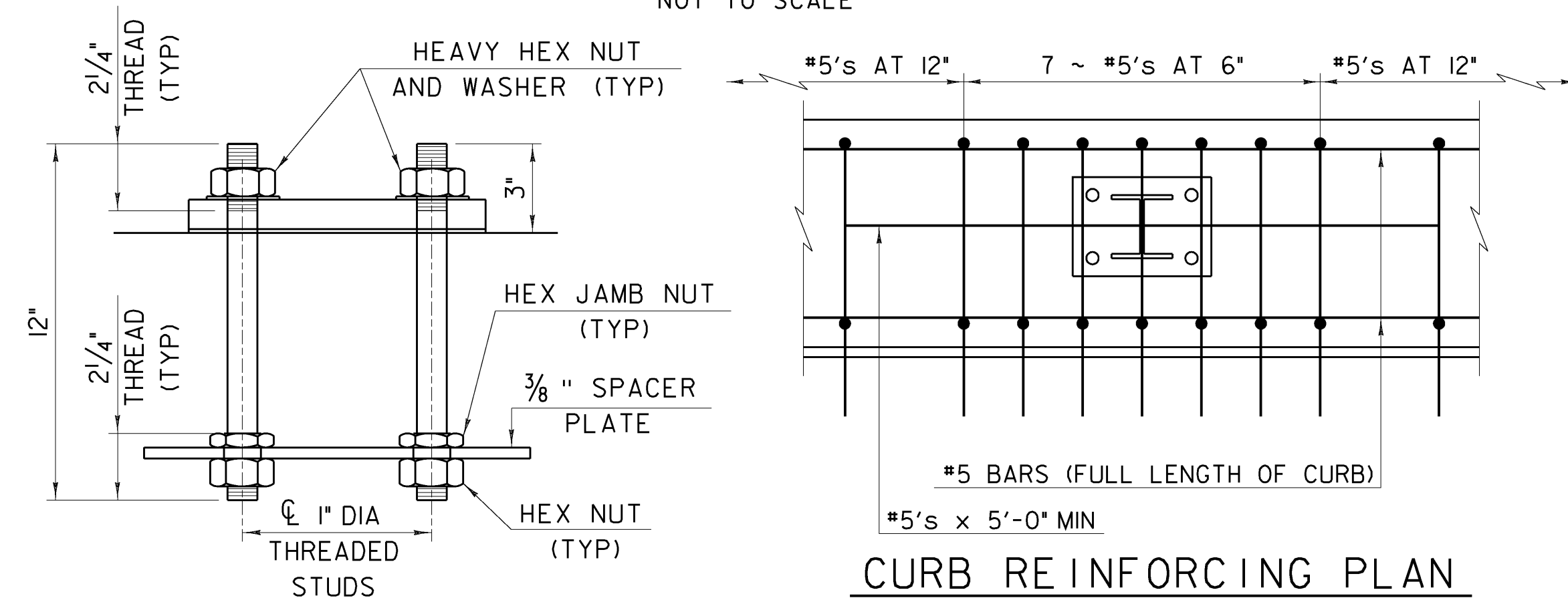
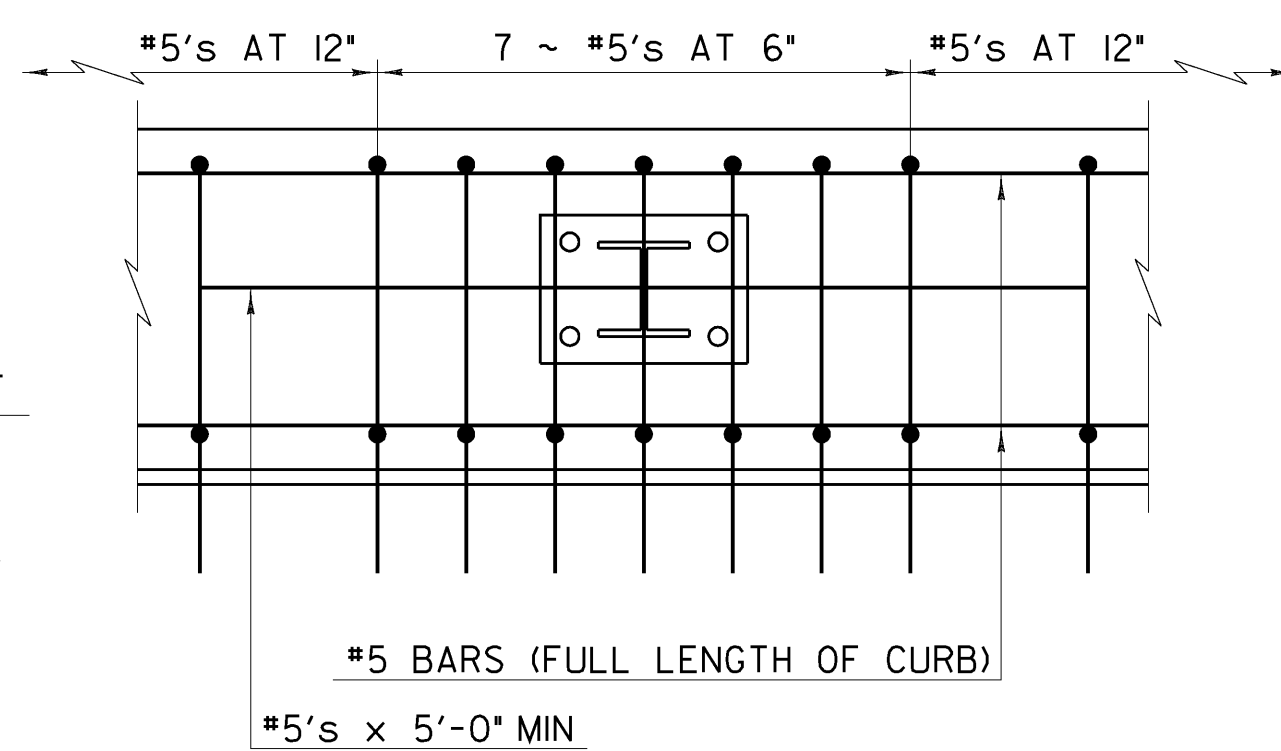


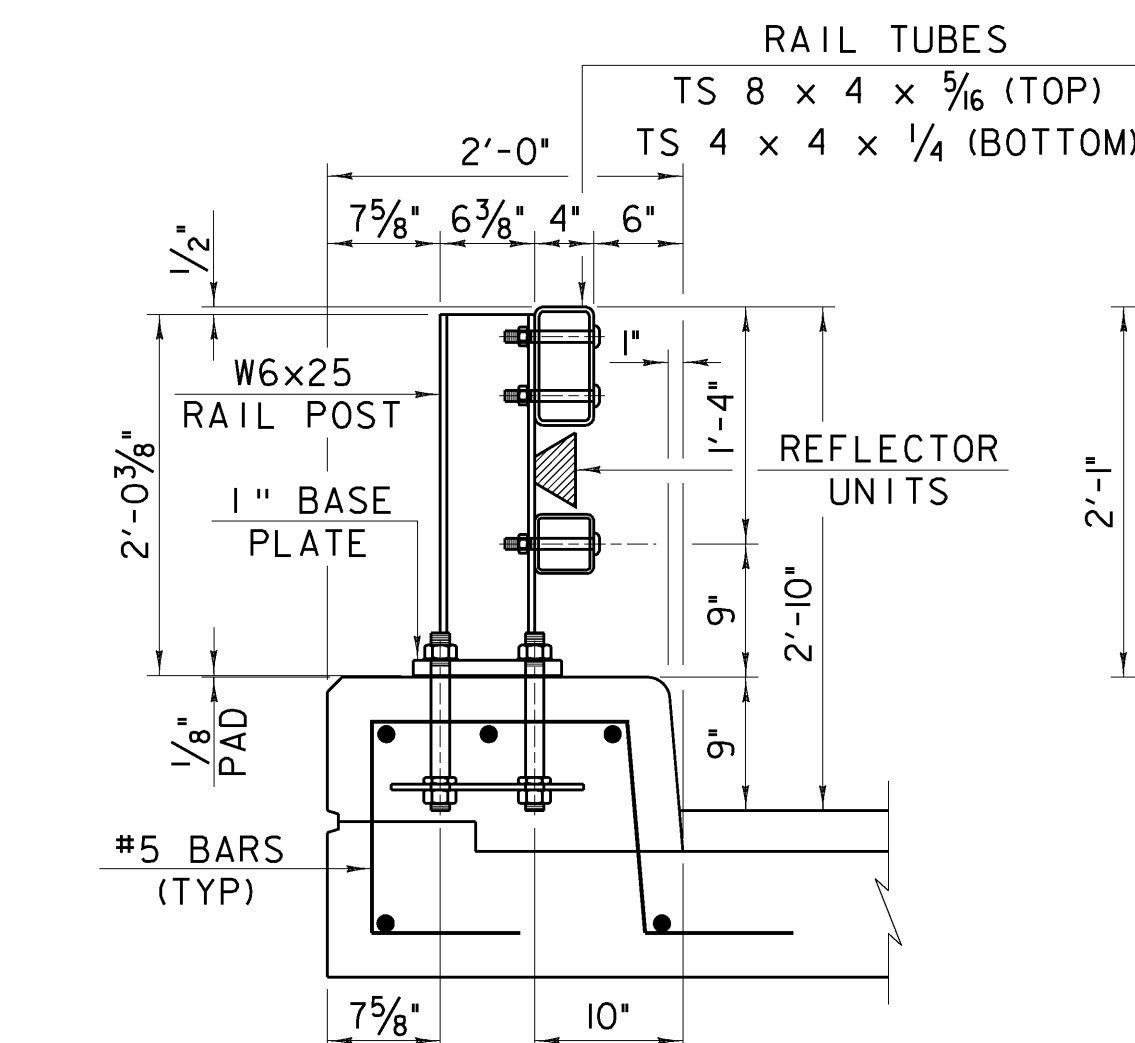
**BRIDGE RAILING ELEVATION**  
NOT TO SCALE



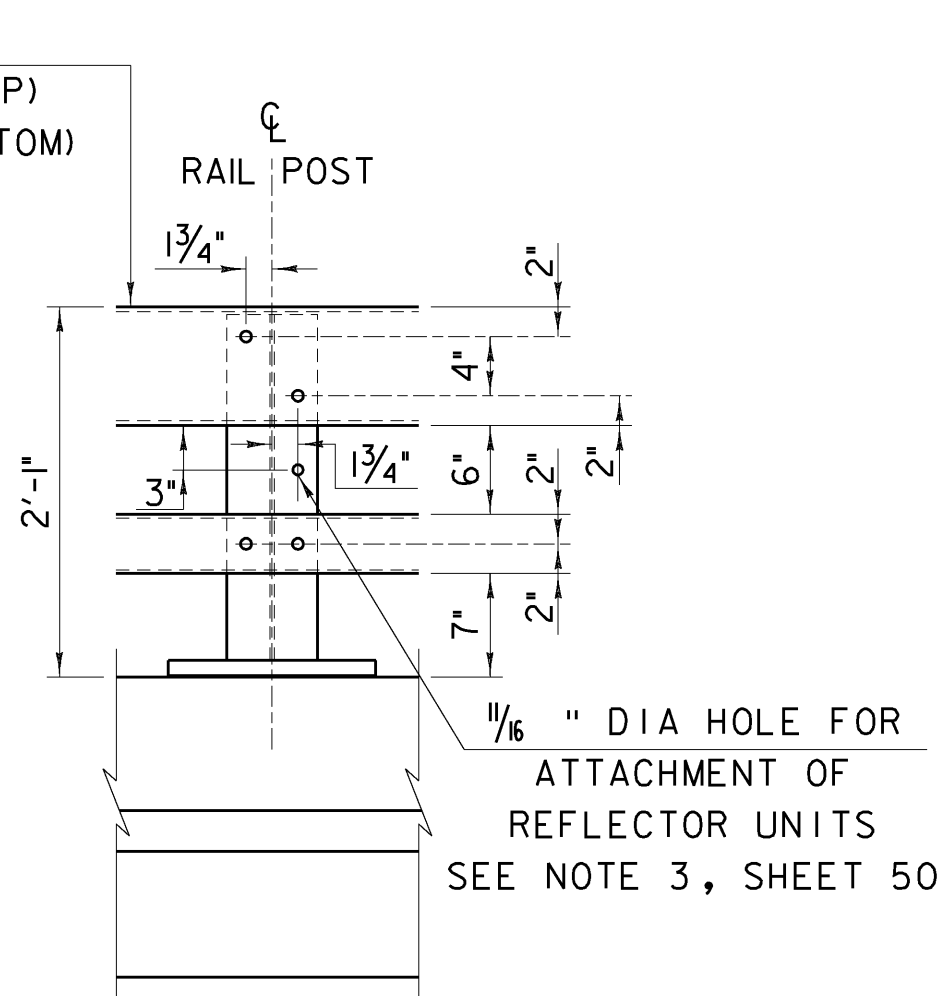
**RAIL POST ANCHORAGE**  
NOT TO SCALE



**CURB REINFORCING PLAN**  
NOT TO SCALE



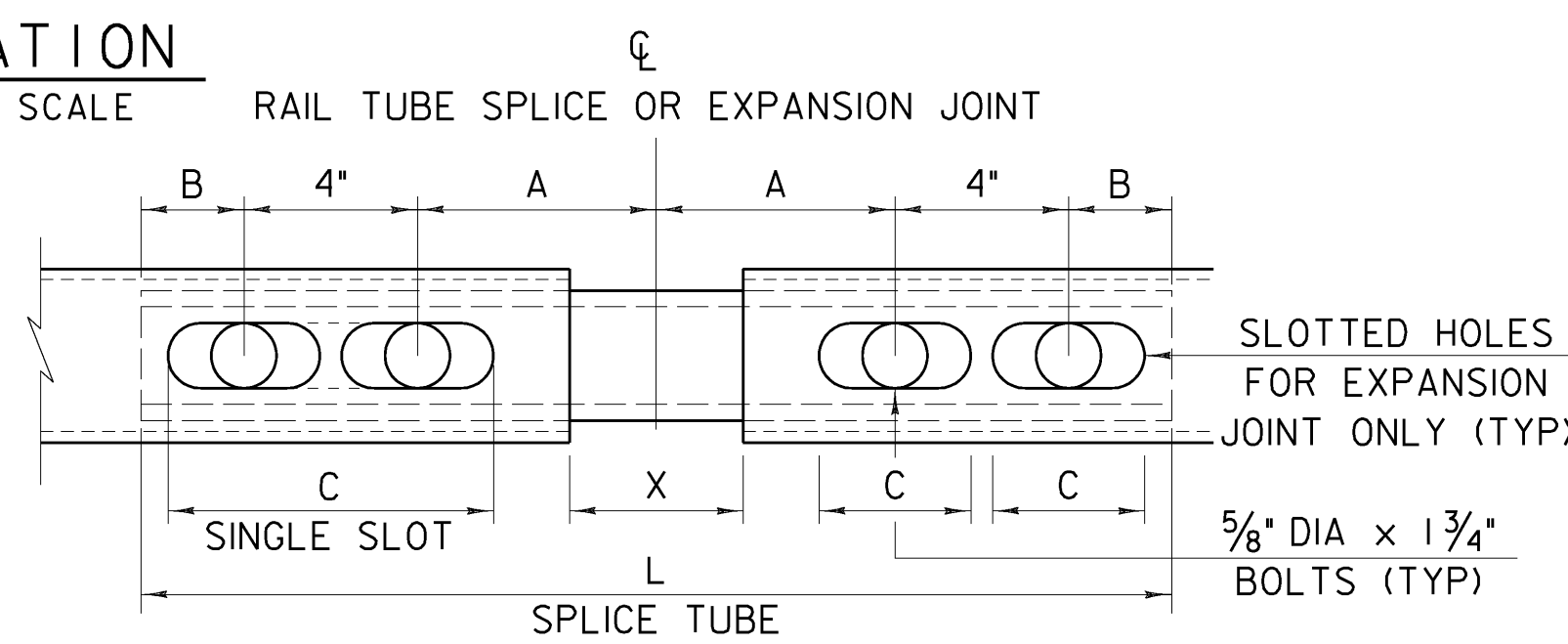
**TYPICAL SECTION**  
NOT TO SCALE



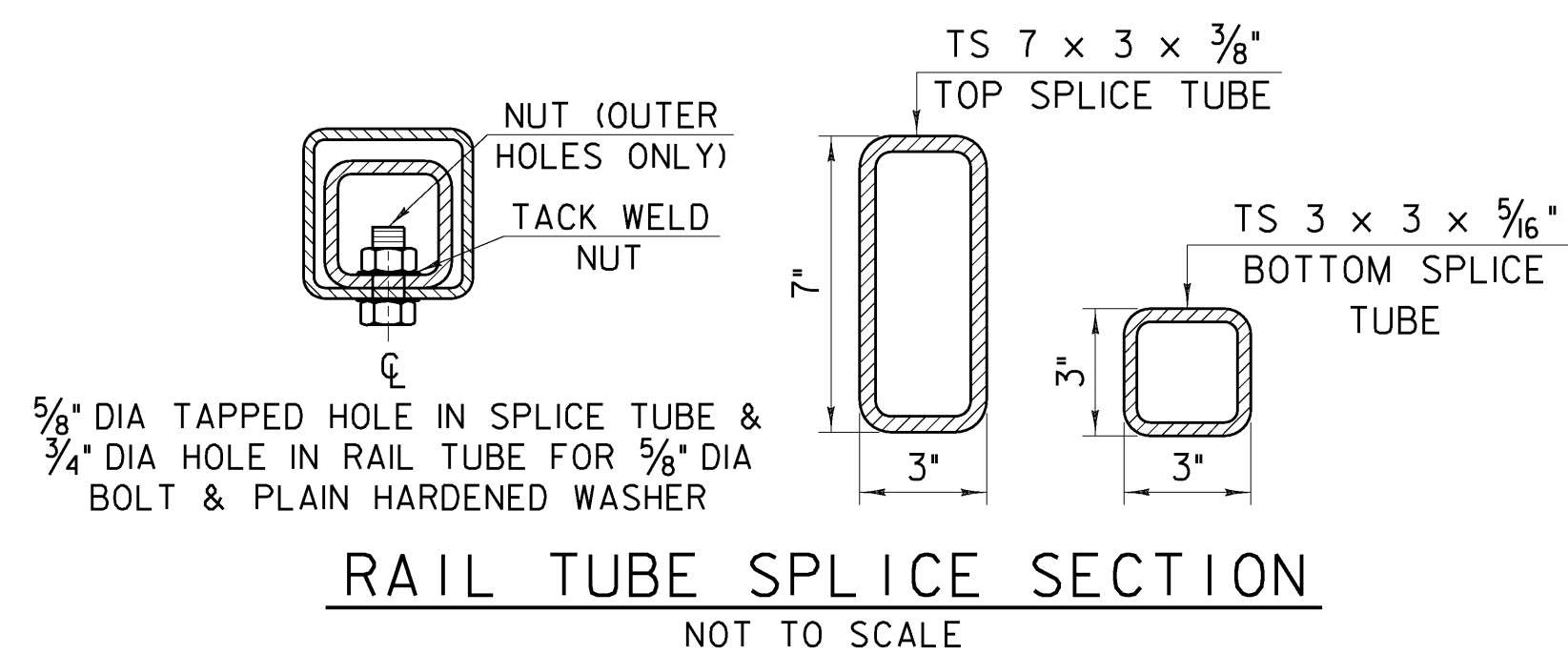
**ELEVATION**  
NOT TO SCALE

SPLICE TABLE					
T	A	B	C	L	X
N/A	4"	2"	--	20"	3/4"
EXPANSION JOINT TABLE					
<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"

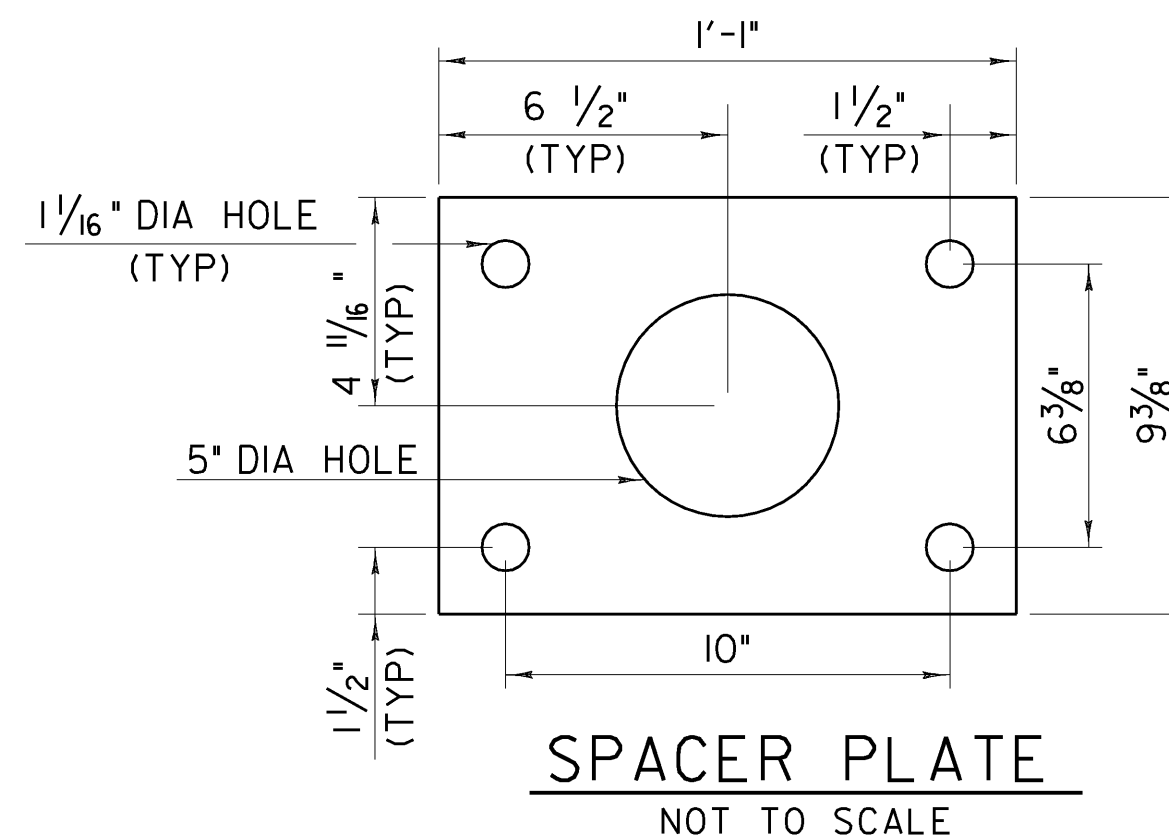
T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6.  
\* = SINGLE SLOT



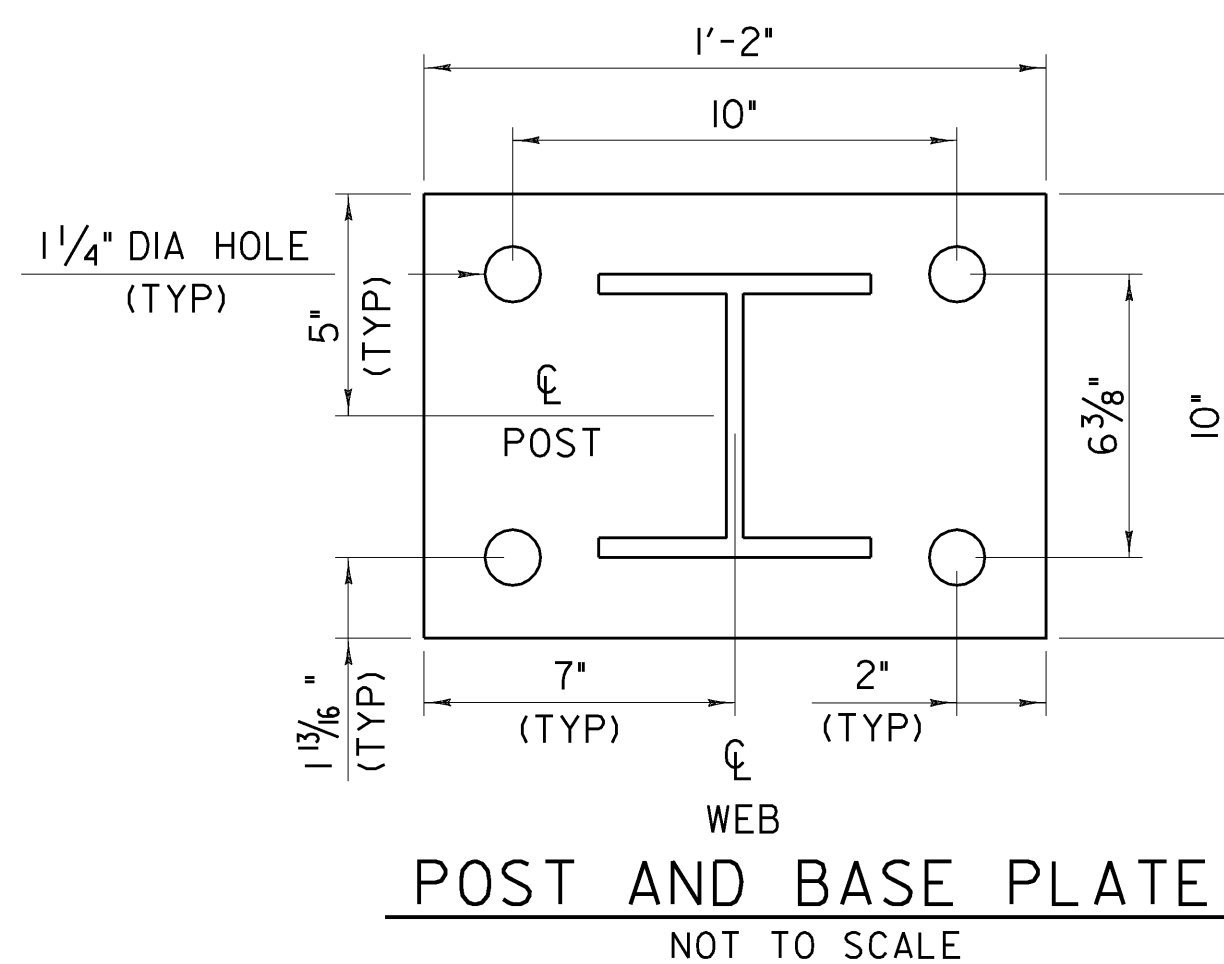
**RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL**  
(BOTTOM VIEW)  
NOT TO SCALE



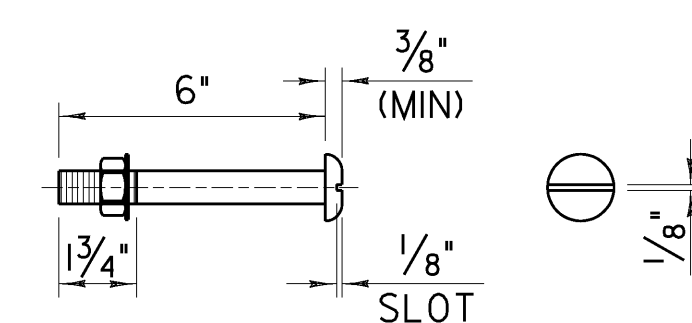
**RAIL TUBE SPLICE SECTION**  
NOT TO SCALE



**SPACER PLATE**  
NOT TO SCALE

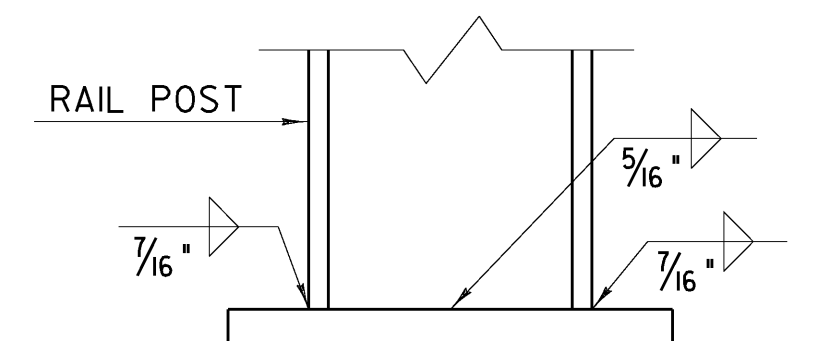


**POST AND BASE PLATE**  
NOT TO SCALE

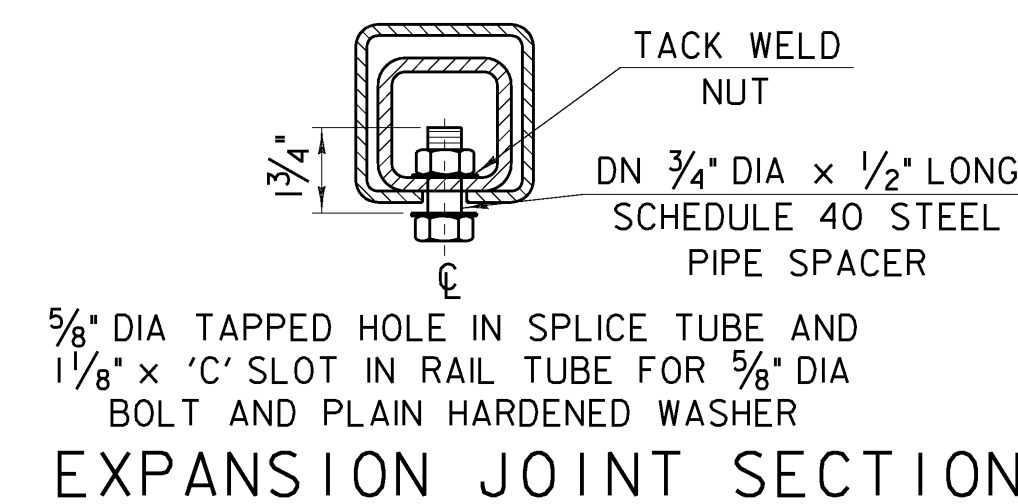


**3/4" DIA M164 (TYPE 1) ROUND HEAD BOLT**

(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)  
(SEE NOTE #9)  
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.  
NOT TO SCALE



**BASE WELD DETAIL**  
NOT TO SCALE



**EXPANSION JOINT SECTION**  
FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION."  
NOT TO SCALE

**NOTES**

- ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525, "METAL 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" EXCEPT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING DETAILED HEREIN.
- 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 TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
- RAIL TUBE 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 FOR OTHER TEMPERATURES.
- ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111M/M 111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M 232M/M 232.
- RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
- RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
- HOLES IN RAILS FOR RAIL TUBE 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, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.
- ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
- THE FABRICATOR SHALL SUBMIT FABRICATION DRAWINGS INCLUDING WELDING PROCEDURES TO THE STRUCTURES ENGINEER FOR APPROVAL IN ACCORDANCE WITH SUB SECTION 525.03. ALL WELDING SHALL CONFORM WITH SUB SECTION 506.10.
- RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A-370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.

**MATERIALS**

RAIL TUBES.....ASTM A500, GRADE B OR ASTM A501  
RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 50  
ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 36  
ANCHOR STUDS.....ASTM A449  
ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1

NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).

WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.

1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

**STATE OF VERMONT AGENCY OF TRANSPORTATION**

Town Of	PUTNEY	Bridge No.	19A
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER I-91			
<b>BRIDGE RAILING - NETC 2 RAIL</b>			
Designed By	VTRANS	Drawn By	VTRANS
Checked By	T. KNIGHT	Bridge Design Supervisor	C. BOGUE
Date	06/09	Date	06/09
PROJECT	PUTNEY	PROJECT NO.	IM 091-(131)
CAD Drawing Name:	...49 z93a148brail.ppt	Date:	10/19/2009
Bridge Sheet No.		Sheet	49 of 75

