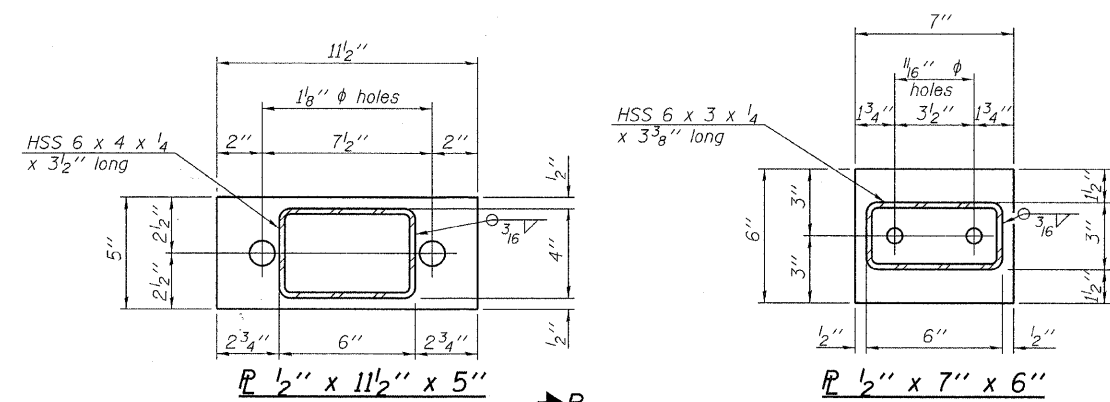
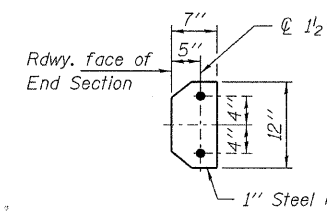


**VIEW A-A  
ROUND HEAD BOLT**

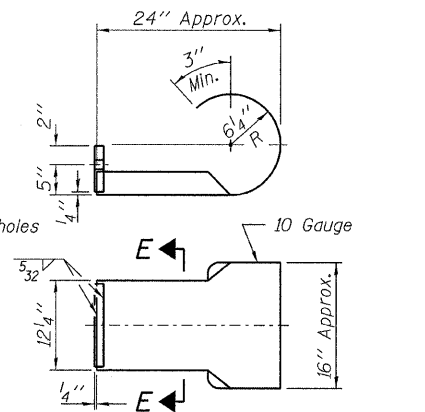


**PL 1/2" x 11 1/2" x 5"**      **PL 1/2" x 7" x 6"**

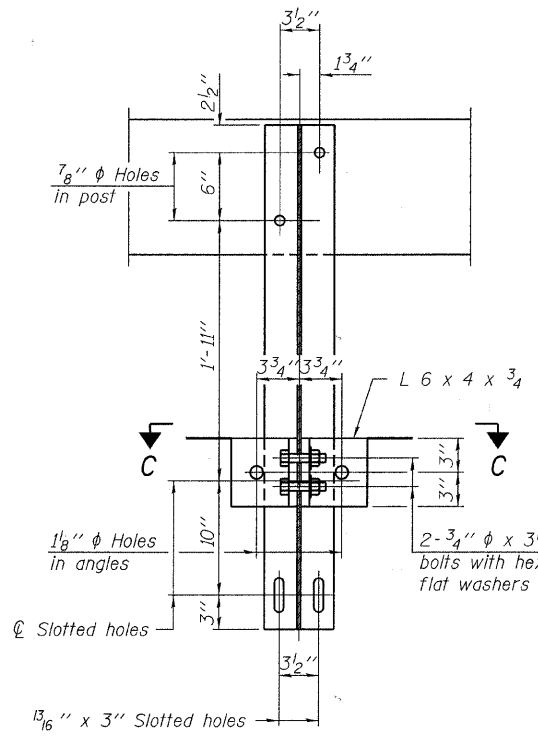
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



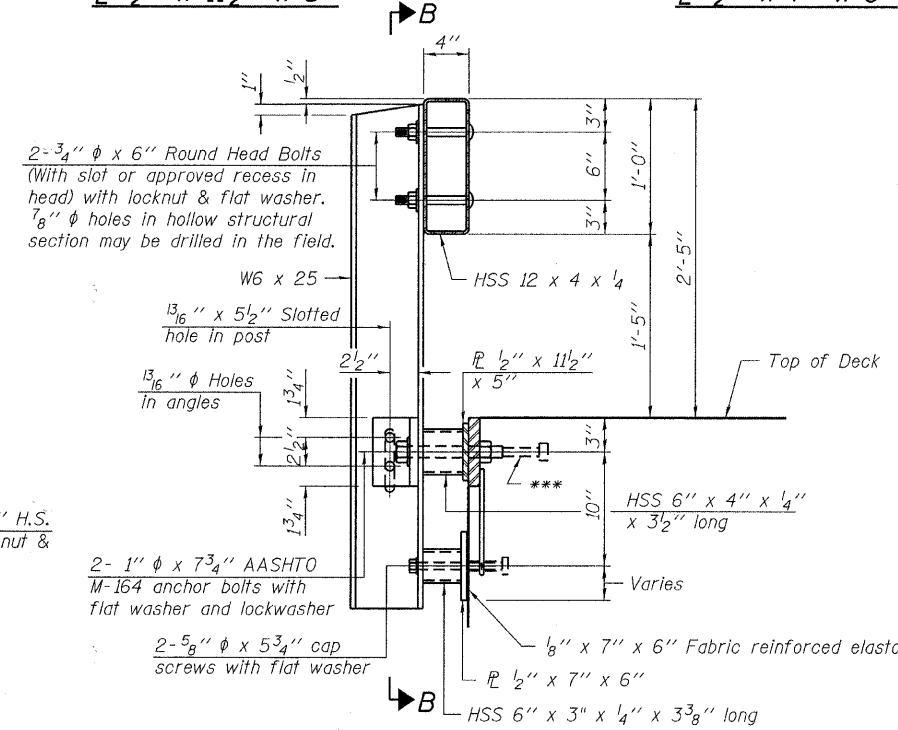
**SECTION E-E**



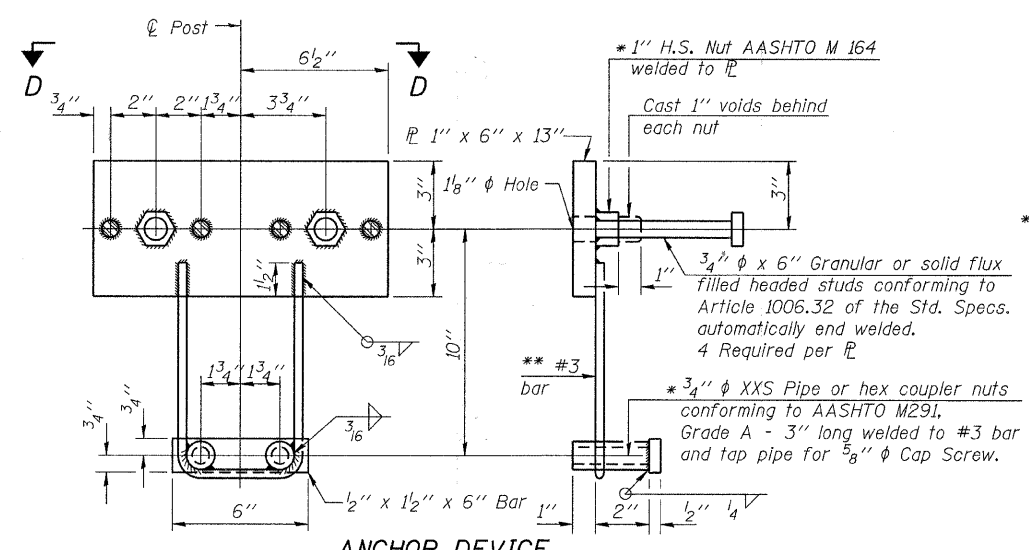
**CURLED END SECTION DETAILS**



**SECTION B-B**

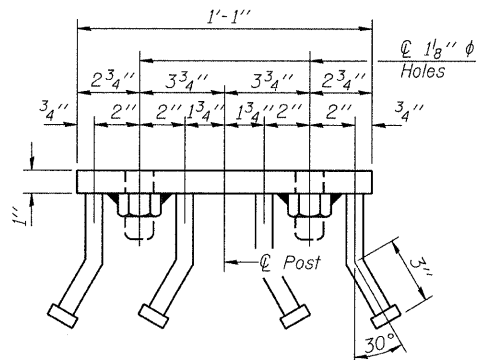


**SECTION AT RAILING POST**

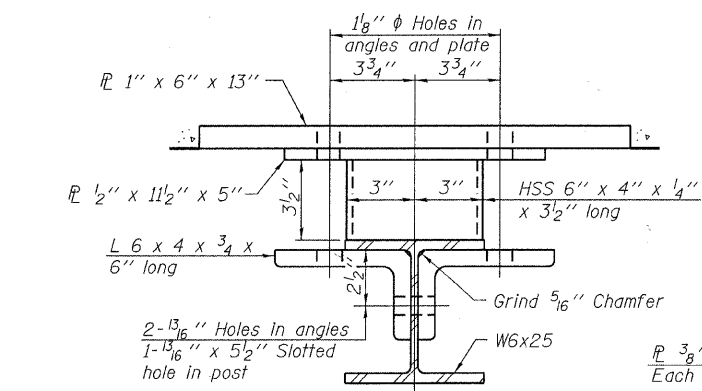


**ANCHOR DEVICE**

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 S-1.  
All 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.

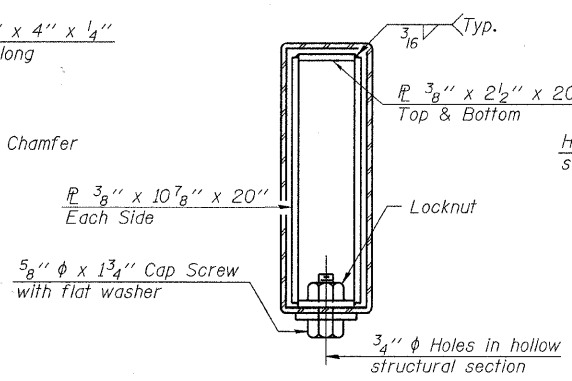


**VIEW D-D**

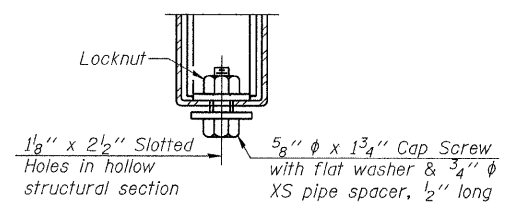


**SECTION C-C**

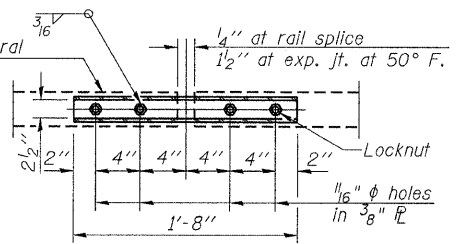
\*\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



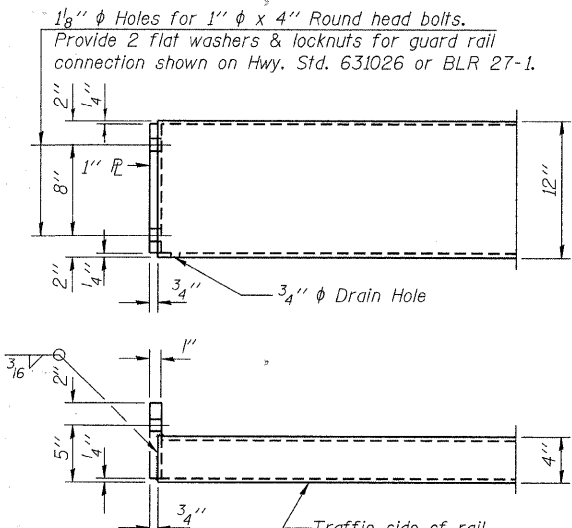
**SECTIONS AT RAIL SPLICE**



**RAIL SPLICE CONNECTION AT EXPANSION JT.**



**PLAN-BOTT. SPLICE PL TYPICAL**



**END OF RAIL DETAILS**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	140

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 087-3570**

DESIGNED - A.S.L.
CHECKED - S.W.M.
DRAWN - D.T.M.
CHECKED - S.W.M.

R-23A

11-1-09

(10'-9" Maximum Post Spacing)

**HAMPTON, LENZINI AND RENWICK, INC.**  
CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS  
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SPRINGFIELD, ILLINOIS 62703  
217.546.3400 www.hlrengineering.com

184.00095  
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION  
PROJECT NUMBER: 09.0135.130      DATE: 02/08/10

SHEET NO. 5	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
9 SHEETS	231	09-23113-00-BR	SHELBY	20	16
		TOWER HILL ROAD DISTRICT		CONTRACT NO. 95631	
		FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	BROS-173(171)	