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Updating the contents of the manual is a continued process, and revisions/replacements are issued periodically. Questions, comments, and proposed recommendations for changes may be sent to SCRRA at 279 E. Arrow Highway, Suite A, San Dimas, CA 91773.

SCRRA NO 14 TURNOUT
BILL OF MATERIALS & DRAWING NUMBERS

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                                FROG NUMBER
                                HAND
                                WSM OR RBM
CONCRETE OR TIMBER TIES
                                HST OR STANDARD TIES
                                POWER OR MANUAL
ML OR TO SIDE SW MACHINE OPERATION

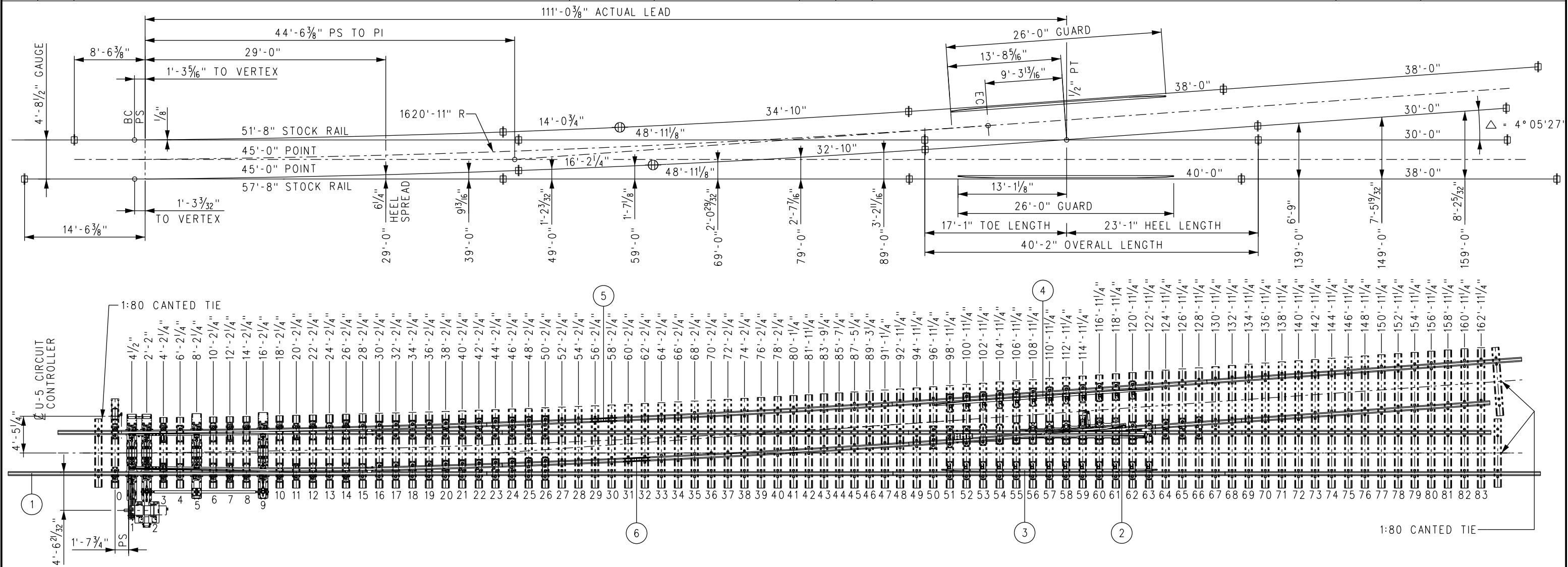
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NO 14			
LH		RH	
WSM		WSM	
CONCRETE		CONCRETE	
HST		HST	
POWER		POWER	
MLSIDE	TOSIDE	MLSIDE	TOSIDE

TURNOUT LAYOUT	DRAWING NO		2805-01	2805-03	2805-02	2805-04
SWITCH PACK	DRAWING NO		2805-11	2805-13	2805-12	2805-14
CONCRETE TIE LAYOUT	DRAWING NO		2805-31	2805-31	2805-30	2805-30
HOLLOW STEEL TIE LAYOUT	DRAWING NO		2805-33	2805-35	2805-32	2805-34
FROG PACK	DRAWING NO		2805-41	2805-41	2805-42	2805-42
GUARD RAIL MAINLINE	DRAWING NO		2800-50	2800-50	2800-50	2800-50
GUARD RAIL TURNOUT	DRAWING NO		2805-61	2805-61	2805-62	2805-62
INSULATED RAIL ASSEMBLY	LENGTH		48'-10 $\frac{3}{4}$ "	48'-10 $\frac{3}{4}$ "	48'-10 $\frac{3}{4}$ "	48'-10 $\frac{3}{4}$ "
INSULATED RAIL ASSEMBLY	LENGTH		49'-0 $\frac{1}{4}$ "	49'-0 $\frac{1}{4}$ "	49'-0 $\frac{1}{4}$ "	49'-0 $\frac{1}{4}$ "
RAIL	LENGTH		2@30'-0"	2@30'-0"	2@30'-0"	2@30'-0"
RAIL	LENGTH		3@38'-0"	3@38'-0"	3@38'-0"	3@38'-0"
RAIL	LENGTH		40'-0"	40'-0"	40'-0"	40'-0"
RAIL	LENGTH		2@48'-11 $\frac{1}{8}$ "	2@48'-11 $\frac{1}{8}$ "	2@48'-11 $\frac{1}{8}$ "	2@48'-11 $\frac{1}{8}$ "
TIE SCREWS CONCRETE	ES2356	QUANTITY	352	352	352	352
TIE SCREWS TIMBER	ES2355	QUANTITY	-	-	-	-
WASHER FLAT	ES2356	QUANTITY	352	352	352	352
SPRING WASHER DOUBLE COIL	ES2356	QUANTITY	352	352	352	352
TIE PLATE PANDROL	ES2454	QUANTITY	-	-	-	-
E-CLIP PANDROL E2055	ES2362	QUANTITY	342	342	342	342
INSULATOR PANDROL NYLON HD10	-	QUANTITY	342	342	342	342
PANDROL JOINT CLIP E2063	ES2361	QUANTITY	8	8	8	8
INSULATION PANDROL NYLON 6790	-	QUANTITY	8	8	8	8
TIE PAD PANDROL 69935R	-	QUANTITY	175	175	175	175
SHIM TO REDUCE PLATE FLEXURE	-	QUANTITY	176	176	176	176

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BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 14-136 LB RE MODIFIED TANGENTIAL, LH, HST	2805-11		11	352	TIE SCREW, CONCRETE 7/8" DIA X 6" HEX HEAD	-	
2	1	FROG PACK, NO 14-136 LB RE WSM, LH	2805-41		12	352	WASHER FLAT 7/8" TYPE A NARROW 15/16" X 1 3/4" X 0.134"	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	2800-50		13	352	SPRING WASHER, DOUBLE COIL (Fe6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", LH	2805-61		14	1	CONCRETE TIE SET, 0-83 + (3) 1:80 TIES, PLATE PADS, PIM INSERTS, LH	2805-31	
5	1	INSULATED RAIL ASSEMBLY, 48'-10 3/4" C/W BONDED INSULATED JOINT	-		15	342	CLIP PANDROL E2055	-	
6	1	INSULATED RAIL ASSEMBLY, 49'-0 1/4" C/W BONDED INSULATED JOINT	-		16	342	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
7	2	DRILLED RAIL, 136 LB RE, 30'-0" LONG	-		17	8	CLIP PANDROL E2063	-	
8	3	DRILLED RAIL, 136 LB RE, 38'-0" LONG	-		18	8	INSULATION, PANDROL NYLON 6790	-	
9	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	175	TIE PAD PANDROL 6993SR	-	
10	2	DRILLED RAIL, 136 LB RE, 48'-11 1/8" LONG	-		20	176	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RAISED 1" AND FORM A 1 1/8" FLANGEWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. SCHWIHAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
8. \oplus = INSULATED JOINT Φ = WELDED JOINT

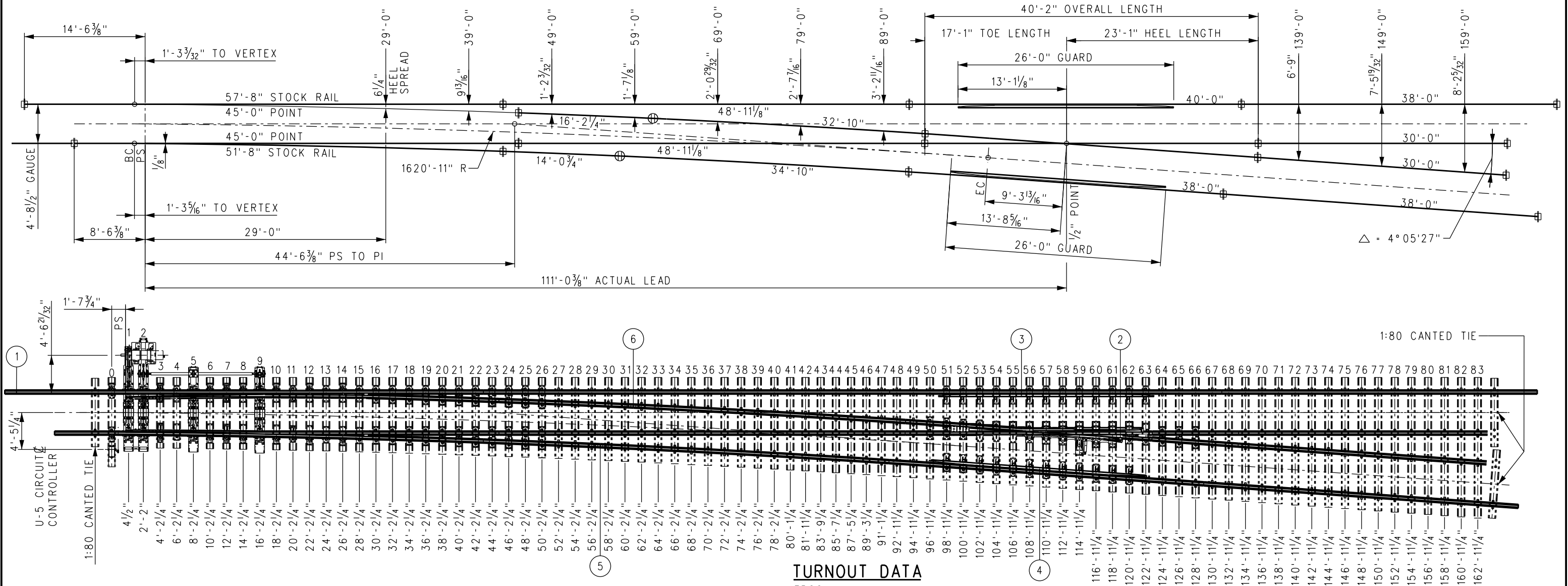
TURNOUT DATA

FROG
NO 14 $\Delta = 4^{\circ}05'27''$
TOE LENGTH: 17'-1"
HEEL LENGTH: 23'-1"
TOTAL LENGTH: 40'-2"
SWITCH
LENGTH OF POINTS: 45'-0"
VERTEX DISTANCE: 1'-3 7/32"
ENTRY ANGLE: 0^{\circ}29'50"
THICKNESS AT POINT: 1/8"
THROW AT ROD #1: 4 3/4"

ACTUAL LEAD: 111'-0 3/8"
CLOSURE AREA
CENTERLINE RADIUS: 1620'-11"
DEGREE OF CURVE: 3^{\circ}32'07"
DESIGN SPEEDS
35 MPH PASSENGER @ 3" UNBALANCE
25 MPH FREIGHT @ 2" UNBALANCE

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD	2805
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>			TURNOUT LAYOUT		SCALE:	NTS
				<div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>			NO 14-136 LB RE LH WSM FROG TURNOUT HST, SWITCH MACHINE ON MAINLINE SIDE		REVISION	SHEET
X	XX-XX-XX	REVISION	XX	XX					-	1 OF 1
REV.	DATE	DESCRIPTION	DES.	ENG.					CADD FILE:	ES2805-01

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 14-136 LB RE MODIFIED TANGENTIAL, RH, HST	2805-12		11	352	TIE SCREW, CONCRETE 7/8" DIA x 6" HEX HEAD	-	
2	1	FROG PACK, NO 14-136 LB RE WSM, RH	2805-42		12	352	WASHER FLAT 7/8 TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	2800-50		13	352	SPRING WASHER, DOUBLE COIL (Fe6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", RH	2805-62		14	1	CONCRETE TIE SET, 0-83 + (3) 1:80 TIES, PLATE PADS, PIM INSERTS, RH	2805-30	
5	1	INSULATED RAIL ASSEMBLY, 48'-103/4" C/W BONDED INSULATED JOINT	-		15	342	CLIP PANDROL E2055	-	
6	1	INSULATED RAIL ASSEMBLY, 49'-01/4" C/W BONDED INSULATED JOINT	-		16	342	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
7	2	DRILLED RAIL, 136 LB RE, 30'-0" LONG	-		17	8	CLIP PANDROL E2063	-	
8	3	DRILLED RAIL, 136 LB RE, 38'-0" LONG	-		18	8	INSULATION, PANDROL NYLON 6790	-	
9	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	175	TIE PAD PANDROL 6993SR	-	
10	2	DRILLED RAIL, 136 LB RE, 48'-111/8" LONG	-		20	176	SHIM, TO REDUCE PLATE FLEXURE	-	



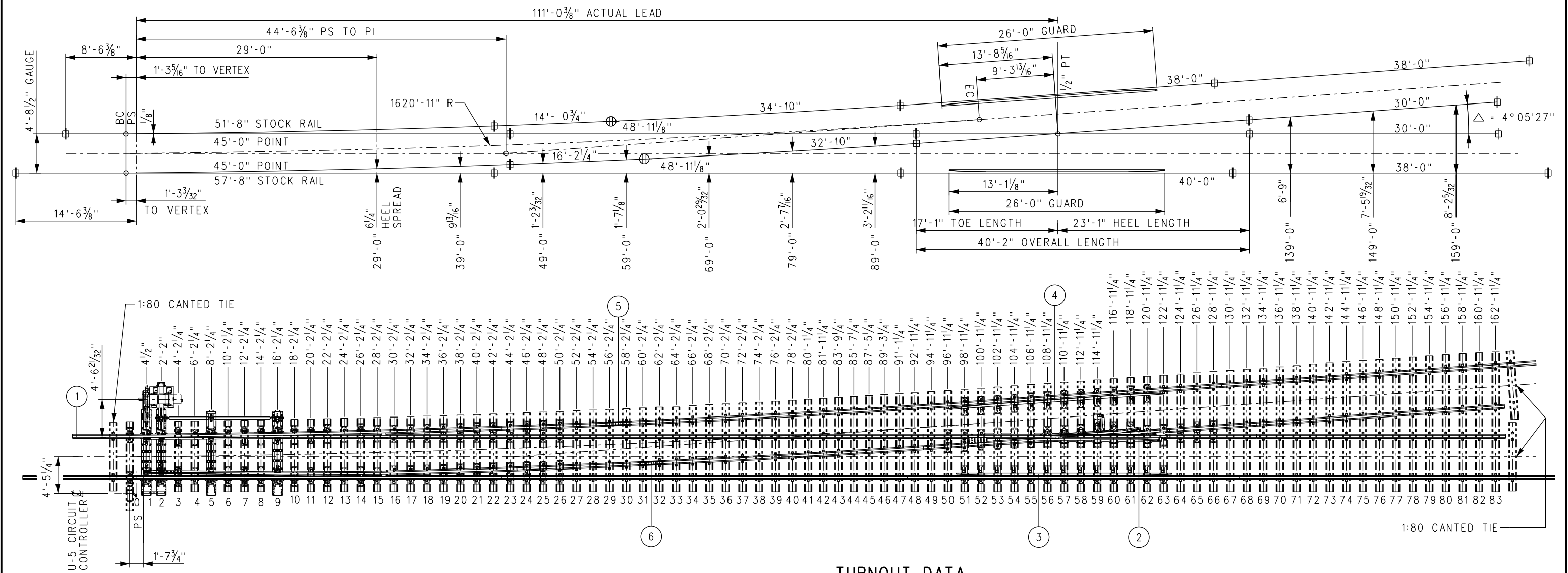
- NOTES:**
- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
 - RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
 - GUARD RAILS ARE RAISED 1" AND FORM A 1/8" FLANGEWAY.
 - SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
 - ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
 - TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
 - SCHWIHAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
 - ⊕ = INSULATED JOINT ⬮ = WELDED JOINT

TURNOUT DATA

FROG	NO 14	Δ = 4° 05' 27"	ACTUAL LEAD:	111'-0 3/8"
	TOE LENGTH:	17'-1"	CLOSURE AREA	
	HEEL LENGTH:	23'-1"	CENTERLINE RADIUS:	1620'-11"
	TOTAL LENGTH:	40'-2"	DEGREE OF CURVE:	3° 32' 07"
SWITCH	LENGTH OF POINTS:	45'-0"	DESIGN SPEEDS	
	VERTEX DISTANCE:	1'-3 7/32"	35 MPH PASSENGER @ 3" UNBALANCE	
	ENTRY ANGLE:	0° 29' 50"	25 MPH FREIGHT @ 2" UNBALANCE	
	THICKNESS AT POINT:	1/8"		
	THROW AT ROD #1:	4 3/4"		

				DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD	2805
				NARESH D. PATE ASSISTANT DIRECTOR: STANDARDS & DESIGN				METROLINK®				TURNOUT LAYOUT				SCALE:	NTS
				WILLIAM DAVAN DIRECTOR OF ENGINEERING AND CONSTRUCTION				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				NO 14-136 LB RE RH WSM FROG TURNOUT				REVISION	SHEET
								ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				HST, SWITCH MACHINE ON MAINLINE SIDE				-	1 OF 1
																CADD FILE:	ES2805-02

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 14-136 LB RE MODIFIED TANGENTIAL, LH, HST	2805-13		11	352	TIE SCREW, CONCRETE 7/8" DIA X 6" HEX HEAD	-	
2	1	FROG PACK, NO 14-136 LB RE WSM, LH	2805-41		12	352	WASHER FLAT 7/8" TYPE A NARROW 15/16" X 1 3/4" X 0.134"	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	2800-50		13	352	SPRING WASHER, DOUBLE COIL (Fe6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", LH	2805-61		14	1	CONCRETE TIE SET, 0-83 + (3) 1:80 TIES, PLATE PADS, PIM INSERTS, LH	2805-31	
5	1	INSULATED RAIL ASSEMBLY, 48'-10 3/4" C/W BONDED INSULATED JOINT	-		15	342	CLIP PANDROL E2055	-	
6	1	INSULATED RAIL ASSEMBLY, 49'-0 1/4" C/W BONDED INSULATED JOINT	-		16	342	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
7	2	DRILLED RAIL, 136 LB RE, 30'-0" LONG	-		17	8	CLIP PANDROL E2063	-	
8	3	DRILLED RAIL, 136 LB RE, 38'-0" LONG	-		18	8	INSULATION, PANDROL NYLON 6790	-	
9	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	175	TIE PAD PANDROL 6993SR	-	
10	2	DRILLED RAIL, 136 LB RE, 48'-11 1/8" LONG	-		20	176	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
- RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
- GUARD RAILS ARE RAISED 1" AND FORM A 1 7/8" FLANGEWAY.
- SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
- ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
- TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
- SCHWIHAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
- ⊕ = INSULATED JOINT ⚬ = WELDED JOINT

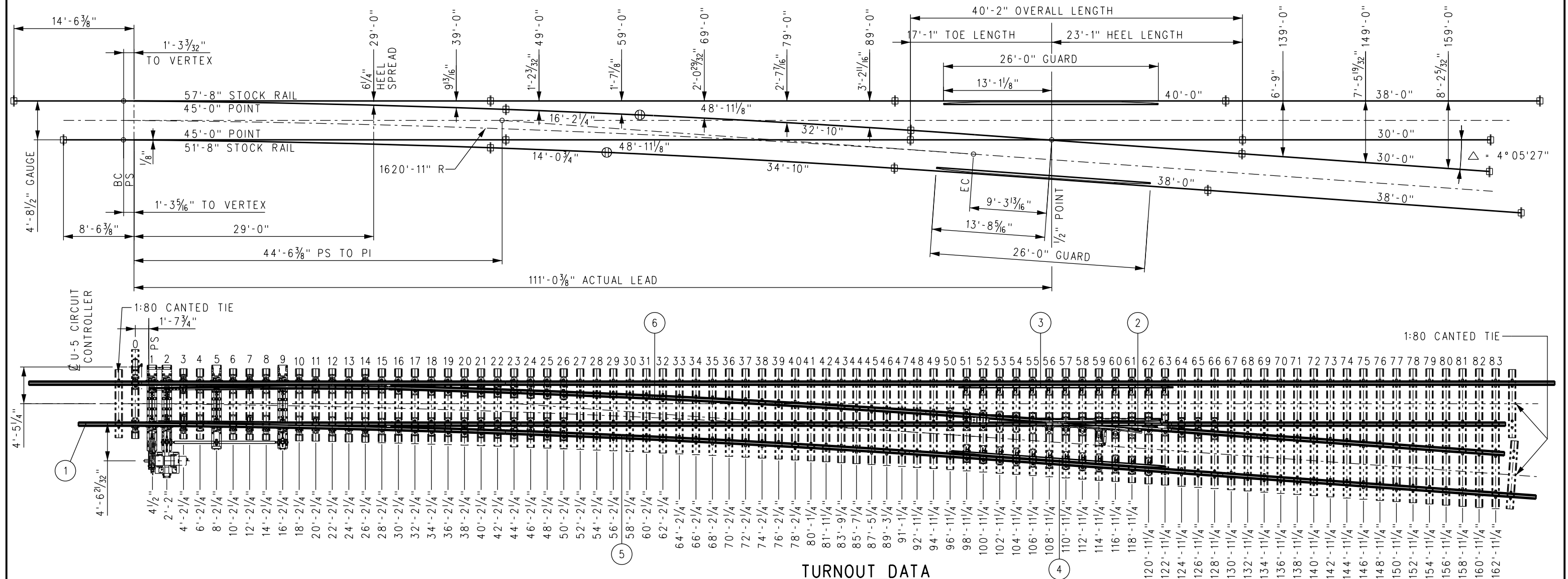
TURNOUT DATA

FROG
NO 14 Δ = 4° 05' 27"
TOE LENGTH: 17'-1"
HEEL LENGTH: 23'-1"
TOTAL LENGTH: 40'-2"
SWITCH
LENGTH OF POINTS: 45'-0"
VERTEX DISTANCE: 1'-3 7/32"
ENTRY ANGLE: 0° 29' 50"
THICKNESS AT POINT: 1/8"
THROW AT ROD #1: 4 3/4"



ACTUAL LEAD: 111'-0 3/8"
CLOSURE AREA
CENTERLINE RADIUS: 1620'-11"
DEGREE OF CURVE: 3° 32' 07"
DESIGN SPEEDS
35 MPH PASSENGER @ 3" UNBALANCE
25 MPH FREIGHT @ 2" UNBALANCE

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS		STANDARD 2805							
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>				TURNOUT LAYOUT		SCALE: NTS							
				<div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>				NO 14-136 LB RE LH WSM FROG TURNOUT HST, SWITCH MACHINE ON TURNOUT SIDE		REVISION SHEET - 1 OF 1							
										CADD FILE: ES2805-03							
X	XX-XX-XX	REVISION	XX	XX													
REV.	DATE	DESCRIPTION	DES.	ENG.													

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	SWITCH PACK, NO 14-136 LB RE MODIFIED TANGENTIAL, RH, HST	2805-14		11	352	TIE SCREW, CONCRETE $\frac{7}{8}$ " DIA x 6" HEX HEAD	-	
2	1	FROG PACK, NO 14-136 LB RE WSM, RH	2805-42		12	352	WASHER FLAT $\frac{7}{8}$ " TYPE A NARROW $\frac{15}{16}$ " x $1\frac{3}{4}$ " x 0.134"	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	2800-50		13	352	SPRING WASHER, DOUBLE COIL (Fe6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", RH	2805-62		14	1	CONCRETE TIE SET, 0-83 + (3) 1:80 TIES, PLATE PADS, PIM INSERTS, RH	2805-30	
5	1	INSULATED RAIL ASSEMBLY, 48'-10 $\frac{3}{4}$ " C/W BONDED INSULATED JOINT	-		15	342	CLIP PANDROL E2055	-	
6	1	INSULATED RAIL ASSEMBLY, 49'-0 $\frac{1}{4}$ " C/W BONDED INSULATED JOINT	-		16	342	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
7	2	DRILLED RAIL, 136 LB RE, 30'-0" LONG	-		17	8	CLIP PANDROL E2063	-	
8	3	DRILLED RAIL, 136 LB RE, 38'-0" LONG	-		18	8	INSULATION, PANDROL NYLON 6790	-	
9	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	175	TIE PAD PANDROL 6993SR	-	
10	2	DRILLED RAIL, 136 LB RE, 48'-11 $\frac{1}{8}$ " LONG	-		20	176	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW $\frac{1}{8}$ " GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RAISED 1" AND FORM A $\frac{1}{8}$ " FLANGEWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. SCHWIBAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
8.  = INSULATED JOINT  = WELDED JOINT


TURNOUT DATA

FROG

NO 14	$\Delta = 4^{\circ} 05' 27''$
TOE LENGTH:	17'-1"
HEEL LENGTH:	23'-1"
TOTAL LENGTH:	40'-2"
SWITCH	
LENGTH OF POINTS:	45'-0"
VERTEX DISTANCE:	1'-3 $\frac{7}{32}$ "
ENTRY ANGLE:	0° 29' 50"
THICKNESS AT POINT:	$\frac{1}{8}$ "
THROW AT ROD :	4 $\frac{3}{4}$ "

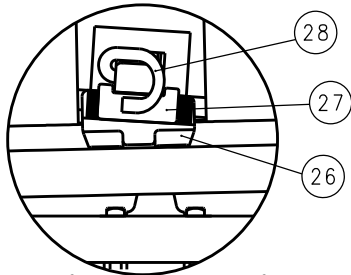
ACTUAL LEAD: 111'-0³/₈"
CLOSURE AREA
CENTERLINE RADIUS: 1620'-11"
DEGREE OF CURVE: 3° 32' 07"

DESIGN SPEEDS
35 MPH PASSENGER @ 3" UNBALANCE
25 MPH FREIGHT @ 2" UNBALANCE

		DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT IS A LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK®		ENGINEERING STANDARDS TURNOUT LAYOUT NO 14-136 LB RE RH WSM FROG TURNOUT HST, SWITCH MACHINE ON TURNOUT SIDE		STANDARD 2805 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2805-04	
		Naveen D. Patel ASSISTANT DIRECTOR, STANDARDS & DESIGN				 METROLINK®					
		William Davis DIRECTOR OF ENGINEERING AND CONSTRUCTION				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012					
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

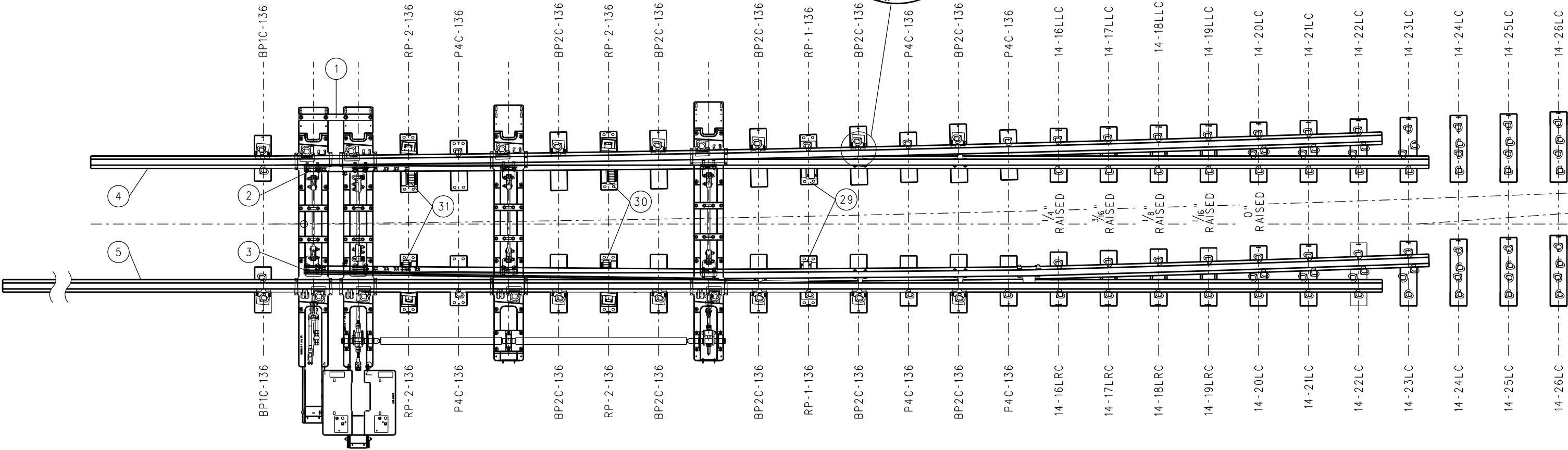
BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2805-33		16	1	SWITCH PLATE (14-18LRC)	ES2805-81	
2	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, STRAIGHT, LH	ES2805-21		17	1	SWITCH PLATE (14-19LLC)	ES2805-82	
3	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, CURVED, RH	ES2805-22		18	1	SWITCH PLATE (14-19LRC)	ES2805-82	
4	1	SAMSON STOCK RAIL, 51'-8" LONG, CURVED, LH	ES2805-25		19	2	SWITCH PLATE (14-20LC)	ES2805-82	
5	1	SAMSON STOCK RAIL, 57'-8" LONG, STRAIGHT, RH	ES2805-26		20	2	SWITCH PLATE (14-21LC)	ES2805-82	
6	2	SWITCH PLATE (BP1C-136)	ES2800-80		21	2	SWITCH PLATE (14-22LC)	ES2805-82	
7	10	SWITCH PLATE (BP2C-136)	ES2800-80		22	2	SWITCH PLATE (14-23LC)	ES2805-82	
8	6	SWITCH PLATE (P4C-136)	ES2800-80		23	2	SWITCH PLATE (14-24LC)	ES2805-83	
9	2	SWITCH PLATE, ROLLER SCHWIHAG RP-1-136	ES2800-96		24	2	SWITCH PLATE (14-25LC)	ES2805-83	
10	4	SWITCH PLATE, ROLLER SCHWIHAG RP-2-136	ES2800-97		25	2	SWITCH PLATE (14-26LC)	ES2805-83	
11	1	SWITCH PLATE (14-16LLC)	ES2805-81		26	16	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
12	1	SWITCH PLATE (14-16LRC)	ES2805-81		27	16	WASHER, SERRATED FOR BOLTLESS BRACE	-	
13	1	SWITCH PLATE (14-17LLC)	ES2805-81		28	98	CLIP, PANDROL, E2055	-	
14	1	SWITCH PLATE (14-17LRC)	ES2805-81		29	2	ROLLER SCHWIHAG, SINGLE	-	
15	1	SWITCH PLATE (14-18LLC)	ES2805-81		30	2	ROLLER SCHWIHAG, DOUBLE	-	
					31	2	ROLLER SCHWIHAG, TRIPLE	-	

TYPICAL BOLTLESS
BRACE ASSEMBLY



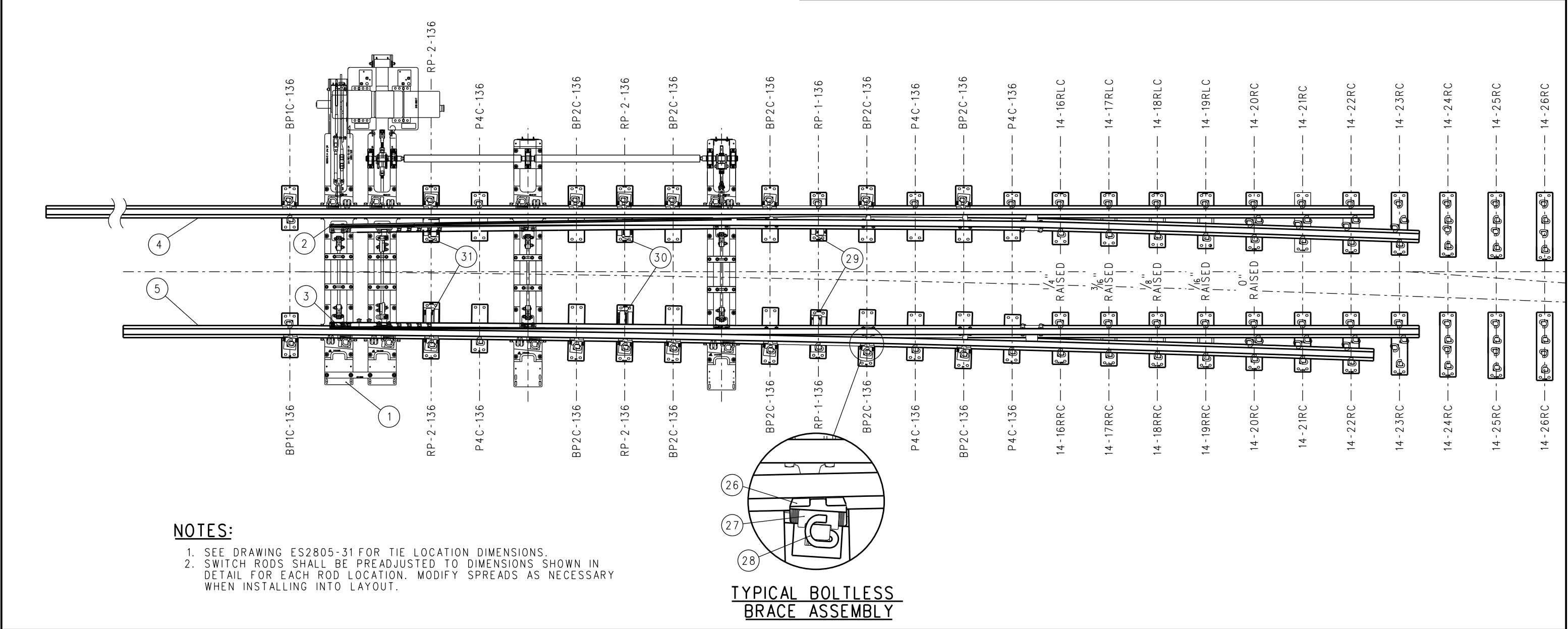
NOTES:

1. SEE DRAWING ES2805-31 FOR TIE LOCATION DIMENSIONS.
2. SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN
DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY
WHEN INSTALLING INTO LAYOUT.



				DRAWN BY: HDR DATE:		<div>SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES: SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.</div>	<div>METROLINK[®]</div> <div>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD	
								2805			
								SCALE: NTS			
								REVISION SHEET 1 OF 1			
								CADD FILE: ES2805-11			

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2805-32	16	1	1	SWITCH PLATE (14-18RRC)	ES2805-84	
2	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, CURVED, LH	ES2805-23	17	1	1	SWITCH PLATE (14-19RLC)	ES2805-85	
3	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, STRAIGHT, RH	ES2805-24	18	1	1	SWITCH PLATE (14-19RRC)	ES2805-85	
4	1	SAMSON STOCK RAIL, 57'-8" LONG, STRAIGHT, LH	ES2805-27	19	2	2	SWITCH PLATE (14-20RC)	ES2805-85	
5	1	SAMSON STOCK RAIL, 51'-8" LONG, CURVED, RH	ES2805-28	20	2	2	SWITCH PLATE (14-21RC)	ES2805-85	
6	2	SWITCH PLATE (BP1C-136)	ES2800-80	21	2	2	SWITCH PLATE (14-22RC)	ES2805-85	
7	10	SWITCH PLATE (BP2C-136)	ES2800-80	22	2	2	SWITCH PLATE (14-23RC)	ES2805-85	
8	6	SWITCH PLATE (P4C-136)	ES2800-80	23	2	2	SWITCH PLATE (14-24RC)	ES2805-86	
9	2	SWITCH PLATE, ROLLER SCHWIHAG RP-1-136	ES2800-96	24	2	2	SWITCH PLATE (14-25RC)	ES2805-86	
10	4	SWITCH PLATE, ROLLER SCHWIHAG RP-2-136	ES2800-97	25	2	2	SWITCH PLATE (14-26RC)	ES2805-86	
11	1	SWITCH PLATE (14-16RLC)	ES2805-84	26	16	16	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
12	1	SWITCH PLATE (14-16RRC)	ES2805-84	27	16	16	WASHER, SERRATED FOR BOLTLESS BRACE	-	
13	1	SWITCH PLATE (14-17RLC)	ES2805-84	28	9	9	CLIP, PANDROL, E2055	-	
14	1	SWITCH PLATE (14-17RRC)	ES2805-84	29	2	2	ROLLER SCHWIHAG, SINGLE	-	
15	1	SWITCH PLATE (14-18RLC)	ES2805-84	30	2	2	ROLLER SCHWIHAG, DOUBLE	-	
				31	1	1	ROLLER SCHWIHAG, TRIPLE	-	



- NOTES:
- SEE DRAWING ES2805-31 FOR TIE LOCATION DIMENSIONS.
 - SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.

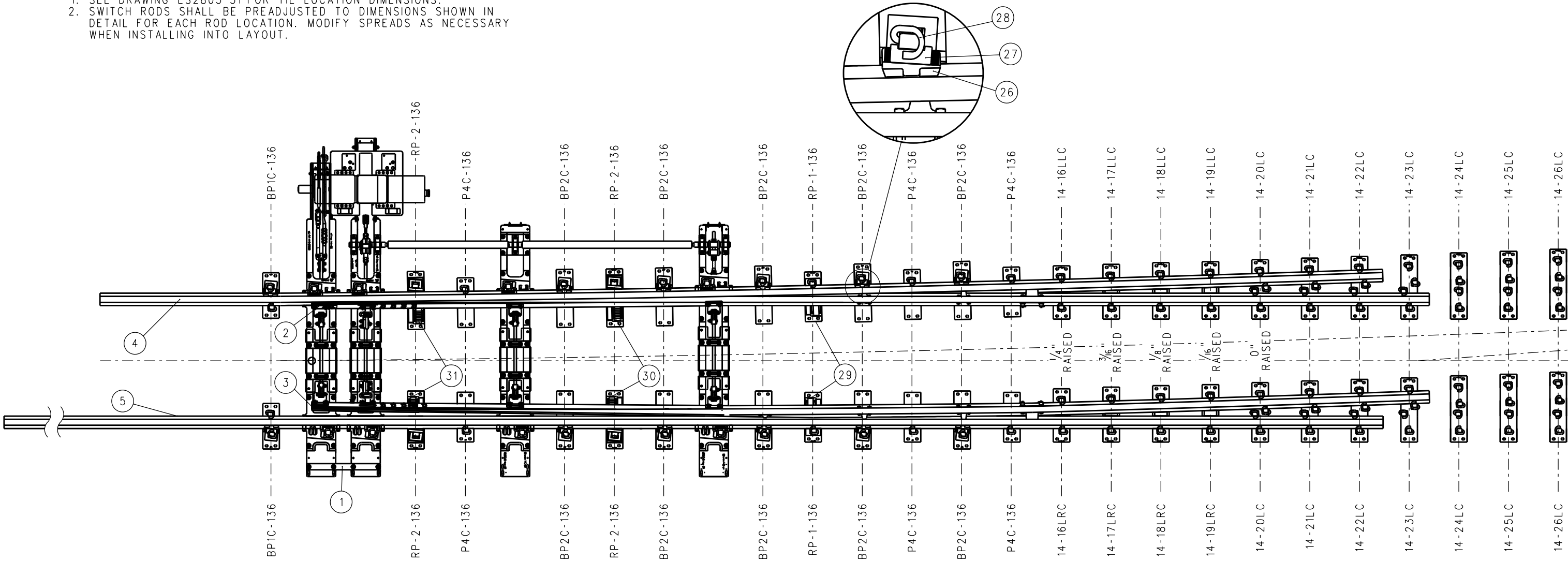
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BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2805-35		16	1	SWITCH PLATE (14-18LRC)	ES2805-81	
2	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, STRAIGHT, LH	ES2805-21		17	1	SWITCH PLATE (14-19LLC)	ES2805-82	
3	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, CURVED, RH	ES2805-22		18	1	SWITCH PLATE (14-19LRC)	ES2805-82	
4	1	SAMSON STOCK RAIL, 51'-8" LONG, CURVED, LH	ES2805-25		19	2	SWITCH PLATE (14-20LC)	ES2805-82	
5	1	SAMSON STOCK RAIL, 57'-8" LONG, STRAIGHT, RH	ES2805-26		20	2	SWITCH PLATE (14-21LC)	ES2805-82	
6	2	SWITCH PLATE (BP1C-136)	ES2800-80		21	2	SWITCH PLATE (14-22LC)	ES2805-82	
7	10	SWITCH PLATE (BP2C-136)	ES2800-80		22	2	SWITCH PLATE (14-23LC)	ES2805-82	
8	6	SWITCH PLATE (P4C-136)	ES2800-80		23	2	SWITCH PLATE (14-24LC)	ES2805-83	
9	2	SWITCH PLATE, ROLLER SCHWIHAG RP-1-136	ES2800-96		24	2	SWITCH PLATE (14-25LC)	ES2805-83	
10	4	SWITCH PLATE, ROLLER SCHWIHAG RP-2-136	ES2800-97		25	2	SWITCH PLATE (14-26LC)	ES2805-83	
11	1	SWITCH PLATE (14-16LLC)	ES2805-81		26	16	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
12	1	SWITCH PLATE (14-16LRC)	ES2805-81		27	16	WASHER, SERRATED FOR BOLTLESS BRACE	-	
13	1	SWITCH PLATE (14-17LLC)	ES2805-81		28	98	SLIP, PANDROL, E2055	-	
14	1	SWITCH PLATE (14-17LRC)	ES2805-81		29	2	ROLLER SCHWIHAG, SINGLE	-	
15	1	SWITCH PLATE (14-18LLC)	ES2805-81		30	2	ROLLER SCHWIHAG, DOUBLE	-	
					31	2	ROLLER SCHWIHAG, TRIPLE	-	

NOTES:

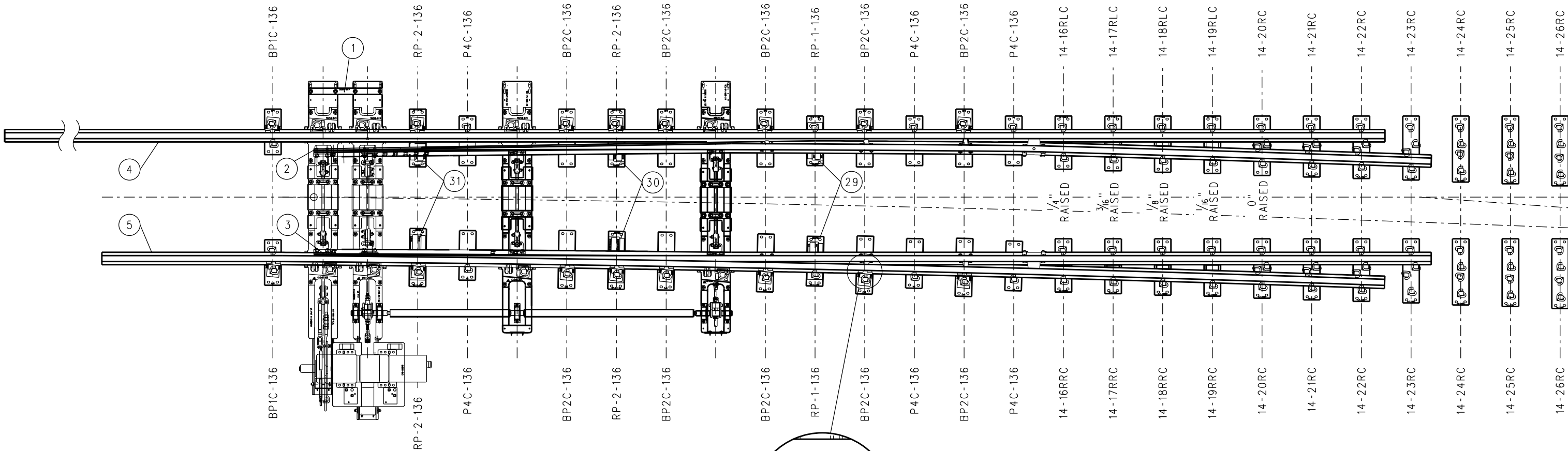
1. SEE DRAWING ES2805-31 FOR TIE LOCATION DIMENSIONS.
2. SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.

TYPICAL BOLTLESS
BRACE ASSEMBLY



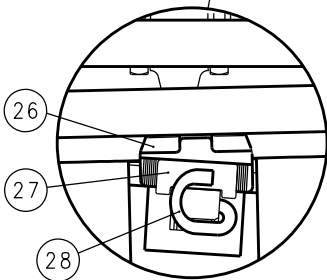
				DRAWN BY: HDR DATE:		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD 2805	
				ASSISTANT DIRECTOR: STANDARDS & DESIGN Narek D. Bae				NO 14-136 LB RE LH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON TURNOUT SIDE		SCALE: NTS	
				DIRECTOR OF ENGINEERING AND CONSTRUCTION William D. Davis						REVISION SHEET 1 OF 1	
										CADD FILE: ES2805-13	
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2805-34		16	1	SWITCH PLATE (14-18RRC)	ES2805-84	
2	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, CURVED, LH	ES2805-23		17	1	SWITCH PLATE (14-19RLC)	ES2805-85	
3	1	SAMSON POINT, 45'-0" LONG, UR MANG TIP, STRAIGHT, RH	ES2805-24		18	1	SWITCH PLATE (14-19RRC)	ES2805-85	
4	1	SAMSON STOCK RAIL, 57'-8" LONG, STRAIGHT, LH	ES2805-27		19	2	SWITCH PLATE (14-20RC)	ES2805-85	
5	1	SAMSON STOCK RAIL, 51'-8" LONG, CURVED, RH	ES2805-28		20	2	SWITCH PLATE (14-21RC)	ES2805-85	
6	2	SWITCH PLATE (BP1C-136)	ES2800-80		21	2	SWITCH PLATE (14-22RC)	ES2805-85	
7	10	SWITCH PLATE (BP2C-136)	ES2800-80		22	2	SWITCH PLATE (14-23RC)	ES2805-85	
8	6	SWITCH PLATE (P4C-136)	ES2800-80		23	2	SWITCH PLATE (14-24RC)	ES2805-86	
9	2	SWITCH PLATE, ROLLER SCHWIHAG RP-1-136	ES2800-96		24	2	SWITCH PLATE (14-25RC)	ES2805-86	
10	4	SWITCH PLATE, ROLLER SCHWIHAG RP-2-136	ES2800-97		25	2	SWITCH PLATE (14-26RC)	ES2805-86	
11	1	SWITCH PLATE (14-16RLC)	ES2805-84		26	16	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
12	1	SWITCH PLATE (14-16RRC)	ES2805-84		27	16	WASHER, SERRATED FOR BOLTLESS BRACE	-	
13	1	SWITCH PLATE (14-17RLC)	ES2805-84		28	98	CLIP, PANDROL, E2055	-	
14	1	SWITCH PLATE (14-17RRC)	ES2805-84		29	2	ROLLER SCHWIHAG, SINGLE	-	
15	1	SWITCH PLATE (14-18RLC)	ES2805-84		30	2	ROLLER SCHWIHAG, DOUBLE	-	
					31	2	ROLLER SCHWIHAG, TRIPLE	-	



NOTES:

- 1. SEE DRAWING ES2805-31 FOR TIE LOCATION DIMENSIONS.
- 2. SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.



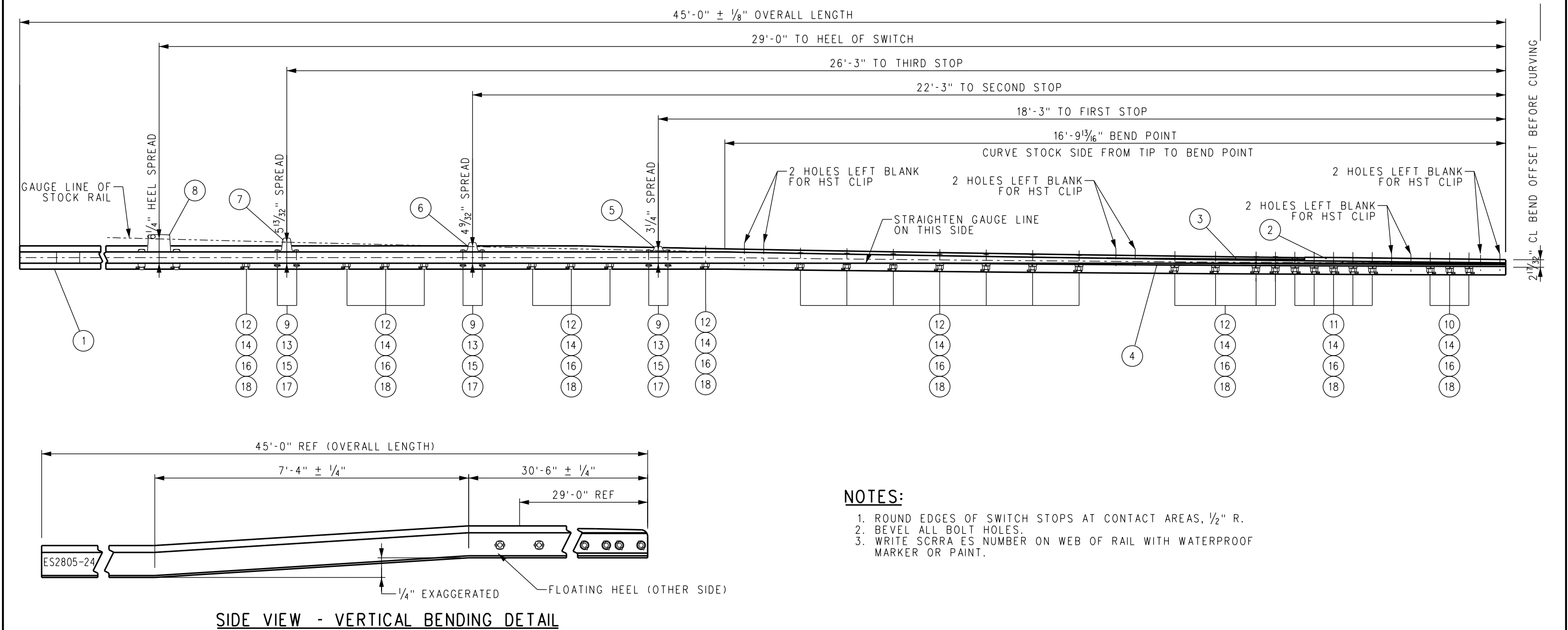
TYPICAL BOLTLESS
BRACE ASSEMBLY

				DRAWN BY: DRAFTER DATE:		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK[®]</div> <div>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD 2805		
							NO 14-136 LB RE RH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON TURNOUT SIDE				
X XX-XX-XX		REVISION		XX	XX						
REV.	DATE	DESCRIPTION		DES.	ENG.						

<i>Narek D. B...</i> ASSISTANT DIRECTOR: STANDARDS & DESIGN	
<i>William Davis</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION	

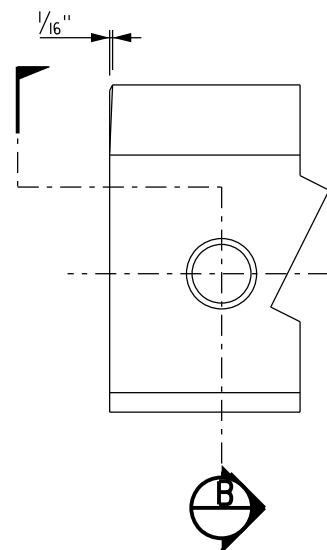
SCALE: 2805	
REVISION	SHEET 1 OF 1
CADD FILE: ES2805-14	

BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRRA PART NO	ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	SAMSON POINT RAIL, 45'-0" LONG, UR MANG TIP, STRAIGHT, RH		10	3	BOLT, 1" DIA x 3¾" LONG, THIN SQ HEAD DRILLED @ 3¼", GR 5	
2	1	MANGANESE TIP, RH, FOR 29'-0", 136 LB RE SAMSON SWITCH POINT		11	5	BOLT, 1" DIA x 4" LONG, THIN SQ HEAD DRILLED @ 3½", GR 5	
3	1	REINFORCING BAR, STOCK SIDE, ½" x 22'-11⅞" LONG, SAMSON, RH POINT		12	19	BOLT, 1" DIA x 3¾" LONG, SQ HEAD DRILLED @ 3⅜", GR 5	
4	1	REINFORCING BAR, GAUGE SIDE, ½" x 27'-4" LONG, SAMSON, RH POINT		13	6	NUT, ¾" DIA HEAVY HEX, GR 5	
5	1	POINT STOP 2⅛" HIGH		14	27	NUT, 1" DIA HEAVY HEX, GR 5	
6	1	POINT STOP 3⅛" HIGH		15	6	SPRING WASHER, ¾" DIA	
7	1	POINT STOP 4⅜" HIGH		16	27	SPRING WASHER, 1" DIA	
8	1	HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE		17	6	COTTER PIN, ⅜" DIA x 1¾" LONG	
9	6	BOLT, ¾" DIA x 4" LONG, SQ HEAD DRILLED @ 32⅓", GR 5		18	27	COTTER PIN, ¼" DIA x 2" LONG	

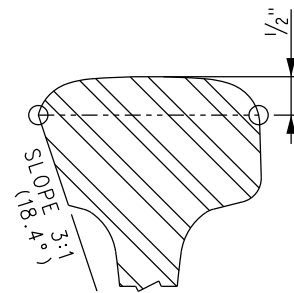


DRAWN BY: HDR DATE:				SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES: SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD
Nancy D. Bae				METROLINK®				SWITCH POINT ASSEMBLY,				2805
ASSISTANT DIRECTOR: STANDARDS & DESIGN				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				136 LB RE SAMSON, STRAIGHT, RH				SCALE: NTS
WILLIAM DAVEN				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				NO 14 RH TURNOUT				REVISION SHEET
DIRECTOR OF ENGINEERING AND CONSTRUCTION								45'-0" OVERALL LENGTH MANGANESE TIP				1 OF 1
REV. DATE DESCRIPTION DES. ENG.												CADD FILE: ES2805-24

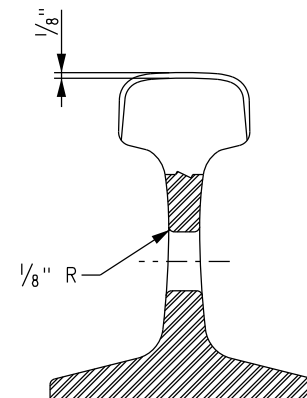
BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	RAIL, 136 LB RE 57'-8" LONG	



RAIL END/HOLE BEVELING DETAIL

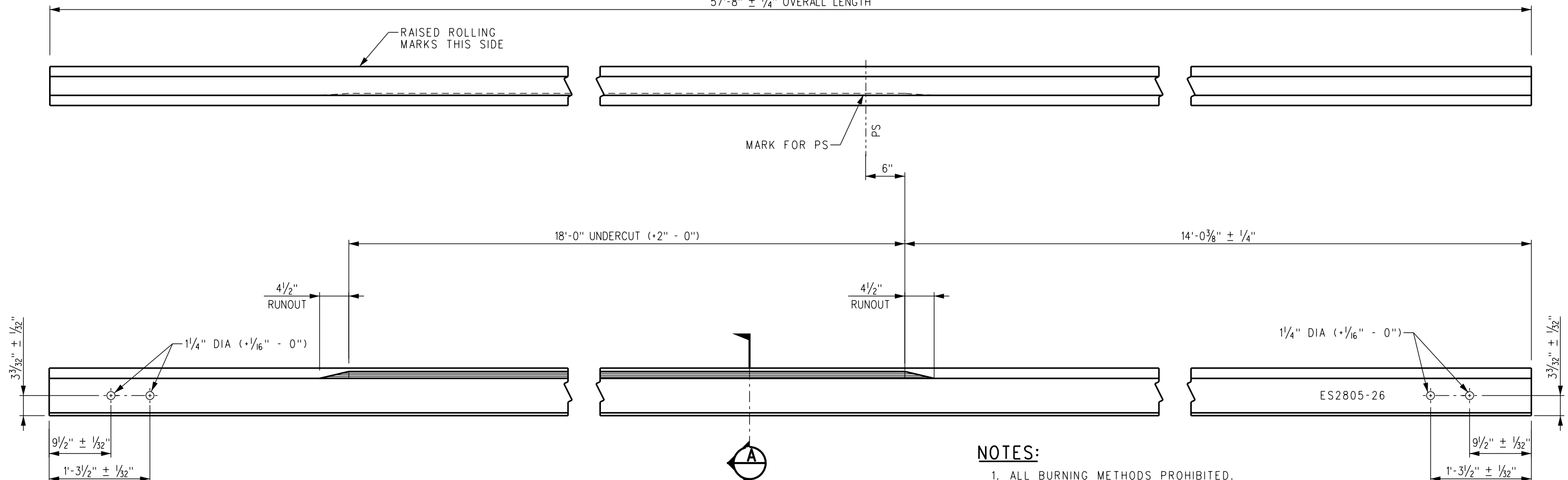


PARTIAL SECTION



SECTION


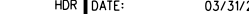


57'-8" \pm 1/4" OVERALL LENGTH



MACHINING DETAILS

NOTES:

1. ALL BURNING METHODS PROHIBITED.
2. ALL BOLT HOLES TO BE BEVELED PER DETAIL.
3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT.
4. WRITE SCRRAS NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

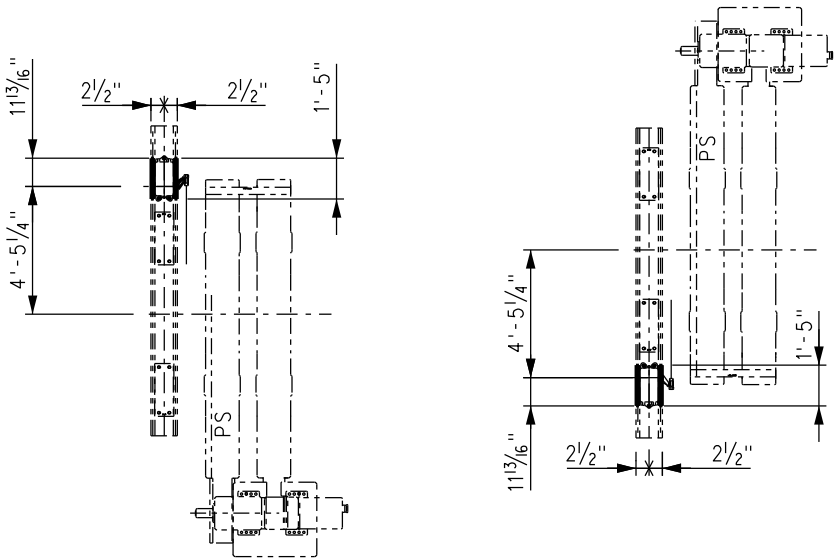
		DRAWN BY: HDR		DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.		 METROLINK®		STANDARD 2805 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2805-20	
		 ASSISTANT DIRECTOR: STANDARDS & DESIGN				 METROLINK®		SAMSON STOCK RAIL, STRAIGHT, RH 136 LB RE 57"-8" LONG FOR NO 14 136 LB RE LH SWITCH PACK			
		 DIRECTOR OF ENGINEERING AND CONSTRUCTION				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012					
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

BILL OF MATERIALS

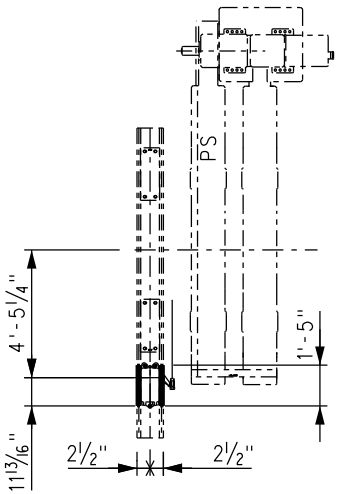
ITEM	QTY	DESCRIPTION	DWG NO
1	4	TIES 1,2,5 AND 9, POWER SWITCH MACHINE ON MAINLINE SIDE FOR LH TURNOUT (HOLLOW STEEL)	ES2805-33
2	4	TIES 1,2,5 AND 9, POWER SWITCH MACHINE ON TURNOUT SIDE FOR LH TURNOUT (HOLLOW STEEL)	ES2805-35

NOTES:

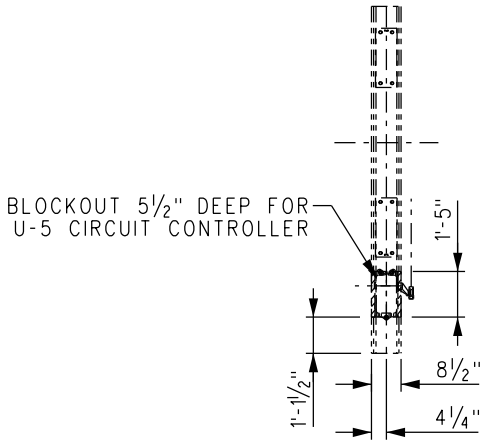
1. SET TO INCLUDE TIES 0, 3 & 4, 6 THROUGH 8 AND 10 THROUGH 83, THREE 1:80 CANTED TIES, TIE PADS FOR ALL PLATES AND PIM INSERTS.
2. TIE LENGTHS ARE DETERMINED BY ADDING 1'-10⁵/₁₆" FROM RAIL GAUGE LINE (OR 1'-9" FROM RAIL CENTERLINE) PER SIDE AT THE CENTERLINE OF EACH TIE LOCATION.
3. ALL TIES ARE FLAT (NON-CANTED) EXCEPT 1:80 CANTED TIES.
4. TRANSITION TIES (QUANTITY 3) SHALL INCORPORATE 1:80 CANTED RAIL SEATS AND USE 4'-8¹/₂" BETWEEN STRAIGHT RAIL SEAT GAUGES. LENGTH SHALL BE 8'-3".
5. THIS DRAWING SHOWS TIE "0" PLACEMENT FOR SWITCH MACHINE ON RH/MAINLINE SIDE. USE OPPOSITE HAND FOR SWITCH MACHINE ON LH/TURNOUT SIDE.
6. SEE BILL OF MATERIALS ABOVE FOR TIES 1, 2, 5 AND 9.



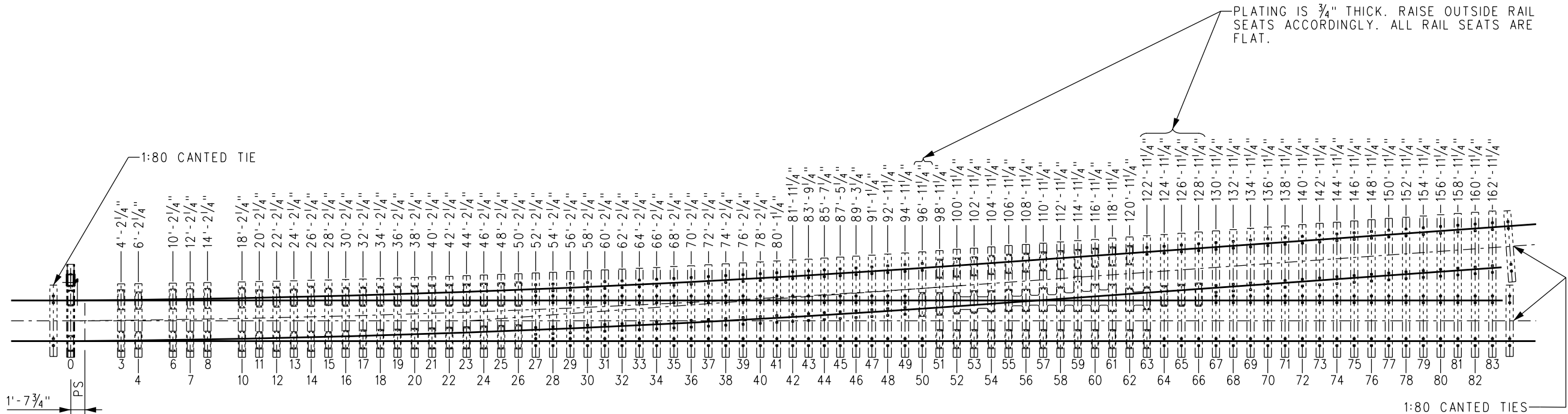
TIE "0" PLACEMENT
SWITCH MACHINE
ON MAINLINE (RH) SIDE



TIE "0" PLACEMENT
SWITCH MACHINE
ON TURNOUT (LH) SIDE



TIE "0" BLOCKOUT DETAIL



X	XX-XX-XX	REVISION	XX	XX	
REV.	DATE	DESCRIPTION	DES.	ENG.	

DRAWN BY:	HDR	DATE:	03/31/2011
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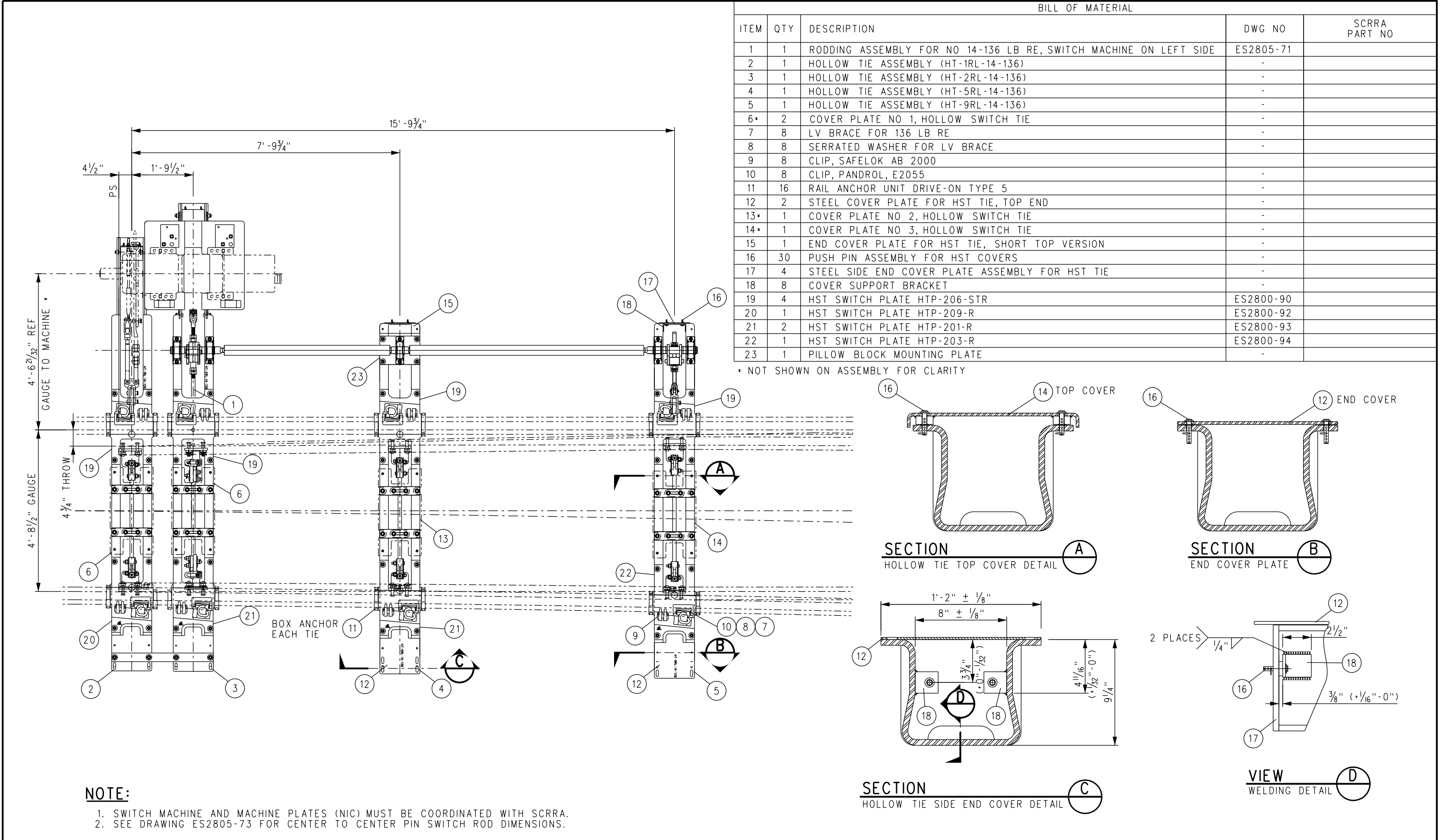
METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

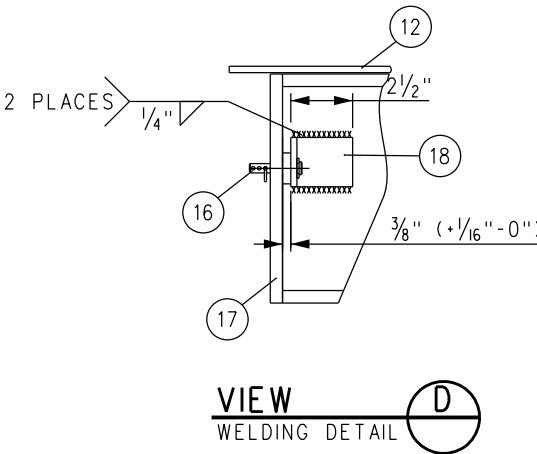
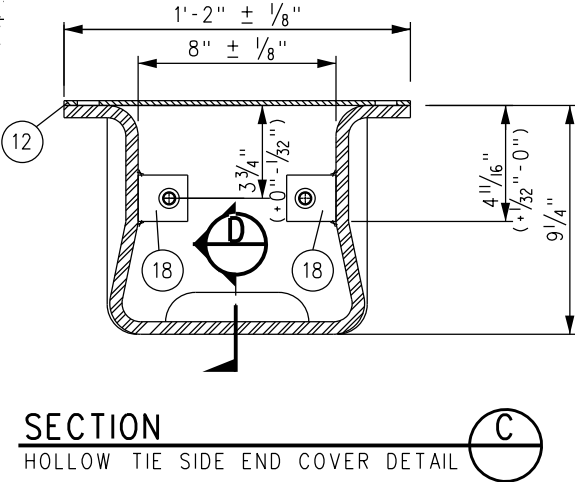
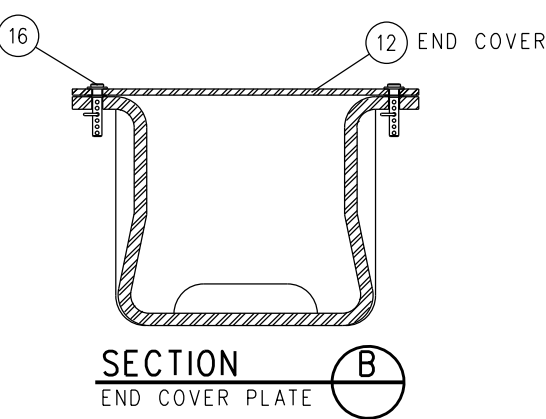
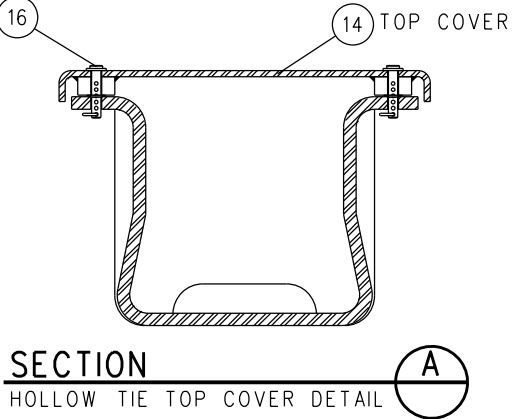
CONCRETE TIE LAYOUT
NO 14-136 LB RE SPRING FROG TURNOUT, LH

STANDARD	2805
SCALE:	NTS
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES2805-31



BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	RODDING ASSEMBLY FOR NO 14-136 LB RE, SWITCH MACHINE ON LEFT SIDE	ES2805-71	
2	1	HOLLOW TIE ASSEMBLY (HT-1RL-14-136)	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2RL-14-136)	-	
4	1	HOLLOW TIE ASSEMBLY (HT-5RL-14-136)	-	
5	1	HOLLOW TIE ASSEMBLY (HT-9RL-14-136)	-	
6*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-	
7	8	LV BRACE FOR 136 LB RE	-	
8	8	SERRATED WASHER FOR LV BRACE	-	
9	8	CLIP, SAFELOK AB 2000		
10	8	CLIP, PANDROL, E2055	-	
11	16	RAIL ANCHOR UNIT DRIVE-ON TYPE 5	-	
12	2	STEEL COVER PLATE FOR HST TIE, TOP END	-	
13*	1	COVER PLATE NO 2, HOLLOW SWITCH TIE	-	
14*	1	COVER PLATE NO 3, HOLLOW SWITCH TIE	-	
15	1	END COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
16	30	PUSH PIN ASSEMBLY FOR HST COVERS	-	
17	4	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-	
18	8	COVER SUPPORT BRACKET	-	
19	4	HST SWITCH PLATE HTP-206-STR	ES2800-90	
20	1	HST SWITCH PLATE HTP-209-R	ES2800-92	
21	2	HST SWITCH PLATE HTP-201-R	ES2800-93	
22	1	HST SWITCH PLATE HTP-203-R	ES2800-94	
23	1	PILLOW BLOCK MOUNTING PLATE	-	

* NOT SHOWN ON ASSEMBLY FOR CLARITY



NOTE:

1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRRRA.
2. SEE DRAWING ES2805-73 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.

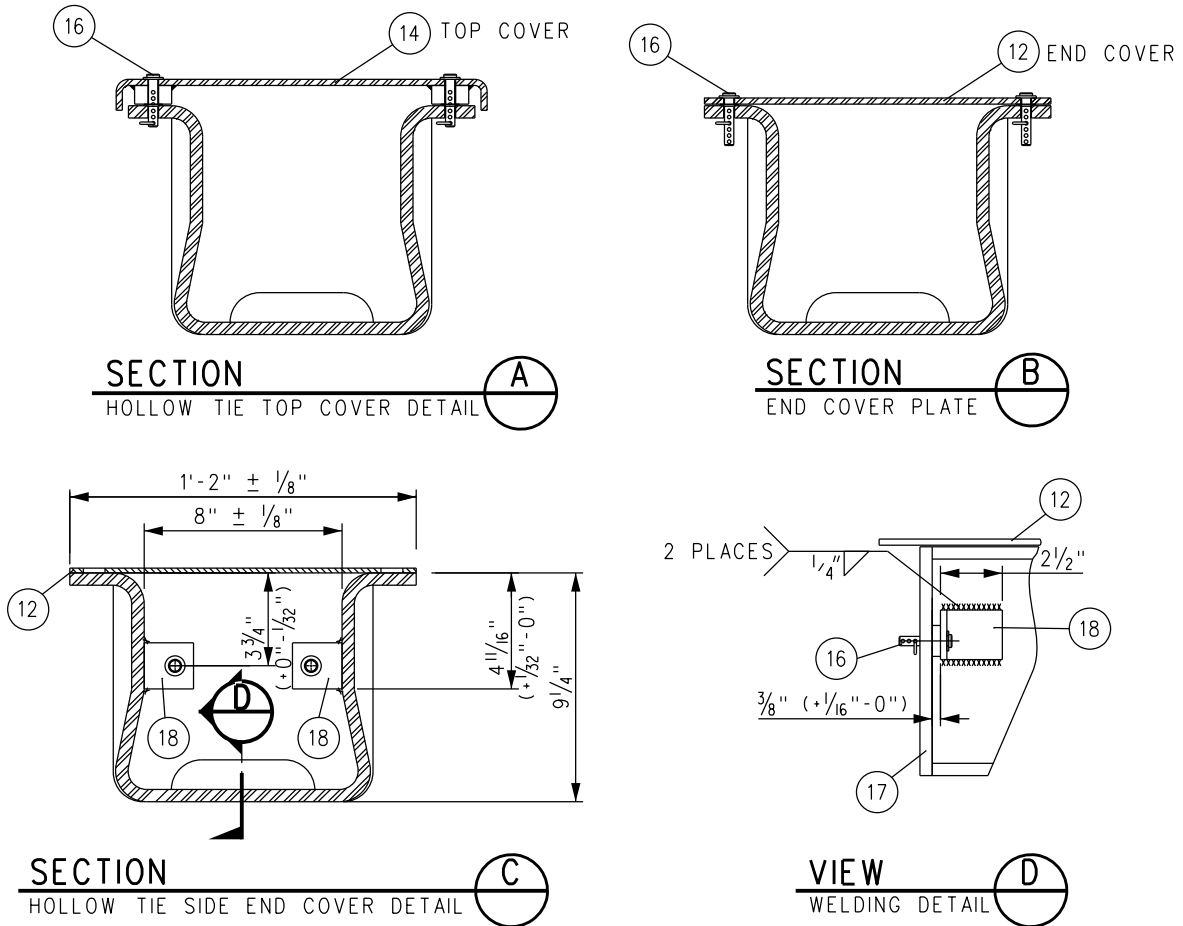
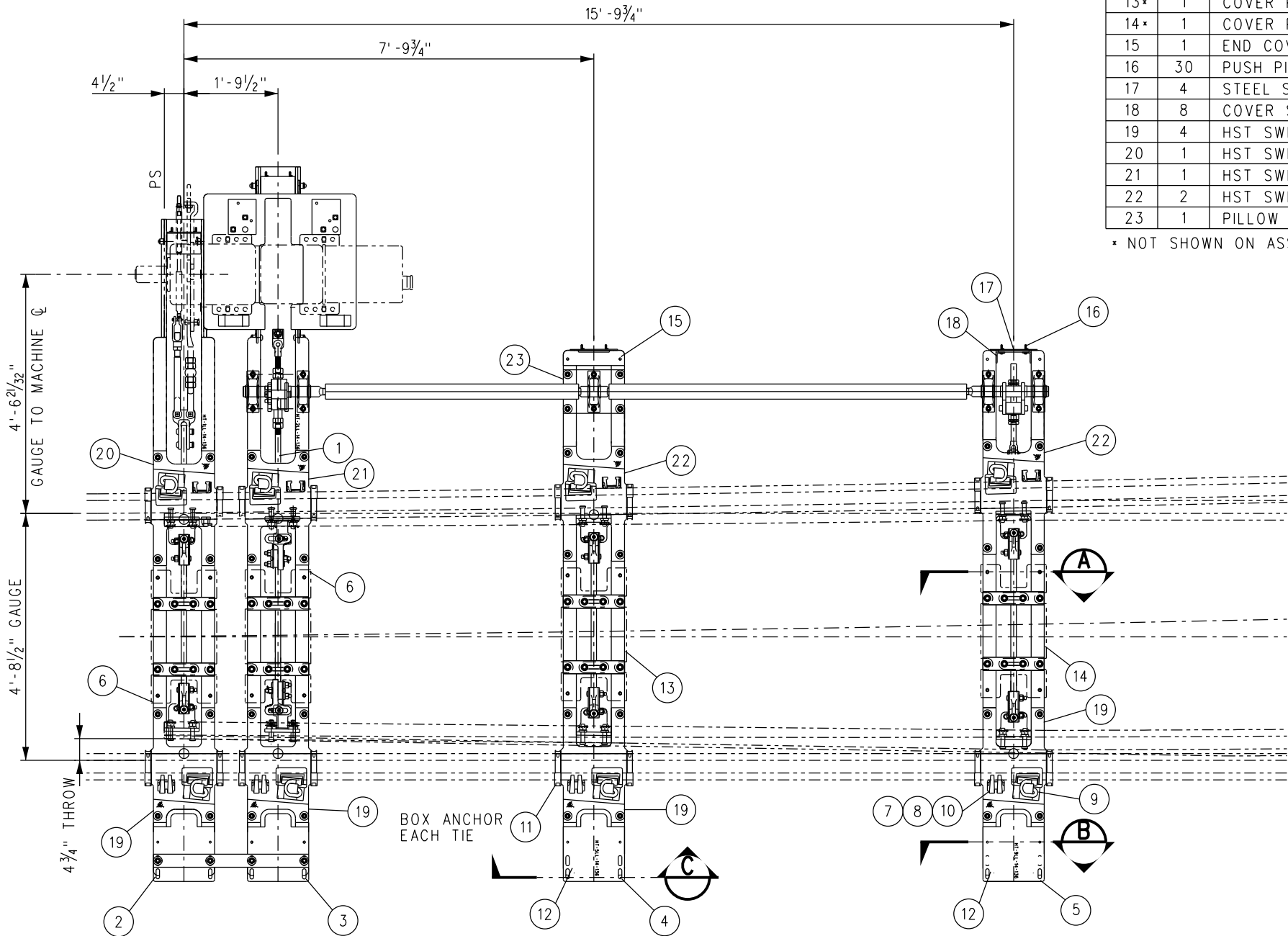
				DRAWN BY: HDR DATE: 03/31/2011	<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div>	ENGINEERING STANDARDS		STANDARD 2805
				<div>ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>		HOLLOW STEEL TIE LAYOUT		SCALE: NTS
				<div>DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>		SWITCH MACHINE ON MAINLINE SIDE		REVISION SHEET 1 OF 1
						NO 14-136 LB RE RH		CADD FILE: ES2805-32



BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	RODDING ASSEMBLY FOR NO 14-136 LB RE, SWITCH MACHINE ON LEFT SIDE	ES2805-71	
2	1	HOLLOW TIE ASSEMBLY (HT-1LL-14-136)	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2LL-14-136)	-	
4	1	HOLLOW TIE ASSEMBLY (HT-5LL-14-136)	-	
5	1	HOLLOW TIE ASSEMBLY (HT-9LL-14-136)	-	
6*	2	LV BRACE FOR 136 LB RE	-	
7	8	COVER PLATE NO 1, HOLLOW SWITCH TIE	-	
8	8	SERRATED WASHER FOR LV BRACE	-	
9	8	CLIP, SAFELOK AB 2000	-	
10	8	CLIP, PANDROL, E2055	-	
11	16	RAIL ANCHOR UNIT DRIVE-ON TYPE 5	-	
12	2	STEEL COVER PLATE FOR HST TIE, TOP END	-	
13*	1	COVER PLATE NO 2, HOLLOW SWITCH TIE	-	
14*	1	COVER PLATE NO 3, HOLLOW SWITCH TIE	-	
15	1	END COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
16	30	PUSH PIN ASSEMBLY FOR HST COVERS	-	
17	4	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-	
18	8	COVER SUPPORT BRACKET	-	
19	4	HST SWITCH PLATE HTP-206-STR	ES2800-90	
20	1	HST SWITCH PLATE HTP-208-L	ES2800-92	
21	1	HST SWITCH PLATE HTP-200-L	ES2800-93	
22	2	HST SWITCH PLATE HTP-202-L	ES2800-94	
23	1	PILLOW BLOCK MOUNTING PLATE	-	

* NOT SHOWN ON ASSEMBLY FOR CLARITY

NOTE:

1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRRRA.
2. SEE DRAWING ES2805-73 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.

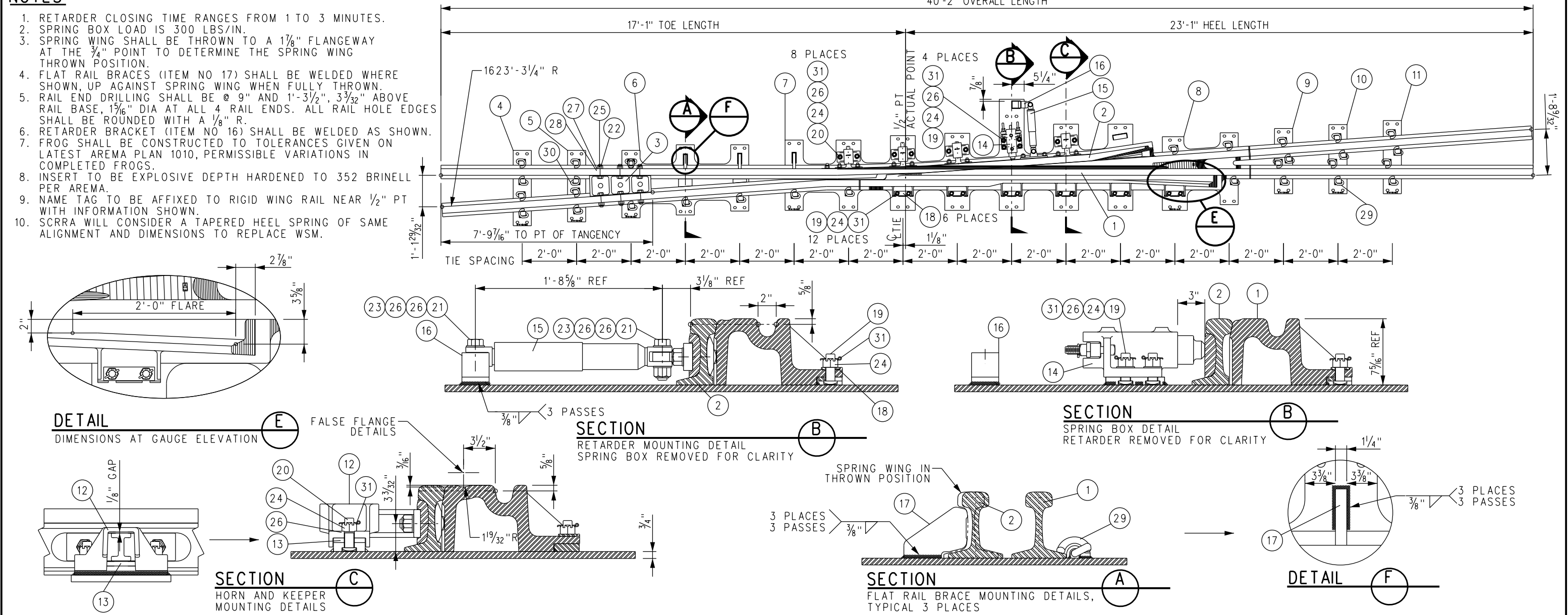


				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD 2805	
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div> <div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>				HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON TURNOUT SIDE NO 14-136 LB RE LH		SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2805-35	
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	NO 14-136 LB RE SPRING FROG, LH POINT ASSEMBLY	-		16	1	RETARDER PLATE BRACKET FOR FROG C/W HYDRAULIC RETARDER	-	
2	1	SPRING WING RAIL, NO 14-136 LB RE, LH C/W HARDWARE	-		17	3	FLAT RAIL BRACE FOR NON D-BAR APPLICATIONS	-	
3	1	TOE BLOCK, NO 14-136 LB RE WSM	-		18	6	WASHER, BOLT CAPTURE STYLE, 1/4" THICK	-	
4	1	FROG PLATE (14-136-50LC)	ES2805-43		19	16	BOLT, 1" DIA x 3", THIN SQ HEAD, DRILLED @ 2 1/2", GR 5	-	
5	1	FROG PLATE (14-136-51LC)	ES2805-43		20	8	BOLT, 1" DIA x 3 1/2", THIN SQ HEAD, DRILLED @ 2 11/16", GR 5	-	
6	1	FROG PLATE (14-136-52LC)	ES2805-45		21	2	BOLT, 1" DIA x 4 1/8", HEAVY HEX HEAD, GR 8	-	
7	1	FROG PLATE (14-136-55LC)	ES2805-47		22	6	BOLT, 1 3/8" DIA x 5 1/2", SQUARE HEAD, GR 8	-	
8	1	FROG PLATE (14-136-62LC)	ES2805-49		23	2	SECURITY LOCK NUT, 1" DIA, HEX (SH521), GR 5	-	
9	1	FROG PLATE (14-136-64LC)	ES2805-49		24	24	NUT, 1" DIA HEAVY HEX, SLOTTED, GR 5	-	
10	1	FROG PLATE (14-136-65LC)	ES2805-51		25	6	SECURITY LOCK NUT, 1 3/8" DIA HEX (SH530), GR 8	-	
11	1	FROG PLATE (14-136-66LC)	ES2805-51		26	16	FLAT WASHER, FOR 1" DIA x 5/32" THICK, HARDENED	-	
12	4	HORN KEEPER, REVERSIBLE	-		27	6	FLAT WASHER, FOR 1 3/8" DIA x 1/4" THICK, HARDENED	-	
13	4	WEAR PLATE FOR REVERSIBLE HORN KEEPER	-		28	6	TAIL WASHER, FLAT (837K)	-	
14	1	SPRING BOX ASSEMBLY, WITH 3" MAXIMUM PLUNGER TRAVEL	-		29	28	PANDROL SPRING CLIP E2055	-	
15	1	RETARDER, ENIDINE P/N: SP22917, CLEVIS ENDS WITH HARDWARE	-		30	1	PANDROL SPRING CLIP E2056	-	
					31	24	COTTER PIN, 1/4" DIA x 2" LONG	-	

NOTES:

- RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
- SPRING BOX LOAD IS 300 LBS/IN.
- SPRING WING SHALL BE THROWN TO A 1 7/8" FLANGEWAY AT THE 3/4" POINT TO DETERMINE THE SPRING WING THROWN POSITION.
- FLAT RAIL BRACES (ITEM NO 17) SHALL BE WELDED WHERE SHOWN, UP AGAINST SPRING WING WHEN FULLY THROWN.
- RAIL END DRILLING SHALL BE @ 9" AND 1'-3 1/2", 3 3/32" ABOVE RAIL BASE, 1 1/16" DIA AT ALL 4 RAIL ENDS. ALL RAIL HOLE EDGES SHALL BE ROUNDED WITH A 1/8" R.
- RETARDER BRACKET (ITEM NO 16) SHALL BE WELDED AS SHOWN.
- FROG SHALL BE CONSTRUCTED TO TOLERANCES GIVEN ON LATEST AREMA PLAN 1010, PERMISSIBLE VARIATIONS IN COMPLETED FROGS.
- INSERT TO BE EXPLOSIVE DEPTH HARDENED TO 352 BRINELL PER AREMA.
- NAME TAG TO BE AFFIXED TO RIGID WING RAIL NEAR 1/2" PT WITH INFORMATION SHOWN.
- SCRR WILL CONSIDER A TAPERED HEEL SPRING OF SAME ALIGNMENT AND DIMENSIONS TO REPLACE WSM.

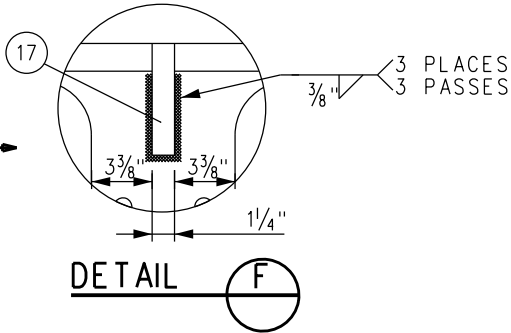
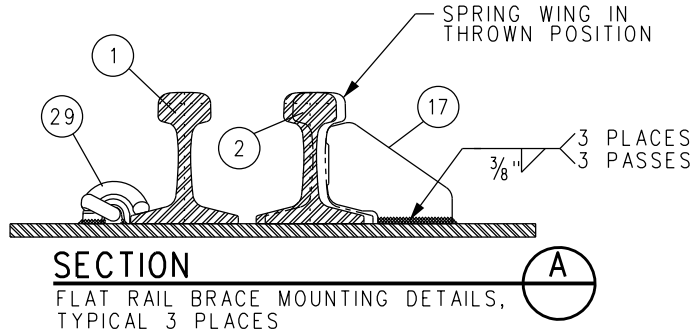
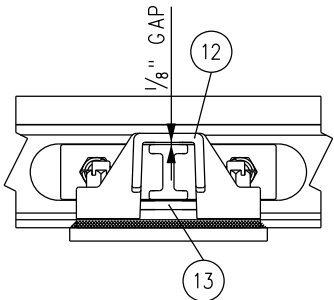
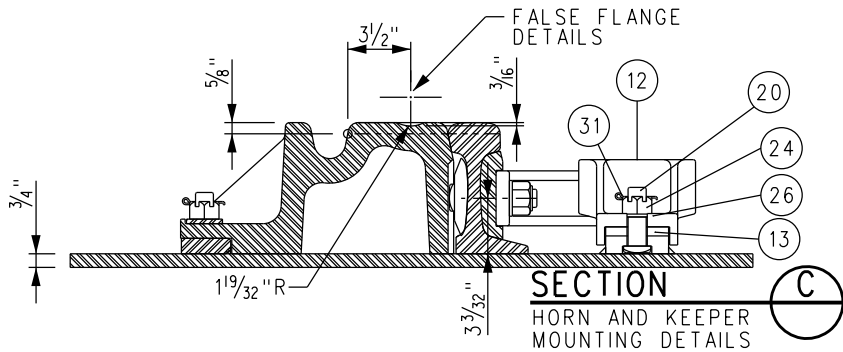
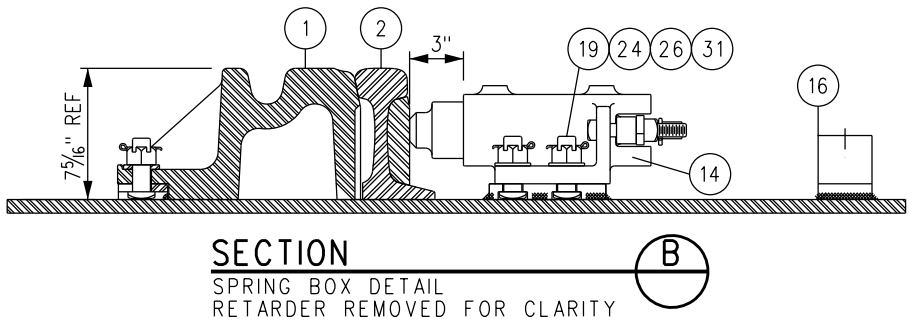
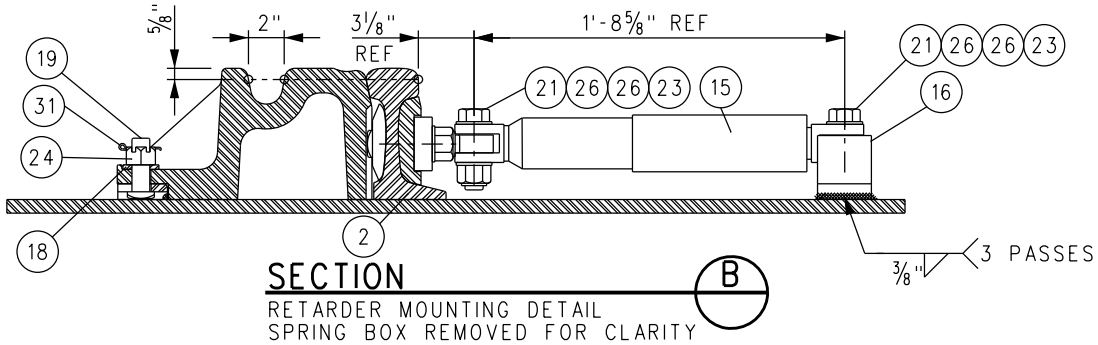
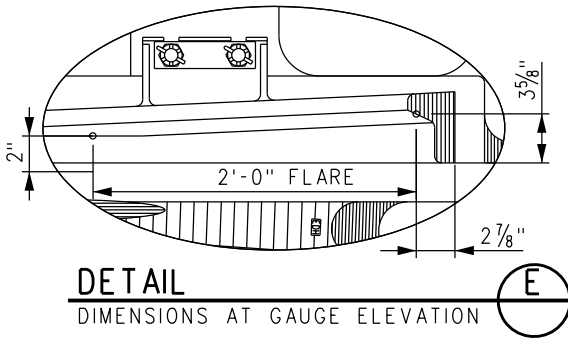
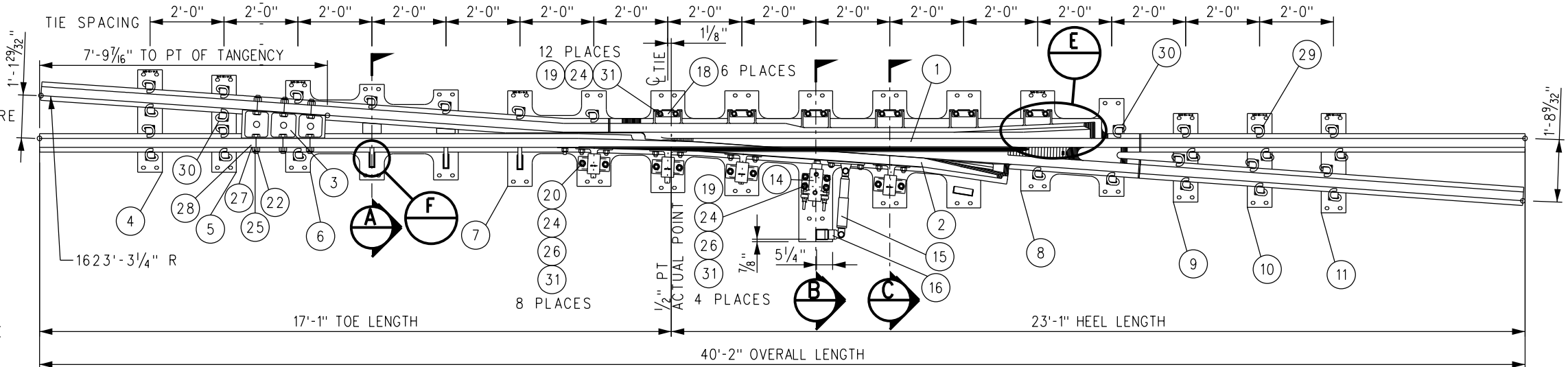


				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 14 WSM FROG LH FROG ASSEMBLY PLAN VIEW AND FROG PACK CONCRETE TIES-136 LB RE RAIL	STANDARD 2805 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2805-41
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	NO 14-136 LB RE SPRING FROG, RH POINT ASSEMBLY	-		16	1	RETARDER PLATE BRACKET FOR FROG C/W HYDRAULIC RETARDER	-	
2	1	SPRING WING RAIL, NO 14-136 LB RE, RH, C/W HARDWARE	-		17	3	FLAT RAIL BRACE FOR NON D-BAR APPLICATIONS	-	
3	1	TOE BLOCK, NO 14-136 LB RE WSM	-		18	6	WASHER, BOLT CAPTURE STYLE, 1/4" THICK	-	
4	1	FROG PLATE (14-136-50RC)	ES2805-44		19	8	BOLT, 1" DIA x 3", THIN SQ HEAD, DRILLED @ 2 1/2", GR 5	-	
5	1	FROG PLATE (14-136-51RC)	ES2805-44		20	8	BOLT, 1" DIA x 3 1/2", THIN SQ HEAD, DRILLED @ 2 1/16", GR 5	-	
6	1	FROG PLATE (14-136-52RC)	ES2805-46		21	2	BOLT, 1" DIA x 4 1/8", HEAVY HEX HEAD, GR 8	-	
7	1	FROG PLATE (14-136-55RC)	ES2805-48		22	2	BOLT, 1 3/8" DIA x 5 1/2", SQUARE HEAD, GR 8	-	
8	1	FROG PLATE (14-136-62RC)	ES2805-50		23	2	SECURITY LOCK NUT, 1" DIA, HEX (SH521), GR 5	-	
9	1	FROG PLATE (14-136-64RC)	ES2805-50		24	24	NUT, 1" DIA HEAVY HEX, SLOTTED, GR 5	-	
10	1	FROG PLATE (14-136-65RC)	ES2805-52		25	6	SECURITY LOCK NUT, 1 3/8" DIA HEX (SH530), GR 8	-	
11	1	FROG PLATE (14-136-66RC)	ES2805-52		26	16	FLAT WASHER, FOR 1" DIA x 5/32" THICK, HARDENED	-	
12	4	HORN KEEPER, REVERSIBLE	-		27	6	FLAT WASHER, FOR 1 3/8" DIA x 1/4" THICK, HARDENED	-	
13	4	WEAR PLATE FOR REVERSIBLE HORN KEEPER	-		28	6	TAIL WASHER, FLAT (837K)	-	
14	1	SPRING BOX ASSEMBLY, WITH 3" MAXIMUM PLUNGER TRAVEL	-		29	27	PANDROL SPRING CLIP E2055	-	
15	1	RETARDER, ENIDINE P/N: SP22917, CLEVIS ENDS WITH HARDWARE	-		30	2	PANDROL SPRING CLIP E2056	-	
					31	2	WATTEN PIN, 1/4" DIA x 2" LONG	-	

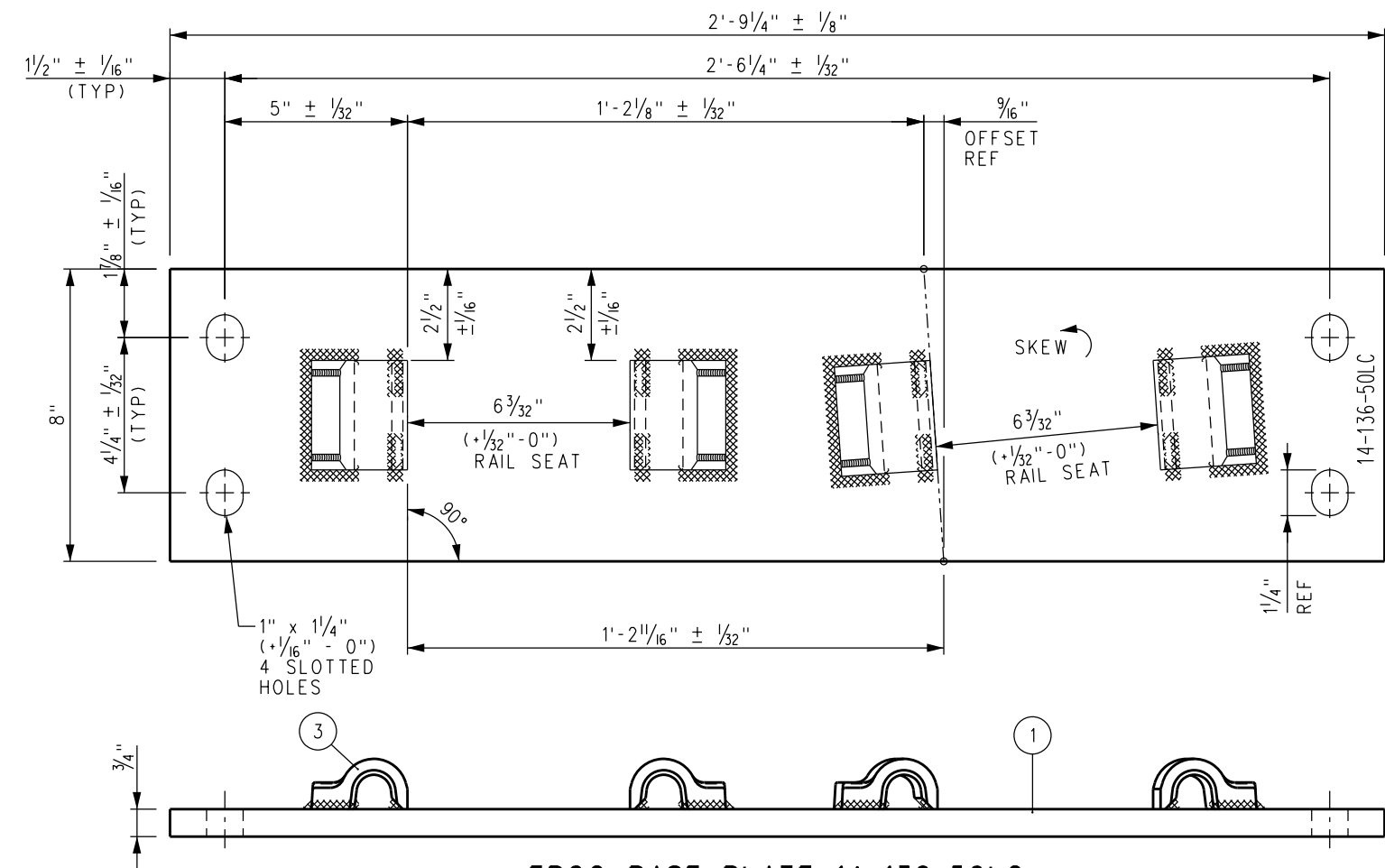
NOTES:

- RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
- SPRING BOX LOAD IS 300 LBS/IN.
- SPRING WING SHALL BE THROWN TO A 1 7/8" FLANGEWAY AT THE 3/4" POINT TO DETERMINE THE SPRING WING THROWN POSITION.
- FLAT RAIL BRACES (ITEM NO 17) SHALL BE WELDED WHERE SHOWN, UP AGAINST SPRING WING WHEN FULLY THROWN.
- RAIL END DRILLING SHALL BE @ 9" AND 1'-3 1/2", 3 3/32" ABOVE RAIL BASE, 1 1/16" DIA AT ALL 4 RAIL ENDS. ALL RAIL HOLE EDGES SHALL BE ROUNDED WITH A 1/8" R.
- RETARDER BRACKET (ITEM NO 16) SHALL BE WELDED AS SHOWN.
- FROG SHALL BE CONSTRUCTED TO TOLERANCES GIVEN ON LATEST AREMA PLAN 1010, PERMISSIBLE VARIATIONS IN COMPLETED FROGS.
- INSERT TO BE EXPLOSIVE DEPTH HARDENED TO 352 BRINELL PER AREMA.
- NAME TAG TO BE AFFIXED TO RIGID WING RAIL NEAR 1/2" PT WITH INFORMATION SHOWN.
- SCRRRA WILL CONSIDER A TAPERED HEEL SPRING OF SAME ALIGNMENT AND DIMENSIONS TO REPLACE WSM.

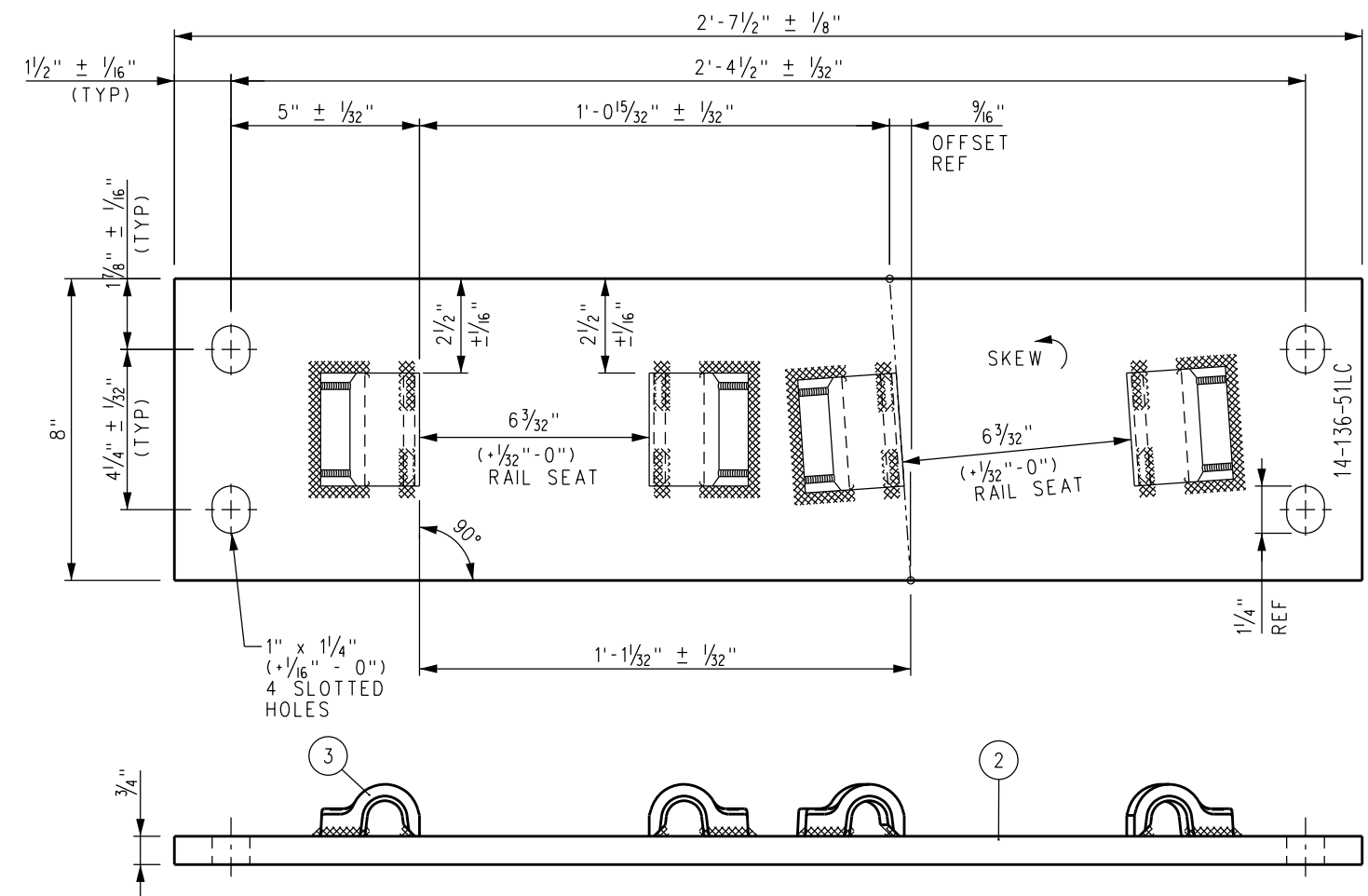


				DRAWN BY: HDR DATE: 03/31/2011				SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2805			
				NO 14 WSM FROG RH				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				NO 14 WSM FROG RH				SCALE: NTS			
				FROG ASSEMBLY PLAN VIEW AND FROG PACK				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				FROG ASSEMBLY PLAN VIEW AND FROG PACK				REVISION SHEET 1 OF 1			
				CONCRETE TIES-136 LB RE RAIL												CADD FILE: ES2805-42			

BILL OF MATERIAL					
ITEM	QTY FOR 14-136-50LC	QTY FOR 14-136-51LC	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-9 1/4" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



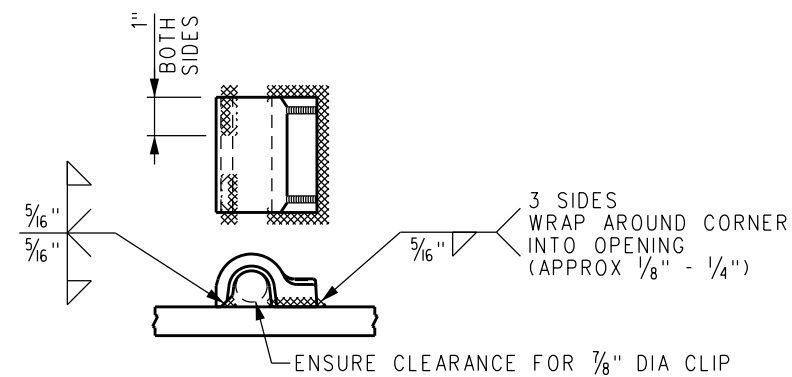
FROG BASE PLATE 14-136-50LC



FROG BASE PLATE 14-136-51LC

NOTES:

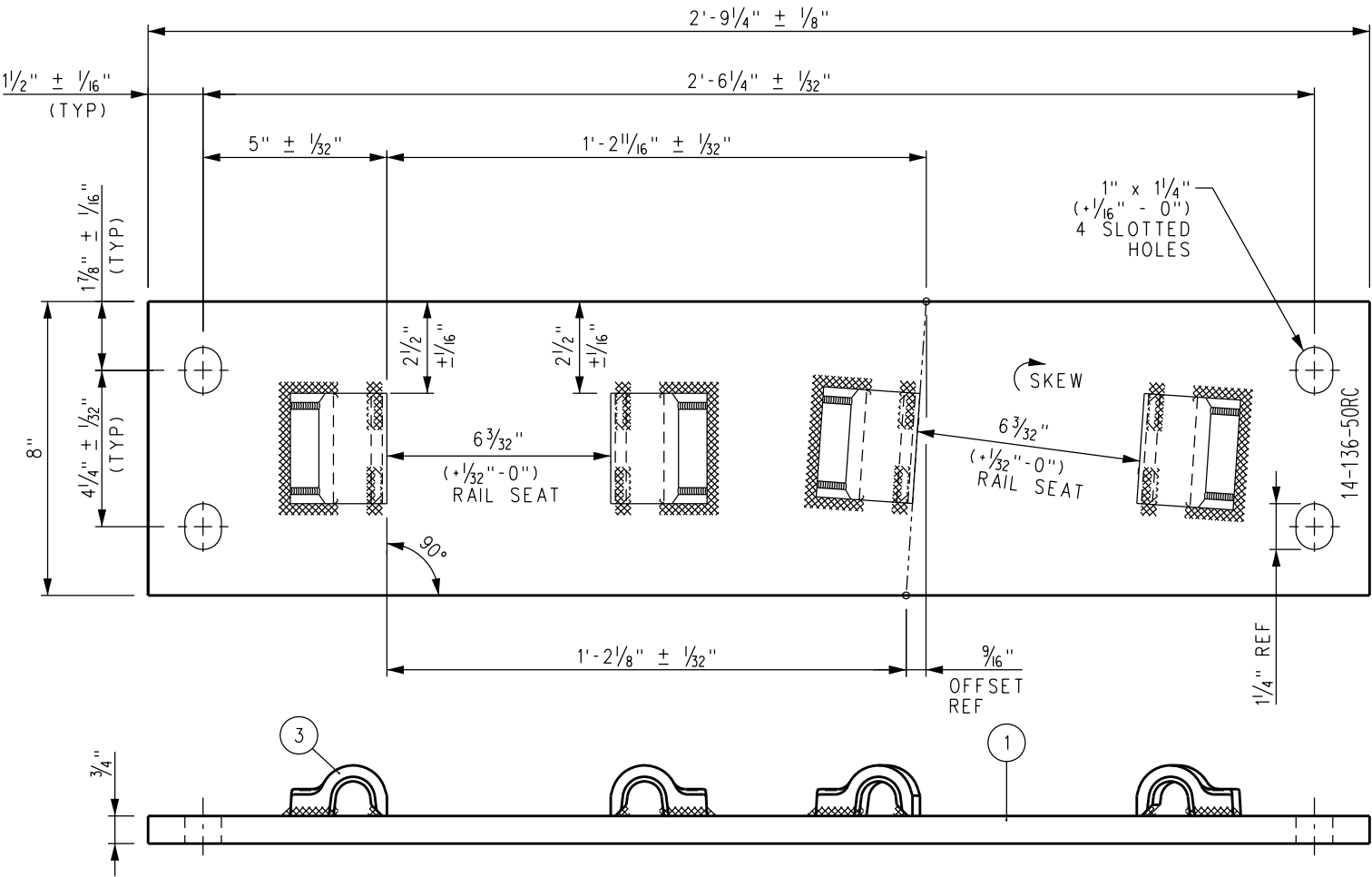
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



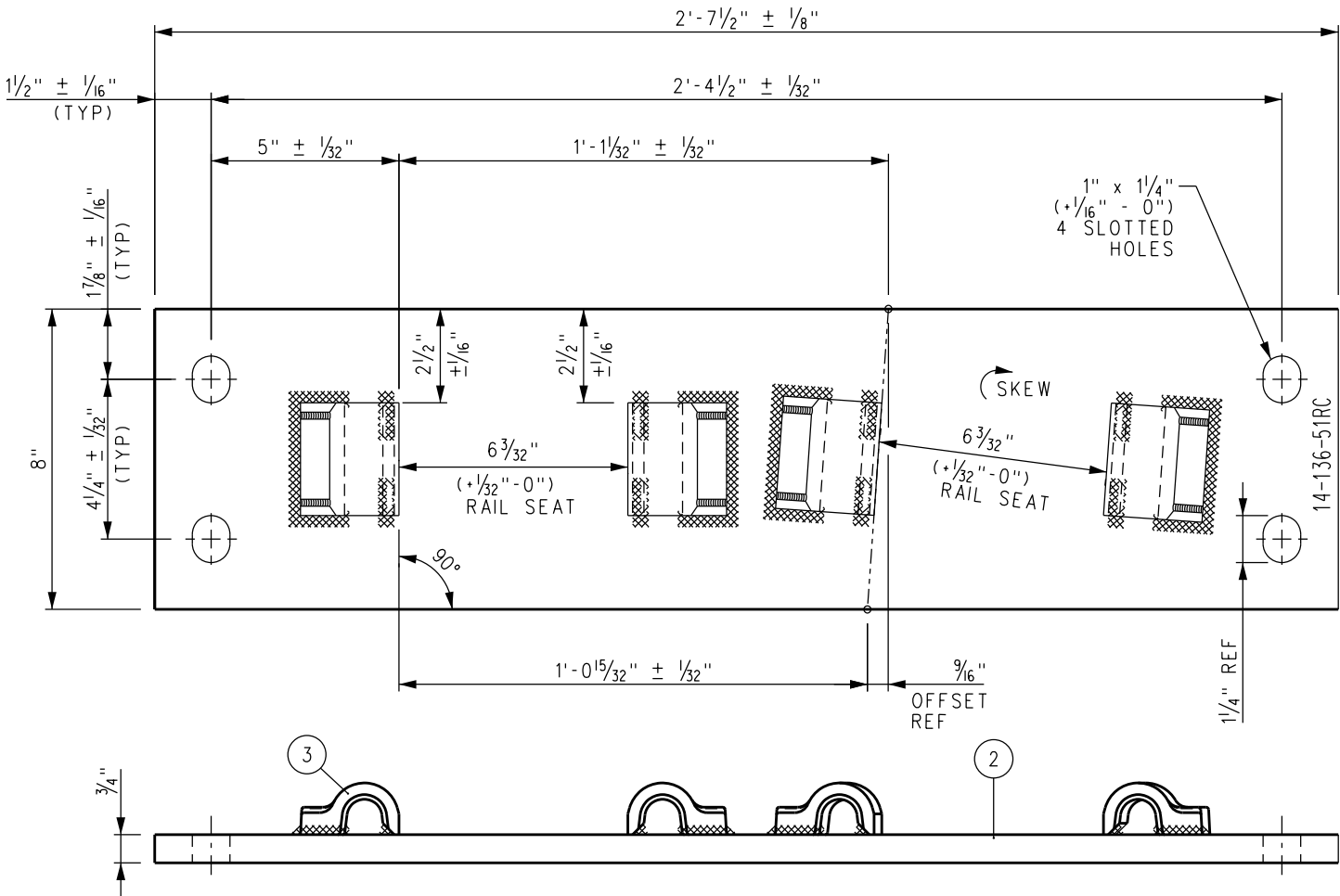
FORGED SHOULDER WELDING DETAIL

DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	METROLINK® SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				ENGINEERING STANDARDS NO 14 WSM FROG LH FROG BASE PLATES 14-50LC AND 14-51LC CONCRETE TIES-136 LB RE RAIL				STANDARD 2805 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2805-43	
X	XX-XX-XX	REVISION	XX	XX										
REV.	DATE	DESCRIPTION	DES.	ENG.										

BILL OF MATERIAL					
ITEM	QTY FOR 24-136-50RC	QTY FOR 24-136-51RC	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-9 1/4" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



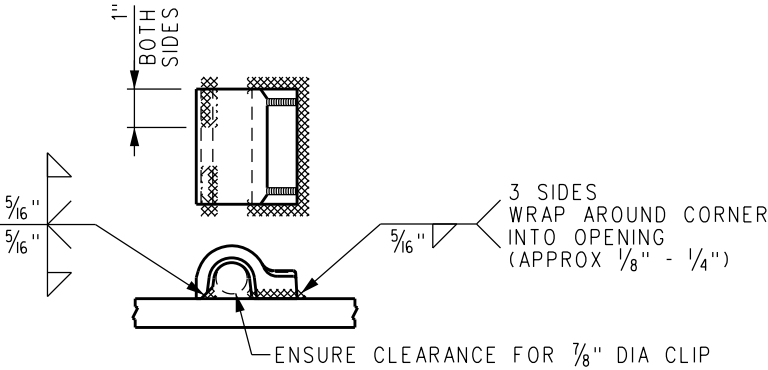
FROG BASE PLATE 14-136-50RC



FROG BASE PLATE 14-136-51RC

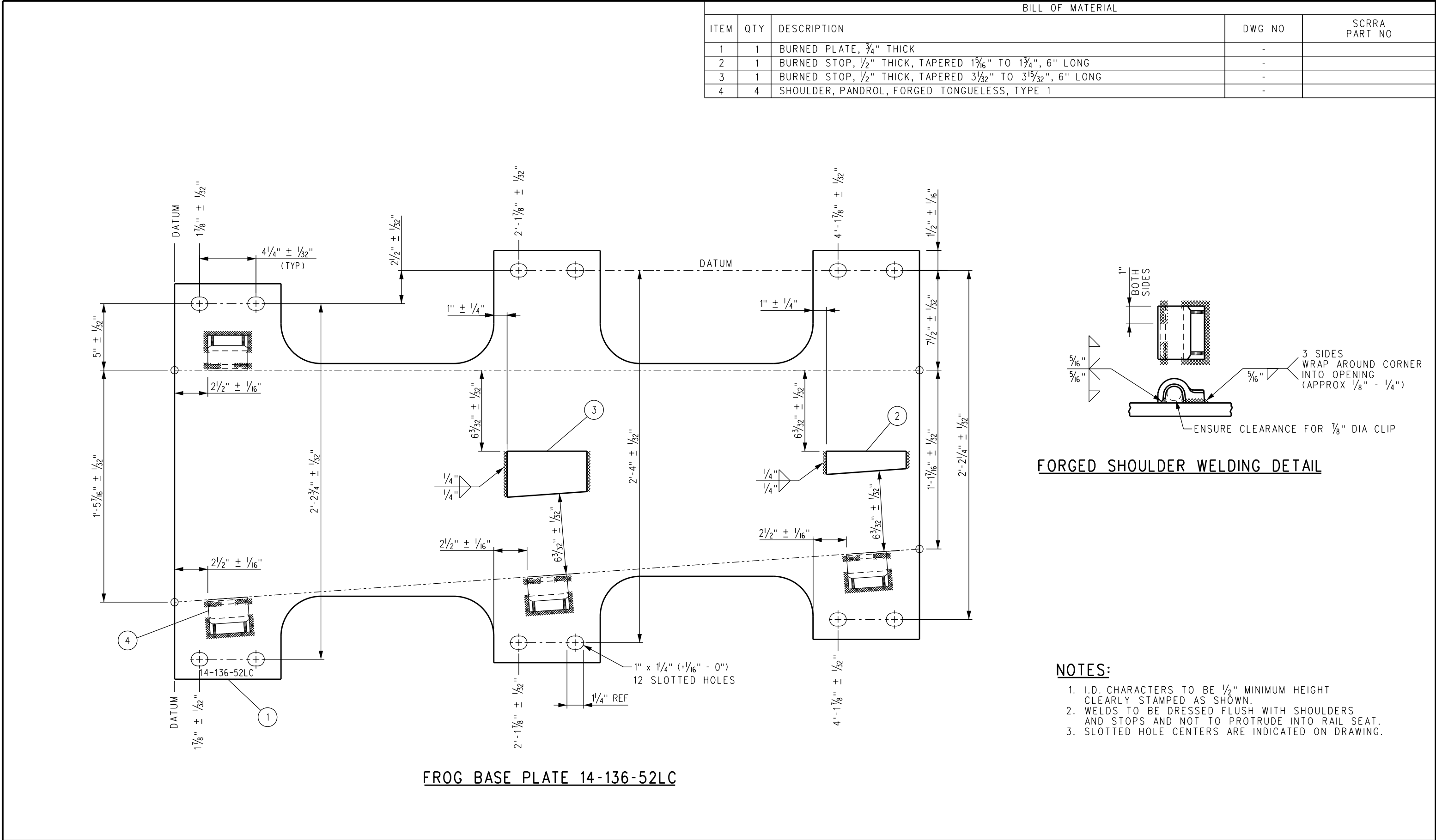
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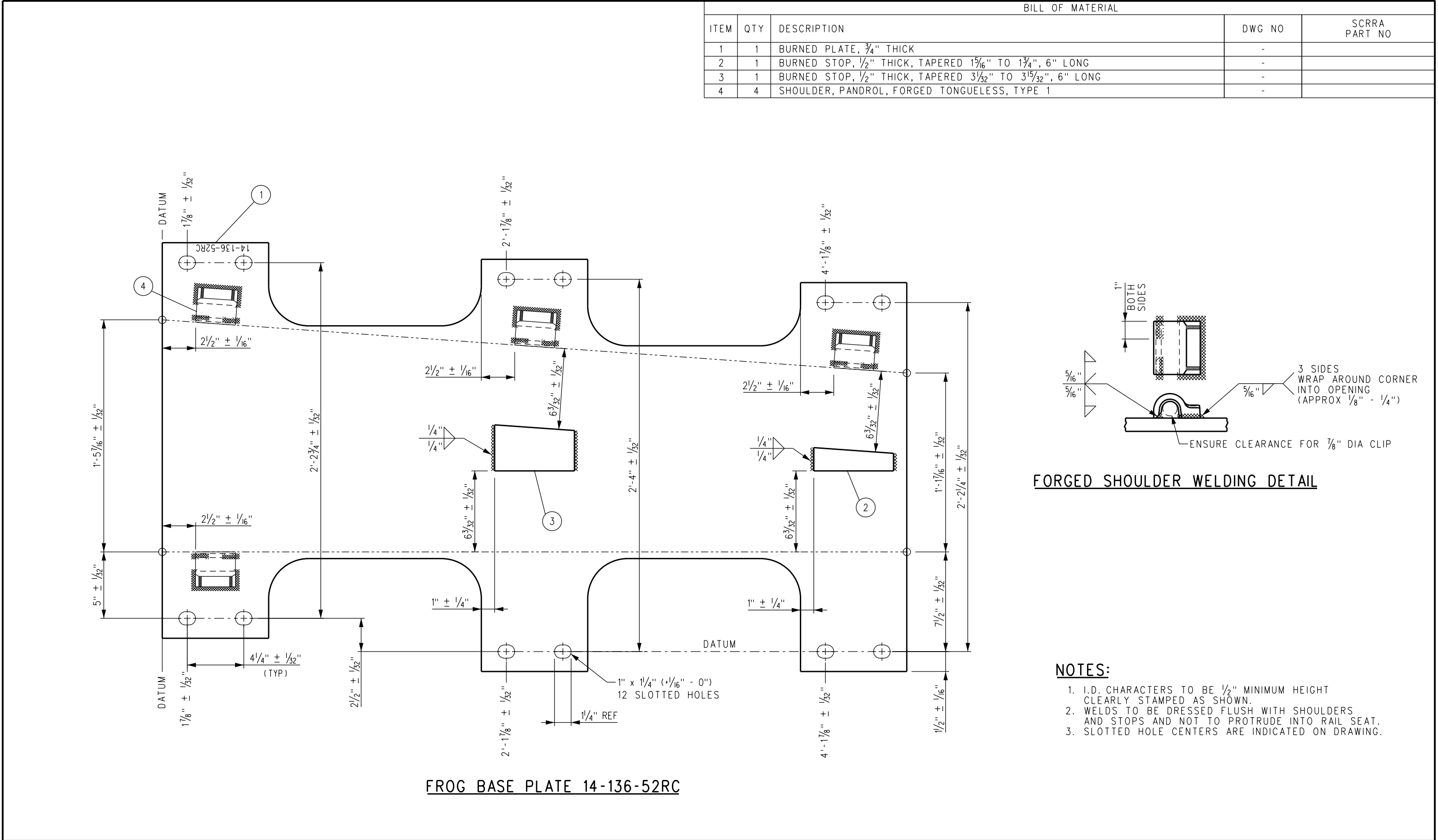
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



FORGED SHOULDER WELDING DETAIL

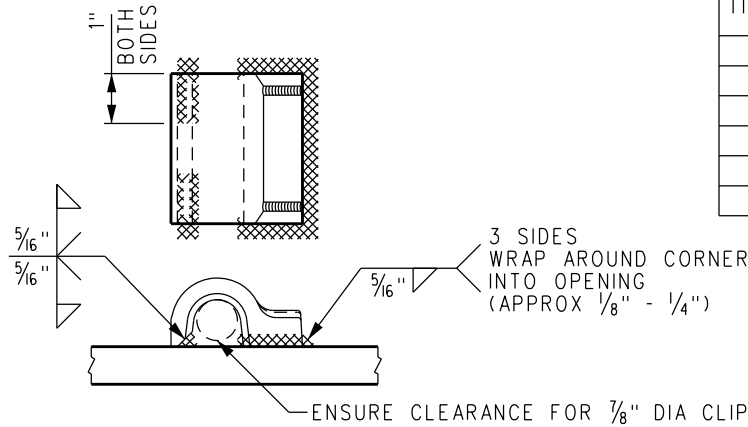
DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS		STANDARD 2805	
REVISION				METROLINK				NO 14 WSM FROG RH		SCALE: NTS	
REV. DATE DESCRIPTION DES. ENG.				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				FROG BASE PLATES 14-50RC AND 14-51RC		REVISION SHEET 1 OF 1	
				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				CONCRETE TIES-136 LB RE RAIL		CADD FILE: ES2805-44	



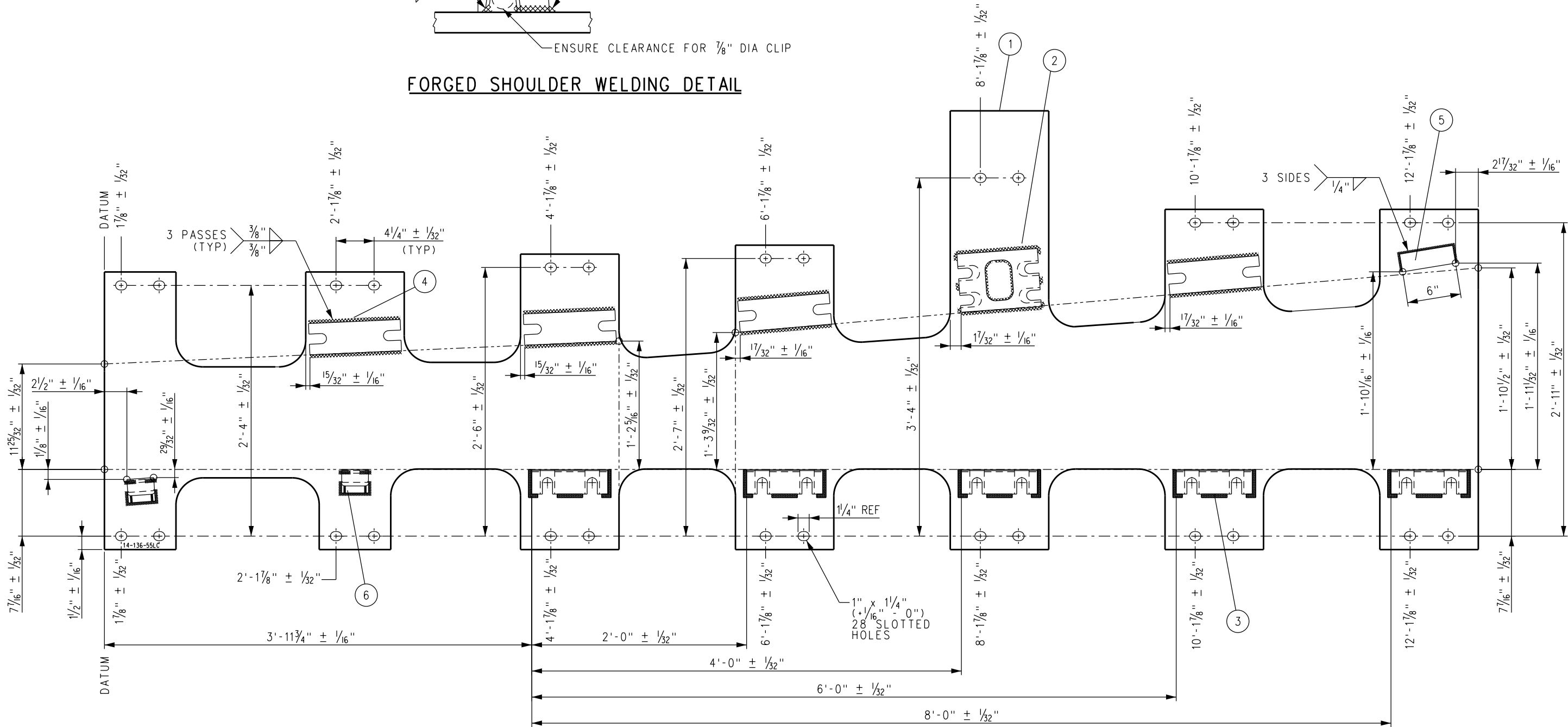


NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



FORGED SHOULDER WELDING DETAIL



FROG BASE PLATE 14-136-55LC

BILL OF MATERIAL			DWG NO	SCRR PART NO
ITEM	QTY	DESCRIPTION		
1	1	BURNED PLATE, 3/4" THICK	-	
2	1	CAPTURE BLOCK FOR SPRING BOX	-	
3	5	CAPTURE BLOCK FOR PLATE CLIP	-	
4	4	CAPTURE BLOCK FOR HORN KEEPER	-	
5	1	FLAT BAR, ASTM A36, 1/2" THICK x 2" x 6" LONG	-	
6	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	

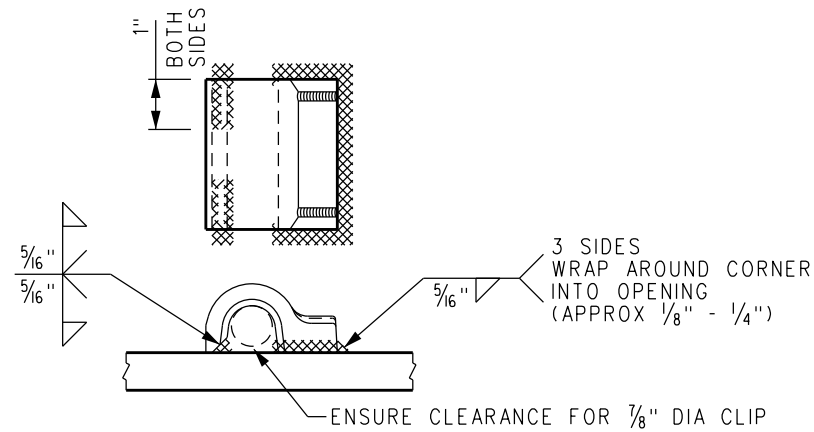
DRAWN BY: HDR		DATE: 03/31/2011	
REVISION		DES. ENG.	
XX-XX-XX		XX XX	
REV. DATE		DESCRIPTION	

DRAWN BY: HDR		DATE: 03/31/2011	
REVISION		DES. ENG.	
XX-XX-XX		XX XX	
REV. DATE		DESCRIPTION	

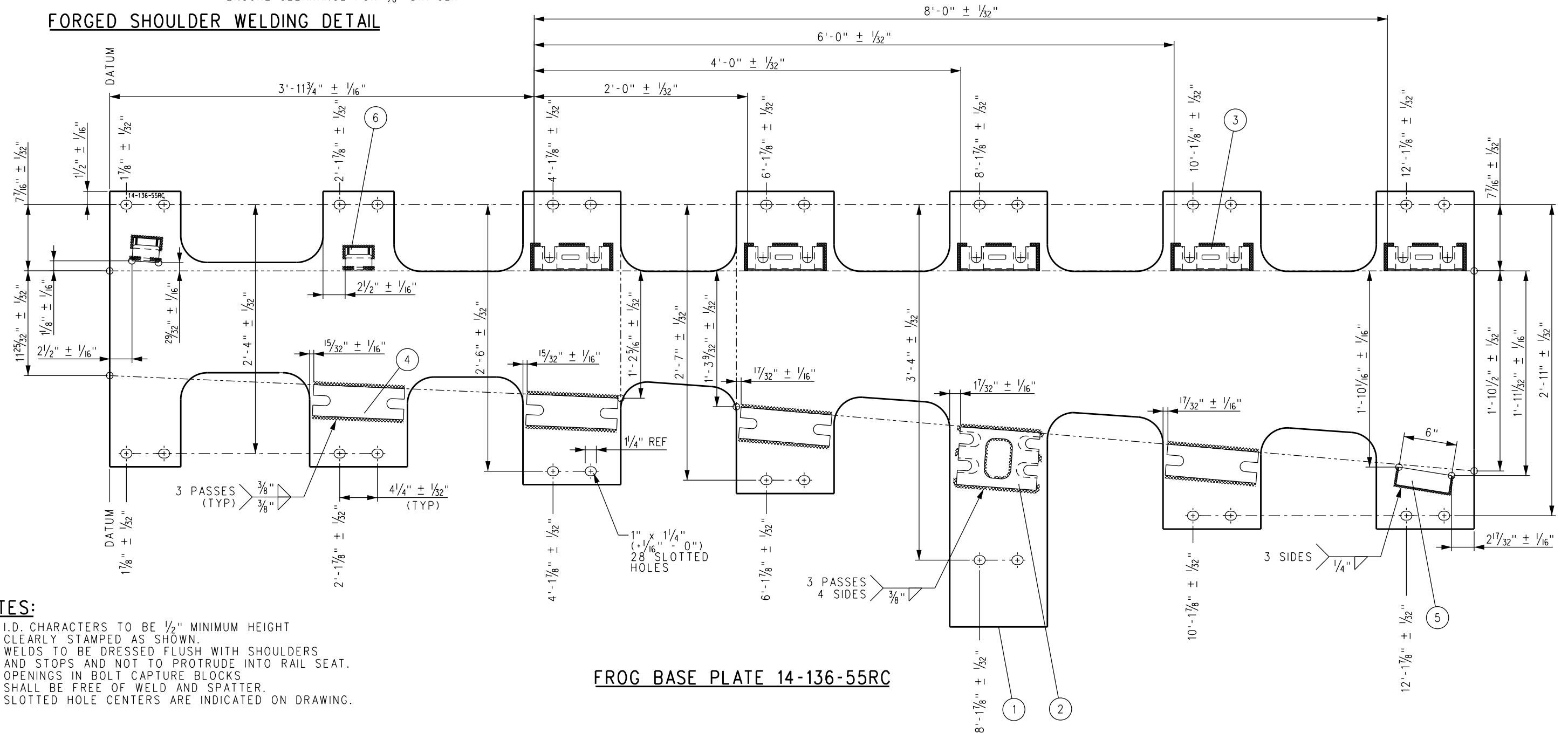
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REVISION		DES. ENG.	
XX-XX-XX		XX XX	
REV. DATE		DESCRIPTION	

DRAWN BY: HDR		DATE: 03/31/2011	
REVISION		DES. ENG.	
XX-XX-XX		XX XX	
REV. DATE		DESCRIPTION	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	BURNED PLATE, 3/4" THICK	-	
2	1	CAPTURE BLOCK FOR SPRING BOX	-	
3	5	CAPTURE BLOCK FOR PLATE CLIP	-	
4	4	CAPTURE BLOCK FOR HORN KEEPER	-	
5	1	FLAT BAR, ASTM A36, 1/2" THICK x 2" x 6" LONG	-	
6	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	





FORGED SHOULDER WELDING DETAIL



NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS
AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS
SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

FROG BASE PLATE 14-136-55RC

						DRAWN BY:	HDR	DATE:	03/31/20
						 ASSISTANT DIRECTOR: STANDARDS & DESIGN  DIRECTOR OF ENGINEERING AND CONSTRUCTION			
X	XX-XX-XX		REVISION	XX	XX				
REV.	DATE		DESCRIPTION	DES.	ENG.				

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METROLINK®

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

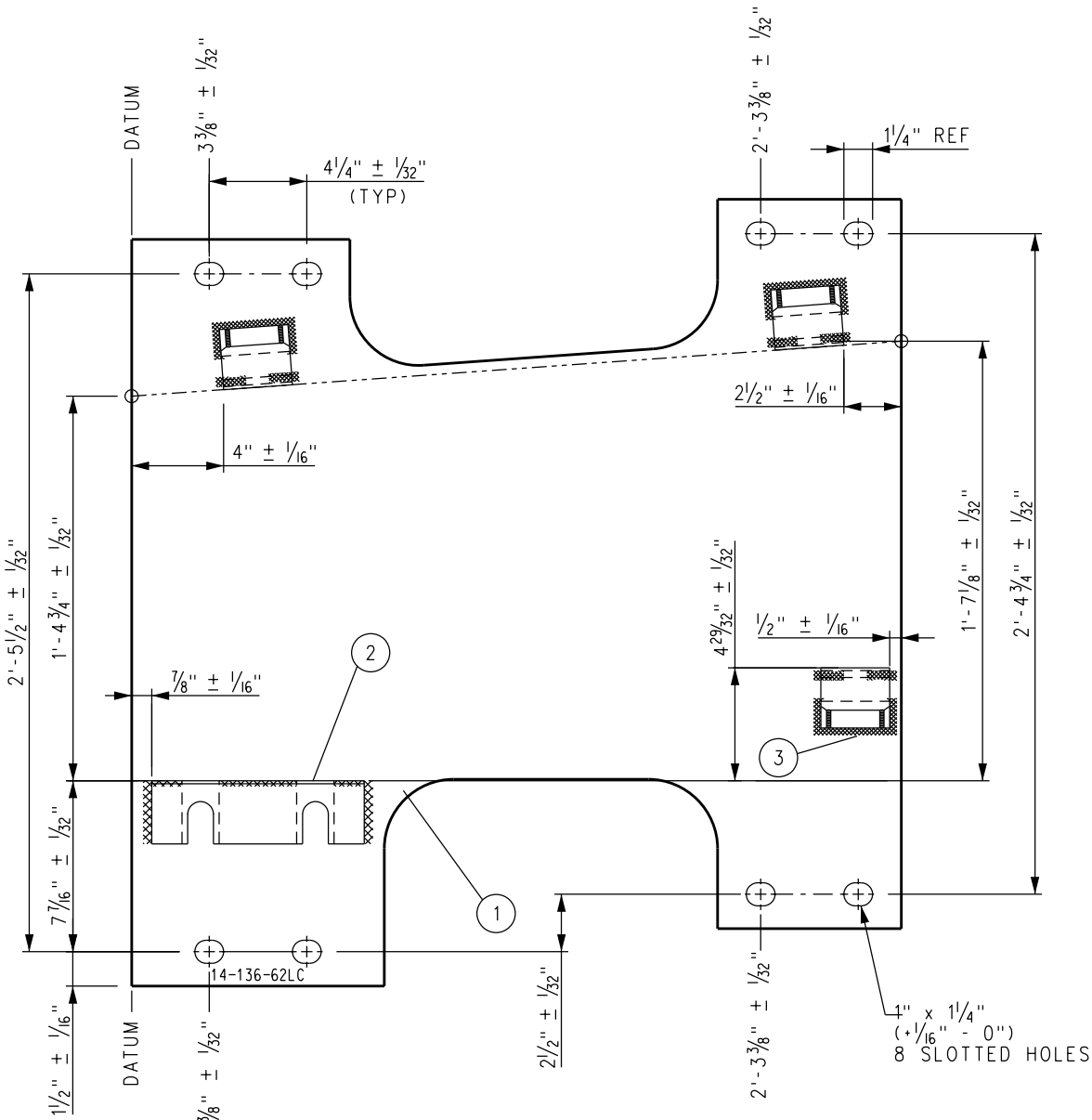
NO 14 WSM FROG RH
FROG BASE PLATE 14-55RC
CONCRETE TIES-136 LB RE RAIL

STANDARD		2805
SCALE:		NTS
REVISION	SHEET	
-	1 OF 1	
CADD FILE:		ES2805-48

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

BILL OF MATERIAL					
ITEM	QTY FOR 14-136-62LC	QTY FOR 14-136-64LC	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	BURNED PLATE, 3/4" THICK	-	
2	1	0	CAPTURE BLOCK FOR HORN KEEPER	-	
3	3	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
4	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 3/4" LONG	-	



FROG BASE PLATE 14-136-62LC

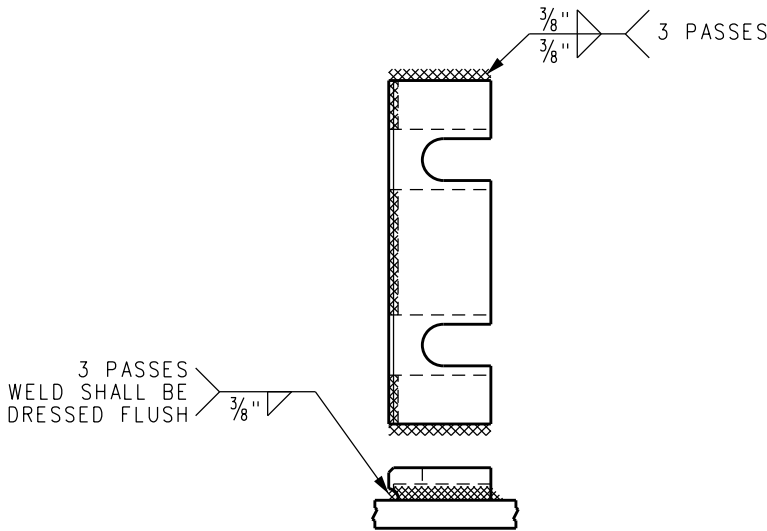
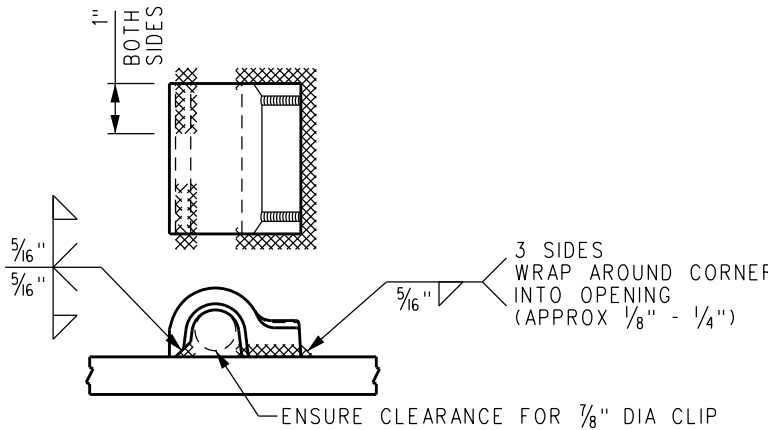
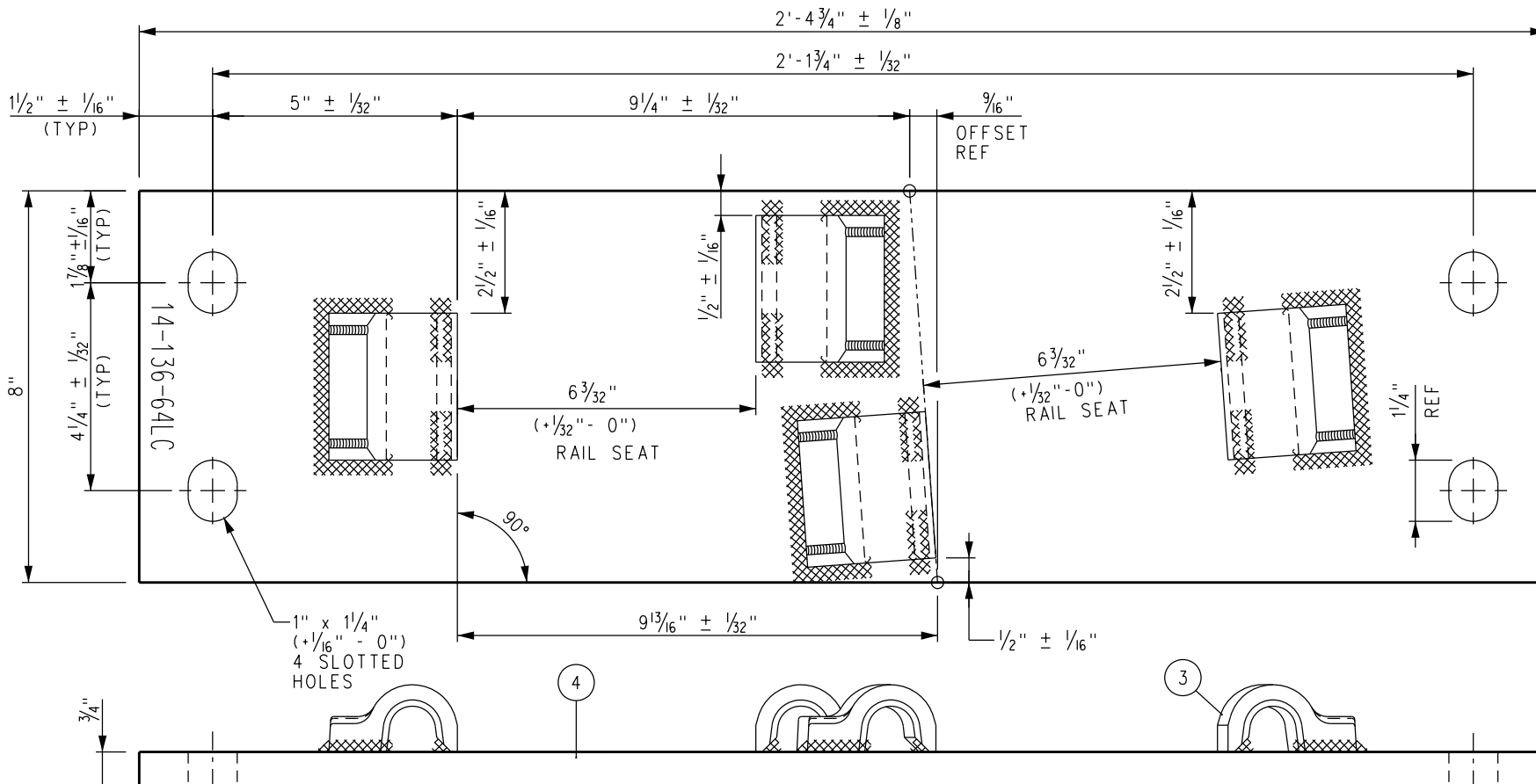


PLATE BRACE CAPTURE BLOCK
WELDING DETAILS



FORGED SHOULDER WELDING DETAIL



FROG BASE PLATE 14-136-64LC

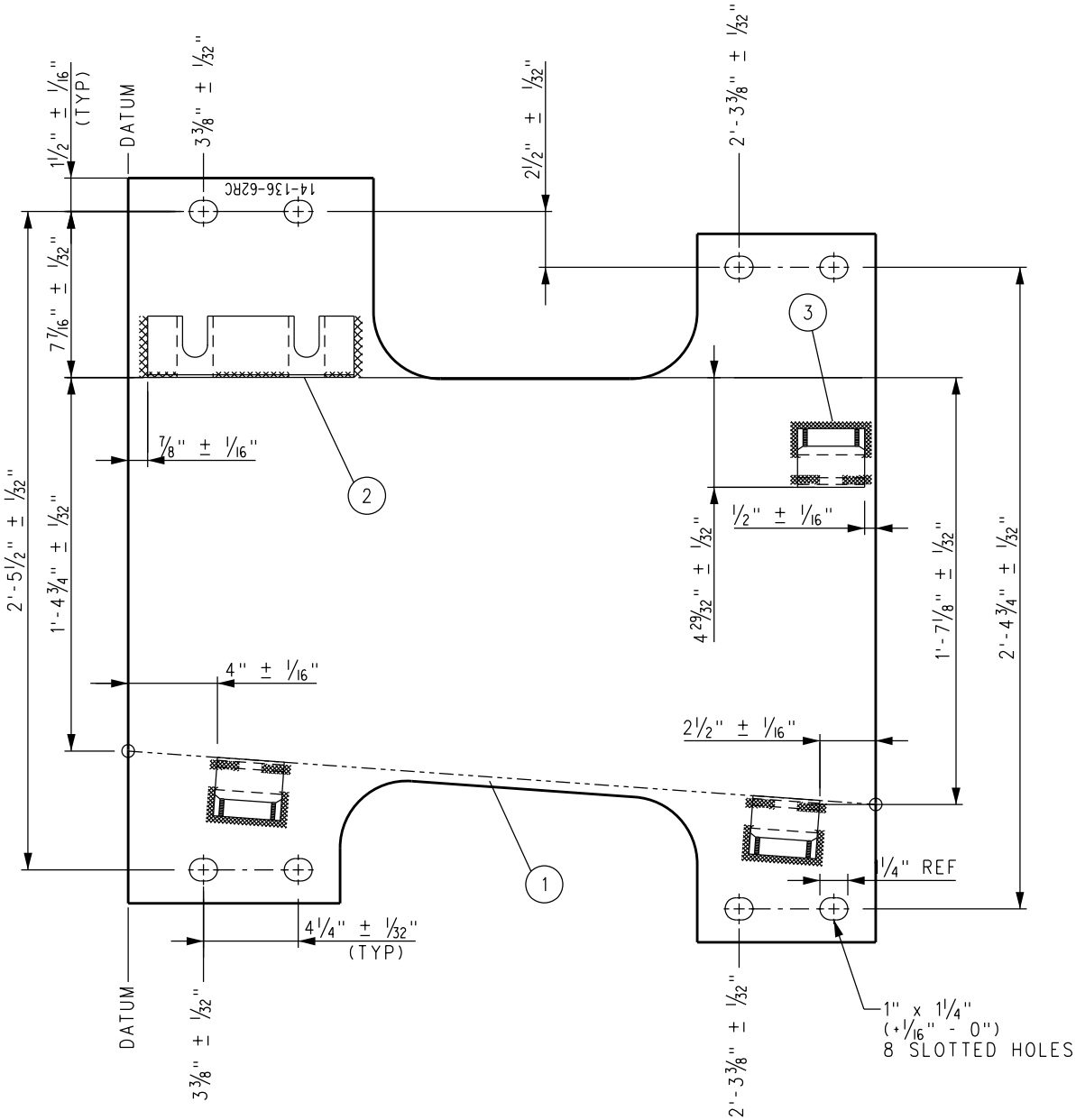
DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2805	
REVISION				METROLINK				NO 14 WSM FROG LH				SCALE: NTS	
REV. DATE DESCRIPTION DES. ENG.				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				FROG BASE PLATES 14-62LC AND 14-64LC				REVISION SHEET 1 OF 1	
				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				CONCRETE TIES-136 LB RE RAIL				CADD FILE: ES2805-49	

NOTES:

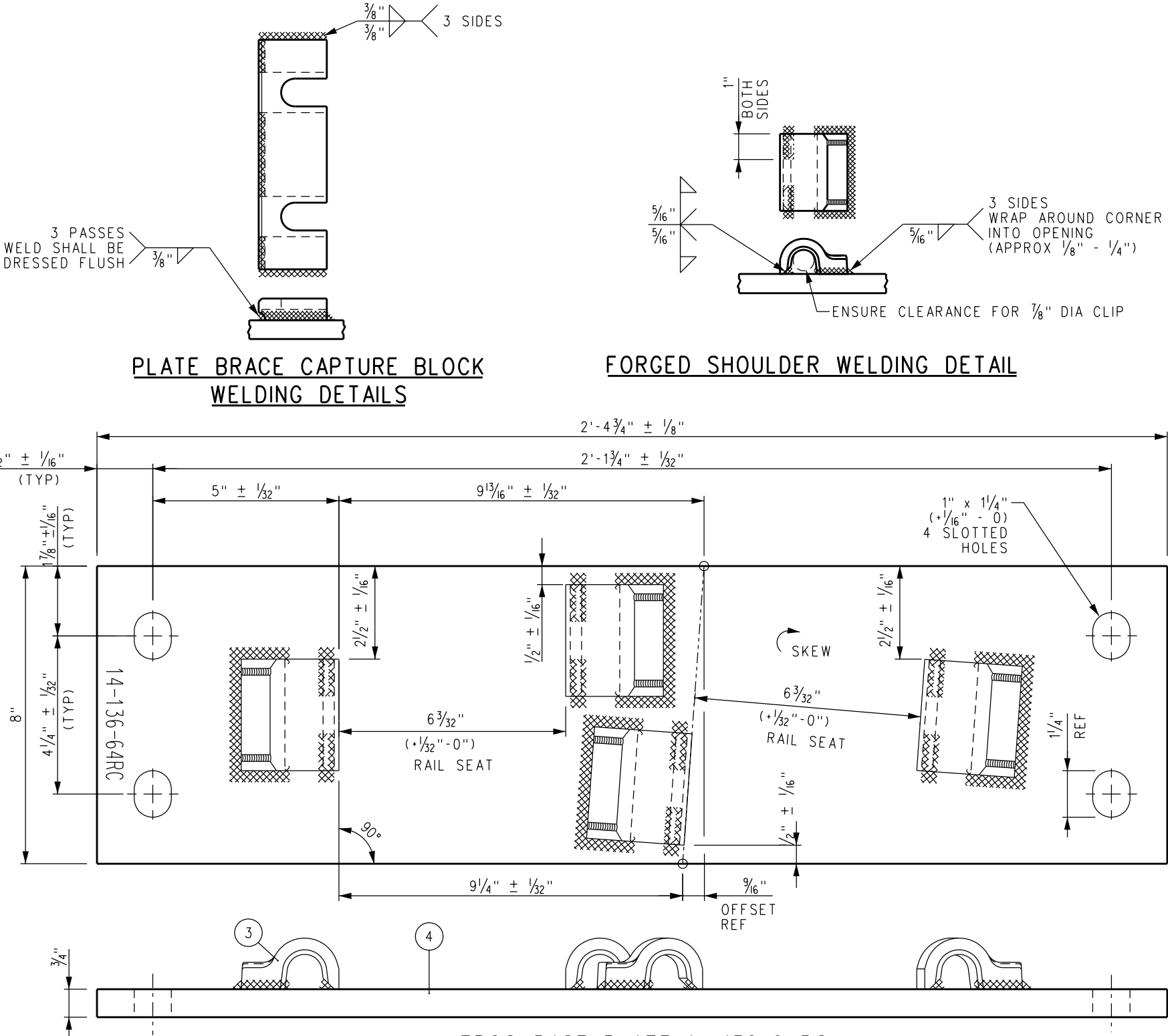
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

BILL OF MATERIAL

ITEM	QTY FOR 14-136-62RC	QTY FOR 14-136-64RC	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	BURNED PLATE, 3/4" THICK	-	
2	1	0	CAPTURE BLOCK FOR HORN KEEPER	-	
3	3	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
4	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 3/4" LONG	-	



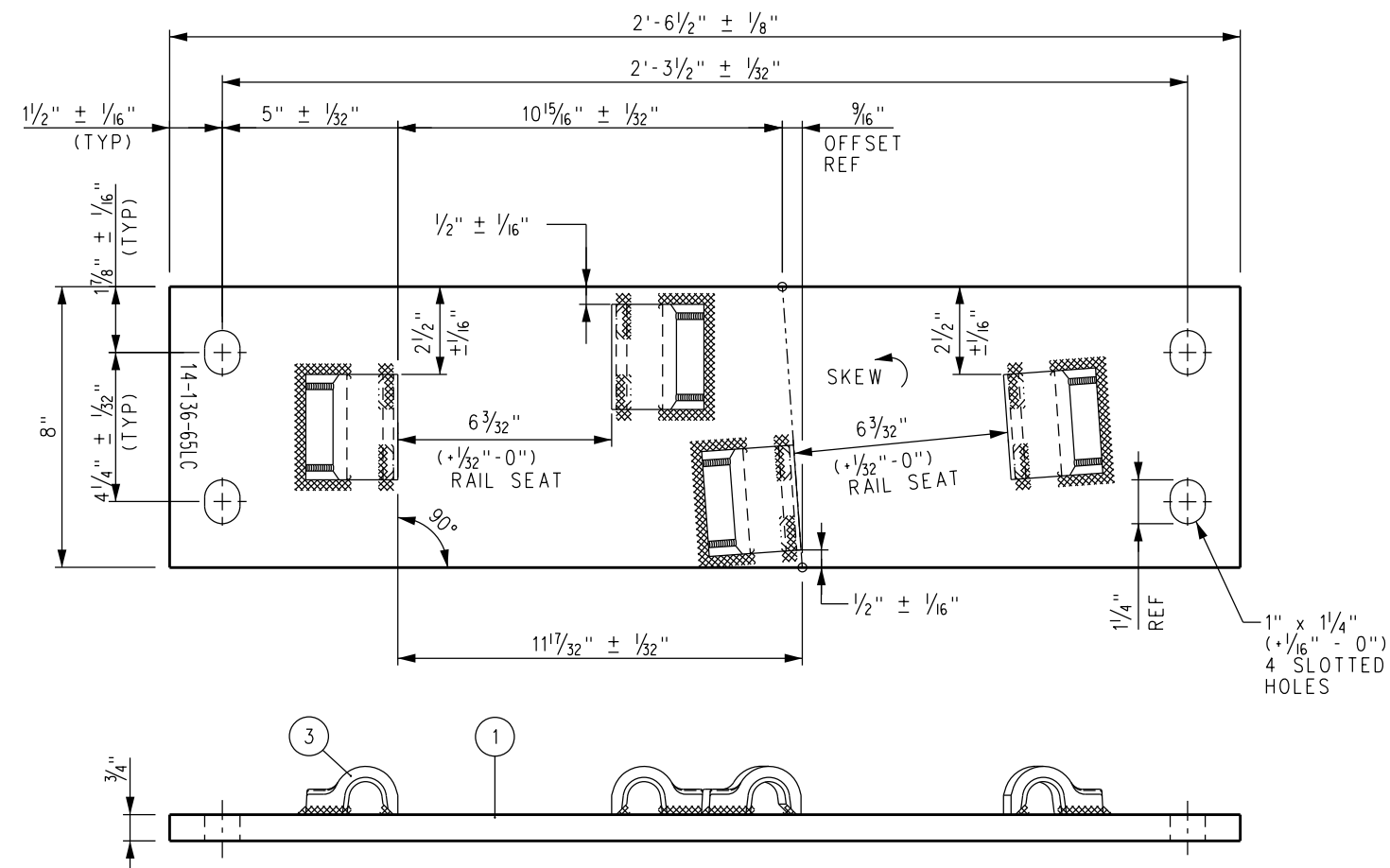
FROG BASE PLATE 14-136-62RC



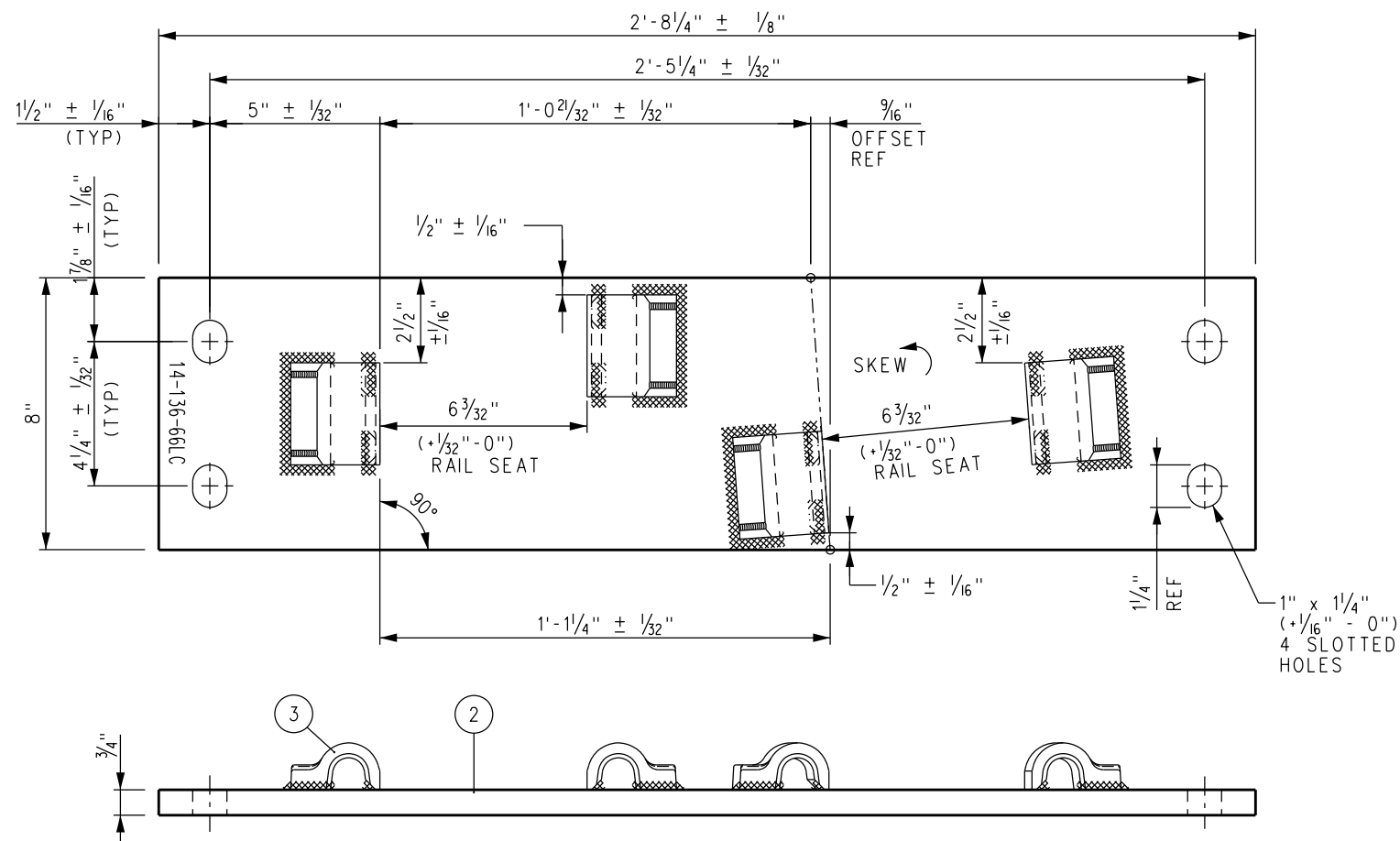
FROG BASE PLATE 14-136-64RC

DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2805
REVISION				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				NO 14 WSM FROG RH				SCALE: NTS
REV. DATE DESCRIPTION DES. ENG.				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				FROG BASE PLATES 14-62RC AND 14-64RC				REVISION SHEET 1 OF 1
								CONCRETE TIES-136 LB RE RAIL				CADD FILE: ES2805-50

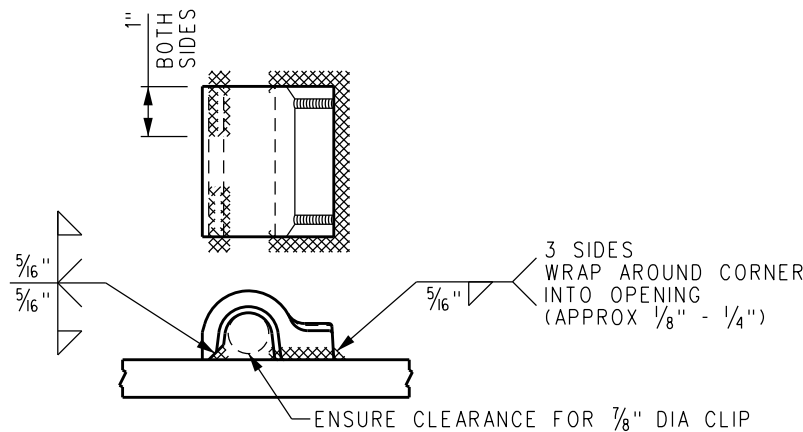
BILL OF MATERIAL					
ITEM	QTY FOR 14-136-65LC	QTY FOR 14-136-66LC	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/2" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



FROG BASE PLATE 14-136-65LC



FROG BASE PLATE 14-136-66LC



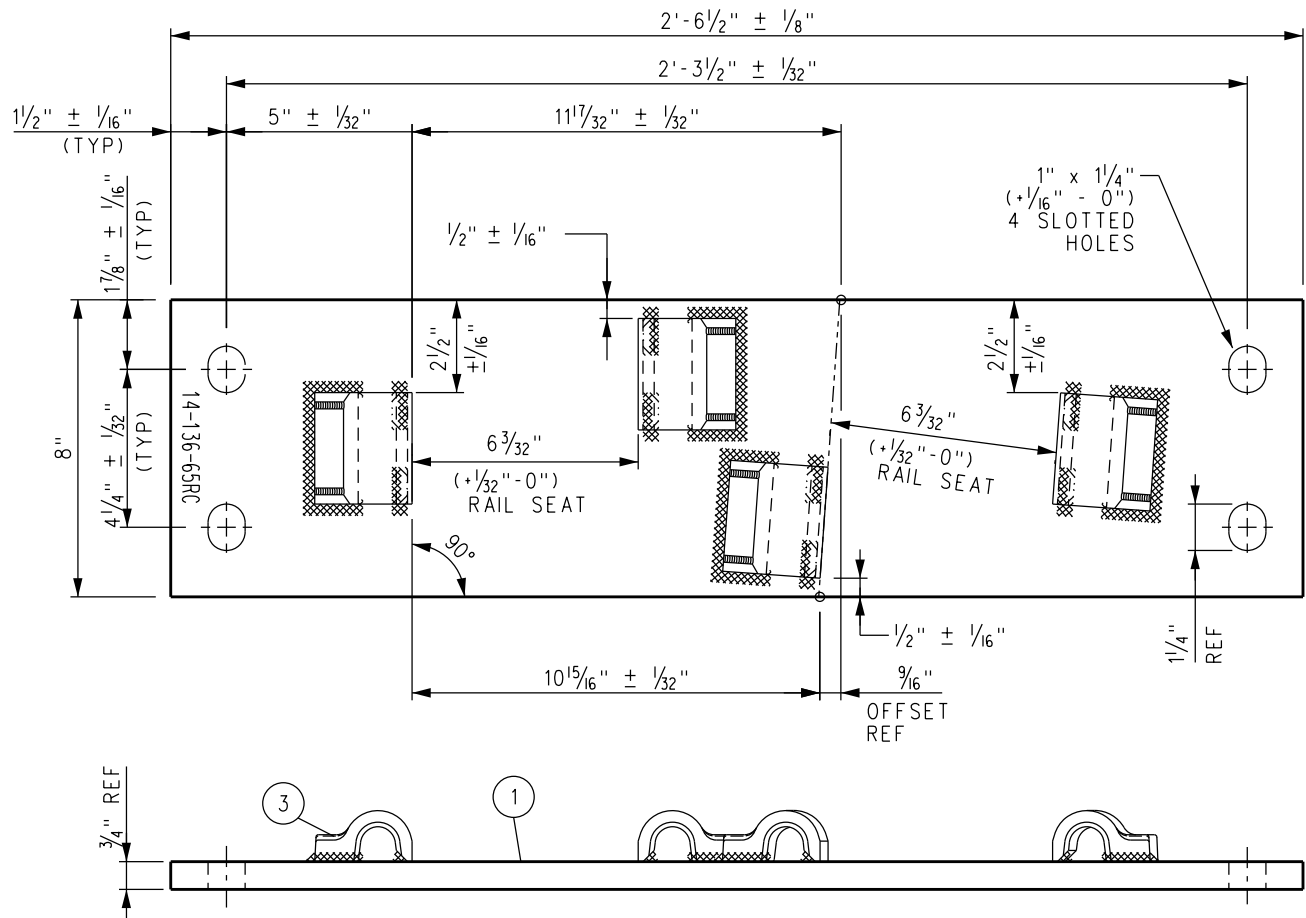
FORGED SHOULDER WELDING DETAIL

NOTES:

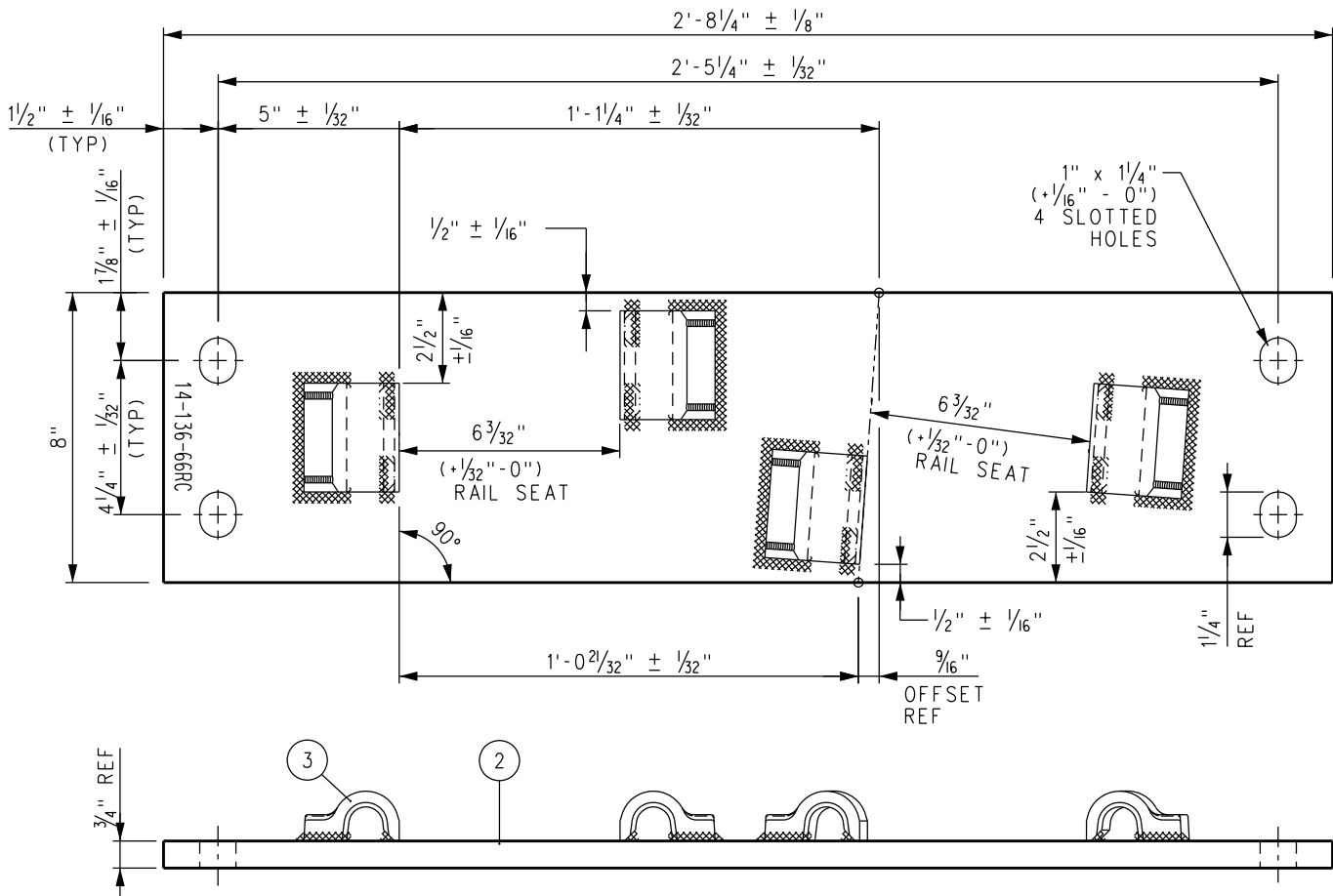
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2805
REVISION				METROLINK				NO 14 WSM FROG LH				SCALE: NTS
REV. DATE DESCRIPTION DES. ENG.				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				FROG BASE PLATES 14-65LC AND 14-66LC				REVISION SHEET 1 OF 1
				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				CONCRETE TIES-136 LB RE RAIL				CADD FILE: ES2805-51

BILL OF MATERIAL					
ITEM	QTY FOR 14-136-65RC	QTY FOR 14-136-66RC	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/2" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



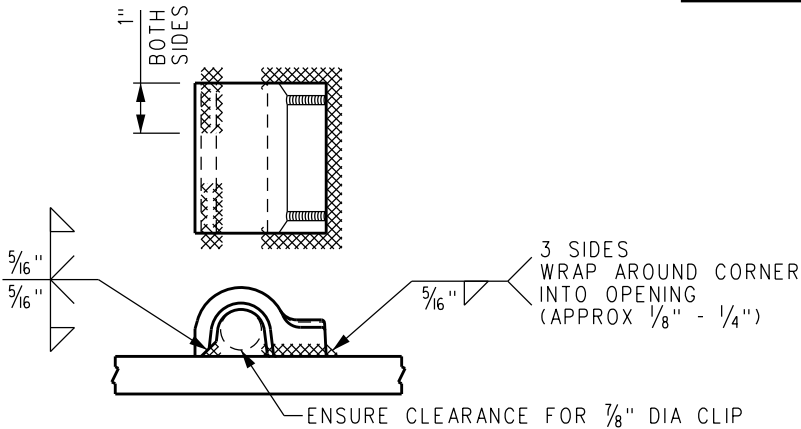
FROG BASE PLATE 14-136-65RC



FROG BASE PLATE 14-136-66RC

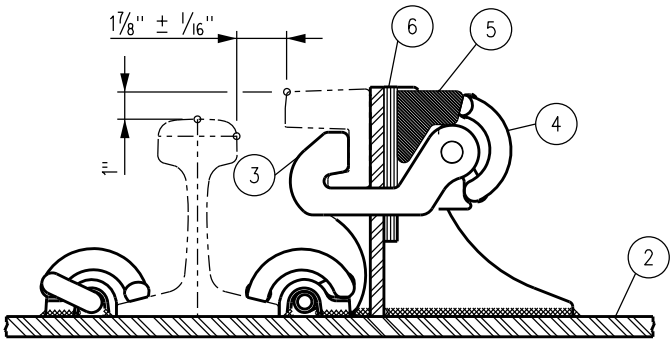
NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

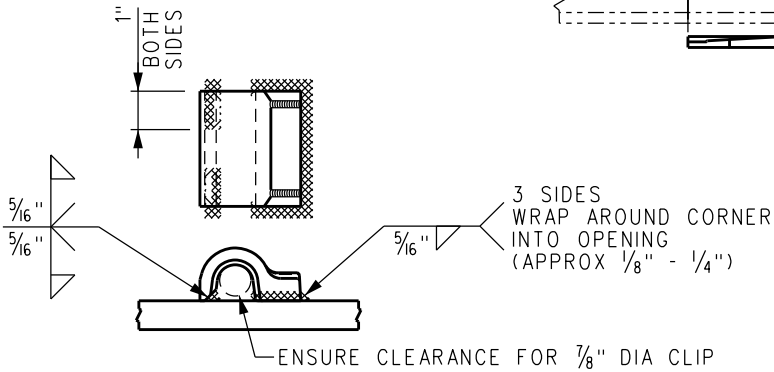


FORGED SHOULDER WELDING DETAIL

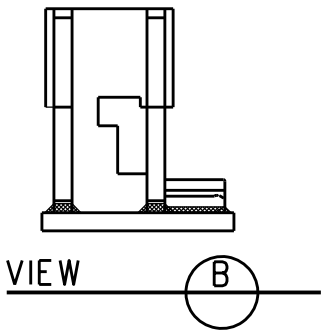
DRAWN BY: HDR DATE: 03/31/2011				SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS		STANDARD 2805
Narek D. Bae ASSISTANT DIRECTOR: STANDARDS & DESIGN				METROLINK®				NO 14 WSM FROG RH FROG BASE PLATES 14-65RC AND 14-66RC CONCRETE TIES-136 LB RE RAIL		SCALE: NTS
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012										REVISION SHEET 1 OF 1
REV. DATE DESCRIPTION DES. ENG.										CADD FILE: ES2805-52



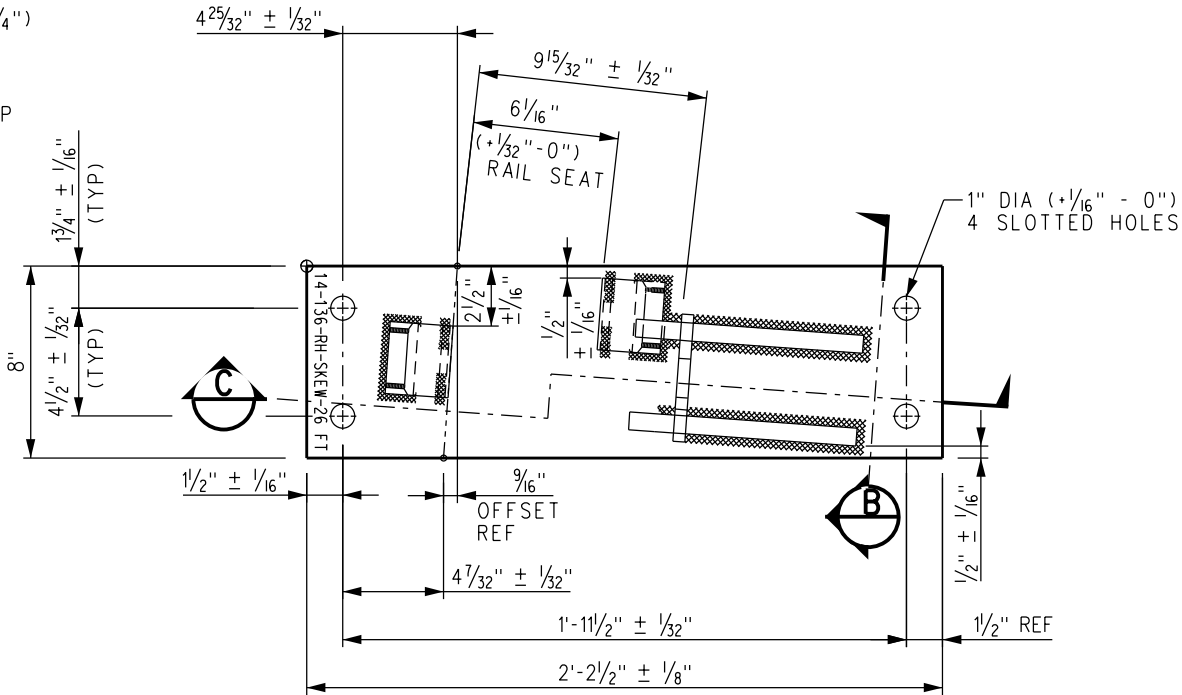
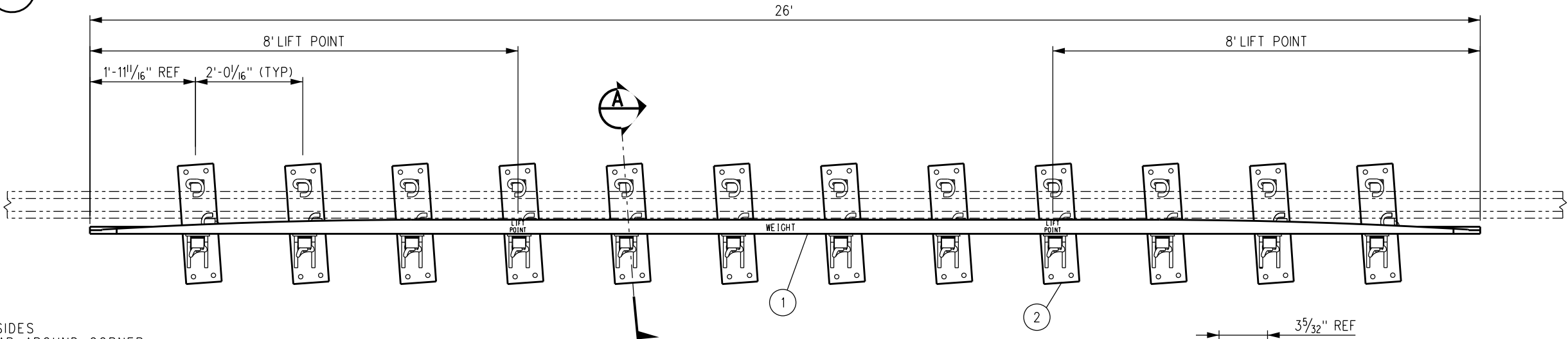
PARTIAL SECTION
GUARD RAIL HARDWARE ASSEMBLY



FORGED SHOULDER WELDING DETAIL

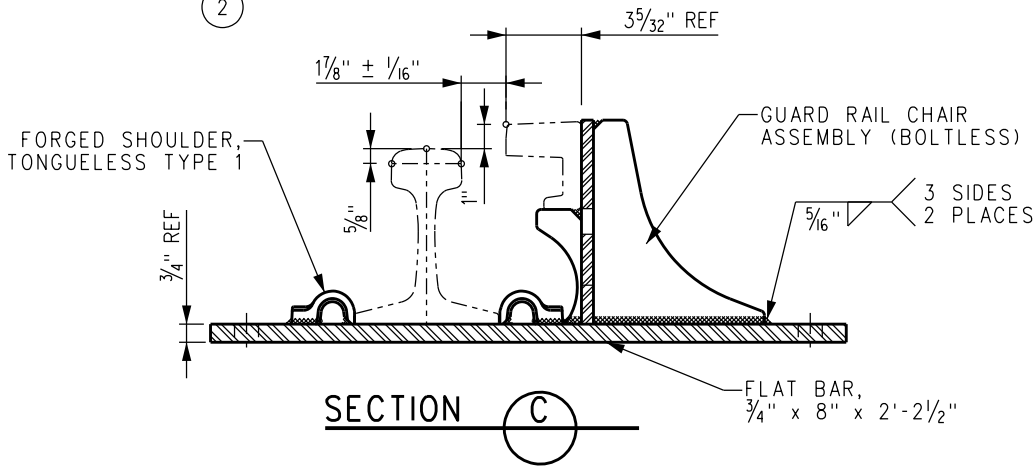


VIEW
B




GUARD RAIL PLATE ASSEMBLY

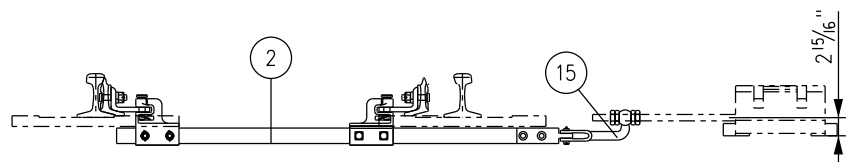
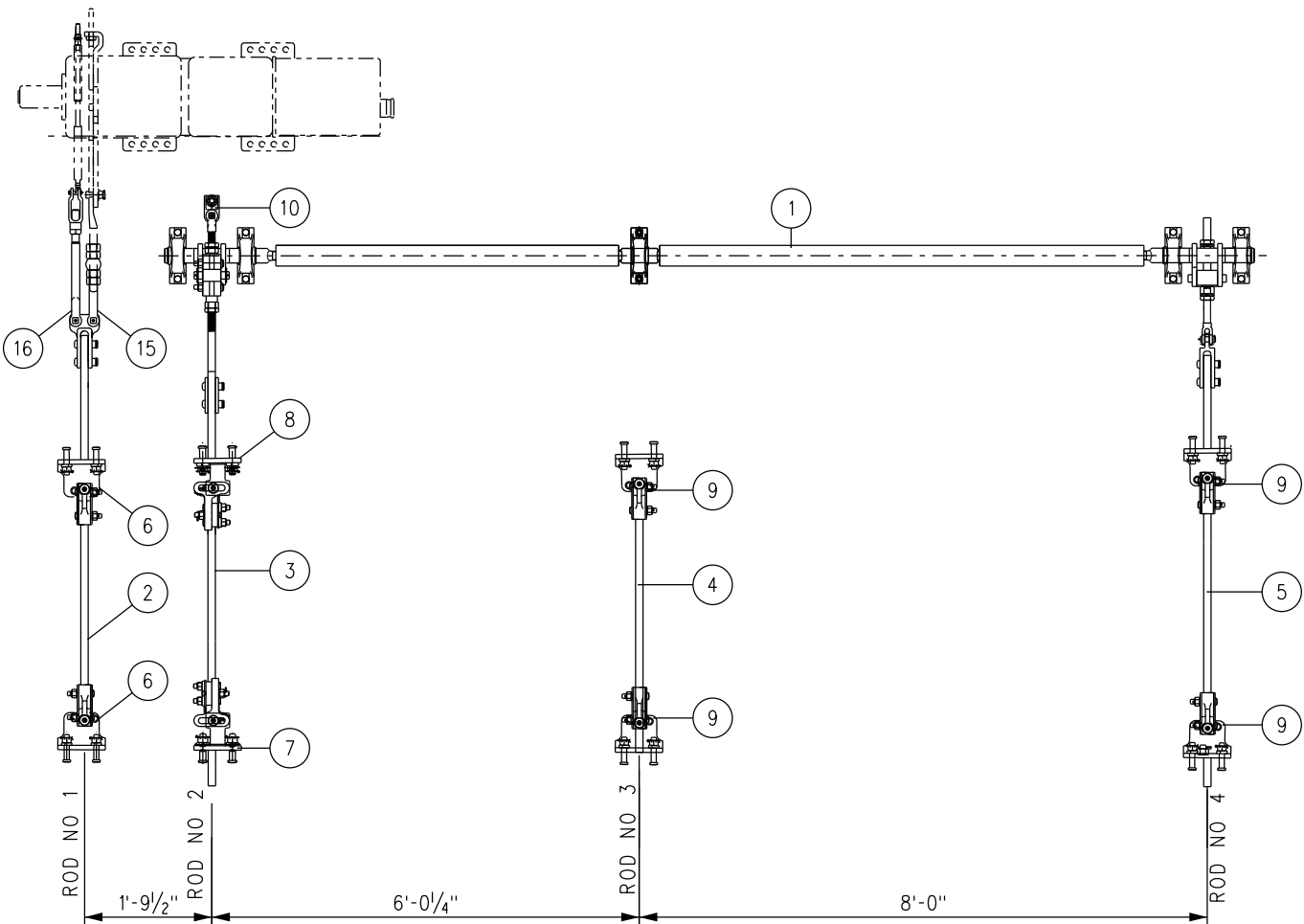
BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	GUARD BAR, UIC33 1200 SERIES x 26'-0" LONG	-	
2	12	GUARD RAIL PLATE ASSEMBLY, RAISED 1", RH SKEWED	-	
3	12	H-CLAMP	-	
4	36	CLIP, PANDROL, E2055	-	
5	12	LOCKING BLOCK	-	
6	48	SHIM, 1/8" THICK x 3" x 6" LONG	-	



NOTES:

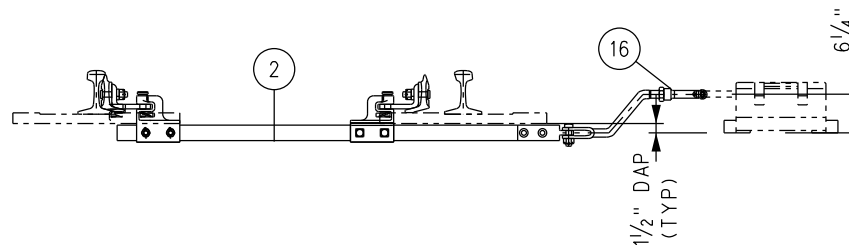
1. PLATE SPACING IS SET FOR SHIPPING ONLY. FINAL PLATE SPACING IS TO BE DETERMINED BY TIE SPACING AT TIME OF INSTALLATION.
2. PANDROL SPRING CLIPS (E2055) TO BE INCLUDED IN ASSEMBLY.
3. LIFT POINTS AND WEIGHT OF ASSEMBLY TO BE MARKED ON HEAD OF WEAR BAR WITH WHITE PAINT.
4. PLATE IS TO BE STAMPED WITH PLATE I.D. WITH 1/2" HIGH CHARACTERS AS SHOWN.
5. GRIND AWAY CORNER OF PANDROL SHOULDER TO CLEAR FOOT OF CHAIR ASSEMBLY.
6. SEE ES2800-50 FOR STRAIGHT SIDE GUARD RAIL.

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.</div> <div>METROLINK[®]</div> <div>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS		STANDARD 2805	
				ASSISTANT DIRECTOR: STANDARDS & DESIGN				NO 14 GUARD RAIL ASSEMBLY, RH SKEWED WITH PLATES		SCALE: NTS	
				DIRECTOR OF ENGINEERING AND CONSTRUCTION				26'-0" LONG, BOLTLESS, RAISED 1" CONCRETE TIES-136 LB RE RAIL, 1-7/8" FLANGEWAY		REVISION SHEET 1 OF 1	
								CADD FILE: ES2805-62			



SWITCH ROD ASSEMBLY NO 1

LOCK ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)

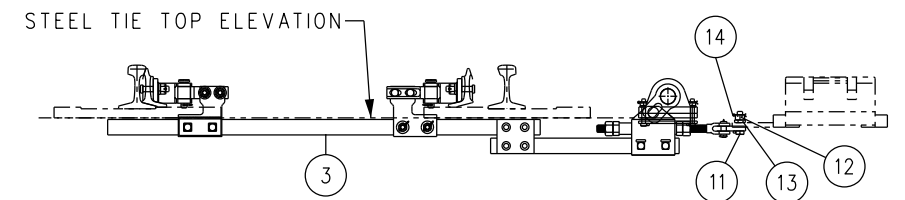


SWITCH ROD ASSEMBLY NO 1

POINT DETECTOR ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	ROTARY ASSIST ASSEMBLY FOR NO 14-136 LB RE TURNOUT	-	
2	1	SWITCH ROD NO 1, FOR POINT DETECTOR/LOCK ROD, (14-136-1)	ES2805-73	
3	1	SWITCH ROD NO 2, DRIVE, C/W BASKET (14-136-2)	ES2805-73	
4	1	SWITCH ROD NO 3, THROW, (14-136-3)	ES2805-73	
5	1	SWITCH ROD NO 4, THROW, (14-136-4)	ES2805-73	
6	2	ROD POINT BRACKET, DETECTOR/LOCK ROD, HOLES AT 2 7/8" ARB*	-	
7	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, LH	-	
8	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, RH	-	
9	4	ROD POINT BRACKET, HOLES AT 2 3/8" ARB*, C/W SQ BOLTS	-	
10	1	DROP LUG FOR US&S M23 SWITCH MACHINE DRIVE BAR	-	
11	1	BOLT, 7/8" DIA x 3" LONG, DRILLED 2 9/16" BELOW HEAD, HEAVY HEX, GR 5	-	
12	1	NUT, 7/8" DIA SLOTTED HEAVY HEX, GR 8	-	
13	1	SPRING WASHER, 7/8" DIA	-	
14	1	COTTER PIN, 3/16" DIA x 1 3/4" LONG	-	
15	1	LOCK ROD, FOR M23 SWITCH MACHINE, HST	-	
16	1	DETECTOR ROD, FOR M23 SWITCH MACHINE, HST	-	

ARB* - ABOVE RAIL BASE



DRIVE ROD (ROD NO 2) ASSEMBLY

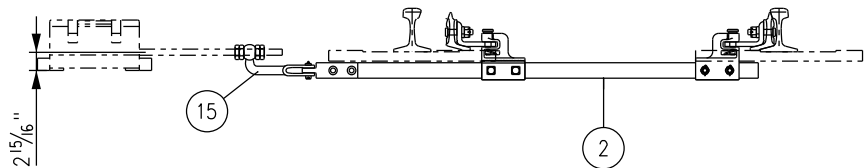
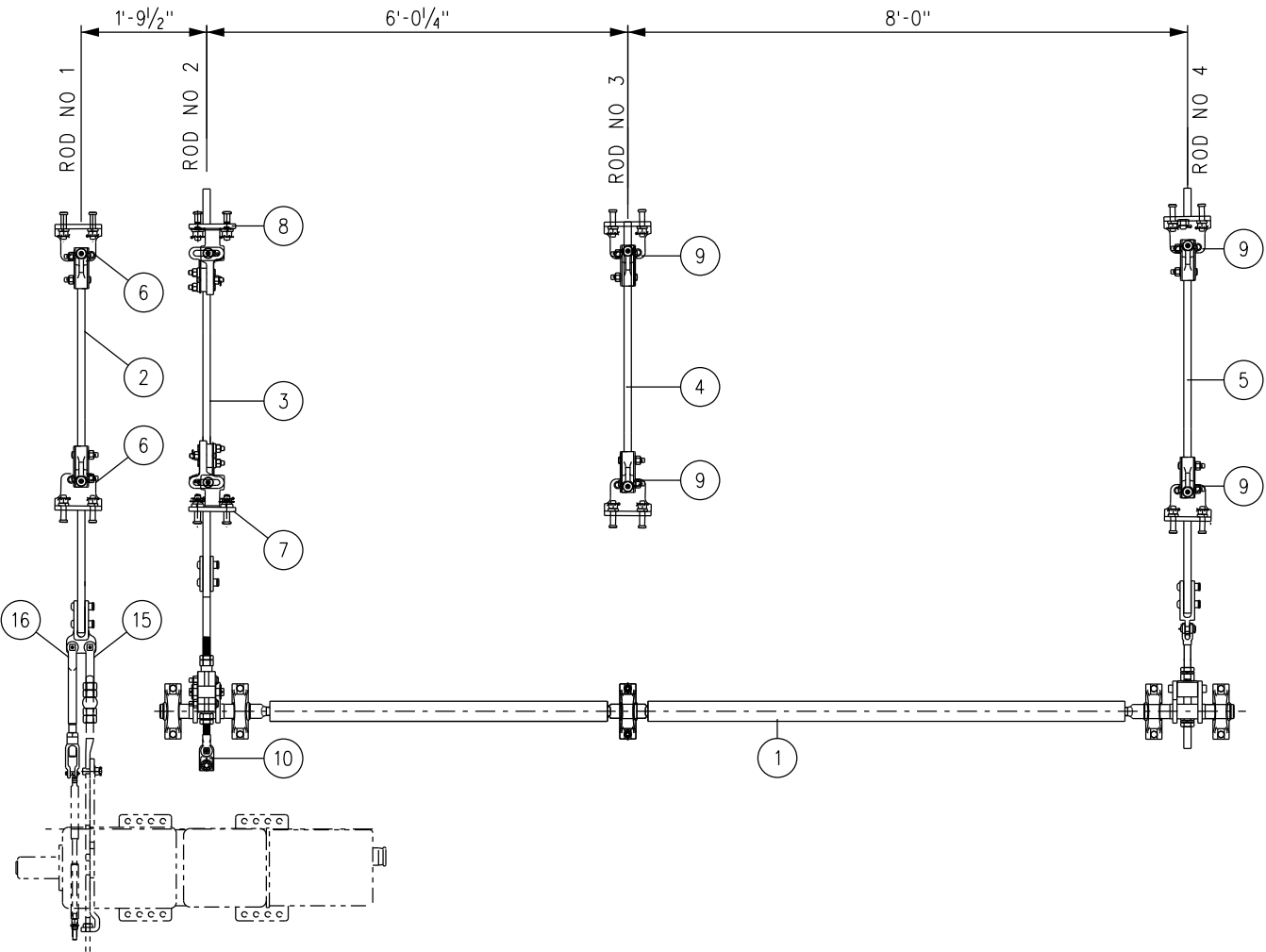
FRONT HELPER ROD CRANK ATTACHES TO BASKET
(VIEW FROM HEEL TOWARDS PS)



REAR HELPER (ROD NO 4) DRIVE ROD ASSEMBLY

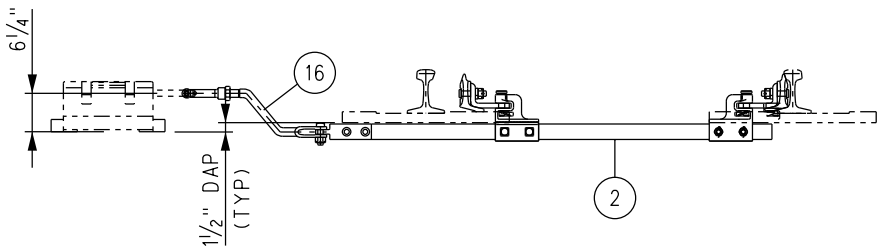
REAR HELPER ROD CRANK ATTACHES TO ROD PIN

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SWITCH ROD ASSEMBLY NO 1

LOCK ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)

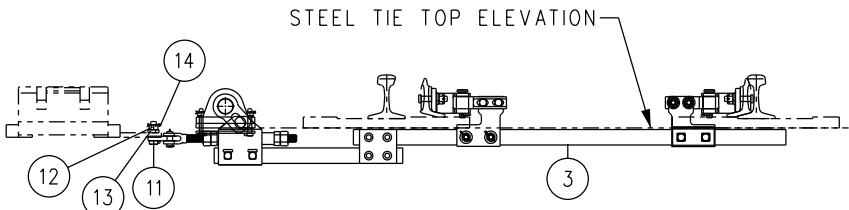


SWITCH ROD ASSEMBLY NO 1

POINT DETECTOR ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	ROTARY ASSIST ASSEMBLY FOR NO 14-136 LB RE TURNOUT	-	
2	1	SWITCH ROD NO 1, FOR POINT DETECTOR/LOCK ROD, (14-136-1)	ES2805-73	
3	1	SWITCH ROD NO 2, DRIVE, C/W BASKET (14-136-2)	ES2805-73	
4	1	SWITCH ROD NO 3, THROW, (14-136-3)	ES2805-73	
5	1	SWITCH ROD NO 4, THROW, (14-136-4)	ES2805-73	
6	2	ROD POINT BRACKET, DETECTOR/LOCK ROD, HOLES AT 2 7/8" ARB*	-	
7	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, LH	-	
8	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, RH	-	
9	4	ROD POINT BRACKET, HOLES AT 2 3/8" ARB*, C/W SQ BOLTS	-	
10	1	DROP LUG FOR US&S M23 SWITCH MACHINE DRIVE BAR	-	
11	1	BOLT, 7/8" DIA x 3" LONG, DRILLED 2 9/16" BELOW HEAD, HEAVY HEX, GR 5	-	
12	1	NUT, 7/8" DIA SLOTTED HEAVY HEX, GR 8	-	
13	1	SPRING WASHER, 7/8" DIA	-	
14	1	COTTER PIN, 3/16" DIA x 1 3/4" LONG	-	
15	1	LOCK ROD, FOR M23 SWITCH MACHINE, HST	-	
16	1	DETECTOR ROD, FOR M23 SWITCH MACHINE, HST	-	

ARB* - ABOVE RAIL BASE




DRIVE ROD (ROD NO 2) ASSEMBLY

FRONT HELPER ROD CRANK ATTACHES TO BASKET
(VIEW FROM HEEL TOWARDS PS)

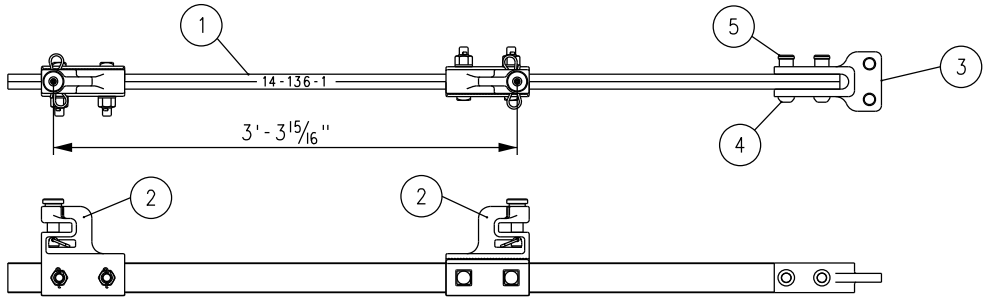


REAR HELPER (ROD NO 4) DRIVE ROD ASSEMBLY

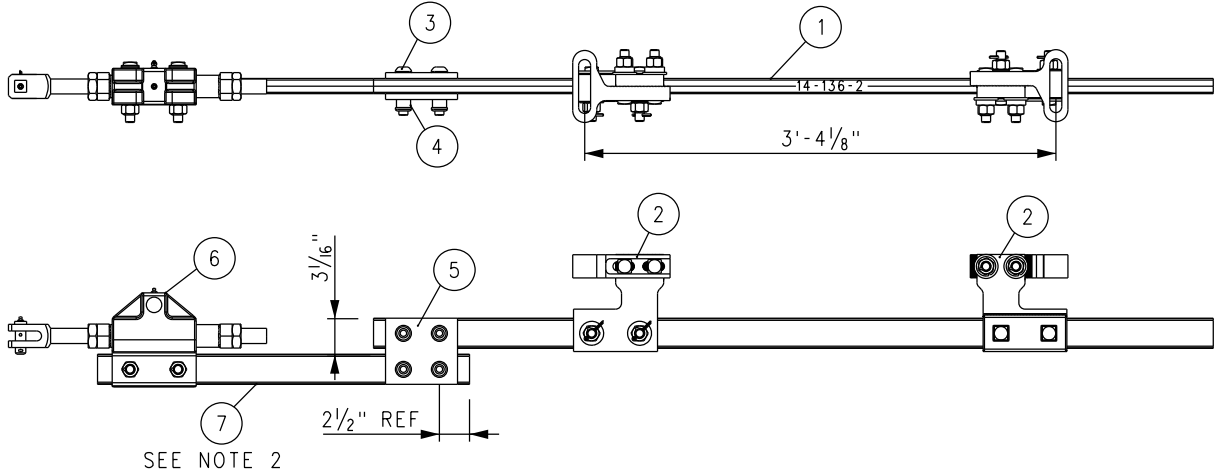
REAR HELPER ROD CRANK ATTACHES TO ROD PIN

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS		STANDARD 2805			
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>						HOLLOW STEEL TIE RODDING ASSEMBLY SWITCH MACHINE ON RIGHT HAND SIDE NO 14-136 LB RE SPRING FROG TURNOUT		SCALE: NTS	
				<div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>								REVISION SHEET 1 OF 1	
												CADD FILE: ES2805-72	
X	XX-XX-XX	REVISION	XX	XX									
REV.	DATE	DESCRIPTION	DES.	ENG.									

BILL OF MATERIAL FOR SWITCH ROD 14-136-1					BILL OF MATERIAL FOR SWITCH ROD 14-136-2				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 14-136-1	-		1	1	BLUE ROD, PULTRUDED COMPOSITE, 1¼" x 2½" x 5'-10" LONG, 14-136-2A	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE COMPOSITE RODS	-		2	2	CLIP/LUG ASSEMBLY, HST SWITCH, ANTI-ROLLOVER DESIGN, LH	-	
3	1	CONNECTOR LUG FOR POINT DETECTOR/LOCK RODS	-		3	4	HUCK BOLT, ¾" DIA (C50LR-BR24-36)	-	
4	2	HUCK BOLT, ¾" DIA (C50LR-BR24-36)	-		4	4	HUCK COLLAR, ¾" DIA (LC-2R24B)	-	
5	2	HUCK COLLAR, ¾" DIA (LC-2R24B)	-		5	2	SPLICE PLATE, FOR BLUE ROD BASKET ASSEMBLY RODS	-	
					6	1	BASKET/ROD ASSEMBLY FOR HST WITH ROTARY ASSIST	-	
					7	1	BLUE ROD, PULTRUDED COMPOSITE, 1¼" x 2½" x 2'-7" LONG, 2-B ROD	-	

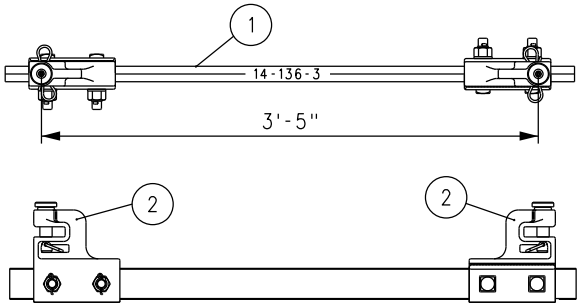


SWITCH ROD ASSEMBLY 14-136-1



SWITCH ROD ASSEMBLY 14-136-2

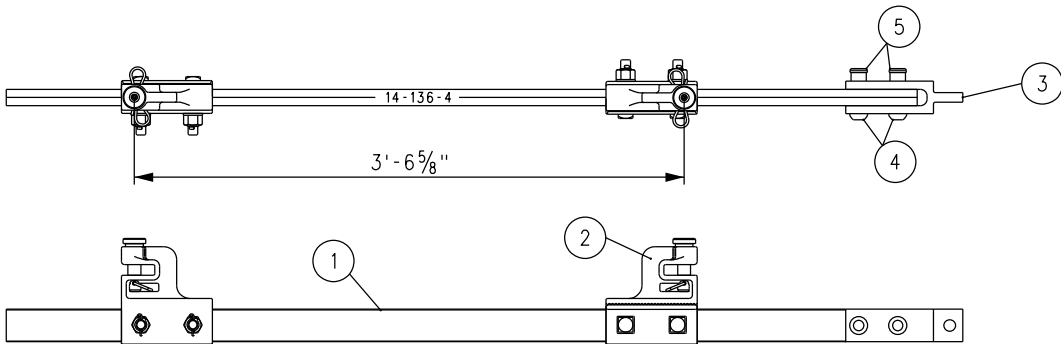
BILL OF MATERIAL FOR SWITCH ROD 14-136-3					BILL OF MATERIAL FOR SWITCH ROD 14-136-4				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 14-136-3	-		1	1	SWITCH ROD 14-136-4	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE	-		2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE	-	
					3	1	CONNECTOR LUG FOR REAR DRIVE ROD	-	
					4	2	HUCK BOLT, ¾" DIA (C50LR-BR24-36)	-	
					5	2	HUCK COLLAR, ¾" DIA (LC-2R24B)	-	



SWITCH ROD ASSEMBLY 14-136-3

NOTE: CENTER TO CENTER PIN
DIMENSIONS REQUIRED FOR
4¾" THROW

ROD #	C-C PIN DEMINSION
1	3'-3 15/16"
2	3'-4 1/8"
3	3'-5"
4	3'-6 5/8"

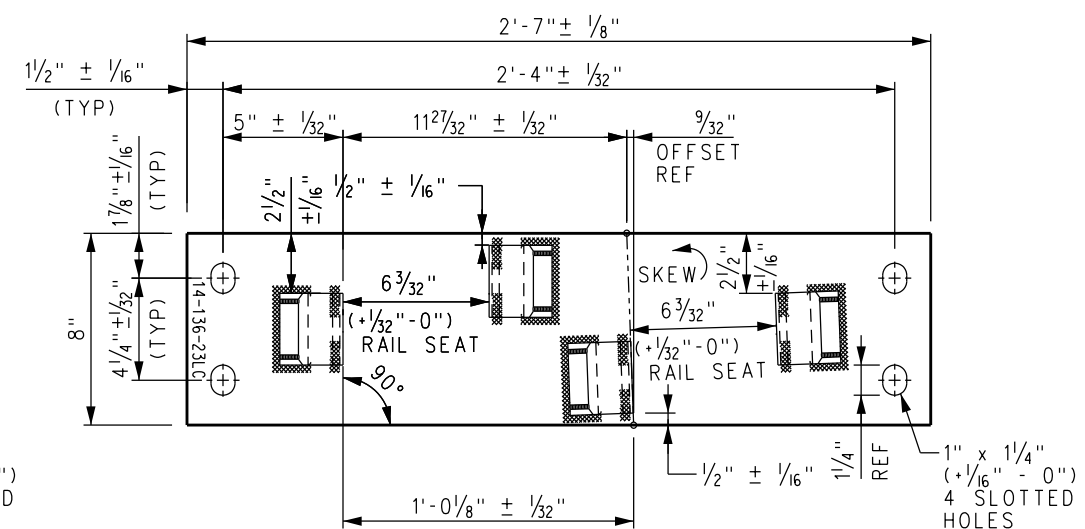
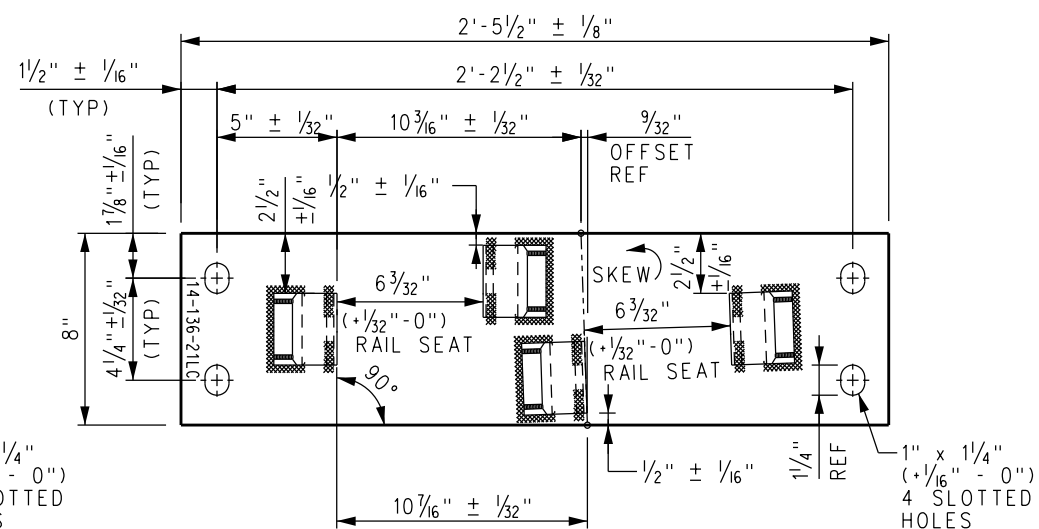
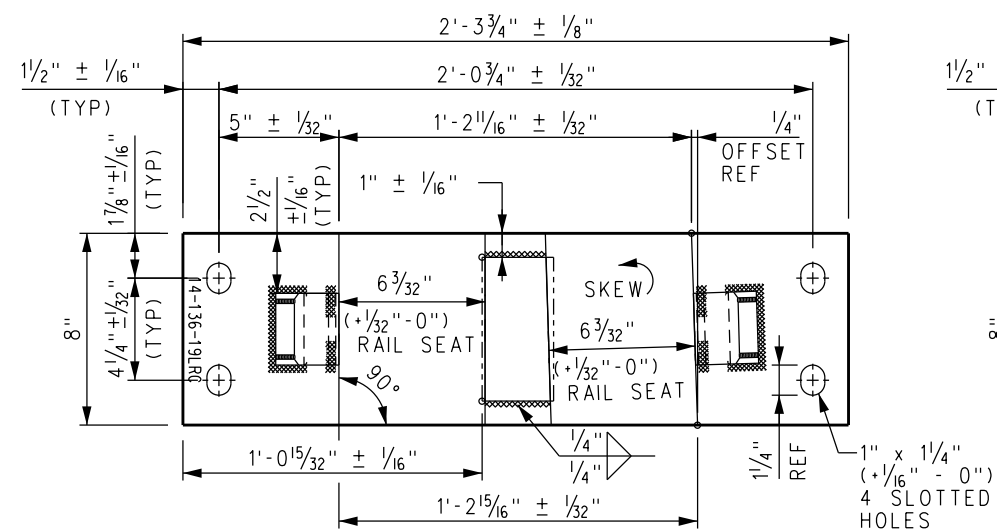
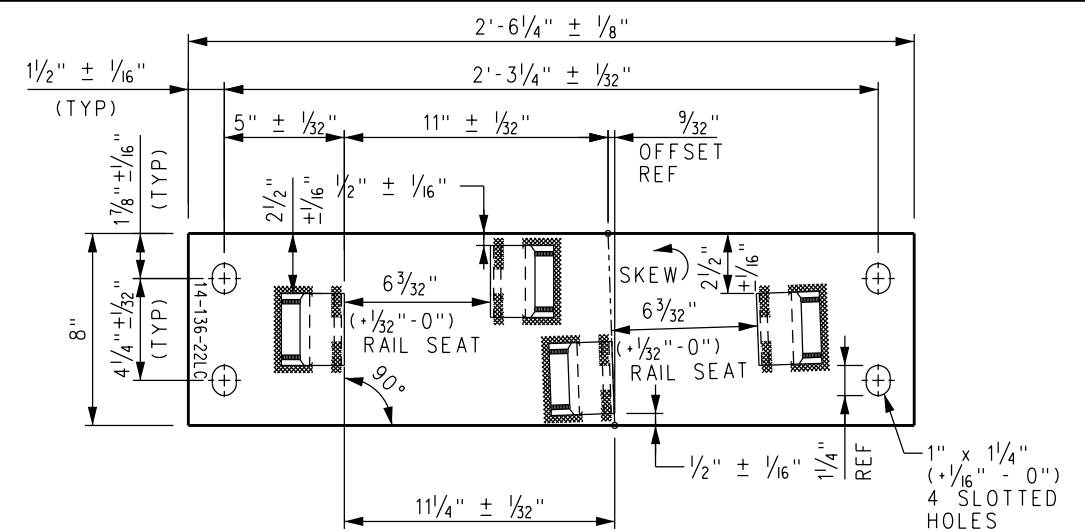
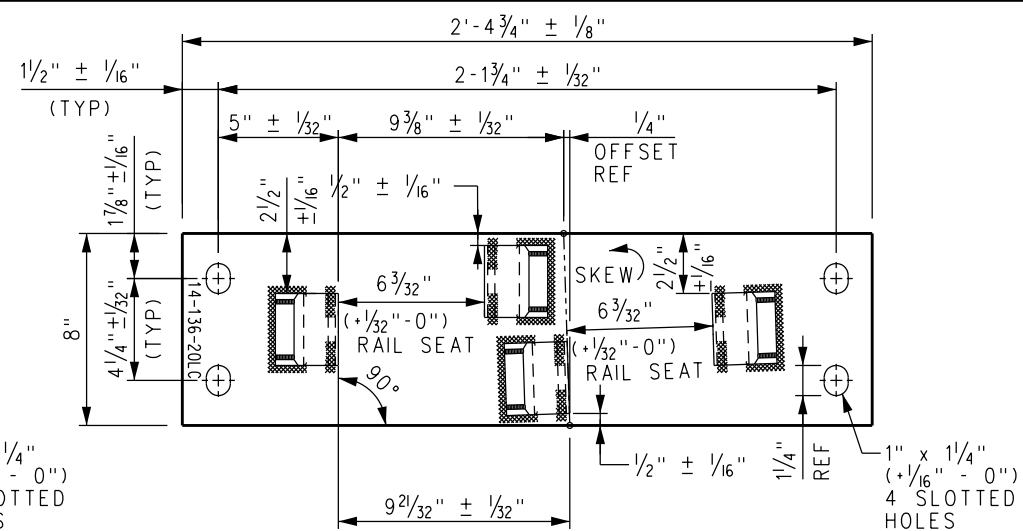
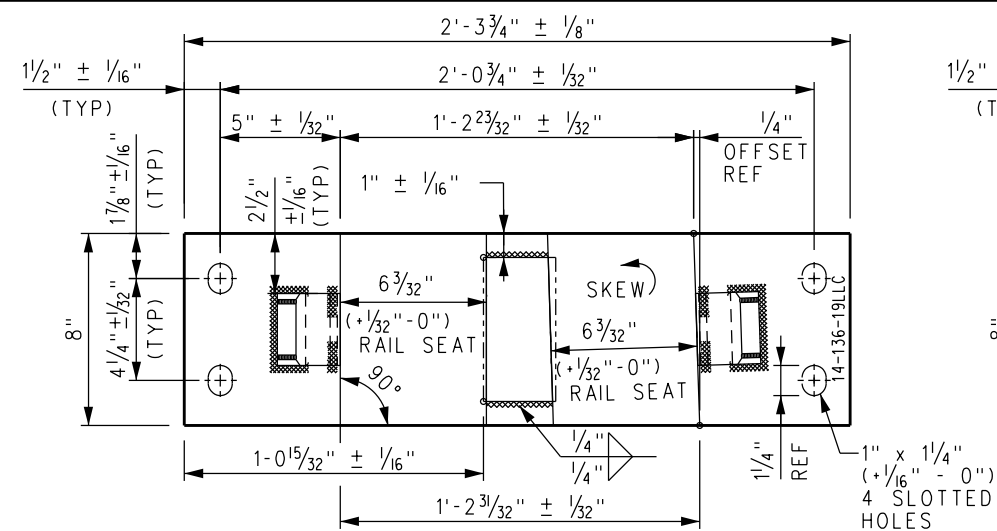


SWITCH ROD ASSEMBLY 14-136-4

NOTES:

1. ROD IDENTIFICATION TO BE ENGRAVED ON ROD CLEARLY AS SHOWN, 3/8" MIN HEIGHT.
2. SWITCH RODS MUST BE PARALLEL WITHIN 1/16" OVER LENGTH OF 2-B ROD.

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS HOLLOW STEEL TIE SWITCH RODS 14-1, 14-2, 14-3 AND 14-4 NO 14-136 LB RE	STANDARD 2805 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2805-73
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					





BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-3¾"
2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
3	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
4	FLAT BAR, ASTM A36, ½" x 6" x 3"

BILL OF MATERIALS	
ITEM	DESCRIPTION
5	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-4 $\frac{3}{4}$ "
6	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-5 $\frac{1}{2}$ "
7	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-6 $\frac{1}{4}$ "
8	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-7"

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
4. TYPE 1 PANDROL SHOULDER UNLESS NOTED OTHERWISE.

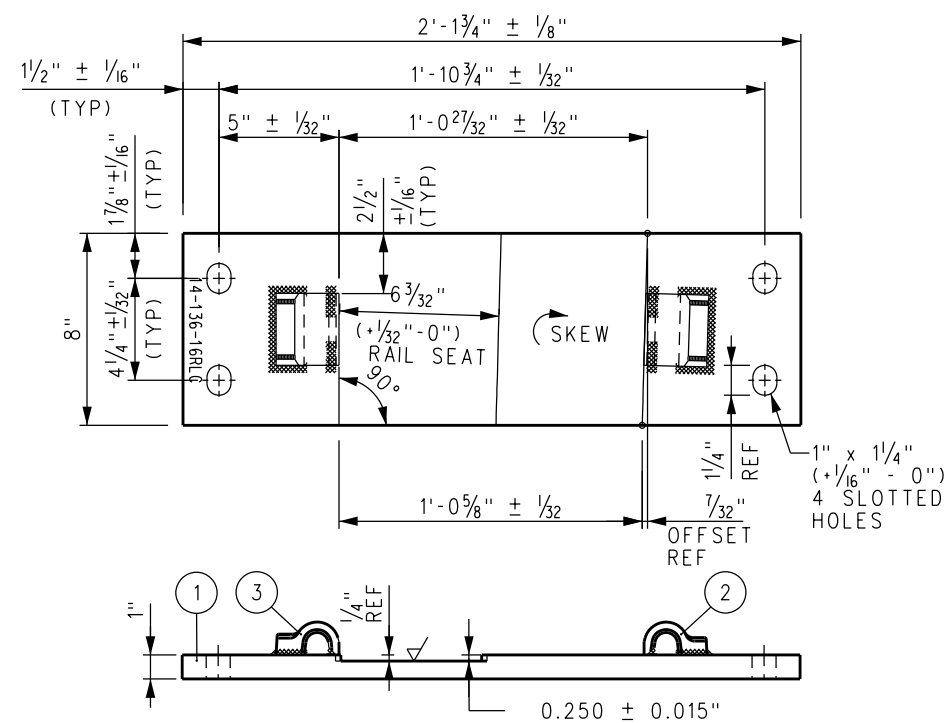
								DRAWN BY:	HDR	DATE:	03/31/2
								<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div> <div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>			
X	XX-XX-XX		REVISION		XX	XX					
REV.	DATE		DESCRIPTION		DES.	ENG.					

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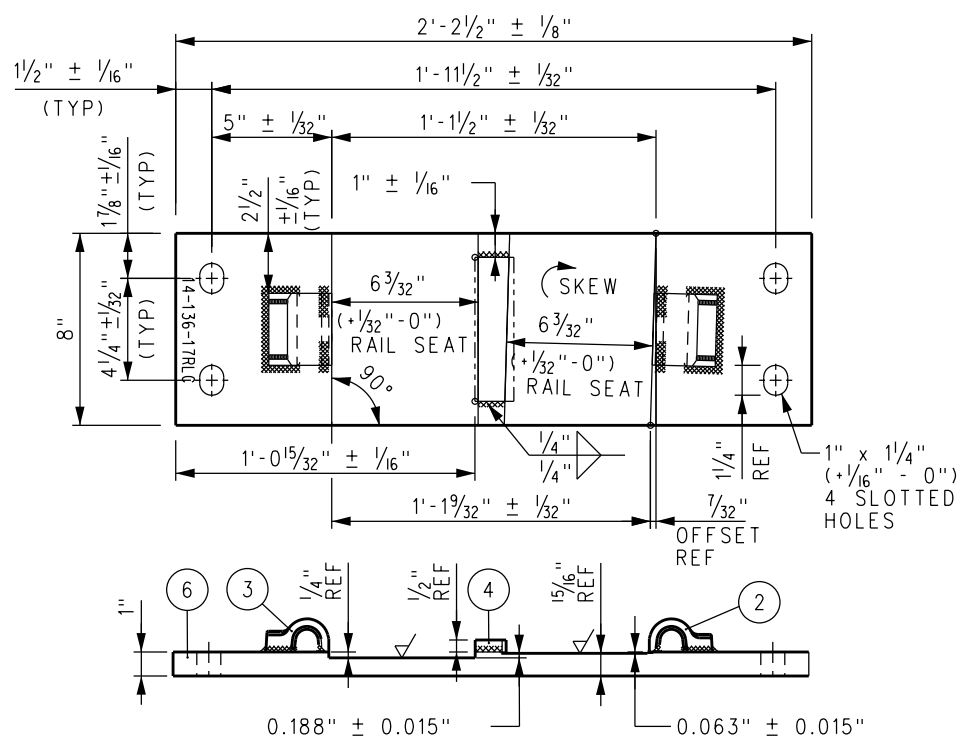


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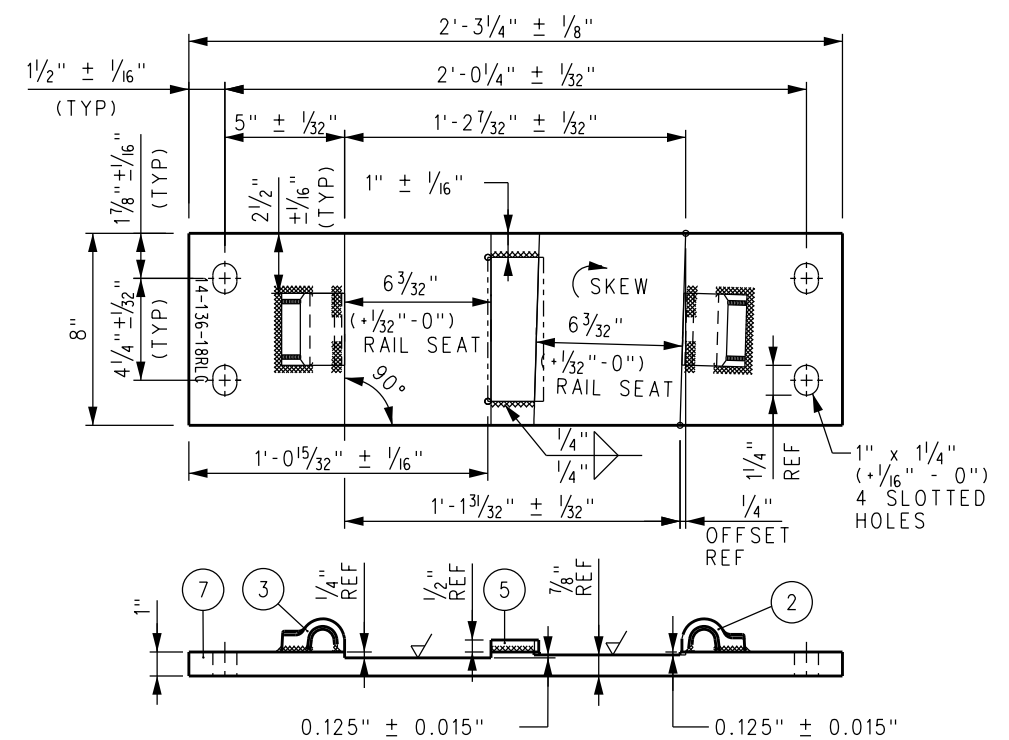
ENGINEERING STANDARDS		STANDARD 2805	
®	SWITCH PLATES (14-19LLC /LRC) (14-20LC THROUGH 14-23LC) FOR NO 14 136 LB RE LH CONCRETE TIE TURNOUT	SCALE: NTS	
		REVISION	SHEET
		-	1 OF 1
		CADD FILE: ES2805-82	



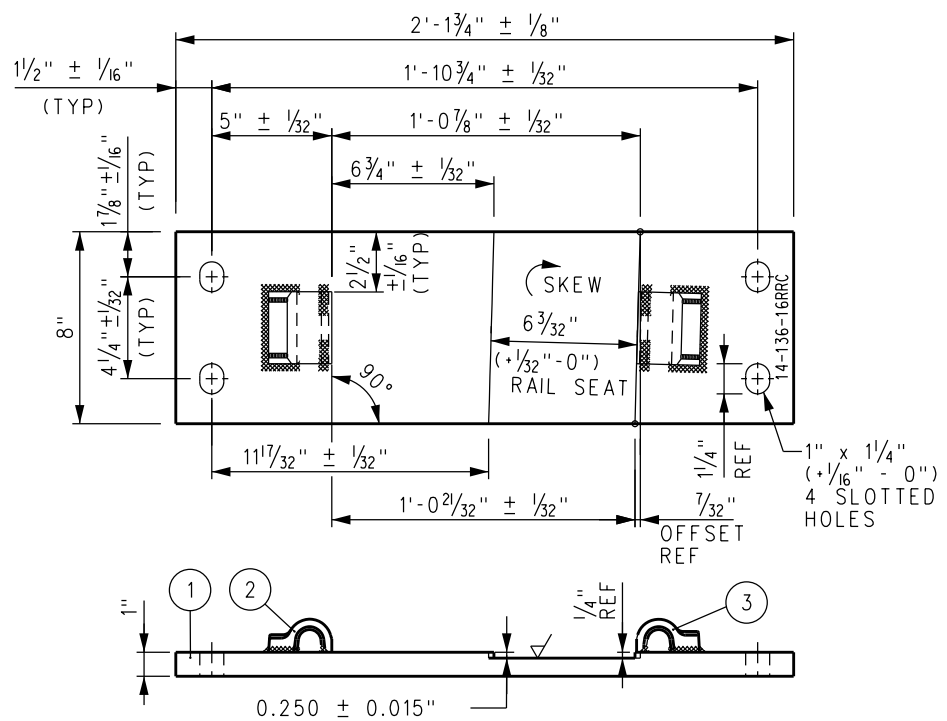
SWITCH PLATE P14-136-16RLC



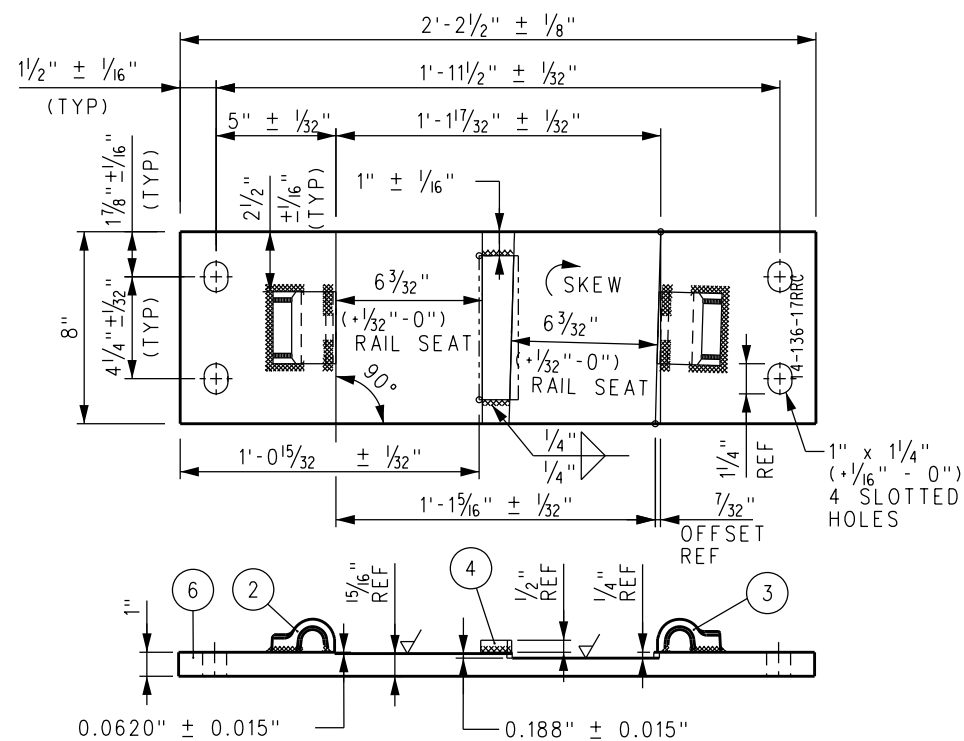
SWITCH PLATE P14-136-17RLC



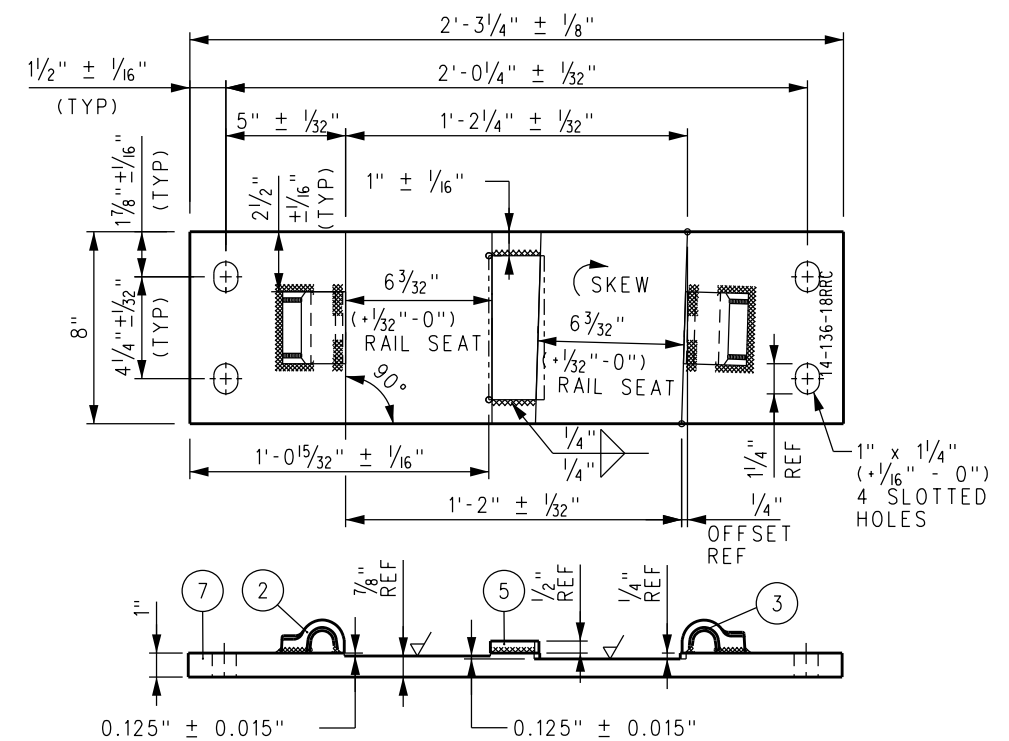
SWITCH PLATE P14-136-18RLC



SWITCH PLATE P14-136-16RRC



SWITCH PLATE P14-136-17RRC





SWITCH PLATE P14-136-18RRC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-1 $\frac{3}{4}$ "
2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
3	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
4	FLAT BAR, ASTM A36, 1 $\frac{1}{2}$ " x 6" x 15 $\frac{1}{8}$ "

BILL OF MATERIALS	
ITEM	DESCRIPTION
5	FLAT BAR, ASTM A36, 1/2" x 6" x 2 5/16"
6	FLAT BAR, ASTM A36, 1" x 8" x 2'-2 1/2"
7	FLAT BAR, ASTM A36, 1" x 8" x 2'-3 1/4"

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

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X	XX-XX-XX		REVISION		XX	XX					
REV.	DATE		DESCRIPTION		DES.	ENG.					

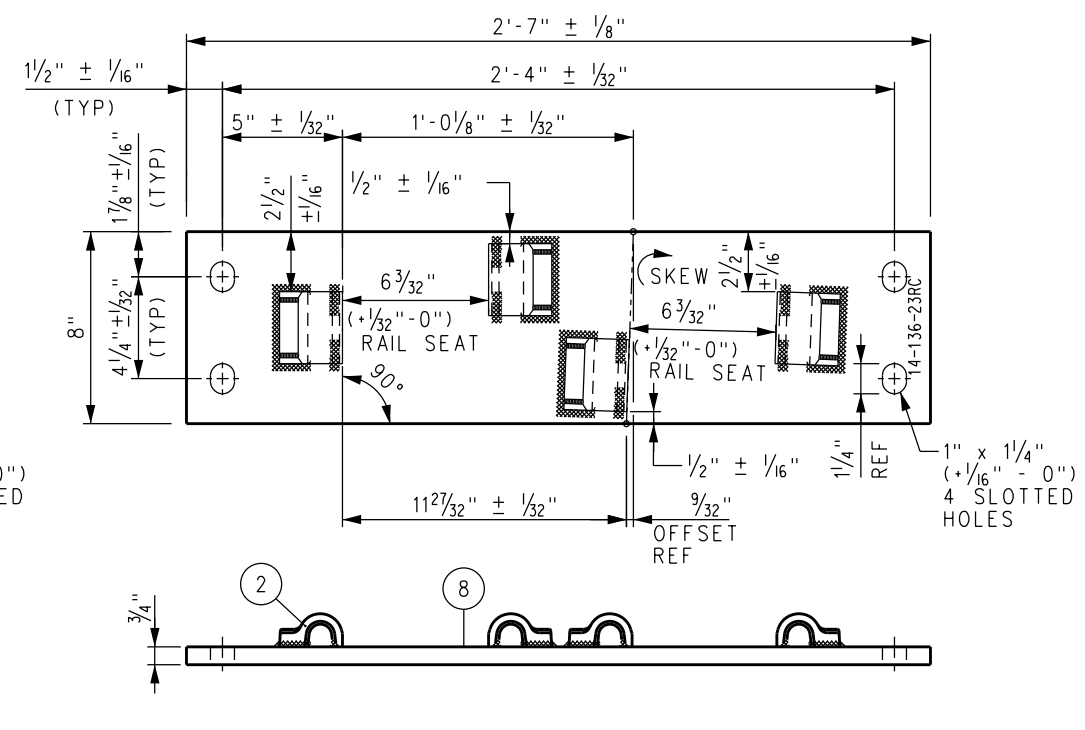
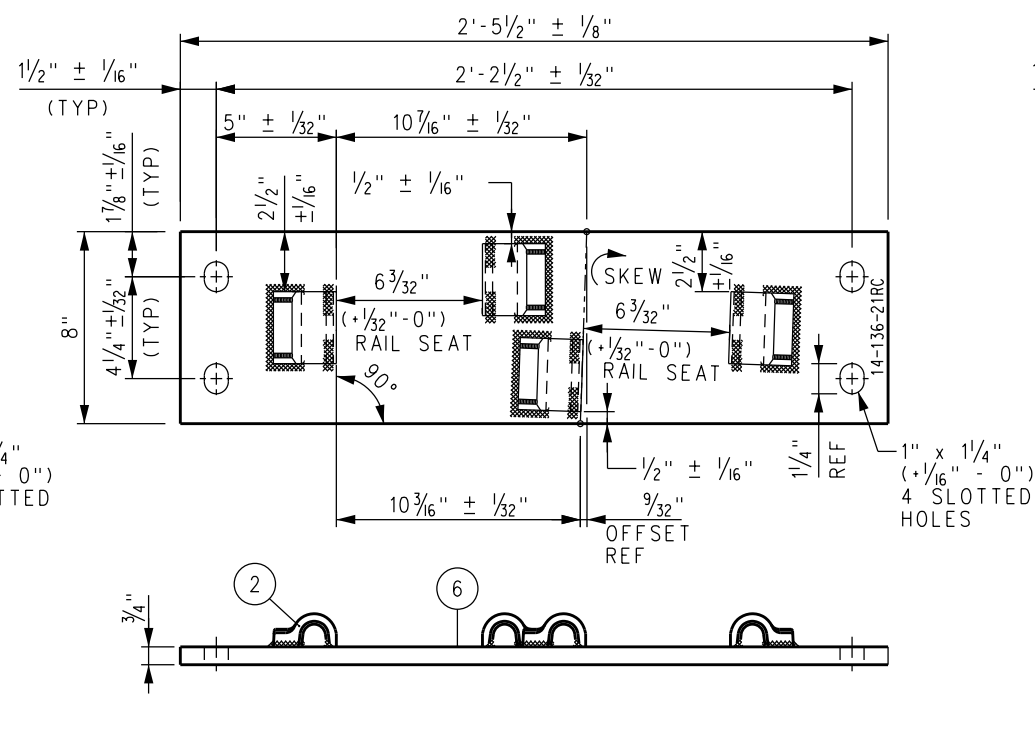
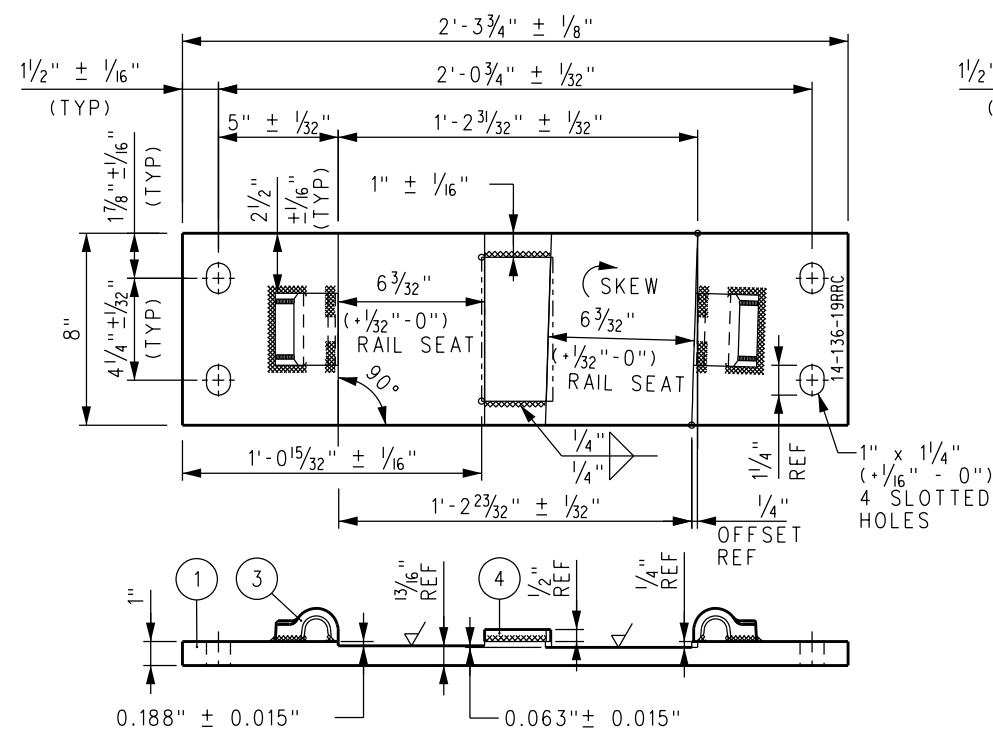
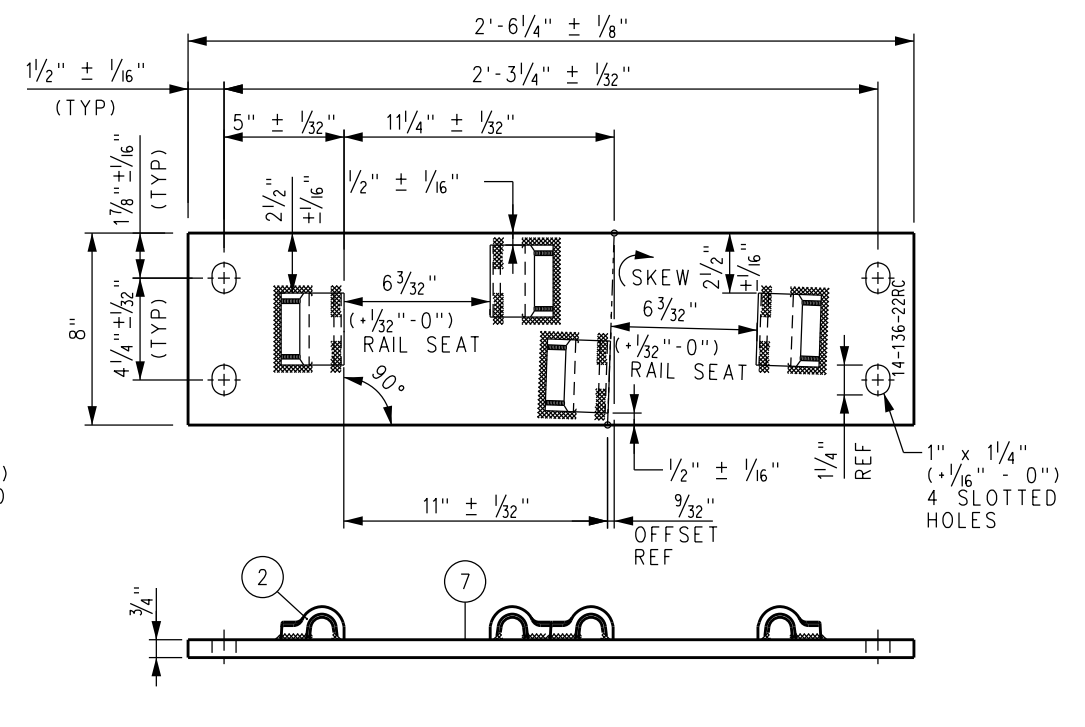
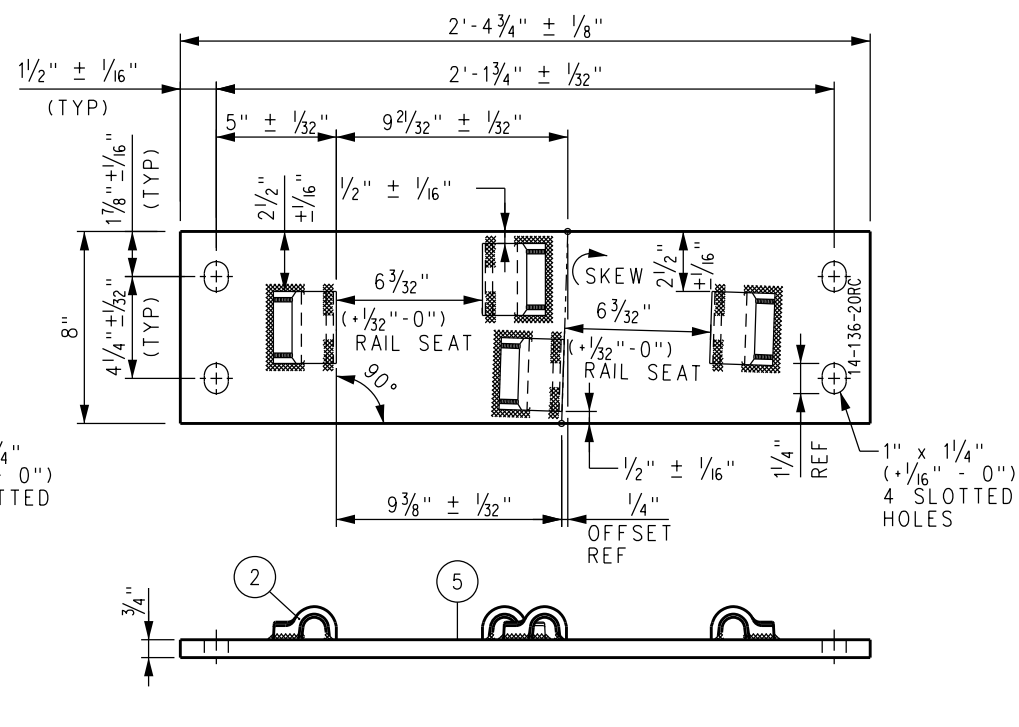
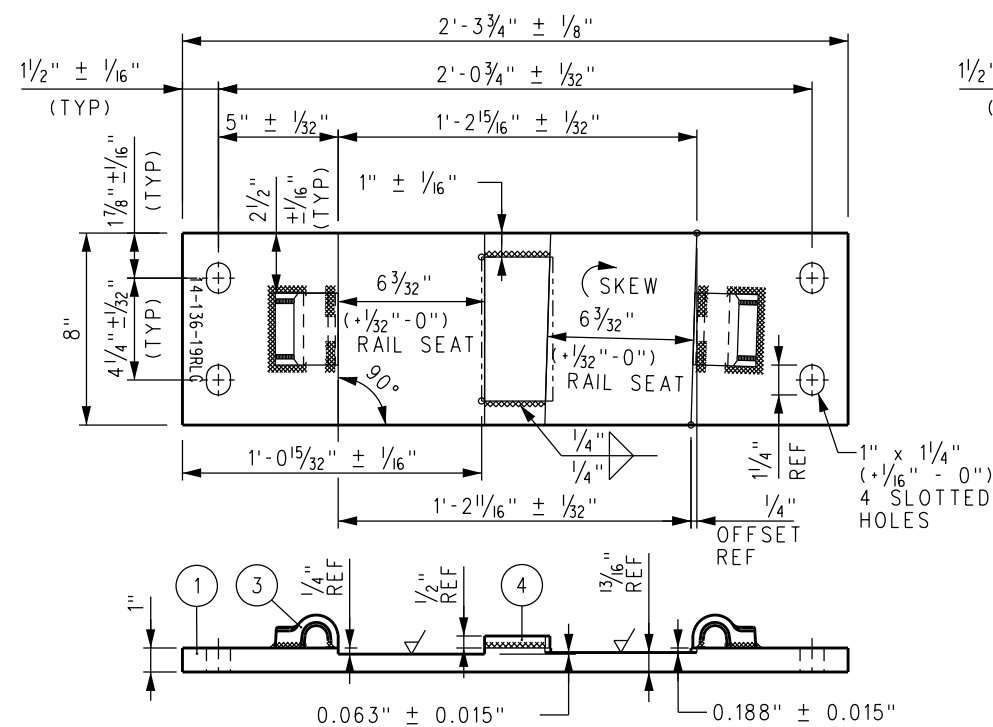
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS		STANDARD 2805	
SWITCH PLATES (14-16RLC /RRC THROUGH 14-18RLC /RRC) FOR NO 14 136 LB RE RH CONCRETE TIE TURNOUT		SCALE: NTS	
		REVISION	SHEET
		—	1 OF 1
		CADD FILE: ES2805-84	





BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-3 $\frac{3}{4}$ "
2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
3	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
4	FLAT BAR, ASTM A36, 1/2" x 6" x 3"

BILL OF MATERIALS	
ITEM	DESCRIPTION
5	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-4 $\frac{3}{4}$ "
6	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-5 $\frac{1}{2}$ "
7	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-6 $\frac{1}{4}$ "
8	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-7"

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
4. TYPE 1 PANDROL SHOULDER UNLESS NOTED OTHERWISE.

						DRAWN BY:	HDR	DATE:	03/31/2
						 ASSISTANT DIRECTOR: STANDARDS & DESIGN  DIRECTOR OF ENGINEERING AND CONSTRUCTION			
X	XX-XX-XX		REVISION		XX XX				
REV.	DATE		DESCRIPTION		DES. ENG.				

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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS		STANDARD 2805	
SWITCH PLATES (14-19RLC /RRC) (14-20RC THROUGH 14-23RC) FOR NO 14 136 LB RE RH CONCRETE TIE TURNOUT		SCALE: NTS	
		REVISION —	SHEET 1 OF 1
		CADD FILE: ES2805-85	

