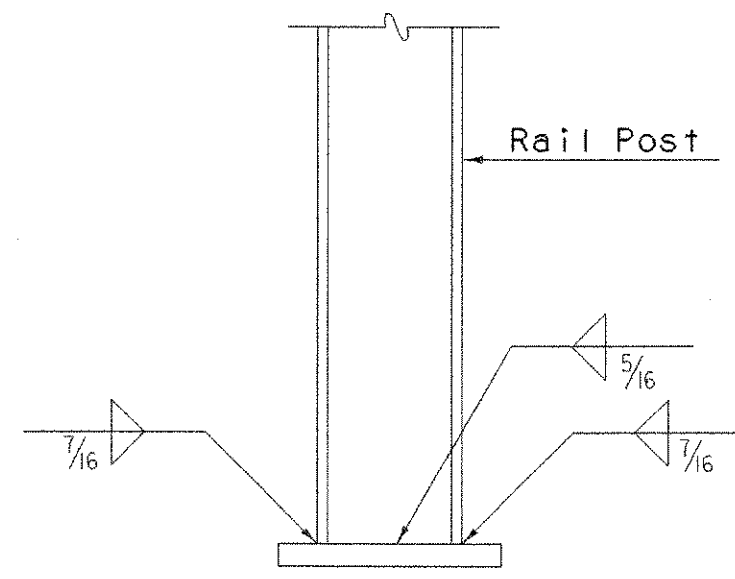
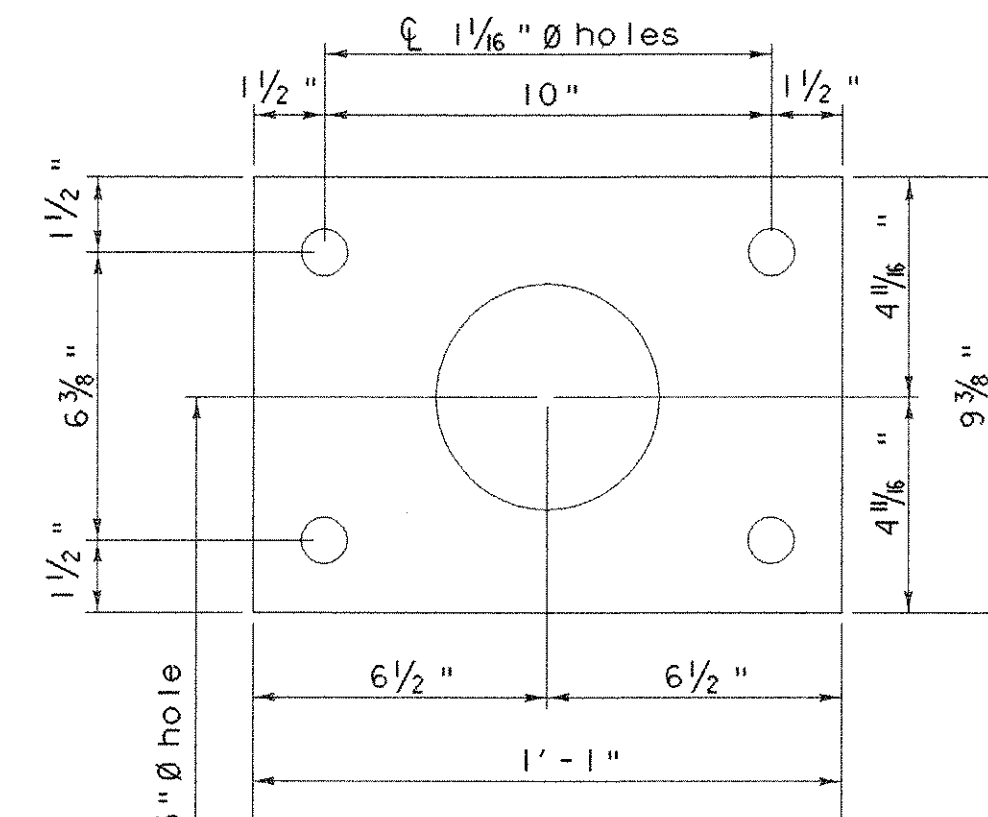


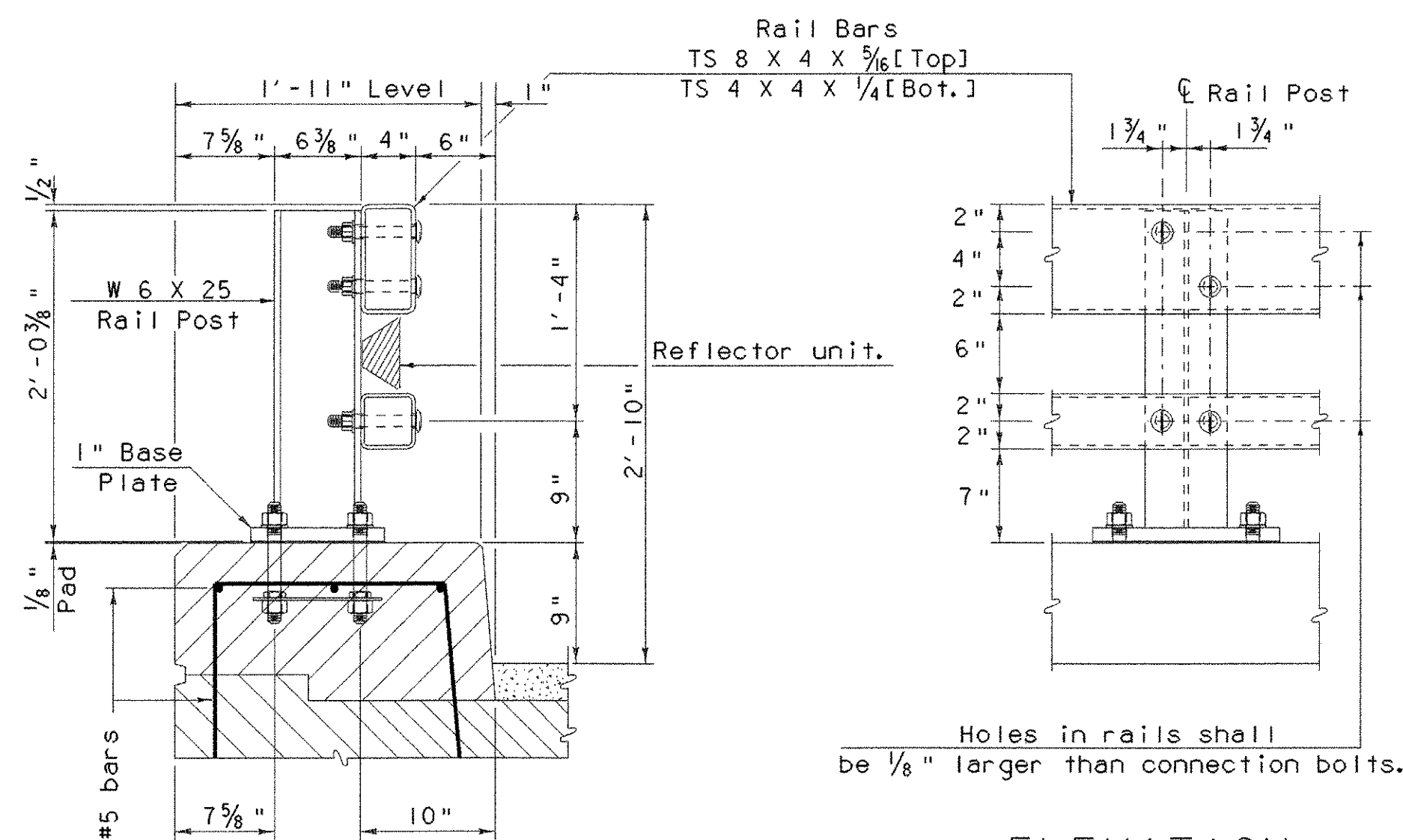
BRIDGE RAILING ELEVATION



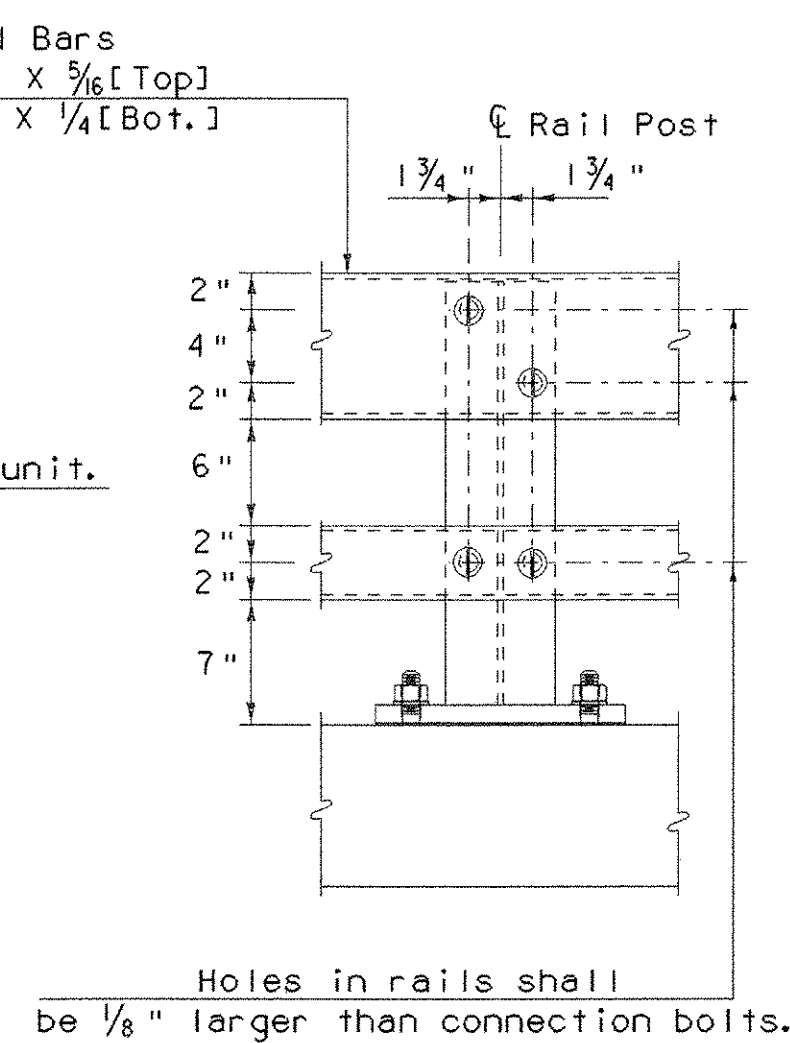
BASE WELD DETAIL



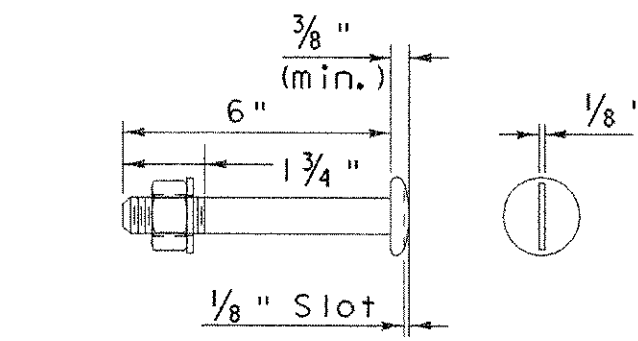
SPACER PLATE



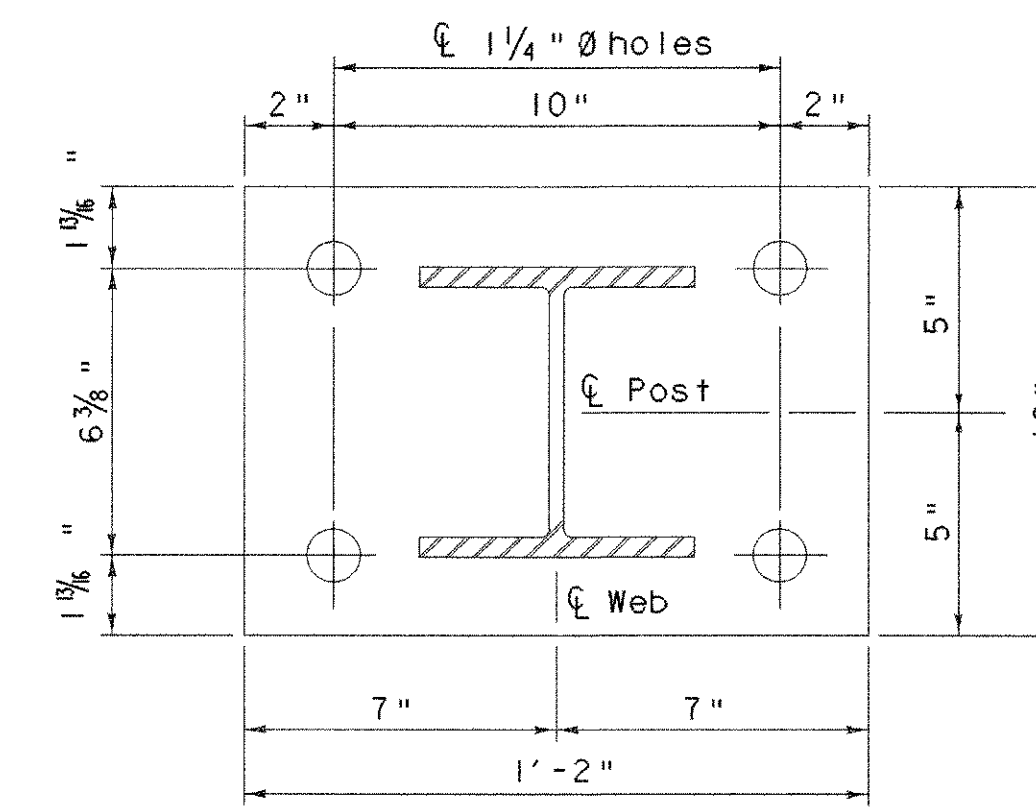
TYPICAL SECTION



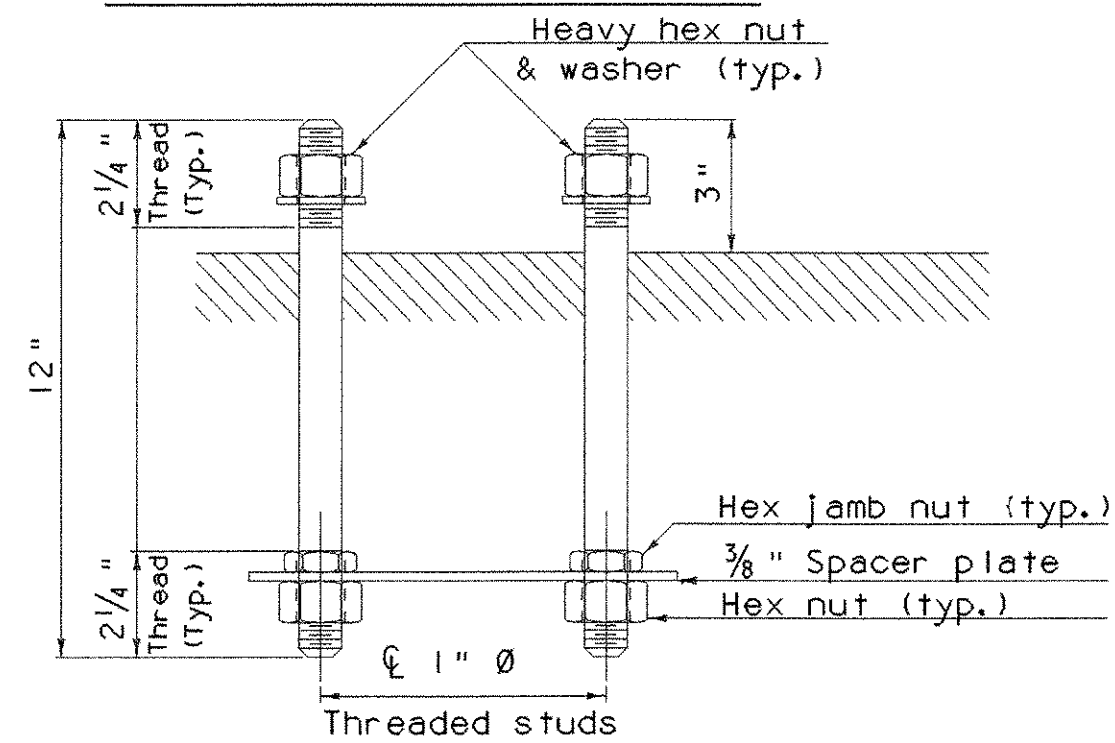
ELEVATION



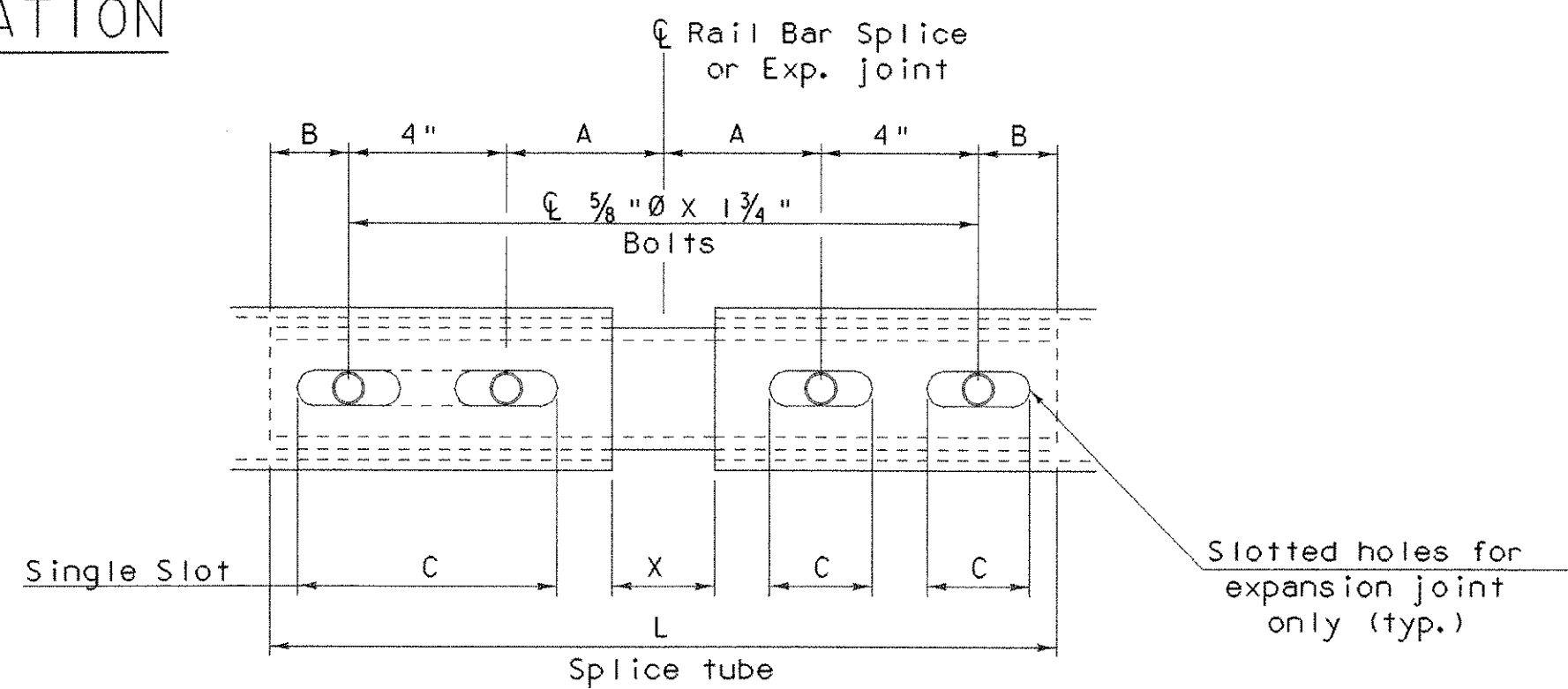
3/4" Ø M164 (TYPE 1) ROUND HEAD BOLT  
[with washer & prevailing torque type lock nut]  
[See note No. 9]  
Only full diameter body bolts will be allowed



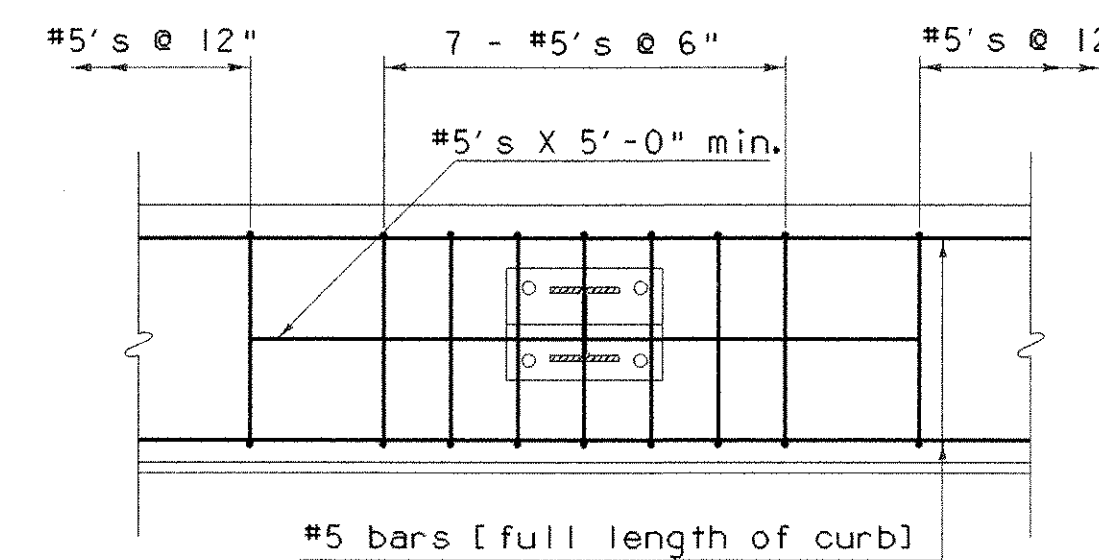
POST & BASE PLATE



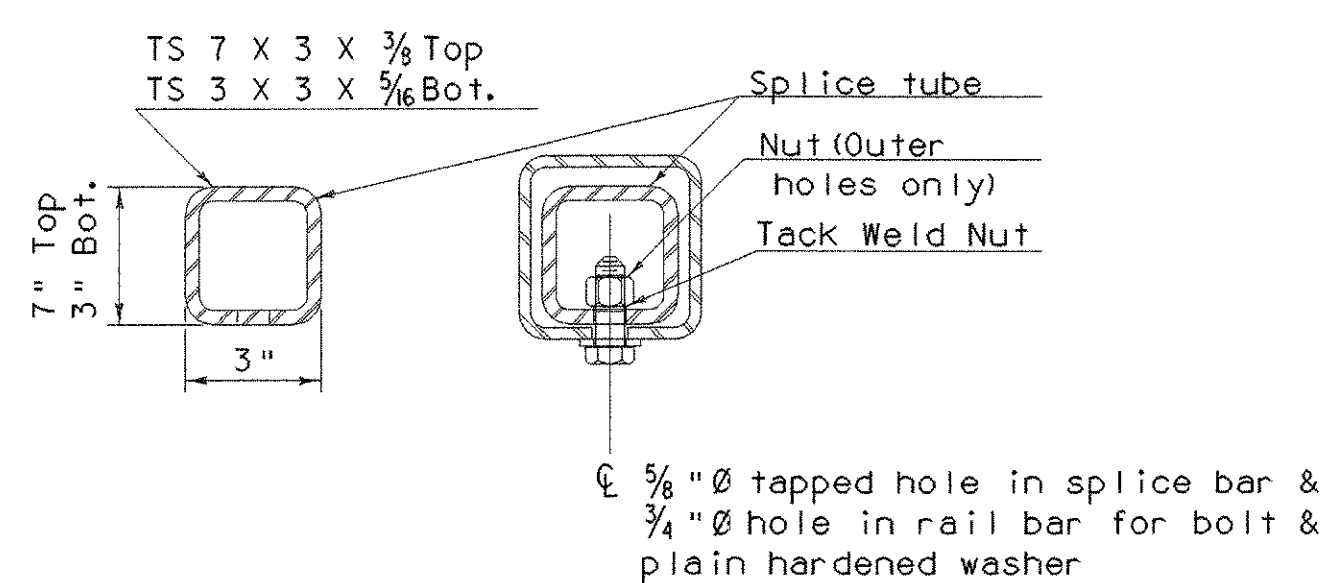
RAIL POST ANCHORAGE



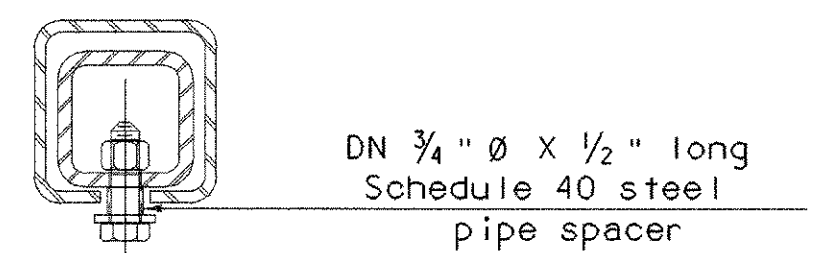
RAIL BAR SPLICE & RAIL EXP. JOINT DETAIL  
[Bottom View]



CURB REINFORCING PLAN



RAIL BAR SPLICE SECTION



EXPANSION JOINT SECTION

For details not shown, see "Rail Bar Splice Section"

SPLICE & EXPANSION JOINT TABLE					
T	A	B	C	L	X
Splice	4"	2"	--	20"	3/4"
≤ 4"	4"	2"	2 1/2"	20"	2 1/2"
> 4" ≤ 6 1/2"	5 1/2"	2 3/8"	3 1/2"	23 3/4"	4"
> 6 1/2" ≤ 9"	6 1/2"	3 3/8"	9"*	27 3/4"	5"
> 9" ≤ 13"	8 1/2"	4 3/8"	11"*	33 3/4"	7"

T = Total Movement \* = Single Slot

NOTES

- All work and materials shall conform to the provisions of Section 525 - Railings of the Standard Specifications for Construction.
- Tubing and posts shall meet the requirements of Section 732 - Railing materials of the Standard Specifications for Construction.
- All exposed cut or sheared edges shall be rounded to a 1/16" radius and be free of burrs.
- Rail posts shall be set normal to grade.
- Sections of rail bar shall be attached to a minimum of two [2] rail posts and preferably to at least four [4] posts.
- Rail bar expansion joints shall be provided in any rail bay spanning a superstructure expansion joint. Expansion joint width shall be "X" at 45 °F and will be adjusted in the field by the Engineer.
- All parts shall be galvanized after fabrication in accordance with AASHTO M111, except that hardware shall meet the requirements of AASHTO M232.
- Rail posts anchoring nuts shall be tightened to a snug fit and given an additional 1/8 turn.
- Rail bars shall be attached using 3/4" full diameter body AASHTO M164 (Type 1) round head bolts inserted through the face of the bar. Holes in posts shall be 1/16" larger than the bolt size.
- Holes in rails for rail bar attachment may be field - drilled. Holes shall be coated with an approved zinc - rich paint prior to erection.
- If there is a conflict between these Standard Details and the Design Drawings, the requirements of the Design drawings shall be followed.
- Any bending of rail shall be by shop procedure only.
- The fabricator shall submit shop drawings including welding procedures to the Structures Section for approval in accordance with the provision of 506.04, shop drawings. All welding shall conform with section 506.10.
- The drop-weight tear test in section 732 shall not apply to the structural tubing on this sheet.

MATERIALS

Rail bars.....ASTM A500, Grade B or ASTM A501  
 Rail posts.....ASTM A709/A709M, Grade 50  
 All other shapes & plates.....ASTM A709/A709M, Grade 36  
 Anchor studs.....ASTM A449  
 All other bolts [unless noted].....AASHTO M164, TYPE 1

Nuts for AASHTO M164 bolts shall comply with AASHTO M291. Nuts for anchor studs shall comply with ASTM A563.

Washers shall comply with AASHTO M293 (ASTM F436) specification.

1/8" pad shall comply with standard specification subsection 731.01 or 731.02.

Set screws for delineation devices shall conform to ASTM Specification F880, condition CW, Alloy Type 304.

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of FAIRFAX-FAIRFIELD-ST. ALBANS Bridge No. 87 N & S  
 Highway No. I-89 Log Sta. Surv. Sta.

I-89 OVER VT 104

NETC RAIL DETAILS (1)

Designed By VAOT Drawn By VAOT  
 Checked By VAOT Date Bridge Design Supervisor  
 R. R. WHITCOMB Date 2/00

PROJECT FAIRFAX-FAIRFIELD-ST. ALBANS PROJECT NO. 1M 089 -3 (27)

I.G.C. Info. 96a056Structures\sa056br1.dgn sa056br1

Bridge Sheet No. BR216 Sheet 97 of 370