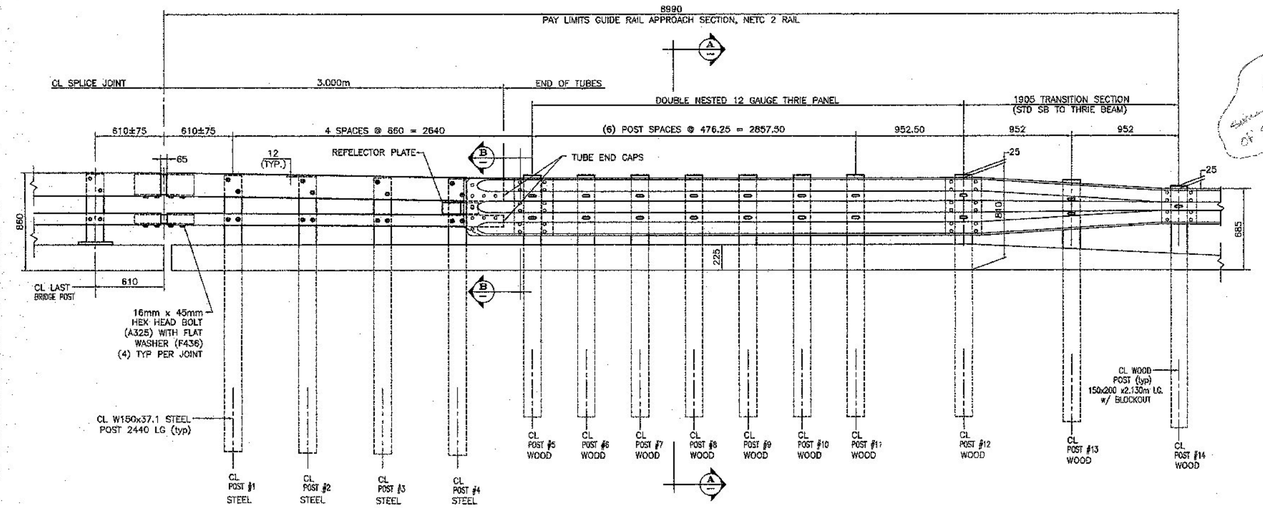


ELEVATION – APPROACH RAIL

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-U2a WITH BACKING BAR.
4. REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERECTED EVERY 9m. (OR CLOSEST POST) WITH 2 M16 BOLTS. DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052–H32.
5. REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.06 AND SHALL BE ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVERS LEFT AND SILVER 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 7°C 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 2 mm 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).

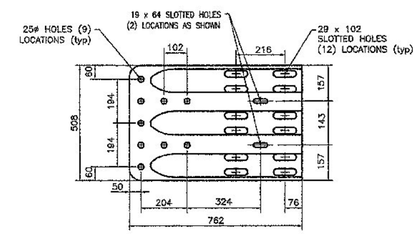
APPROACH SECTION SHALL MEET THE REQUIREMENTS OF SECTIONS 621 AND 732

B-U2a

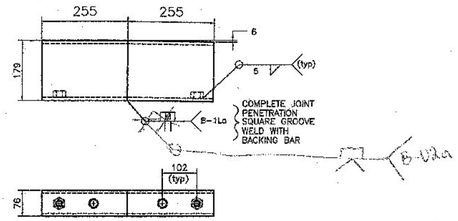
BILL OF MATERIAL (ALL APPROACHES) & TOTAL

Mk.	Qty.	Description	Material
	32	STEEL POST W150x37.1 x 2.440m OAL	A709M gr 345
	60	WOOD POST 150x200 x 2.130m OAL	TIMBER
UR	8	RAIL (UPPER) TS 203x102x8mm x 2.794m	A500 gr B
LR	8	RAIL (LOWER) TS 102x102x6 x 2.794m	A500 gr. B
	8	THRIE TRANSITION PANEL – 12 GA	M180 A2
	8	THRIE PANEL (12 GA)	M180 A2
	8	THRIE FLAT LIP TERMINAL CONNECTOR (10 GA)	M180 B2
	8	END CAP FOR 203 x 102 TUBE RAIL	A709M gr 250
	8	END CAP FOR 102 x 102 TUBE RAIL	A709M gr 250
	8	DEFLECTOR PLATE	A709M gr 250
	8	CONNECTION PLATE 10 x 508 x 686	A709M gr 250
WB1	64	WOOD OFFSET BLOCK 150x200 x 572 LONG	TIMBER
WB2	8	WOOD OFFSET BLOCK 150x200 x 457 LONG	TIMBER
WB3	8	WOOD OFFSET BLOCK 150x200 x 355 LONG	TIMBER
	152	M16 x 157 LONG POST BOLT w/ PLATE WASHER, DBL RECESSED NUT & ROUND WASHER	M164M
	192	M20 x 152 LONG ROUND–SLOTTED HEAD BOLT WITH ROUND WASHER & LOCK NUT	A325M
	8	M20 x 51 LONG ROUND HEAD BOLT WITH HEX NUT	M164M
	256	M16 x 38 SPLICE BOLT w/ DOUBLE RECESSED NUT	M164M
	8	UPPER RAIL SPLICE TUBE (ANGLED) – TS 178x76x10 510 OAL	A500 gr B
	8	LOWER RAIL SPLICE TUBE (STRAIGHT) – TS 76x76x6 510 OAL	A500 gr B
	64	M20 x 45 HEX HEAD BOLT w/ ROUND WASHER	A325M
	64	SPACER PIPE DN 20 SCH 40 x 13 LONG	A709M gr 250

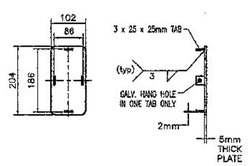
NOTES: All dimensions in mm unless noted otherwise.



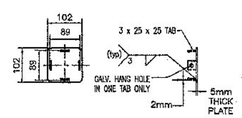
TERMINAL CONNECTOR
10 GAUGE (AASHTO M180 B2)



ANGLED SPLICE TUBE DETAIL
UPPER RAIL SPLICE SHOWN
LOWER RAIL DOES NOT REQUIRE BENT SPLICE
TUBE TO MATCH TUBE ANGLE – USE STRAIGHT SPLICE TUBE



END CAP (204x102)



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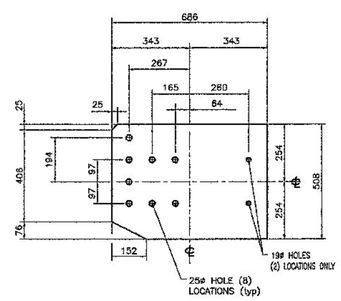
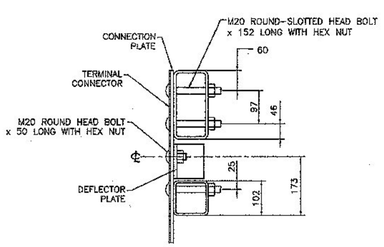
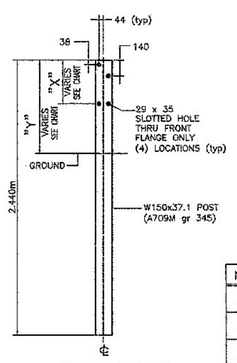


CONNECTION PLATE
10 x 508 x 686 (A709 gr 36)

WOOD BLOCK DETAILS



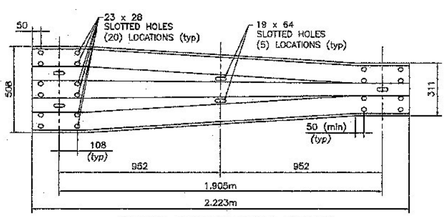
SECTION B–B



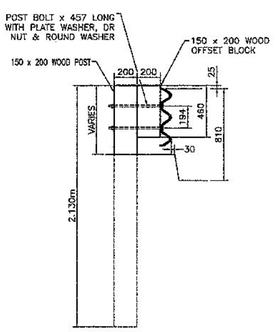
STEEL POST

STEEL POST CHART

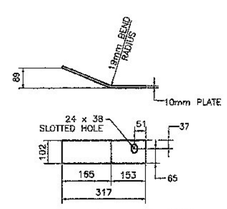
No.	" X "	" Y "
#1	388	850
#2	383	840
#3	373	825
#4	363	810



THRIE TRANSITION PANEL
12 GAUGE (AASHTO M180 A2)



SECTION A–A



DEFLECTOR PLATE
10 x 102mm PLATE (A709 gr 36)

REVISIONS		
No.	Remarks	Date

TYGA CONSULTANTS

F.A.C.

[ ] NO EXCEPTIONS TAKEN [X] CORRECTED
[ ] MAKE CHANGES AS CORRECTED
[ ] RESUBMIT REVISED SHOP DRAWINGS
[ ] REVISE AND RESUBMIT

STATUS: See reviewed Shop Drawings and Specifications 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 review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Such review does not extend to any errors or omissions in dimensions. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication process or to techniques of construction and for coordination of the work of all trades.

BY: JLK
DATE: 11/16/2009

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860–633–9445

ITEM 621.72 APPROACH SECT. – NETC 2 RAIL
TOWN OF BENNINGTON
COUNTY OF BENNINGTON
PROJ. AC NH 019–1(51) BRIDGE B15N/S
VT ROUTE 279 OVER ROARING BRANCH

AISC CERTIFIED FABRICATOR

HSC JOB NO. 1730
SHEET NO. 4 of 4

GENERAL CONTRACTOR
SUB CONTRACTOR F.R. LAFAYETTE, INC.

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