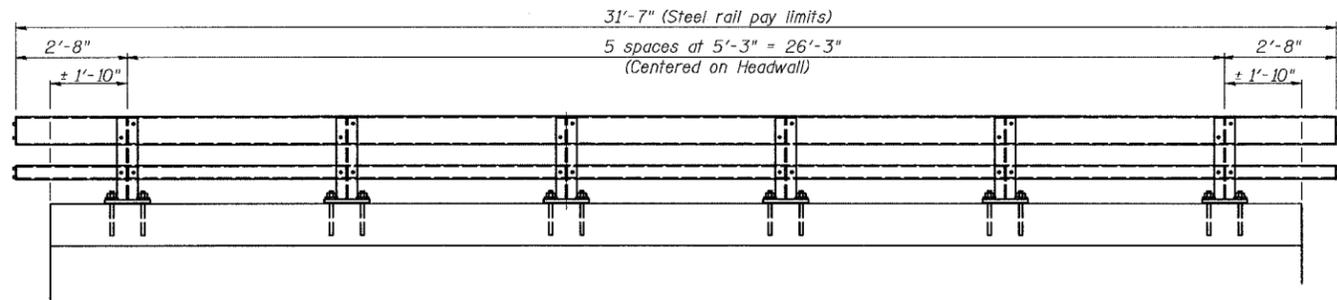
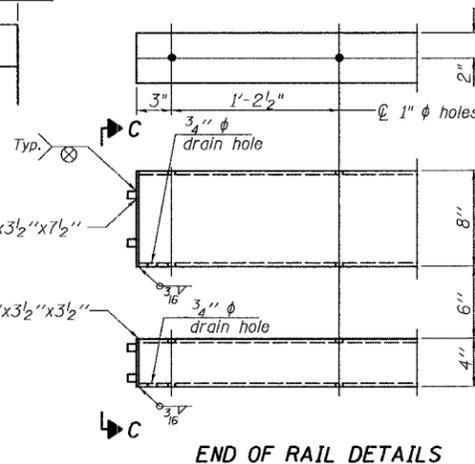


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

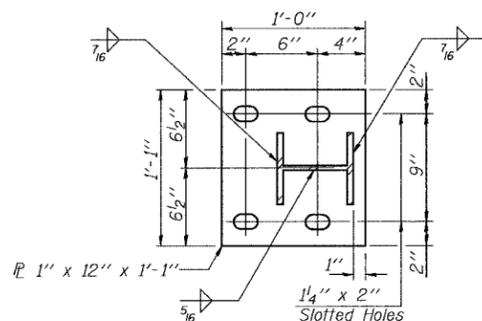
ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET	SHEET NO. 4 5 SHEETS
F.A.U. 9296	65BR	MONROE	22	12	
FED. ROAD DIST. NO. 7	ILLINOIS		FED. AID PROJECT - CONTRACT NO. 76387		



ELEVATION-BRIDGE RAIL

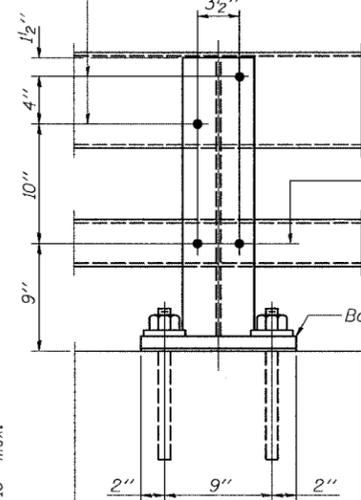


END OF RAIL DETAILS



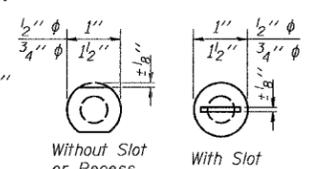
BASE PLATE DETAIL

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



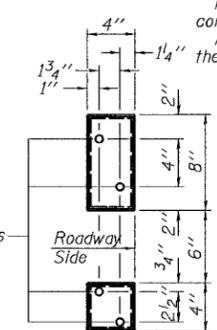
SECTION A-A

2-1/2" φ x 6" Round Head Bolts (With slot or approved recess in head.) with locknut and flat washer.
5/8" φ Holes in hollow structural section and post. Holes in hollow structural section may be drilled in the field.



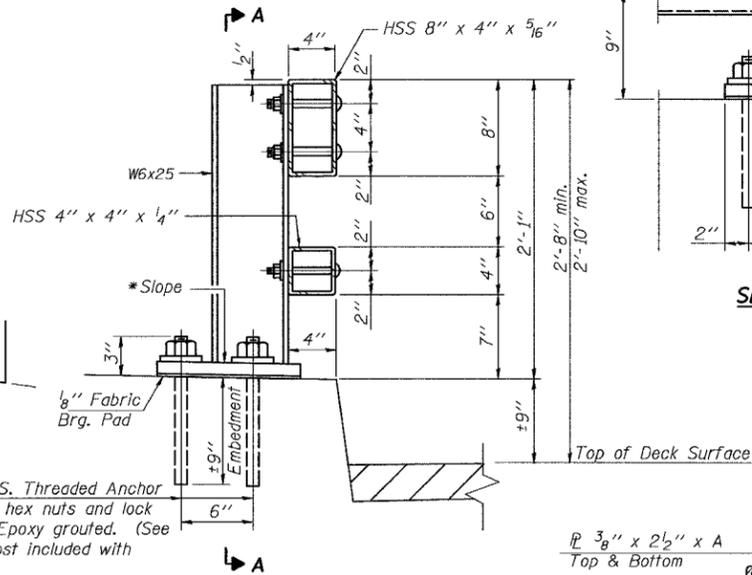
VIEW B-B

4-5/8" 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



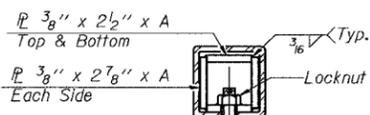
VIEW C-C

*Cut bottom end of post to curb slope.

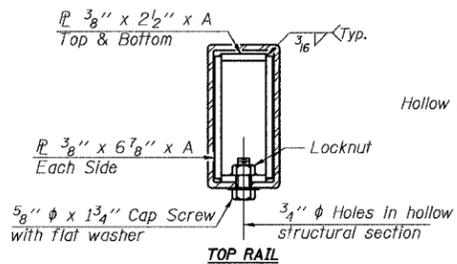


SECTION AT RAIL POST

4-1" φ H.S. Threaded Anchor Rods with hex nuts and lock washers, Epoxy grouted. (See Notes) Cost included with railing.



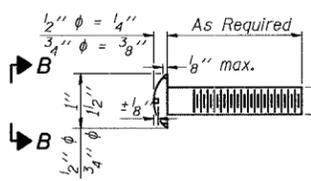
BOTTOM RAIL



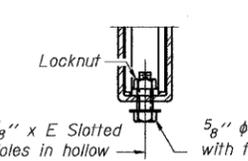
TOP RAIL

SECTIONS AT RAIL SPLICE

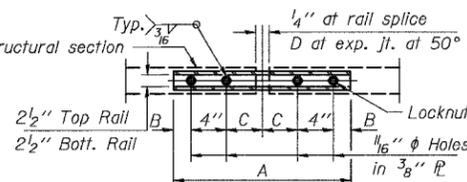
(6'-3" Maximum Post Spacing)



DETAIL OF 1/2" φ & 3/4" φ ROUND HEAD BOLTS



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE TYPICAL

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500, Grade B, Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0°F.
All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts shall conform to AASHTO M 270, Grade 50.
Bolts, cap screws and nuts shall conform to the requirements of ASTM designation A 307 except that threaded rods, nuts and washers shall conform to AASHTO M 164.
All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.
All posts, railing, rail splices and anchor rods shall be galvanized after shop fabrication according to AASHTO M 111. Galvanized rail shall not be painted.
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail.
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 railing 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.
The Contractor shall use the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures. The capsule or the adhesive cartridge shall be sealed with pre-measured amounts of the adhesive chemical.
Nuts for 1" φ threaded anchor rods connecting the base plate to the concrete shall be tightened to a snug fit and given an additional 1/8 turn.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type 2399	Foot	63

SPLICE DIMENSIONS

T	D	A	B	C	E
≤4"	2 1/2"	1'-8"	2"	4"	2 1/2"
>4" ≤6 1/2"	3 3/4"	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 1/4"	1'-8"	2"	4"	—

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

STEEL BRIDGE RAIL
CURB MOUNTED (2399)
OLD IL ROUTE 3
OVER
HILL LAKE CREEK
F.A.U. ROUTE 9296
SECTION 65BR
MONROE COUNTY
STATION 26+34
STRUCTURE NO. 067-0041

BENTON & ASSOCIATES, INC.
Consulting Engineers / Land Surveyors
1970 West Lafayette Ave. Jacksonville, IL 62650
Phone: 217-245-4146 Fax: 217-245-4149
IL Design Firm Registration No. 184-000852

DESIGNED	- LEL
CHECKED	- REG
DRAWN	- LEL
CHECKED	-