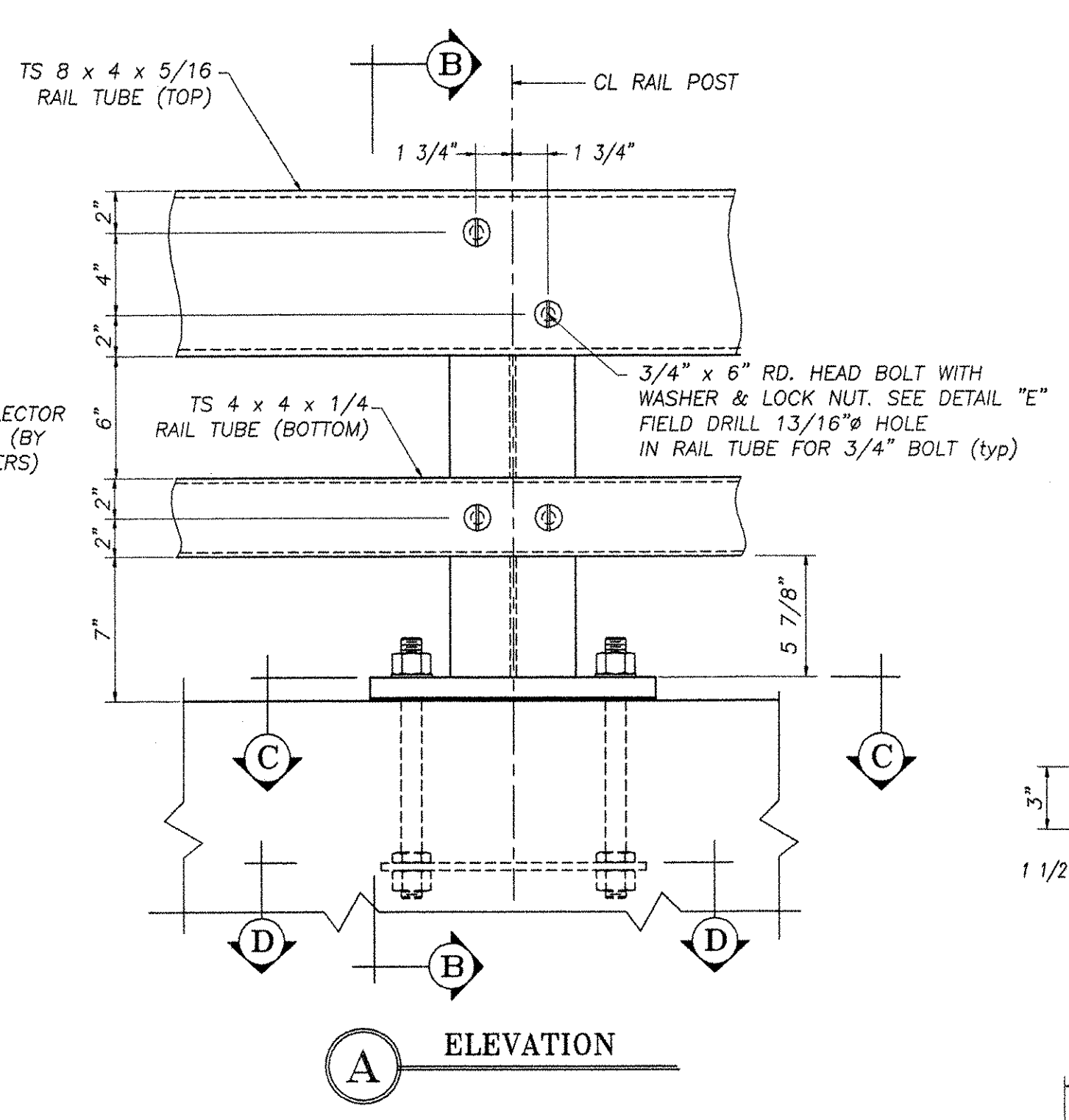
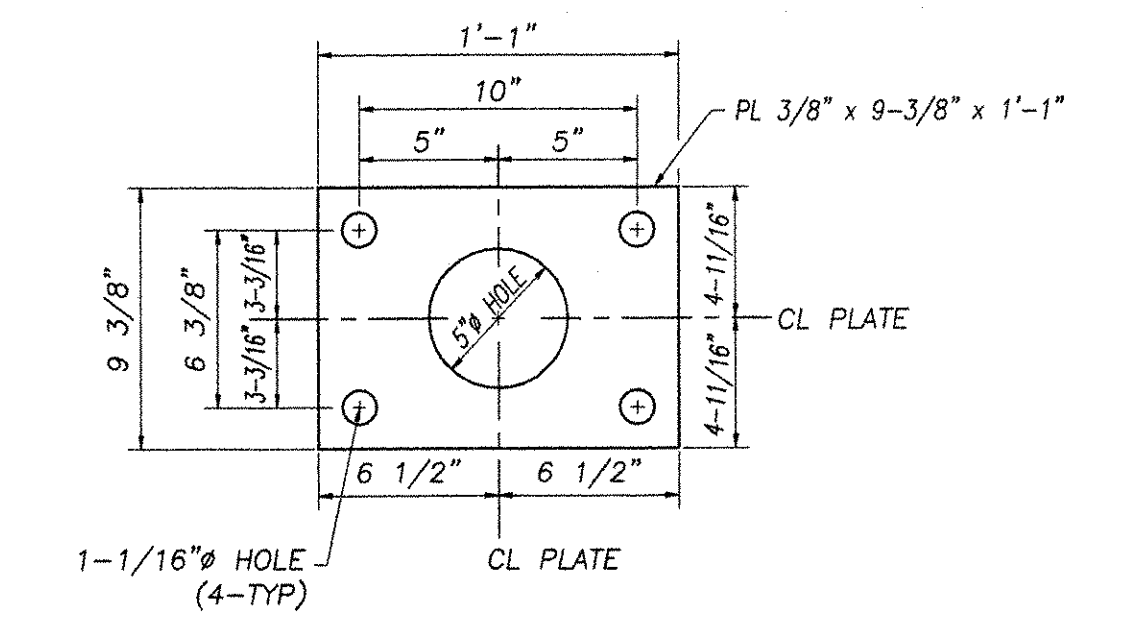


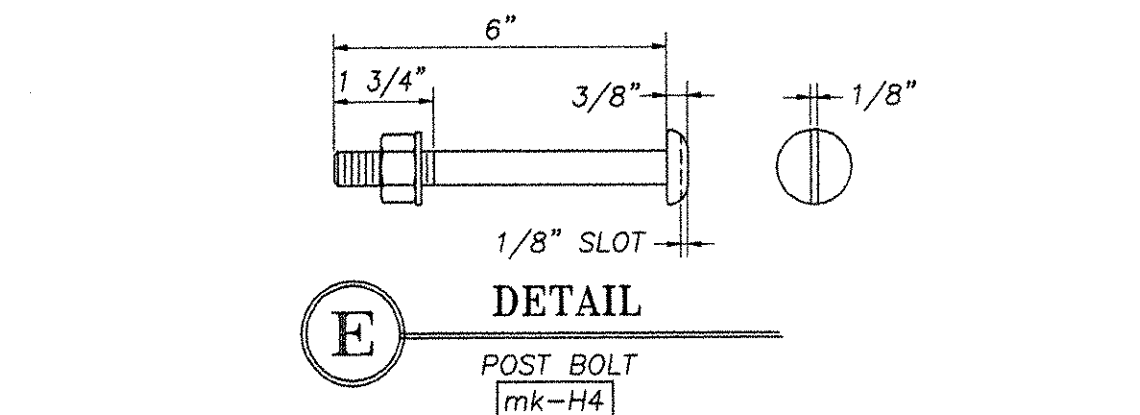
**B SECTION**  
POST & CURB



**A ELEVATION**

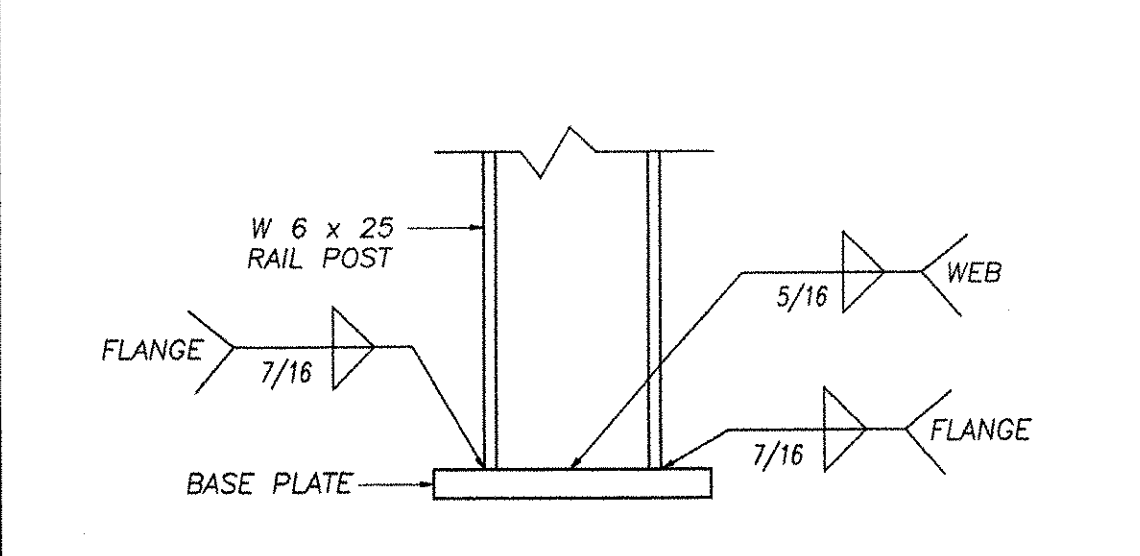


**D SECTION**  
ANCHOR PLATE  
mk-AP

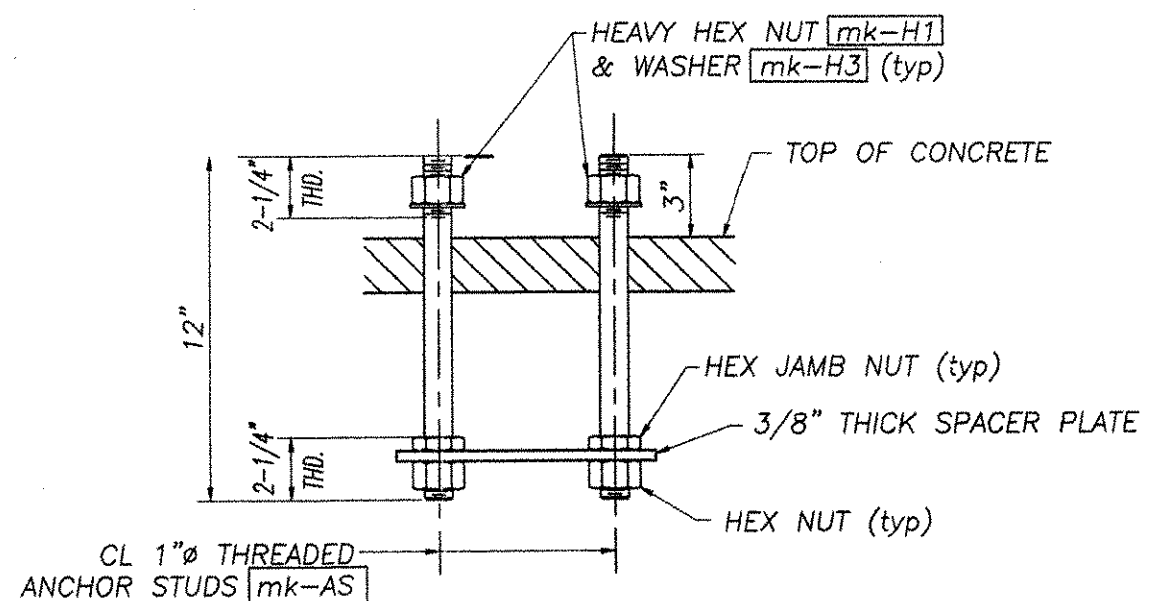


**E DETAIL**  
POST BOLT  
mk-H4

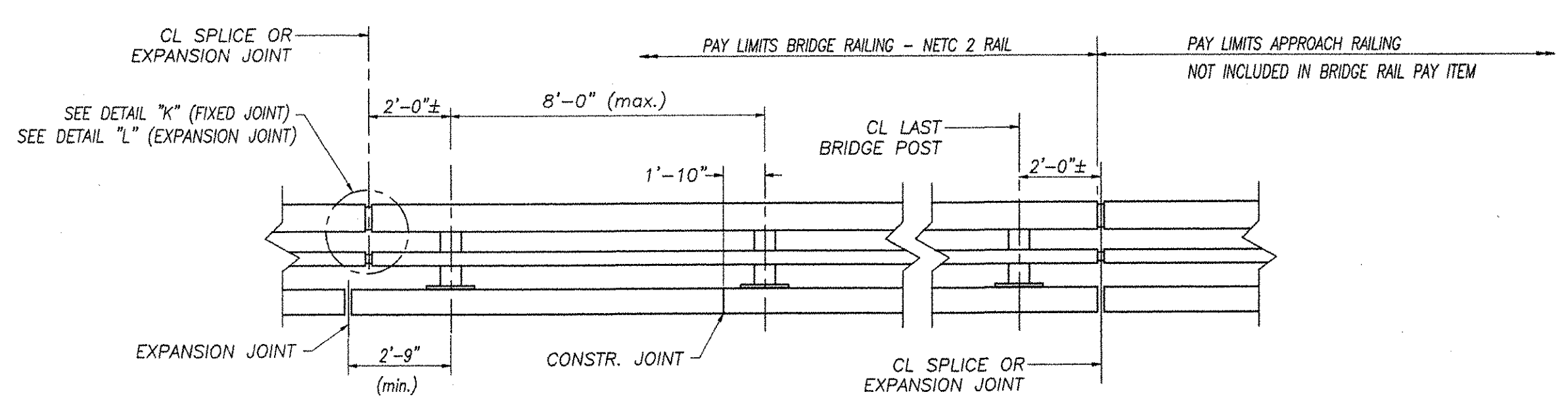
3/4" M164 (TYPE I) ROUND HEAD BOLT WITH WASHER [mk-HB] & LOCKNUT [mk-H3] (typ) FOR ALL RAIL TO POST CONNECTIONS, THRU "FIELD-DRILLED" 13/16" HOLES IN RAIL TUBE



**F DETAIL**  
POST-BASE WELD

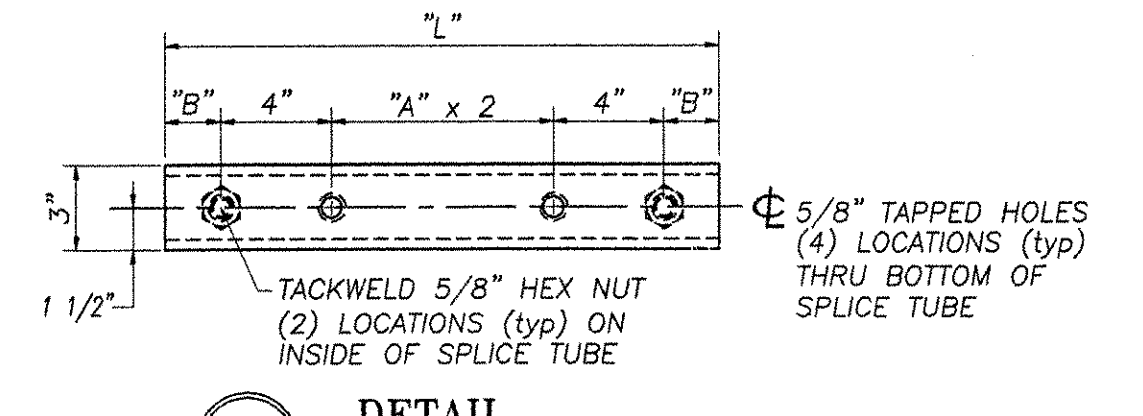


**M DETAIL**  
RAIL POST ANCHORAGE

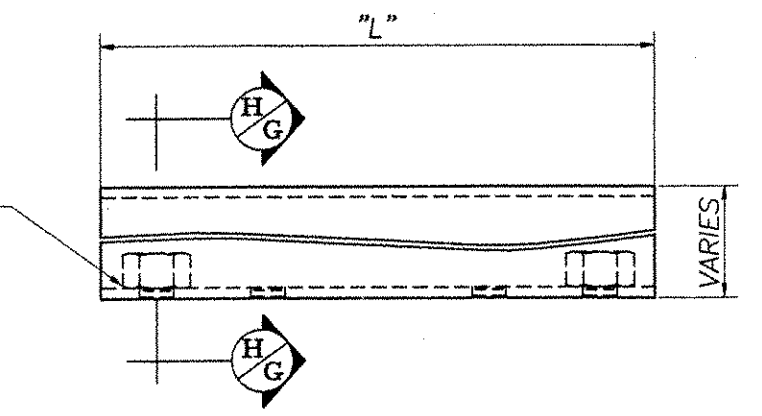


**TYPICAL BRIDGE RAILING ELEVATION**

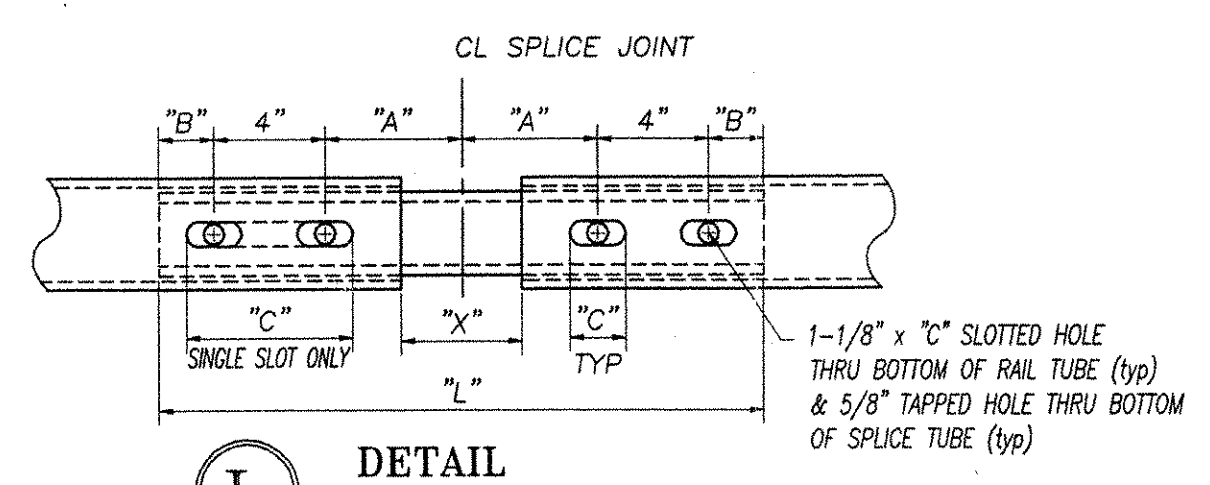
NOTE: SPLICE TUBES & HARDWARE FOR CONNECTION BETWEEN BRIDGE RAIL & BRIDGE APPROACH RAIL ARE INCLUDED IN APPROACH RAIL PAY ITEM. NOT INCLUDED UNDER BRIDGE RAIL ITEM 525.33



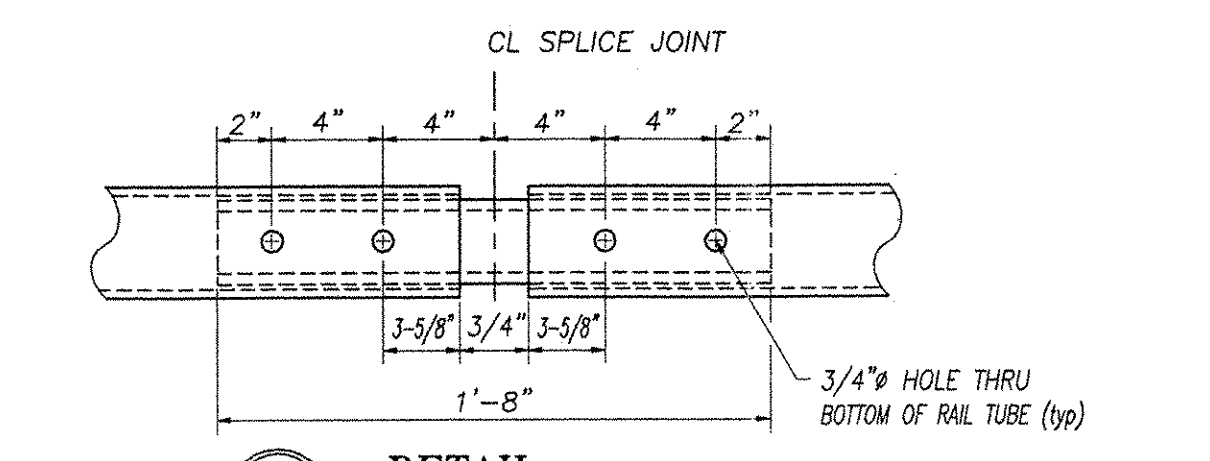
**J DETAIL**  
SPLICE TUBE - BOTTOM VIEW  
(SEE CHART FOR DIMENSIONS)



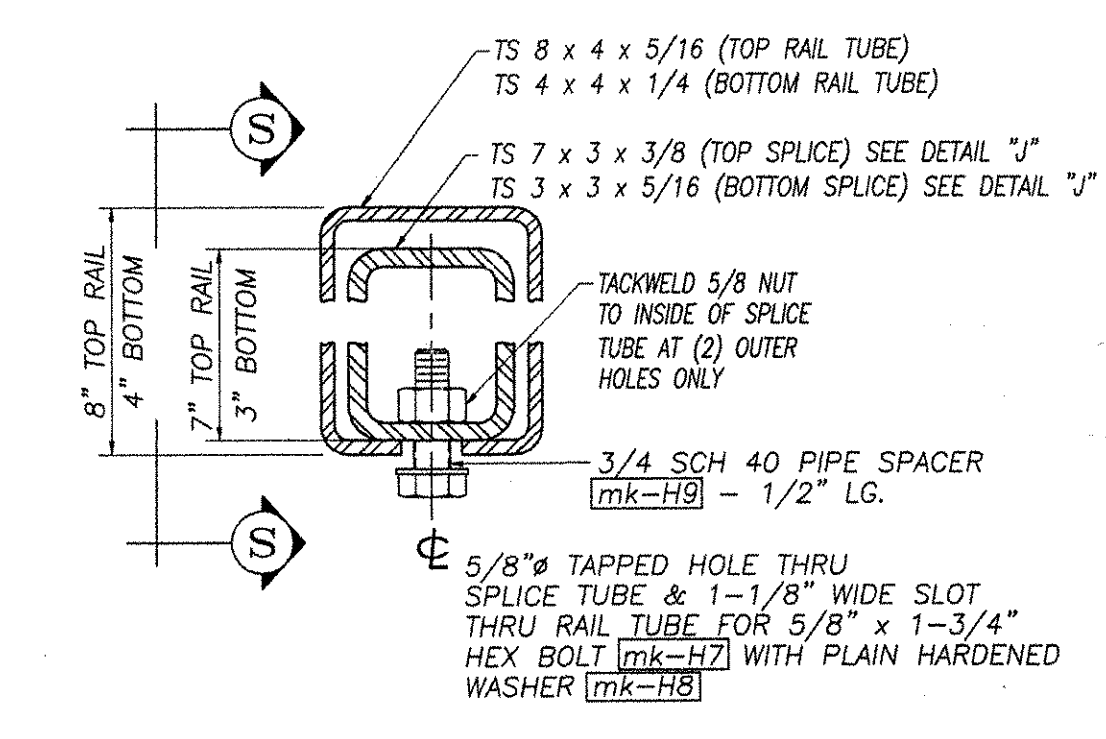
**S SECTION**  
SPLICE TUBE ELEVATION



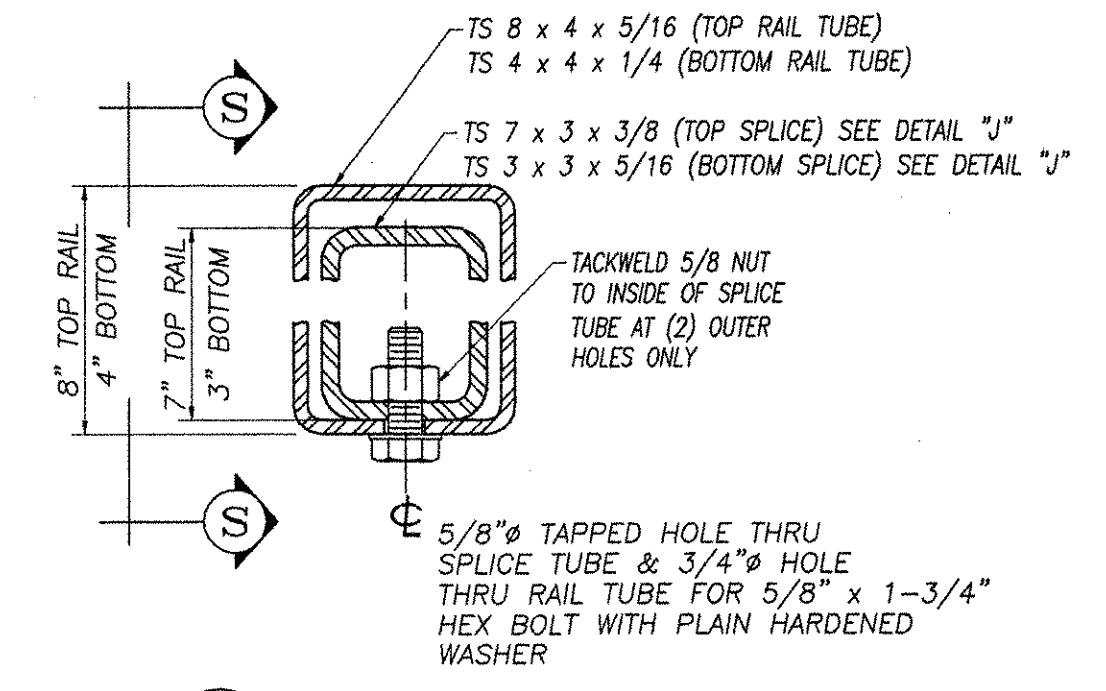
**L DETAIL**  
EXPANSION JOINT - BOTTOM VIEW  
HARDWARE NOT SHOWN FOR CLARITY



**K DETAIL**  
SPLICE JOINT - BOTTOM VIEW  
HARDWARE NOT SHOWN FOR CLARITY



**H SECTION**  
THRU EXPANSION SPLICE JOINT



**G SECTION**  
THRU FIXED SPLICE JOINT

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"	6"
>9" <= 13"	8-1/2"	4-3/8"	11"	33-3/4"	7"

"T" = TOTAL REQUIRED MOVEMENT \* = SINGLE SLOT

REVISIONS		
No.	Remarks	Date
0	Initial submittal	1/8/03

VENDOR SUBMITTAL REVIEW	
REVIEW STATUS	CONTRACTOR ACTION
APPROVED	NONE
APPROVED AS REVISED	CONFIRM
REJECTED	RESUBMIT

REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS. MARKINGS OF COMMENTS SHALL NOT BE CONSIDERED AS BINDING. THE CONTRACTOR FROM CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS FOR DETAILS. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND QUALITY AND FOR SELECTING FABRICATION PROCESSES FOR TECHNOLOGY, MATERIALS AND FOR PERFORMING HIS WORK IN A SAFE MANNER.

BY: [Signature] DATE: 1/4/03

**GENERAL ERECTION NOTES**

- All work and materials shall conform to the provisions of Section 525 - Railings of the Vermont 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 & 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) 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-tight fit and given an additional 1/8 turn.
- Rail bars shall be attached using 3/4" full diameter body head bolts AASHTO M164 (Type-I) inserted through the face of the bar. Holes in post shall be 1/16" larger than the bolt size.
- Holes in rails for attachment to posts will be field-drilled. Holes shall be coated with an approved zinc-rich paint prior to erection.
- Radiused rails (if required) will be shop-curved. No field-bending of rail tubes.
- The drop-weight tear test in section 732 shall not apply to the structure tubing on this standard.
- The rail posts & base plates shall be tested for impact properties in accordance with ASTM A370 Charpy Impact Testing, using a type A specimen.
- All welds are to be cleaned prior to galvanizing to insure proper bonding of zinc to welded areas.

**MATERIALS**

- Rail bars.....ASTM A500 GR B or ASTM A501
- Rail posts.....ASTM A709 GR 50
- All other shapes & plates.....ASTM A709 GR 36
- Anchor studs.....ASTM A449
- All other bolts [unless noted].....AASHTO M164, TYPE I
- Nuts for ASTM A307 bolts & AASHTO M164 bolts shall comply with AASHTO M291. Nuts for anchor studs shall comply with ASTM A563.
- washers shall comply with ASTM F436
- 1/8" pad shall comply with standard specification subsection 731.01 or 731.02 of Vermont Standard Specifications.

RECEIVED  
OK'D BY: [Signature]  
JUL 30 2003  
RESUBMIT: [Signature]  
APPROVED: [Signature]  
BY: [Signature] DATE: [Signature]

**HIGHWAY SAFETY CORP.**  
GLASTONBURY, CT

ITEM 525.33 - BRIDGE RAILING - NETC 2 RAIL  
PROJECT No. IM-091-1(36)  
TOWN OF HARTLAND  
INTERSTATE ROUTE 91 BRIDGE No. 38  
STATE OF VERMONT WINDSOR COUNTY

DRAWN: MHM  
CHECKED: [Signature]  
DATE: 5-28-03  
SCALE: NONE  
HSC REFERENCE NO.: 1354  
GENERAL CONTRACTOR: [Signature]  
SUB CONTRACTOR: F.R. Lafayette, Inc.  
SHEET NO.: 3 of 3