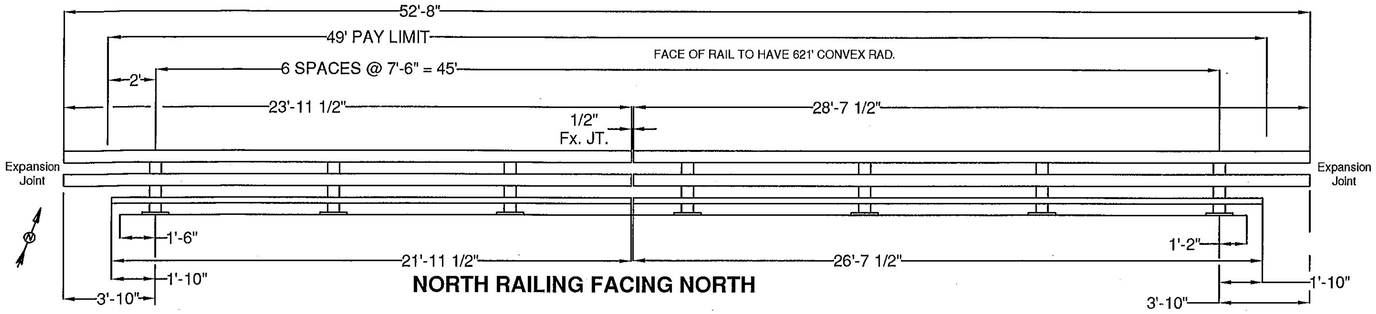
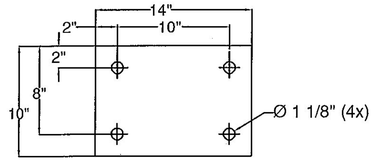


NORTH RAILING FACING NORTH

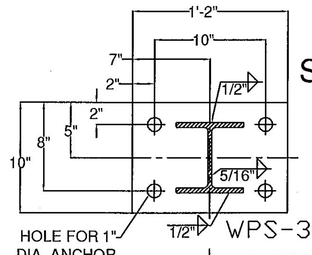
RAIL BENDING PROCEDURE:
RADII EQUAL OR GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE, RADII LESS THAN 16' TO BE 'PIE CUT' AND WELDED.

BILL OF MATERIAL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	14	0033.03610	W6x25, THREE RAIL POST @ 2'-9" OA ON 1 1/4x10x1'-2" B.P.	A572 Gr. 50
2	1	T.B.D.	HSS 3" X 5" X 1/4" RAIL @ 21'-11 1/2" W/ 621' CONVEX R.	A500 Gr. B
3	1	T.B.D.	HSS 3" X 5" X 1/4" RAIL @ 26'-7 1/2" W/ 621' CONVEX R.	A500 Gr. B
2	1	T.B.D.	HSS 3" X 5" X 1/4" RAIL @ 20'-11 1/2" W/ 651' CONCAVE R.	A500 Gr. B
3	1	T.B.D.	HSS 3" X 5" X 1/4" RAIL @ 25'-7 1/2" W/ 651' CONCAVE R.	A500 Gr. B
5	2	T.B.D.	HSS 6" X 6" X 3/16" RAIL @ 23'-11 1/2" W/ 621' CONVEX R.	A500 Gr. B
6	2	T.B.D.	HSS 6" X 6" X 3/16" RAIL @ 28'-7 1/2" W/ 621' CONVEX R.	A500 Gr. B
5	2	T.B.D.	HSS 6" X 6" X 3/16" RAIL @ 22'-11 1/2" W/ 651' CONCAVE R.	A500 Gr. B
6	2	T.B.D.	HSS 6" X 6" X 3/16" RAIL @ 27'-7 1/2" W/ 651' CONCAVE R.	A500 Gr. B
8	2	0033.00840	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
9	4	0033.00640	HSS 5" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A500 Gr. B, A572 Gr. 50
10	14	0033.00220	3/8" X 10" X 14" ANCHOR PLATES	A572 Gr. 50
11	14	0033.90050	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
12	58*	0042.21013	ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 TYPE 1
13	114*	0080.18901	ø 1" HEAVY HEX NUTS	A563 DH
14	58*	0080.18911	ø 1" FLAT WASHERS	F436
15	56	0080.18905	ø 1" HEX JAM NUTS	A563 DH
16	56	0080.07500	ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563 DH, F436, ASME D18.2
17	14	0080.06400	ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563DH, F436, & ASME D18.2
18	28	0080.06140	ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563 DH, F436, & ASME D18.2
19	16	0080.06340	ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563 DH, & F436
20	8	0080.06255	ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563 DH, & F436
21	14	0033.00500	L5" X 5" X 5/8" RAILING ANGLE @ 6'	A572 Gr. 50
22	4		DELINEATORS - NOT SHOWN	(SUPPLIED BY CUSTOMER)

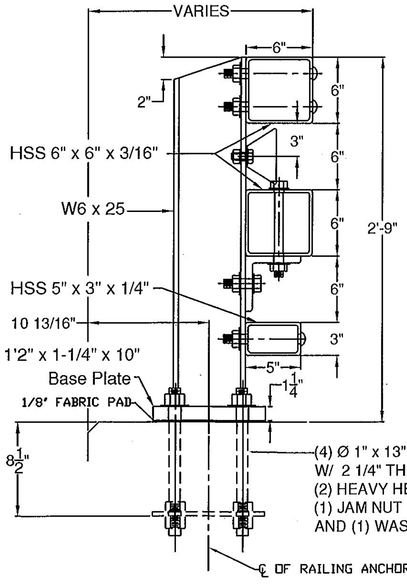
*-2 EXTRA FOR VDOT TESTING



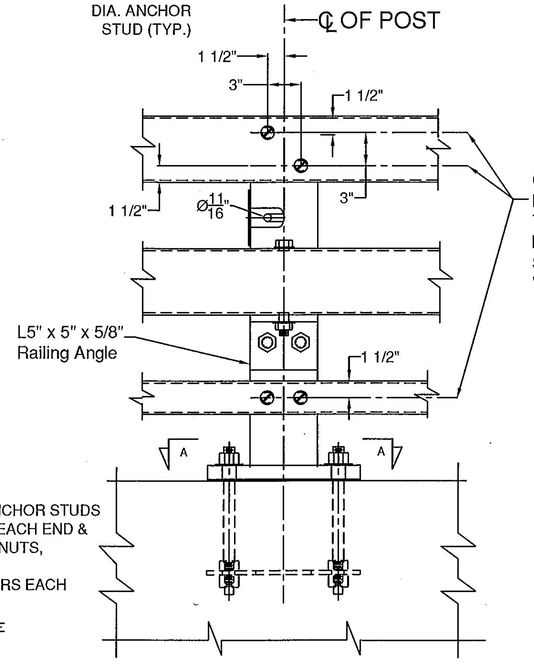
1/8" FABRIC PAD



SECTION A-A



SECTION



ELEVATION

STEEL BRIDGE RAILING

Vermont Agency of Transportation
RECEIVED
ON: January 7, 2016
and Checked for
CONFORMANCE
BY: Rob Young DATE: 01/14/2016

APPROVED: Approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements	X	Stantec
APPROVED AS NOTED		
REVISE AND RESUBMIT		
NOT REVIEWED		
Date: 1/13/16		
By:		

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The 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 installation and for coordination of the work of all subtrades.

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3) ALL POST SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POST IS 8' 3"
4) SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
5) RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPER STRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4"@ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6) STD. SPLICE HOLES ONLY IN BRIDGE RAIL TUBES. REST TO BE DRILLED BY CUSTOMER. FIELD DRILLED HOLES TO BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
8) SEE STANDARD DRAWING G-I FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
9) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10) THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
12) THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

ITEM #: 525.335

SHEET 1 OF 4

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

BRIDGE RAIL DETAILS SHEET

VERMONT ROUTE 106 (MAJOR COLLECTOR, RURAL), BRIDGE # 24
TOWN OF WOODSTOCK, COUNTY OF WINDSOR, VT.

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E	1	12/29/15	Revised Per 12/18/15 Markup	E.P.	E				
V					V				

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
email: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR
ORTHOGRAPHIC PROJECTION

DRAWN	E.P.	11/30/15
CHECKED	D.L.	11/30/15
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LaFAYETTE-WOODSTOCK (21)	