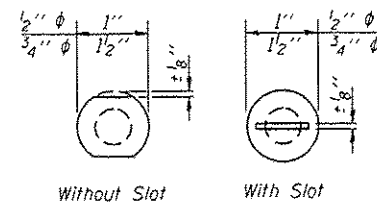
$\phi$  - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.



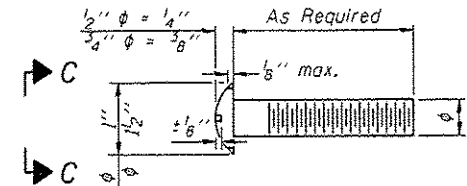
VIEW B-B



END OF RAIL DETAILS

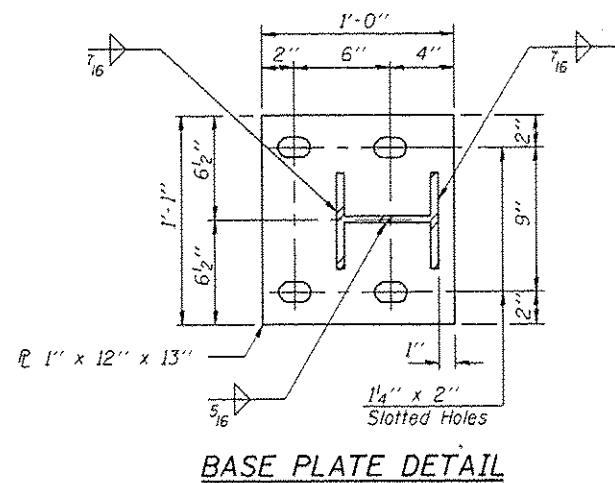


VIEW C-C

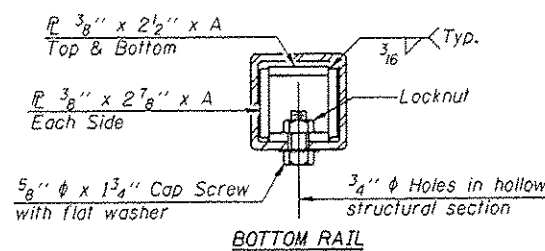


DETAIL OF 1/2"  $\phi$  & 3/4"  $\phi$  ROUND HEAD BOLTS

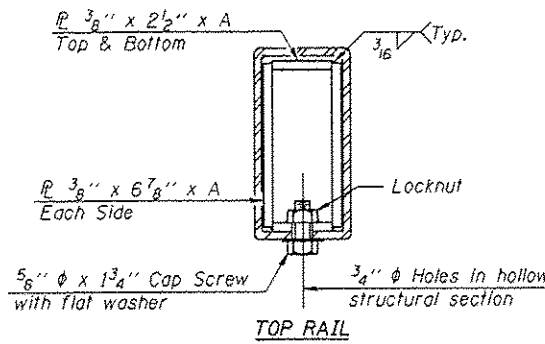
4- 1"  $\phi$  H.S. Threaded Anchor Rods with hex nuts and lock washers, drilled and set according to Article 509.06 of the Standard Specifications.



BASE PLATE DETAIL

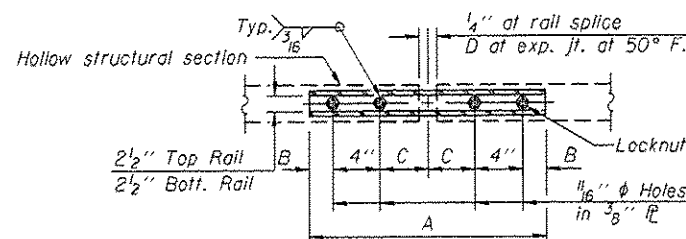


BOTTOM RAIL

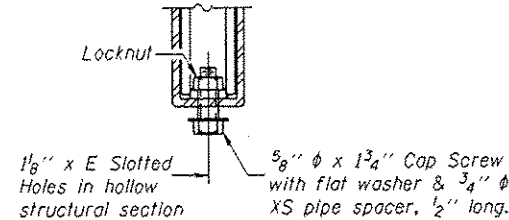


TOP RAIL

SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE R TYPICAL



RAIL SPLICE CONNECTION AT EXPANSION JT.

Notes:

- All field drilled holes shall be coated with an approved zinc rich paint before erection.
- Posts shall not be located closer than 1'-3" to an existing bridge expansion joint or end of bridge.
- Steel Bridge Rail expansion joint shall be provided between any two (2) posts which span a bridge expansion joint. Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow rolling movement.
- Provide one 1/8" and two 1/16" steel shims for 25% of the posts. Shims shall be similar to base plates in size and holes.
- All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 1/2"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	—

T = Total movement at expansion joint as shown on the design plans.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Rolling, Type 2399	Foot	375

R-31

7-1-10

(6'-3" Maximum Post Spacing)

DESIGNED - GCE  
CHECKED - SMR  
DRAWN - Kyle M. Stoffen  
CHECKED - GCE SMR

EXAMINED  
ACTING ENGINEER OF STRUCTURAL SERVICES  
PASSED  
ACTING ENGINEER OF BRIDGES AND STRUCTURES

DATE - AUGUST 18, 2014

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE 2399  
SN 060-0029 (EB) & 0030 (WB)

SHEET NO. 7 OF 8 SHEETS

F.A.I. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.  
TO 60-(11,12)RS-3 MADISON 242 194  
CONTRACT NO. 76F13  
ILLINOIS FED. AID PROJECT