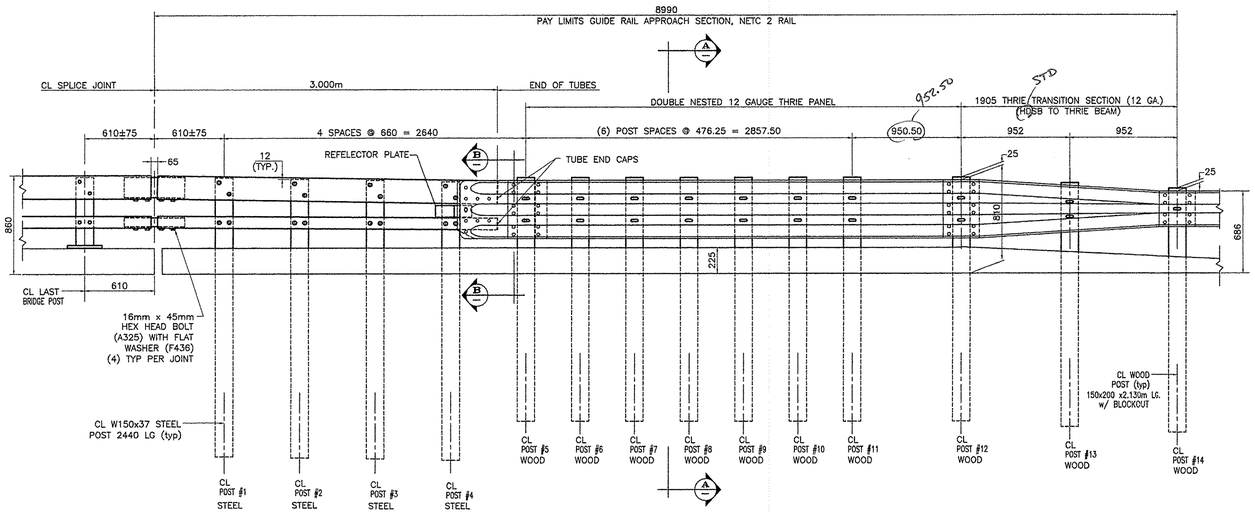
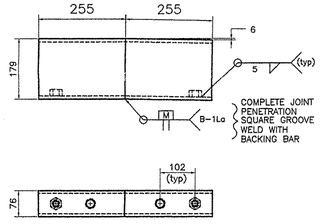


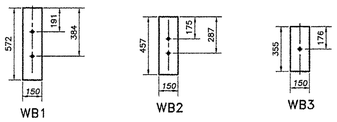
ELEVATION – APPROACH RAIL



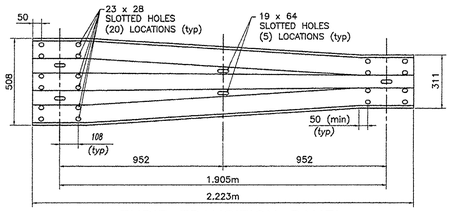
ANGLED SPLICE TUBE DETAIL

UPPER RAIL SPLICE SHOWN

LOWER RAIL DOES NOT REQUIRE BENT SPLICE
TUBE TO MATCH TUBE ANGLE – USE STRAIGHT SPLICE TUBE

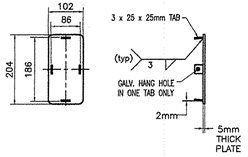


WOOD BLOCK DETAILS

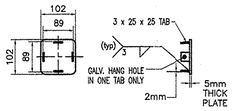


THRIE TRANSITION PANEL

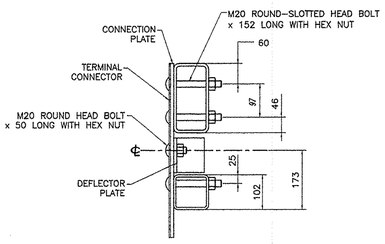
12 GAUGE (AASHTO M180 A2)



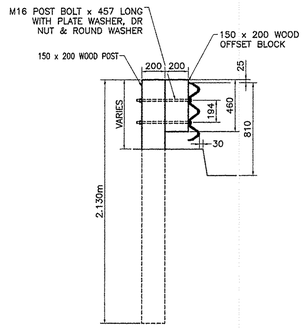
END CAP (204x102)



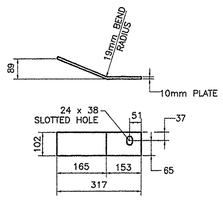
END CAP (102x102)



SECTION B–B

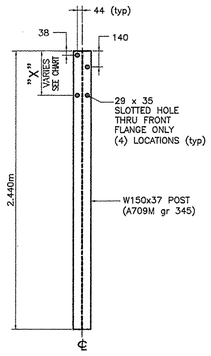


SECTION A–A



DEFLECTOR PLATE

10 x 102mm PLATE (A709 gr 36)



STEEL POST

STEEL POST CHART

No.	" X "
#1	388
#2	383
#3	373
#4	363

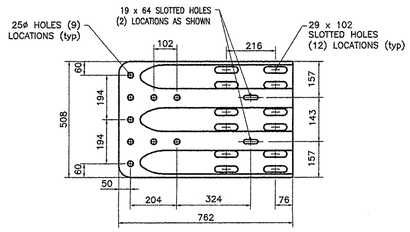
GENERAL ERECTION NOTES

1. PAYMENT FOR GUARDRAIL APPROACH SECTION – NETC 2 RAIL SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.
2. CARRIAGE BOLTS SHALL BE ASTM A307 AND NUTS SHALL BE ASTM A563 Gr. A OR BETTER (GALV.)
3. CUT & WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD B–L1A WITH BACKING BAR.
4. REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERECTED EVERY 9m. (OR CLOSEST POST) WITH 2 No. 8 x 19 SELF TAPPING SCREWS. DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052–H32.
5. REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVERS LEFT AND SLIVER ON THE RIGHT.
6. ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525 – RAILINGS OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
7. TUBING & POSTS SHALL MEET THE REQUIREMENTS OF SECTION 732 – RAILING MATERIALS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.
8. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE GROUND TO A 2mm RADIUS & BE FREE OF BURRS.
9. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
10. SECTIONS OF RAIL BAR SHALL BE ATTACHED TO A MINIMUM OF TWO (2) POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
11. RAIL BAR EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 45° AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER.
12. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M232.
13. RAIL BARS SHALL BE ATTACHED TO STEEL POSTS USING M20 FULL DIA. BODY HEAD BOLTS AASHTO M164 (TYPE 1) INSERTED THROUGH THE FACE OF THE BAR. HOLES IN POST SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
14. HOLES IN RAILS FOR ATTACHMENT TO POSTS WILL BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC–RICH PAINT PRIOR TO ERECTION.
15. RADIUSED RAIL (IF REQUIRED) WILL BE SHOP CURVED. NO FIELD BENDING OF RAIL TUBES.
16. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B–U2).

BILL OF MATERIAL (ALL APPROACHES)

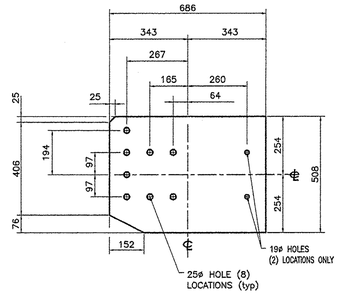
Mk.	Qty.	Description	Material
	16	STEEL POST W150x37 x 2.440m OAL	A709M gr 345
	40	WOOD POST 150x200 x 2.130m OAL	TIMBER
UR	4	RAIL (UPPER) TS 203x102x8mm x 2.794m	A500 gr B
LR	4	RAIL (LOWER) TS 102x102x6 x 2.794m	A500 gr B
	4	THRIE TRANSITION PANEL – 12 GA	M180 A2
	4	THRIE PANEL (12 GA)	M180 A2
	4	THRIE FLAT LIP TERMINAL CONNECTOR (10 GA)	M180 B2
	4	END CAP FOR 203 x 102 TUBE RAIL	A709M gr 250
	4	END CAP FOR 102 x 102 TUBE RAIL	A709M gr 250
	4	DEFLECTOR PLATE	A709M gr 250
	4	CONNECTION PLATE 10 x 508 x 686	A709M gr 250
WB1	32	WOOD OFFSET BLOCK 150x200 x 572 LONG	TIMBER
WB2	4	WOOD OFFSET BLOCK 150x200 x 457 LONG	TIMBER
WB3	4	WOOD OFFSET BLOCK 150x200 x 355 LONG	TIMBER
	76	M16 x 457 LONG POST BOLT w/ PLATE WASHER, DBL RECESSED NUT & ROUND WASHER	M164M
	96	M20 x 152 LONG ROUND–SLOTTED HEAD BOLT WITH ROUND WASHER & LOCK NUT	A325M
	4	M20 x 51 LONG ROUND HEAD BOLT WITH HEX NUT	M164M
	128	M16 x 32 SPLICE BOLT w/ DOUBLE RECESSED NUT	M164M
	4	UPPER RAIL SPLICE TUBE (ANGLED) – TS 178x76x10 510 OAL	A500 gr B
	4	LOWER RAIL SPLICE TUBE (STRAIGHT) – TS 76x76x8 510 OAL	A500 gr B
	32	M20 x 45 HEX HEAD BOLT w/ ROUND WASHER	A325M
	32	SPACER PIPE ON 20 SCH 40 x 13 LONG	A709M gr 250

NOTE:
1. SOUTH~~WEST~~ BRIDGE APPROACH RAILS TO BE SET ON 566.300m CONVEX RADIUS.
2. NORTH~~EAST~~ BRIDGE APPROACH RAILS TO BE SET ON 581.600m CONCAVE RADIUS.
3. RAILS ARE PROVIDED STRAIGHT AND WILL FLEX UNDER OWN WEIGHT IN ACCESS OF REQUIRED RAIL CURVATURE DUE TO LARGE RADIUS.



TERMINAL CONNECTOR

10 GAUGE (AASHTO M180 B2)



CONNECTION PLATE

10 x 508 x 686 (A709 gr 36)

REVISIONS		
No.	Remarks	Date
0	Initial submittal	

TVGA CONSULTANTS

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at 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: JWL
DATE: 3/3/08

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 621.72 BRIDGE APPROACH RAILING – NETC 2 RAIL
TOWN OF BENNINGTON
COUNTY OF BENNINGTON
PROJECT AC NH 019–1(53) BRIDGE B12
VT ROUTE 279 OVER FURNACE BROOK

GENERAL CONTRACTOR

SUB CONTRACTOR F.R. LAFAYETTE, INC.

DRAWN MHM
CHECKED S Rodier
DATE 12/30/07
SCALE NONE
HSC REFERENCE NO. 1615
SIZE D REVISION 0
SHEET NO. 4 of 11