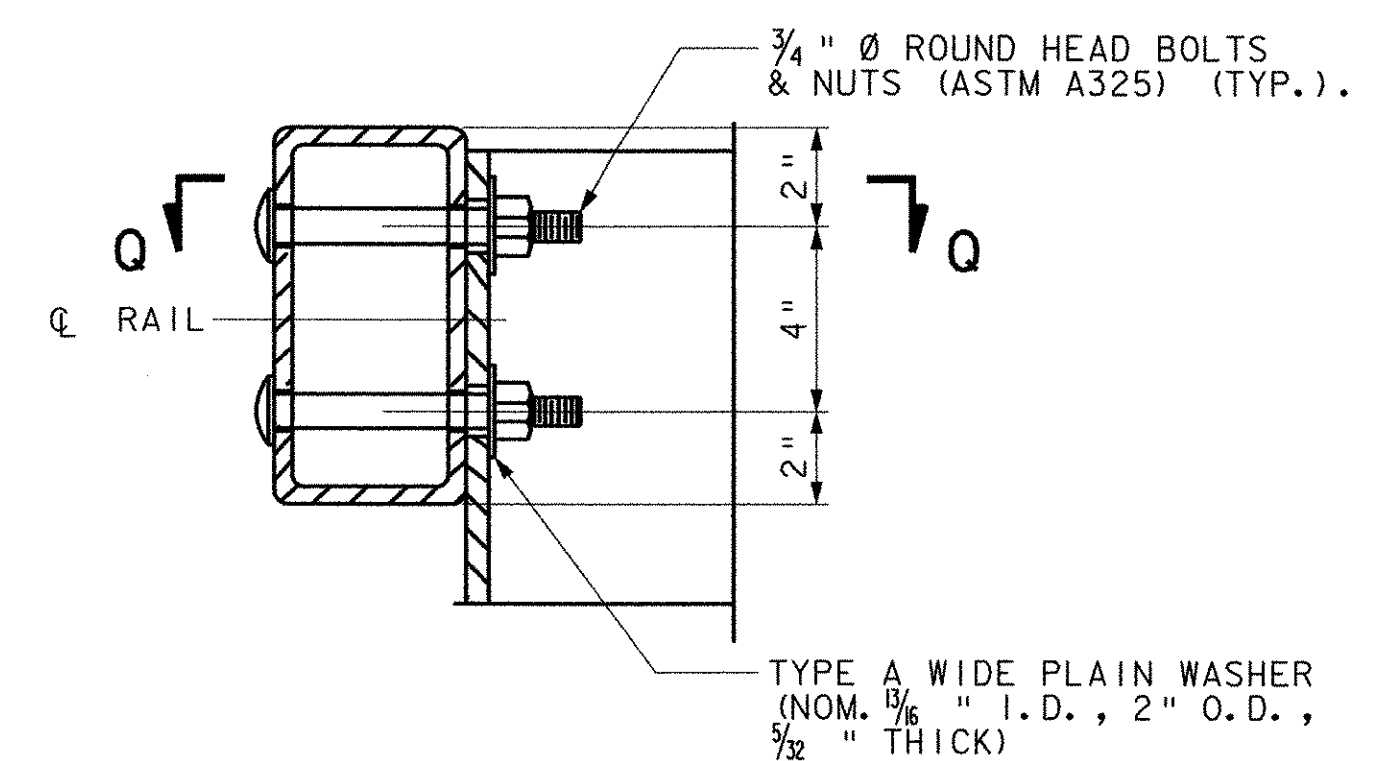
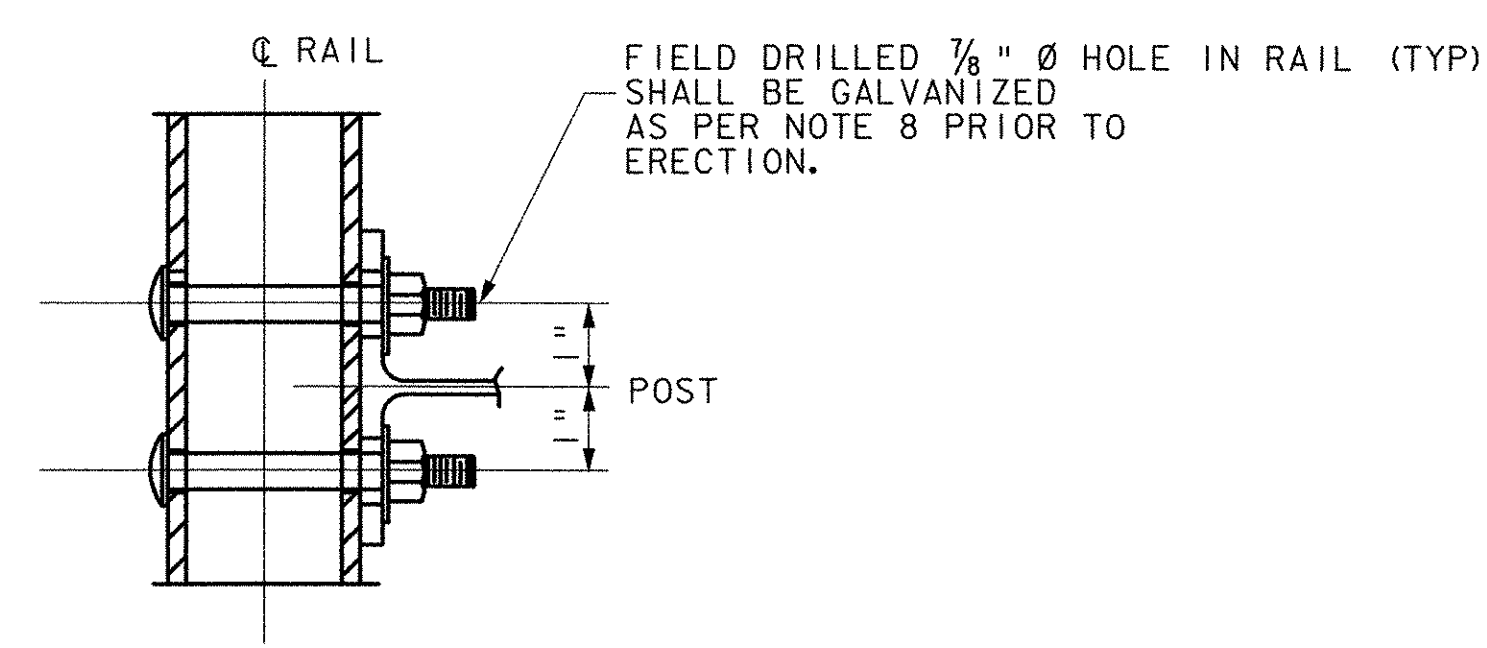


BRIDGE RAIL SECTION AT FLOORBEAM
SCALE: 1 1/2" = 1'-0"



DETAIL NN
SCALE: 3" = 1'-0"



SECTION Q-Q
SCALE: 3" = 1'-0"

RAIL NOTES

- BRIDGE RAIL SHALL INCLUDE POSTS, BASE PLATES, ANCHOR PLATES, CONNECTION PLATES, ANCHOR RODS, RAIL ASSEMBLY BOLTS, NUTS, WASHERS, STUDS, STRUCTURAL TUBING, SPLICE BARS, PIPE SPACERS, ALL APPURTENANCES AND GALVANIZING. ALL WORK AND MATERIAL 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.
- BRIDGE RAIL POSTS SHALL BE SET NORMAL (90 DEGREES) TO THE PROFILE GRADE.
- ENDS OF RAIL TUBE SECTIONS SHALL BE SAWED OR MILLED AND SHALL BE TRUE AND SMOOTH. ALL CUT EDGES OF ALL MATERIAL SHALL BE GROUND SMOOTH. ALL CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF ALL BURRS. BOLT HOLES SHALL BE DRILLED OR PUNCHED. FLAME CUTTING MAY BE USED TO FINISH SLOTTED HOLES IF MECHANICALLY GUIDED. ALL BENDING OF RAIL ELEMENTS SHALL BE BY SHOP PROCEDURE ONLY.
- EACH PIECE OF RAIL TUBING SHALL BE ATTACHED TO A MINIMUM OF TWO POSTS AND PREFERABLY TO AT LEAST FOUR POSTS. RAIL BARS MAY ALTERNATIVELY BE ATTACHED USING 3/4" DIAMETER AASHTO M164 (TYPE 1) OR 3/4" DIAMETER ASTM F568, CLASS 4.6 ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE BAR. HOLES SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
- RAIL BAR EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAR SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE 2 1/2" AT 45 DEGREES FAHRENHEIT AND WILL BE ADJUSTED IN THE FIELD BY THE RESIDENT ENGINEER.
- AT INTERIOR SPLICES, PIPE SPACERS SHALL BE USED ON ONLY ONE SIDE OF THE SPLICE TO ALLOW MOVEMENT ON THAT SIDE. THE TOP AND BOTTOM RAIL SHALL RECEIVE THE SAME TREATMENT. AT END SPLICES, PIPE SPACERS SHALL BE USED ON BOTH SIDES OF THE SPLICE TO ALLOW MOVEMENT ON EACH SIDE.
- THE BRIDGE RAILING SHALL BE CONTINUOUS ACROSS THE PIER. A SPLICE MAY BE INSTALLED AT THIS LOCATION PROVIDED THAT THE RAIL ELEMENTS ARE ATTACHED TO THE PROPER NUMBER OF POSTS ON EITHER SIDE OF THE SPLICE.
- ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123/A123M OR ASTM A153/A153M. THE COLOR OF THE FINISHED SURFACE SHALL MATCH THE COLOR OF THE SUPERSTRUCTURE PAINT. (SEE PAINT NOTES SHEET 38).
- HOLES IN RAILS FOR RAIL BAR ATTACHMENT MAY BE FIELD DRILLED. FIELD DRILLED HOLES AND DAMAGED AREAS OF GALVANIZING SHALL BE THOROUGHLY CLEANED AND COATED WITH AN APPROVED SEALANT TO A THICKNESS EQUAL TO THE ORIGINAL COATING.
- IF THERE IS A CONFLICT BETWEEN THE STANDARDS AND THE DESIGN DRAWINGS, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.

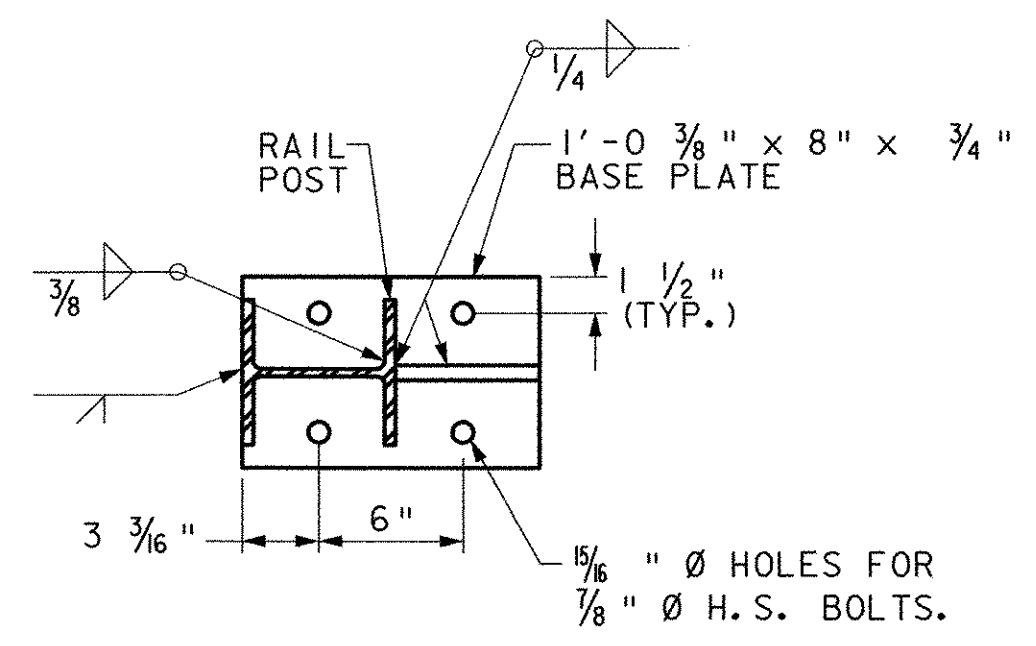
MATERIALS

RAIL BARS.....ASTM A500, GRADE B OR ASTM A501
 RAIL POSTS.....ASTM A709/A709M, GRADE 50
 ALL OTHER SHAPES & PLATES.....ASTM A709/A709M, GRADE 50
 ANCHOR STUDS.....ASTM A449
 ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE 1
 NUTS FOR ASTM A307 BOLTS AND AASHTO M164 BOLTS SHALL COMPLY WITH AASHTO M291. NUTS FOR ANCHOR STUDS SHALL COMPLY WITH ASTM A563.
 WASHER SHALL COMPLY WITH ASTM F436 SPECIFICATION.

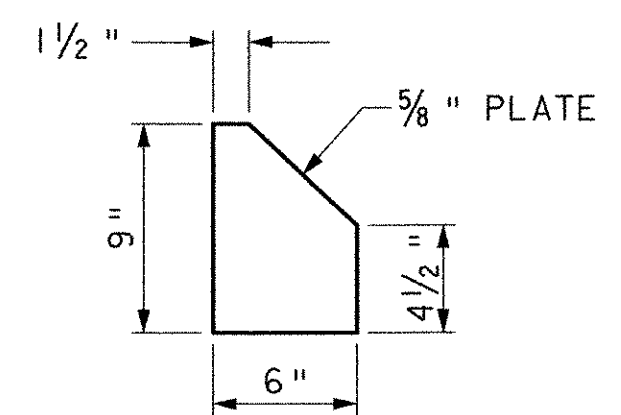
SPLICE BAR DIMENSION TABLE

T	A	B	C	X	L
SPLICE	4"	2"	---	3/4"	1'-8"
4"	4"	2"	2 1/2"	2 1/2"	1'-8"

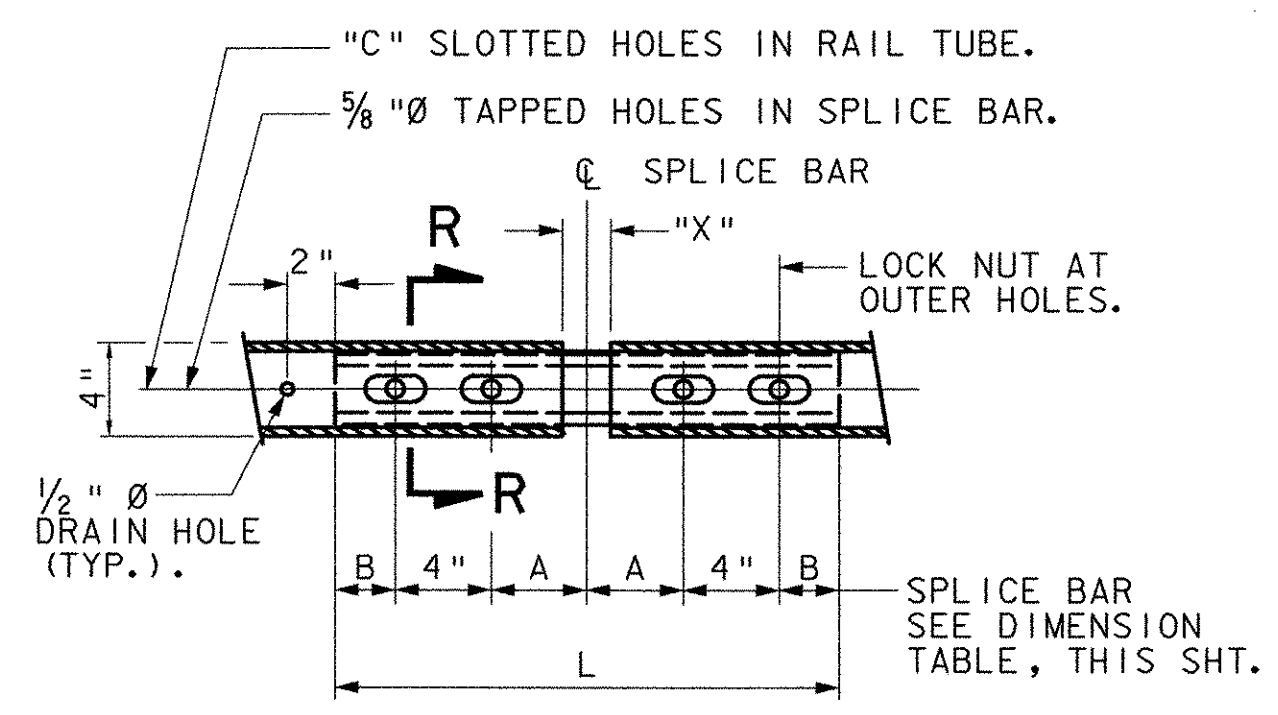
T = TOTAL MOVEMENT OF BRIDGE



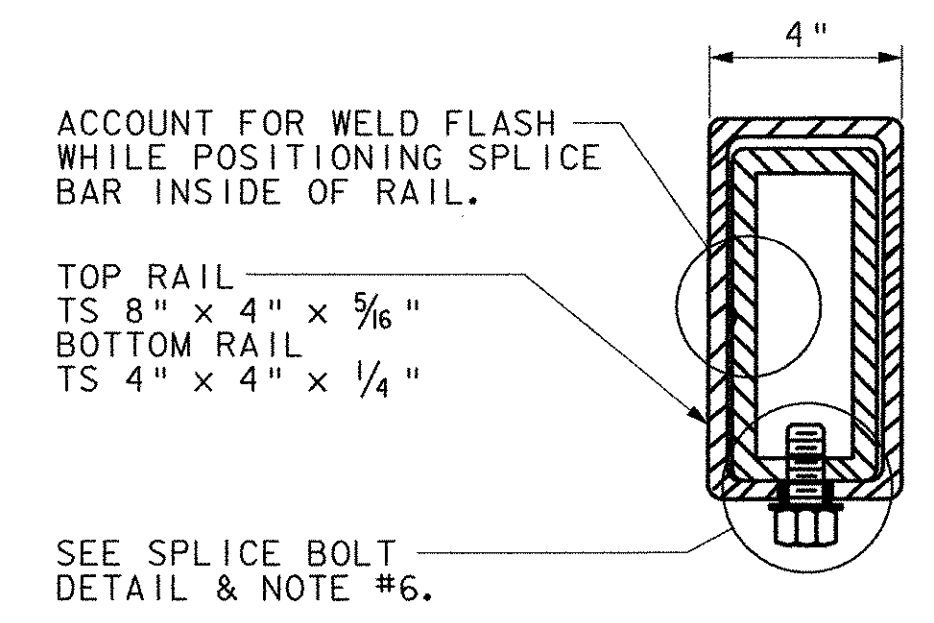
SECTION N-N
SCALE: 1 1/2" = 1'-0"



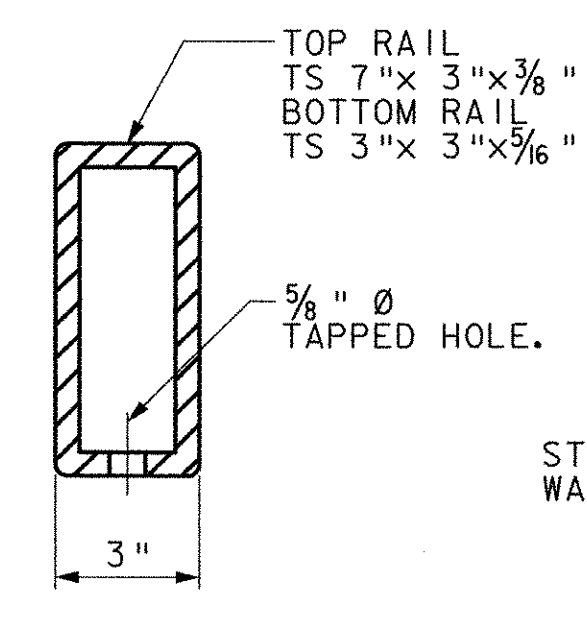
BRACKET PLATE
SCALE: 1 1/2" = 1'-0"



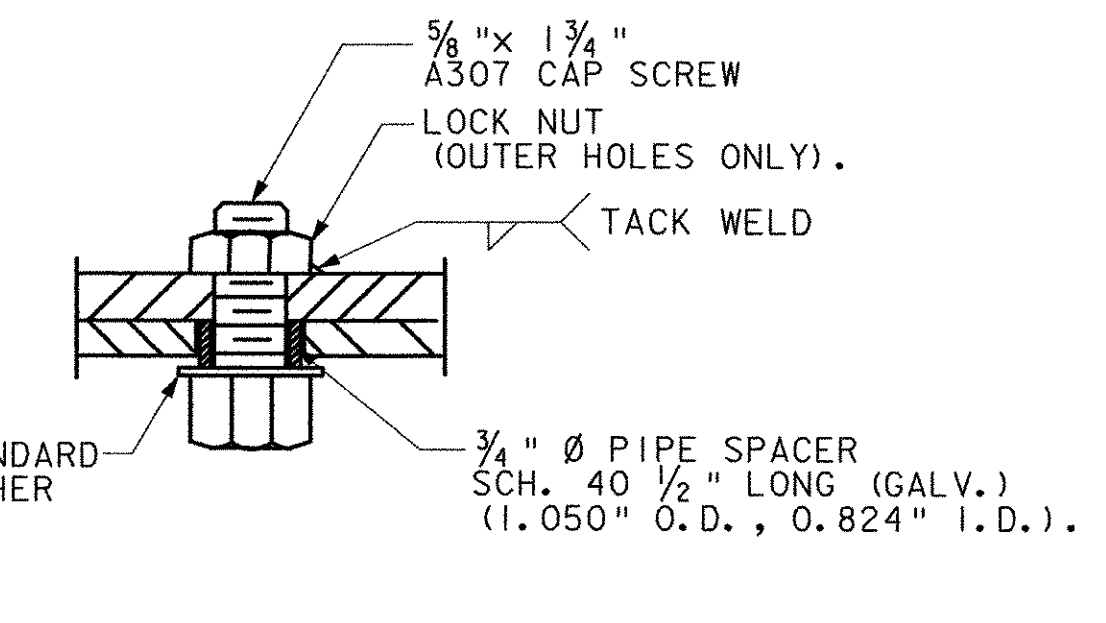
RAIL SPLICE
SCALE: 1 1/2" = 1'-0"



SECTION R-R
SCALE: 3" = 1'-0"



SPLICE BAR SECTION
SCALE: 3" = 1'-0"



SPLICE BOLT DETAIL
SCALE: 6" = 1'-0"

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	MAIDSTONE, VT STRATFORD, NH	Bridge No.	1
Highway No.	MAIDSTONE STATE HWY	Log Sta.	
		Surv. Sta.	

BRIDGE RAIL DETAILS I

Designed By	J. MESSIER	Drawn By	C. DONOHUE
Checked By	Date	Bridge Design Supervisor	Date
	D. B. SULLIVAN	08/01/03	

PROJECT: MAIDSTONE-STRATFORD PROJECT NO.: BHO 1447 (24)

I.G.C. Info. Bridge Sheet No. Sheet 50 of 65



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