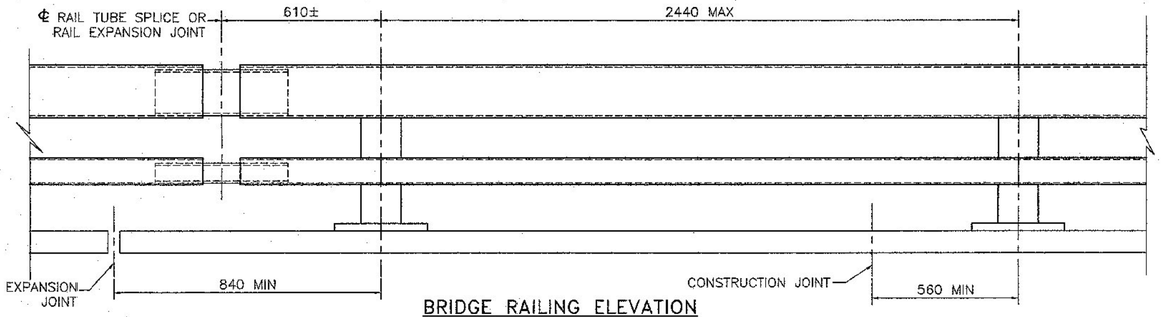
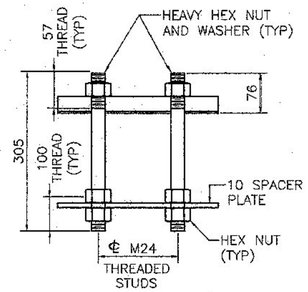
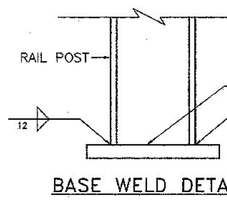


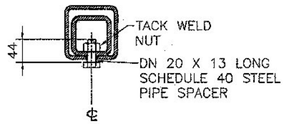
BRIDGE RAILING ELEVATION



RAIL POST ANCHORAGE



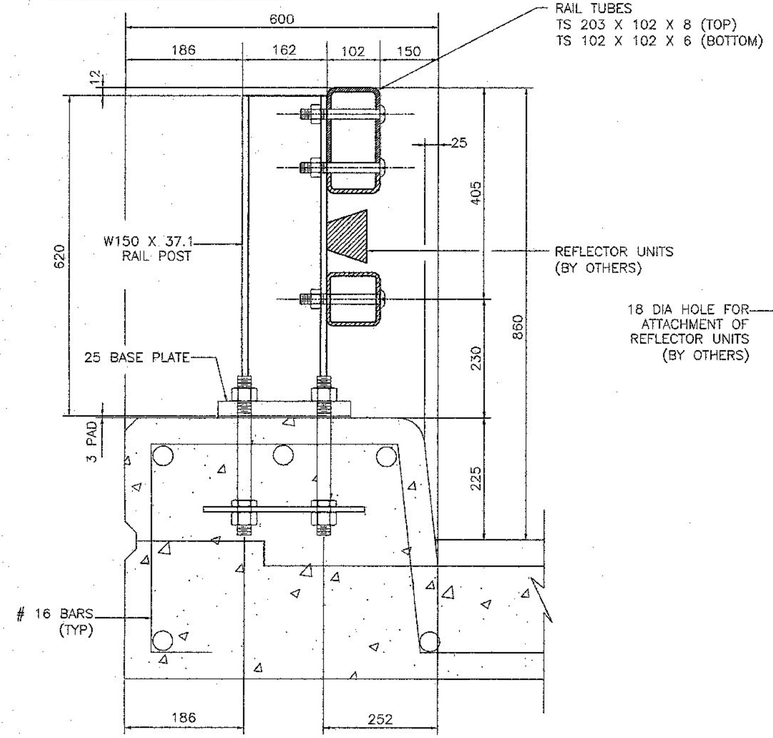
BASE WELD DETAIL



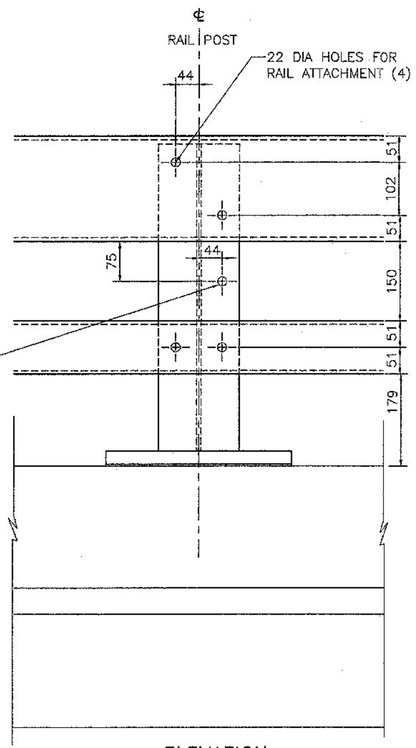
16 DIA TAPERED HOLE IN SPLICE TUBE AND 29 X 'C' SLOT IN RAIL TUBE FOR M16 BOLT AND PLAIN HARDENED WASHER

EXPANSION JOINT SECTION

FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION"

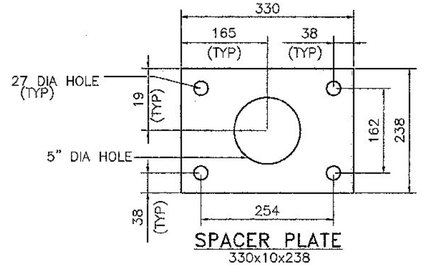


TYPICAL SECTION

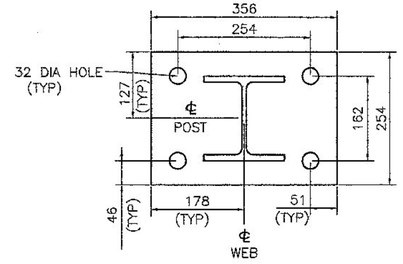


ELEVATION

REVISIONS		
No.	Remarks	Date



SPACER PLATE
330x10x238



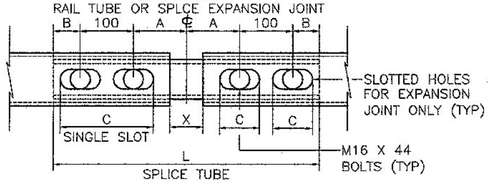
POST AND BASE PLATE

356x25x254

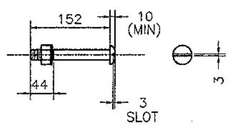
SPLICE TABLE					
T	A	B	C	L	X
NA	100	50	--	510	20
EXPANSION JOINT TABLE					
<100	100	50	85	510	65
>100 <165	140	60	90	605	105
>165 <230	165	85	230*	705	130
>230 <330	215	110	280*	860	180

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

RAIL TUBE OR SPLICE EXPANSION JOINT



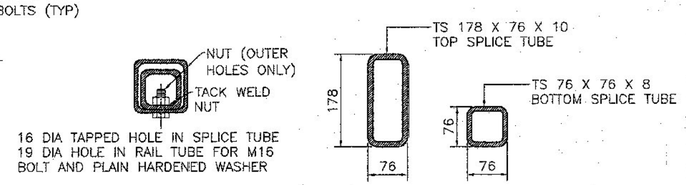
RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL



M20 DIA M164 (TYPE I) ROUND HEAD BOLT

(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT) (SEE NOTE #9)

ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED



RAIL TUBE SPLICE SECTION

NOTES

1 ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525 "RAILINGS OF THE STANDARD SPECIFICATION FOR CONSTRUCTION".

2 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 IN THIS STANDARD.

3 ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2mm RADIUS AND BE FREE OF BURRS.

4 RAIL POSTS SHALL BE SET NORMAL To GRADE.

5 SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.

6 RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.

7 ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M232.

8 RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.

9 RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 2mm LARGER THAN THE BOLT SIZE.

10 HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT PRIOR TO ERECTION.

11 IF THERE IS A CONFLICT BETWEEN THESE STANDARD DETAILS AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWING SHALL BE FOLLOWED.

12 ANY BENDING OF RAIL SHALL BE DONE BY SHOP PROCEDURE ONLY.

13 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.

14 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 345
ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 250
ANCHOR STUDS.....ASTM F568M CLASS 8.8
ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164M, TYPE 1

NUTS FOR AASHTO M164M (ASTM A325M) BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291M (ASTM A563M)

WASHERS SHALL COMPLY WITH AASHTO M293M (ASTM F436M) SPECIFICATIONS

3mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02

TVGA CONSULTANTS

[X] NO EXCEPTIONS TAKEN [ ] REJECTED
[ ] FURNISH AS CORRECTED
[ ] REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and ENGINEER has received Shop Drawings and Samples and other data which Contractor is required to submit, only for other data which Contractor is required to submit, only for conformance with the information given in the Contract conformance with the information given in the Contract Documents and compatibility with the design concept of the Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of methods, techniques, sequences or procedures of construction or to safety precautions and programs incident construction or to safety precautions and programs incident thereto. Such reviews do not extend to any USDA certification or accreditation. Contractor is responsible for dimensions to be confirmed and correlated on the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: JJH
DATE: 5-11-10

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM 525.33 BRIDGE RAILING - NETC 2 RAIL
TOWN OF BENNINGTON
COUNTY OF BENNINGTON
PROJ. AC NH 019-1(51) BRIDGE B15N/S
VT ROUTE 279 OVER ROARING BRANCH

USDA CERTIFIED FABRICATOR

HSC JOB NO. 1730

GENERAL CONTRACTOR

SUB CONTRACTOR F.R. LAFAYETTE, INC.

SHEET NO. 3 of 4

DRAWN	CHECKED	DATE	SCALE	SIZE
RWL	PAR	11/16/2009	NONE	D