

BILL OF MATERIAL			
QTY	PART #	DESCRIPTION	ASTM DESIGNATION
36	0033.90344	TWO RAIL POST @ 2'-2 3/8" O.A.	A572 Gr. 50
2	0033.91127	4' X 4' X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
4	0033.91128	4' X 4' X 1/4" RAIL @ 29'-11"	A500 Gr. B
2	0033.91129	4' X 4' X 1/4" RAIL @ 19'-11 1/2"	A500 Gr. B
1	0033.91130	4' X 4' X 1/4" RAIL @ 20'-7 1/4" W/ PARTIAL 34'-6" R.	A500 Gr. B
1	0033.91131	4' X 4' X 1/4" RAIL @ 20'-5" W/ PARTIAL 15'-0" R.	A500 Gr. B
2	0033.91132	4' X 8' X 5/16" RAIL @ 29'-11 1/2"	A500 Gr. B
4	0033.91133	4' X 8' X 5/16" RAIL @ 29'-11"	A500 Gr. B
2	0033.91134	4' X 8' X 5/16" RAIL @ 19'-11 1/2"	A500 Gr. B
1	0033.91135	4' X 8' X 5/16" RAIL @ 20'-7 1/4" W/ PARTIAL 34'-6" R.	A500 Gr. B
1	0033.91136	4' X 8' X 5/16" RAIL @ 20'-5" W/ PARTIAL 15'-0" R.	A500 Gr. B
8	0033.90052	3' X 3' X 5/16" FIX. SPL. TUBE @ 1'-8"	A500 Gr. B
8	0033.90033	3' X 7' X 3/8" FIX. SPL. TUBE @ 1'-8"	A500 Gr. B, A36
36	0033.00299	3/8" X 9 3/8" X 13" ANCHOR PLATES	A36
36	0033.00052	1/8" FIBER PAD @ 10" X 14" (S-360A)	AASHTO M251
144	0042.21012	Ø 1" X 12" ANCHOR STUDS W/ 2 1/2" THREADED ENDS	A449 Gr. 1
288	0080.18901	Ø 1" HEAVY HEX NUTS	A563
144	0080.18905	Ø 1" HEX JAM NUTS	A325
144	0080.18911	Ø 1" FLAT WASHERS	F436
144	0080.06290	Ø 3/4" X 6" ROUND HEAD BOLT, NUT, FLAT WASHER, L.W.	A449, A563, ASME B18.21.1
64	0080.05045	Ø 5/8" X 1 3/4" HEX BOLT, & F.W.	A307
10	-	ALUMINUM DELINEATORS	SUPPLIED BY FRL

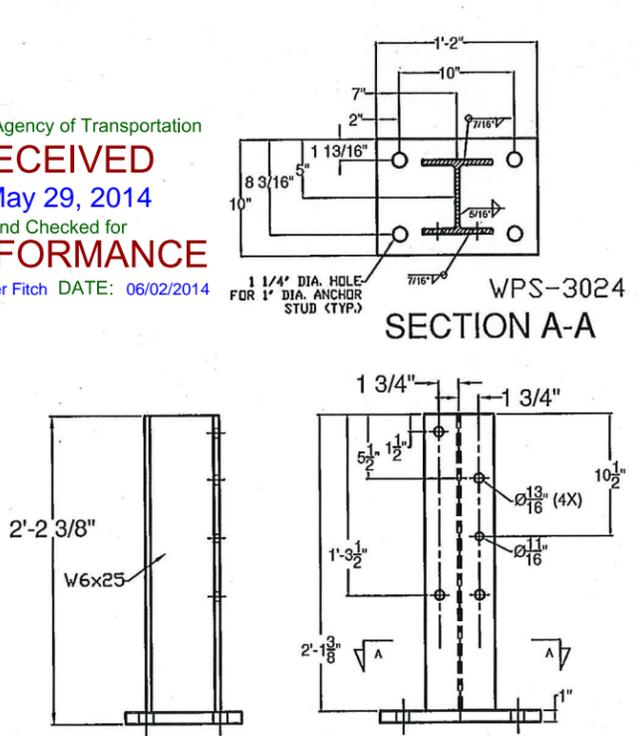
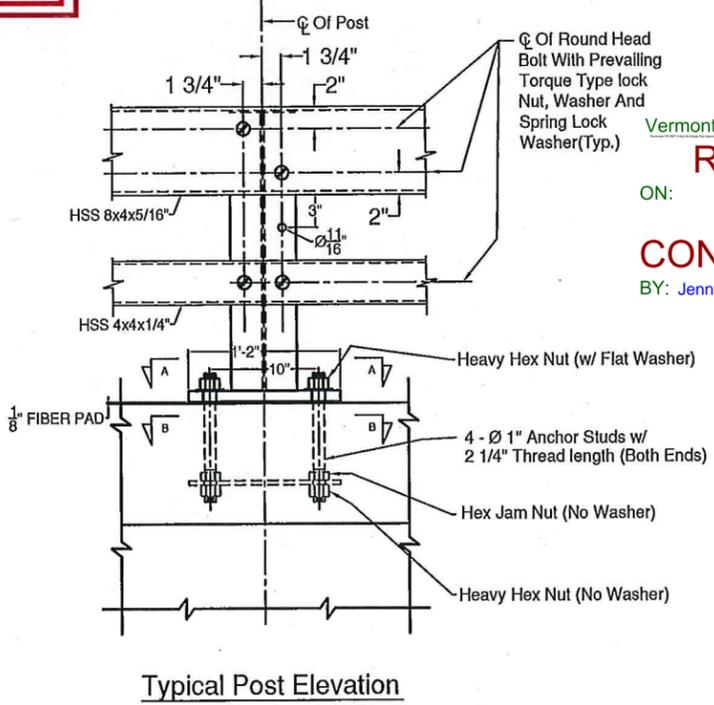
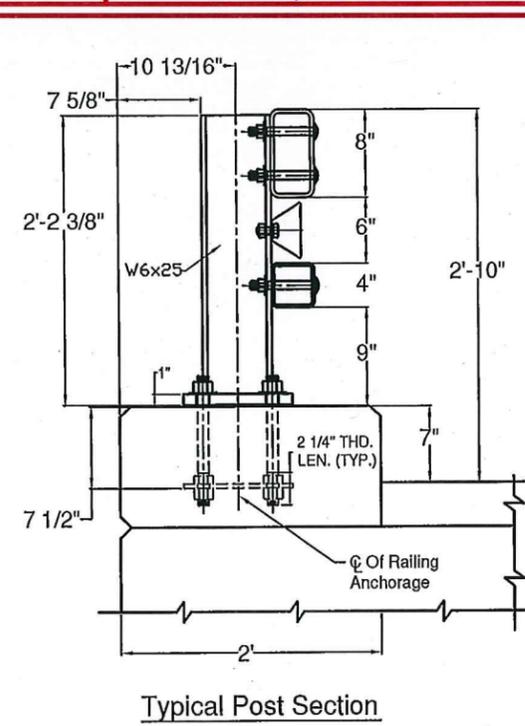
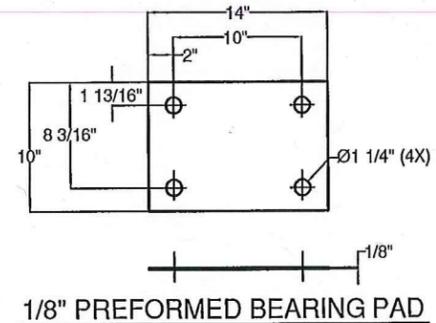
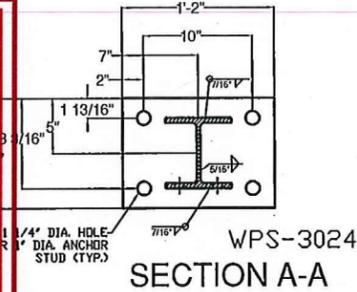
SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED REVISE AND RESUBMIT FURNISH AS CORRECTED

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Job Number: 57517
 Reviewed By: B. Moore
 Date: 5-30-14



- NOTES
- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
 - PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
 - ALL POSTS SHALL BE SET NORMAL TO GRADE.
 - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POSTS AND PREFERABLY TO AT LEAST FOUR POSTS.
 - RAIL TUBE EXPANSION JOINTS SHALL PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" A 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT WILL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
 - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
 - RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE RACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
 - ANY BENDING OF RAIL SHALL BE DONE AT A FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
 - 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 TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
 - SEE STANDARD DRAWING G-1 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 SHALL BE INCIDENTAL TO OTHER ITEMS.
 - THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

Vermont Agency of Transportation
RECEIVED
 ON: **May 29, 2014**
 and Checked for
CONFORMANCE
 BY: Jennifer Fitch DATE: 06/02/2014

ITEM #: 525.33

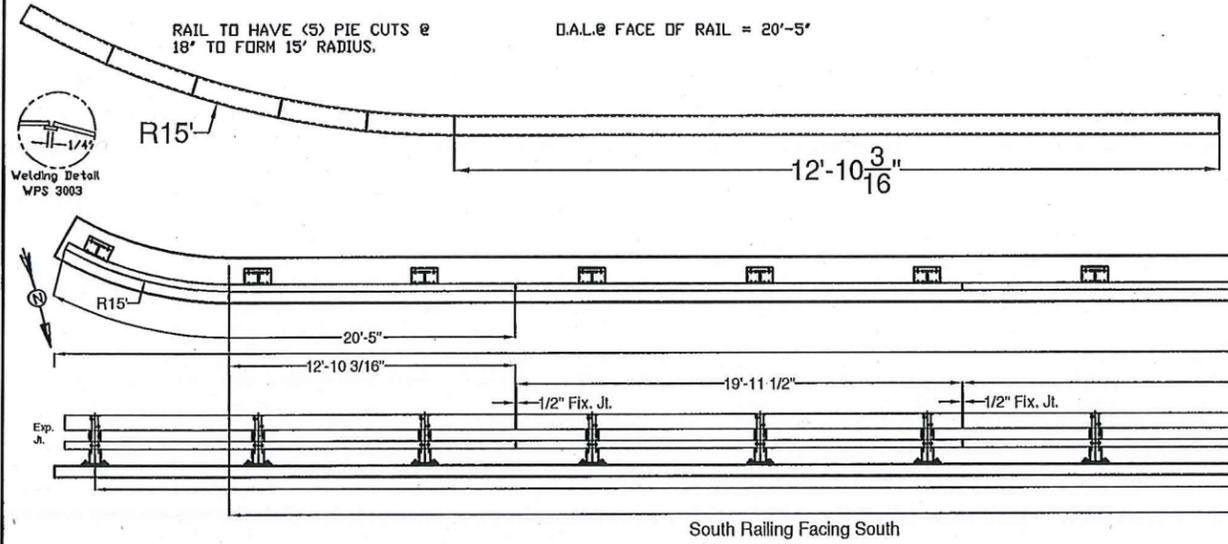
APPROVED BY: _____

BRIDGE RAIL DETAILS SHEET
 ROCHESTER, BR# 0162 (18) VT RTE 73 (MAJOR COLLECTOR), BRIDGE NO.: 19, OVER WHITE RIVER
 TOWN OF ROCHESTER, COUNTY OF WINDSOR, VT

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
E 1	5/28/14	REVISE PER 5/27/14 EMAIL	E.P.	E			

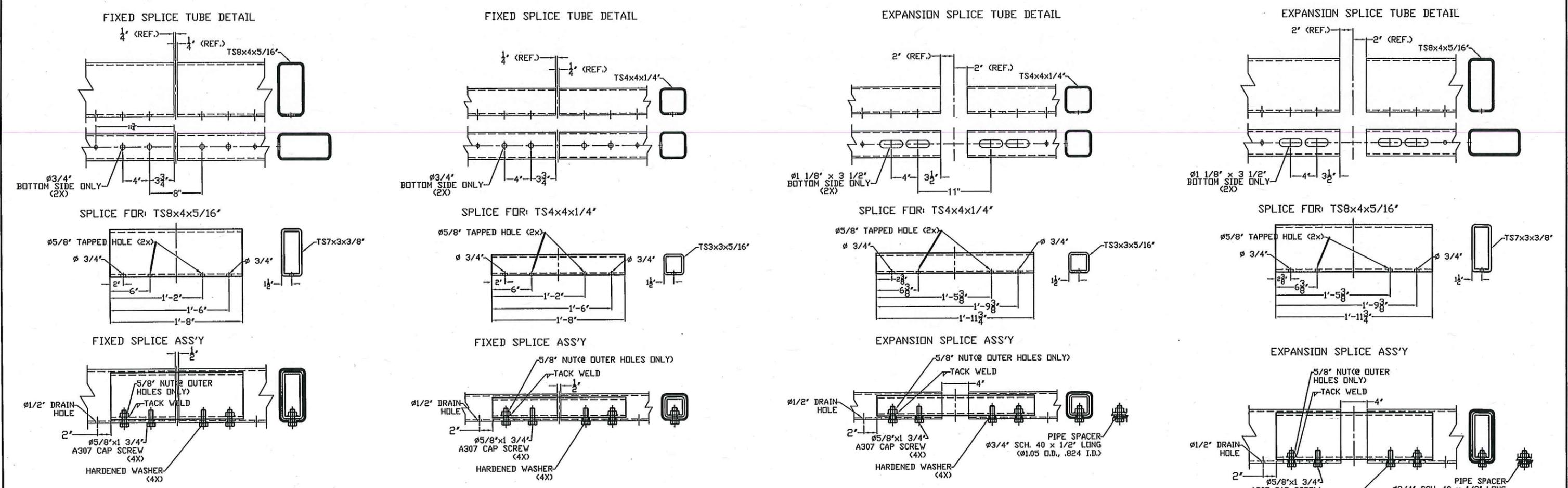
ELDERLEE, INC.
 OAKS CORNERS, NEW YORK 14518
 E-Mail: dlong@elderlee.com / epeek@elderlee.com
 Tel: 315-789-6670 Fax: 315-789-6615

SCALE: SCHEMATIC
 DRAWING NO. FR L - ROCH-BR19



RAIL BENDING PROCEDURE:

1) RADII GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE, RADII LESS THAN 16' TO BE "PIE CUT" AND WELDED. CURVED RAILING WILL HAVE AN 18" LENGTH ON EACH END STRAIGHT TO ACCOMADATE SPLICES.



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VHB Job Number: 57517
 Reviewed By: R. Mance
 Date: 5-30-14

ITEM #: 525.33

APPROVED BY:

SHEET 2 OF 2

BRIDGE RAIL DETAILS SHEET
 ROCHESTER, BR# 0162 (18) VT RTE 73 (MAJOR COLLECTOR), BRIDGE NO: 19, OVER WHITE RIVER
 TOWN OF ROCHESTER, COUNTY OF WINDSOR, VT

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E 1	5/28/14	REVISE PER 5/27/14 EMAIL	E.P.				

ELDERLEE, INC.
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 E-Mail: dlong@elderlee.com / epeek@elderlee.com
 Tel: 315-789-6670 Fax: 315-789-6615

DRAWN	E.P.	5/6/14
CHECKED	D.L.	5/6/14
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO. FR L - ROCH-BR19		

WELDING PROCEDURE SPECIFICATION

Material Specification	A572 GRD. 50 /A992-06a		
Welding Process	FCAW		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT		
Filler Metal Specification	A5.20		
Filler Metal Classification	E70 LINCOLN OUTERSHEILD		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50 CFM
Single or Multiple Pass	SINGLE		(45 TO 63 CFM)
Single or Multiple Arc	N/A		
Welding Current	DC		
Polarity	DCEP		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

WELDING PROCEDURE.

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	3/32	390	27	12	
Variable	LIMITS	351	25	11	
		TO 429	TO 29	TO 13	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3024 Contractor Elderlee, Inc.
 Revision No. _____ Authorized By RANDY SCOTT
 Date 5/1/2013

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VHB	Job Number: <u>57517</u>
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	Date: <u>5-30-14</u>

Vermont Agency of Transportation

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