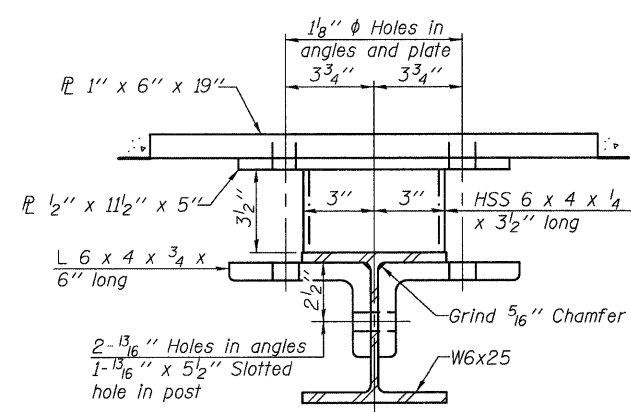
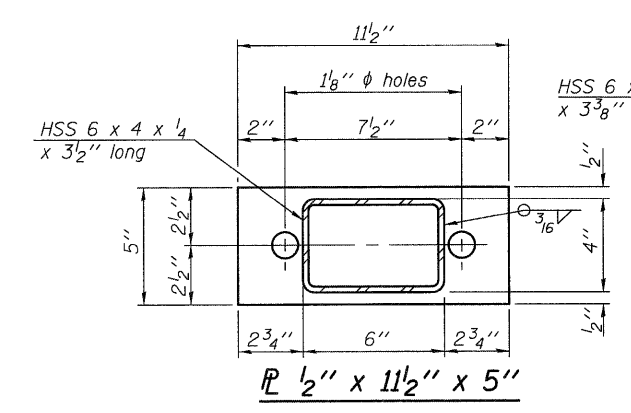


**SECTION A-A**

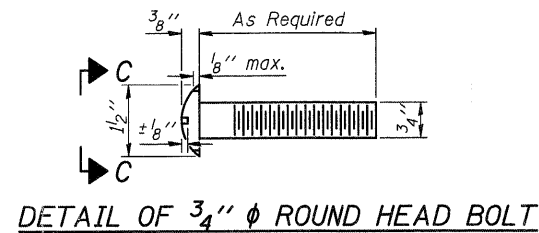


**SECTION B-B**

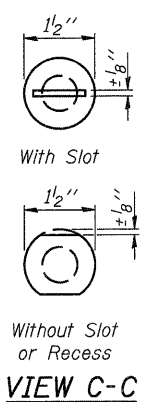


**SECTION AT RAIL POST**

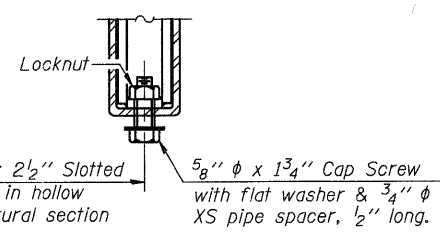
\*\*\* "Top of beam" and "CWS varies" refers to the PPC deck beams and the concrete wearing surface. This detail shall also be used for mounting SM Rail posts on the approach slabs.



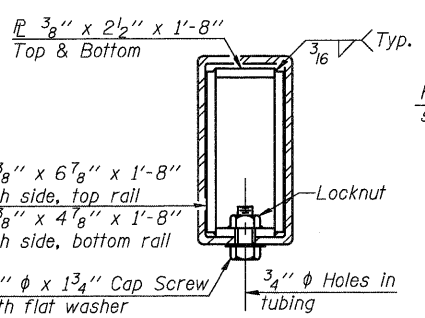
**DETAIL OF 3/4" ϕ ROUND HEAD BOLT**



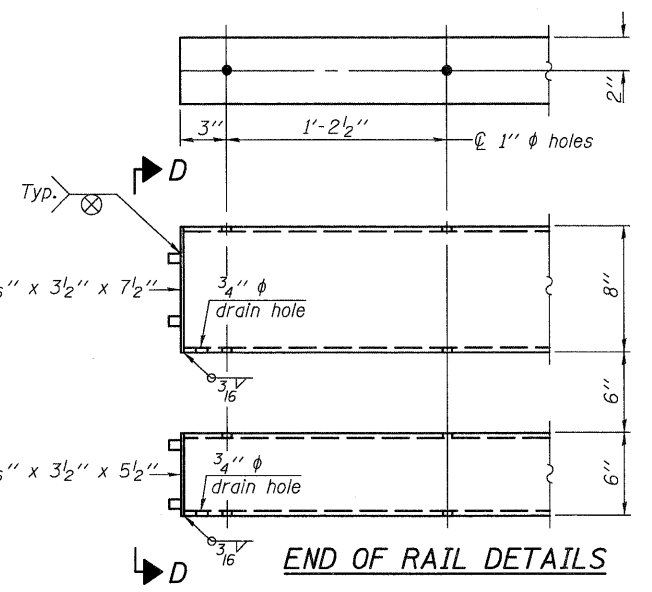
**VIEW C-C**



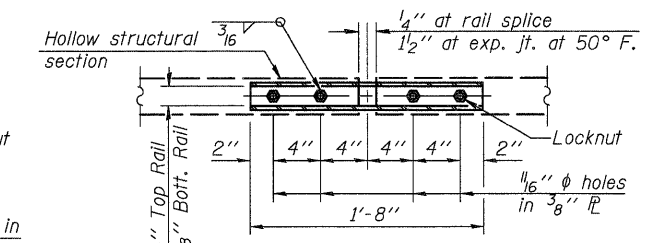
**RAIL SPLICE CONNECTION AT EXPANSION JT.**



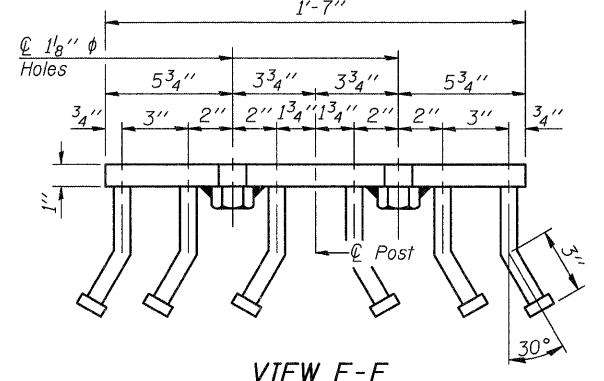
**SECTION AT RAIL SPLICE**



**END OF RAIL DETAILS**

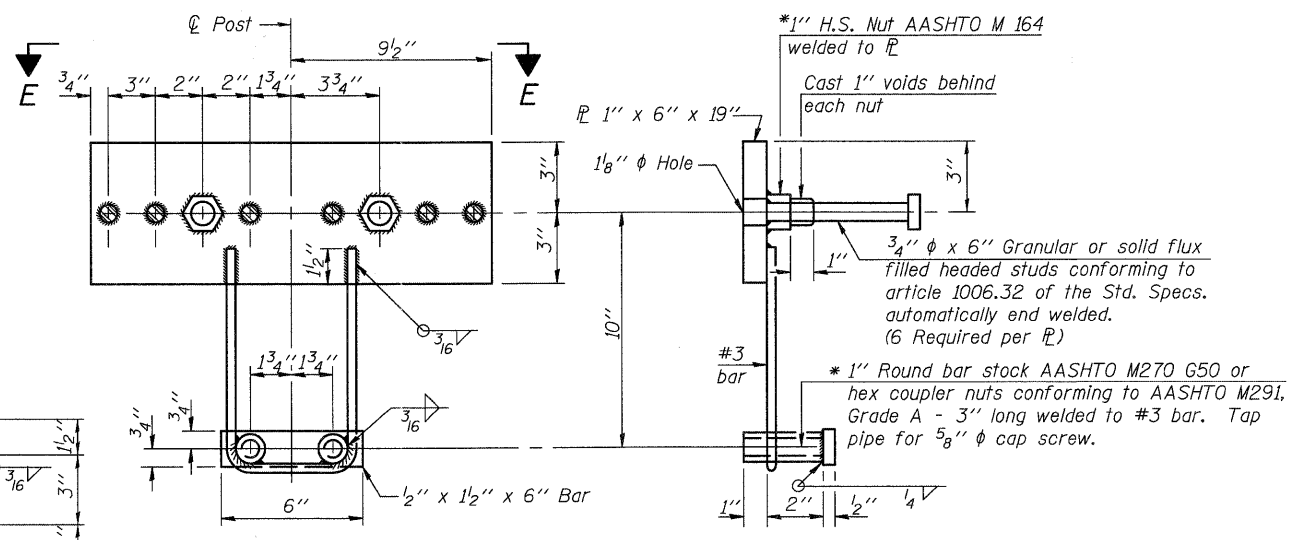


**PLAN-BOTT. SPLICE TYPICAL**



**VIEW E-E**

Notes:  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.  
 Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
 \*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



**ANCHOR DEVICE**

\*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type SM	Foot	188

R-34CWS

7-1-10 (6'-3" Maximum Post Spacing) (5" minimum to 7 1/8" maximum CWS thickness)

FILE NAME = P:\CIBBEL WEST Projects\2009\09-0873 Hopper\11\Structural\1\Drawings\Rail\Rail1.Dwg

**WILLS BURKE KELSEY ASSOCIATES LTD.**  
 116 West Main Street, Suite 201  
 St. Charles, Illinois 60174

USER NAME = nparr1s	DESIGNED - DLS	REVISED -
PLOT SCALE =	CHECKED - AEU	REVISED -
PLOT DATE = 12/16/2011	DRAWN - DLS	REVISED -
	CHECKED - AEU	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE SM  
 STRUCTURE NO. 045-3180**

SHEET NO. 9 OF 17 SHEETS

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2442	04-08107-00-BR	KANE	80	43
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 63644	