

Figure 25. Test Installation Layout, Test No. WVBR-1

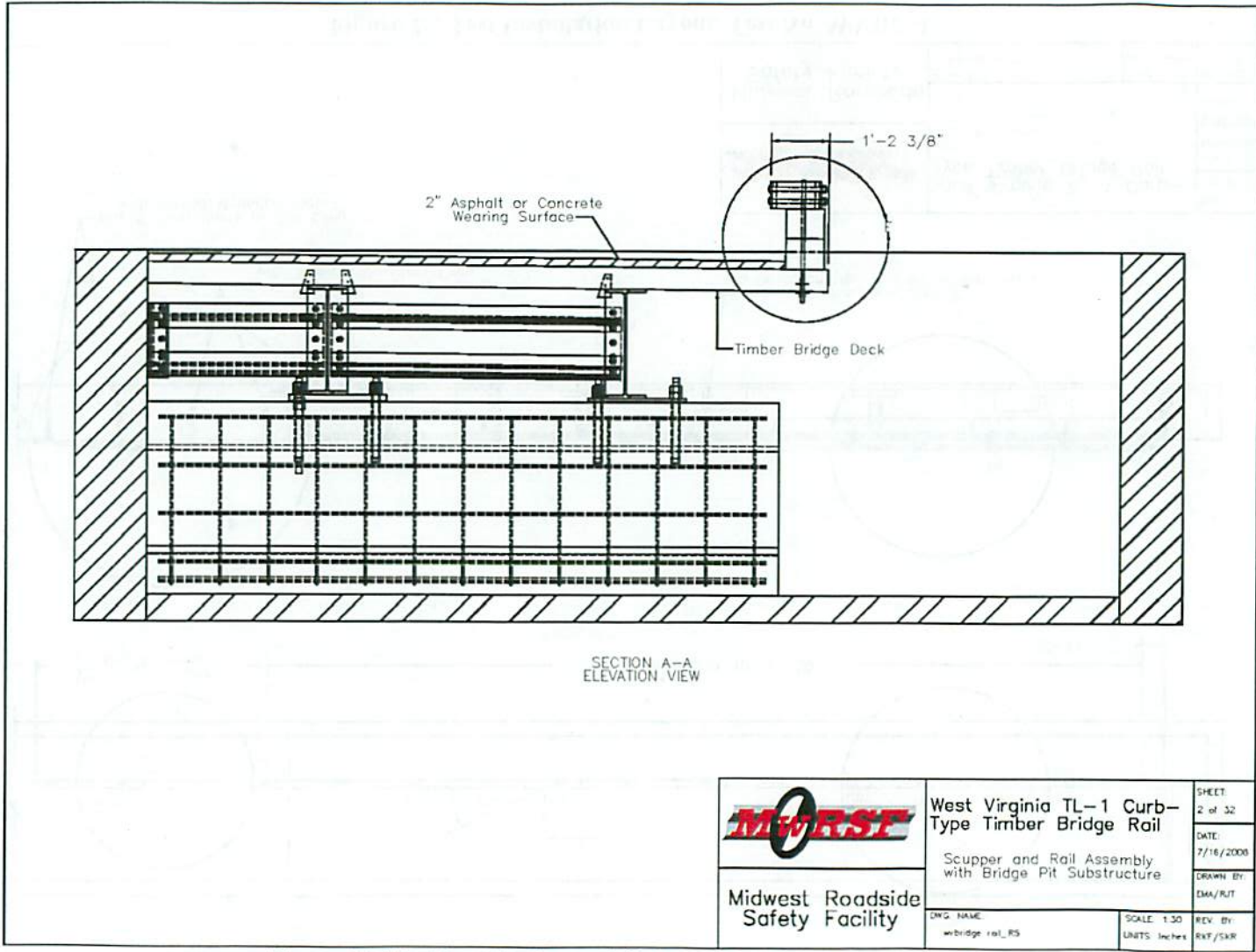


Figure 26. Test Installation and Substructure, Test No. WVBR-1

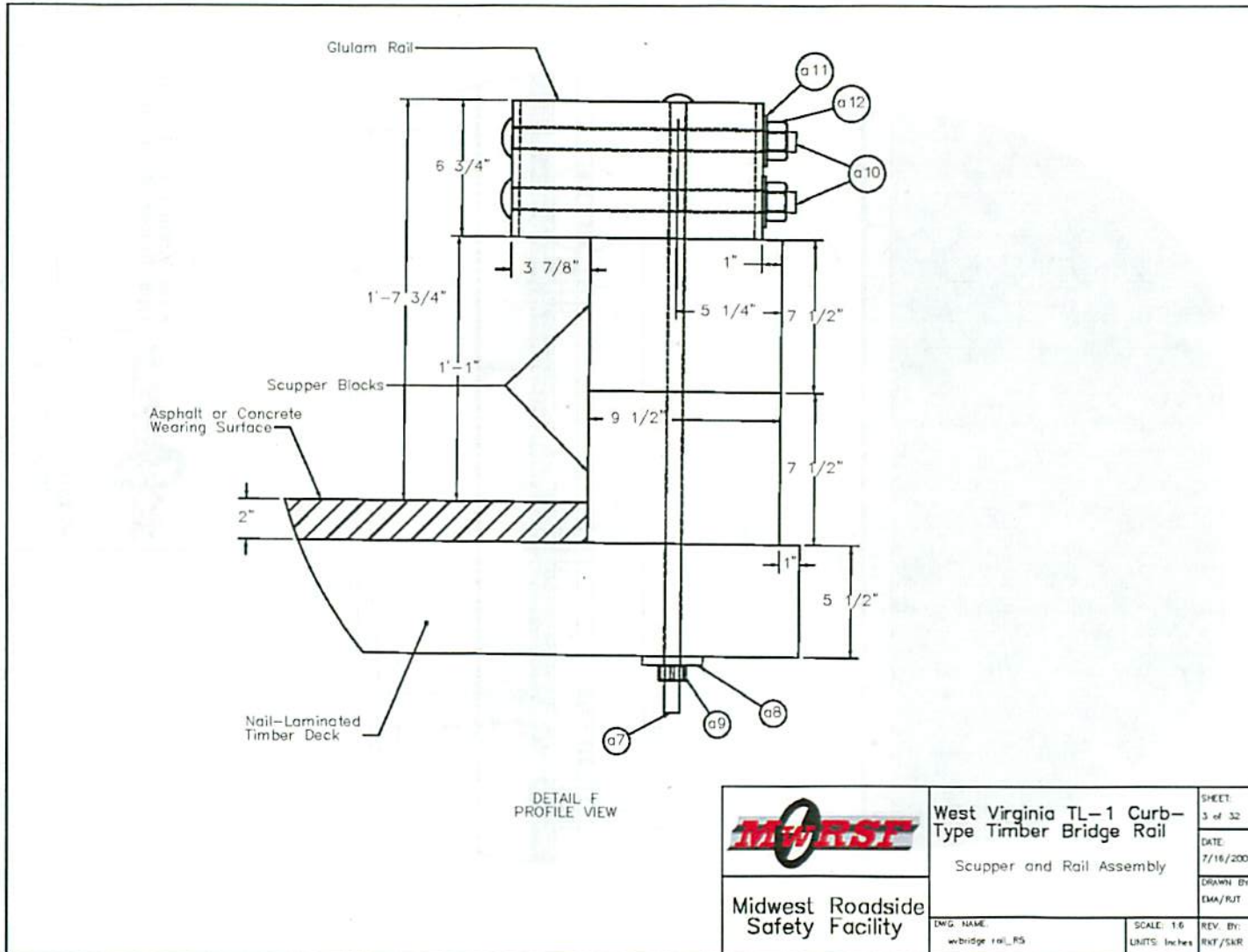


Figure 27. Curb-Type, Timber Bridge Rail Cross Section, Test No. WVBR-1

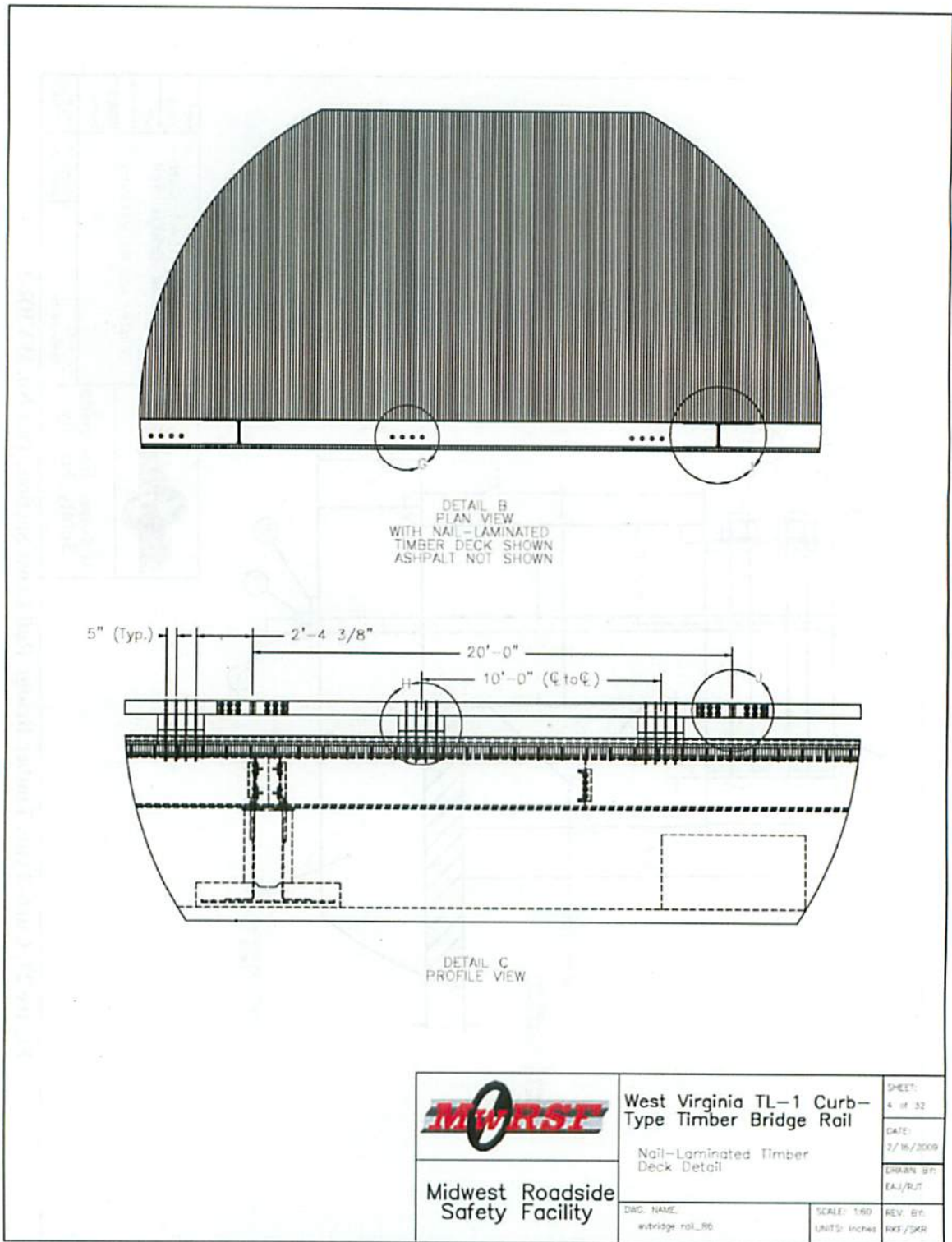


Figure 28. Timber Bridge Rail, Top and Front Views, Test No. WVBR-1

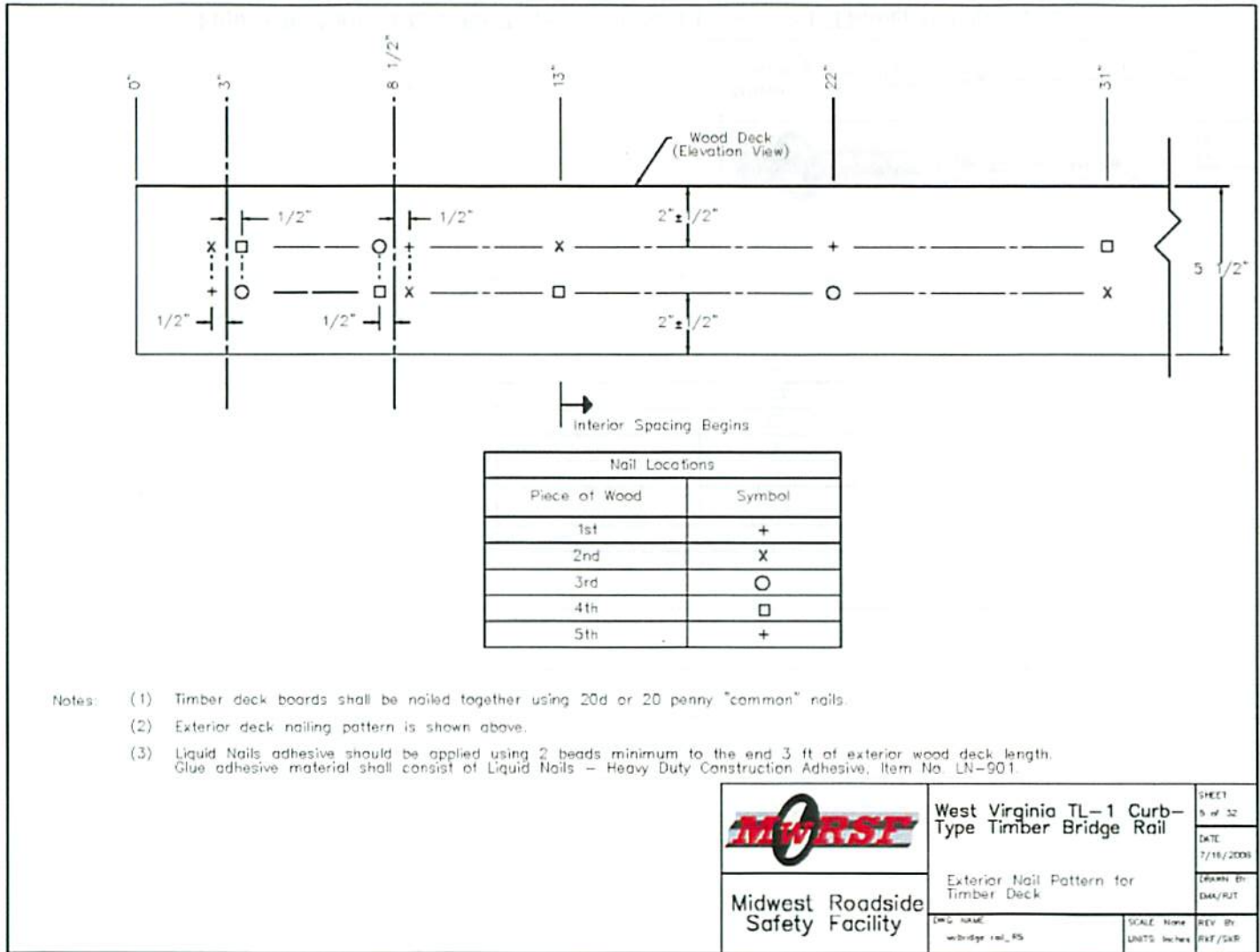


Figure 29. Exterior Nail Pattern for Transverse, Nail-Laminated, Timber Bridge Deck

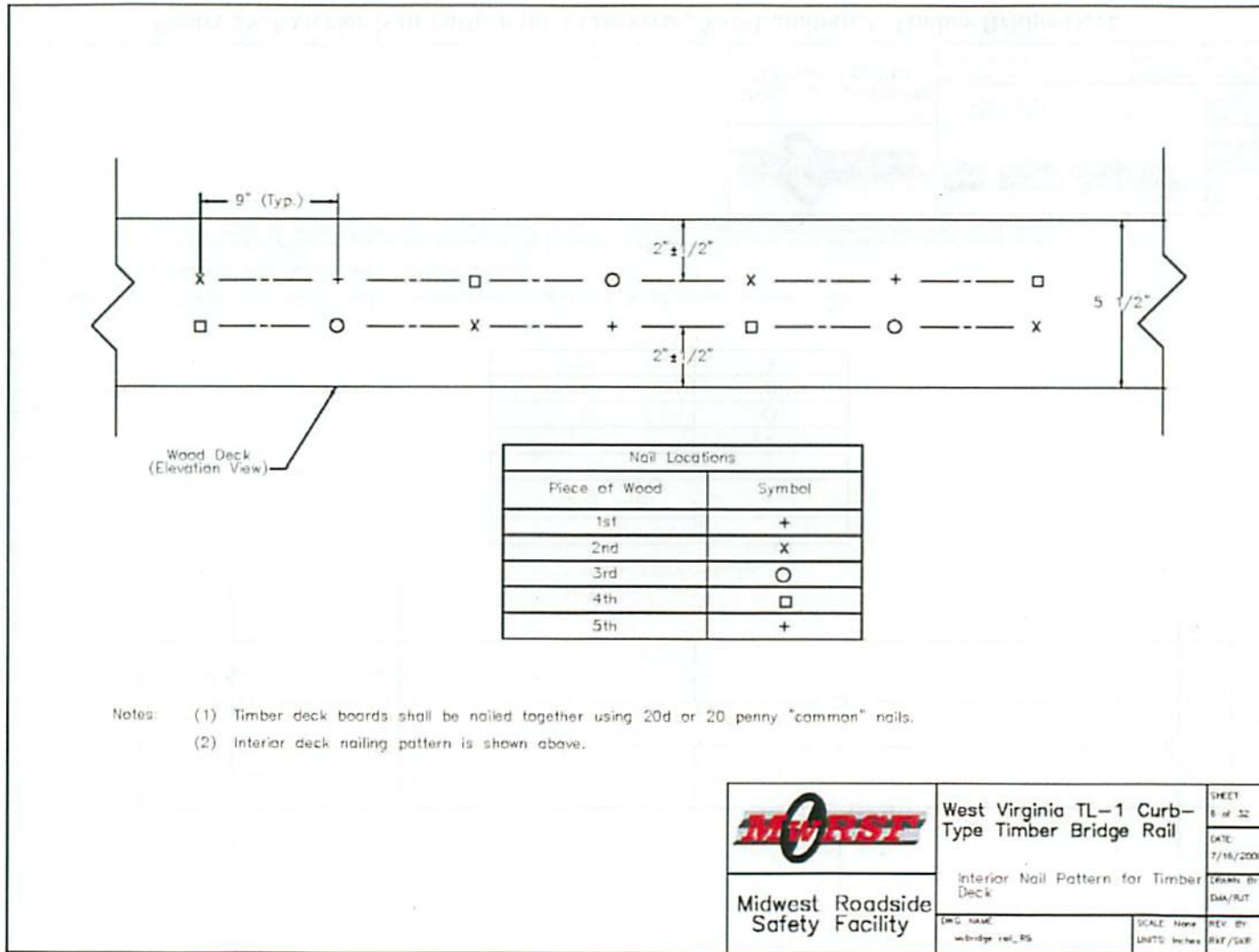


Figure 30. Nail Pattern for Transverse, Nail-Laminated, Timber Bridge Deck

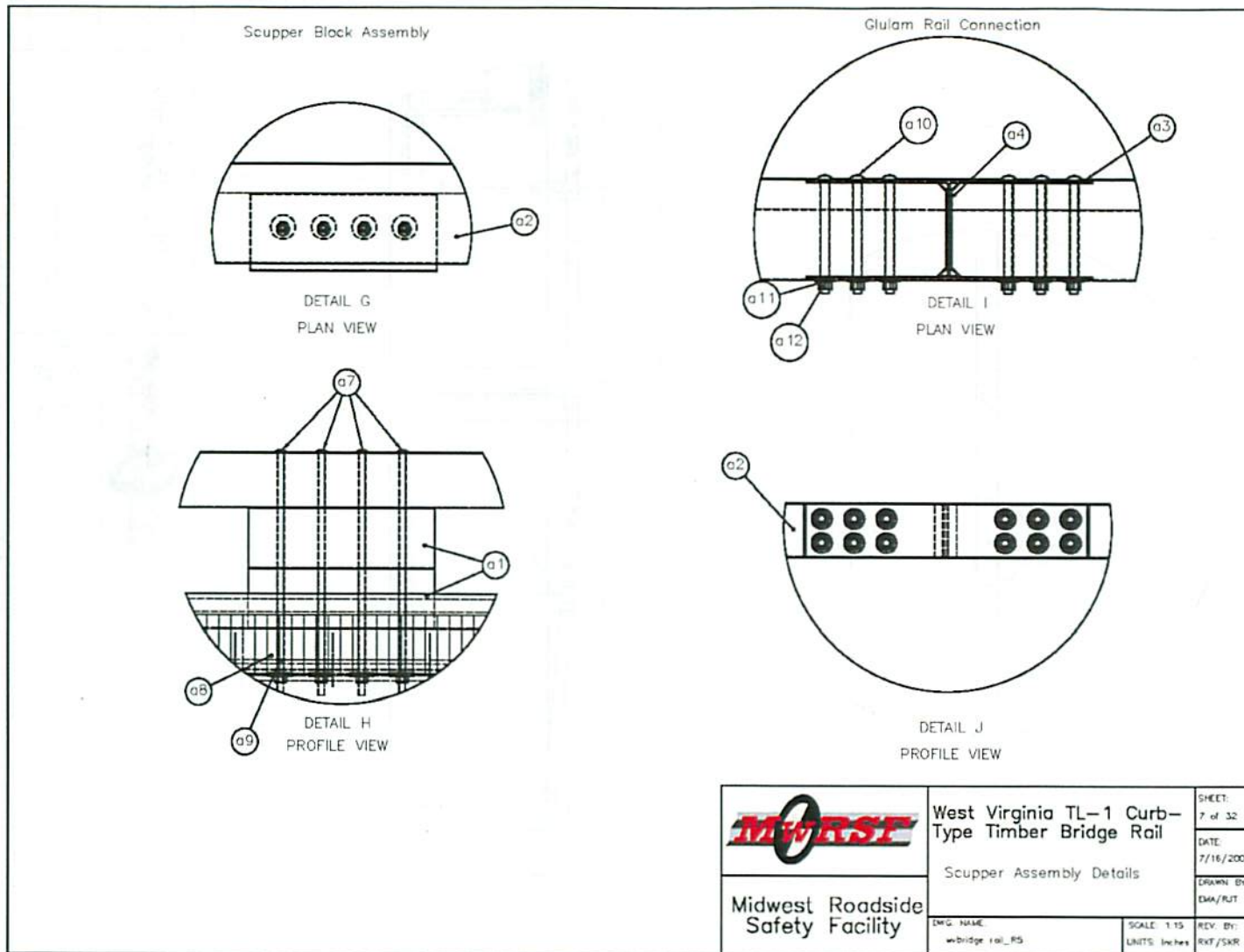


Figure 31. Rail Connection Details, Test No. WVBR-1

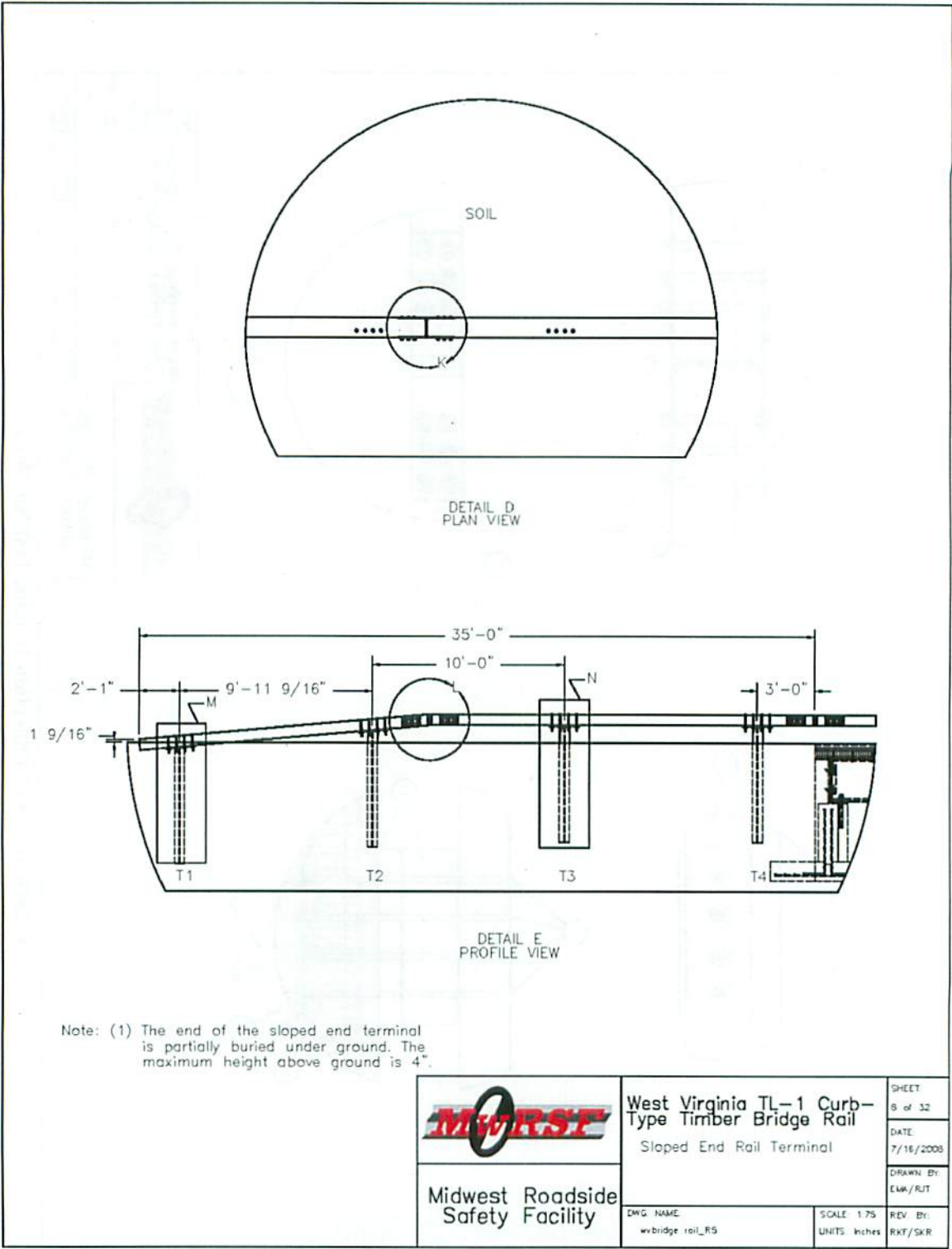


Figure 32. Rail End Treatment, Test No. WVBR-1

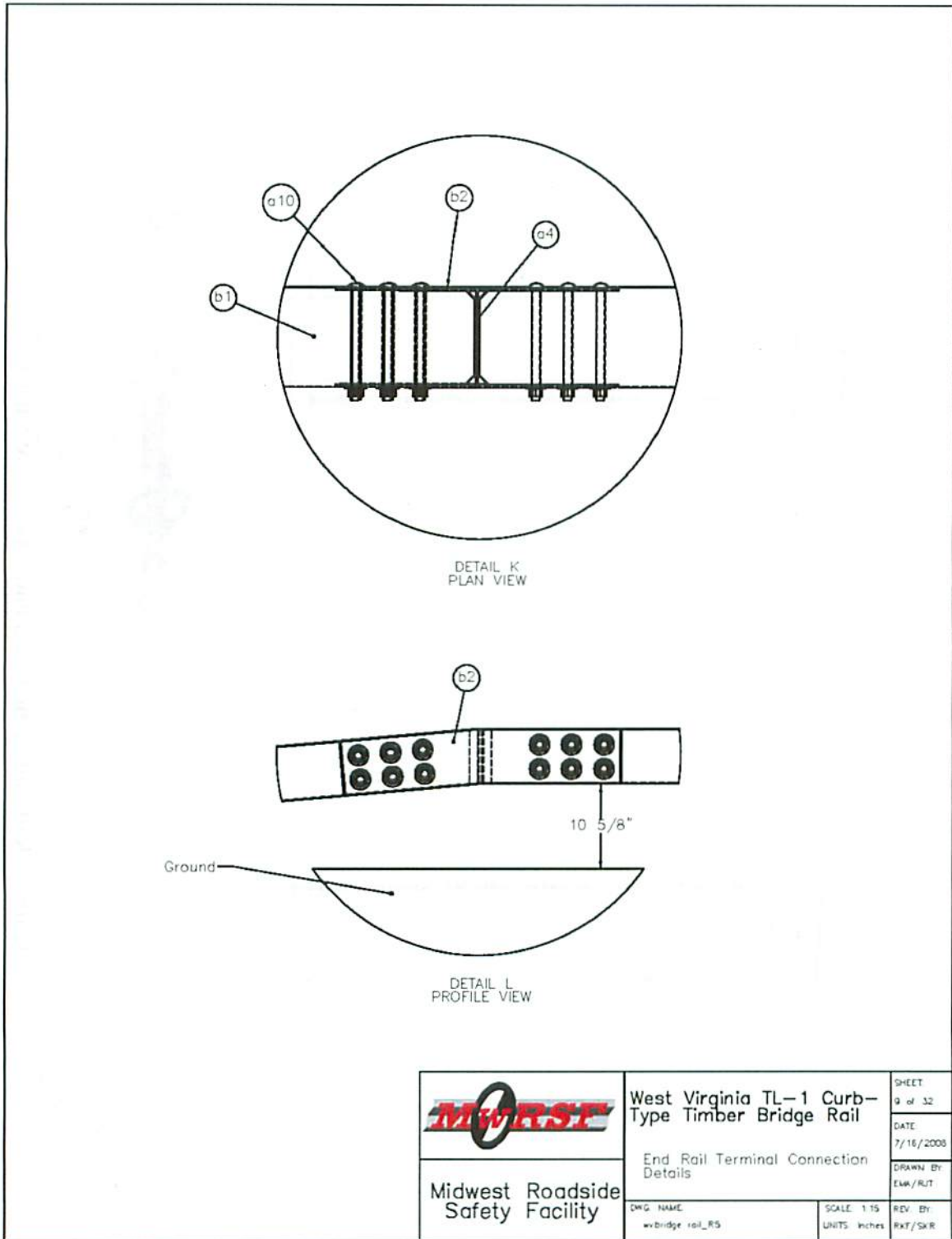


Figure 33. Rail End Treatment Connection Details, Test No. WVBR-1

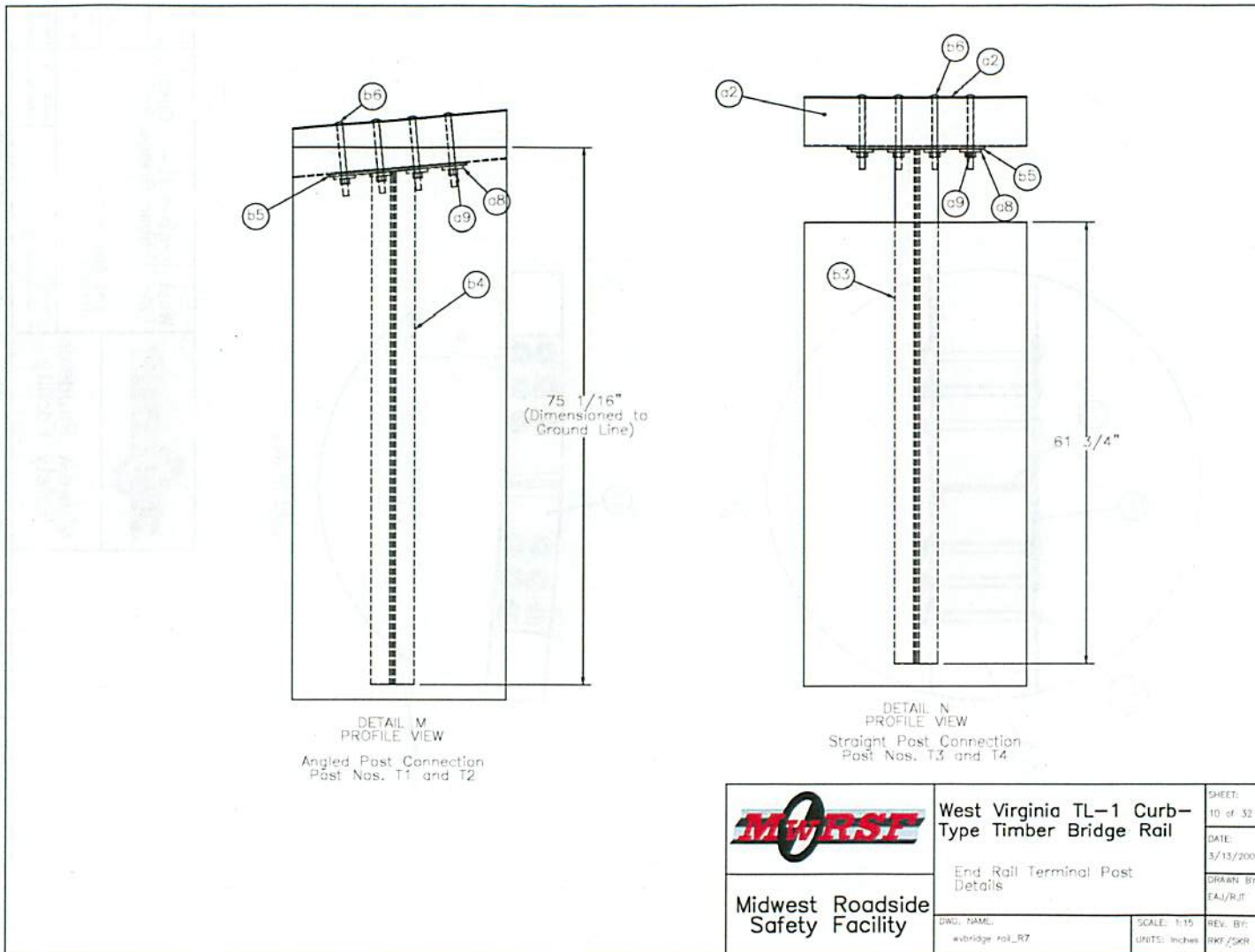


Figure 34. Rail End Section Steel Posts, Test No. WVBR-1

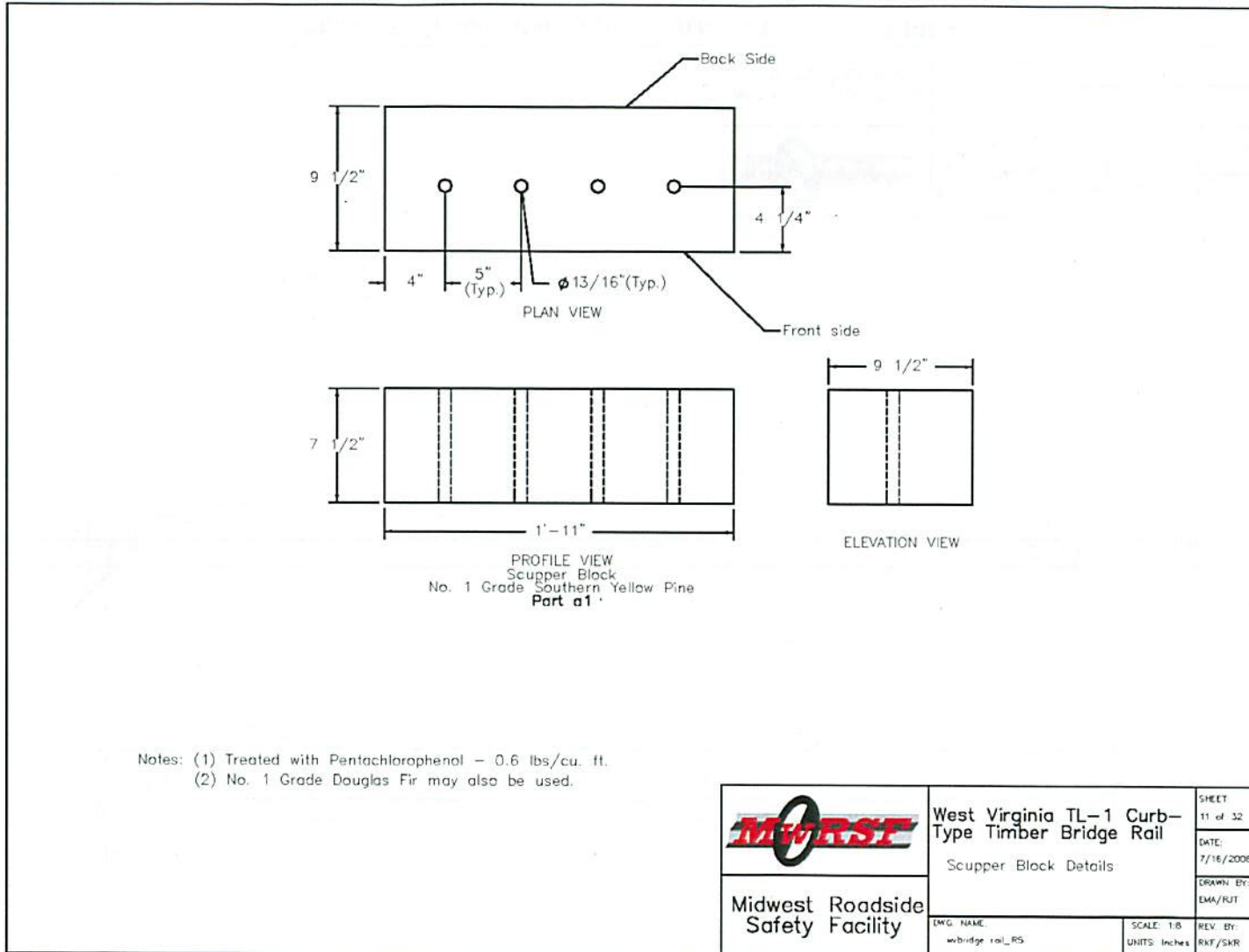


Figure 35. Scupper Block Details, Test No. WVBR-1

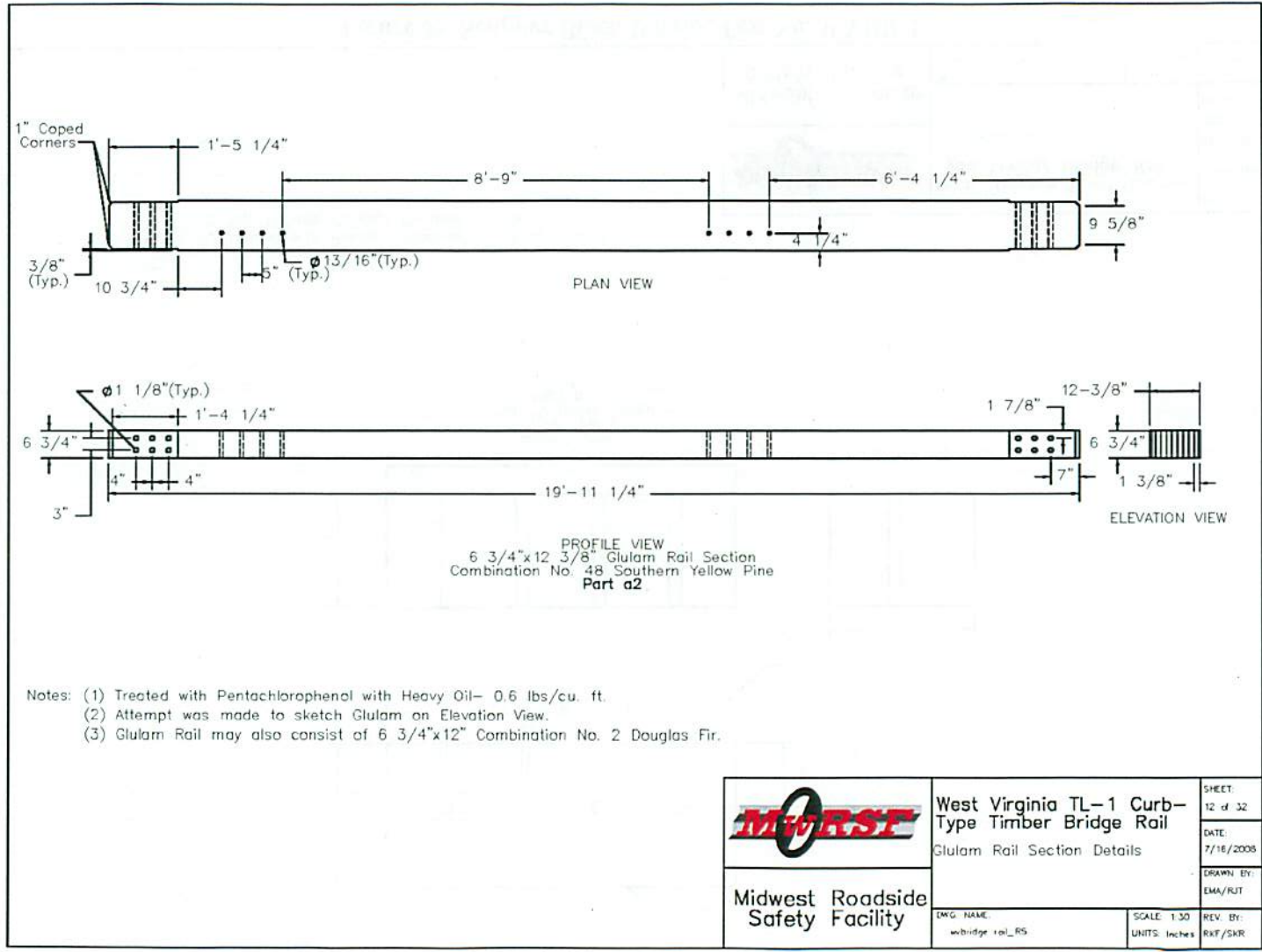


Figure 36. Glulam Rail Segment Details, Test No. WVBR-1

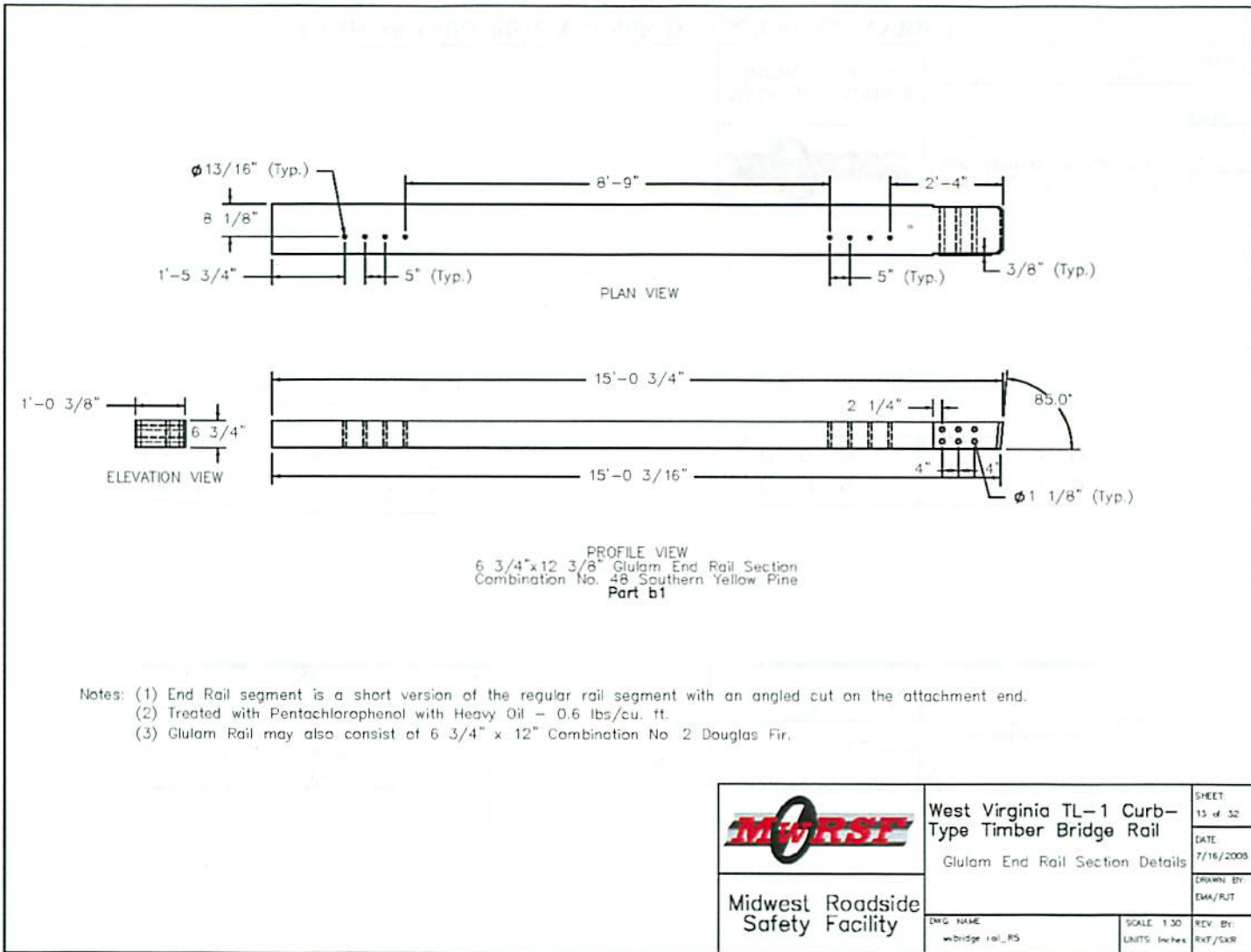


Figure 37. Glulam Rail End Segment Details, Test No. WVBR-1

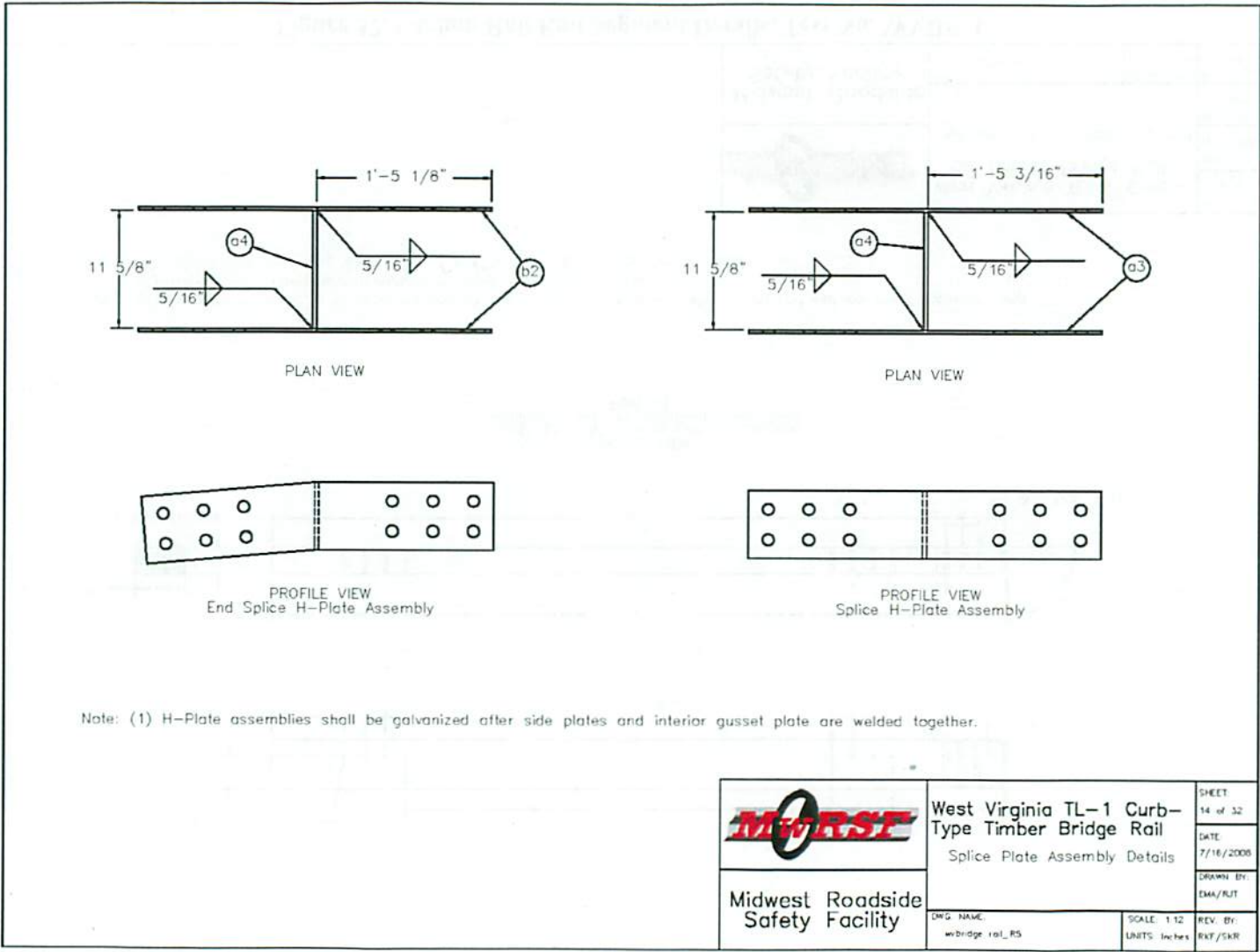


Figure 38. Splice Plate Assembly Details, Test No. WVBR-1

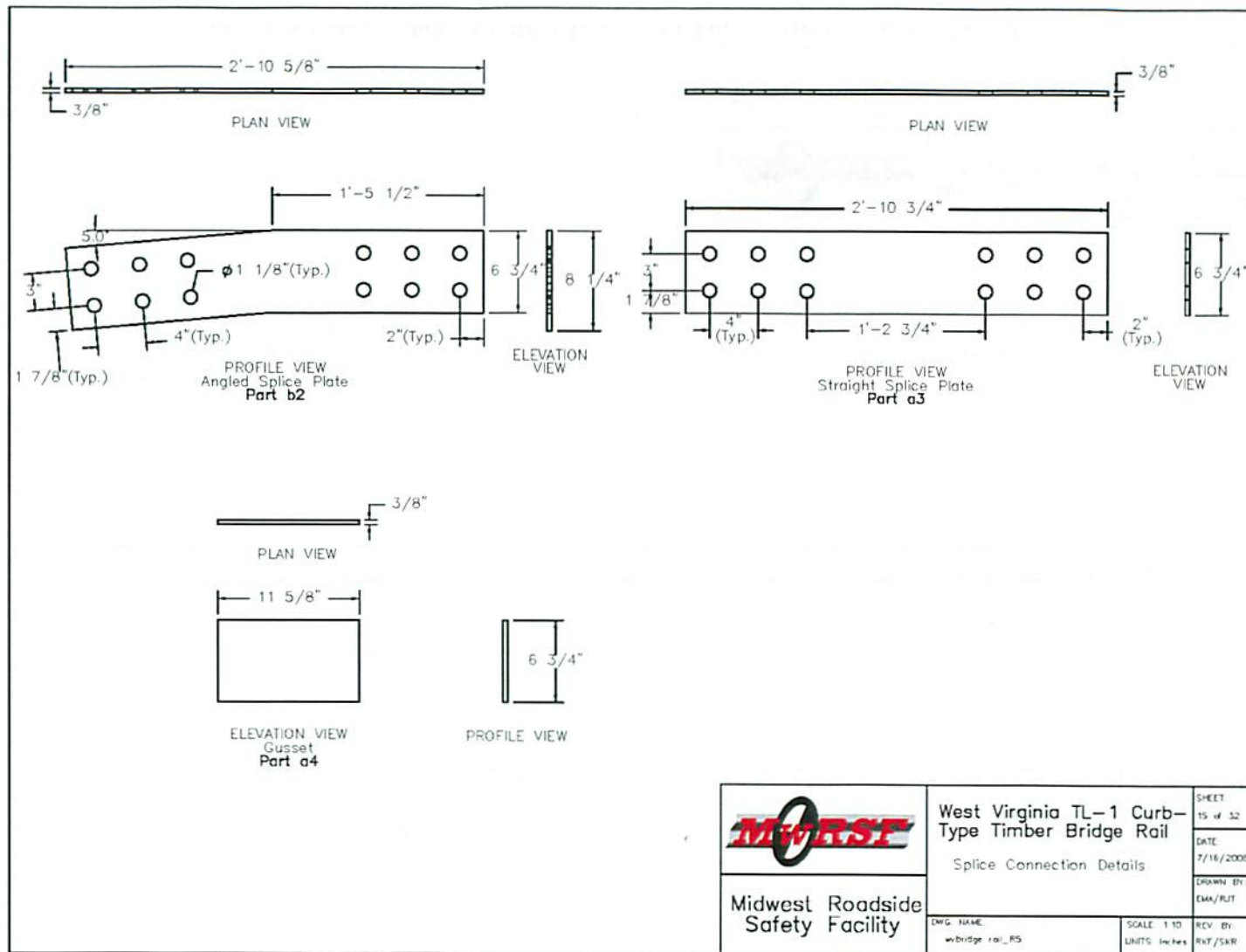



Figure 39. Splice Plate Component Details, Test No. WVBR-1

 Midwest Roadside Safety Facility	West Virginia TL-1 Curb-Type Timber Bridge Rail Splice Connection Details	SHEET 15 of 32
	DATE 7/16/2008	DRAWN BY EMA/PLT
ENG. NAME wbridge_rail_RS	SCALE 1 TO UNITS Inches	REV BY RWT/SKR

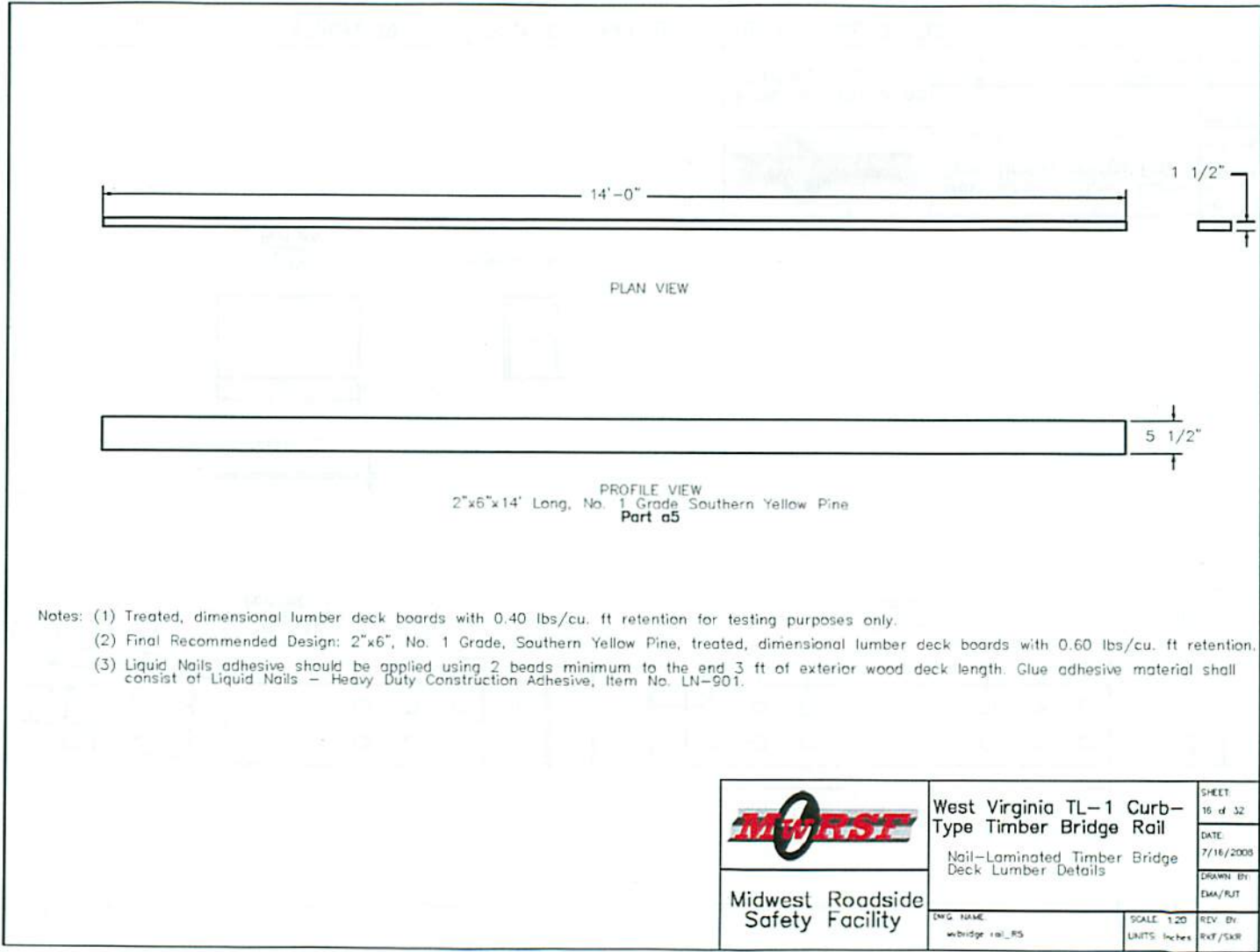


Figure 40. Dimensional Lumber Details for Timber Deck, Test No. WVBR-1

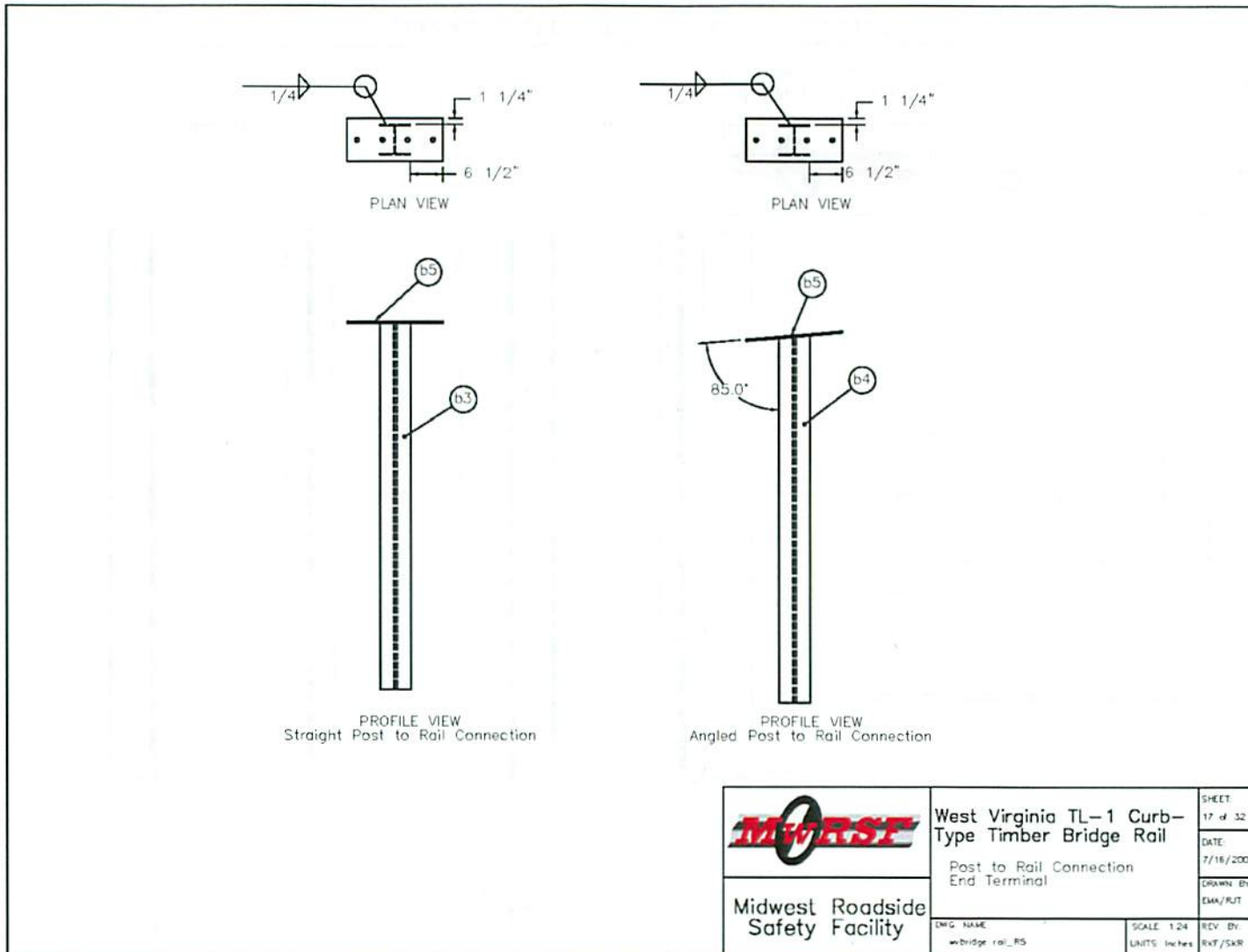


Figure 41. Steel Post Assembly Details, Test No. WVBR-1

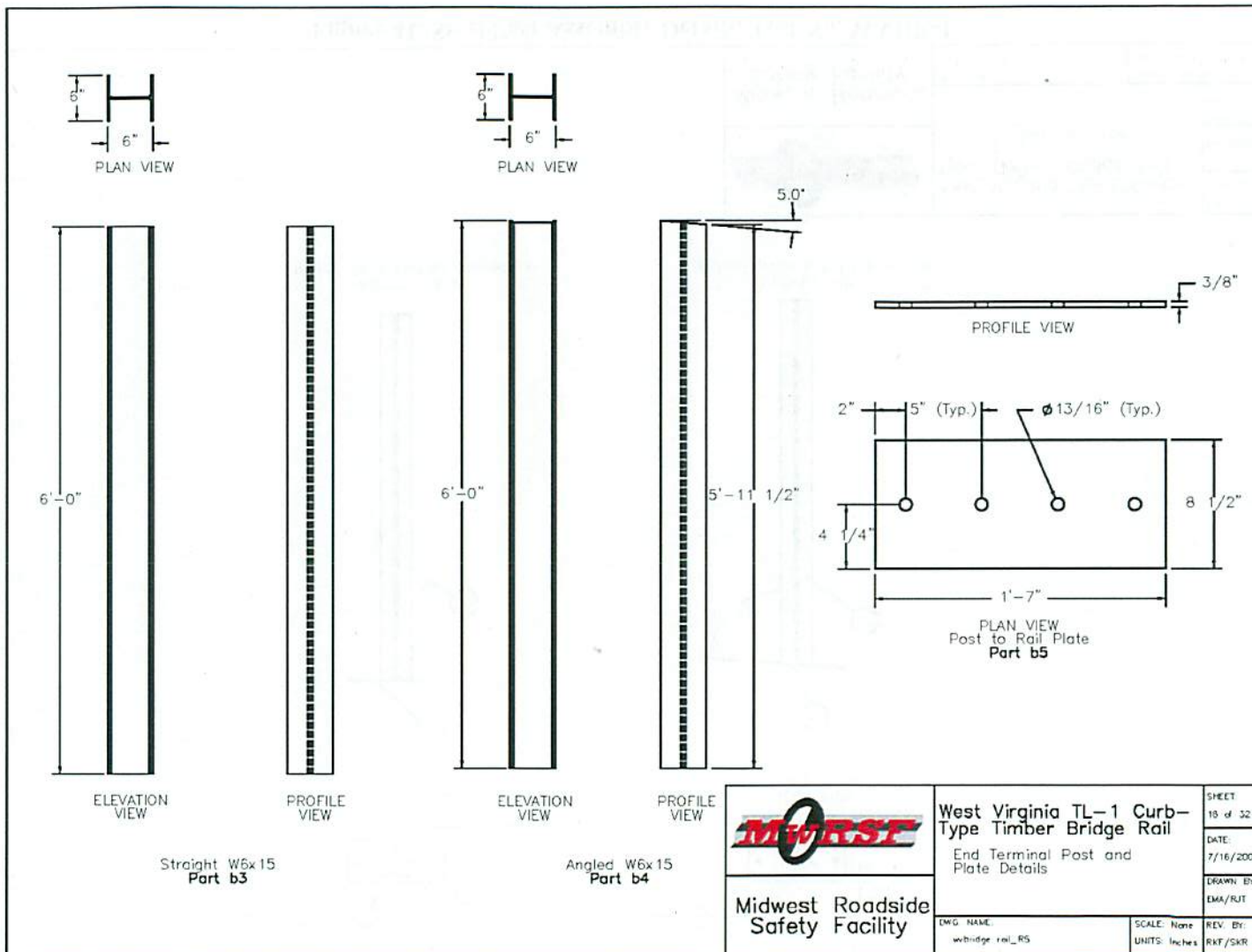
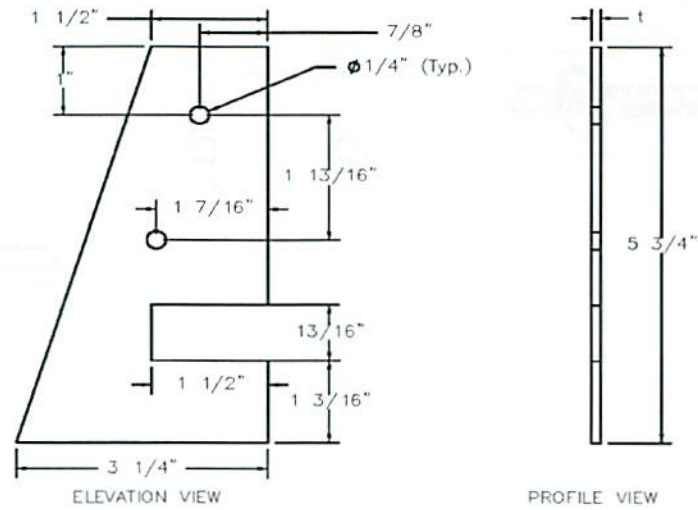


Figure 42. Steel Post Details, Test No. WVBR-1



Galvanized Deck Anchor Bracket
Part a6

Notes: (1) Use 11-gauge option for crash-tested system.
(2) Deck anchor brackets shall be installed using 20d or 20 penny "common" nails.

Steel Specification	Galvanizing	Thickness, t
ASTM A1011 Gr. 36 Hot Rolled Sheet (U.S. Steel Designator - HR36SK53) [Fy(min) = 36 ksi, Fu(min) = 53 ksi]	ASTM A653 G90	11 Gauge
ASTM A1011 Gr. 36 Type 1 SS Hot Rolled Structural Steel Sheet [Fy(min) = 36 ksi, Fu(min) = 53 ksi]	ASTM A653 G90	11 Gauge
ASTM A1011 Gr. 36 Type 2 SS Hot Rolled Structural Steel Sheet [Fy(min) = 36 ksi, Fu(min) = 58-80 ksi]	ASTM A653 G90	11 Gauge
ASTM A36 Steel Plate [Fy(min) = 36 ksi, Fu(min) = 58-80 ksi]	Hot Dipped Galvanized ASTM ??? (0.90 oz/sq. ft)	1/8"


	West Virginia TL-1 Curb-Type Timber Bridge Rail		SHEET 10 of 32
	Deck Anchor Bracket Details		DATE 7/16/2008
Midwest Roadside Safety Facility	DWG NAME wbridge rail_RS		DRAWN BY EMA/RJT
	SCALE: 1:2 UNITS: Inches		REV. BY RKF/SKR

Figure 43. Deck Anchor Bracket Details, Test No. WVBR-1

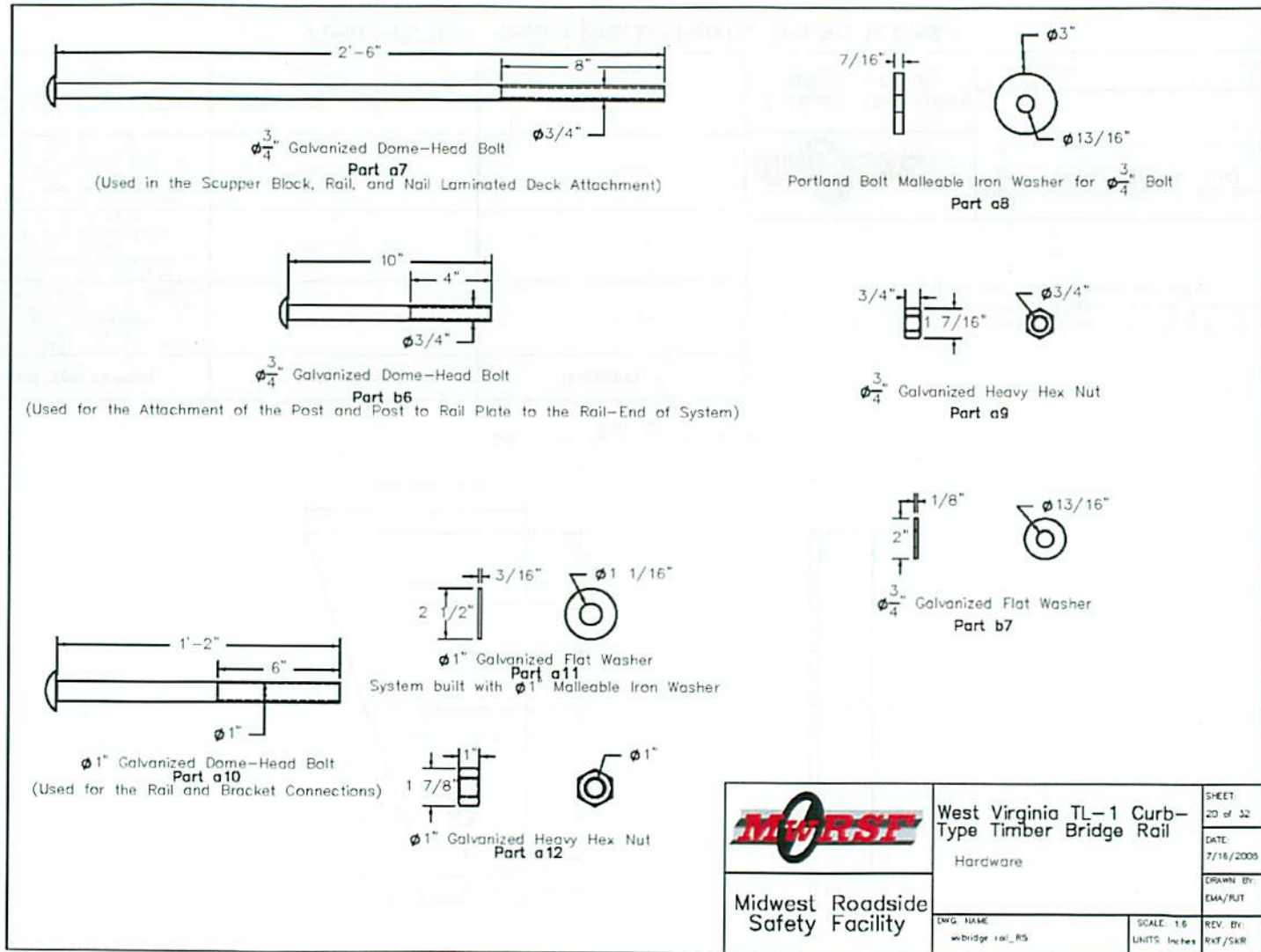


Figure 44. Connection Hardware, Test No. WVBR-1

West Virginia TL-1 Curb-Type Timber Bridge Rail			
Item No.	QTY.	Description	Material Specifications
a1	24	Scupper Block	Southern Yellow Pine No. 1
a2	7	Glulam Rail Section	Southern Yellow Pine Combination No. 48
a3	12	Straight Splice Plate	Design-A572 Gr. 42; Used-A656 Gr. 50 Ty. 7
a4	7	Splice Gusset	Design-A572 Gr. 42; Used-A656 Gr. 50 Ty. 7
a5	960	2"x6"x14" Long Treated, Dimensional Lumber (0.60 lbs retention)	Southern Yellow Pine No. 1
a6	240	Deck Anchor Plate	See Page 18 of 31
a7	48	3/4" Dome Head Bolt 30" Long	Galvanized A307
a8	64	3/4" Malleable Iron Washer	-
a9	64	3/4" Heavy Hex Nut	Galvanized A307
a10	84	1" Dome Head Bolt 14" Long	Galvanized A307
a11	84	1" Flat Washer (as built-Malleable Iron)	Galvanized A307
a12	84	1" Heavy Hex Nut	Galvanized A307
b1	1	Glulam End Rail Section	Southern Yellow Pine Combination No. 48
b2	2	Angled End Splice Plate	Design-A572 Gr. 42; Used-A656 Gr. 50 Ty. 7
b3	2	Straight W6x15	Galvanized A36
b4	2	Angled W6x15	Galvanized A36
b5	4	Post to Rail Plate	Galvanized A36
b6	16	3/4" Dome Head Bolt 10" Long	Galvanized A307
b7	16	3/4" Flat Washer	Galvanized A307
c11	18	0.625x4.75x25.375 Plate	A36
c12	18	0.375x4.75x25.375 Plate	A36*
c14	12	WT3x10x66.6" Long	A36
c16	6	C15x33.9x66.5" Long	A36
c17	6	Sole Plate 1 1/2" Thick	A36
c18	6	Sole Plate 3/4" Thick	-
c19	6	W27x94	-


	West Virginia TL-1 Curb-Type Timber Bridge Rail	SHEET: 21 of 32
	Bill of Materials for Bridge Rail	DATE: 3/15/2009
Midwest Roadside Safety Facility	DRW: NAME: wbridge_rail.R7	DRAWN BY: EAL/RJT
	SCALE: None	REV. BY: RWF/SKR
	UNITS: inches	

Figure 45. Bill of Materials, Test No. WVBR-1