

**SCRRA NO 24 TURNOUT  
BILL OF MATERIALS & DRAWING NUMBERS**

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

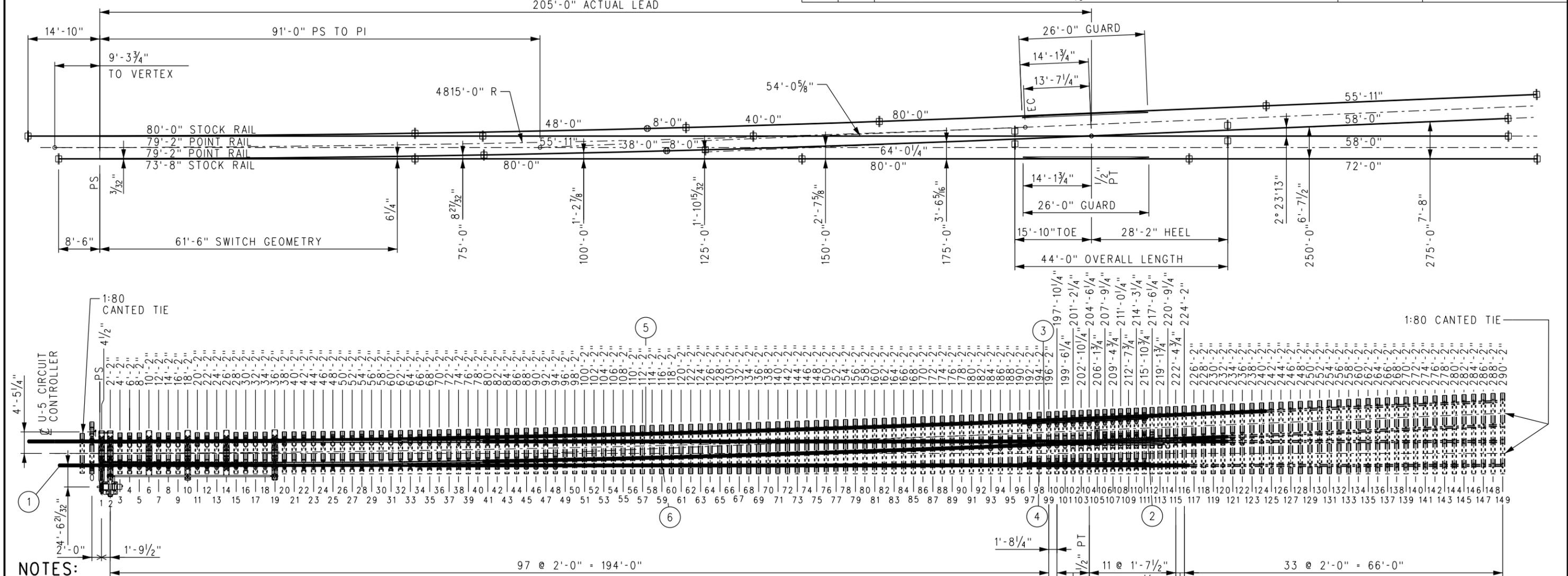
NO 24			
LH		RH	
WSM		WSM	
CONCRETE		CONCRETE	
HST		HST	
POWER		POWER	
MLSIDE	TOSIDE	MLSIDE	TOSIDE

TURNOUT LAYOUT	DRAWING NO	2807-01	2807-03	2807-02	2807-04
SWITCH PACK	DRAWING NO	2807-11	2807-13	2807-12	2807-14
CONCRETE TIE LAYOUT	DRAWING NO	2807-31	2807-31	2807-30	2807-30
HOLLOW STEEL TIE LAYOUT	DRAWING NO	2807-33	2807-35	2807-32	2807-34
FROG PACK	DRAWING NO	2807-41	2807-41	2807-40	2807-40
GUARD RAIL MAINLINE	DRAWING NO	2807-60	2807-60	2807-60	2807-60
GUARD RAIL TURNOUT	DRAWING NO	2807-61	2807-61	2807-62	2807-62
INSULATED RAIL ASSEMBLY	LENGTH	56'-0"	56'-0"	56'-0"	56'-0"
INSULATED RAIL ASSEMBLY	LENGTH	46'-0"	46'-0"	46'-0"	46'-0"
RAIL	LENGTH	40'-0"	40'-0"	40'-0"	40'-0"
RAIL	LENGTH	3@80'-0"	3@80'-0"	3@80'-0"	3@80'-0"
RAIL	LENGTH	2@55'-11"	2@55'-11"	2@55'-11"	2@55'-11"
RAIL	LENGTH	2@58'-0"	2@58'-0"	2@58'-0"	2@58'-0"
RAIL	LENGTH	72'-0"	72'-0"	72'-0"	72'-0"
RAIL	LENGTH	54'-0 <sup>5</sup> / <sub>8</sub> "			
RAIL	LENGTH	64'-0 <sup>1</sup> / <sub>4</sub> "			
TIE SCREWS CONCRETE	ES2356	QUANTITY	584	584	584
TIE SCREWS TIMBER	ES2355	QUANTITY	-	-	-
WASHER FLAT	ES2356	QUANTITY	584	584	584
SPRING WASHER DOUBLE COIL	ES2356	QUANTITY	584	584	584
TIE PLATE PANDROL	ES2454	QUANTITY	-	-	-
E-CLIP PANDROL E2055	ES2362	QUANTITY	632	632	632
INSULATOR PANDROL NYLON HD10	-	QUANTITY	632	632	632
PANDROL JOINT CLIP E2063	ES2361	QUANTITY	8	8	8
INSULATION PANDROL NYLON 6790	-	QUANTITY	8	8	8
TIE PAD PANDROL 69935R	-	QUANTITY	320	320	320
SHIM TO REDUCE PLATE FLEXURE	-	QUANTITY	292	292	292

DRAWN BY: <i>Nareh D. Papp</i>		HDR: <i>ES</i>	DATE: 03/31/2011	<small>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.</small>	 <p><b>METROLINK</b> SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>	ENGINEERING STANDARDS		STANDARD 2800
<small>ASSISTANT DIRECTOR: STANDARDS &amp; DESIGN</small> <i>William Dava</i> <small>DIRECTOR OF ENGINEERING AND CONSTRUCTION</small>						NO 24 TURNOUT		SCALE: NTS
REV.	DATE	DESCRIPTION	DES.	ENG.			CADD FILE: ES2800-24	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 24-136 LB RE MODIFIED TANGENTIAL, LH, HST	ES2807-11	
2	1	FROG PACK, NO 24-136 LB RE WSM, LH	ES2807-41	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", LH	ES2807-61	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	ES2807-60	
5	1	INSULATED RAIL ASSEMBLY, 56'-0" C/W BONDED INSULATED JOINT	-	
6	1	INSULATED RAIL ASSEMBLY, 46'-0" C/W BONDED INSULATED JOINT	-	
7	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-	
8	3	DRILLED RAIL, 136 LB RE, 80'-0" LONG	-	
9	2	DRILLED RAIL, 136 LB RE, 55'-11" LONG	-	
10	2	DRILLED RAIL, 136 LB RE, 58'-0" LONG	-	
11	1	DRILLED RAIL, 136 LB RE, 72'-0" LONG	-	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
12	1	CONCRETE TIE SET, 0-149 + (3) 1:80 TIES, PLATE PADS, LH	-	
13	584	TIE SCREW, CONCRETE 7/8" DIA x 6" HEX HEAD	-	
14	584	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 1 3/4" x 0.134"	-	
15	584	SPRING WASHER, DOUBLE COIL (FE6)	-	
16	632	CLIP PANDROL E2055	-	
17	632	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
18	8	CLIP PANDROL E2063	-	
19	8	INSULATION, PANDROL NYLON 6790	-	
20	320	TIE PAD PANDROL 6993SR	-	
21	292	SHIM, TO REDUCE PLATE FLEXURE	-	
22	1	DRILLED RAIL, 136 LB RE, 64'-0 1/4" LONG	-	
23	1	DRILLED RAIL, 136 LB RE, 54'-0 5/8" LONG	-	



**NOTES:**

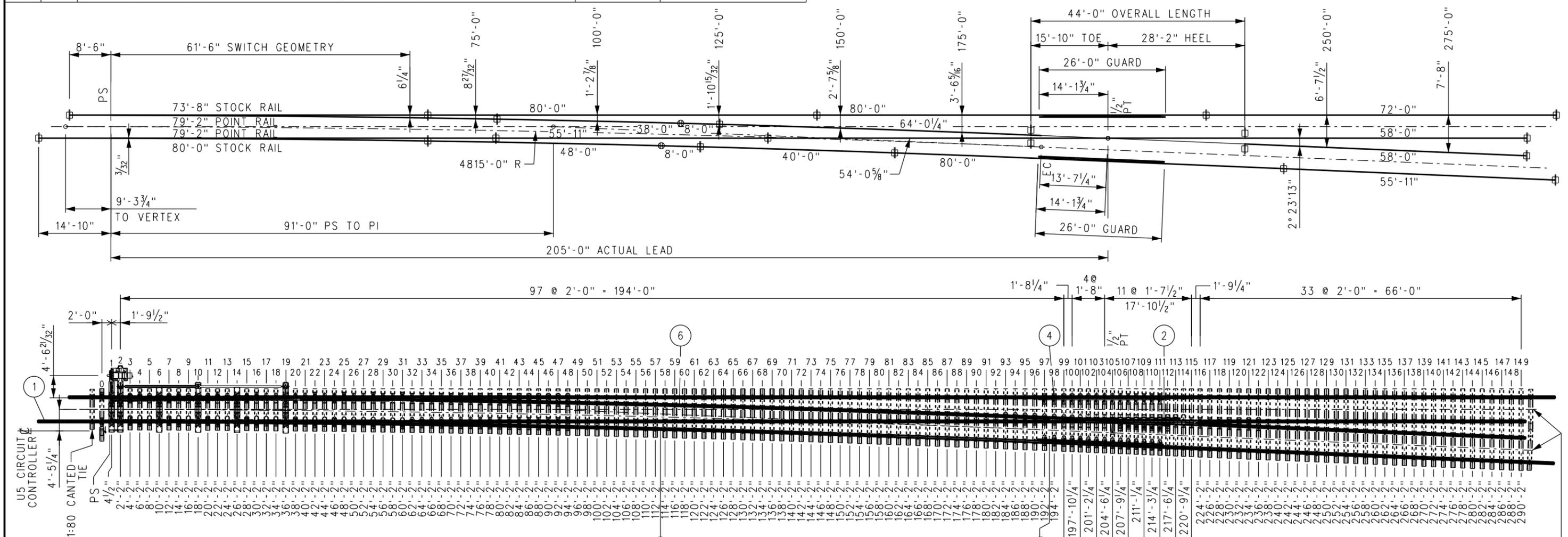
1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RAISED 1" AND FORM A 1/8" FLANGWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN THE TIE SCREWS WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. ALL HD-10 INSULATORS FOR SPRING CLIPS SHALL BE INSTALLED ON FIELD SIDE OF RAILS IF NOT USED IN ALL LOCATIONS.
8. SCHWIBAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
9. ⊕ = INSULATED JOINT    ⊕ = WELDED JOINT

**TURNOUT DATA:**

FROG NO 24	Δ = 2° 23' 13"	SWITCH LENGTH OF POINTS:	61'-6" / 79'-2"	CLOSURE AREA CENTERLINE RADIUS:	4815'-0"
TOE LENGTH:	15'-10"	ENTRY ANGLE:	0° 6' 39"	DEGREE OF CURVE:	1° 11' 24"
HEEL LENGTH:	28'-2"	VERTEX DISTANCE:	9'-3 3/4"	DESIGN SPEEDS	
TOTAL LENGTH:	44'-0"	THICKNESS AT POINT:	3/32"	60 MPH PASSENGER AT 3" UNBALANCE	
		THROW AT ROD #1:	4 3/4"	50 MPH FREIGHT AT 2" UNBALANCE	
		ACTUAL LEAD:	205'-0"		

DRAWN BY: <i>Narek D. Pape</i> HDR: <i>Willson Davan</i> DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN DIRECTOR OF ENGINEERING AND CONSTRUCTION	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.	<b>METROLINK</b> SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	<b>ENGINEERING STANDARDS</b> 2807 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-01
---	--	--	---

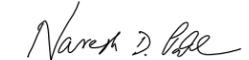
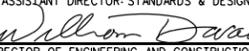
BILL OF MATERIAL				BILL OF MATERIAL					
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 24-136 LB RE MODIFIED TANGENTIAL, RH, HST	ES2807-12		13	584	TIE SCREW, CONCRETE 7/8" DIA x 6" HEX HEAD	-	
2	1	FROG PACK, NO 24-136 LB RE WSM, RH	ES2807-40		14	584	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", RH	ES2807-62		15	584	SPRING WASHER, DOUBLE COIL (FE6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	ES2807-60		16	632	CLIP PANDROL E2055	-	
5	1	INSULATED RAIL ASSEMBLY, 56'-0" C/W BONDED INSULATED JOINT	-		17	632	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
6	1	INSULATED RAIL ASSEMBLY, 46'-0" C/W BONDED INSULATED JOINT	-		18	8	CLIP PANDROL E2063	-	
7	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	8	INSULATION, PANDROL NYLON 6790	-	
8	3	DRILLED RAIL, 136 LB RE, 80'-0" LONG	-		20	320	TIE PAD PANDROL 6993SR	-	
9	2	DRILLED RAIL, 136 LB RE, 55'-11" LONG	-		21	292	SHIM, TO REDUCE PLATE FLEXURE	-	
10	2	DRILLED RAIL, 136 LB RE, 58'-0" LONG	-		22	1	DRILLED RAIL, 136 LB RE, 64'-0 1/4" LONG	-	
11	1	DRILLED RAIL, 136 LB RE, 72'-0" LONG	-		23	1	DRILLED RAIL, 136 LB RE, 54'-0 5/8" LONG	-	
12	1	CONCRETE TIE SET, 0-149 + (3) 1:80 TIES, PLATE PADS, RH	-						



- 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 1/8" FLANGEWAY.
  4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
  5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND WITH 1:80 CANTED TIES.
  6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
  7. ALL HD-10 INSULATORS FOR SPRING CLIPS SHALL BE INSTALLED ON FIELD SIDE OF RAILS IF NOT USED IN ALL LOCATIONS.
  8. SCHWIBAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
  9.  $\oplus$  = INSULATED JOINT  $\oplus$  = WELDED JOINT

**TURNOUT DATA:**

FROG NO 24	$\Delta = 2^\circ 23'13''$	SWITCH LENGTH OF POINTS:	61'-6" / 79'-2"	ACTUAL LEAD:	205'-0"
TOE LENGTH:	15'-10"	VERTEX DISTANCE:	VARIES PER SIDE	CLOSURE AREA:	
HEEL LENGTH:	28'-2"	ENTRY ANGLE:	$0^\circ 6'39''$	CENTERLINE RADIUS:	4815'-0"
TOTAL LENGTH:	44'-0"	THICKNESS AT POINT:	3/32"	DEGREE OF CURVE:	$1^\circ 11'24''$
		THROW AT ROD *1:	4 3/4"	DESIGN SPEEDS:	
				60 MPH PASSENGER @ 3" UNBALANCE	
				50 MPH FREIGHT @ 2" UNBALANCE	

DRAWN BY:	HDR:	DATE:	03/31/2011
 ASSISTANT DIRECTOR: STANDARDS & DESIGN			
 DIRECTOR OF ENGINEERING AND CONSTRUCTION			
REV.	DATE	DESCRIPTION	DES. ENG.
X	XX-XX-XX	REVISION	XX XX

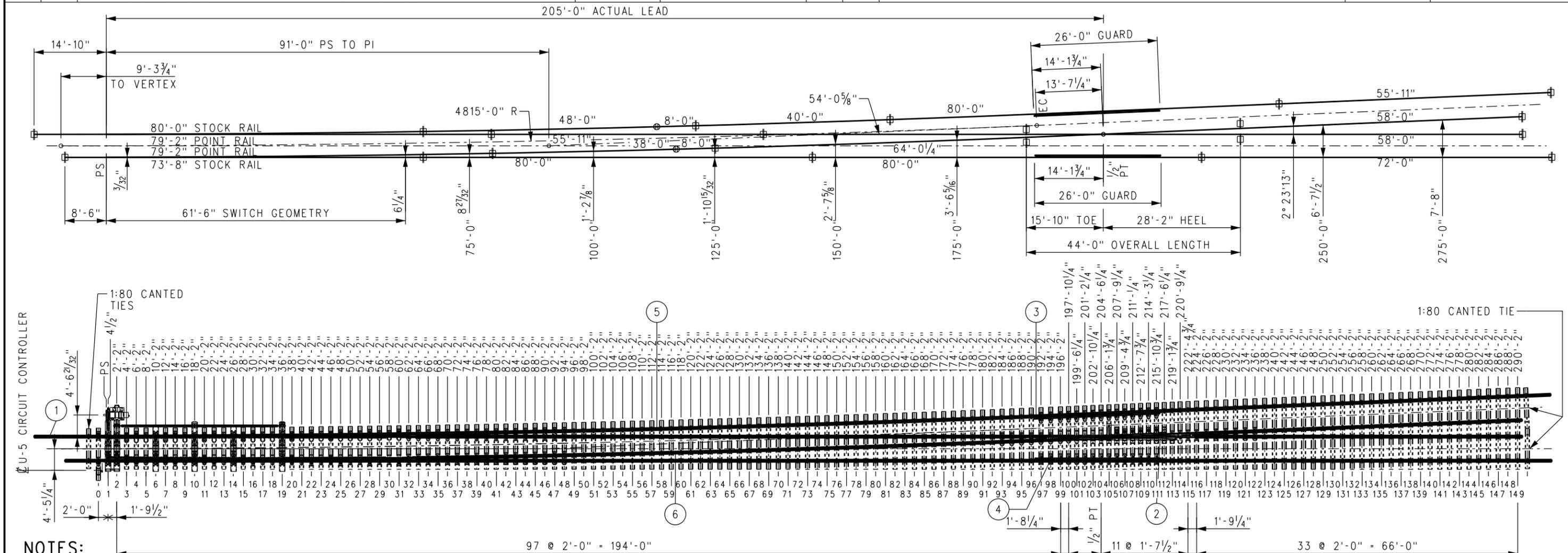
SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE 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

<b>ENGINEERING STANDARDS</b>		STANDARD	2807
TURNOUT LAYOUT		SCALE:	NTS
NO 24-136 LB RE RH WSM FROG TURNOUT HST, SWITCH MACHINE ON MAINLINE SIDE		REVISION SHEET	1 OF 1
		CADD FILE:	ES2807-02

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 24-136 LB RE MODIFIED TANGENTIAL, LH, HST	ES2807-13		13	584	TIE SCREW, CONCRETE 7/8" DIA x 6" HEX HEAD	-	
2	1	FROG PACK, NO 24-136 LB RE WSM, LH	ES2807-41		14	584	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", LH	ES2807-61		15	584	SPRING WASHER, DOUBLE COIL (FE6)	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	ES2807-60		16	632	CLIP PANDROL E2055	-	
5	1	INSULATED RAIL ASSEMBLY, 56'-0" C/W BONDED INSULATED JOINT	-		17	632	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
6	1	INSULATED RAIL ASSEMBLY, 46'-0" C/W BONDED INSULATED JOINT	-		18	8	CLIP PANDROL E2063	-	
7	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		19	8	INSULATION, PANDROL NYLON 6790	-	
8	3	DRILLED RAIL, 136 LB RE, 80'-0" LONG	-		20	320	TIE PAD PANDROL 6993SR	-	
9	2	DRILLED RAIL, 136 LB RE, 55'-11" LONG	-		21	292	SHIM, TO REDUCE PLATE FLEXURE	-	
10	2	DRILLED RAIL, 136 LB RE, 58'-0" LONG	-		22	1	DRILLED RAIL, 136 LB RE, 64'-0 1/4" LONG	-	
11	1	DRILLED RAIL, 136 LB RE, 72'-0" LONG	-		23	1	DRILLED RAIL, 136 LB RE, 54'-0 5/8" LONG	-	
12	1	CONCRETE TIE SET, 0-149 + (3) 1:80 TIES, PLATE PADS, LH	-						



**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 7/8" FLANGEWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREWS WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. ALL HD-10 INSULATORS FOR SPRING CLIPS SHALL BE INSTALLED ON FIELD SIDE OF RAILS IF NOT USED IN ALL LOCATIONS.
8. SCHWIHAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
9. ⊕ = INSULATED JOINT    ⊕ = WELDED JOINT

**TURNOUT DATA:**

FROG NO 24	Δ = 2° 23'13"	SWITCH LENGTH OF POINTS:	61'-6" / 79'-2"	ACTUAL LEAD:	205'-0"
TOE LENGTH:	15'-10"	VERTEX DISTANCE:	9'-3 3/4"	CLOSURE AREA:	
HEEL LENGTH:	28'-2"	ENTRY ANGLE:	0° 6'39"	CENTERLINE RADIUS:	4815'-0"
TOTAL LENGTH:	44'-0"	THICKNESS AT POINT:	3/32"	DEGREE OF CURVE:	1° 11'24"
		THROW AT ROD #1:	4 3/4"	DESIGN SPEEDS:	
				60 MPH PASSENGER @ 3" UNBALANCE	
				50 MPH FREIGHT @ 2" UNBALANCE	

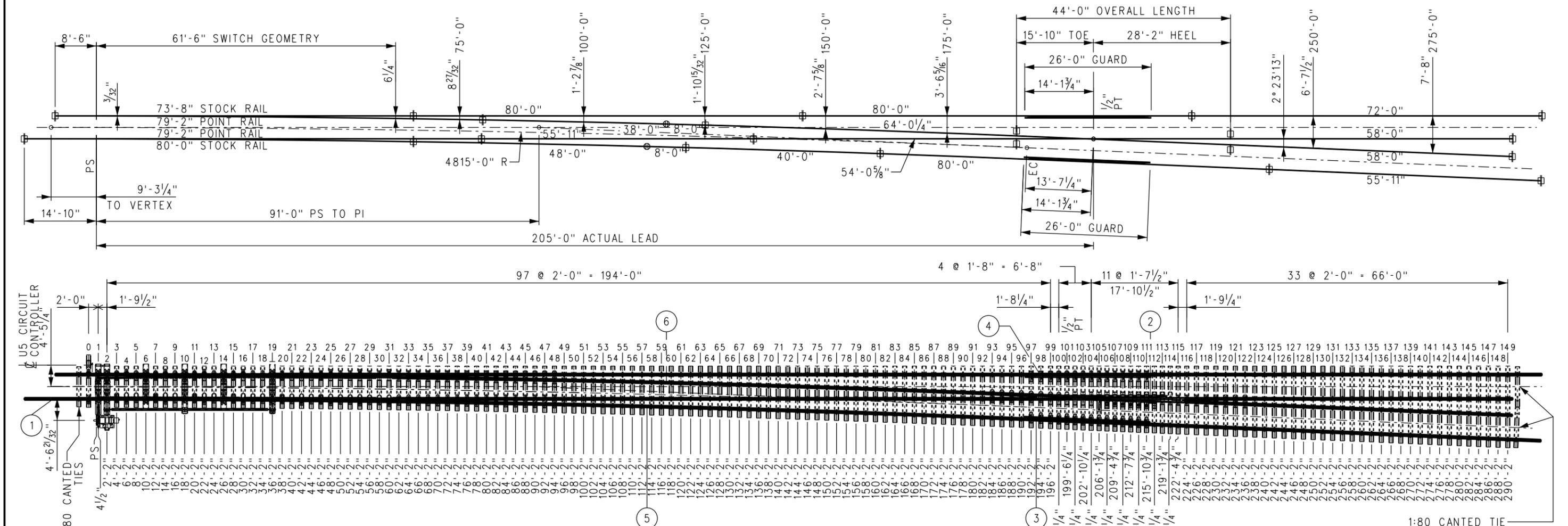
DRAWN BY: <i>Nareh D. Papp</i> HDR DATE: 03/31/2011		<p>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>	ENGINEERING STANDARDS		STANDARD 2807
<p>ASSISTANT DIRECTOR: STANDARDS &amp; DESIGN</p> <p><i>William Dava</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION</p>			TURNOUT LAYOUT		SCALE: NTS
REVISION	DESCRIPTION	DES.	ENG.	NO 24-136 LB RE LH WSM FROG TURNOUT HST, SWITCH MACHINE ON TURNOUT SIDE	
REV.	DATE			REVISION SHEET 1 OF 1 CADD FILE: ES2807-03	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 24-136 LB RE MODIFIED TANGENTIAL, RH, HST	ES2807-14	
2	1	FROG PACK, NO 24-136 LB RE WSM, RH	ES2807-40	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", RH	ES2807-62	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LONG, 136 LB RE RAISED 1", STRAIGHT	ES2807-60	
5	1	INSULATED RAIL ASSEMBLY, 56'-0" C/W BONDED INSULATED JOINT	-	
6	1	INSULATED RAIL ASSEMBLY, 46'-0" C/W BONDED INSULATED JOINT	-	
7	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-	
8	3	DRILLED RAIL, 136 LB RE, 80'-0" LONG	-	
9	2	DRILLED RAIL, 136 LB RE, 55'-11" LONG	-	
10	2	DRILLED RAIL, 136 LB RE, 58'-0" LONG	-	
11	1	DRILLED RAIL, 136 LB RE, 72'-0" LONG	-	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
12	1	CONCRETE TIE SET, 0-149 + (3) 1:80 TIES, PLATE PADS, RH	-	
13	584	TIE SCREW, CONCRETE 7/8" DIA x 6" HEX HEAD	-	
14	584	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 1 3/4" x 0.134"	-	
15	584	SPRING WASHER, DOUBLE COIL (FE6)	-	
16	632	CLIP PANDROL E2055	-	
17	632	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
18	8	CLIP PANDROL E2063	-	
19	8	INSULATION, PANDROL NYLON 6790	-	
20	320	TIE PAD PANDROL 6993SR	-	
21	292	SHIM, TO REDUCE PLATE FLEXURE	-	
22	1	DRILLED RAIL, 136 LB RE, 64'-0 1/4" LONG	-	
23	1	DRILLED RAIL, 136 LB RE, 54'-0 5/8" LONG	-	



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 1/8" FLANGWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREWS WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. ALL HD-10 INSULATORS FOR SPRING CLIPS SHALL BE INSTALLED ON FIELD SIDE OF RAILS IF NOT USED IN ALL LOCATIONS.
8. SCHWIBAG ROLLERS TO BE INSTALLED AND ADJUSTED IN THE FIELD.
9. ⊕ = INSULATED JOINT      ⊕ = WELDED JOINT

TURNOUT DATA:

FROG NO 24	Δ = 2° 23' 13"	SWITCH LENGTH OF POINTS:	61'-6" / 79'-2"	ACTUAL LEAD:	205'-0"
TOE LENGTH:	15'-10"	VERTEX DISTANCE:	9'-3 3/4"	CLOSURE AREA:	
HEEL LENGTH:	28'-2"	ENTRY ANGLE:	0° 6' 39"	CENTERLINE RADIUS:	4815'-0"
TOTAL LENGTH:	44'-0"	THICKNESS AT POINT:	3/32"	DEGREE OF CURVE:	1° 11' 24"
		THROW AT ROD #1:	4 3/4"	DESIGN SPEEDS:	
				60 MPH PASSENGER @ 3" UNBALANCE	
				50 MPH FREIGHT @ 2" UNBALANCE	

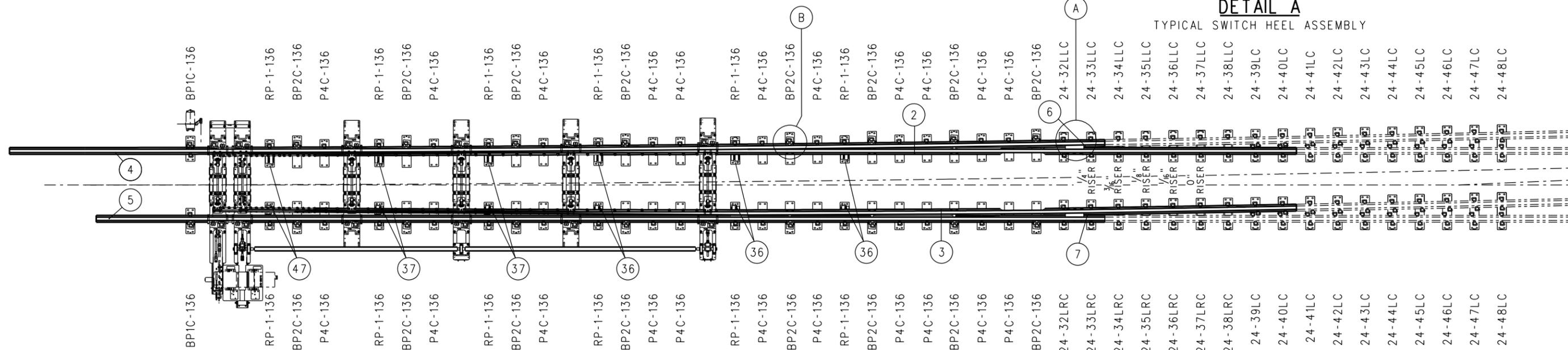
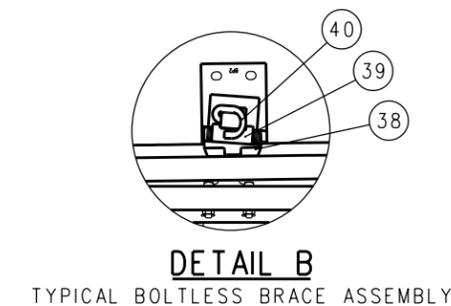
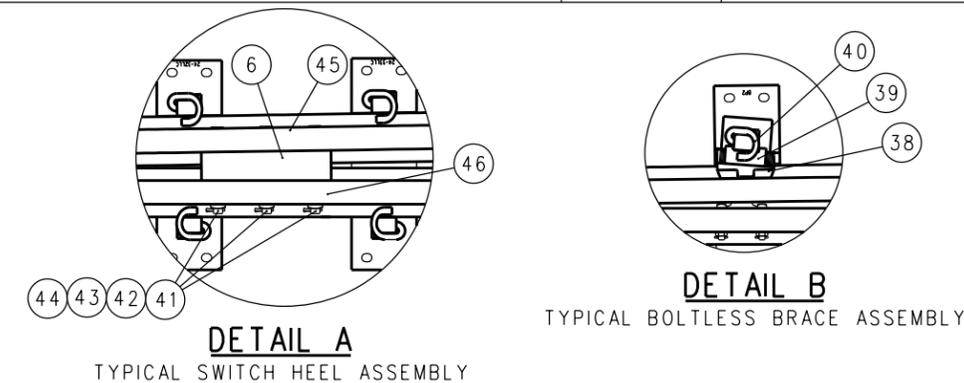
DRAWN BY: <i>Nareh D. Papp</i> HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS 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.		<p>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>		ENGINEERING STANDARDS		STANDARD 2807
ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>William Dacan</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION		TURNOUT LAYOUT NO 24-136 LB RE RH WSM FROG TURNOUT HST, SWITCH MACHINE ON TURNOUT SIDE				SCALE: NTS	REVISION SHEET 1 OF 1	CADD FILE: ES2807-04

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2807-33	
2	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, LH	ES2807-21	
3	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, RH	ES2807-22	
4	1	SAMSON STOCK RAIL, 80'-0" LONG, LH	ES2807-23	
5	1	SAMSON STOCK RAIL, 73'-8" LONG, RH	ES2807-24	
6	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, LH	-	
7	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, RH	-	
8	2	SWITCH PLATE (BP1C-136)	ES2800-80	
9	16	SWITCH PLATE (BP2C-136)	ES2800-80	
10	22	SWITCH PLATE (P4C-136)	ES2800-80	
11	12	SWITCH ROLLER PLATE (RP-1-136) SCHWIHAG	ES2800-96	
12	1	SWITCH PLATE (24-32LLC)	ES2807-80	
13	1	SWITCH PLATE (24-32LRC)	ES2807-80	
14	1	SWITCH PLATE (24-33LLC)	ES2807-80	
15	1	SWITCH PLATE (24-33LRC)	ES2807-80	
16	1	SWITCH PLATE (24-34LLC)	ES2807-80	
17	1	SWITCH PLATE (24-34LRC)	ES2807-80	
18	1	SWITCH PLATE (24-35LLC)	ES2807-81	
19	1	SWITCH PLATE (24-35LRC)	ES2800-81	
20	1	SWITCH PLATE (24-36LLC)	ES2807-81	
21	1	SWITCH PLATE (24-36LRC)	ES2807-81	
22	1	SWITCH PLATE (24-37LLC)	ES2807-81	
23	1	SWITCH PLATE (24-37LRC)	ES2807-81	
24	1	SWITCH PLATE (24-38LLC)	ES2807-82	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
25	1	SWITCH PLATE (24-38LRC)	ES2807-82	
26	2	SWITCH PLATE (24-39LC)	ES2807-83	
27	2	SWITCH PLATE (24-40LC)	ES2807-83	
28	2	SWITCH PLATE (24-41LC)	ES2807-83	
29	2	SWITCH PLATE (24-42LC)	ES2807-83	
30	2	SWITCH PLATE (24-43LC)	ES2807-83	
31	2	SWITCH PLATE (24-44LC)	ES2807-83	
32	2	SWITCH PLATE (24-45LC)	ES2807-84	
33	2	SWITCH PLATE (24-46LC)	ES2807-84	
34	2	SWITCH PLATE (24-47LC)	ES2807-84	
35	2	SWITCH PLATE (24-48LC)	ES2807-84	
36	6	ROLLER SCHWIHAG, SINGLE	-	
37	4	ROLLER SCHWIHAG, DOUBLE	-	
38	18	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
39	18	SERRATED WASHER FOR BOLTLESS BRACE	-	
40	178	CLIP, PANDROL, E2055	-	
41	6	BOLT, 1/8" DIA x 10 1/2" LONG, SQUARE HEAD, DRILLED @ 10 1/16", GR 5	-	
42	6	SPRING WASHER FOR 1/8" DIA BOLT	-	
43	6	NUT, 1/8" DIA HEAVY SQUARE, GR 5	-	
44	6	COTTER PIN, 1/4" DIA x 2 1/4" LONG	-	
45	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG, HEADLOCKED	-	
46	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG	-	
47	2	ROLLER SCHWIHAG, TRIPLE	-	

**NOTES:**

1. SEE TURNOUT DRAWING ES2807-01 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.



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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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 24-136 LB RE LH SWITCH PACK,  
 HOLLOW STEEL TIES,  
 SWITCH MACHINE ON MAINLINE SIDE

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-11

BILL OF MATERIAL

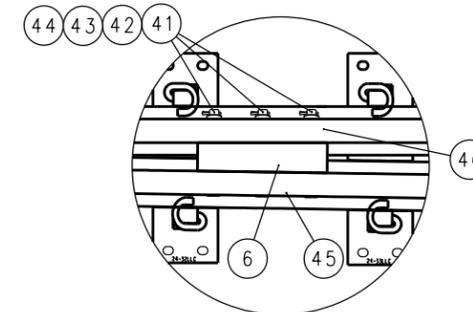
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2807-32	
2	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, LH	ES2807-21	
3	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, RH	ES2807-22	
4	1	SAMSON STOCK RAIL, 73'-8" LONG, LH	ES2807-25	
5	1	SAMSON STOCK RAIL, 80'-0" LONG, RH	ES2807-26	
6	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, LH	-	
7	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, RH	-	
8	2	SWITCH PLATE (BP1C-136)	ES2800-80	
9	16	SWITCH PLATE (BP2C-136)	ES2800-80	
10	22	SWITCH PLATE (P4C-136)	ES2800-80	
11	12	SWITCH ROLLER PLATE (RP-1-136) SCHWIHAG	ES2800-96	
12	1	SWITCH PLATE (24-32RLC)	ES2807-85	
13	1	SWITCH PLATE (24-32RRC)	ES2807-85	
14	1	SWITCH PLATE (24-33RLC)	ES2807-85	
15	1	SWITCH PLATE (24-33RRC)	ES2807-85	
16	1	SWITCH PLATE (24-34RLC)	ES2807-85	
17	1	SWITCH PLATE (24-34RRC)	ES2807-85	
18	1	SWITCH PLATE (24-35RLC)	ES2908-86	
19	1	SWITCH PLATE (24-35RRC)	ES2807-86	
20	1	SWITCH PLATE (24-36RLC)	ES2807-86	
21	1	SWITCH PLATE (24-36RRC)	ES2807-86	
22	1	SWITCH PLATE (24-37RLC)	ES2807-86	
23	1	SWITCH PLATE (24-37RRC)	ES2807-86	
24	1	SWITCH PLATE (24-38RLC)	ES2807-87	

BILL OF MATERIAL

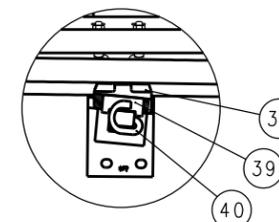
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
25	1	SWITCH PLATE (24-38RRC)	ES2807-87	
26	2	SWITCH PLATE (24-39RC)	ES2807-88	
27	2	SWITCH PLATE (24-40RC)	ES2807-88	
28	2	SWITCH PLATE (24-41RC)	ES2807-88	
29	2	SWITCH PLATE (24-42RC)	ES2807-88	
30	2	SWITCH PLATE (24-43RC)	ES2807-88	
31	2	SWITCH PLATE (24-44RC)	ES2807-88	
32	2	SWITCH PLATE (24-45RC)	ES2807-89	
33	2	SWITCH PLATE (24-46RC)	ES2807-89	
34	2	SWITCH PLATE (24-47RC)	ES2807-89	
35	2	SWITCH PLATE (24-48RC)	ES2807-89	
36	6	ROLLER SCHWIHAG, SINGLE	-	
37	4	ROLLER SCHWIHAG, DOUBLE	-	
38	18	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
39	18	SERRATED WASHER FOR BOLTLESS BRACE	-	
40	178	CLIP, PANDROL, E2055	-	
41	6	BOLT, 1/8" DIA x 10 1/2" LONG, SQUARE HEAD, DRILLED @ 10 1/16", GR 5	-	
42	6	SPRING WASHER FOR 1/8" DIA BOLT	-	
43	6	NUT, 1/8" DIA HEAVY SQUARE, GR 5	-	
44	6	COTTER PIN, 1/4" DIA x 2 1/4" LONG	-	
45	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG, HEADLOCKED	-	
46	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG	-	
47	2	ROLLER SCHWIHAG, TRIPLE	-	

NOTES:

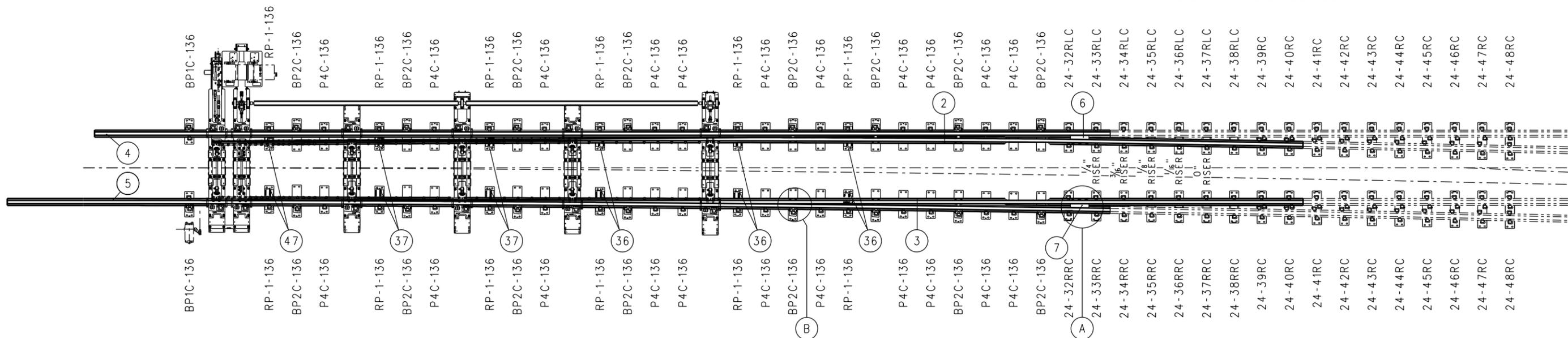
- SEE TURNOUT DRAWING ES2807-02 FOR TIE LOCATION DIMENSIONS.
- SWITCH RODS SHALL BE PREADJUSTED TO DIMENSIONS SHOWN IN DETAIL FOR EACH ROD LOCATION. MODIFY SPREADS AS NECESSARY WHEN INSTALLING INTO LAYOUT.



DETAIL A  
TYPICAL SWITCH HEEL ASSEMBLY



DETAIL B  
TYPICAL BOLTLESS BRACE ASSEMBLY



DRAWN BY: <i>Nareh D. Papp</i> 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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 24-136 LB RE RH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON MAINLINE SIDE	STANDARD 2807
ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>William Davan</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION					SCALE: NTS
REV. DATE	DESCRIPTION	DES. ENG.	REVISION SHEET 1 OF 1	CADD FILE: ES2807-12	



BILL OF MATERIAL

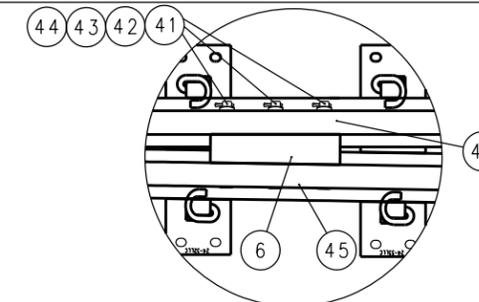
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2807-34	
2	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, LH	ES2807-21	
3	1	SAMSON POINT, 79'-2" LONG, DOUBLE REINFORCED, UR MANG TIP, RH	ES2807-22	
4	1	SAMSON STOCK RAIL, 73'-8" LONG, LH	ES2807-25	
5	1	SAMSON STOCK RAIL, 80'-0" LONG, RH	ES2807-26	
6	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, LH	-	
7	1	THERMAL STRESS BLOCK, 136 LB RE, UNIFORM RISER, RH	-	
8	2	SWITCH PLATE (BP1C-136)	ES2800-80	
9	16	SWITCH PLATE (BP2C-136)	ES2800-80	
10	22	SWITCH PLATE (P4C-136)	ES2800-80	
11	12	SWITCH ROLLER PLATE (RP-1-136) SCHWIHAG	ES2800-96	
12	1	SWITCH PLATE (24-32RLC)	ES2807-85	
13	1	SWITCH PLATE (24-32RRC)	ES2807-85	
14	1	SWITCH PLATE (24-33RLC)	ES2807-85	
15	1	SWITCH PLATE (24-33RRC)	ES2807-85	
16	1	SWITCH PLATE (24-34RLC)	ES2807-85	
17	1	SWITCH PLATE (24-34RRC)	ES2807-85	
18	1	SWITCH PLATE (24-35RLC)	ES2807-86	
19	1	SWITCH PLATE (24-35RRC)	ES2800-86	
20	1	SWITCH PLATE (24-36RLC)	ES2807-86	
21	1	SWITCH PLATE (24-36RRC)	ES2807-86	
22	1	SWITCH PLATE (24-37RLC)	ES2807-86	
23	1	SWITCH PLATE (24-37RRC)	ES2807-86	
24	1	SWITCH PLATE (24-38RLC)	ES2807-87	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
25	1	SWITCH PLATE (24-38RRC)	ES2807-87	
26	2	SWITCH PLATE (24-39RC)	ES2807-88	
27	2	SWITCH PLATE (24-40RC)	ES2807-88	
28	2	SWITCH PLATE (24-41RC)	ES2807-88	
29	2	SWITCH PLATE (24-42RC)	ES2807-88	
30	2	SWITCH PLATE (24-43RC)	ES2807-88	
31	2	SWITCH PLATE (24-44RC)	ES2807-88	
32	2	SWITCH PLATE (24-45RC)	ES2807-89	
33	2	SWITCH PLATE (24-46RC)	ES2807-89	
34	2	SWITCH PLATE (24-47RC)	ES2807-89	
35	2	SWITCH PLATE (24-48RC)	ES2807-89	
36	6	ROLLER SCHWIHAG, SINGLE	-	
37	4	ROLLER SCHWIHAG, DOUBLE	-	
38	18	BRACE, BOLTLESS, 136 LB RE 'SUREFIT'	-	
39	18	SERRATED WASHER FOR BOLTLESS BRACE	-	
40	178	CLIP, PANDROL, E2055	-	
41	6	BOLT, 1/8" DIA x 10 1/2" LONG, SQUARE HEAD, DRILLED @ 10 1/16", GR 5	-	
42	6	SPRING WASHER FOR 1/8" DIA BOLT	-	
43	6	NUT, 1/8" DIA HEAVY SQUARE, GR 5	-	
44	6	COTTER PIN, 1/4" DIA x 2 1/4" LONG	-	
45	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG, HEADLOCKED	-	
46	2	FISH PLATE, 3-HOLE, 1/2" D-BAR x 16" LONG	-	
47	2	ROLLER SCHWIHAG, TRIPLE	-	

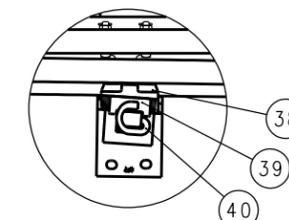
NOTES:

- SEE TURNOUT DRAWING ES2807-04 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.



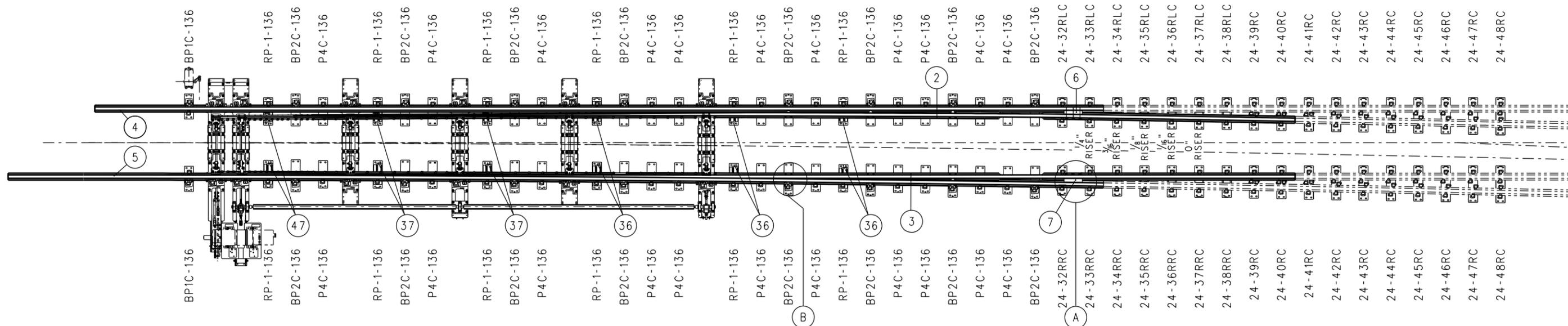
DETAIL A

TYPICAL SWITCH HEEL ASSEMBLY



DETAIL B

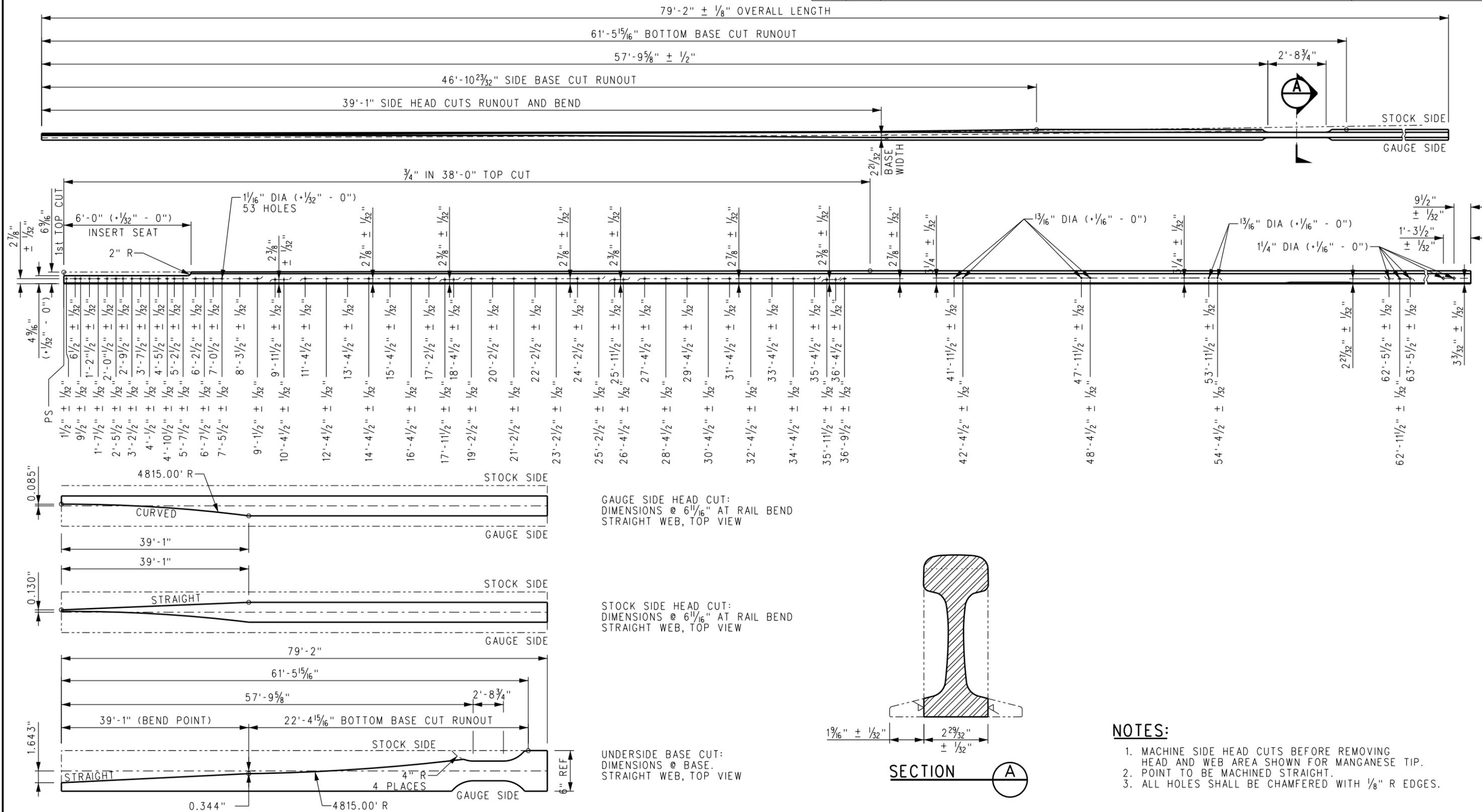
TYPICAL BOLTLESS BRACE ASSEMBLY



DRAWN BY: <i>Nareh D. Papp</i> HDR DATE: _____ ASSISTANT DIRECTOR: STANDARDS & DESIGN		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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 24 - 136 LB RE RH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON TURNOUT SIDE		STANDARD 2807 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-14
DIRECTOR OF ENGINEERING AND CONSTRUCTION						

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	SCRR PART NO
1	1	RAIL, 136 LB RE 79'-2" LONG	



- NOTES:**
1. MACHINE SIDE HEAD CUTS BEFORE REMOVING HEAD AND WEB AREA SHOWN FOR MANGANESE TIP.
  2. POINT TO BE MACHINED STRAIGHT.
  3. ALL HOLES SHALL BE CHAMFERED WITH 1/8" R EDGES.

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011

ASSISTANT DIRECTOR: STANDARDS & DESIGN

*William Davan*  
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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**

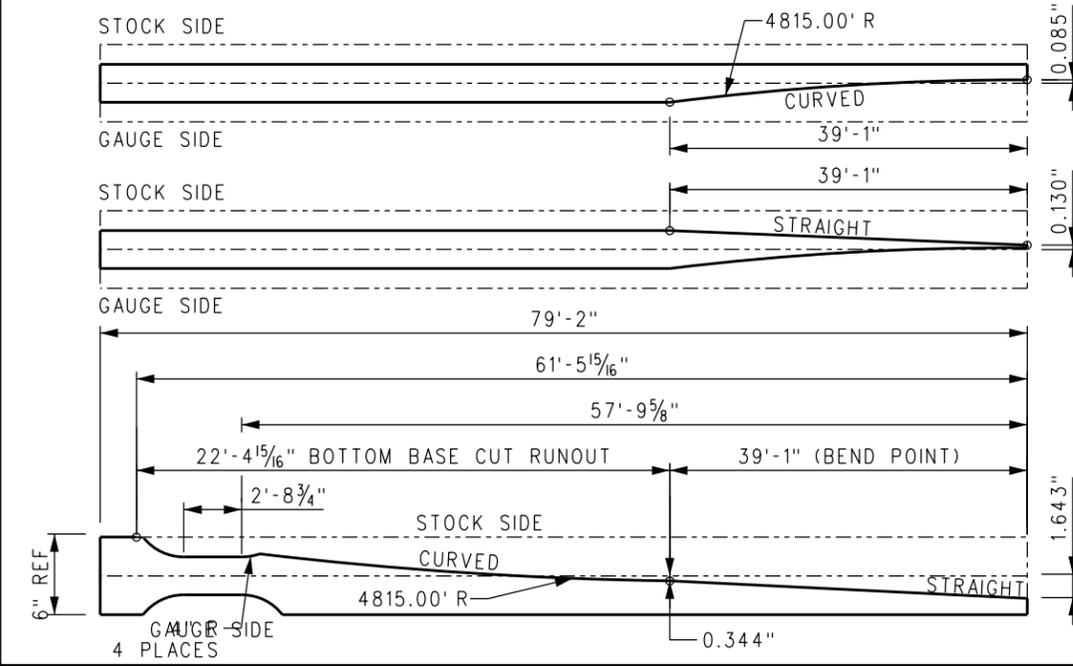
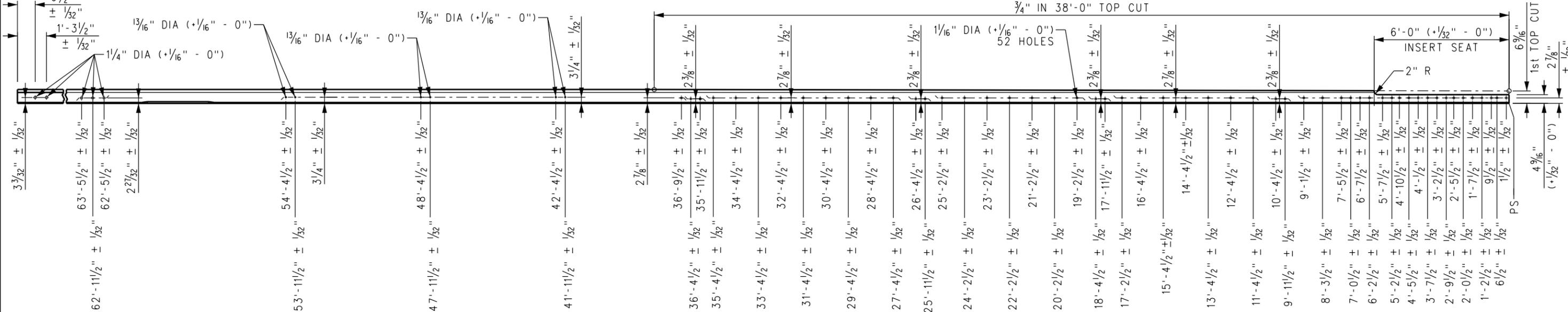
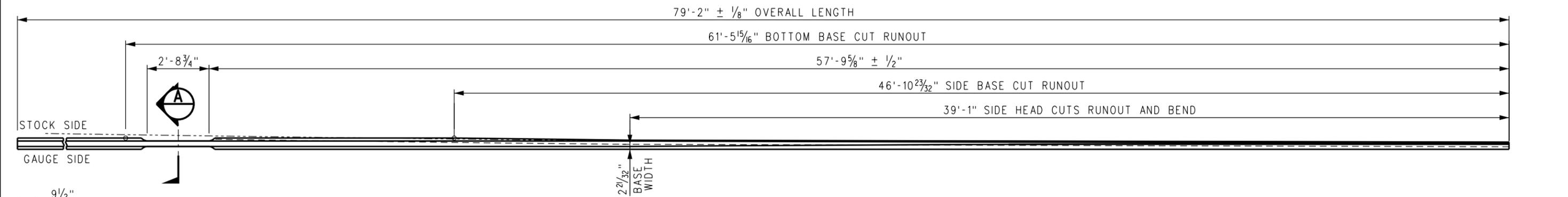
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, LH  
NO 24 LH /RH TURNOUT  
79'-2" OVERALL LENGTH MANGANESE TIP

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-21

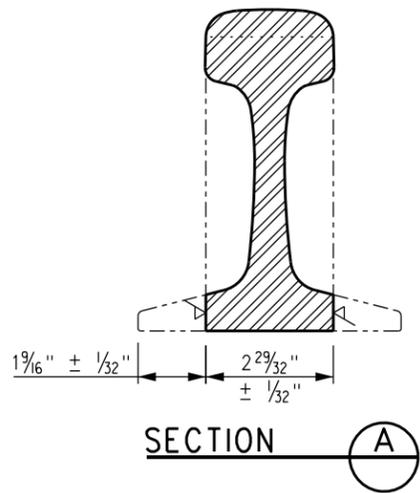
ITEM	QTY	DESCRIPTION	SCRR PART NO
1	1	RAIL, 136 LB RE 79'-2" LONG	



GAUGE SIDE HEAD CUT:  
DIMENSIONS @ 6 11/16" AT RAIL BEND  
STRAIGHT WEB, TOP VIEW

STOCK SIDE HEAD CUT:  
DIMENSIONS @ 6 11/16" AT RAIL BEND  
STRAIGHT WEB, TOP VIEW

UNDERSIDE BASE CUT:  
DIMENSIONS @ BASE.  
STRAIGHT WEB, TOP VIEW



- NOTES:**
1. MACHINE SIDE HEAD CUTS BEFORE REMOVING HEAD AND WEB AREA SHOWN FOR MANGANESE TIP.
  2. POINT TO BE MACHINED STRAIGHT.
  3. ALL HOLES SHALL BE CHAMFERED WITH 1/8" R EDGES.

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

DRAWN BY: *Narek D. Pape* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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

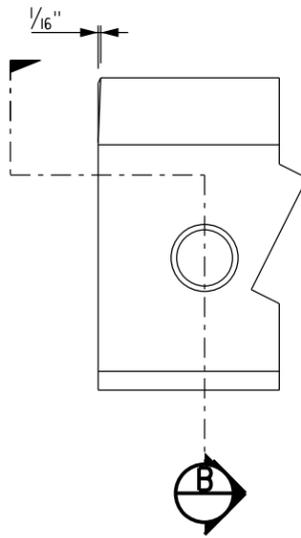
**ENGINEERING STANDARDS**  
 SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, RH  
 NO 24 LH /RH TURNOUT  
 79'-2" OVERALL LENGTH MANGANESE TIP

STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-22

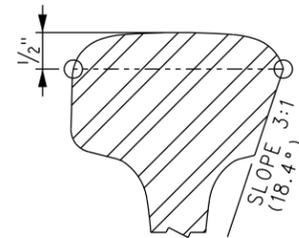
ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	RAIL, 136 LB RE 80'-0" LONG	

**NOTES:**

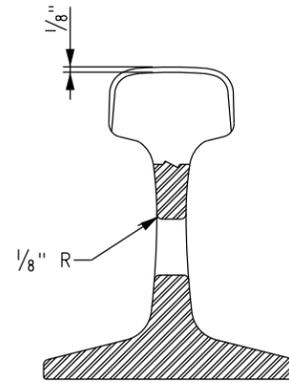
1. ALL BURNING METHODS PROHIBITED.
2. ALL BOLT HOLES TO BE BEVELED PER DETAIL.
3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT.
4. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.



**RAIL END/HOLE BEVELING DETAIL**  
RAIL HEAD ONLY - NOT BASE

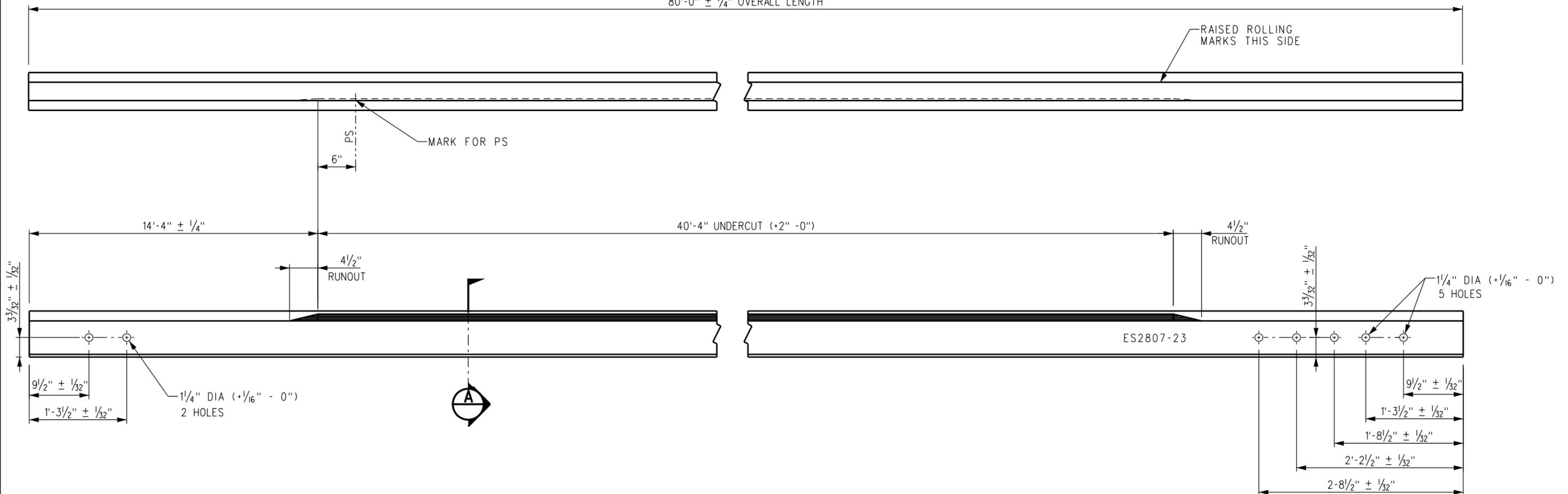


**PARTIAL SECTION A**



**SECTION B**

80'-0" ± 1/4" OVERALL LENGTH



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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Dacan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

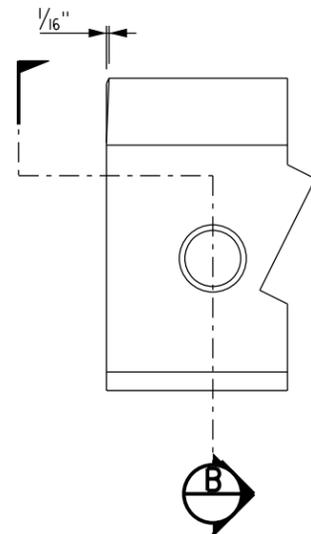
SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES, SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT 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.

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

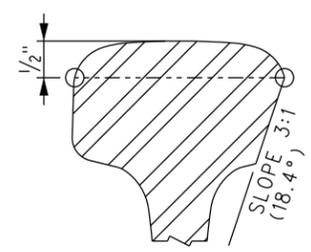
**ENGINEERING STANDARDS**  
 SAMSON STOCK RAIL, LH  
 136 LB RE 80'-0" LONG  
 FOR NO 24 136 LB RE LH SWITCH PACK

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-23

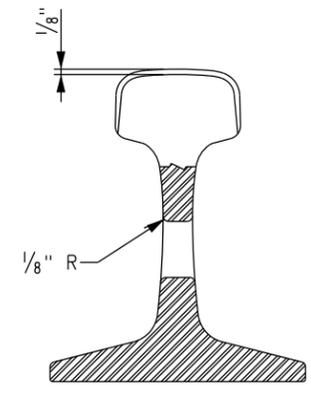
ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	RAIL, 136 LB RE 73'-8" LONG	



**RAIL END/HOLE BEVELING DETAIL**  
RAIL HEAD ONLY - NOT BASE



**PARTIAL SECTION A**

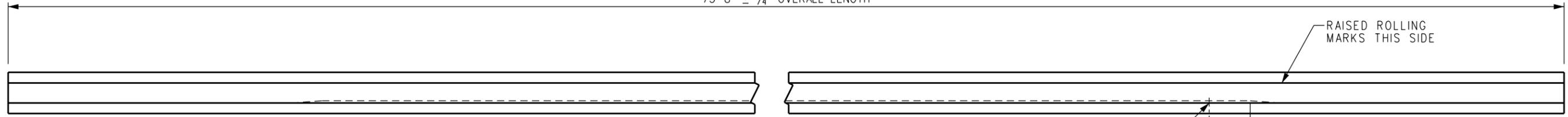


**SECTION B**

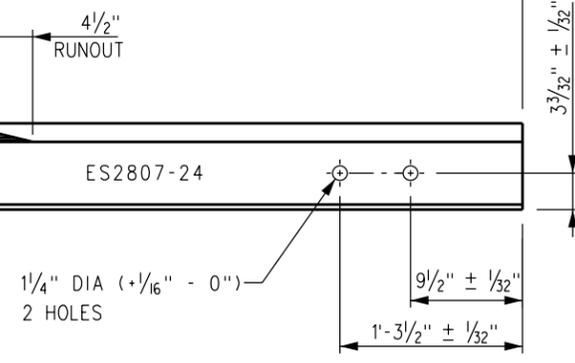
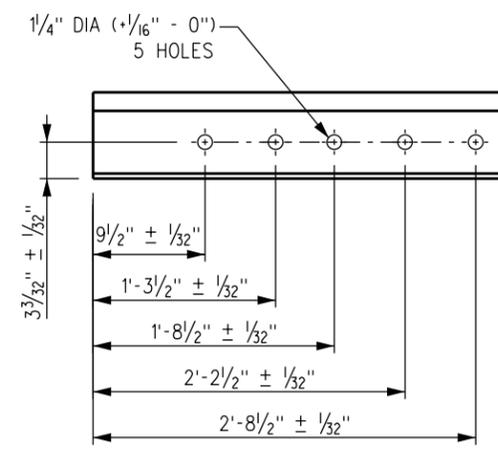
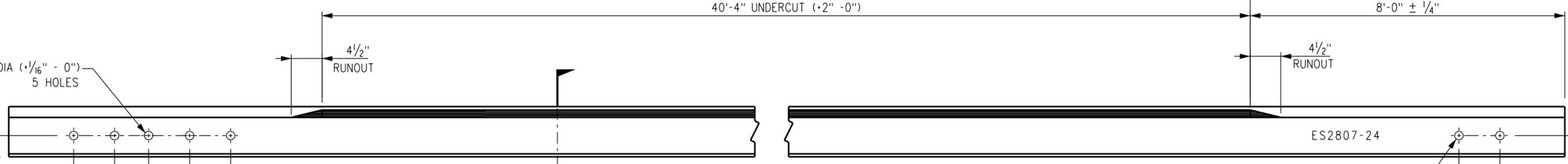
**NOTES:**

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 SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

73'-8" ± 1/4" OVERALL LENGTH



40'-4" UNDERCUT (+2" -0")



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

DRAWN BY: *Nareh D. Bae* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Dava*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

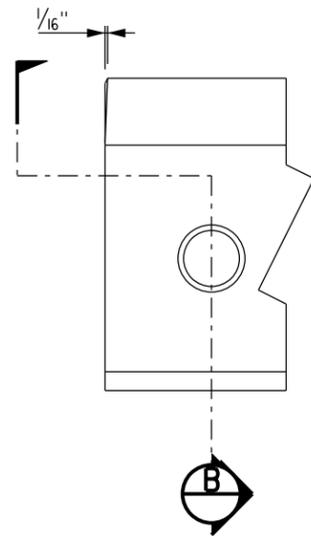
SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES, SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT 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.

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

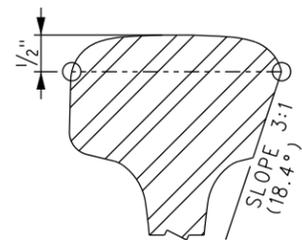
**ENGINEERING STANDARDS**  
 SAMSON STOCK RAIL, RH  
 136 LB RE 73'-8" LONG  
 FOR NO 24 136 LB RE LH SWITCH PACK

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-24

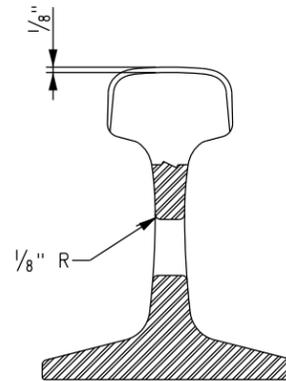
ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	RAIL, 136 LB RE 73'-8" LONG	



**RAIL END/HOLE BEVELING DETAILS**  
RAIL HEAD ONLY - NOT BASE



**PARTIAL SECTION A**

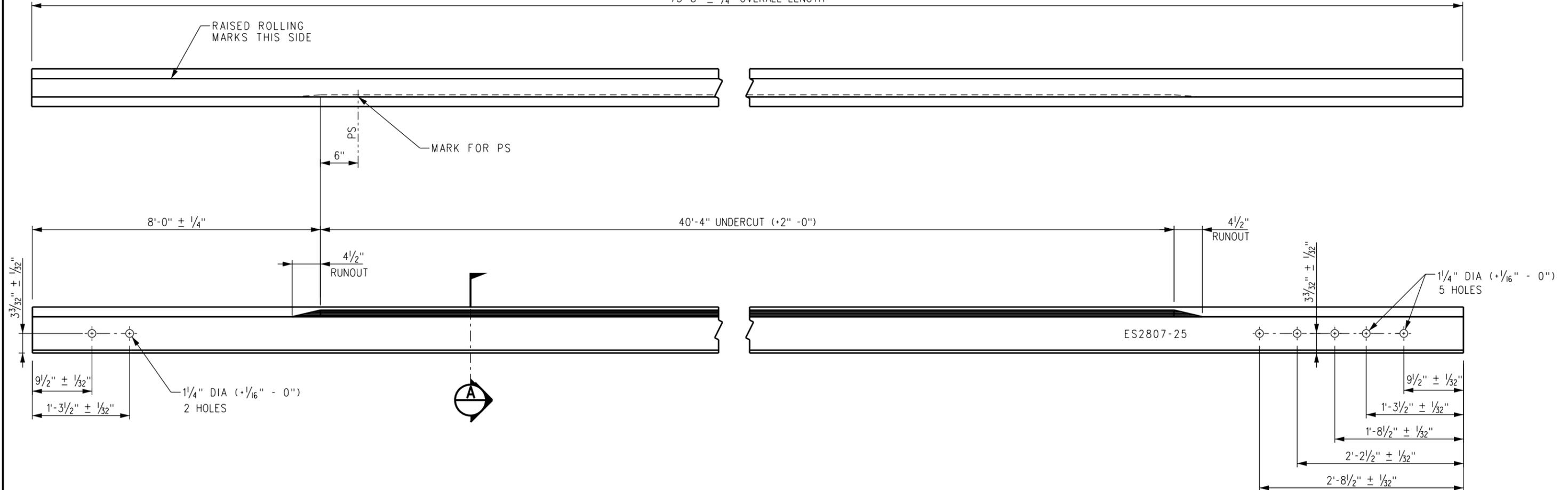


**SECTION B**

**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 SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

73'-8" ± 1/4" OVERALL LENGTH



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

DRAWN BY: HDR DATE: 03/31/2011

*Narek D. Pape*  
ASSISTANT DIRECTOR: STANDARDS & DESIGN

*William D. Davis*  
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

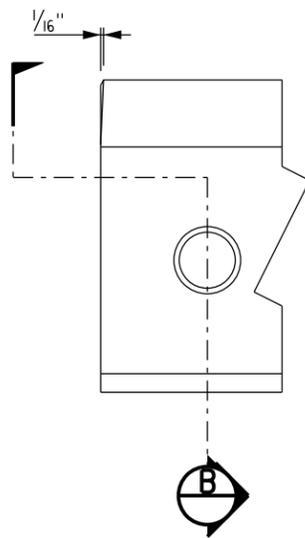
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

**ENGINEERING STANDARDS**

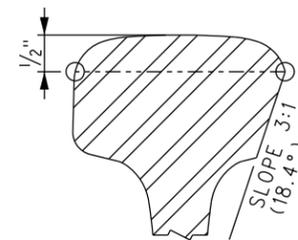
SAMSON STOCK RAIL, LH  
136 LB RE 73'-8" LONG  
FOR NO 24 136 LB RE RH SWITCH PACK

STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-25

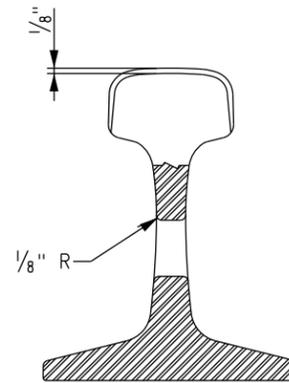
ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	RAIL, 136 LB RE 80'-0" LONG	



**RAIL END/HOLE BEVELING DETAILS**  
RAIL HEAD ONLY - NOT BASE



**PARTIAL SECTION A**

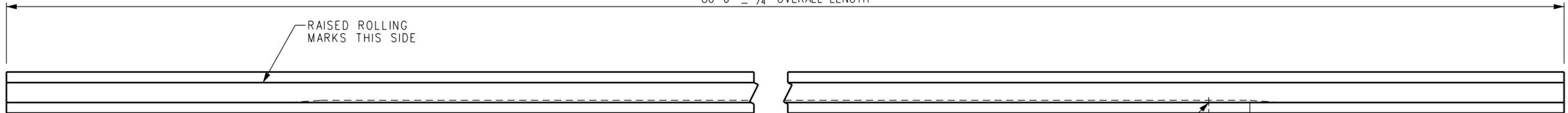


**SECTION B**

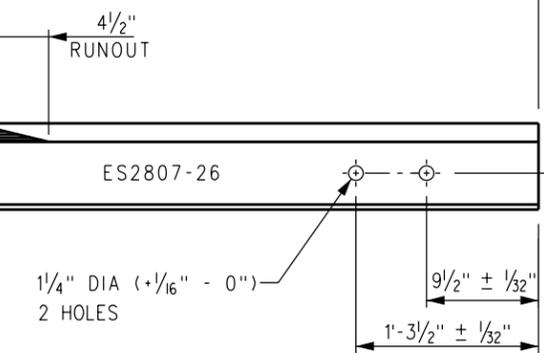
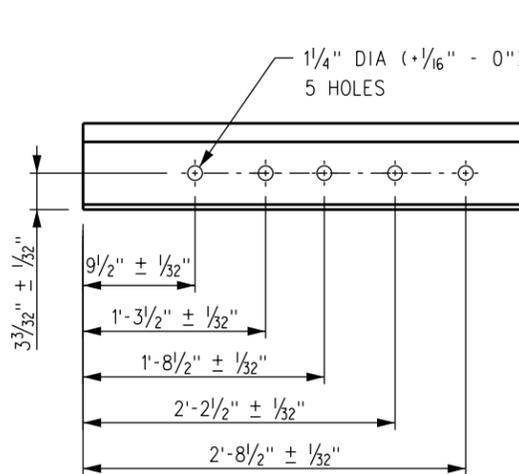
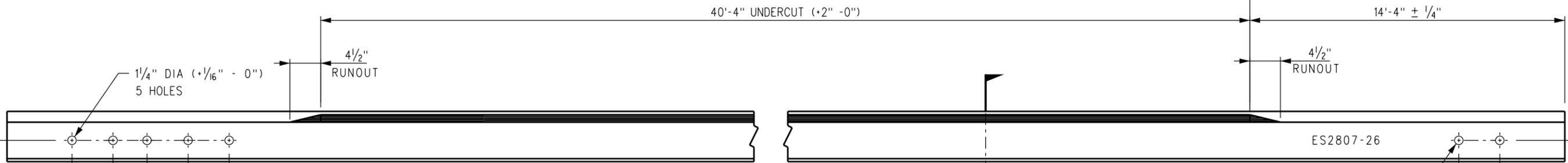
**NOTES:**

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 SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

80'-0" ± 1/4" OVERALL LENGTH



40'-4" UNDERCUT (+2" -0")



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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William D. Davis*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

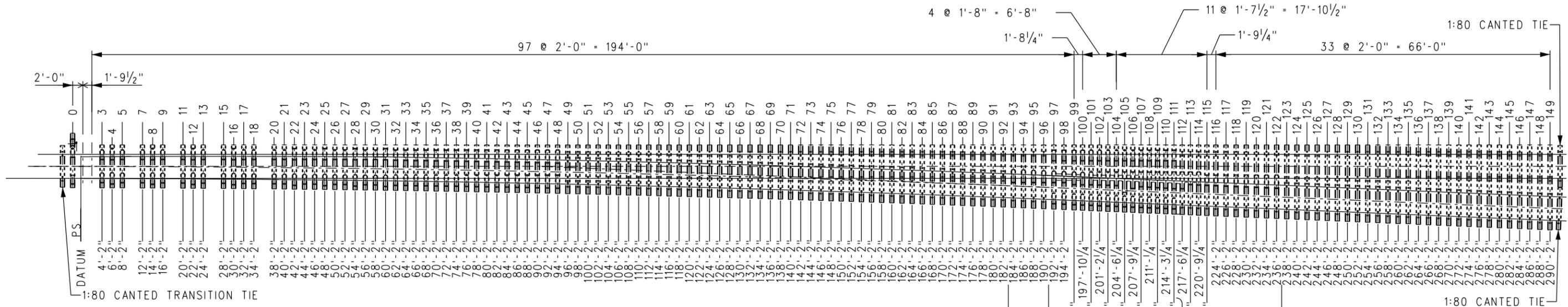
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

**ENGINEERING STANDARDS**  
 SAMSON STOCK RAIL, RH  
 136 LB RE 80'-0" LONG  
 FOR NO 24 136 LB RE RH SWITCH PACK

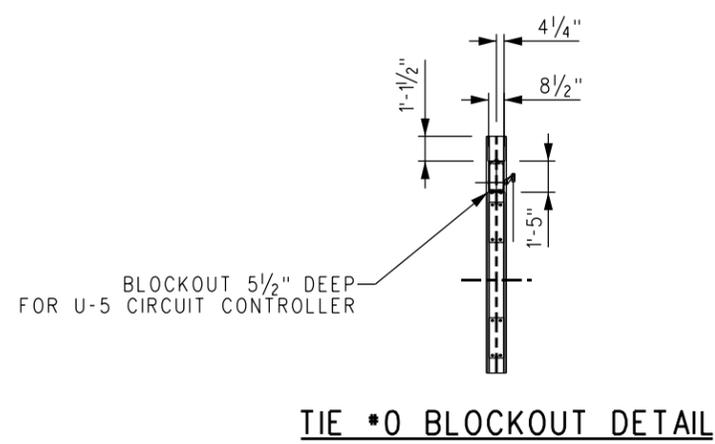
STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-26

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO
1	6	TIES 1,2,6,10,14 AND 19, POWER SWITCH MACHINE ON MAINLINE SIDE FOR RH TURNOUT (HOLLOW STEEL)	ES2807-32
2	6	TIES 1,2,6,10,14 AND 19, POWER SWITCH MACHINE ON TURNOUT SIDE FOR RH TURNOUT (HOLLOW STEEL)	ES2807-34



PLATING IS 3/4" THICK. RAISE OUTSIDE RAIL SEATS ACCORDINGLY. ALL RAIL SEATS ARE FLAT.



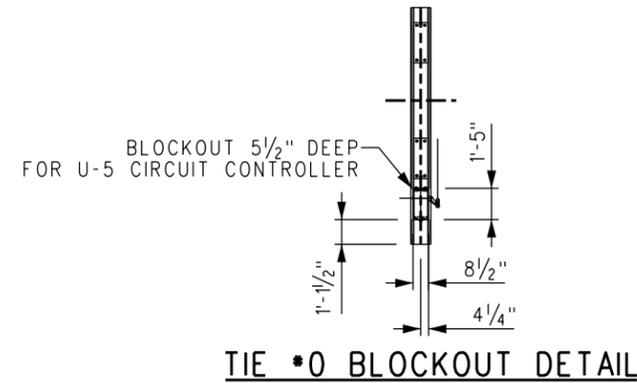
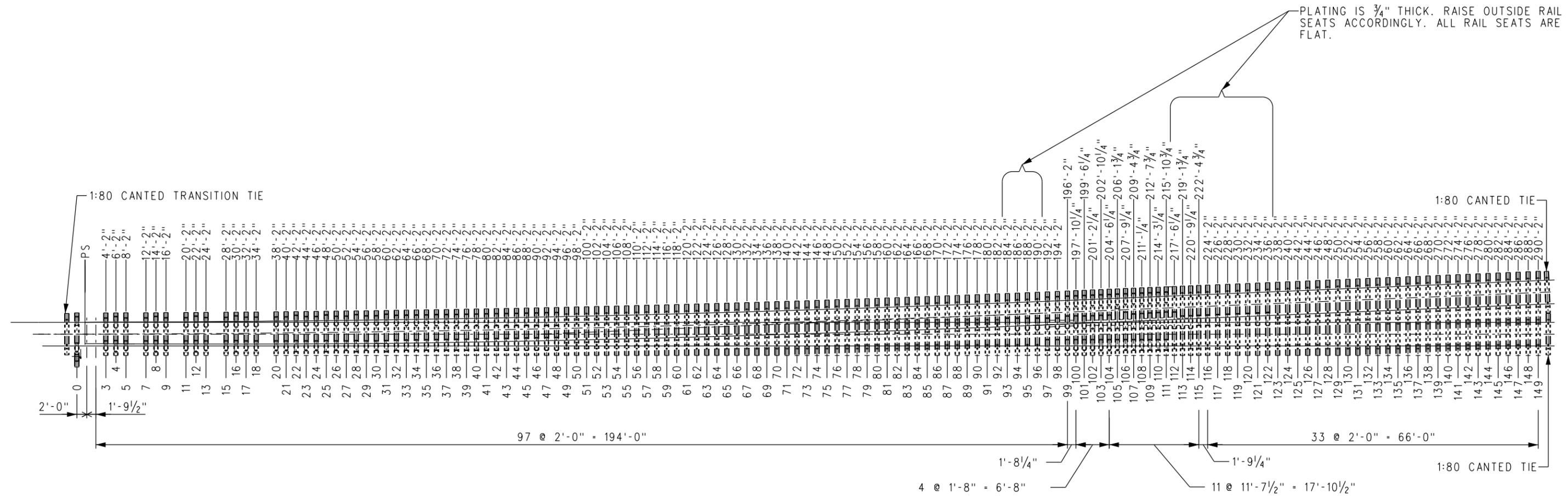
NOTES:

1. SET TO INCLUDE TIES 0, 3 THROUGH 5, 7 THROUGH 9, 11 THROUGH 13, 15 THROUGH 18 AND 20 THROUGH 149, THREE 1:80 CANTED TIES, TIE PADS FOR ALL PLATES, AND PIM INSERTS.
2. TIE LENGTHS ARE DETERMINED BY ADDING 1'-10 1/16" 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'-8 1/2" BETWEEN STRAIGHT RAIL SEAT GAUGES. LENGTH SHALL BE 8'-3".
5. THIS DRAWING SHOWS TIE "0" PLACEMENT FOR SWITCH MACHINE ON RH/TURNOUT SIDE. USE OPPOSITE HAND FOR SWITCH MACHINE ON LH/MAINLINE SIDE.
6. SEE BILL OF MATERIALS ABOVE FOR TIES 1, 2, 6, 10, 14, AND 19.

DRAWN BY: <i>Nareh D. Papp</i> HDR DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN		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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS CONCRETE TIE LAYOUT NO 24-136 LB RE SPRING FROG TURNOUT, RH		STANDARD 2807 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-30
REV. DATE DESCRIPTION DES. ENG.	XX XX DES. ENG.			DIRECTOR OF ENGINEERING AND CONSTRUCTION <i>William Davan</i>		

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO
1	6	TIES 1,2,6,10,14 AND 19, POWER SWITCH MACHINE ON MAINLINE SIDE FOR LH TURNOUT (HOLLOW STEEL)	ES2807-33
2	6	TIES 1,2,6,10,14 AND 19, POWER SWITCH MACHINE ON TURNOUT SIDE FOR LH TURNOUT (HOLLOW STEEL)	ES2807-35



**NOTES:**

1. SET TO INCLUDE TIES 0, 3 THROUGH 5, 7 THROUGH 9, 11 THROUGH 13, 15 THROUGH 18 AND 20 THROUGH 149, THREE 1:80 CANTED TIES, TIE PADS FOR ALL PLATES, AND PIM INSERTS.
2. TIE LENGTHS ARE DETERMINED BY ADDING 1'-10 1/6" FROM RAIL GAUGE LINE (OR 21" 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'-8 1/2" BETWEEN STRAIGHT RAIL SEAT GAUGES. LENGTH SHALL BE 8'-3".
5. THIS DRAWING SHOWS TIE "0" PLACEMENT FOR SWITCH MACHINE ON LH/TURNOUT SIDE. USE OPPOSITE HAND FOR SWITCH MACHINE ON RH/MAINLINE SIDE.
6. SEE BILL OF MATERIALS ABOVE FOR TIES 1, 2, 6, 10, 14, AND 19.

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Dava*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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  
 CONCRETE TIE LAYOUT  
 NO 24-136 LB RE SPRING FROG TURNOUT, LH

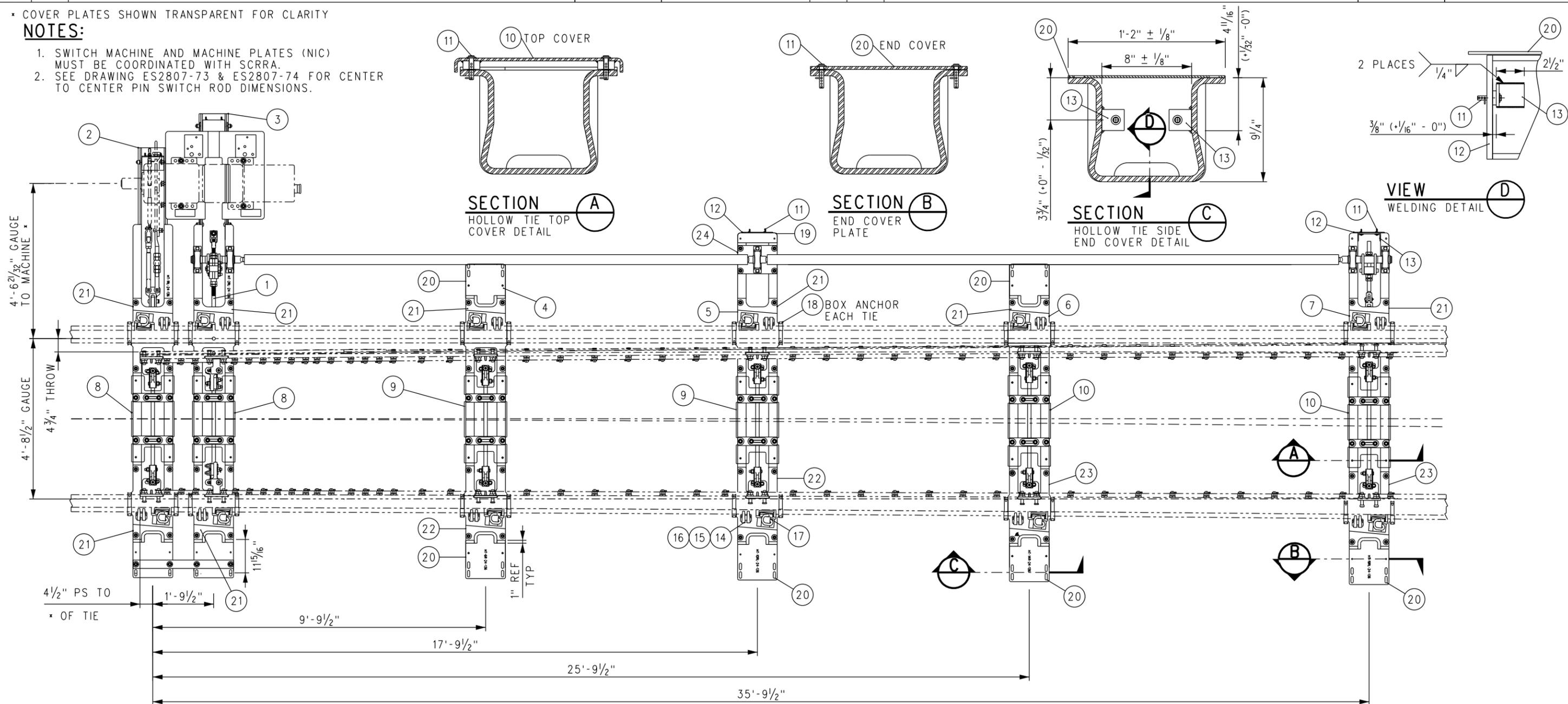
STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-31

BILL OF MATERIAL				BILL OF MATERIAL					
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	RODDING ASSEMBLY FOR NO 24-136 LB RE, SWITCH MACHINE ON LH SIDE	ES2807-71		13	16	COVER SUPPORT BRACKET	-	
2	1	HOLLOW TIE ASSEMBLY (HT-1RL-24-136)	-		14	12	LV BRACE FOR 136 LB RE	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2RL-24-136)	-		15	12	SERRATED WASHER FOR LV BRACE	-	
4	1	HOLLOW TIE ASSEMBLY (HT-6R-24-136)	-		16	12	CLIP, PANDROL, E2055	-	
5	1	HOLLOW TIE ASSEMBLY (HT-10RL-24-136)	-		17	12	CLIP, SAFELOK, AB2000	-	
6	1	HOLLOW TIE ASSEMBLY (HT-14R-24-136)	-		18	24	RAIL ANCHOR, UNIT DRIVE-ON TYPE 5	-	
7	1	HOLLOW TIE ASSEMBLY (HT-19RL-24-136)	-		19	1	STEEL COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
8*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-		20	6	STEEL COVER PLATE FOR HST TIE, TOP END	-	
9*	2	COVER PLATE NO 2, HOLLOW SWITCH TIE	-		21	8	HST SWITCH PLATE HTP-206-STR	ES2800-90	
10*	2	COVER PLATE NO 3, HOLLOW SWITCH TIE	-		22	2	HST SWITCH PLATE HTP-301-R	ES2800-91	
11	54	PUSH PIN ASSEMBLY FOR HST COVERS	-		23	2	HST SWITCH PLATE HTP-209-R	ES2800-92	
12	8	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-		24	1	PILLOW BLOCK MOUNTING PLATE	-	

\* COVER PLATES SHOWN TRANSPARENT FOR CLARITY

**NOTES:**

- SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
- SEE DRAWING ES2807-73 & ES2807-74 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.



DRAWN BY: <i>Narek D. Pape</i> HDR DATE: 03/31/2011		<p>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.</p>	<p>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>	ENGINEERING STANDARDS		STANDARD 2807
<p>ASSISTANT DIRECTOR: STANDARDS &amp; DESIGN</p> <p><i>William Davan</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION</p>				<p>HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON MAINLINE SIDE NO 24-136 LB RE RH</p>		SCALE: NTS

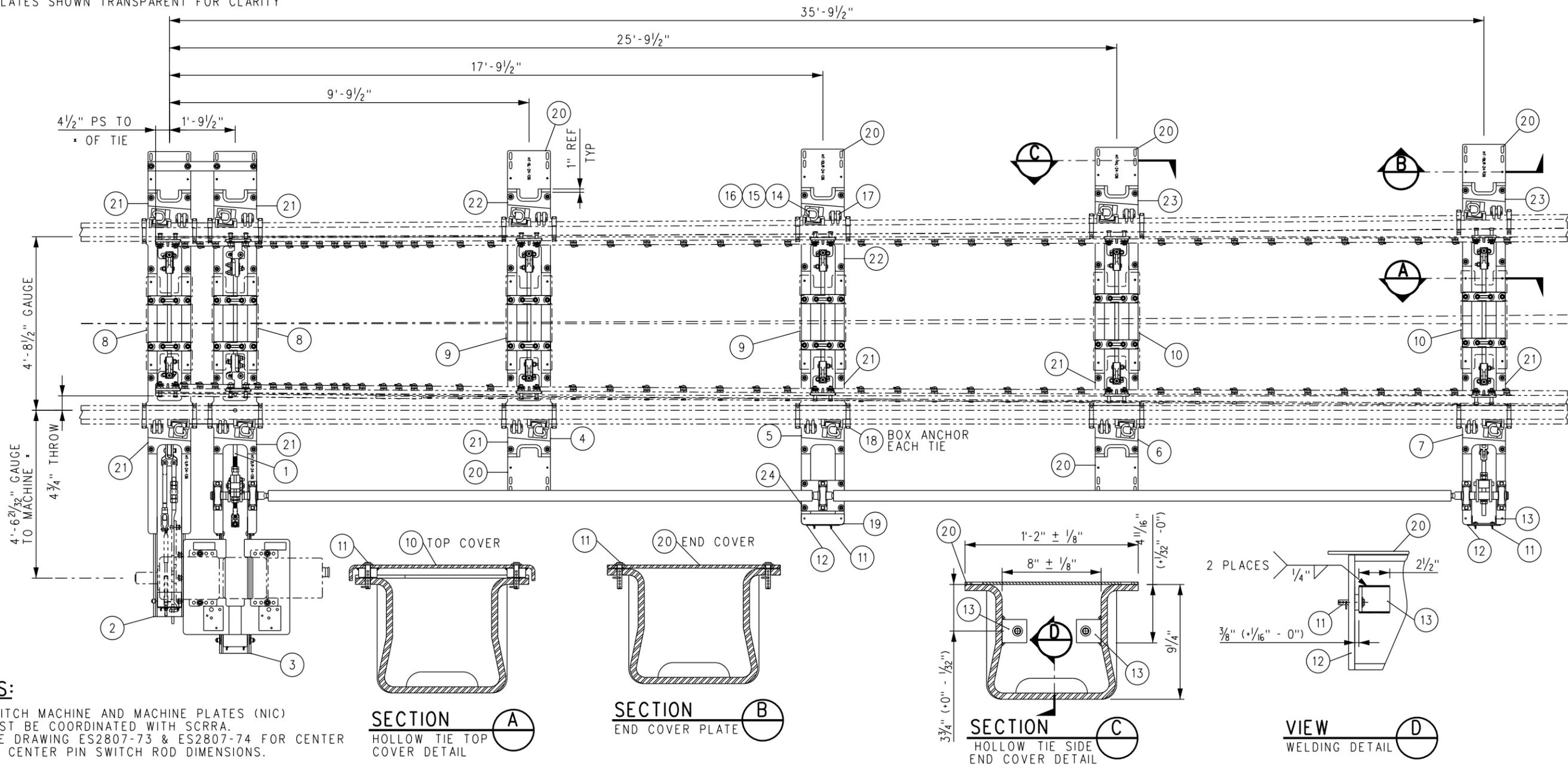
BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	RODDING ASSEMBLY FOR NO 24-136 LB RE SWITCH MACHINE ON RH SIDE	ES2807-72	
2	1	HOLLOW TIE ASSEMBLY (HT-1LR-24-136)	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2LR-24-136)	-	
4	1	HOLLOW TIE ASSEMBLY (HT-6L-24-136)	-	
5	1	HOLLOW TIE ASSEMBLY (HT-10LR-24-136)	-	
6	1	HOLLOW TIE ASSEMBLY (HT-14L-24-136)	-	
7	1	HOLLOW TIE ASSEMBLY (HT-19LR-24-136)	-	
8*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-	
9*	2	COVER PLATE NO 2, HOLLOW SWITCH TIE	-	
10*	2	COVER PLATE NO 3, HOLLOW SWITCH TIE	-	
11	54	PUSH PIN ASSEMBLY FOR HST COVERS	-	
12	8	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-	

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
13	16	COVER SUPPORT BRACKET	-	
14	12	LV BRACE FOR 136 LB RE	-	
15	12	SERRATED WASHER FOR LV BRACE	-	
16	12	CLIP, PANDROL, E2055 RH	-	
17	12	CLIP, SAFELOK, AB2000	-	
18	24	RAIL ANCHOR, UNIT DRIVE-ON TYPE 5	-	
19	1	STEEL COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
20	6	STEEL COVER PLATE FOR HST TIE, TOP END	-	
21	8	HST SWITCH PLATE HTP-206-STR	ES2800-90	
22	2	HST SWITCH PLATE HTP-300-L	ES2800-91	
23	2	HST SWITCH PLATE HTP-208-L	ES2800-92	
24	1	PILLOW BLOCK MOUNTING PLATE	-	

\* COVER PLATES SHOWN TRANSPARENT FOR CLARITY



NOTES:

1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
2. SEE DRAWING ES2807-73 & ES2807-74 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.

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

DRAWN BY: HDR DATE: 03/31/2011  
*Narek D. Pape*  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

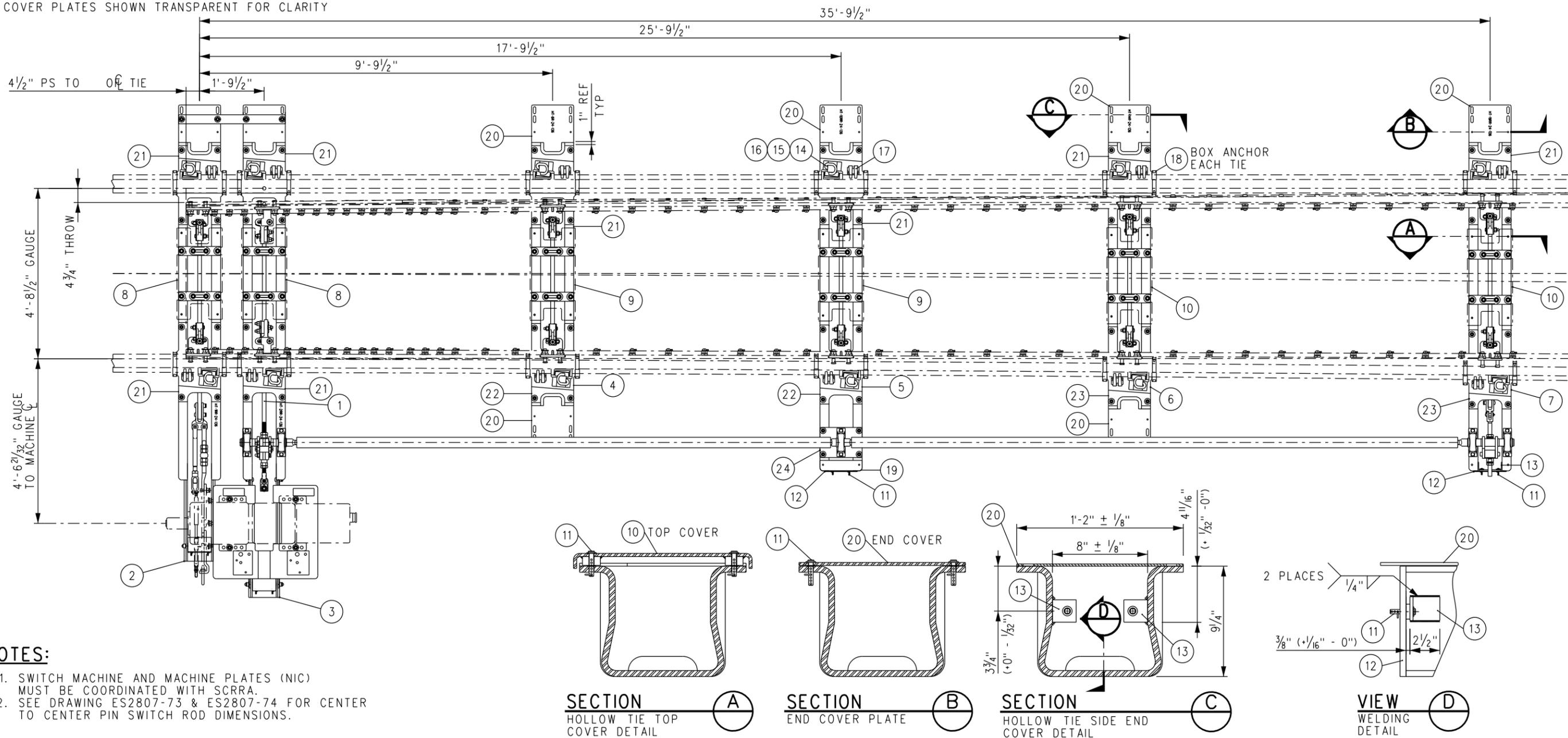


ENGINEERING STANDARDS  
 HOLLOW STEEL TIE LAYOUT  
 SWITCH MACHINE ON MAINLINE SIDE  
 NO 24-136 LB RE LH

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-33

BILL OF MATERIAL				BILL OF MATERIAL					
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	RODDING ASSEMBLY FOR NO 24-136 LB RE, SWITCH MACHINE ON RH SIDE	ES2807-72		13	16	COVER SUPPORT BRACKET	-	
2	1	HOLLOW TIE ASSEMBLY (HT-1RR-24-136)	-		14	12	LV BRACE FOR 136 LB RE	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2RR-24-136)	-		15	12	SERRATED WASHER FOR LV BRACE	-	
4	1	HOLLOW TIE ASSEMBLY (HT-6R-24-136)	-		16	12	CLIP, PANDROL, E2055	-	
5	1	HOLLOW TIE ASSEMBLY (HT-10RR-24-136)	-		17	12	CLIP, SAFELOK, AB2000	-	
6	1	HOLLOW TIE ASSEMBLY (HT-14R-24-136)	-		18	24	RAIL ANCHOR, UNIT DRIVE-ON TYPE 5	-	
7	1	HOLLOW TIE ASSEMBLY (HT-19RR-24-136)	-		19	1	STEEL COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
8*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-		20	6	STEEL COVER PLATE FOR HST TIE, TOP END	-	
9*	2	COVER PLATE NO 2, HOLLOW SWITCH TIE	-		21	8	HST SWITCH PLATE HTP-206-STR	ES2800-90	
10*	2	COVER PLATE NO 3, HOLLOW SWITCH TIE	-		22	2	HST SWITCH PLATE HTP-301-R	ES2800-91	
11	54	PUSH PIN ASSEMBLY FOR HST COVERS	-		23	2	HST SWITCH PLATE HTP-209-R	ES2800-92	
12	8	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-		24	1	PILLOW BLOCK MOUNTING PLATE	-	

\* COVER PLATES SHOWN TRANSPARENT FOR CLARITY



**NOTES:**

1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
2. SEE DRAWING ES2807-73 & ES2807-74 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.

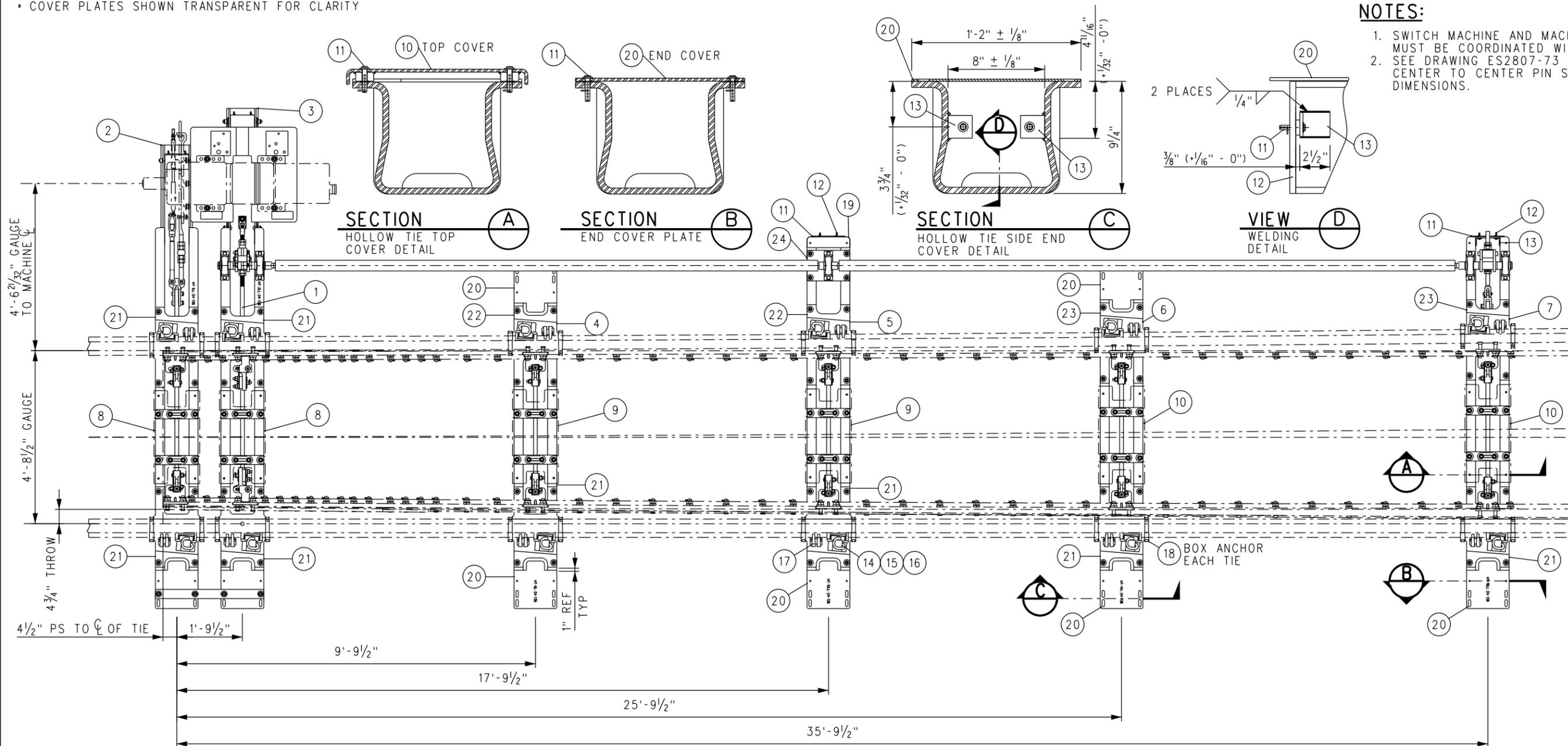
DRAWN BY: <i>Narek D. Papp</i>		HDR: <i>Willson Dava</i>	DATE: 03/31/2011	SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE 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.	<b>METROLINK</b> SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	<b>ENGINEERING STANDARDS</b> HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON TURNOUT SIDE NO 24-136 LB RE RH	STANDARD: 2807 SCALE: NTS REVISION: 1 OF 1 CADD FILE: ES2807-34
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	RODDING ASSEMBLY FOR NO 24-136 LB RE, SWITCH MACHINE ON LH SIDE	ES2807-71		13	16	COVER SUPPORT BRACKET	-	
2	1	HOLLOW TIE ASSEMBLY (HT-1LL-24-136)	-		14	12	LV BRACE FOR 136 LB RE	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2LL-24-136)	-		15	12	SERRATED WASHER FOR LV BRACE	-	
4	1	HOLLOW TIE ASSEMBLY (HT-6LL-24-136)	-		16	12	CLIP, PANDROL, E2055	-	
5	1	HOLLOW TIE ASSEMBLY (HT-10LL-24-136)	-		17	12	CLIP, SAFELOK, AB2000	-	
6	1	HOLLOW TIE ASSEMBLY (HT-14L-24-136)	-		18	24	RAIL ANCHOR, UNIT DRIVE-ON TYPE 5	-	
7	1	HOLLOW TIE ASSEMBLY (HT-19LL-24-136)	-		19	1	STEEL COVER PLATE FOR HST TIE, SHORT TOP VERSION	-	
8*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-		20	6	STEEL COVER PLATE FOR HST TIE, TOP END	-	
9*	2	COVER PLATE NO 2, HOLLOW SWITCH TIE	-		21	8	HST SWITCH PLATE HTP-206-STR	ES2800-90	
10*	2	COVER PLATE NO 3, HOLLOW SWITCH TIE	-		22	2	HST SWITCH PLATE HTP-300-L	ES2800-91	
11	54	PUSH PIN ASSEMBLY FOR HST COVERS	-		23	2	HST SWITCH PLATE HTP-208-L	ES2800-92	
12	8	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-		24	1	PILLOW BLOCK MOUNTING PLATE	-	

\* COVER PLATES SHOWN TRANSPARENT FOR CLARITY

**NOTES:**

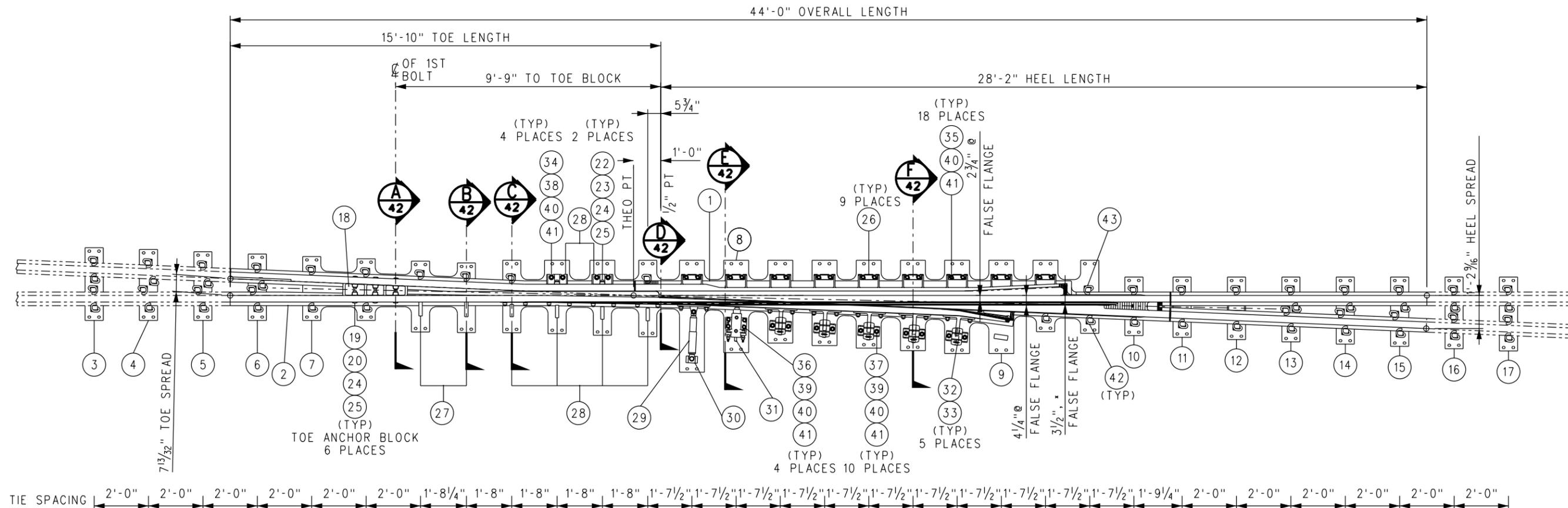
1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
2. SEE DRAWING ES2807-73 & ES2807-74 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.



DRAWN BY: <i>Narek D. Pape</i>		HDR: <i>Willson Dava</i>	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 2807
ASSISTANT DIRECTOR: STANDARDS & DESIGN DIRECTOR OF ENGINEERING AND CONSTRUCTION		SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON TURNOUT SIDE NO 24-136 LB RE LH		SCALE: NTS

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	NO 24-136 LB RE SPRING FROG, RH POINT ASSEMBLY	-	
2	1	SPRING WING RAIL, NO 24-136 LB RE, RH, C/W HARDWARE	-	
3	1	FROG PLATE (SF24-136-1R)	ES2807-44	
4	1	FROG PLATE (SF24-136-2R)	ES2807-44	
5	1	FROG PLATE (SF24-136-3R)	ES2807-46	
6	1	FROG PLATE (SF24-136-4R)	ES2807-46	
7	1	FROG BASE PLATE (SF24-136-5R)	ES2807-48	
8	1	FROG BASE PLATE (SF24-136-6R)	ES2807-50	
9	1	FROG BASE PLATE (SF24-136-7R)	ES2807-52	
10	1	FROG PLATE (SF24-136-8R)	ES2807-54	
11	1	FROG PLATE (SF24-136-9R)	ES2807-54	
12	1	FROG PLATE (SF24-136-10R)	ES2807-54	
13	1	FROG PLATE (SF24-136-11R)	ES2807-56	
14	1	FROG PLATE (SF24-136-12R)	ES2807-56	
15	1	FROG PLATE (SF24-136-13R)	ES2807-56	
16	1	FROG PLATE (SF24-136-14R)	ES2807-58	
17	1	FROG PLATE (SF24-136-15R)	ES2807-58	
18	1	TOE ANCHOR BLOCK, NO 24-136 LB RE	-	
19	6	WASHER, CAST, FLAT, 132 LB RE-140 LB RE	-	
20	6	BOLT, 1 3/8" DIA x 4" SQUARE HEAD, GR 8	-	
21	2	PLATE CLIP	-	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
22	2	WASHER, HEADLOCK CAST, 132 LB RE-140 LB RE	-	
23	2	BOLT, 1 3/8" DIA x 4 1/2" SQUARE HEAD, GR 8	-	
24	8	HARDENED FLAT WASHER FOR 1 3/8" BOLT	-	
25	8	NUT, SECURITY LOCK, HEX FOR 1 3/8" BOLT GR 8	-	
26	9	WASHER, BOLT CAPTURE STYLE, 1/4" THICK	-	
27	2	FLAT RAIL BRACE FOR NON D-BAR APPLICATIONS	-	
28	4	FLAT RAIL BRACE FOR D-BAR APPLICATIONS	-	
29	1	RETARDER, SPRING FROG HYDRAULIC TIMING DEVICE, ENIDINE	-	
30	1	RETARDER, PLATE BRACKET	-	
31	1	SPRING BOX ASSEMBLY	-	
32	5	HOLD DOWN, HORNS	-	
33	5	PLATE, RISER FOR HORN KEEPERS, REVERSIBLE	-	
34	4	BOLT, THIN SQ 1" DIA x 2 5/8", DRILLED @ 2 1/8" BELOW HEAD, GR 8	-	
35	18	BOLT, THIN SQ 1" DIA x 2 3/4", DRILLED @ 2 3/8" BELOW HEAD, GR 8	-	
36	4	BOLT, THIN SQ 1" DIA x 3", DRILLED @ 2 1/2" BELOW HEAD, GR 8	-	
37	10	BOLT, THIN SQ 1" DIA x 3 1/2", DRILLED @ 3" BELOW HEAD, GR 8	-	
38	4	HARDENED FLAT WASHER FOR 1" BOLT	-	
39	14	WASHER, 1" FLAT x 1/4" THICK	-	
40	36	NUT, HEAVY, SLOTTED, HEX FOR 1" BOLT GR 8	-	
41	36	COTTER PIN, 1/4" DIA x 2" LONG	-	
42	53	CLIP, PANDROL, E2055	-	
43	1	CLIP, PANDROL, E2056	-	



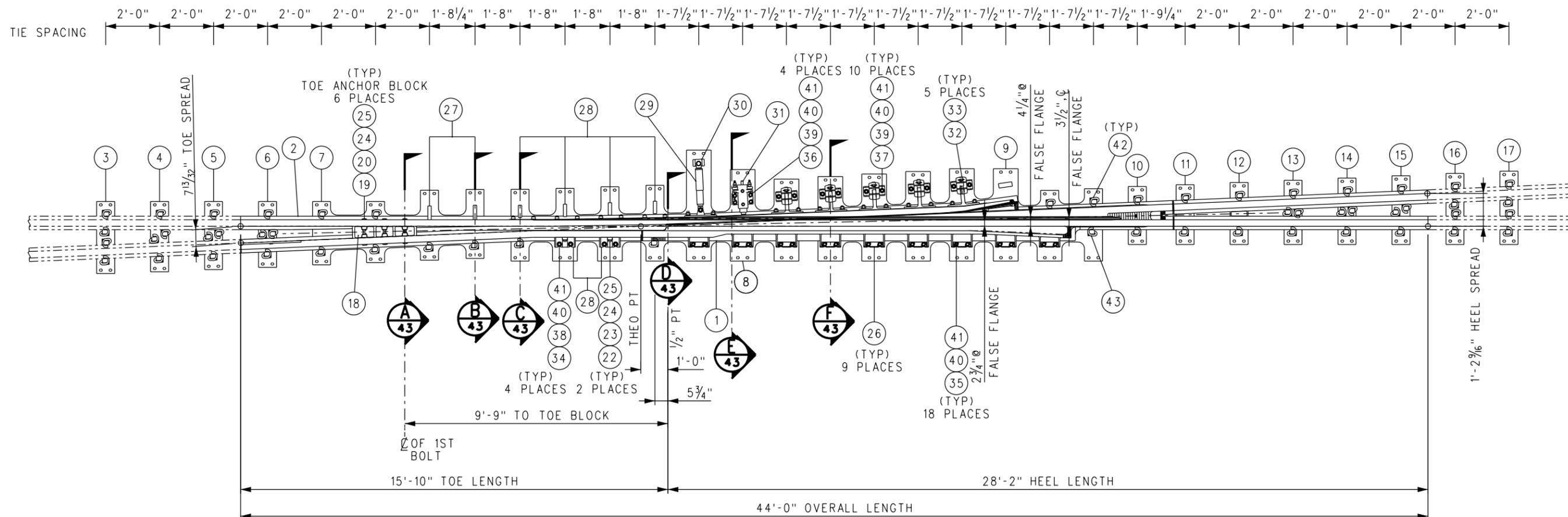
**NOTE:**

1. SEE ES2807-42 FOR CROSS SECTIONS, DETAILS, AND NOTES.

DRAWN BY: <i>Nareh D. Papp</i>		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.		<p><b>METROLINK</b> SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>		<p>ENGINEERING STANDARDS</p> <p>NO 24 WSM FROG RH FROG ASSEMBLY PLAN VIEW AND FROG PACK CONCRETE TIES-136 LB RE RAIL</p>		STANDARD 2807	
<p>ASSISTANT DIRECTOR: STANDARDS &amp; DESIGN</p> <p><i>William Davan</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION</p>		<p>REVISION SHEET 1 OF 1</p> <p>CADD FILE: ES2807-40</p>									
REV. DATE	DESCRIPTION	DES.	ENG.								

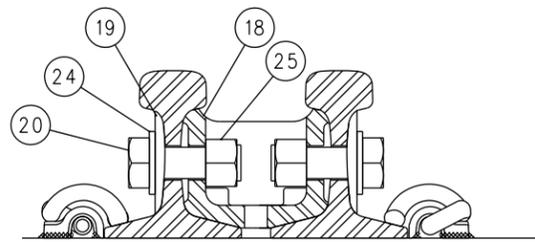
BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	NO 24-136 LB RE SPRING FROG, LH POINT ASSEMBLY	-	
2	1	SPRING WING RAIL, NO 24-136 LB RE, LH, C/W HARDWARE	-	
3	1	FROG PLATE (SF24-136-1L)	ES2807-45	
4	1	FROG PLATE (SF24-136-2L)	ES2807-45	
5	1	FROG PLATE (SF24-136-3L)	ES2807-47	
6	1	FROG PLATE (SF24-136-4L)	ES2807-47	
7	1	FROG BASE PLATE (SF24-136-5L)	ES2807-49	
8	1	FROG BASE PLATE (SF24-136-6L)	ES2807-51	
9	1	FROG BASE PLATE (SF24-136-7L)	ES2807-53	
10	1	FROG PLATE (SF24-136-8L)	ES2807-55	
11	1	FROG PLATE (SF24-136-9L)	ES2807-55	
12	1	FROG PLATE (SF24-136-10L)	ES2807-55	
13	1	FROG PLATE (SF24-136-11L)	ES2807-57	
14	1	FROG PLATE (SF24-136-12L)	ES2807-57	
15	1	FROG PLATE (SF24-136-13L)	ES2807-57	
16	1	FROG PLATE (SF24-136-14L)	ES2807-59	
17	1	FROG PLATE (SF24-136-15L)	ES2807-59	
18	1	TOE ANCHOR BLOCK, NO 24-136 LB RE	-	
19	6	WASHER, CAST, FLAT, 132 LB RE-140 LB RE	-	
20	6	BOLT, 1 3/8" DIA x 4" SQUARE HEAD, GR 8	-	
21	2	PLATE CLIP	-	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
22	2	WASHER, HEADLOCK CAST, 132 LB RE-140 LB RE	-	
23	2	BOLT, 1 3/8" DIA x 4 1/2" SQUARE HEAD, GR 8	-	
24	8	HARDENED FLAT WASHER FOR 1 3/8" BOLT	-	
25	8	NUT, SECURITY LOCK, HEX FOR 1 3/8" BOLT GR 8	-	
26	9	WASHER, BOLT CAPTURE STYLE, 1/4" THICK	-	
27	2	FLAT RAIL BRACE FOR NON D-BAR APPLICATIONS	-	
28	4	FLAT RAIL BRACE FOR D-BAR APPLICATIONS	-	
29	1	RETARDER, SPRING FROG HYDRAULIC TIMING DEVICE, ENIDINE	-	
30	1	RETARDER, PLATE BRACKET	-	
31	1	SPRING BOX ASSEMBLY	-	
32	5	HOLD DOWN, HORNS	-	
33	5	PLATE, RISER FOR HORN KEEPERS, REVERSIBLE	-	
34	4	BOLT, THIN SQ 1" DIA x 2 5/8", DRILLED @ 2 1/8" BELOW HEAD, GR 8	-	
35	18	BOLT, THIN SQ 1" DIA x 2 3/4", DRILLED @ 2 3/8" BELOW HEAD, GR 8	-	
36	4	BOLT, THIN SQ 1" DIA x 3", DRILLED @ 2 1/2" BELOW HEAD, GR 8	-	
37	10	BOLT, THIN SQ 1" DIA x 3 1/2", DRILLED @ 3" BELOW HEAD, GR 8	-	
38	4	HARDENED FLAT WASHER FOR 1" BOLT	-	
39	14	WASHER, 1" FLAT x 1/4" THICK	-	
40	36	NUT, HEAVY, SLOTTED, HEX FOR 1" BOLT GR 8	-	
41	36	COTTER PIN, 1/4" DIA x 2" LONG	-	
42	53	CLIP, PANDROL, E2055	-	
43	1	CLIP, PANDROL, E2056	-	

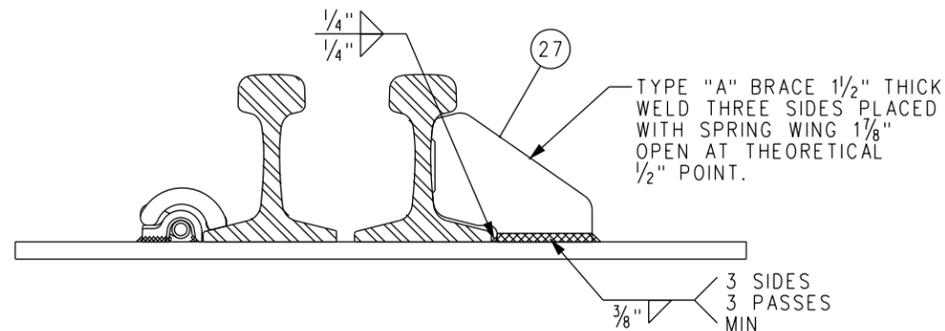


**NOTE:**  
1. SEE ES2807-43 FOR CROSS SECTIONS, DETAILS, AND NOTES.

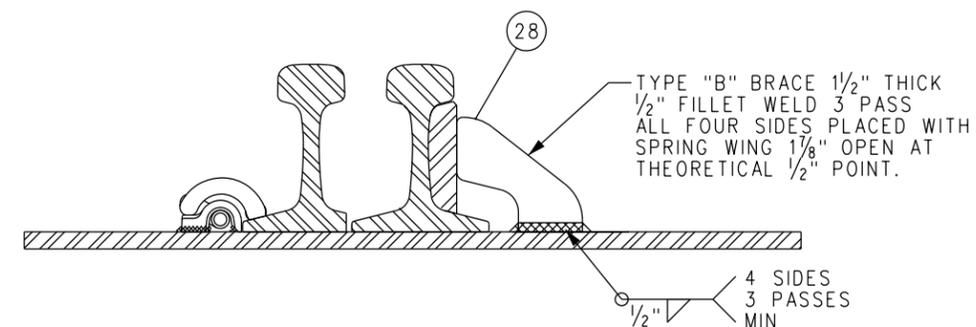
DRAWN BY: <i>Nareh D. Papp</i>		HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS 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.		 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS		STANDARD 2807
ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>William Davan</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION				NO 24 WSM FROG LH FROG ASSEMBLY PLAN VIEW AND FROG PACK CONCRETE TIES-136 LB RE RAIL				SCALE: NTS	REVISION SHEET 1 OF 1	CADD FILE: ES2807-41



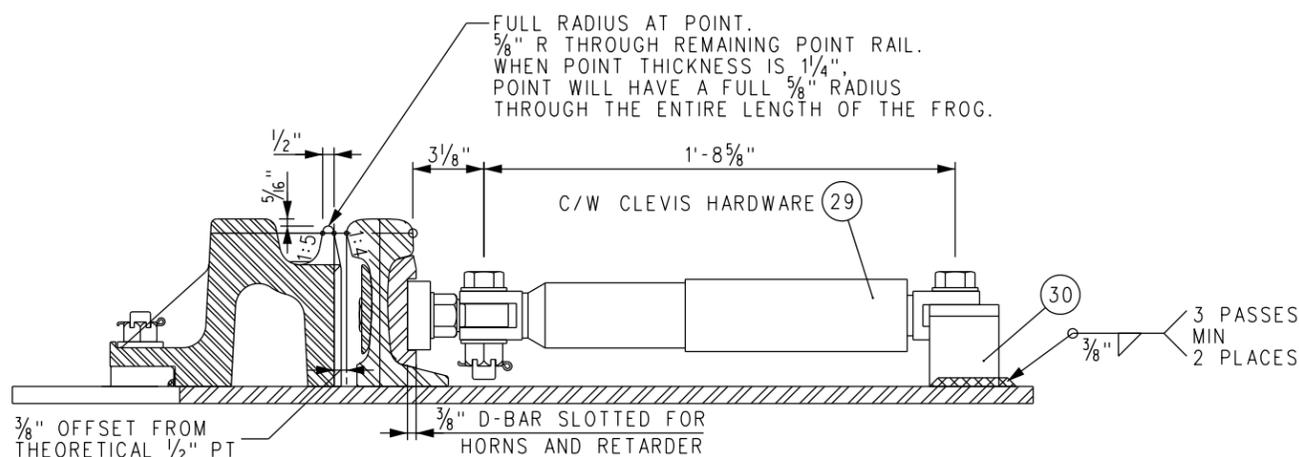
SECTION **A**



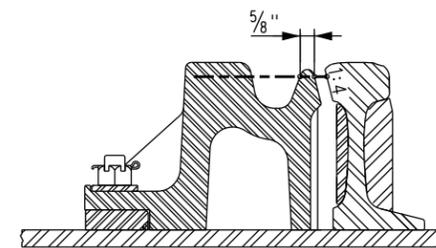
WELDED RAIL BRACE PLATE DETAIL **B**



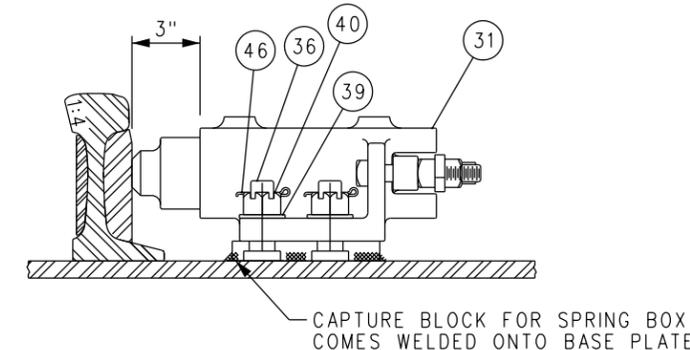
SECTION **C**



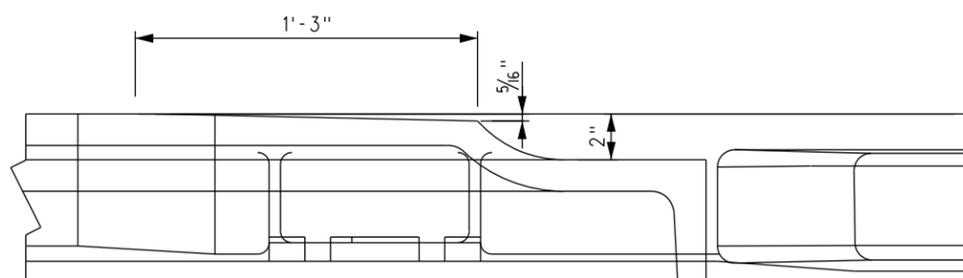
POINT AND RETARDER DETAILS **D**  
(AT THEORETICAL 1/2" PT)



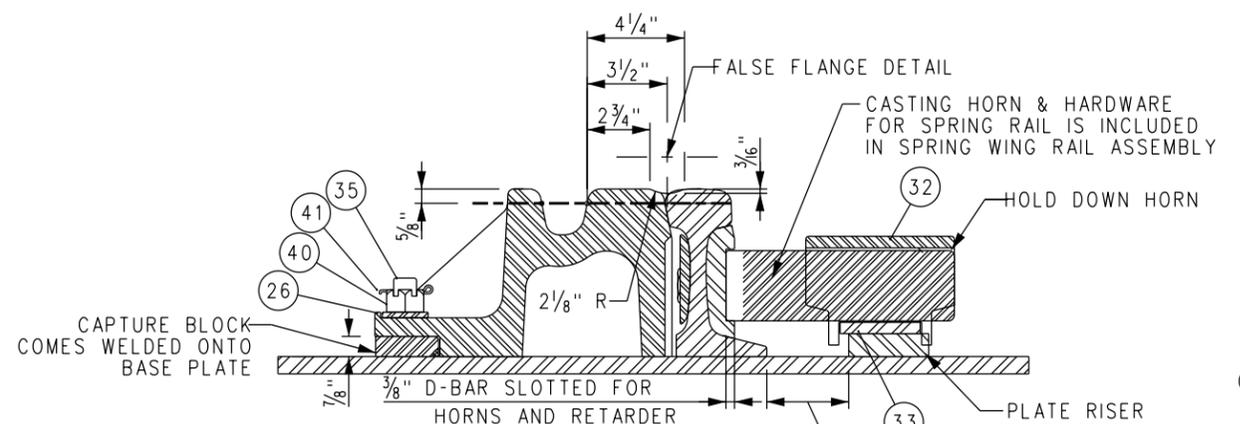
POINT DETAILS @  
THEORETICAL 5/8" POINT



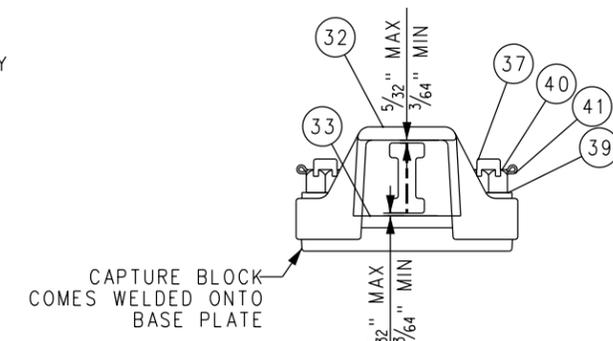
SPRING BOX DETAIL **E**



POINT DETAILS



SECTION **F**



SECTION THROUGH HOLD DOWN

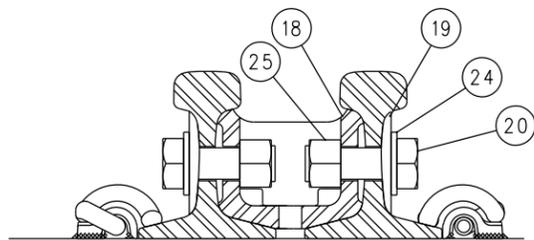
DRAWN BY: <i>Narek D. Bze</i>		HDR: <i>Willson Davan</i>		DATE: 03/31/2011	
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION			
XX	XX-XX-XX	REVISION	XX	XX	
REV.	DATE	DESCRIPTION	DES.	ENG.	

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.

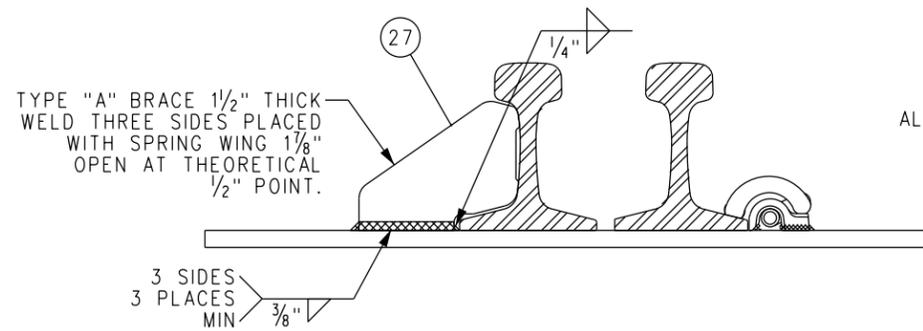
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
NO 24 WSM FROG RH - DETAILS  
FROG ASSEMBLY DETAILS AND FROG PACK  
CONCRETE TIES-136 LB RE RAIL

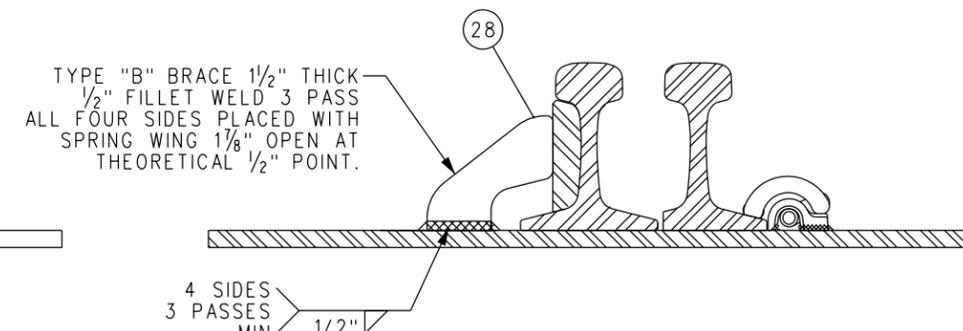
STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-42



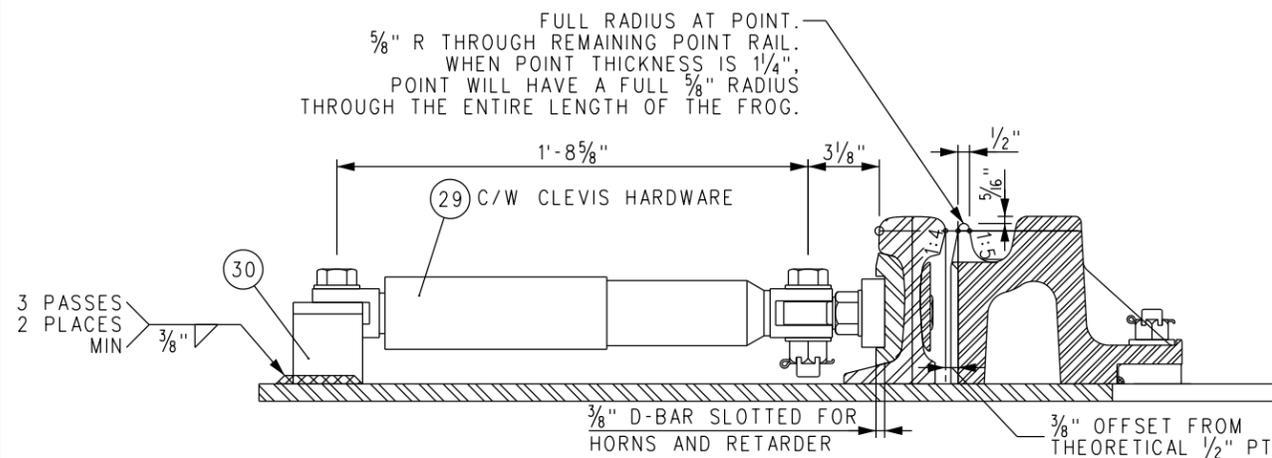
SECTION **A**



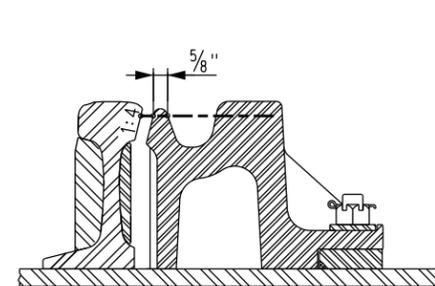
WELDED RAIL BRACE PLATE DETAIL **B**



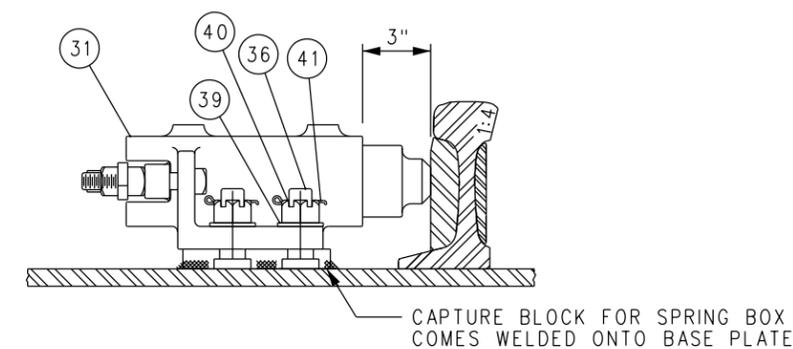
SECTION **C**



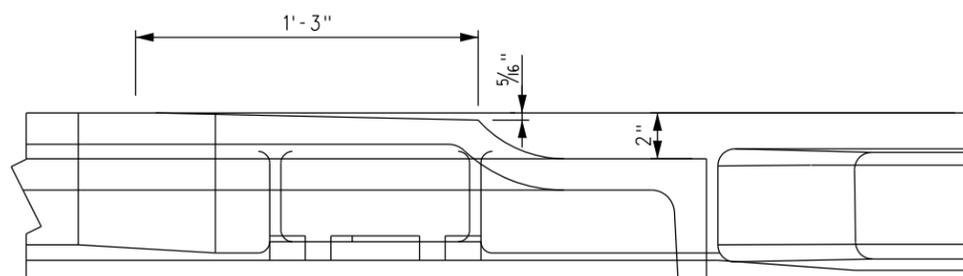
POINT AND RETARDER DETAILS **D**  
(AT THEORETICAL 1/2" PT)



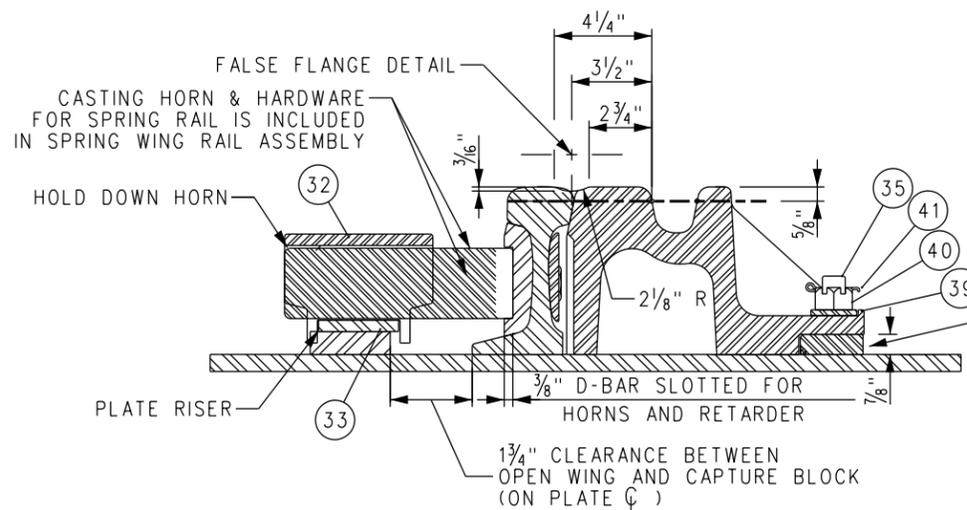
POINT DETAILS @  
THEORETICAL 5/8" POINT



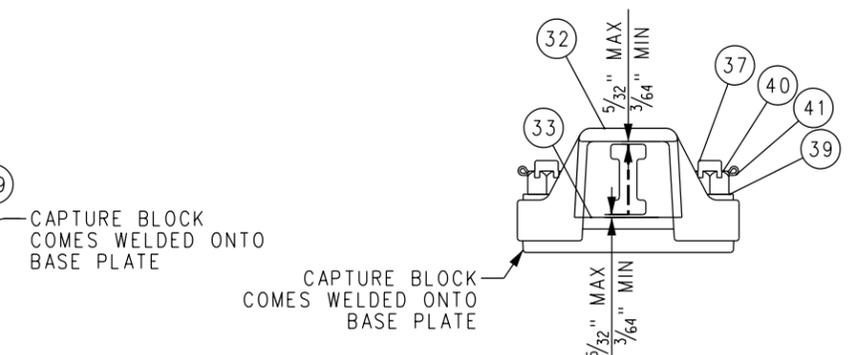
SPRING BOX DETAIL **E**



POINT DETAILS



SECTION **F**



SECTION THROUGH HOLD DOWN

DRAWN BY: <i>Nareh D. Papp</i>		HDR: _____		DATE: _____	
ASSISTANT DIRECTOR: STANDARDS & DESIGN					
<i>William Davan</i>		DIRECTOR OF ENGINEERING AND CONSTRUCTION			
XX	XX-XX-XX	REVISION	XX	XX	
REV.	DATE	DESCRIPTION	DES.	ENG.	

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.



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

ENGINEERING STANDARDS

NO 24 WSM FROG LH - DETAILS  
FROG ASSEMBLY DETAILS AND FROG PACK  
CONCRETE TIES-136 LB RE RAIL

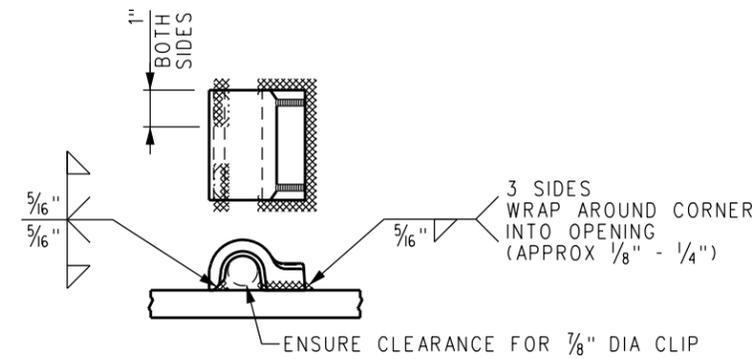
STANDARD	2807
SCALE:	NTS
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES2807-43

BILL OF MATERIAL

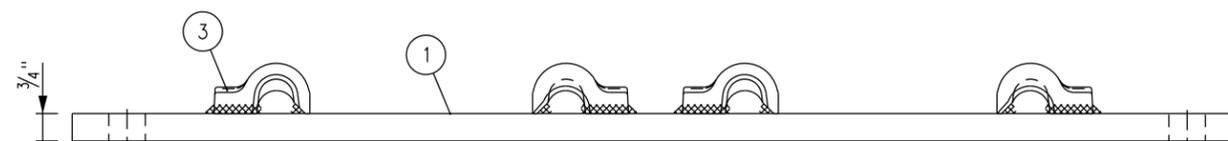
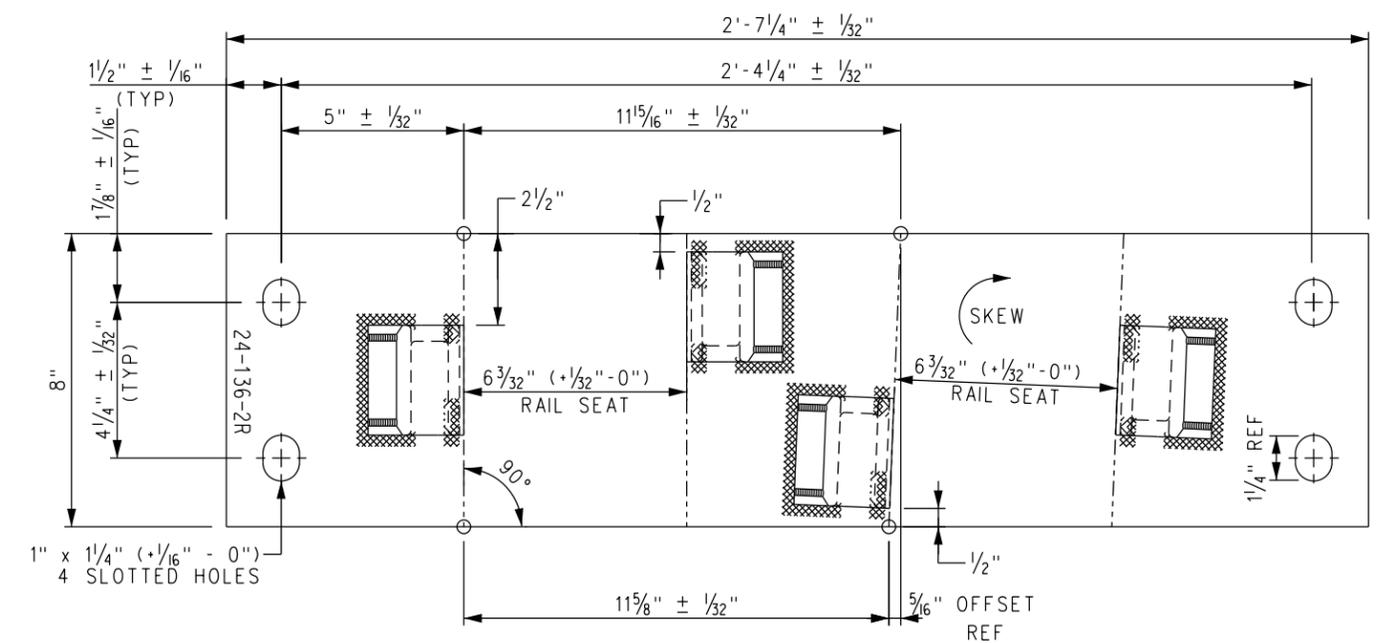
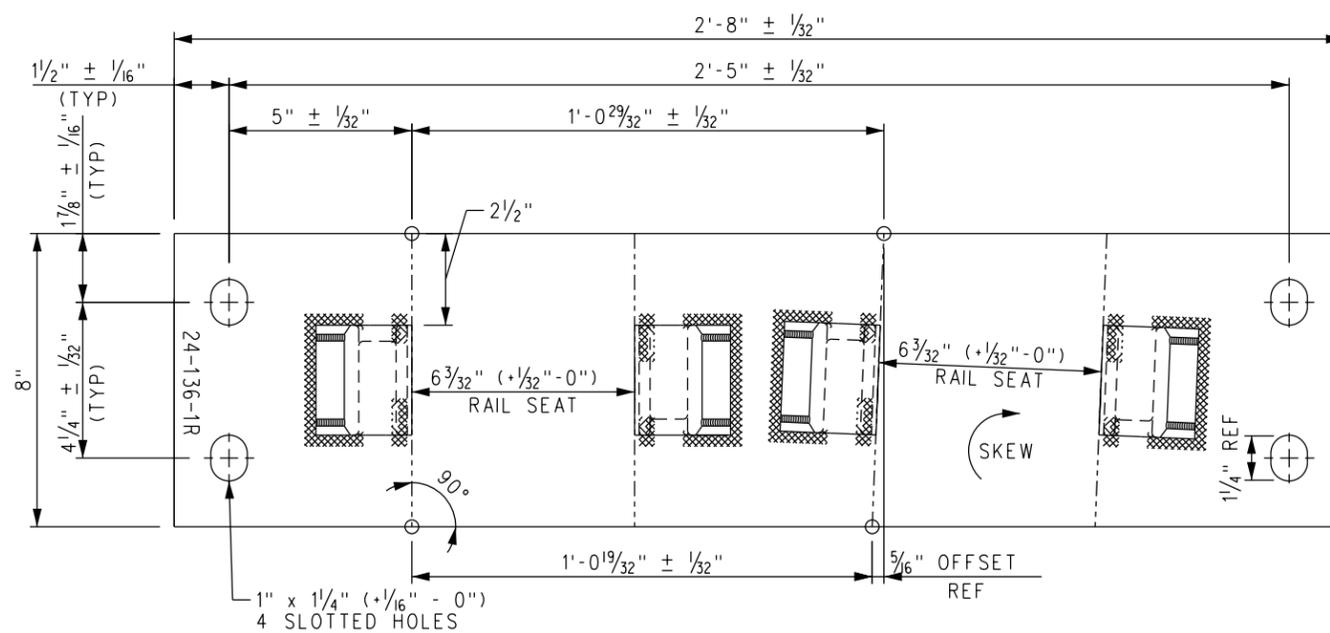
ITEM	QTY FOR 24-136-1R	QTY FOR 24-136-2R	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	

NOTES:

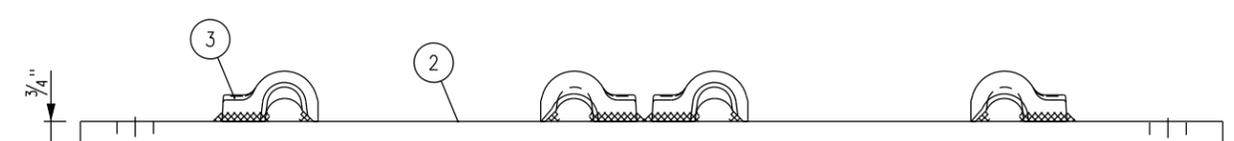
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



**FORGED SHOULDER WELDING DETAIL**



**FROG BASE PLATE 24-136-1R**



**FROG BASE PLATE 24-136-2R**

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Dacan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

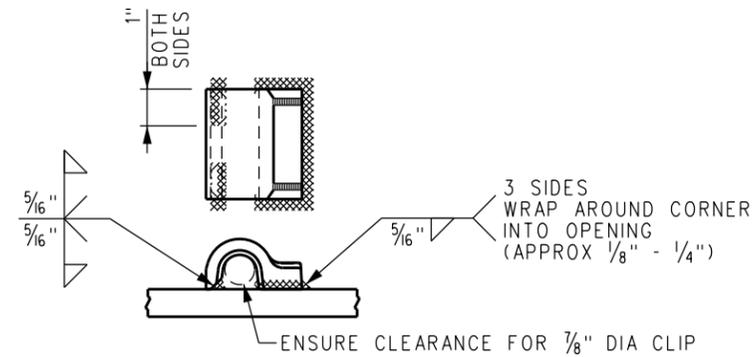
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSM FROG RH  
 FROG BASE PLATES 24-1R AND 24-2R  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-44

BILL OF MATERIAL

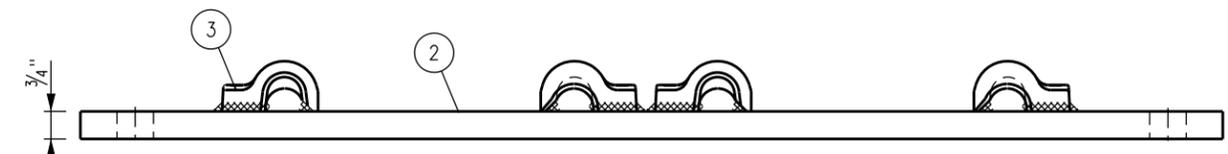
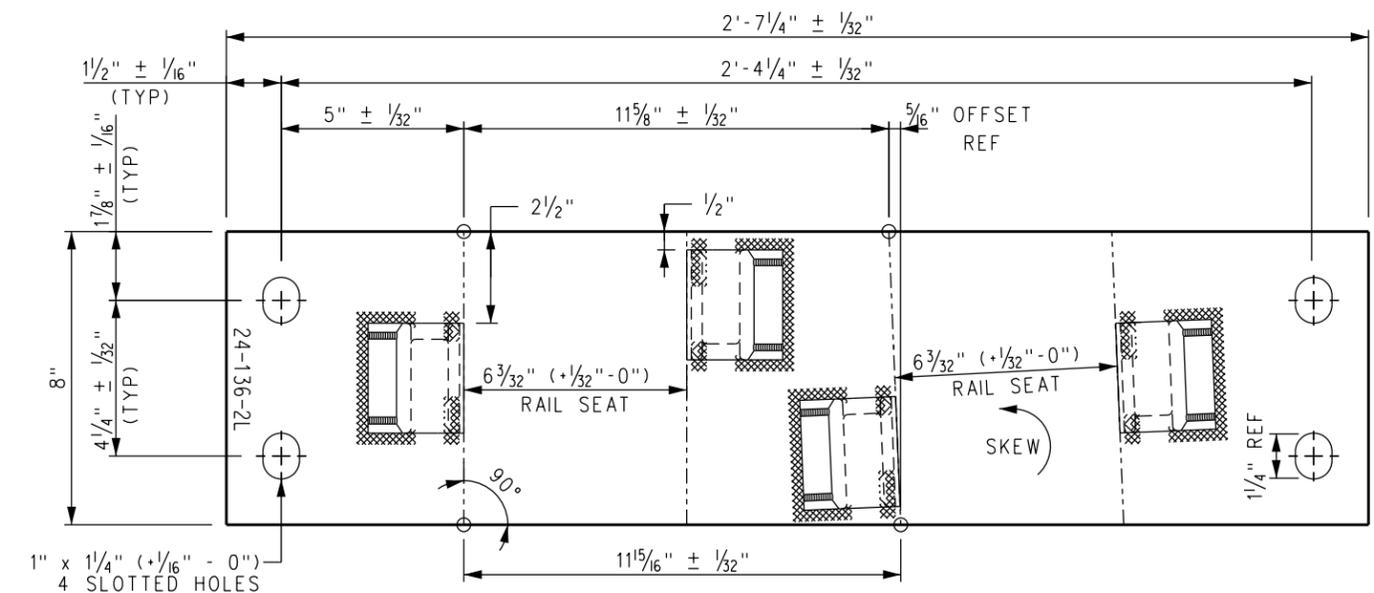
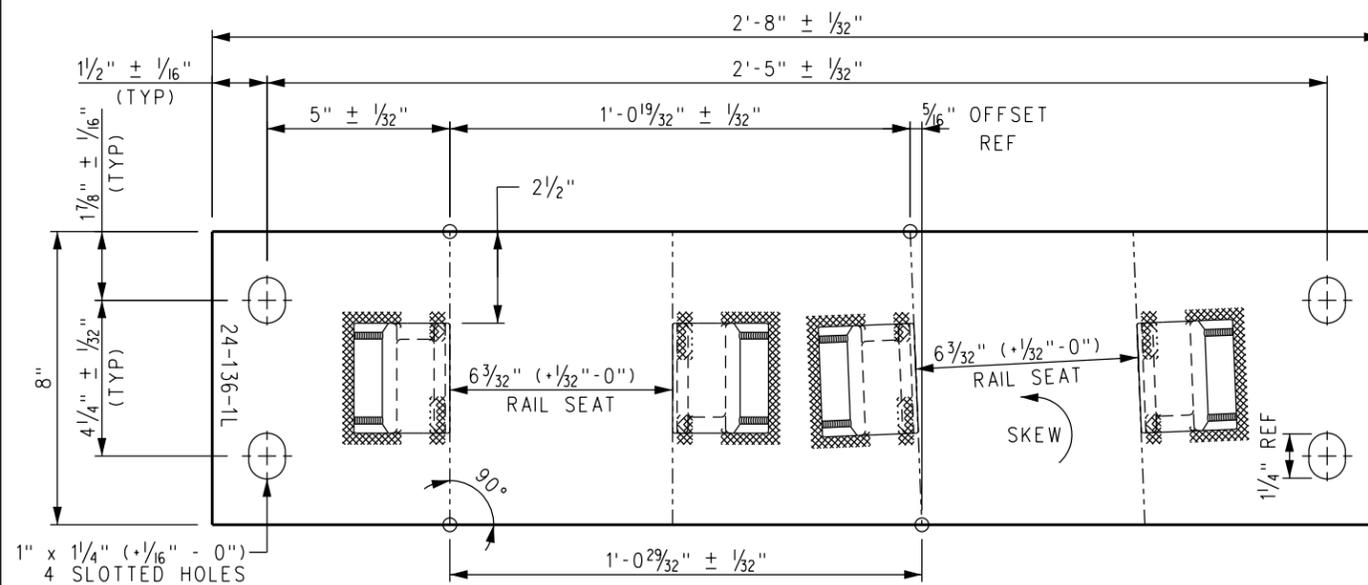
ITEM	QTY FOR 24-136-1L	QTY FOR 24-136-2L	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



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



FROG BASE PLATE 24-136-1L

FROG BASE PLATE 24-136-2L

DRAWN BY: <i>Narek D. Bze</i>		HDR: <i>Willson Dava</i>		DATE: 03/31/2011	
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION			
XX	XX-XX-XX	REVISION	XX	XX	
REV.	DATE	DESCRIPTION	DES.	ENG.	

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

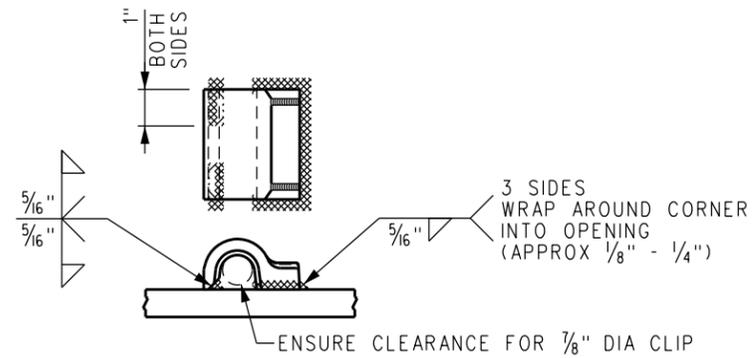
ENGINEERING STANDARDS

NO 24 WSM FROG LH  
FROG BASE PLATES 24-1L AND 24-2L  
CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-45

BILL OF MATERIAL

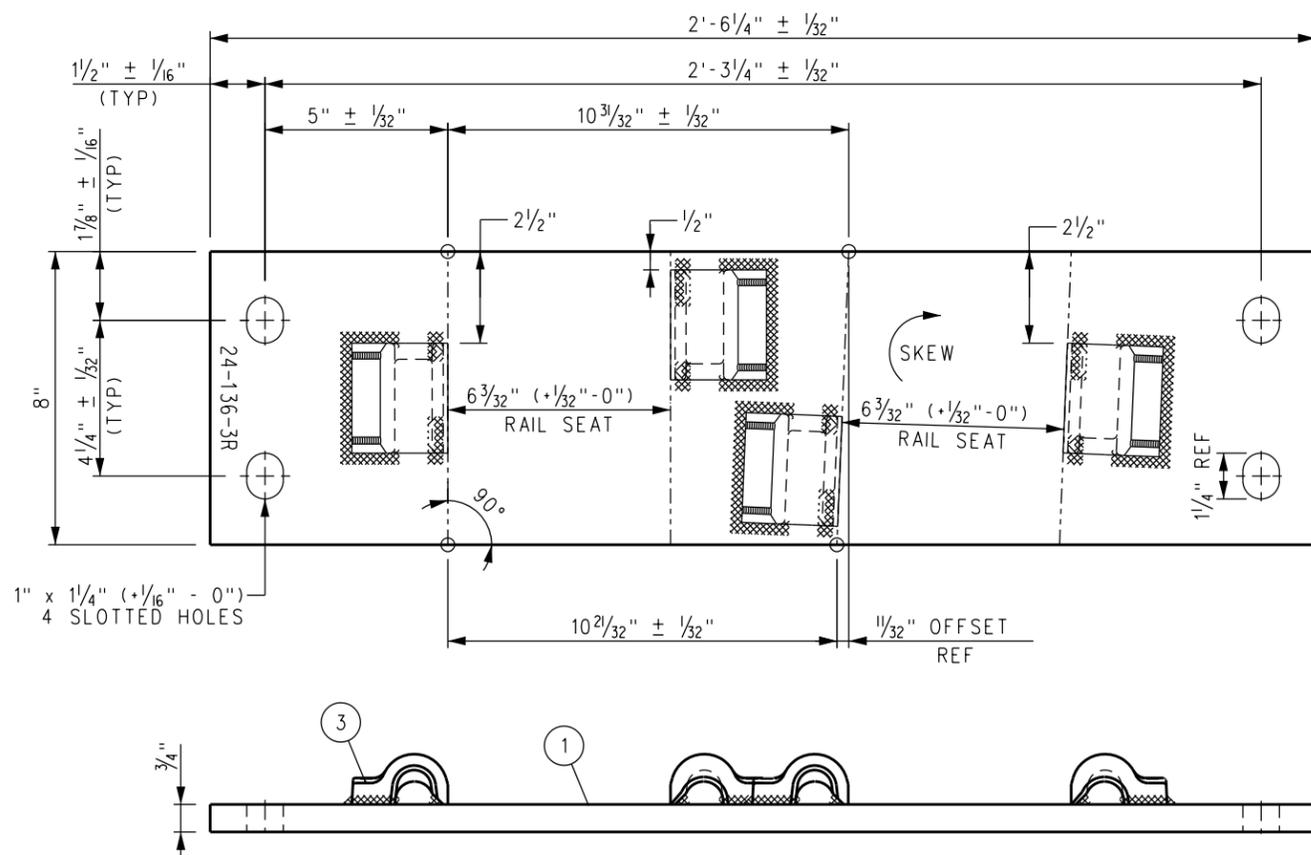
ITEM	QTY FOR 24-136-3R	QTY FOR 24-136-4R	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/4" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



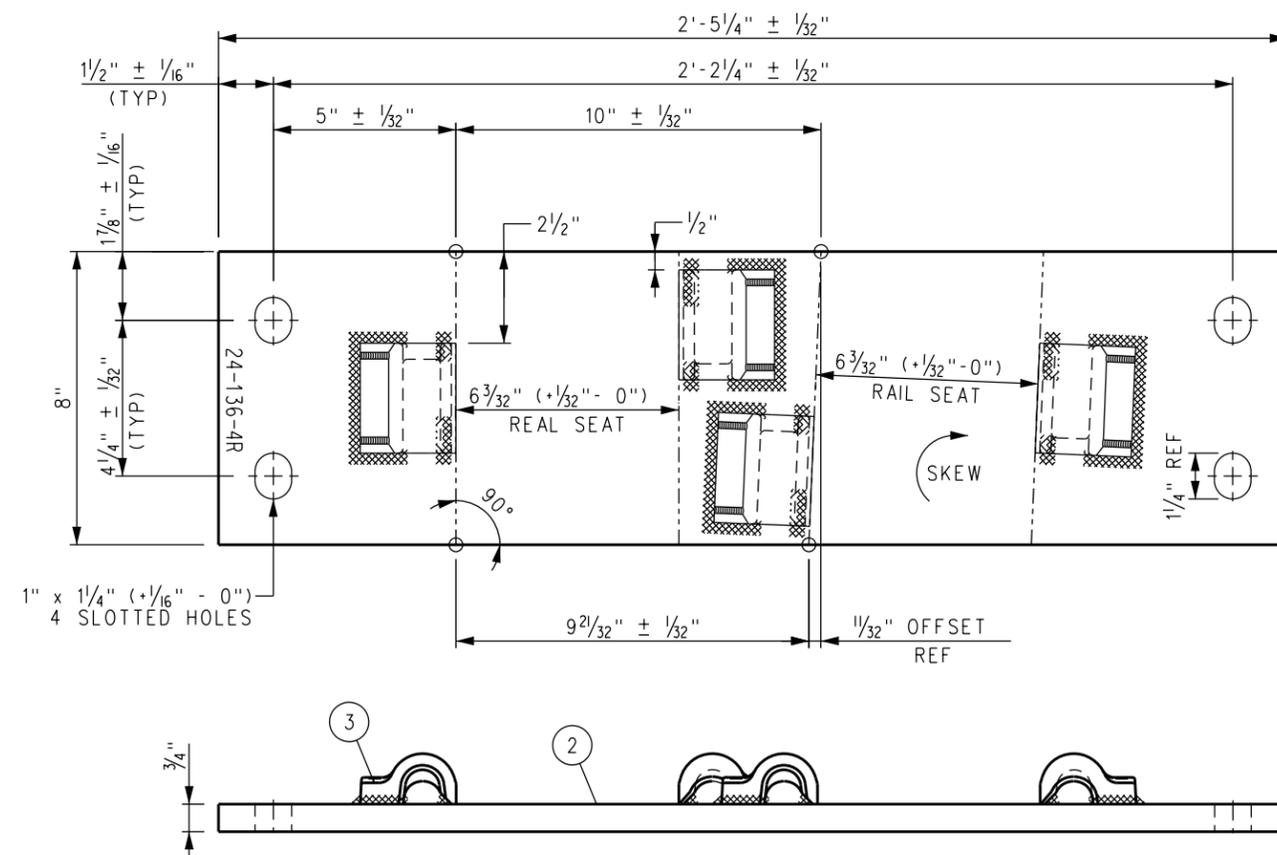
NOTES:

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



FROG BASE PLATE 24-136-3R



FROG BASE PLATE 24-136-4R

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

DRAWN BY: *Narek D. Pape* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

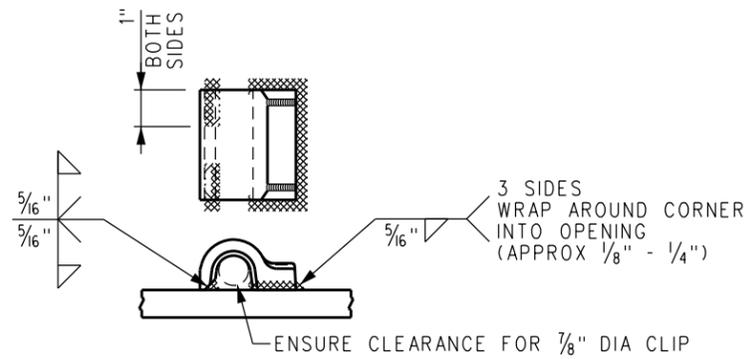
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSM FROG RH  
 FROG BASE PLATES 24-3R AND 24-4R  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-46

BILL OF MATERIAL

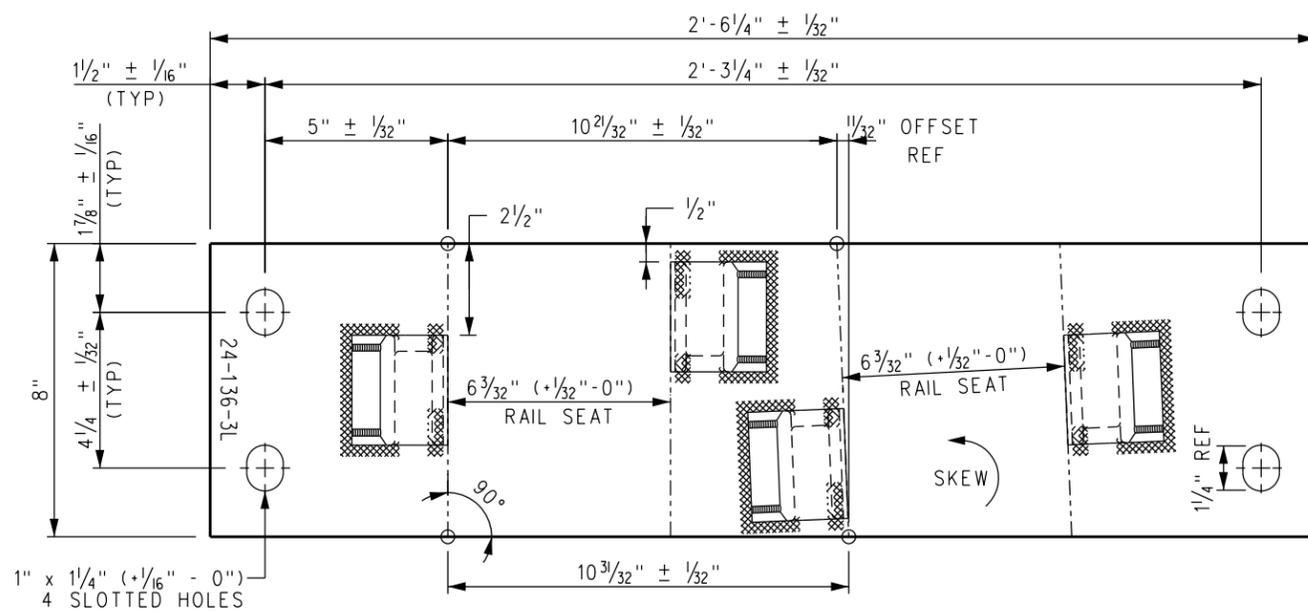
ITEM	QTY FOR 24-136-3L	QTY FOR 24-136-4L	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/4" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/4" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



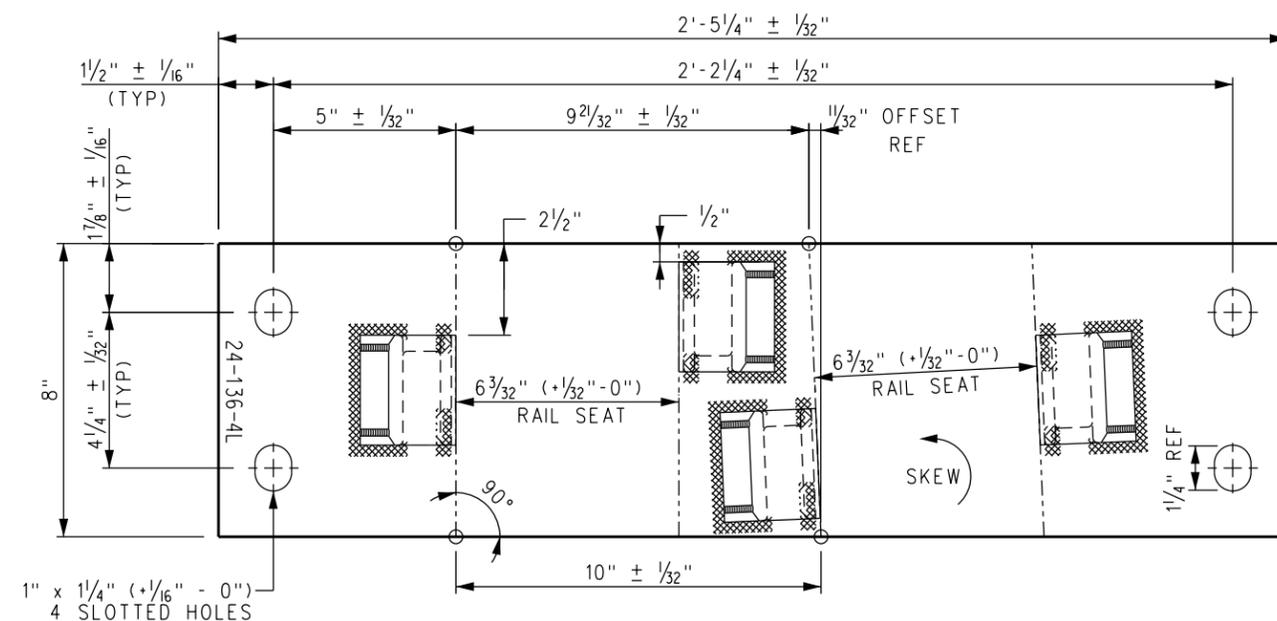
**FORGED SHOULDER WELDING DETAIL**

**NOTES:**

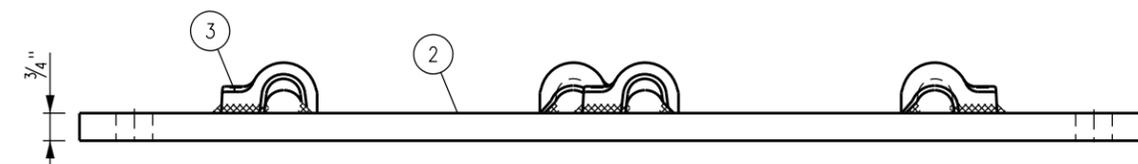
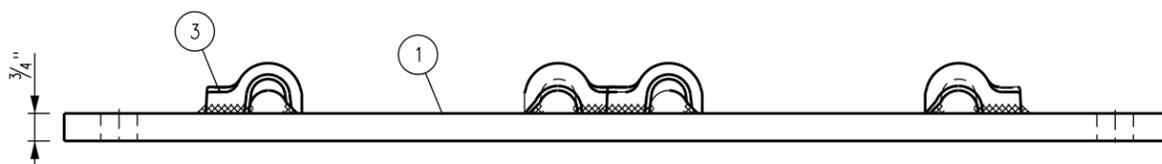
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



**FROG BASE PLATE 24-136-3L**



**FROG BASE PLATE 24-136-4L**



DRAWN BY: <i>Nareh D. Papp</i>		HDR: <i>Willson Dava</i>	DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION	
XX	XX-XX-XX	XX	XX
REV.	DATE	DESCRIPTION	DES. ENG.

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

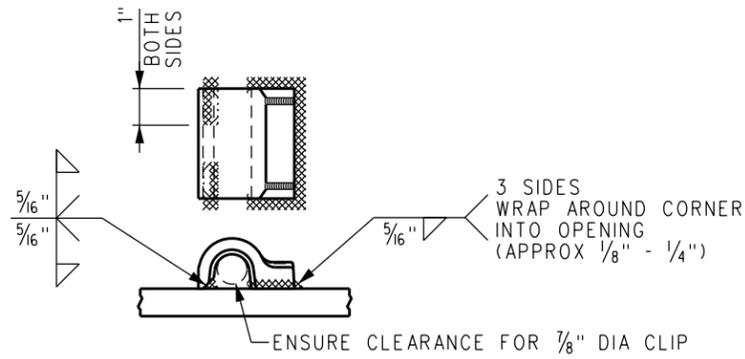
ENGINEERING STANDARDS

NO 24 WSM FROG LH  
FROG BASE PLATES 24-3L AND 24-4L  
CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-47

BILL OF MATERIAL

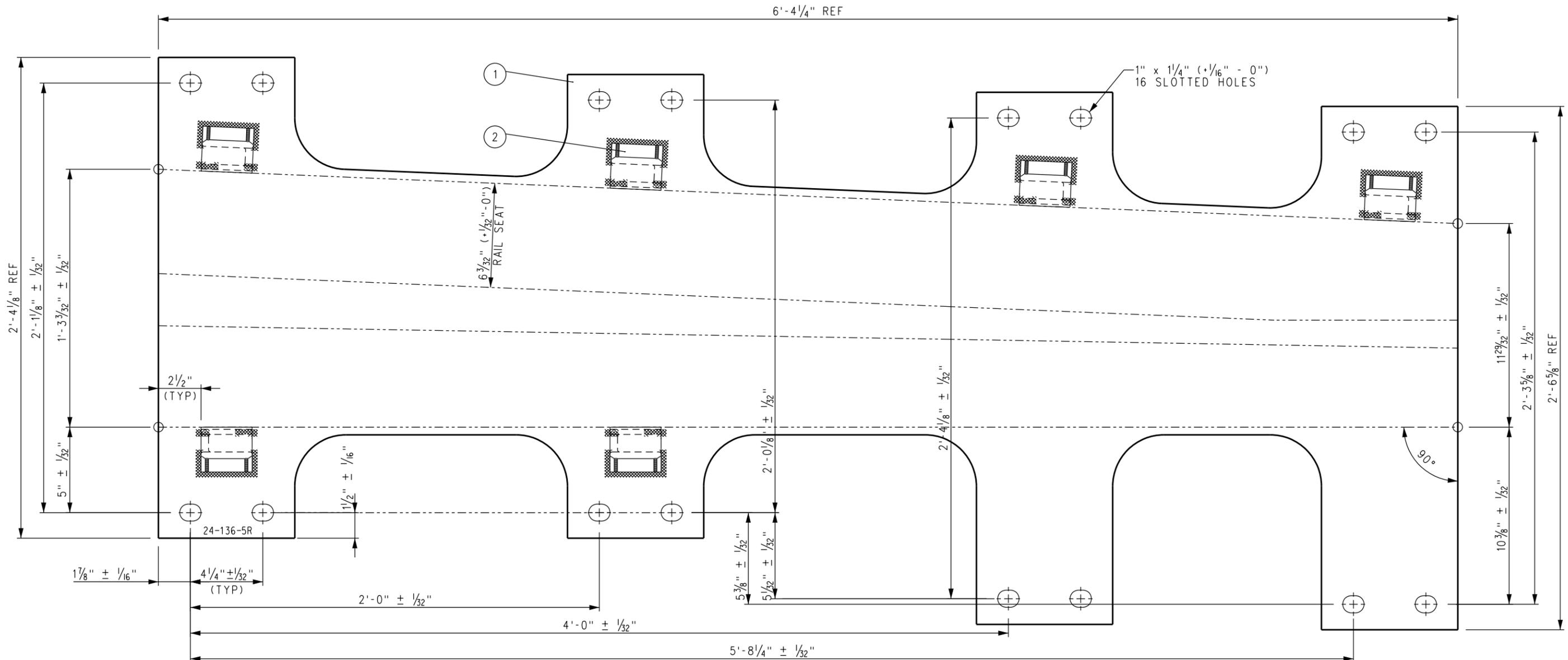
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	BURNED PLATE, ASTM A36, 3/4" THICK	-	
2	6	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



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



FROG BASE PLATE 24-136-5R

DRAWN BY: <i>Narek D. B...</i>		HDR: <i>Narek D. B...</i>	DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN			
<i>William Davan</i>		DIRECTOR OF ENGINEERING AND CONSTRUCTION	
REV.	DATE	DESCRIPTION	DES. ENG.
X	XX-XX-XX	REVISION	XX XX

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.

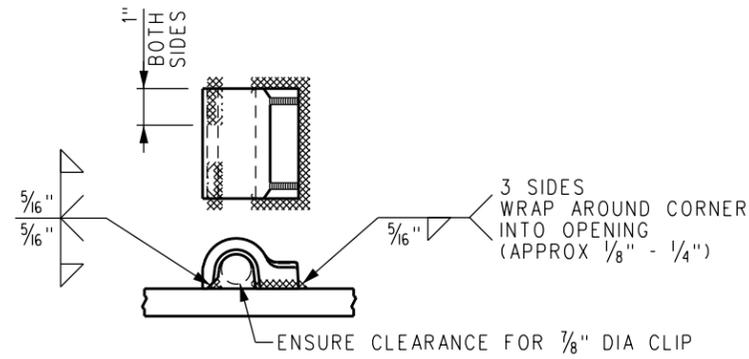
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
NO 24 WSM FROG RH  
FROG BASE PLATE 24-5R  
CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-48

BILL OF MATERIAL

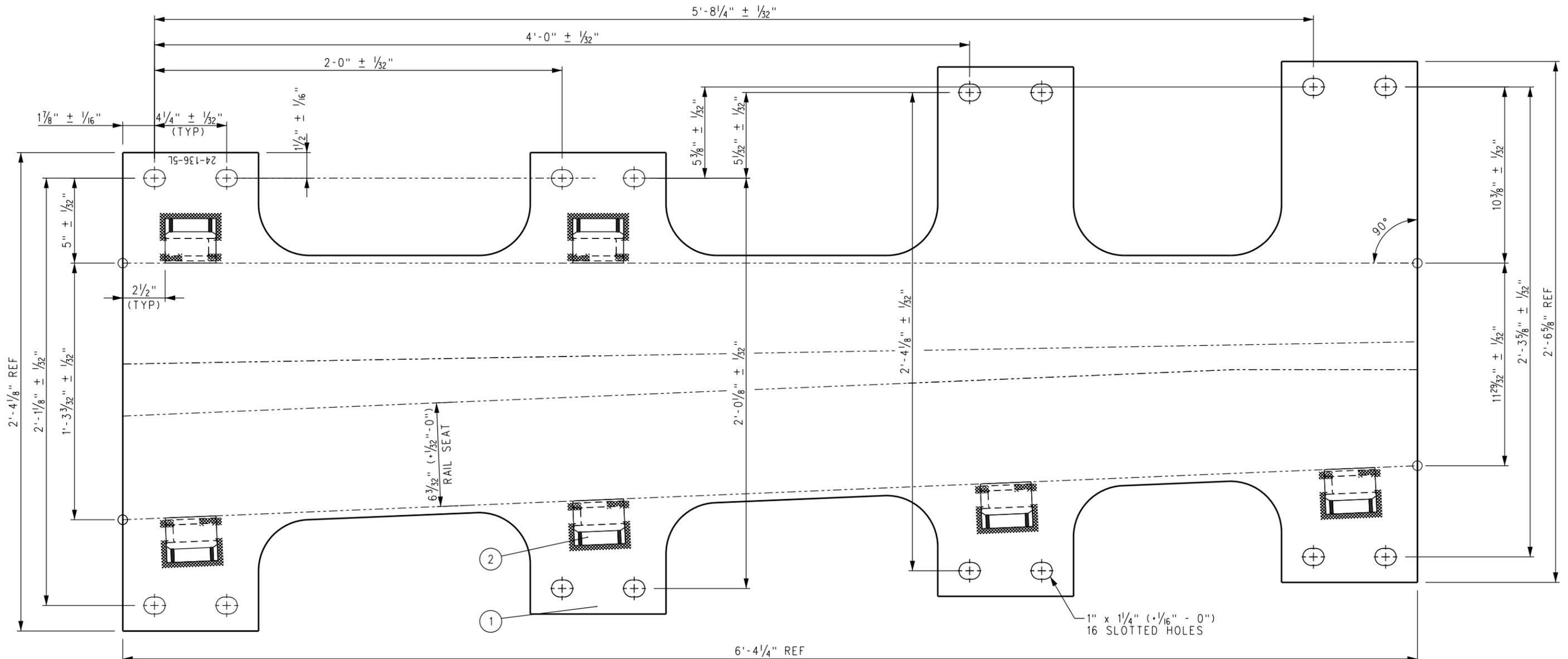
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	BURNED PLATE, ASTM A36, 3/4" THICK	-	
2	6	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



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



FROG BASE PLATE 24-136-5L

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

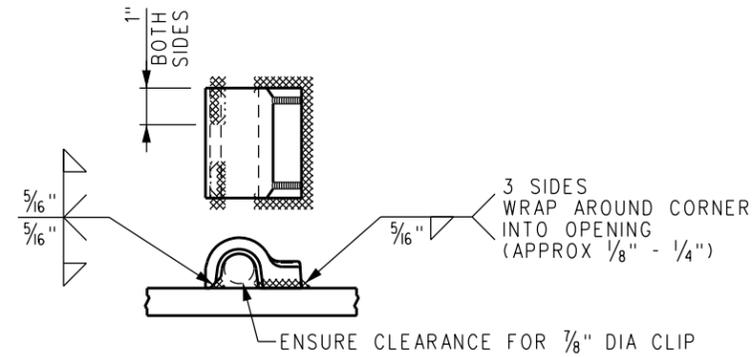
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSM FROG LH  
 FROG BASE PLATE 24-5L  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-49

BILL OF MATERIAL

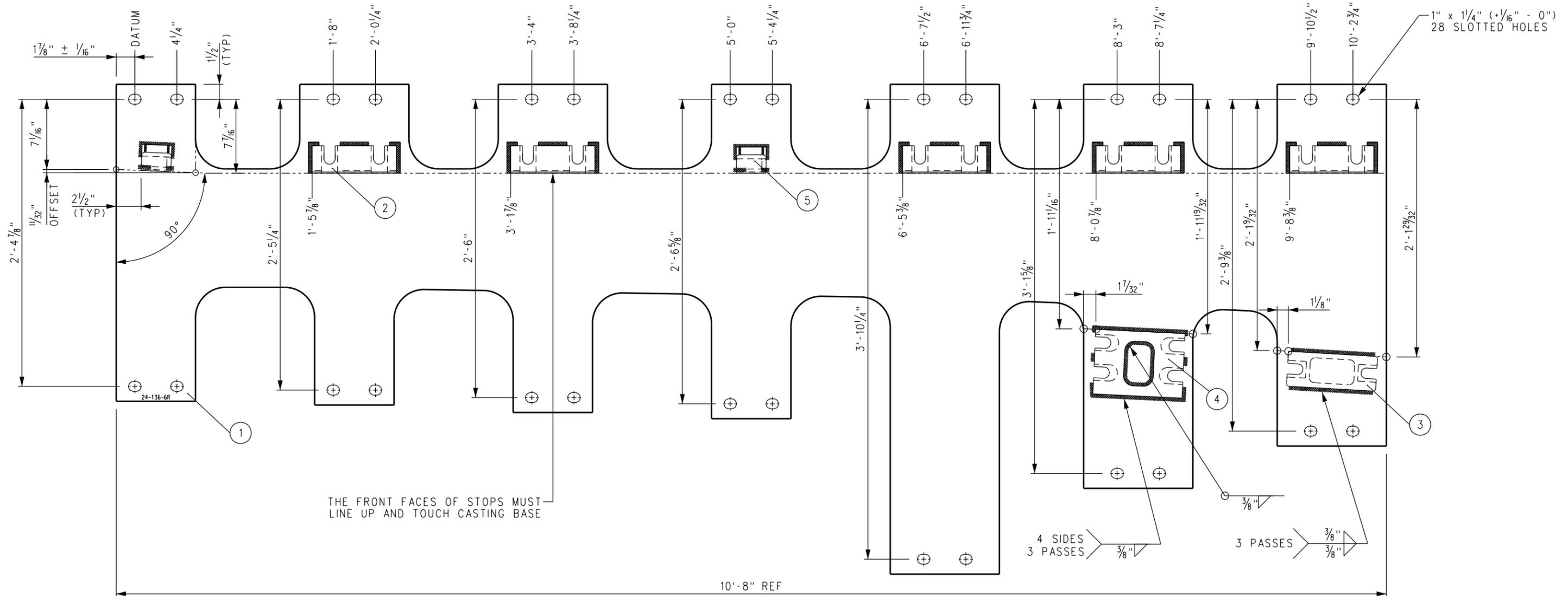
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	BURNED PLATE, ASTM A36, 3/4" THICK	-	
2	5	CAPTURE BLOCK FOR PLATE CLIP	-	
3	1	BLOCK CASTING CAPTURE HORN HOLDDOWN	-	
4	1	CAPTURE BLOCK FOR SPRING BOX	-	
5	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



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. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
5. UNLESS OTHERWISE NOTED, ALL TOLERANCES SHALL BE ± 1/32".

FORGED SHOULDER WELDING DETAIL



FROG BASE PLATE 24-136-6R

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: <i>Narek D. B...</i>		HDR	DATE: 03/31/2011	
ASSISTANT DIRECTOR: STANDARDS & DESIGN				
<i>William D...</i>		DIRECTOR OF ENGINEERING AND CONSTRUCTION		

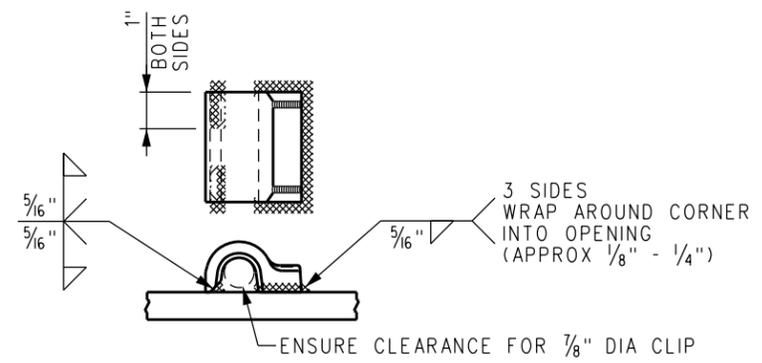
SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE 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.

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

ENGINEERING STANDARDS

NO 24 WSM FROG RH  
FROG BASE PLATE 24-6R  
CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-50

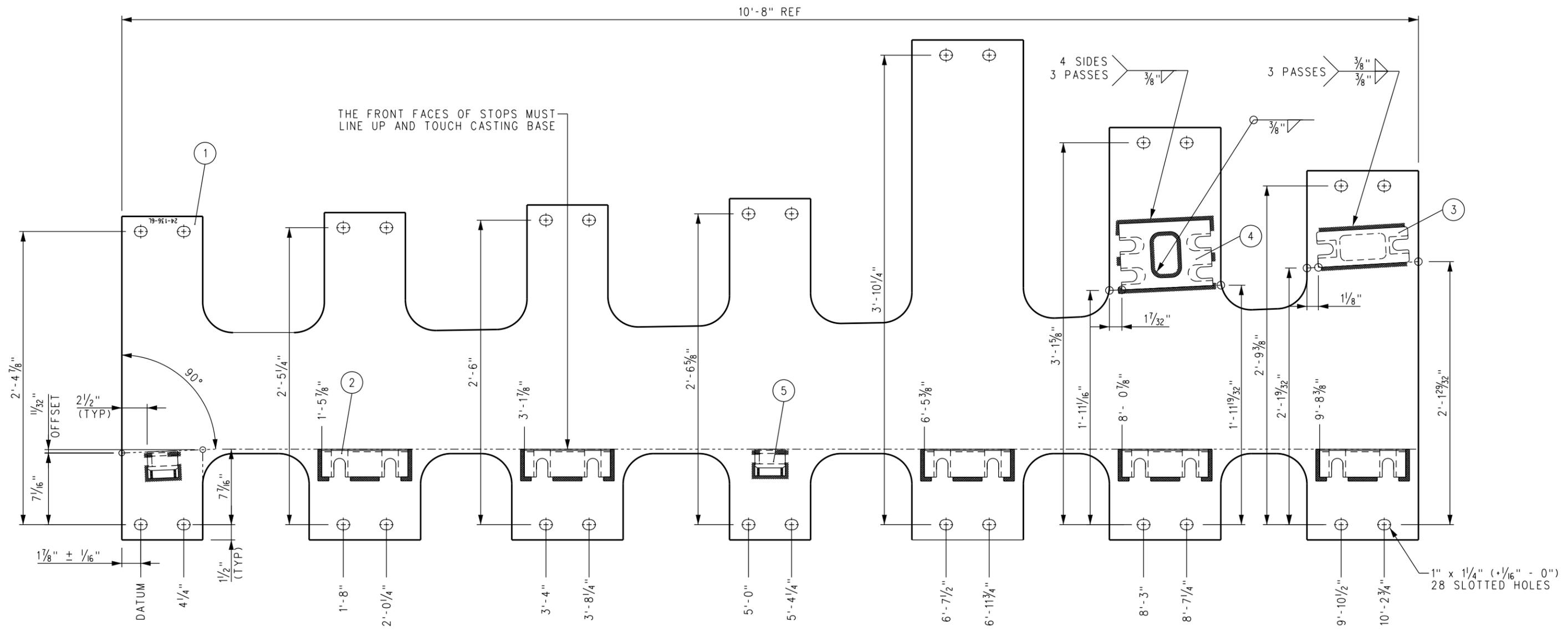


**FORGED SHOULDER WELDING DETAIL**

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

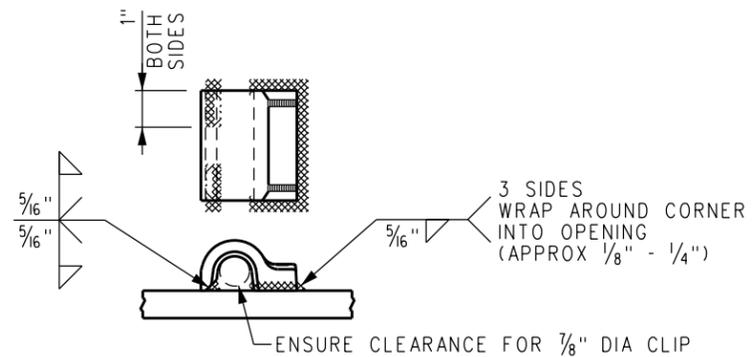
**NOTES:**

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. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
5. UNLESS OTHERWISE NOTED, ALL TOLERANCES SHALL BE ± 1/32".



**FROG BASE PLATE 24-136-6L**

DRAWN BY: <i>Nareh D. Papp</i> HDR DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN		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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 24 WSM FROG LH FROG BASE PLATE 24-6L CONCRETE TIES-136 LB RE RAIL		STANDARD 2807 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-51
DIRECTOR OF ENGINEERING AND CONSTRUCTION						

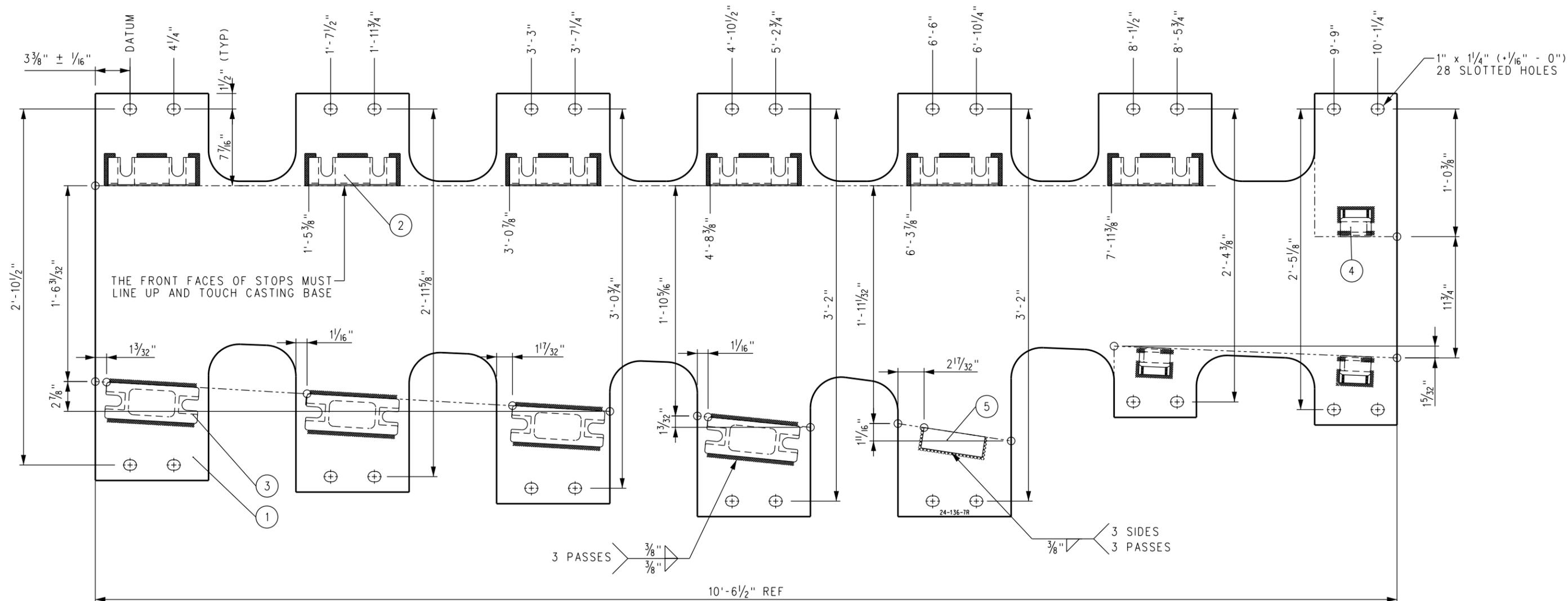


**FORGED SHOULDER WELDING DETAIL**

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

**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. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
5. UNLESS OTHERWISE NOTED, ALL TOLERANCES SHALL BE ± 1/32".



**FROG BASE PLATE 24-136-7R**

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

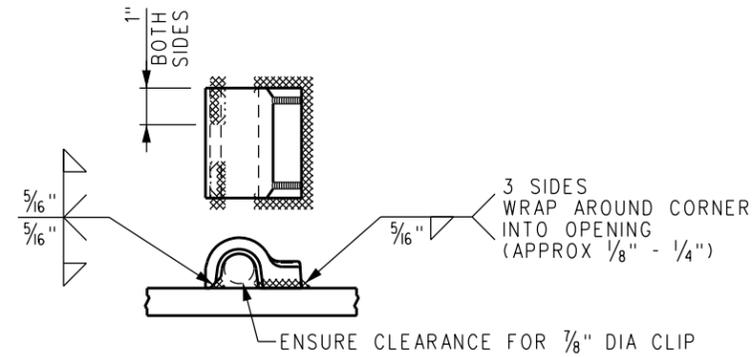
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSA FROG RH  
 FROG BASE PLATE 24-7R  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-52

BILL OF MATERIAL

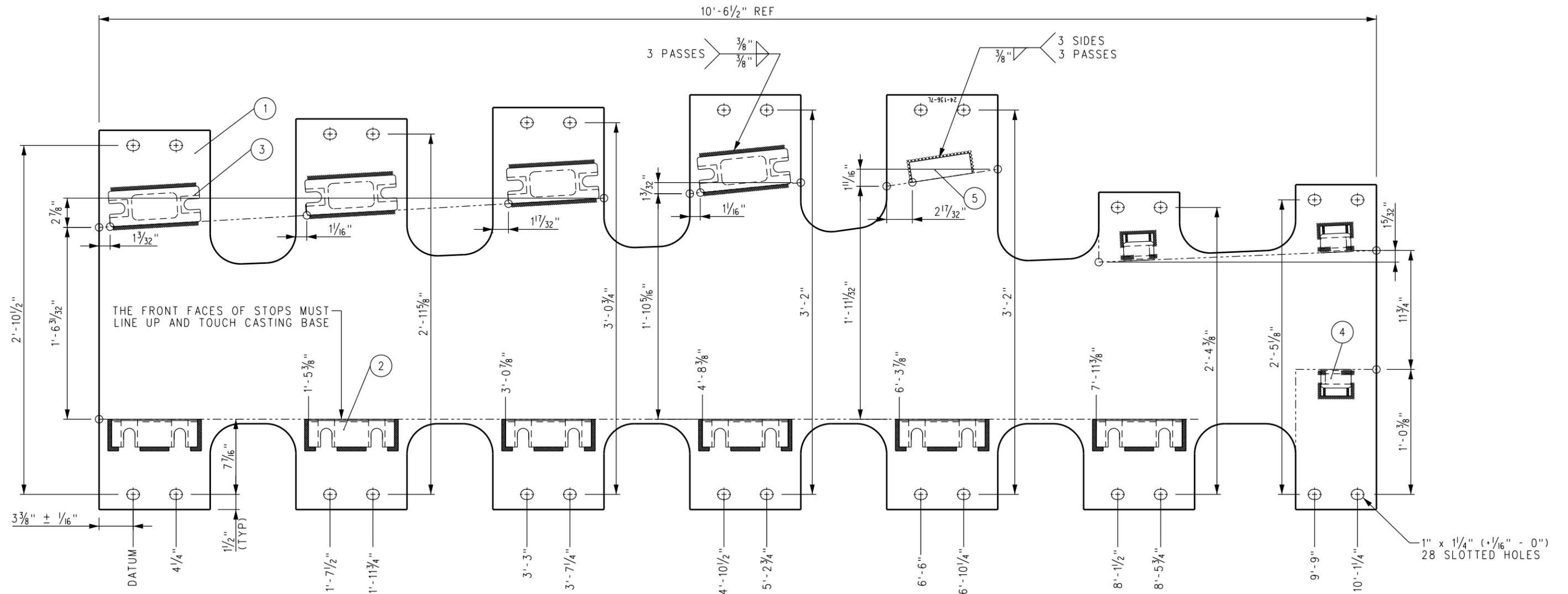
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	BURNED PLATE, ASTM A36, 3/4" THICK	-	
2	6	CAPTURE BLOCK FOR PLATE CLIP	-	
3	4	BLOCK CASTING CAPTURE HORN HOLDDOWN	-	
4	3	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
5	1	FLAT BAR, ASTM A36, 1/2" THICK x 2" x 6"	-	



**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.
4. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
5. UNLESS OTHERWISE NOTED, ALL TOLERANCES SHALL BE ± 1/32".



**FROG BASE PLATE 24-136-7L**

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

DRAWN BY: *Nareh D. Bhe* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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

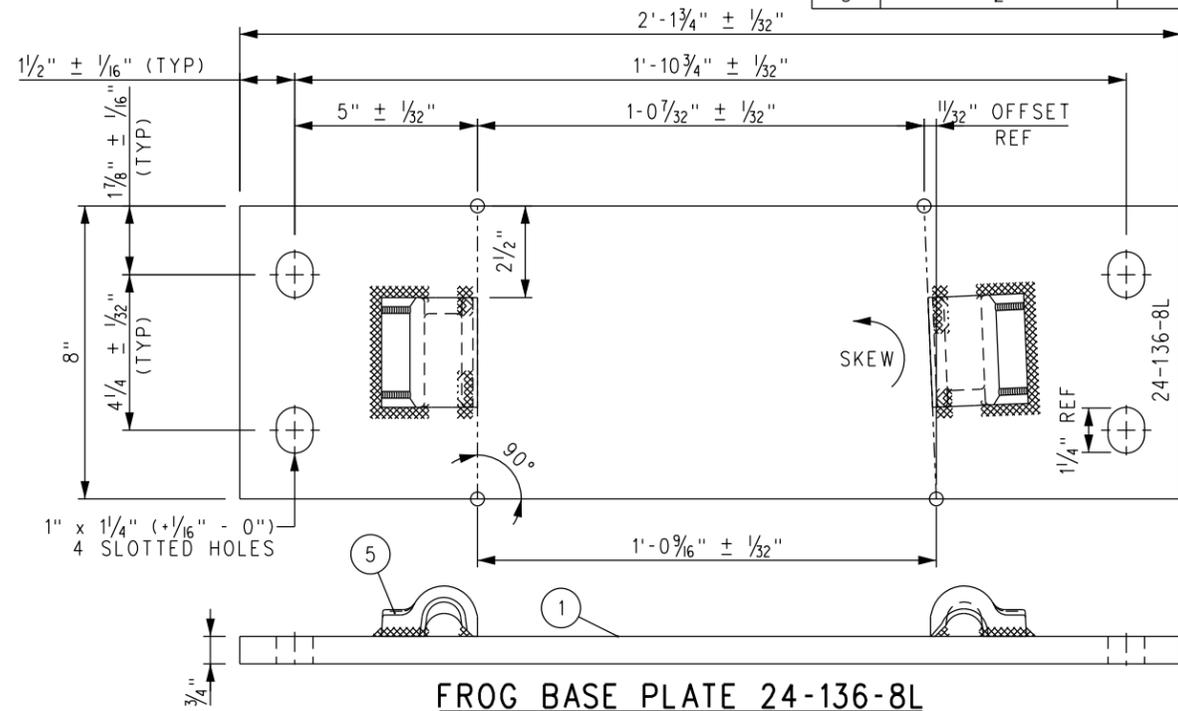
**ENGINEERING STANDARDS**  
 NO 24 WSM FROG LH  
 FROG BASE PLATE 24-7L  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-53

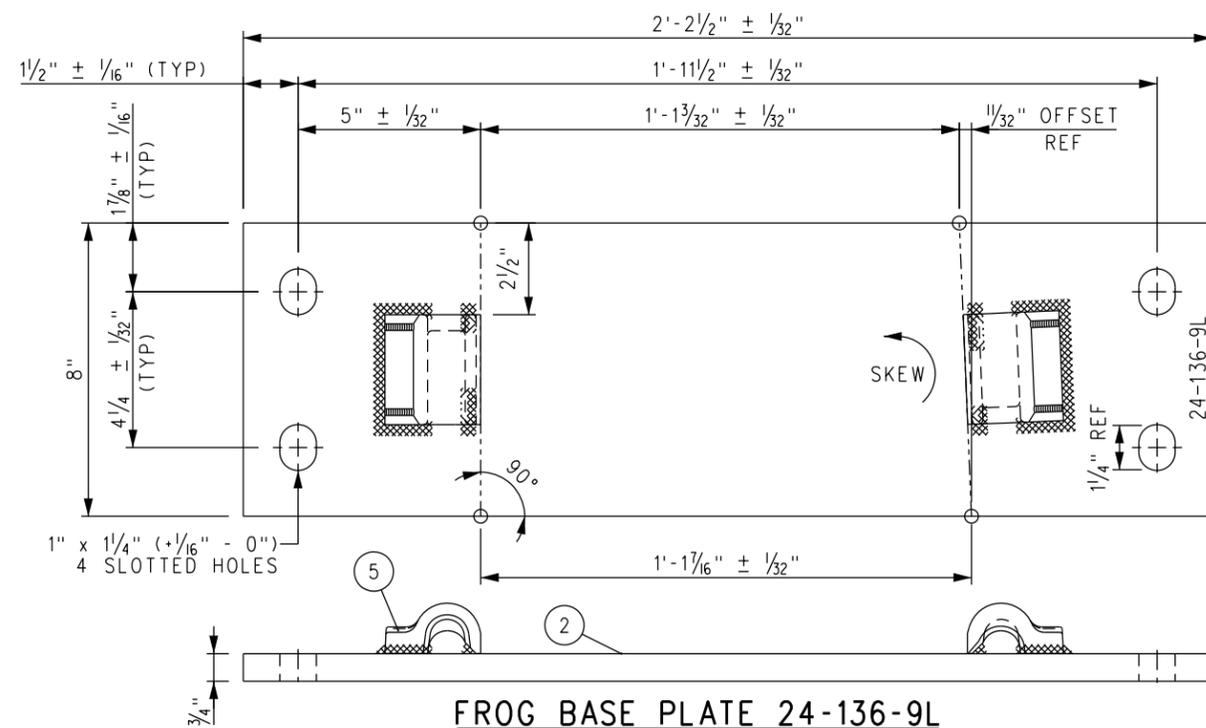


BILL OF MATERIAL

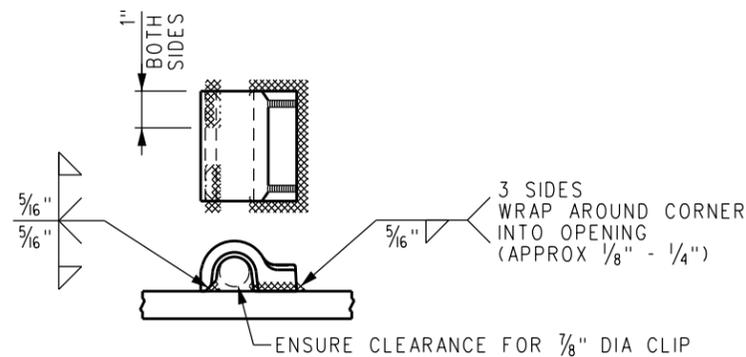
ITEM	QTY FOR 24-136-8L	QTY FOR 24-136-9L	QTY FOR 24-136-10L	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-1 3/4" LONG	-	
2	0	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-2 1/2" LONG	-	
3	0	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-3 1/2" LONG	-	
4	0	0	1	BURNED STOP, 1/2" THICK, 7" LONG, 1 29/32" TO 2 1/32" TAPER	-	
5	2	2	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



FROG BASE PLATE 24-136-8L



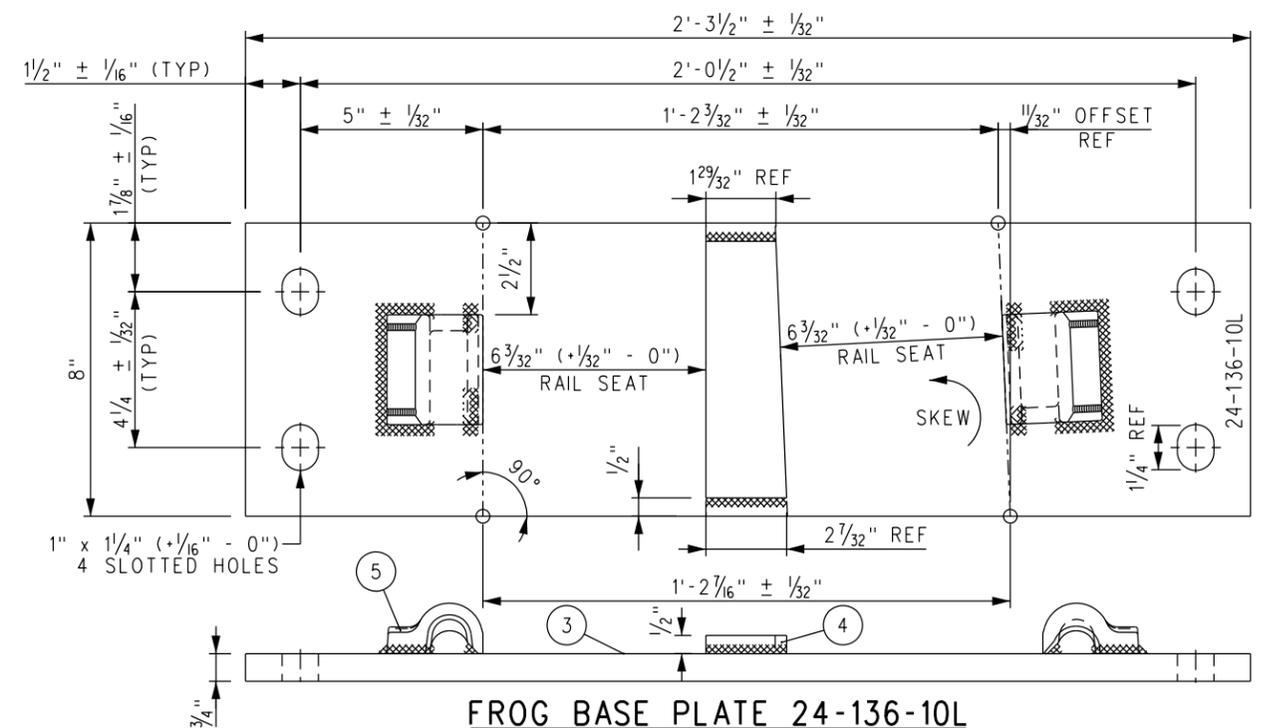
FROG BASE PLATE 24-136-9L



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.



FROG BASE PLATE 24-136-10L

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

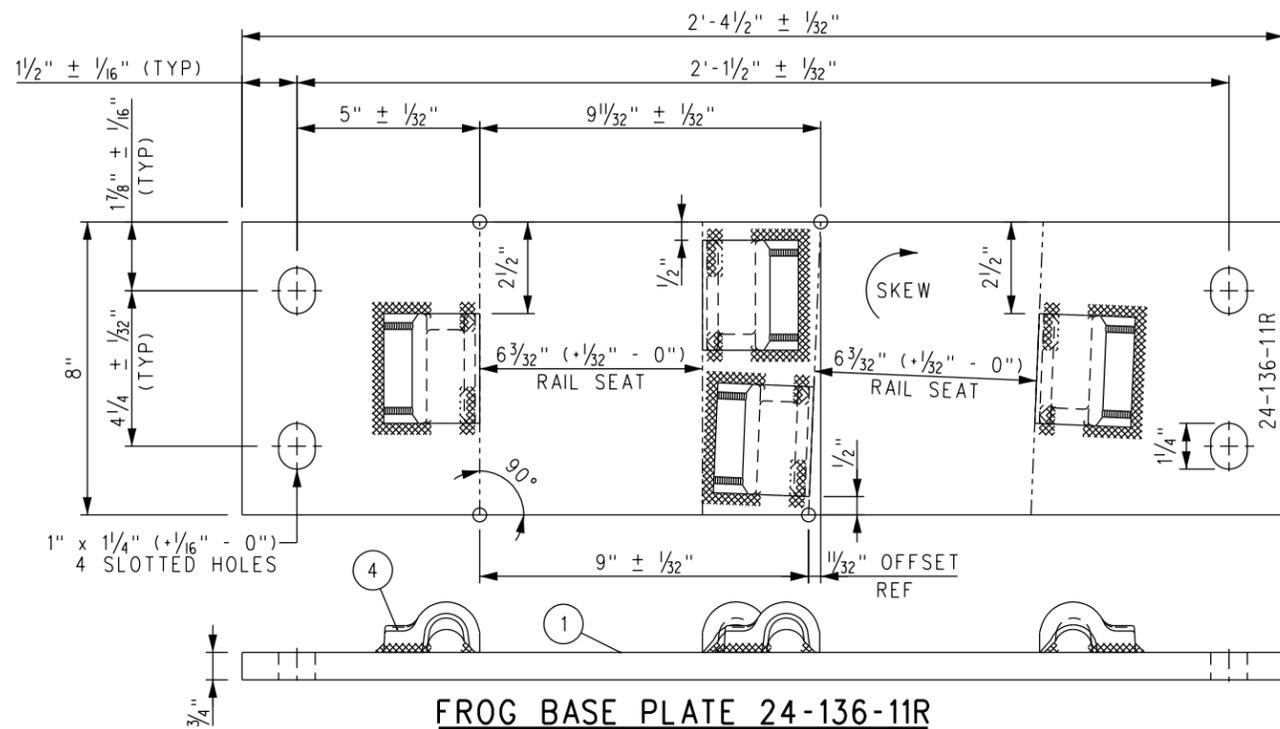
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSM FROG LH  
 FROG BASE PLATES 24-8L, 24-9L AND 24-10L  
 CONCRETE TIES-136 LB RE RAIL

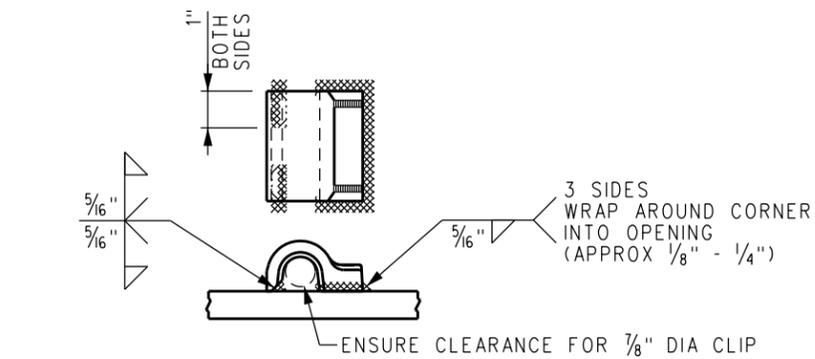
STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-55

BILL OF MATERIAL

ITEM	QTY FOR 24-136-11R	QTY FOR 24-136-12R	QTY FOR 24-136-13R	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 1/2" LONG	-	
2	0	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/2" LONG	-	
3	0	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/2" LONG	-	
4	4	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



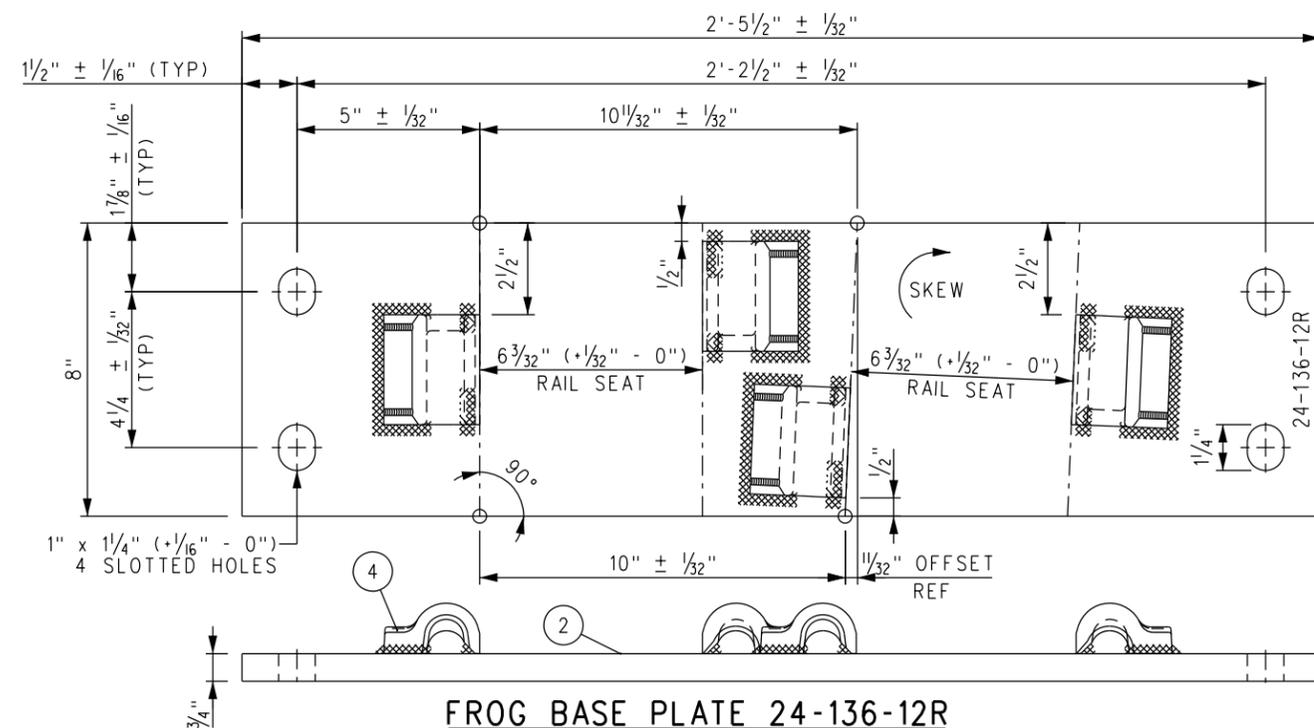
FROG BASE PLATE 24-136-11R



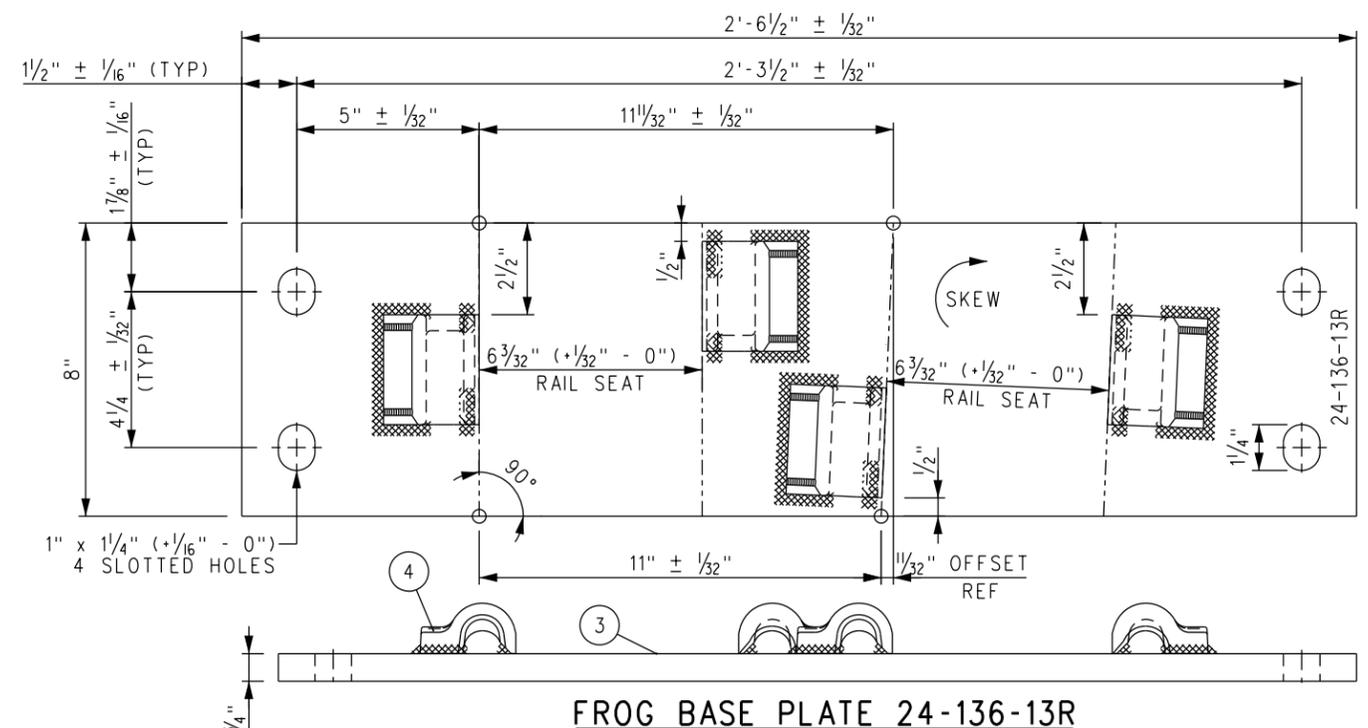
FORGED SHOULDER WELDING DETAIL

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.



FROG BASE PLATE 24-136-12R



FROG BASE PLATE 24-136-13R

DRAWN BY: <i>Nareh D. Papp</i>		HDR: <i>Willson Davan</i>		DATE: 03/31/2011
ASSTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION		
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX		XX	XX

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.

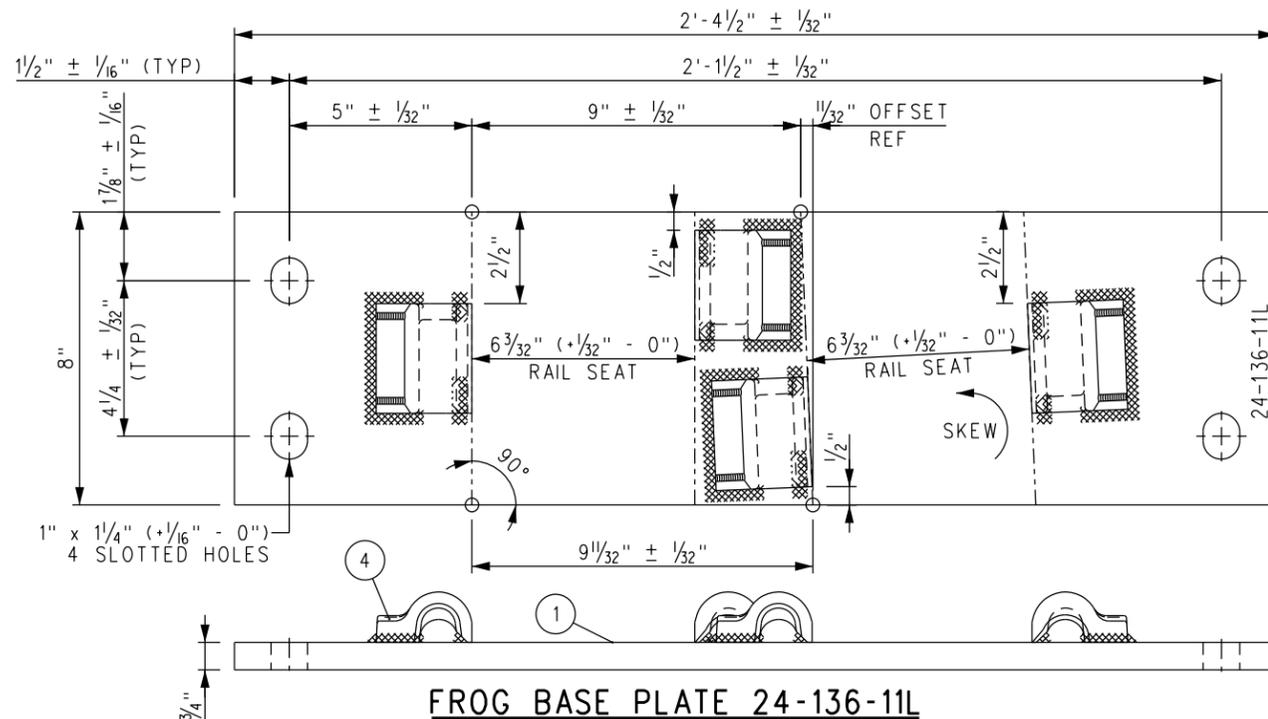
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
NO 24 WSM FROG RH  
FROG BASE PLATES 24-11R, 24-12R AND 24-13R  
CONCRETE TIES-136 LB RE RAIL

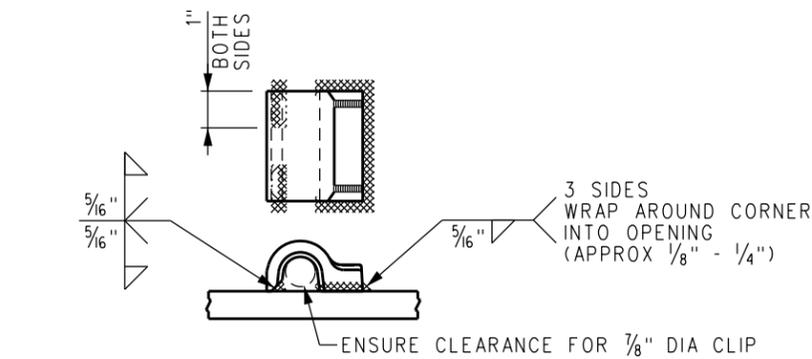
STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-56

BILL OF MATERIAL

ITEM	QTY FOR 24-136-11L	QTY FOR 24-136-12L	QTY FOR 24-136-13L	DESCRIPTION	DWG NO	SCRR PART NO
1	1	0	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 1/2" LONG	-	
2	0	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/2" LONG	-	
3	0	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/2" LONG	-	
4	4	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



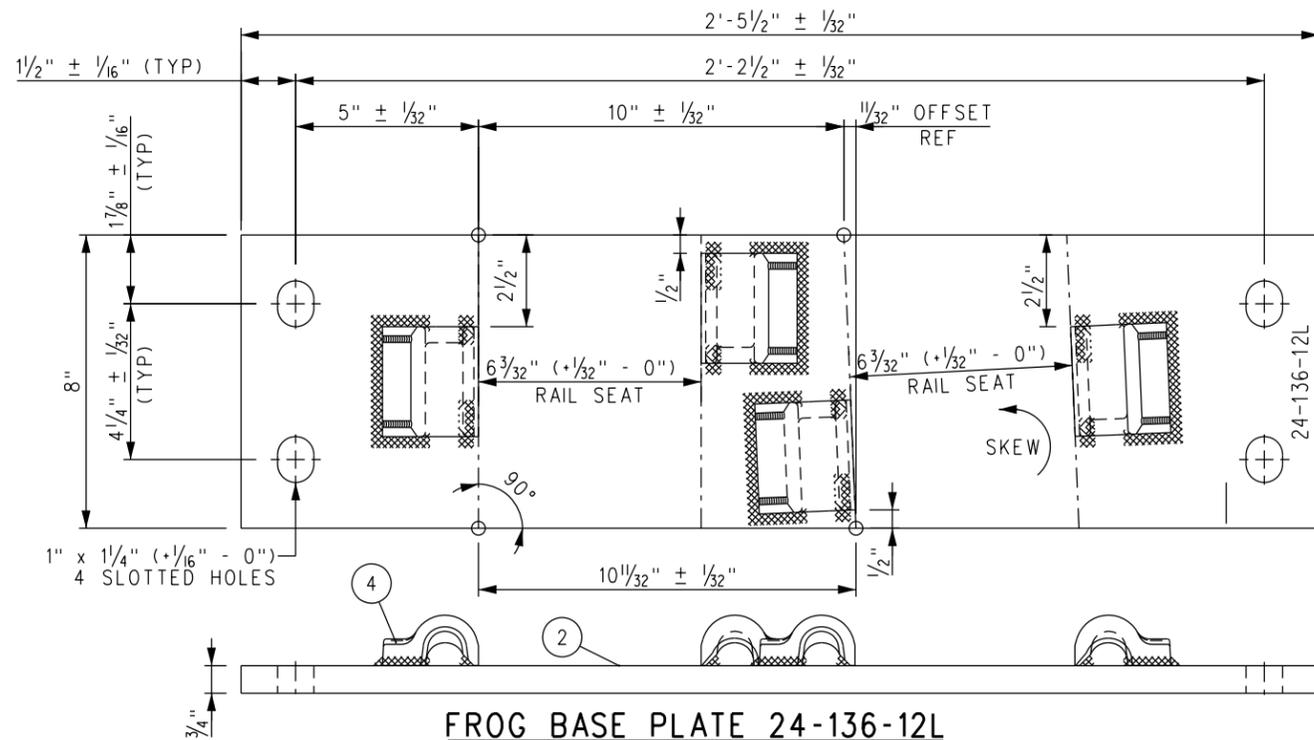
FROG BASE PLATE 24-136-11L



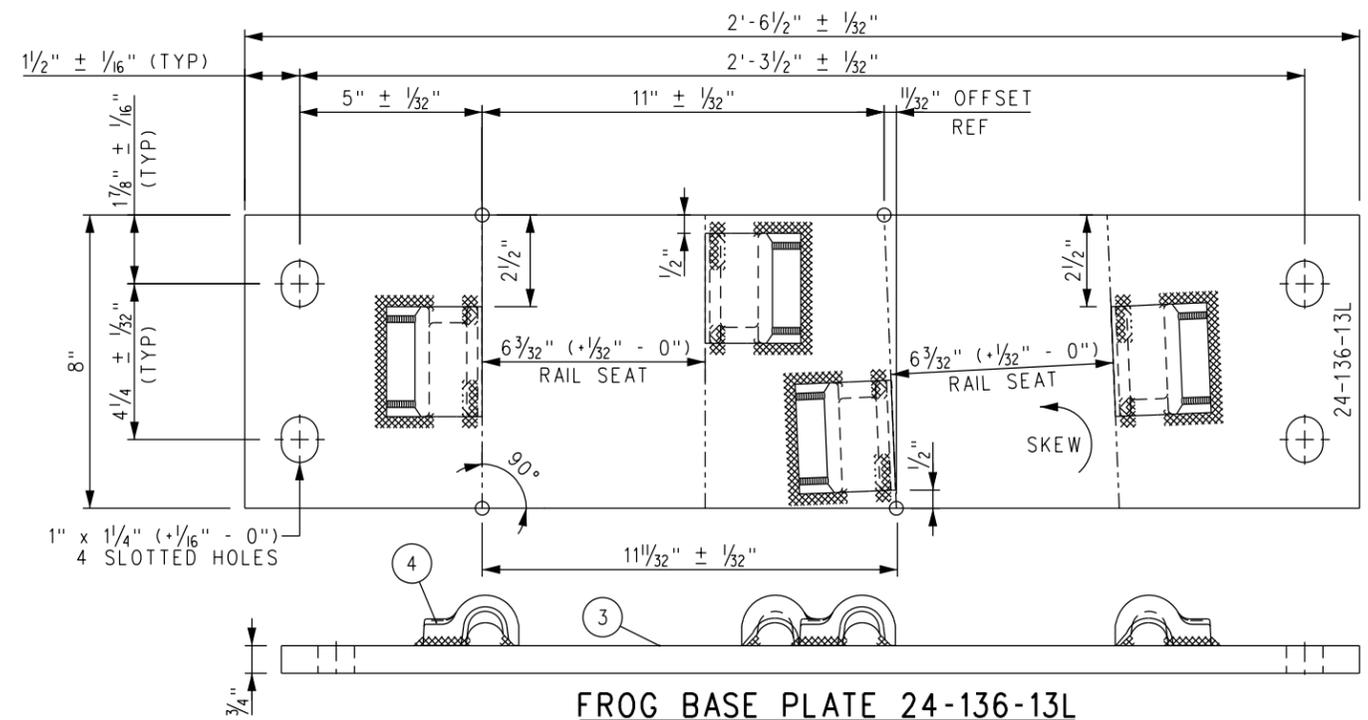
FORGED SHOULDER WELDING DETAIL

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.



FROG BASE PLATE 24-136-12L



FROG BASE PLATE 24-136-13L

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

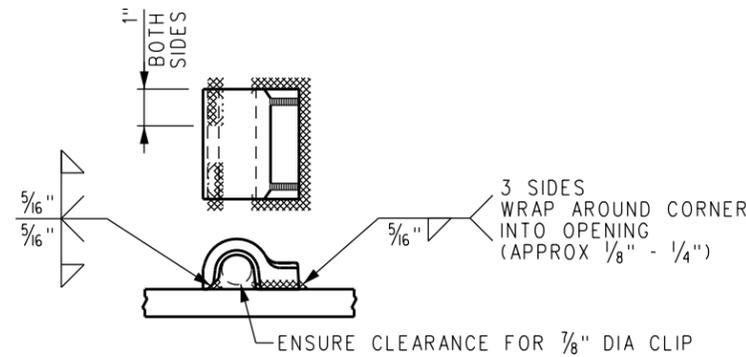
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 NO 24 WSM FROG LH  
 FROG BASE PLATES 24-11L, 24-12L AND 24-13L  
 CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-57

BILL OF MATERIAL

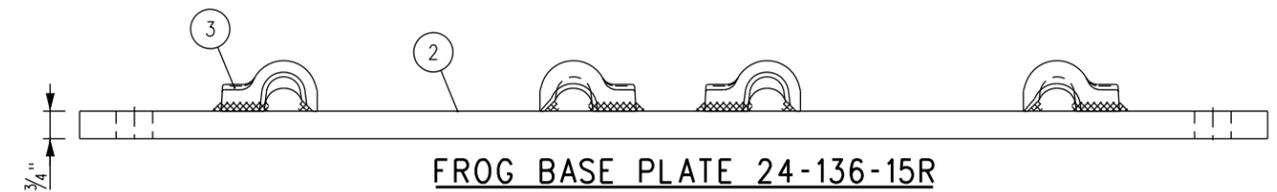
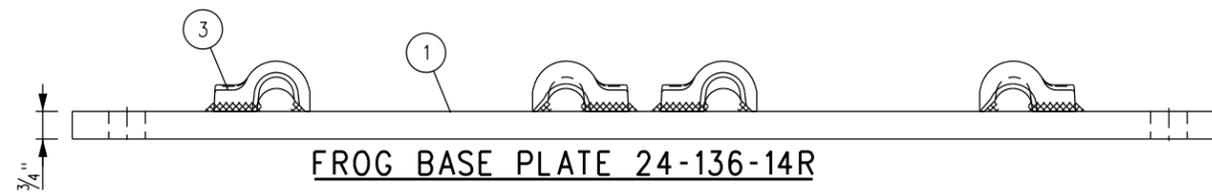
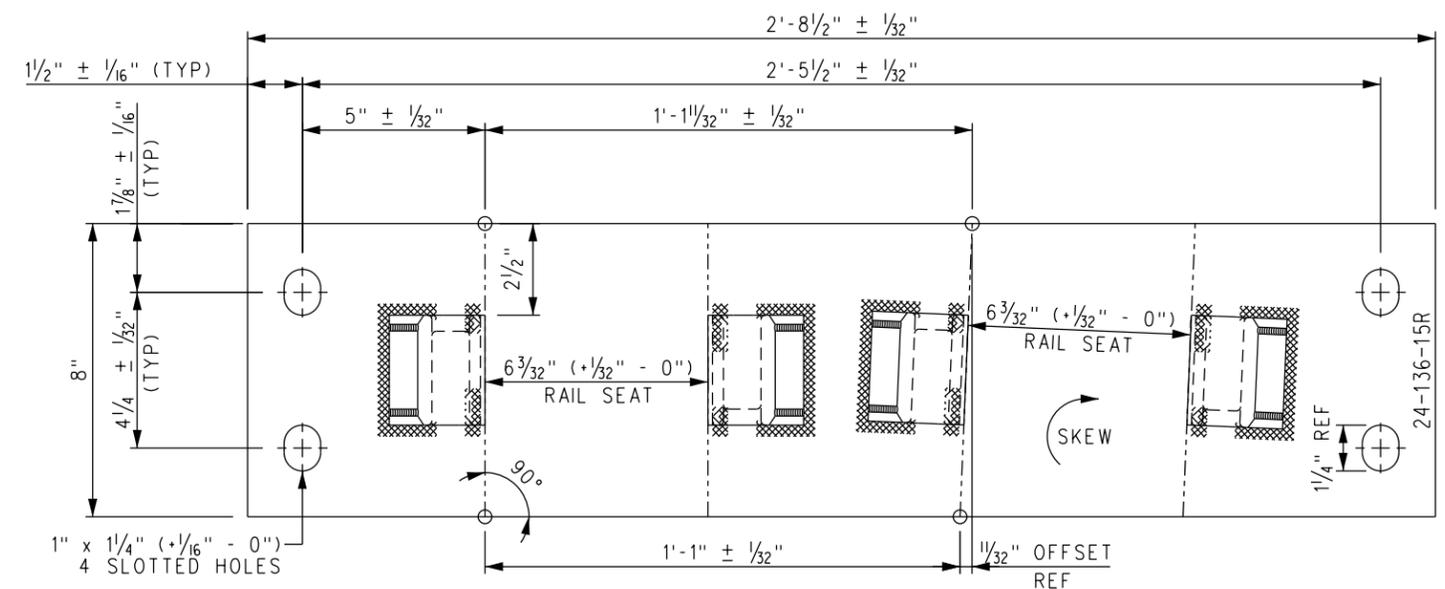
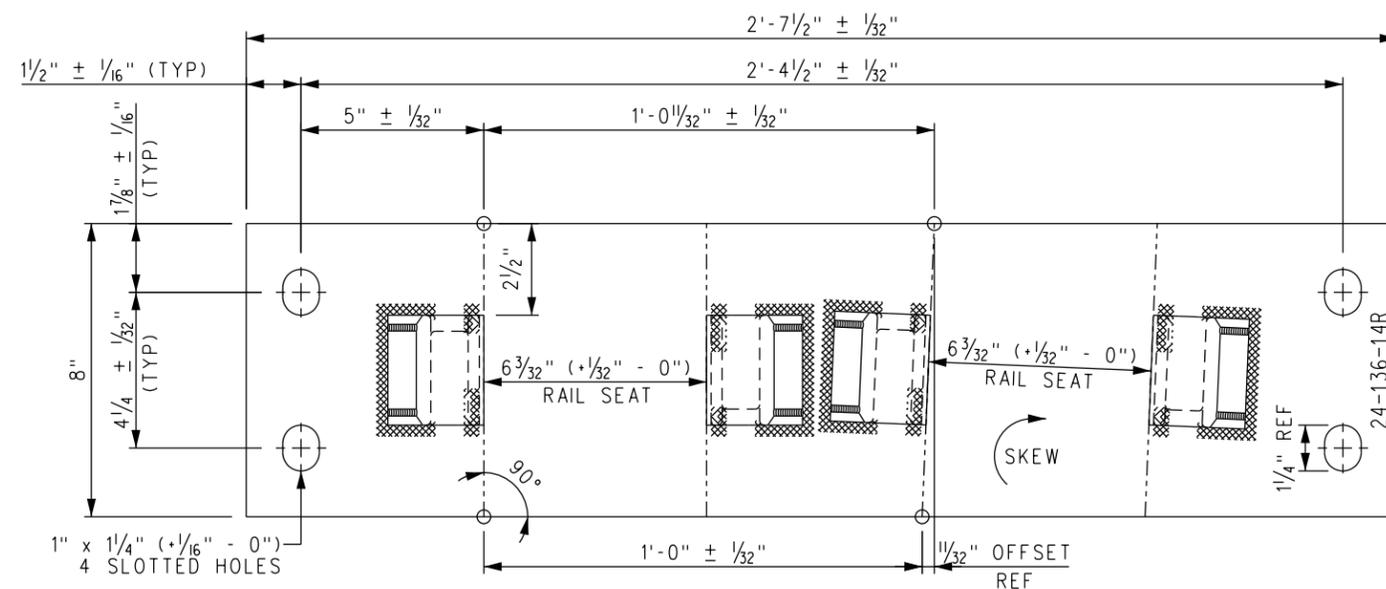
ITEM	QTY FOR 24-136-14R	QTY FOR 24-136-15R	DESCRIPTION	DRAWING NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/2" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



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: <i>Nareh D. Papp</i>		HDR: <i>Willson Dava</i>	DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION	
XX	XX-XX-XX	XX	XX
REV.	DATE	DESCRIPTION	DES. ENG.

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.

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

ENGINEERING STANDARDS

NO 24 WSM FROG RH  
FROG BASE PLATES 24-14R AND 24-15R  
CONCRETE TIES-136 LB RE RAIL

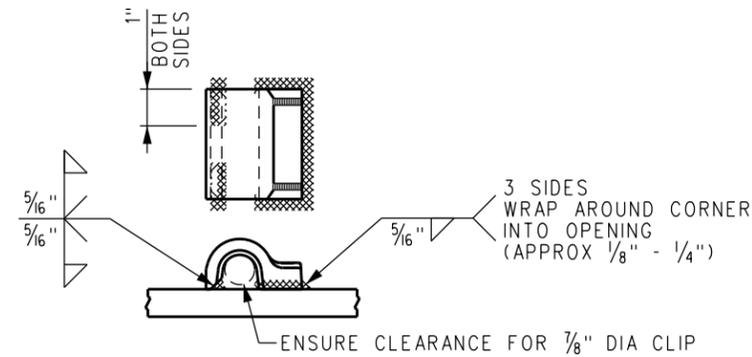
STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-58

BILL OF MATERIAL

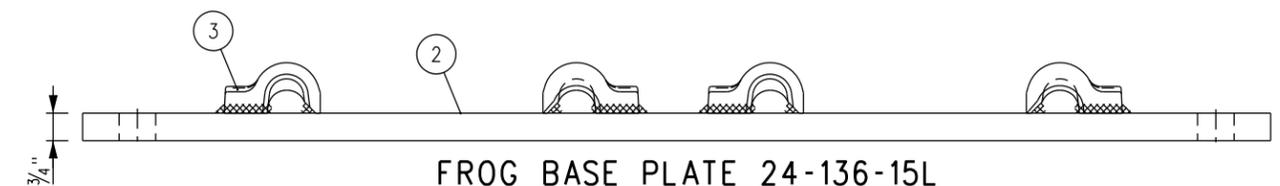
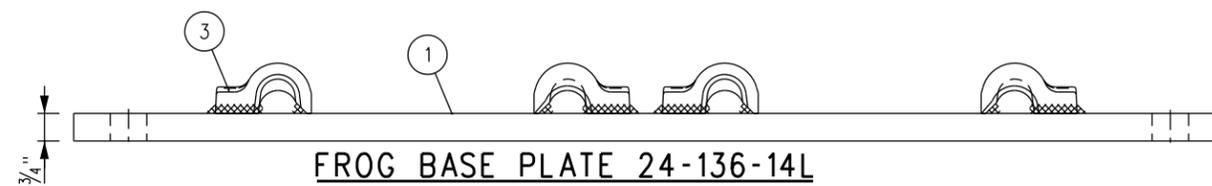
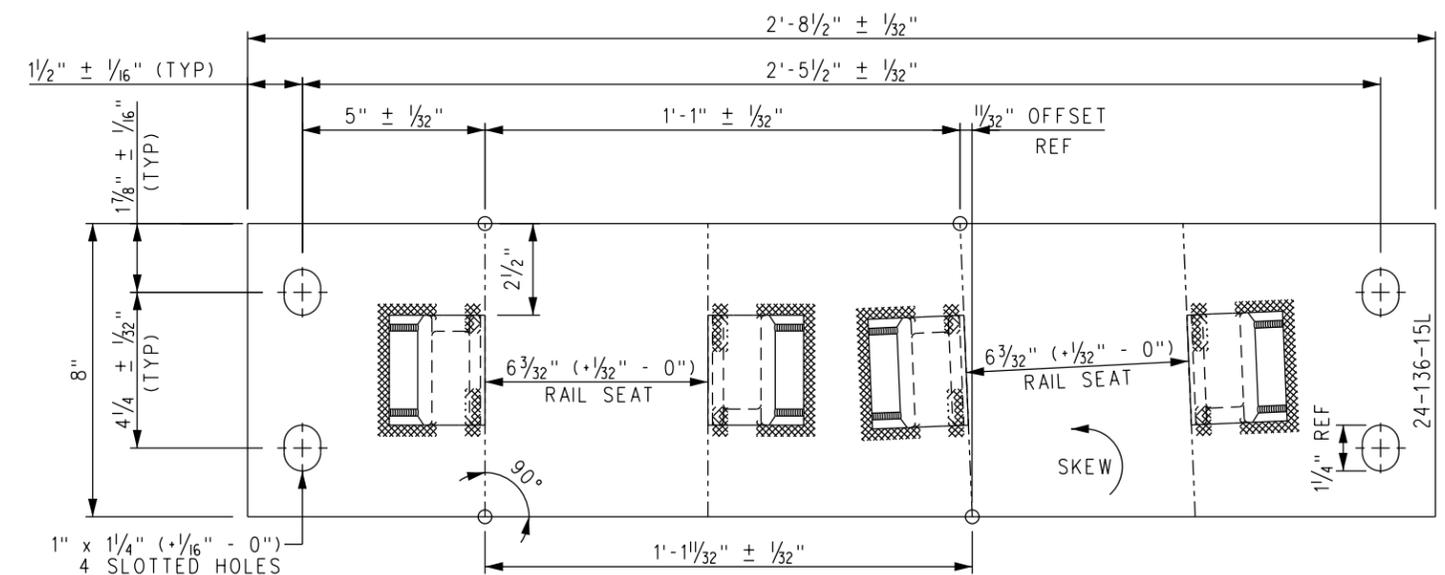
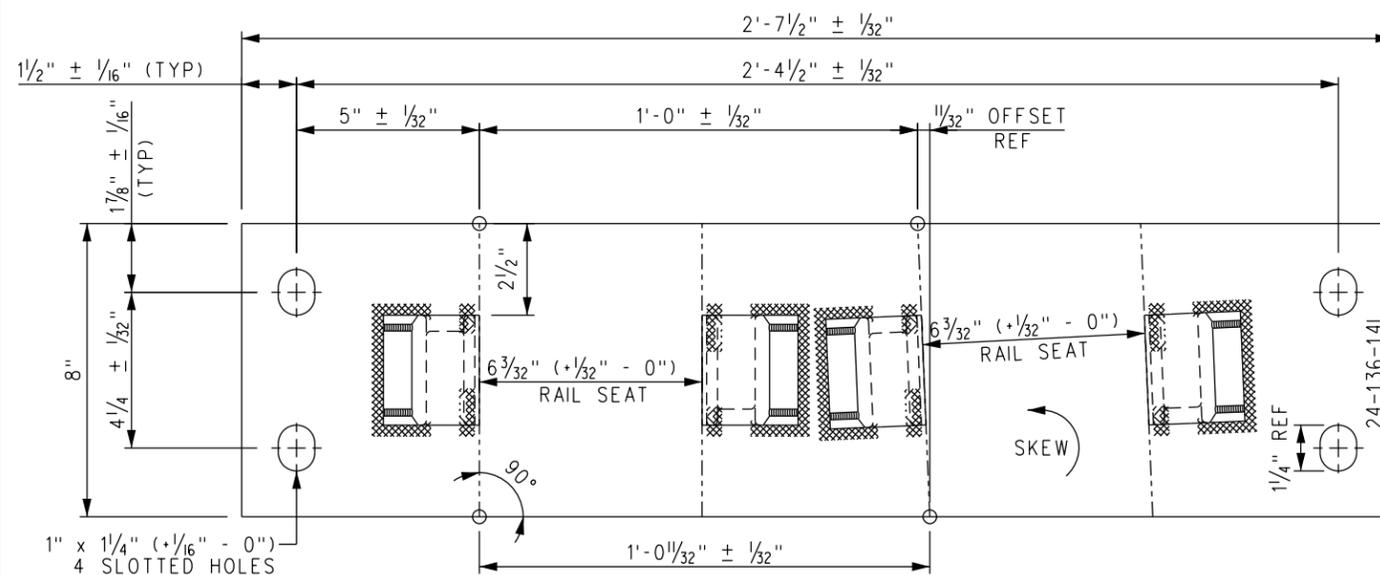
ITEM	QTY FOR 24-136-14L	QTY FOR 24-136-15L	DESCRIPTION	DRAWING NO	SCRR PART NO
1	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2" LONG	-	
2	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/2" LONG	-	
3	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	

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: <i>Nareh D. Papp</i>		HDR: <i>Willson Dava</i>	DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION	
XX	XX-XX-XX	XX	XX
REV.	DATE	DESCRIPTION	DES. ENG.

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.

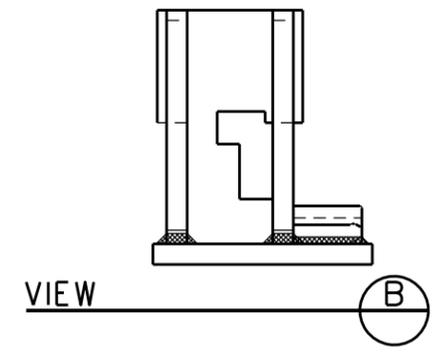
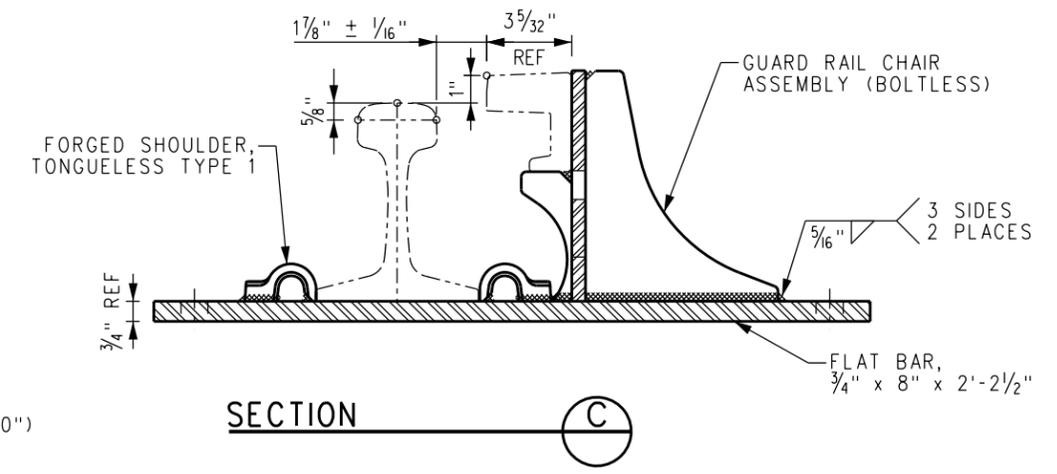
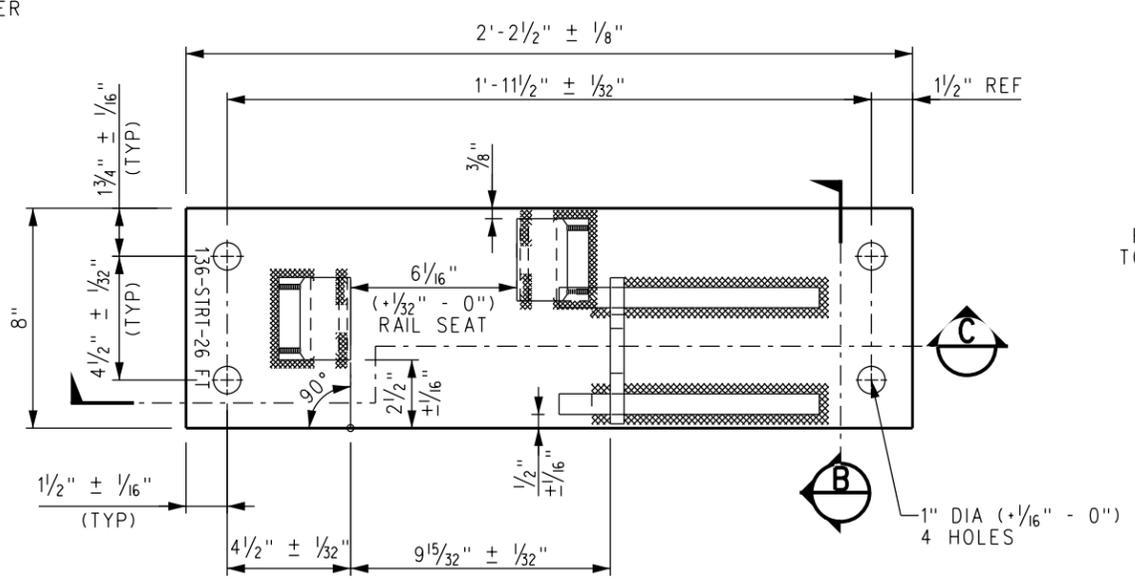
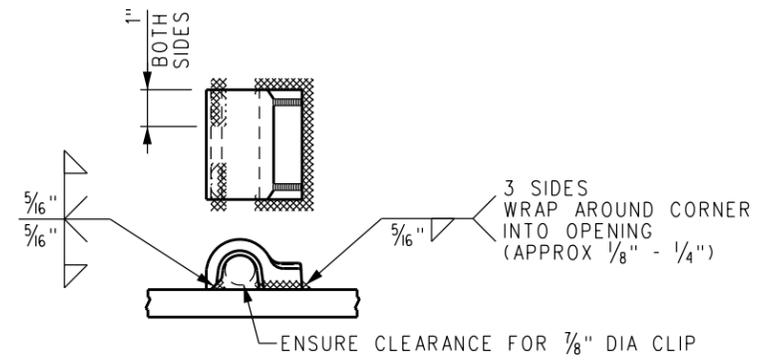
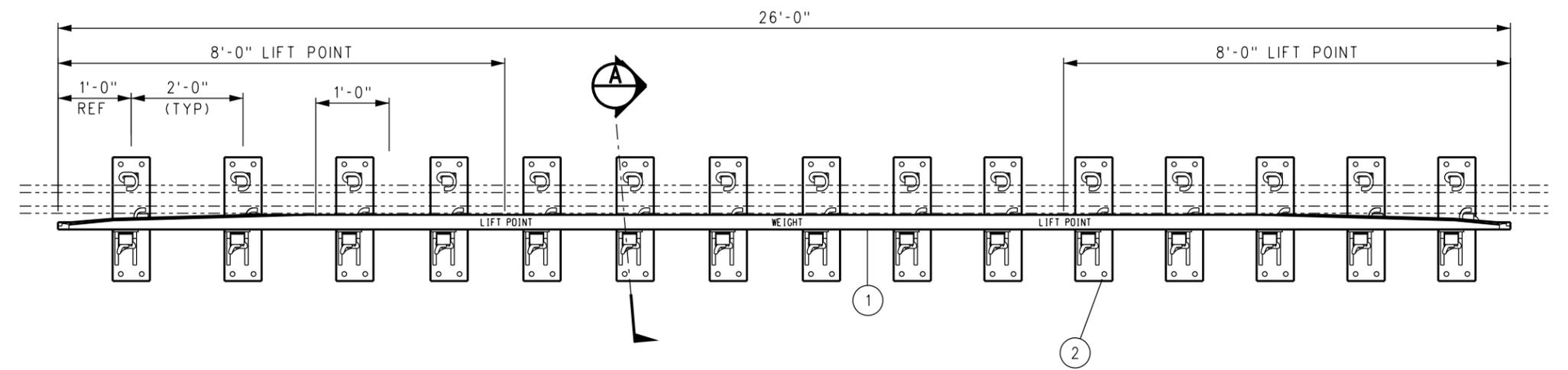
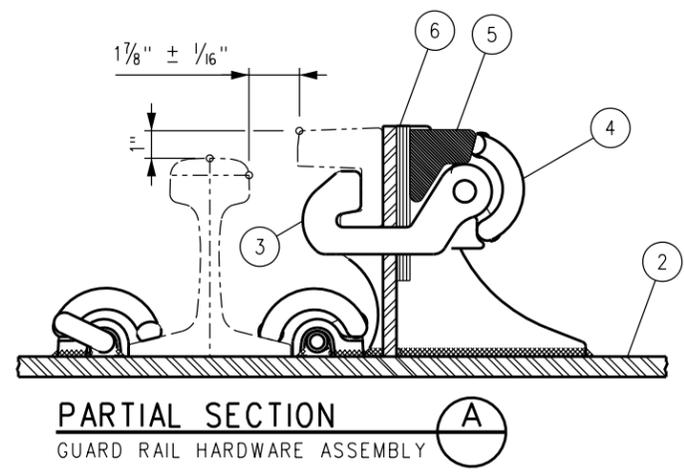
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

NO 24 WSM FROG LH  
FROG BASE PLATES 24-14L AND 24-15L  
CONCRETE TIES-136 LB RE RAIL

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-59

BILL OF MATERIAL				DWG NO	SCRR PART NO
ITEM	QTY	DESCRIPTION			
1	1	GUARD BAR, UIC33 1200 SERIES x 26'-0" LONG	-		
2	13	GUARD RAIL PLATE ASSEMBLY, 136 LB RE RAISED 1", STRAIGHT	-		
3	13	H-CLAMP	-		
4	39	CLIP, PANDROL, E2055	-		
5	13	LOCKING BLOCK	-		
6	52	SHIM, 1/8" x 3" x 6"	-		

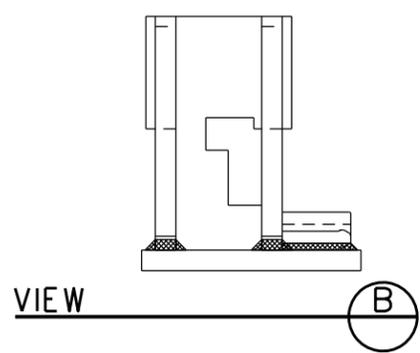
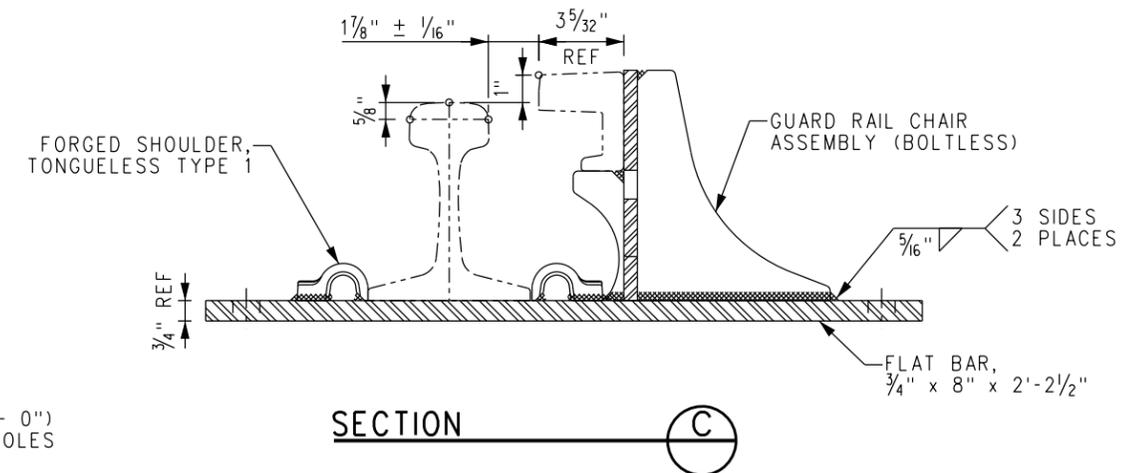
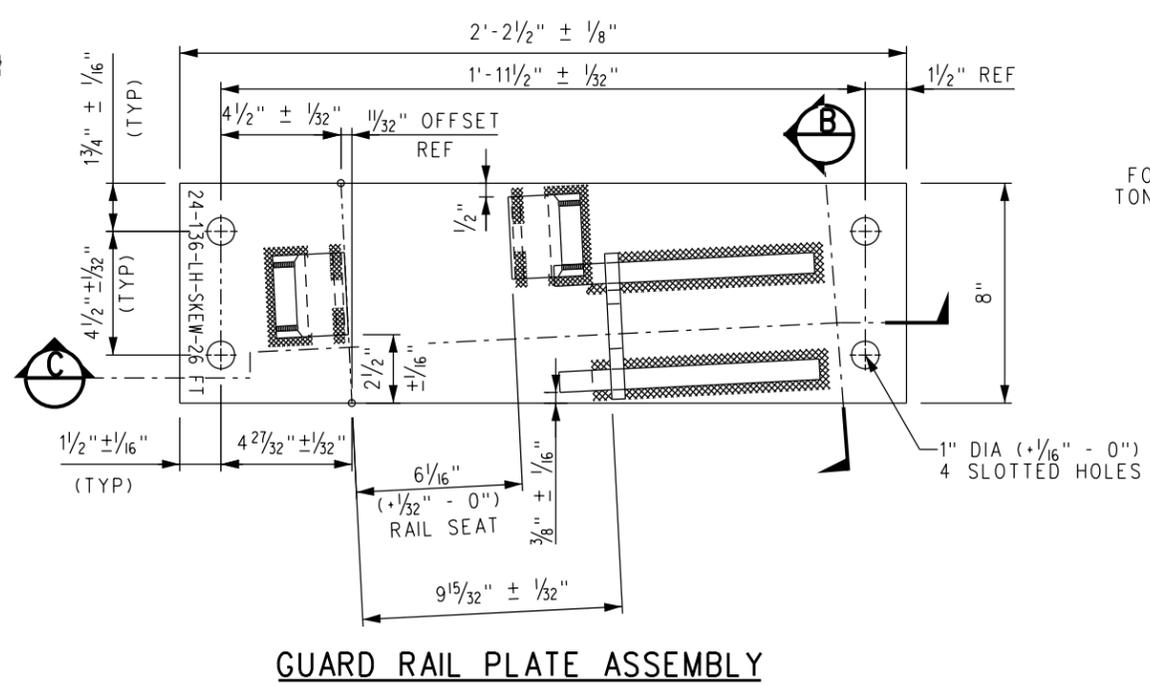
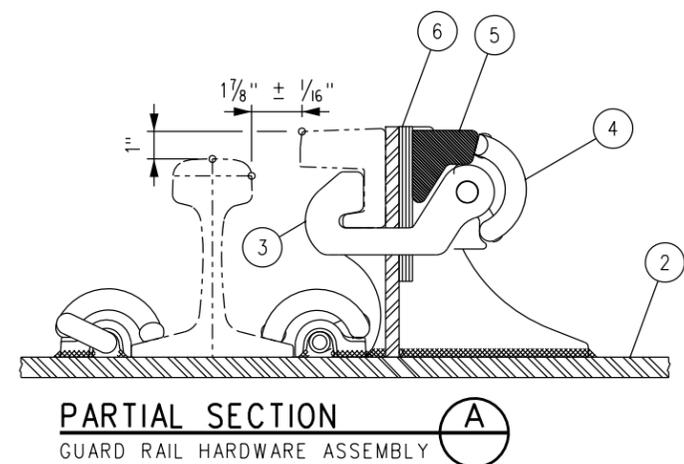
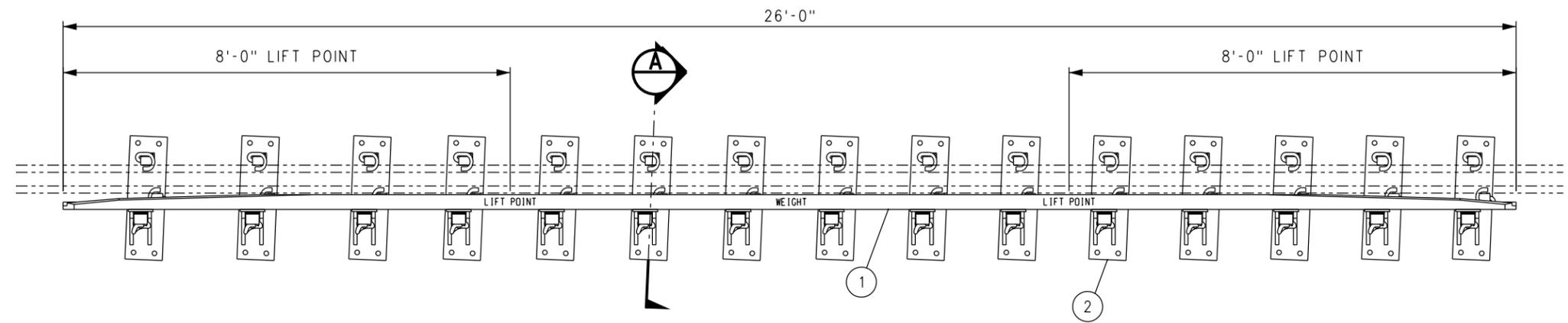
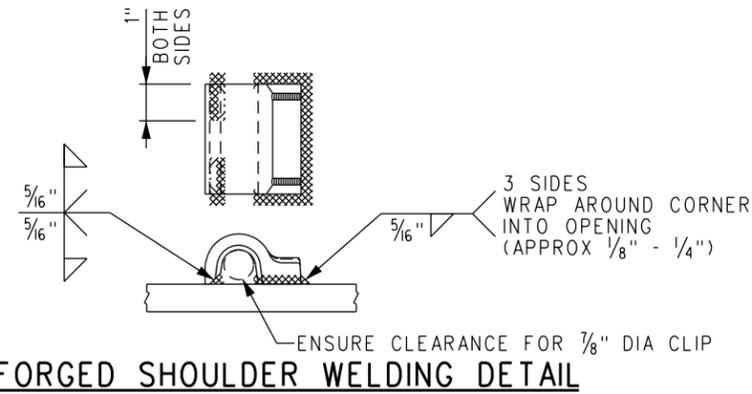


- NOTES:**
1. PLATE SPACING IS SET FOR SHIPPING ONLY. FINAL PLATE SPACING IS TO BE DETERMINED BY TIE SPACING AT TIME OF INSTALLATION.
  2. PANDROL SPRING CLIPS (E2055) TO BE INCLUDED IN ASSEMBLY.
  3. LIFT POINTS AND WEIGHT OF ASSEMBLY TO BE MARKED ON HEAD OF WEAR BAR WITH WHITE PAINT.
  4. PLATE IS 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.

DRAWN BY: <i>Naresh D. Patel</i> HDR DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN		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 NO 24 GUARD RAIL ASSEMBLY, STRAIGHT WITH PLATES 26'-0" LONG, BOLTLESS, RAISED 1" CONCRETE TIES-136 LB RE RAIL, 1-7/8" FLANGEWAY	STANDARD 2807
REV. DATE DESCRIPTION DES. ENG.					SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-60

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	GUARD BAR, UIC33 1200 SERIES x 26'-0" LONG	-	
2	15	GUARD RAIL PLATE ASSEMBLY, RAISED 1", LH SKEWED	-	
3	15	H-CLAMP	-	
4	45	CLIP, PANDROL, E2055	-	
5	15	LOCKING BLOCK	-	
6	60	SHIM, 1/8" x 3" x 6"	-	



**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.

DRAWN BY: <i>Narek D. B...</i>		HDR: <i>Wilson Dav...</i>		DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION		
XX	XX-XX-XX	REVISION	XX	XX
REV.	DATE	DESCRIPTION	DES.	ENG.

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.

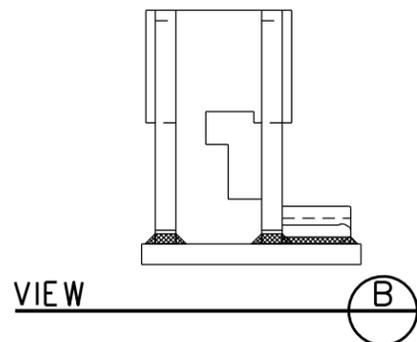
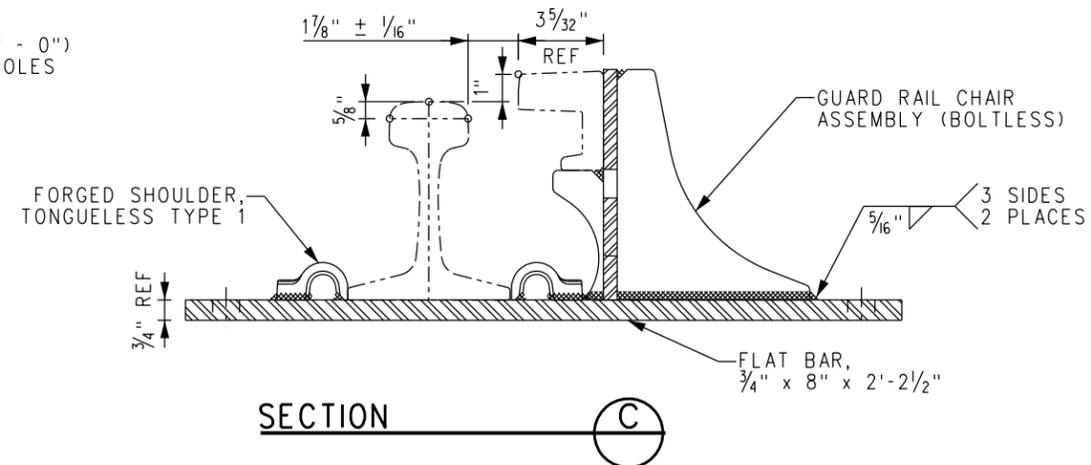
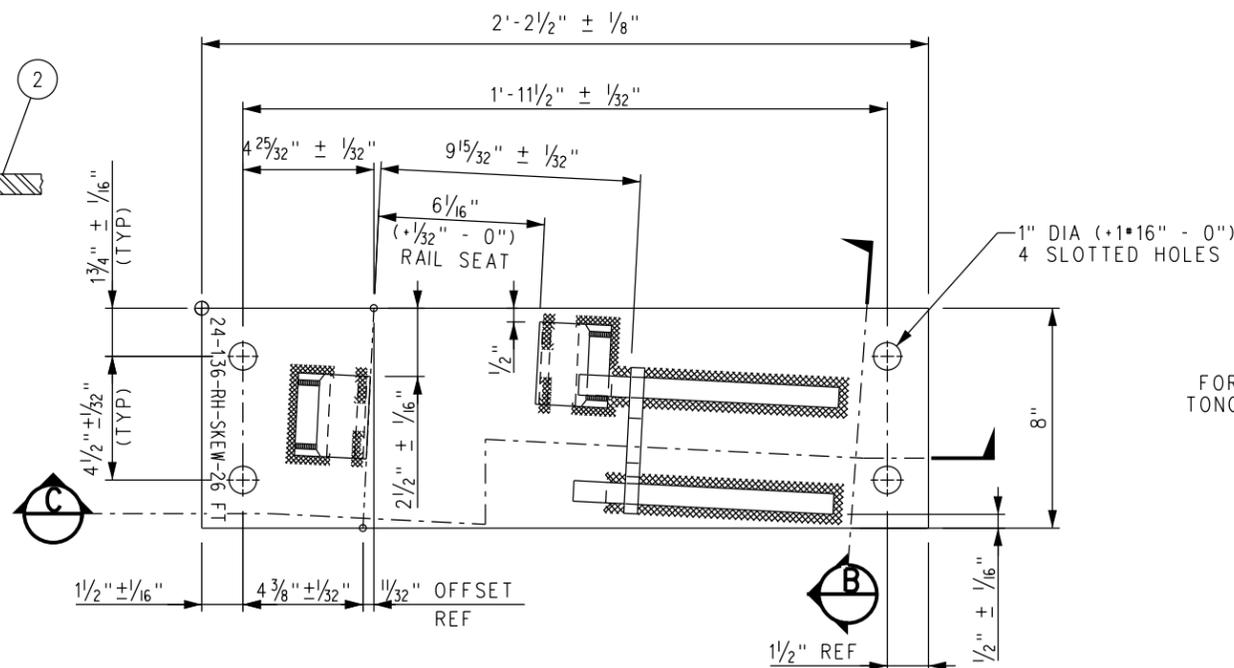
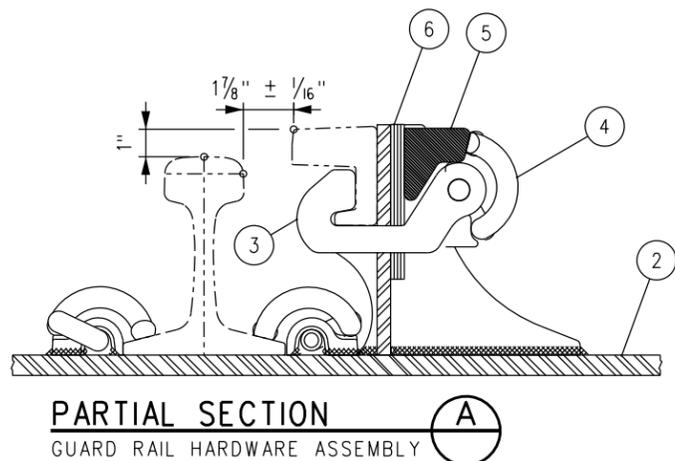
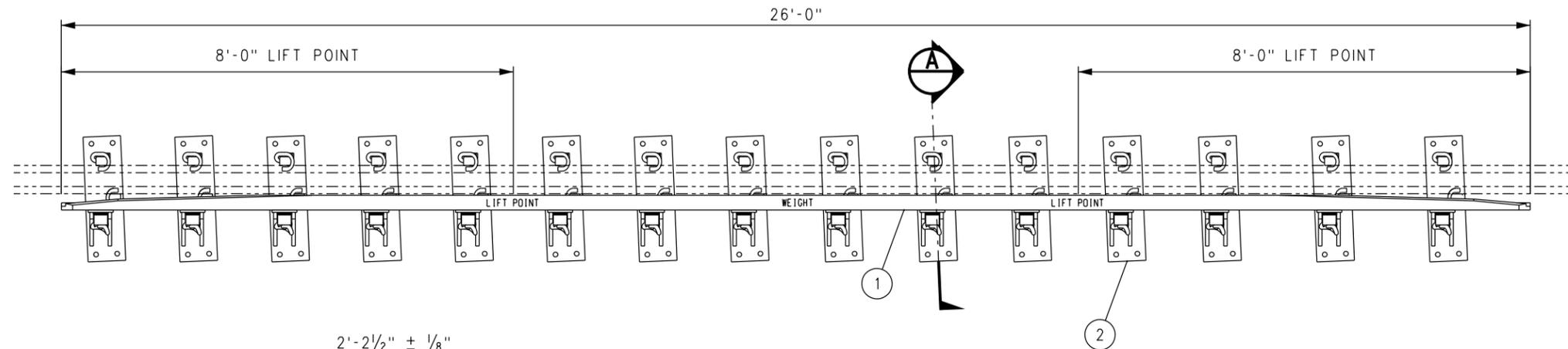
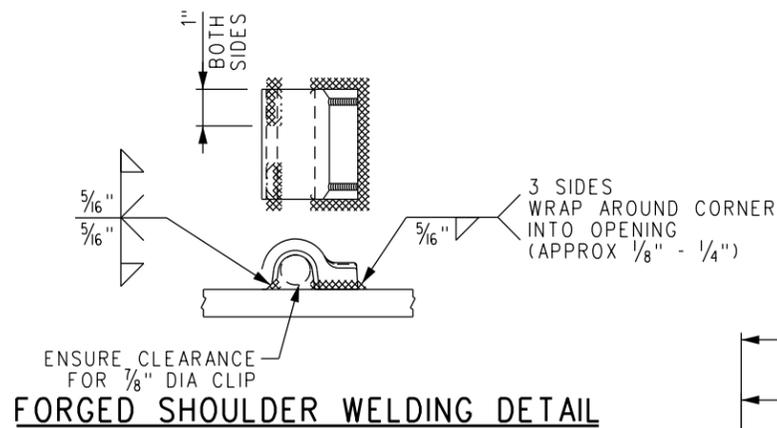
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

**ENGINEERING STANDARDS**  
NO 24 GUARD RAIL ASSEMBLY,  
LH SKEWED WITH PLATES  
26'-0" LONG, BOLTLESS, RAISED 1"  
CONCRETE TIES-136 LB RE RAIL, 1-7/8" FLANGEWAY

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-61

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	GUARD BAR, UIC33 1200 SERIES x 26'-0" LONG	-	
2	15	GUARD RAIL PLATE ASSEMBLY, RAISED 1", RH SKEWED	-	
3	15	H-CLAMP	-	
4	45	CLIP, PANDROL, E2055	-	
5	15	LOCKING BLOCK	-	
6	60	SHIM, 1/8" x 3" x 6"	-	



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.

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

DRAWN BY: HDR DATE: 03/31/2011  
*Nareh D. Papp*  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Davan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

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

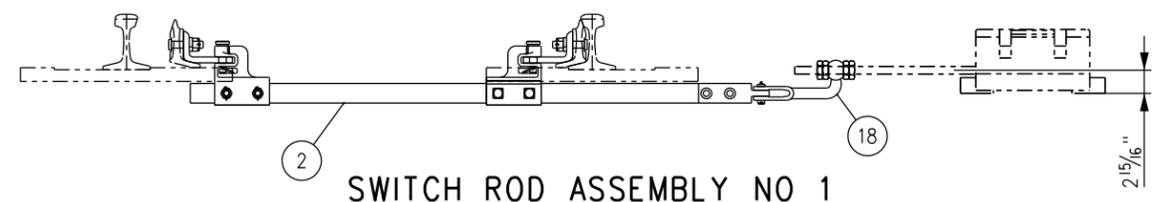
ENGINEERING STANDARDS  
 NO 24 GUARD RAIL ASSEMBLY,  
 RH SKEWED WITH PLATES  
 26'-0" LONG, BOLTLESS, RAISED 1"  
 CONCRETE TIES-136 LB RE RAIL, 1-7/8" FLANGEWAY

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-62

BILL OF MATERIAL

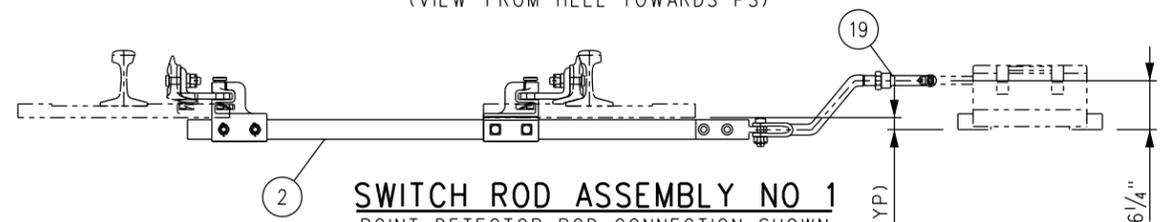
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	ROTARY ASSIST ASSEMBLY FOR NO 24-136 LB RE TURNOUT	-	
2	1	SWITCH ROD NO 1, FOR POINT DETECTOR/LOCK ROD, (24-136-1)	ES2807-73	
3	1	SWITCH ROD NO 2, DRIVE, C/W BASKET (24-136-2)	ES2807-73	
4	1	SWITCH ROD NO 3, THROW, (24-136-3)	ES2807-73	
5	1	SWITCH ROD NO 4, THROW, (24-136-4)	ES2807-74	
6	1	SWITCH ROD NO 5, THROW, (24-136-5)	ES2807-74	
7	1	SWITCH ROD NO 6, THROW, (24-136-6)	ES2807-74	
8	2	ROD POINT BRACKET, DETECTOR/LOCK ROD, HOLES AT 2 7/8" ARB*	-	
9	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB* LH	-	
10	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB* RH	-	
11	2	ROD POINT BRACKET, HOLES AT 2 3/8" ARB* C/W SQUARE BOLTS	-	
12	6	ROD POINT BRACKET, HOLES AT 2 3/8" ARB* C/W THIN HEAD SQUARE BOLTS	-	
13	1	DROP LUG FOR US&S M23 SWITCH MACHINE DRIVE BAR	-	
14	1	BOLT, 7/8" DIA x 3" LONG, DRILLED 2 9/16" BELOW HEAD, HEAVY HEX, GR 5	-	
15	1	NUT, 7/8" DIA SLOTTED HEAVY HEX, GR 8	-	
16	1	SPRING WASHER, 7/8" DIA	-	
17	1	COTTER PIN, 3/16" DIA x 1 3/4" LONG	-	
18	1	LOCK ROD, FOR M23 SWITCH MACHINE, HST	-	
19	1	DETECTOR ROD, FOR M23 SWITCH MACHINE, HST	-	

ARB\* - ABOVE RAIL BASE



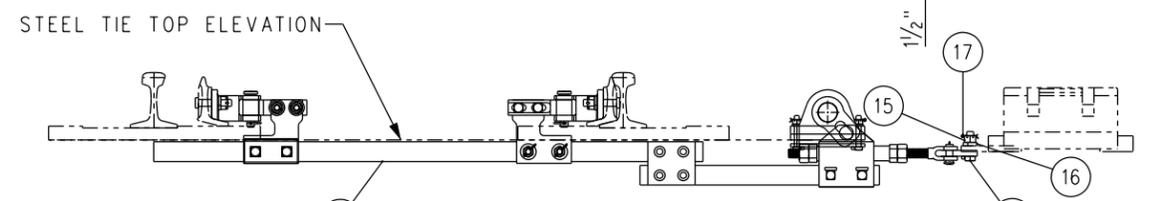
**SWITCH ROD ASSEMBLY NO 1**

LOCK ROD CONNECTION SHOWN  
(VIEW FROM HEEL TOWARDS PS)



**SWITCH ROD ASSEMBLY NO 1**

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



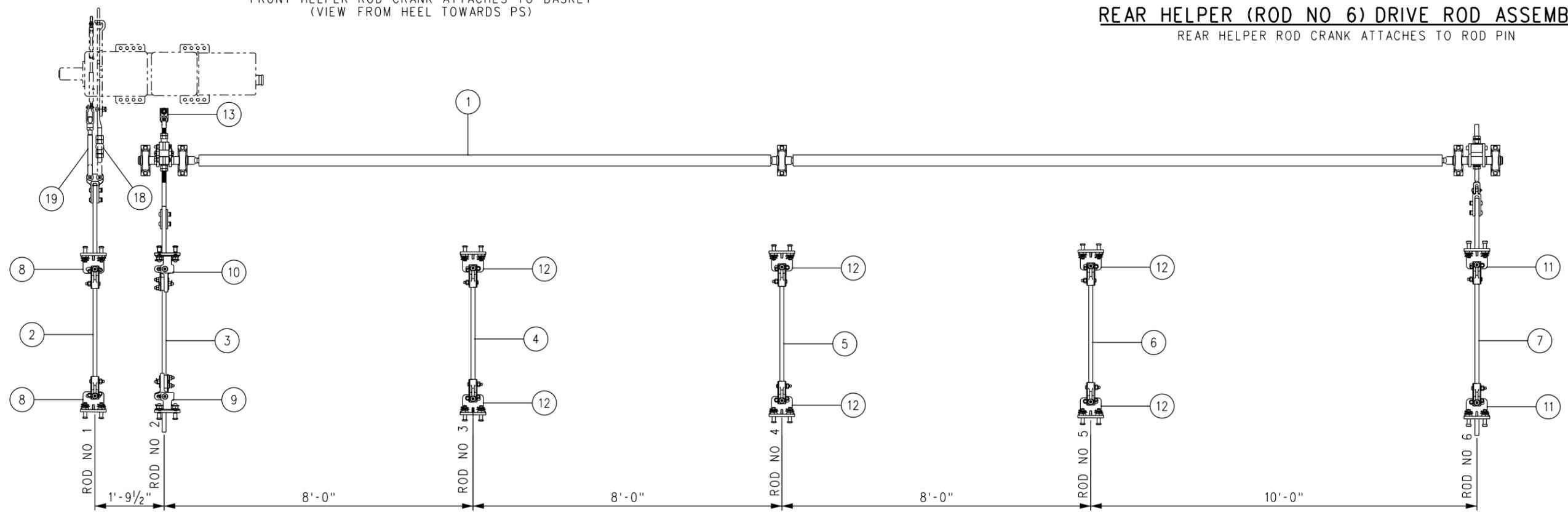
**DRIVE ROD (ROD NO 2) ASSEMBLY**

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

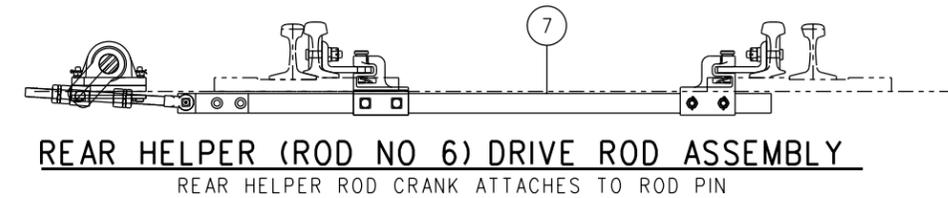
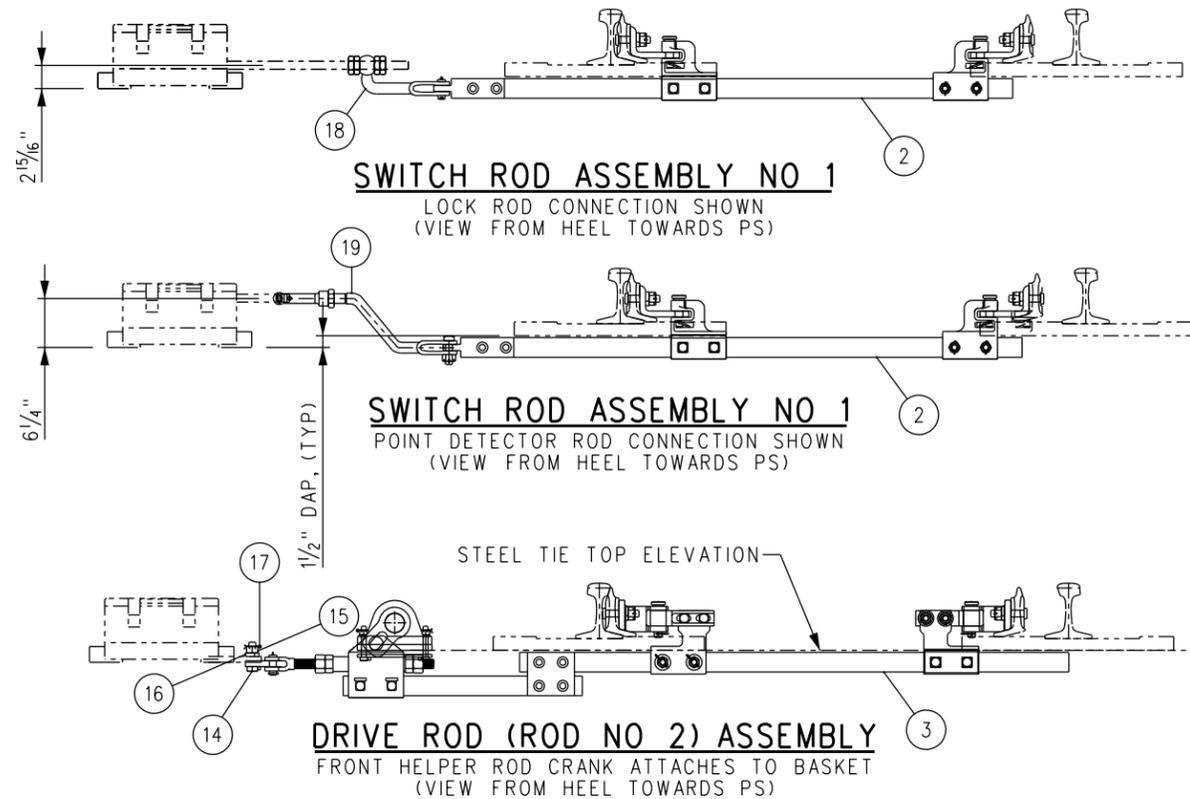


**REAR HELPER (ROD NO 6) DRIVE ROD ASSEMBLY**

REAR HELPER ROD CRANK ATTACHES TO ROD PIN

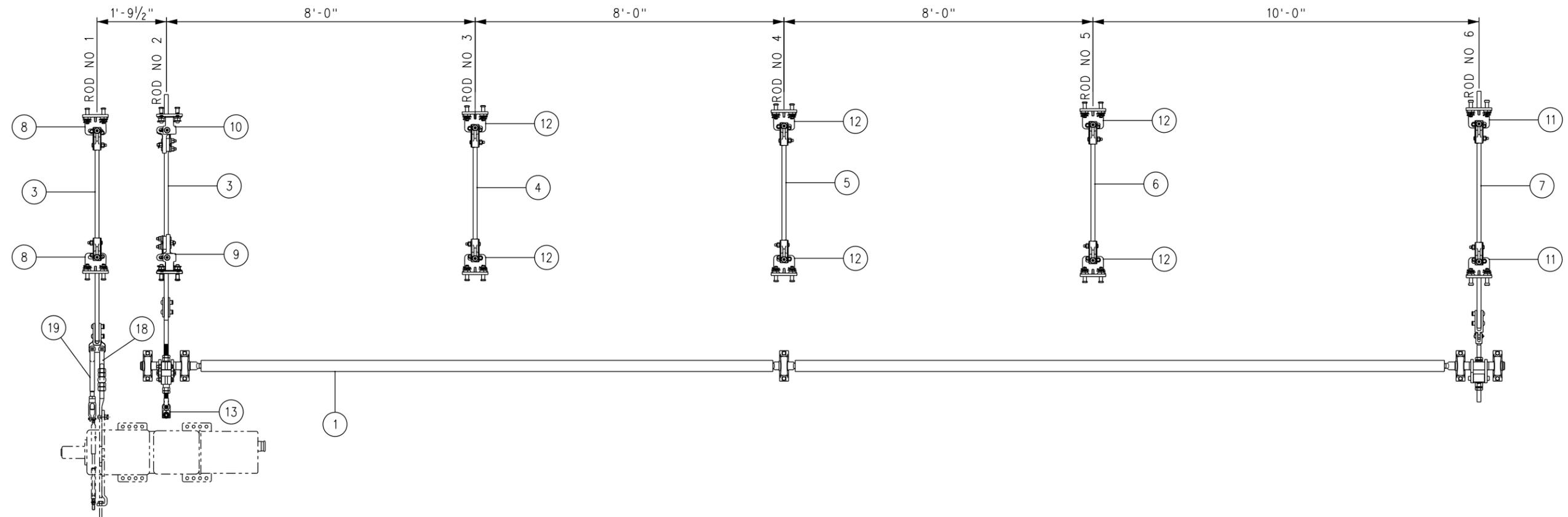


DRAWN BY: <i>Narek D. Pape</i> HDR DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. 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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS HOLLOW STEEL TIE RODDING ASSEMBLY SWITCH MACHINE ON LEFT HAND SIDE NO 24-136 LB RE SPRING FROG TURNOUT	STANDARD 2807
REV. DATE DESCRIPTION DES. ENG.					SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2807-71



BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	ROTARY ASSIST ASSEMBLY FOR NO 24-136 LB RE TURNOUT	-	
2	1	SWITCH ROD NO 1, FOR POINT DETECTOR/LOCK ROD, (24-136-1)	ES2807-73	
3	1	SWITCH ROD NO 2, DRIVE, C/W BASKET (24-136-2)	ES2807-73	
4	1	SWITCH ROD NO 3, THROW, (24-136-3)	ES2807-73	
5	1	SWITCH ROD NO 4, THROW, (24-136-4)	ES2807-74	
6	1	SWITCH ROD NO 5, THROW, (24-136-5)	ES2807-74	
7	1	SWITCH ROD NO 6, THROW, (24-136-6)	ES2807-74	
8	2	ROD POINT BRACKET, DETECTOR/LOCK ROD, HOLES AT 2 7/8" ARB*	-	
9	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, LH	-	
10	1	ROD POINT BRACKET, THROW ROD, ANTI-ROLL, HOLES AT 2 7/8" ARB*, RH	-	
11	2	ROD POINT BRACKET, HOLES AT 2 3/8" ARB* C/W SQUARE BOLTS	-	
12	6	ROD POINT BRACKET, HOLES AT 2 3/8" ARB* C/W THIN HEAD SQUARE BOLTS	-	
13	1	DROP LUG FOR US&S M23 SWITCH MACHINE DRIVE BAR	-	
14	1	BOLT, 7/8" DIA x 3" LONG, DRILLED 2 9/16" BELOW HEAD, HEAVY HEX, GR 5	-	
15	1	NUT, 7/8" DIA SLOTTED HEAVY HEX, GR 8	-	
16	1	SPRING WASHER, 7/8" DIA	-	
17	1	COTTER PIN, 3/16" DIA x 1 3/4" LONG	-	
18	1	LOCK ROD, FOR M23 SWITCH MACHINE, HST	-	
19	1	DETECTOR ROD, FOR M23 SWITCH MACHINE, HST	-	

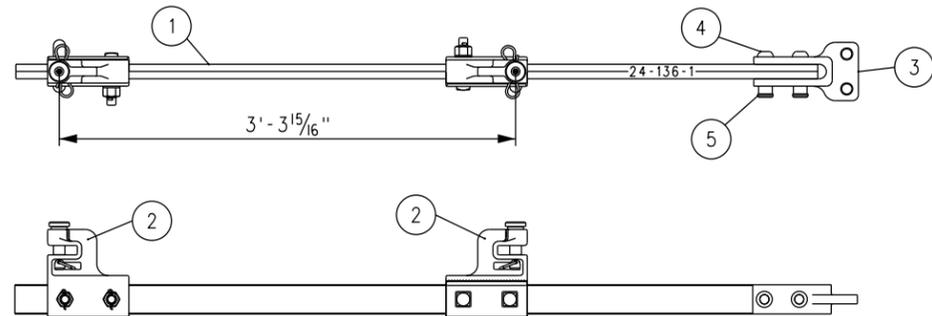
ARB\* - ABOVE RAIL BASE



DRAWN BY: <i>Narek D. Bze</i> HDR DATE: 03/31/2011 ASSISTANT DIRECTOR: STANDARDS & DESIGN		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.	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS HOLLOW STEEL TIE RODDING ASSEMBLY SWITCH MACHINE ON RIGHT HAND SIDE NO 24-136 LB RE SPRING FROG TURNOUT	STANDARD 2807
REVISION SHEET 1 OF 1 ES2807-72					

BILL OF MATERIAL FOR SWITCH ROD 24-136-1

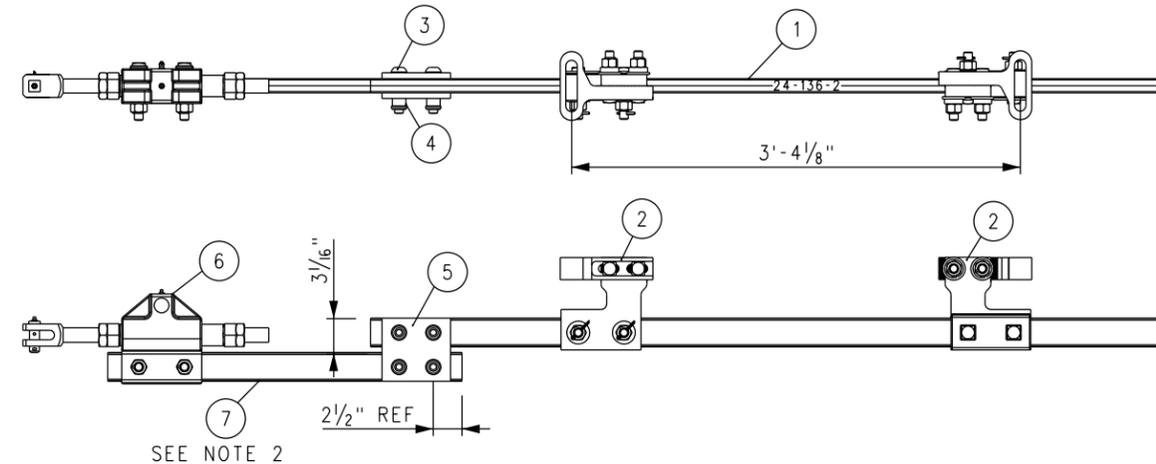
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 24-136-1	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE COMPOSITE RODS	-	
3	1	CONNECTOR LUG FOR POINT DETECTOR/LOCK RODS	-	
4	2	HUCK BOLT, 3/4" DIA (C50LR-BR24-36)	-	
5	2	HUCK COLLAR, 3/4" DIA (LC-2R24B)	-	



**SWITCH ROD ASSEMBLY 24-136-1**

BILL OF MATERIAL FOR SWITCH ROD 24-136-2

ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	BLUE ROD, PULTRUDED COMPOSITE, 1 1/4" x 2 1/2" x 5'-10" LONG, 24-136-2	-	
2	2	CLIP/LUG ASSEMBLY, HST SWITCH, ANTI-ROLLOVER DESIGN, LH	-	
3	4	HUCK BOLT, 3/4" DIA (C50LR-BR24-36)	-	
4	4	HUCK COLLAR, 3/4" 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, 1 1/4" x 2 1/2" x 2'-7" LONG, 1-B ROD	-	



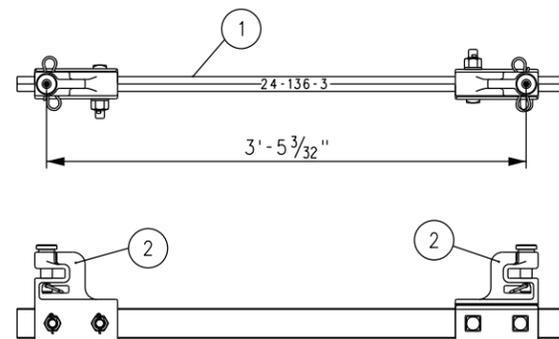
**SWITCH ROD ASSEMBLY 24-136-2**

BILL OF MATERIAL FOR SWITCH ROD 24-136-3

ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 24-136-3	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE	-	

NOTE: CENTER TO CENTER PIN DIMENSION REQUIRED FOR 4 3/4" THROW

ROD #	C-C PIN DIMENSION
1	3'-3 15/16" "
2	3'-4 1/8" "
3	3'-5 3/32" "
4	3'-5 7/8" "
5	3'-6 15/32" "
6	3'-7" "



**SWITCH ROD ASSEMBLY 24-136-3**

**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 1-B ROD.

DRAWN BY: <i>Narek D. Papp</i>		HDR: <i>William Davan</i>		DATE: 03/31/2011
ASSISTANT DIRECTOR: STANDARDS & DESIGN		DIRECTOR OF ENGINEERING AND CONSTRUCTION		
XX	XX-XX-XX	REVISION	XX	XX
REV.	DATE	DESCRIPTION	DES.	ENG.

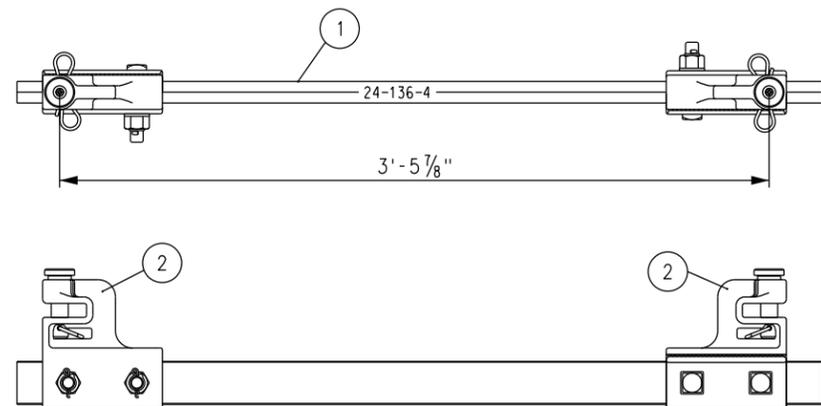
SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD 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.



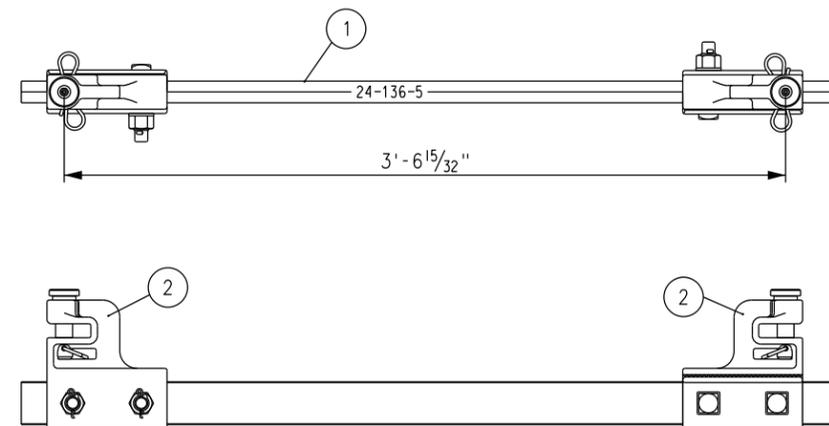
ENGINEERING STANDARDS	
HOLLOW STEEL TIE SWITCH RODS	
24-1, 24-2 AND 24-3	
NO 24-136 LB RE	

STANDARD	2807
SCALE:	NTS
REVISION SHEET	1 OF 1
CADD FILE:	ES2807-73

BILL OF MATERIAL FOR SWITCH ROD 24-136-4					BILL OF MATERIAL FOR SWITCH ROD 24-136-5				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 24-136-4	-		1	1	SWITCH ROD 24-136-5	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE	-		2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE	-	

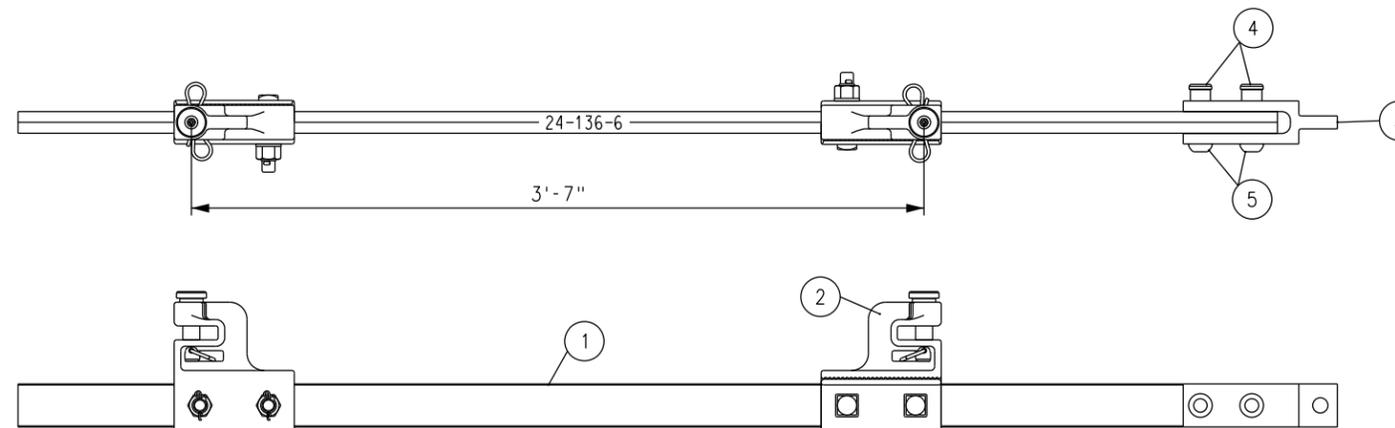


**SWITCH ROD ASSEMBLY 24-136-4**



**SWITCH ROD ASSEMBLY 24-136-5**

BILL OF MATERIALS FOR SWITCH ROD 24-136-6				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 24-136-6	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIES	-	
3	1	CONNECTOR LUG FOR REAR DRIVE ROD	-	
4	2	HUCK BOLT, 3/4" DIA (C50LR-BR24-36)	-	
5	2	HUCK COLLAR, 3/4" DIA (LC-2R24B)	-	

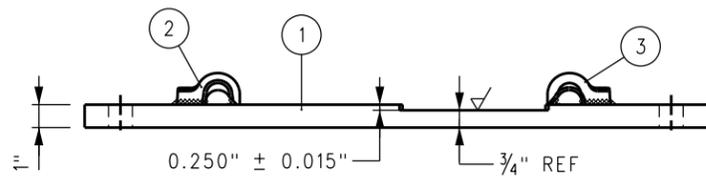
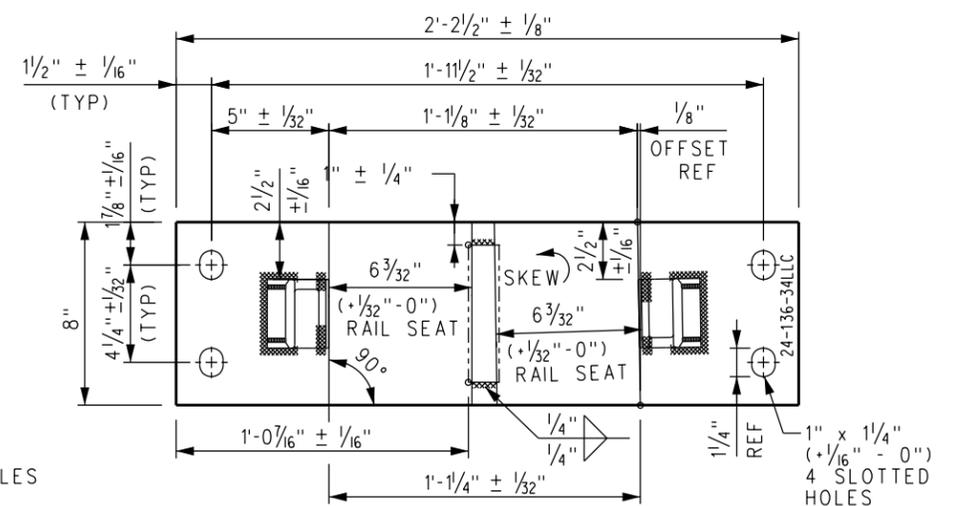
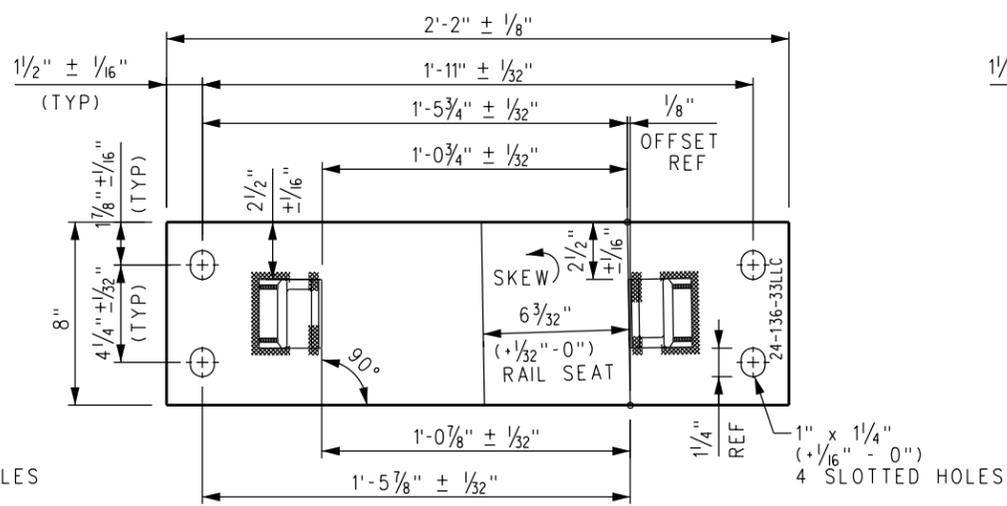
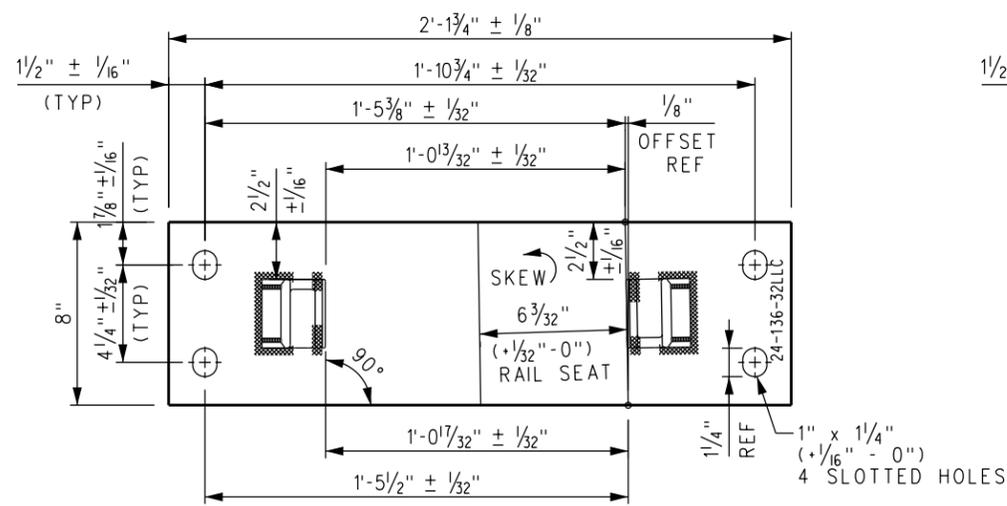


**SWITCH ROD ASSEMBLY 24-136-6**

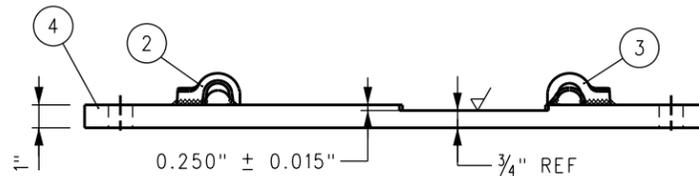
**NOTE:**

1. ROD IDENTIFICATION TO BE ENGRAVED ON ROD CLEARLY AS SHOWN, 3/8" MIN HEIGHT.

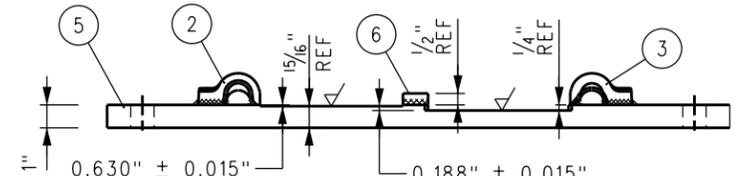
DRAWN BY: <i>Nareh D. Papp</i>		HDR: <i>Nareh D. Papp</i>	DATE: 03/31/2011	<small>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION 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.</small>	<p><b>METROLINK</b> SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>	ENGINEERING STANDARDS		STANDARD 2807
<small>REVISION</small> X XX-XX-XX REV. DATE DESCRIPTION DES. ENG.		<small>ASSISTANT DIRECTOR: STANDARDS &amp; DESIGN</small> <i>William Dava</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION				HOLLOW STEEL TIE SWITCH RODS 24-4, 24-5 AND 24-6 NO 24-136 LB RE		SCALE: NTS



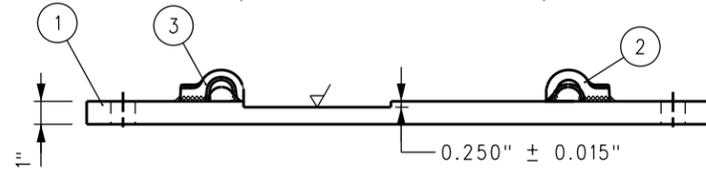
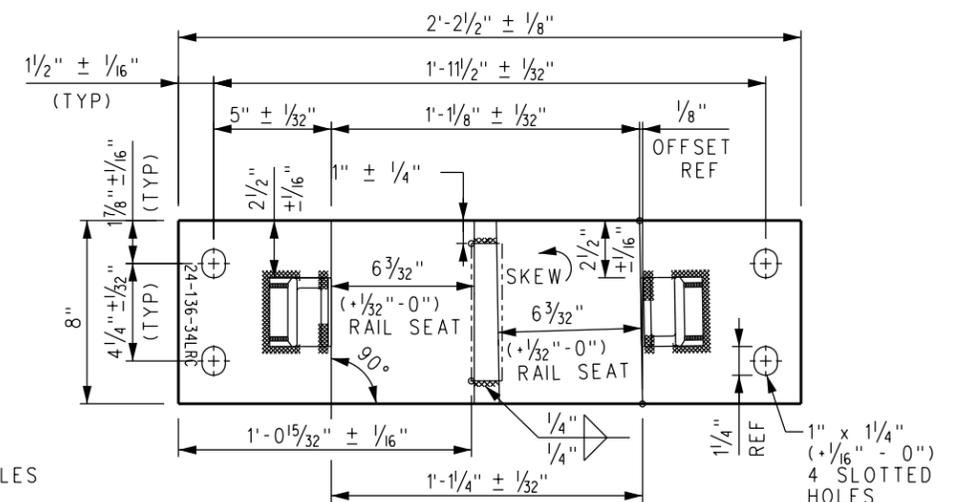
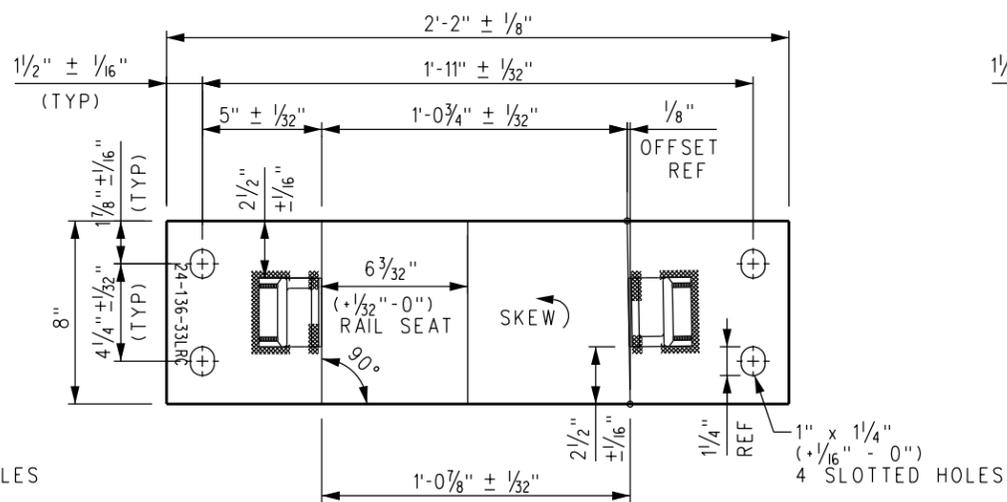
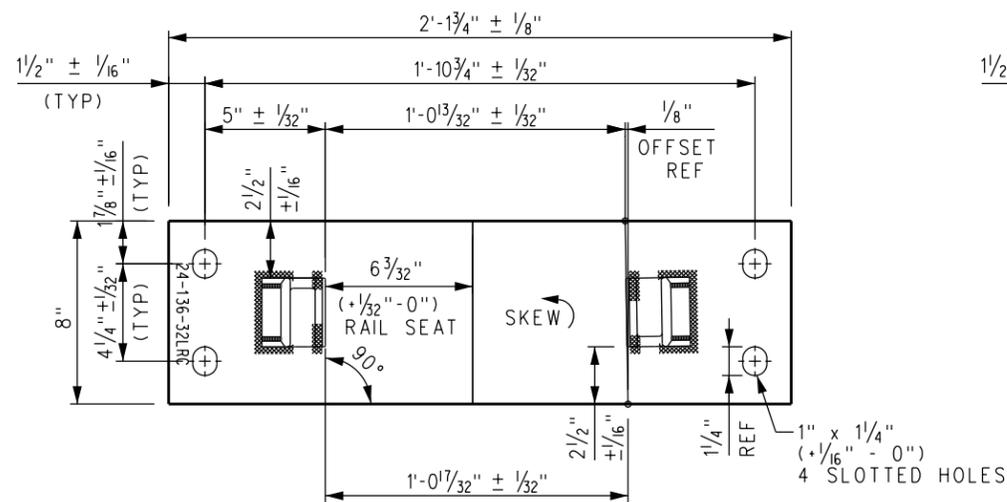
**SWITCH PLATE P24-136-32LLC**



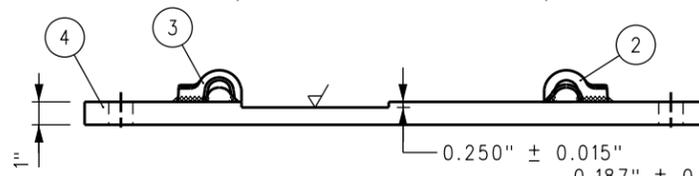
**SWITCH PLATE P24-136-33LLC**



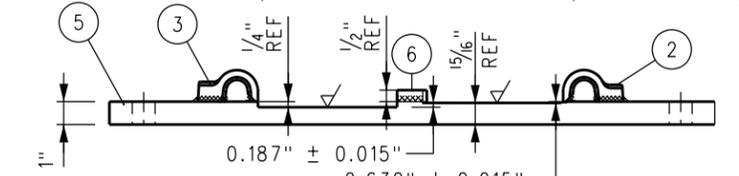
**SWITCH PLATE P24-136-34LLC**



**SWITCH PLATE P24-136-32LRC**



**SWITCH PLATE P24-136-33LRC**



**SWITCH PLATE P24-136-34LRC**

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-1 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	SHOULDER, PANDROL, FORGED, TYPE 5, ANTI-OVERDRIVE

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

**NOTES:**

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

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

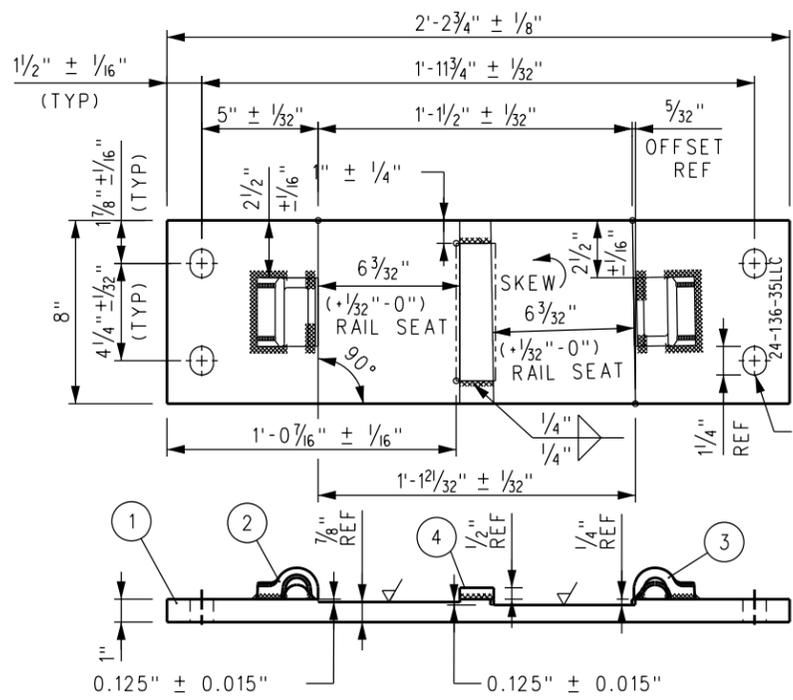
DRAWN BY: *Nareh D. Pape* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William Dava*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

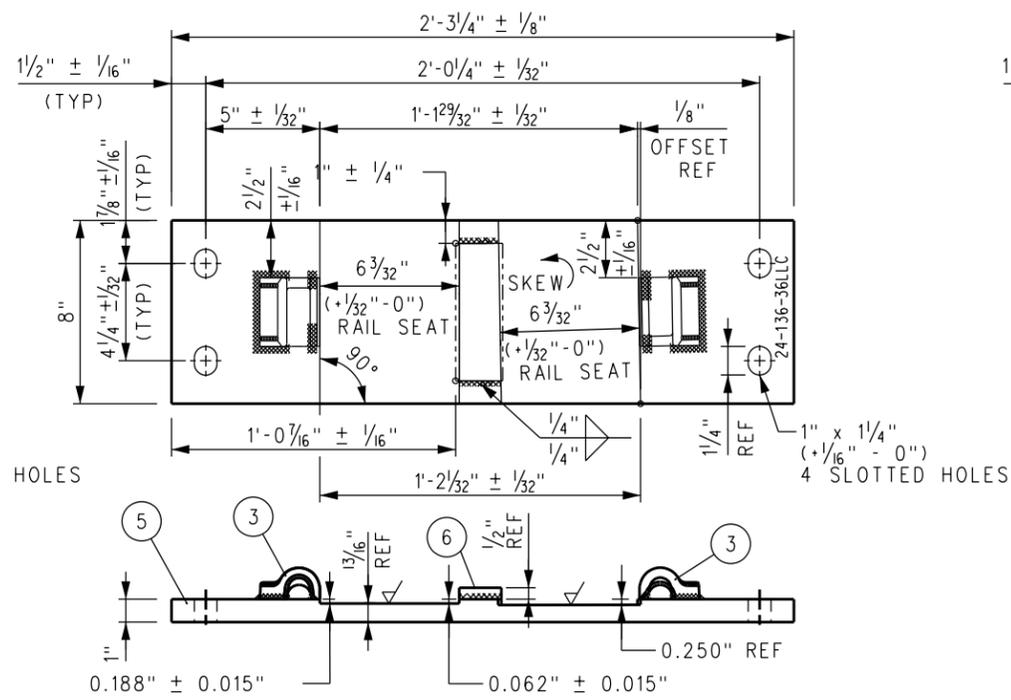
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 SWITCH PLATES  
 (24-32LLC / LRC THROUGH 24-34LLC / LRC)  
 FOR NO 24 136 LB RE LH CONCRETE TIE TURNOUT

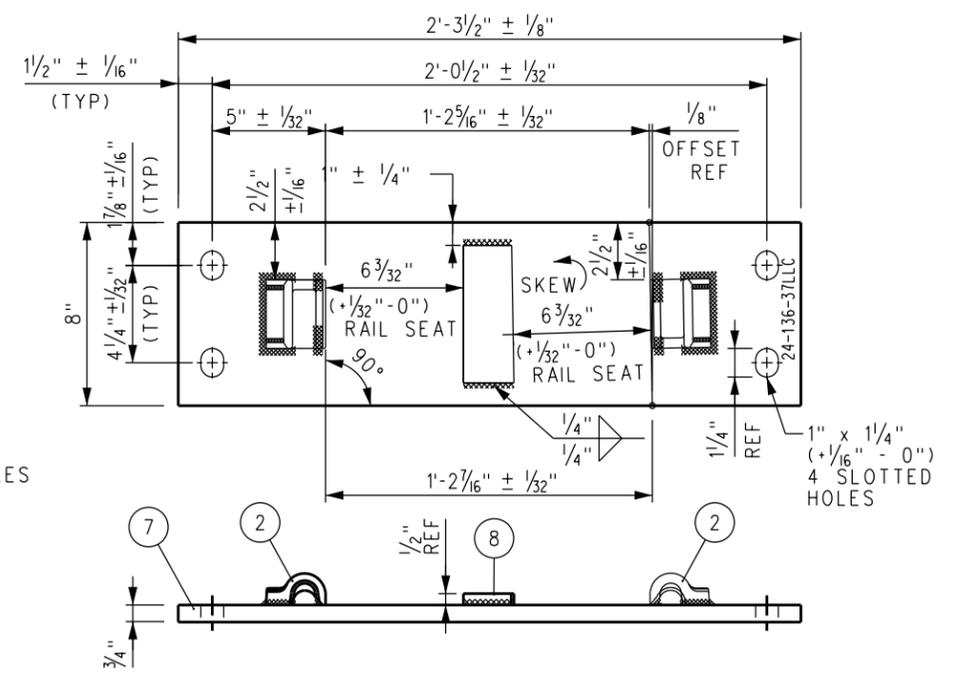
STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-80



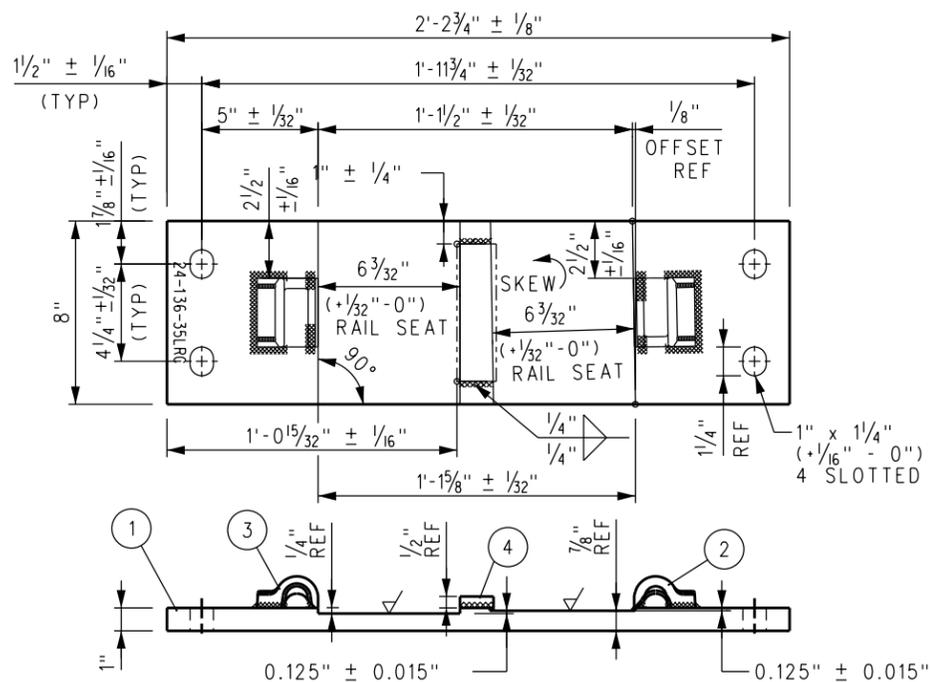
**SWITCH PLATE P24-136-35LLC**



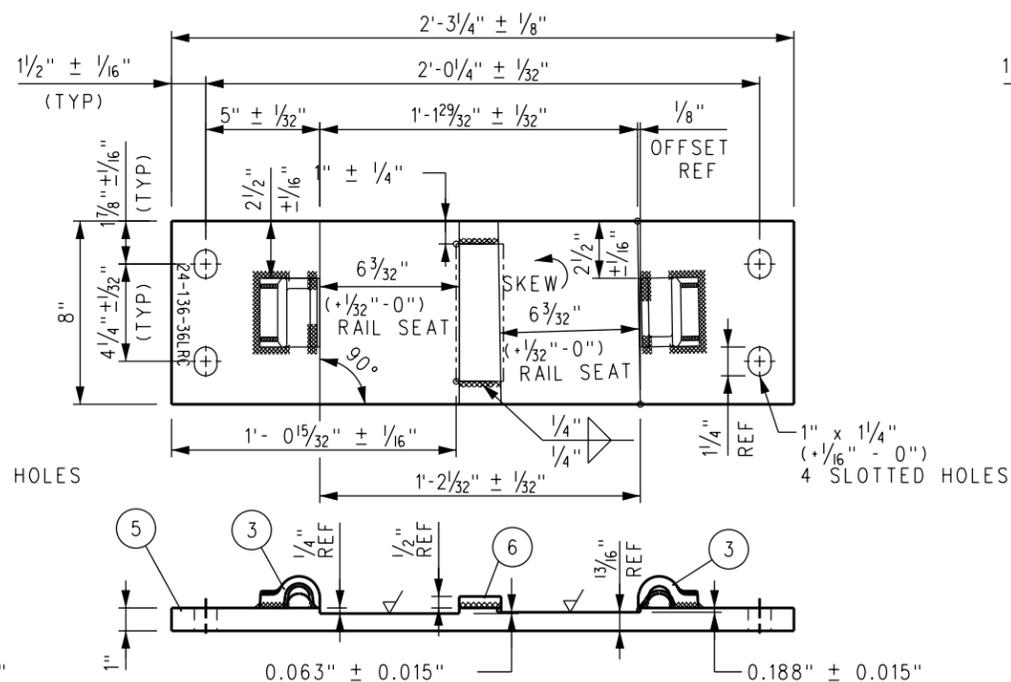
**SWITCH PLATE P24-136-36LLC**



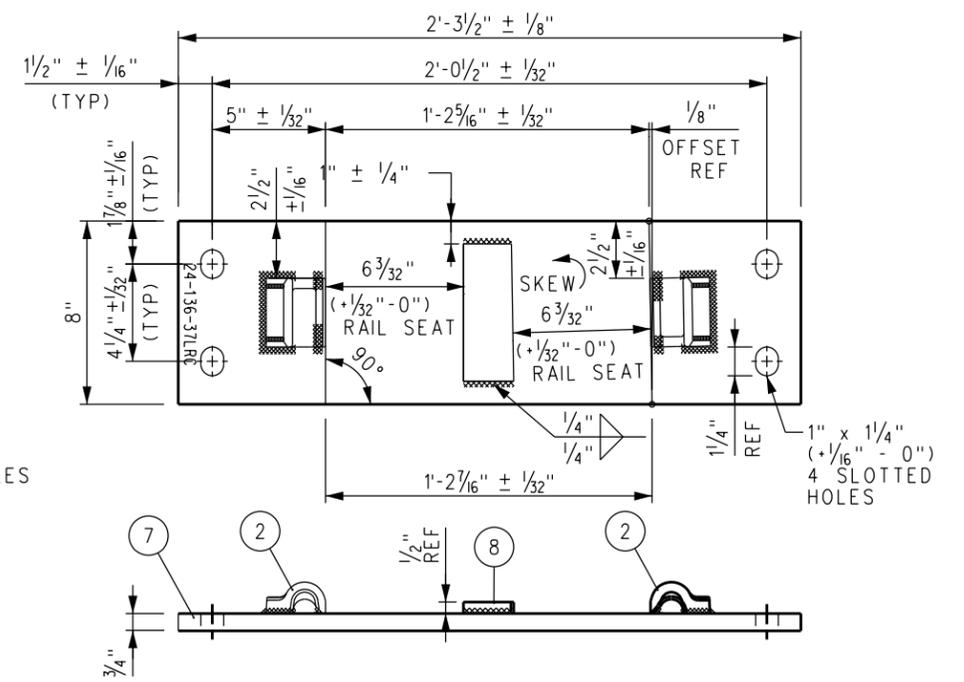
**SWITCH PLATE P24-136-37LLC**



**SWITCH PLATE P24-136-35LRC**



**SWITCH PLATE P24-136-36LRC**



**SWITCH PLATE P24-136-37LRC**

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1 x 8" x 2'-2 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	SHOULDER, PANDROL, FORGED, TYPE 5, ANTI-OVERDRIVE
4	FLAT BAR, ASTM A36, 1/2" x 6" x 1 1/16"

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

**NOTES:**

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

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

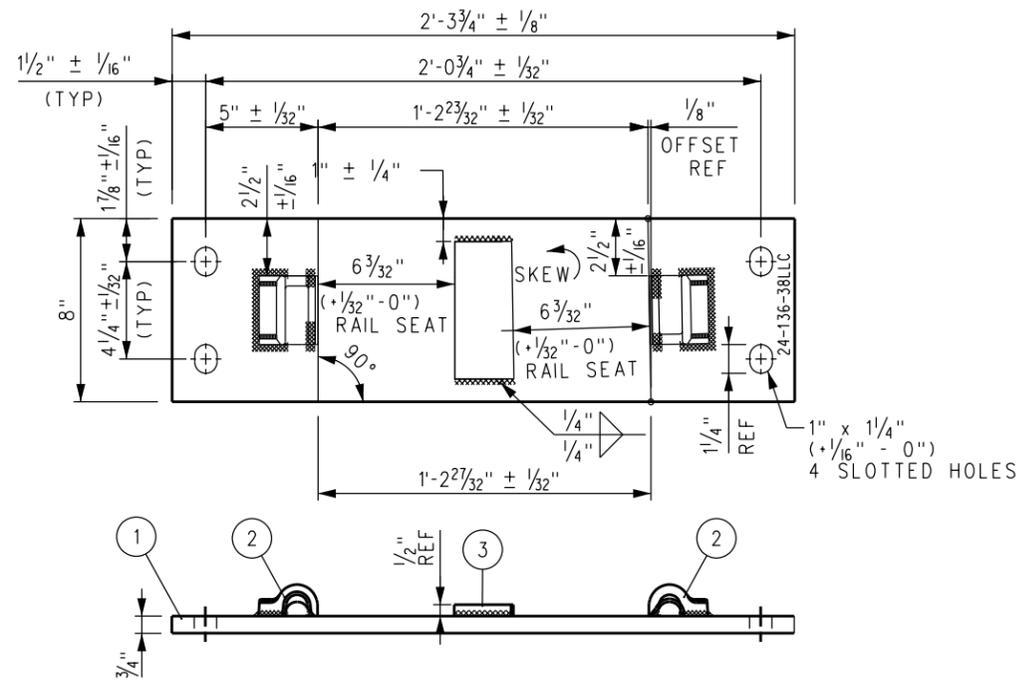
DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

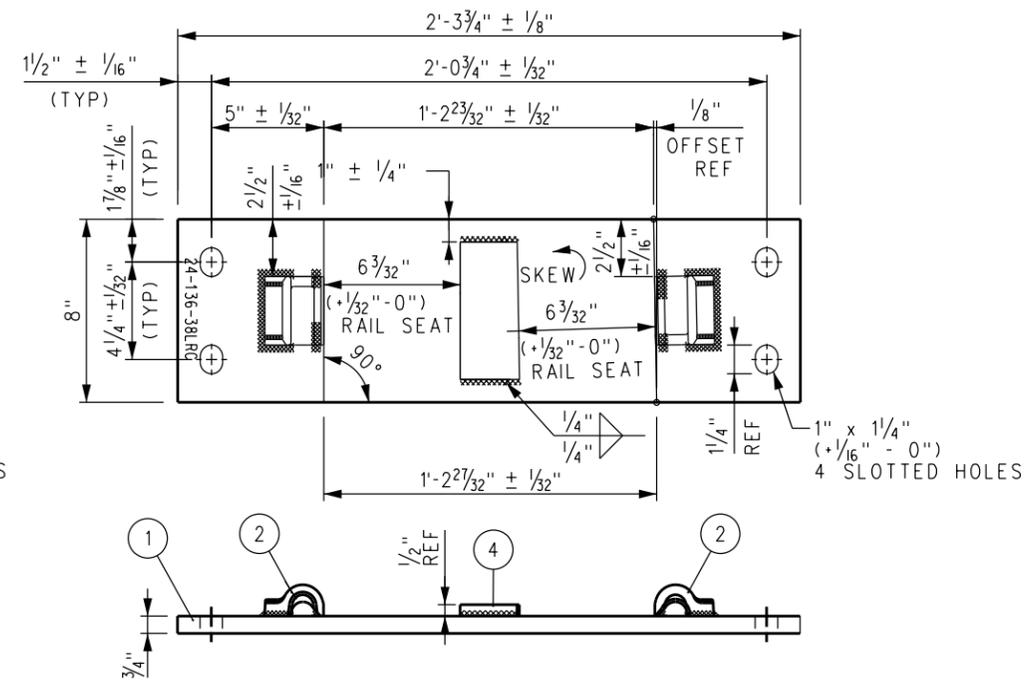
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

**ENGINEERING STANDARDS**  
 SWITCH PLATES  
 (24-35LLC /LRC THROUGH 24-37LLC /LRC)  
 FOR NO 24 136 LB RE CONCRETE TIE TURNOUT

STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-81



**SWITCH PLATE P24-136-38LLC**



**SWITCH PLATE P24-136-38LRC**

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-3 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	STOP, BURNED SKEW, 1/2" THICK, TAPERED 2 17/32" TO 2 5/8" OVER 6"

**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.

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

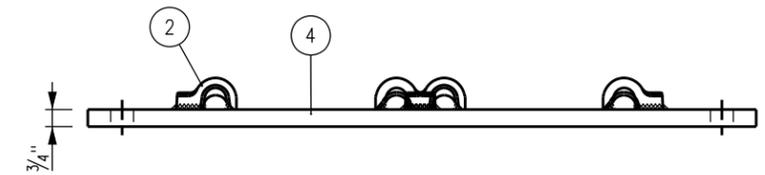
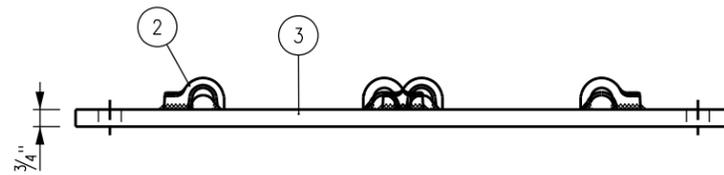
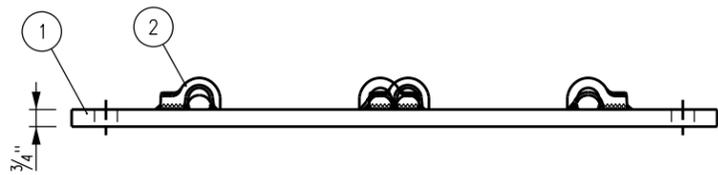
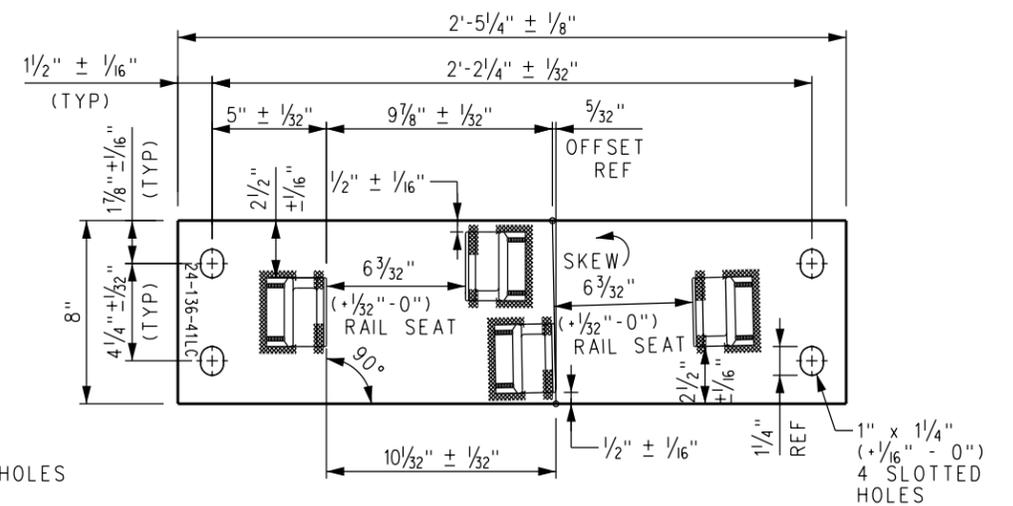
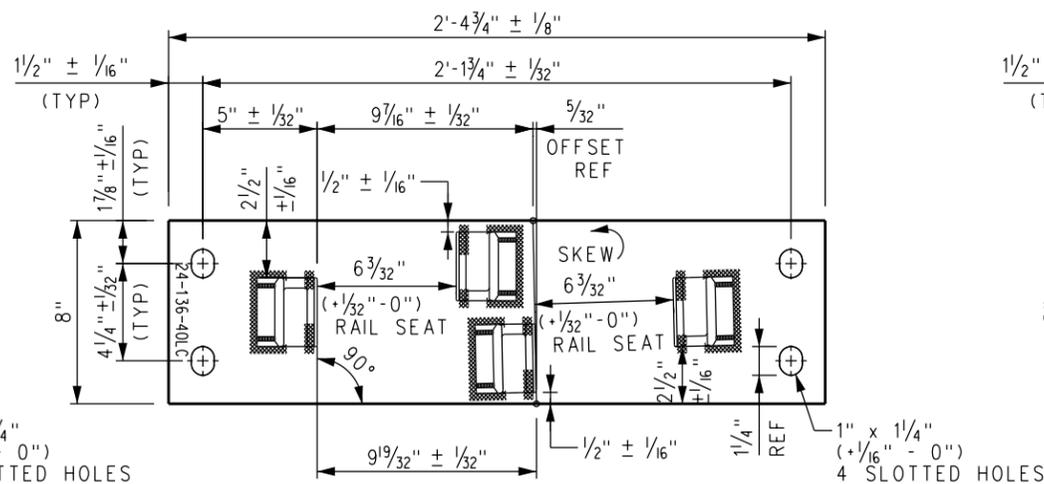
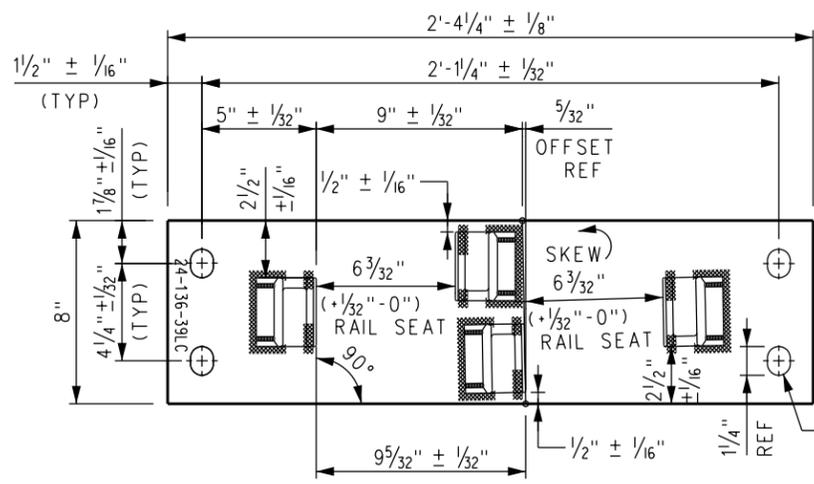
SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD 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  
SWITCH PLATES (24-38LLC /LRC)  
FOR NO 24 136 LB RE LH CONCRETE TIE TURNOUT

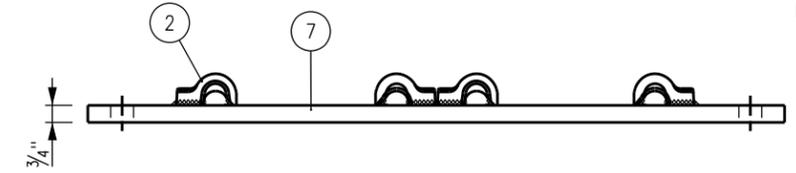
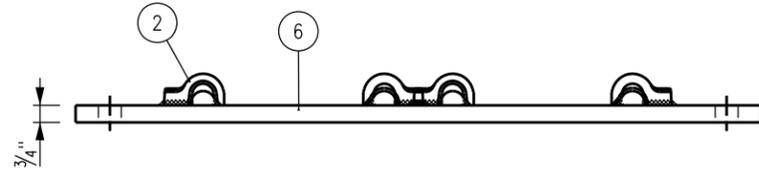
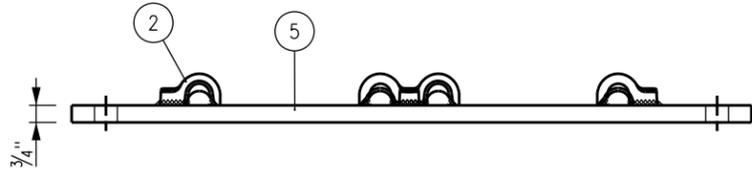
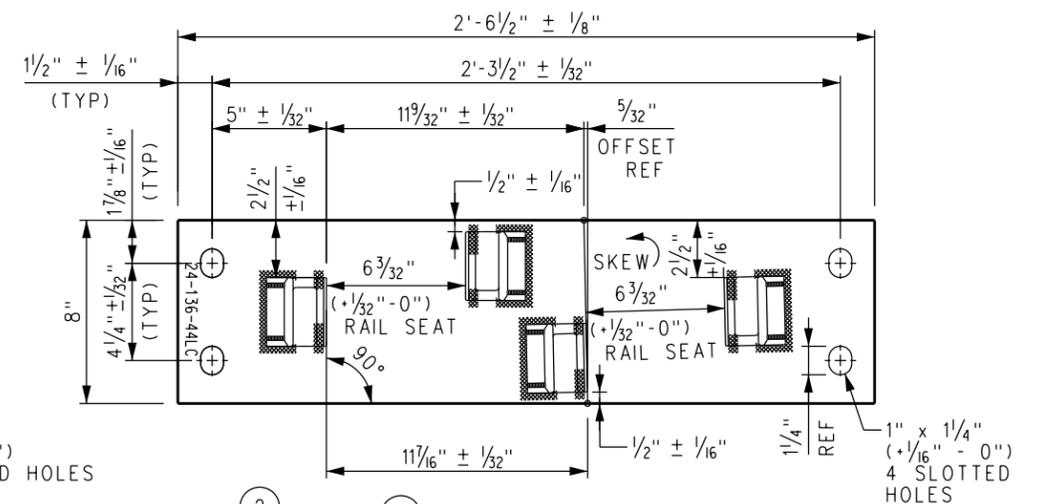
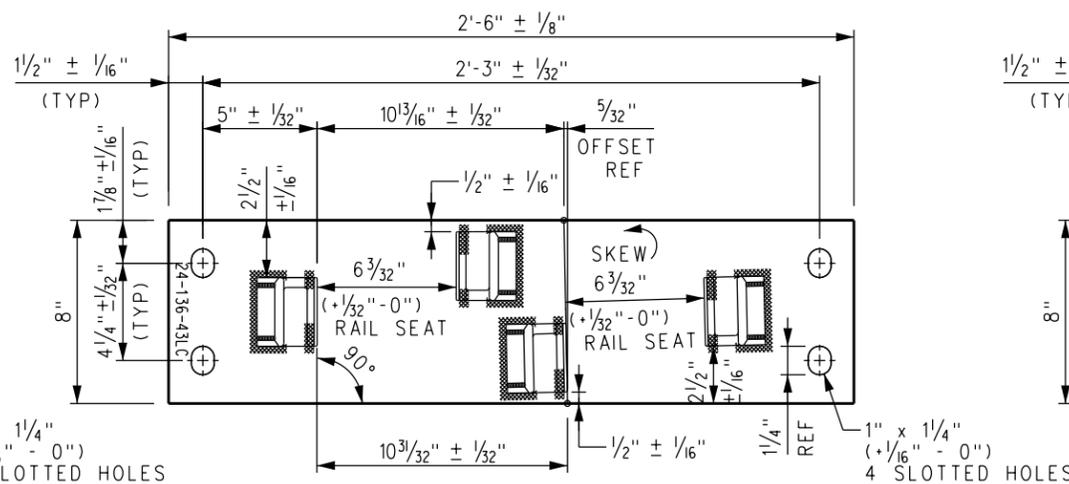
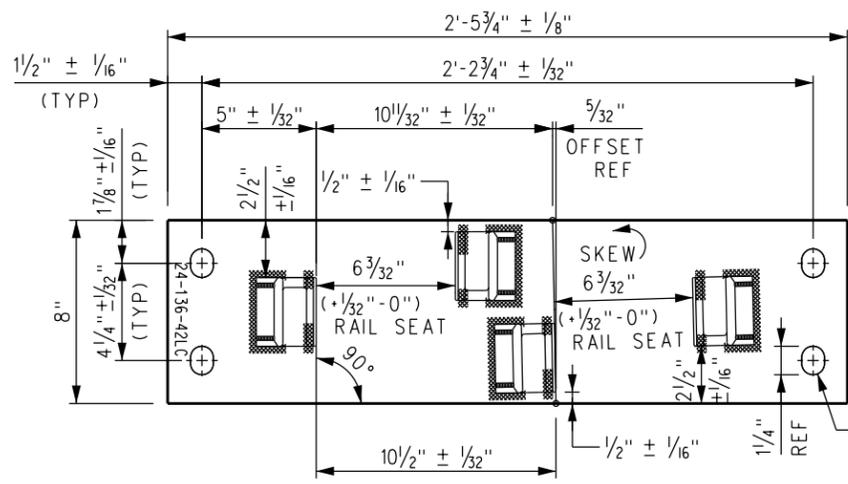
STANDARD	2807
SCALE	NTS
REVISION SHEET	- 1 OF 1
CADD FILE	ES2807-82



SWITCH PLATE P24-136-39LC

SWITCH PLATE P24-136-40LC

SWITCH PLATE P24-136-41LC



SWITCH PLATE P24-136-42LC

SWITCH PLATE P24-136-43LC

SWITCH PLATE P24-136-44LC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 1/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 3/4"
4	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/4"

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

**NOTES:**

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

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

DRAWN BY: HDR DATE: 03/31/2011

*Narek D. Pape*  
ASSISTANT DIRECTOR: STANDARDS & DESIGN

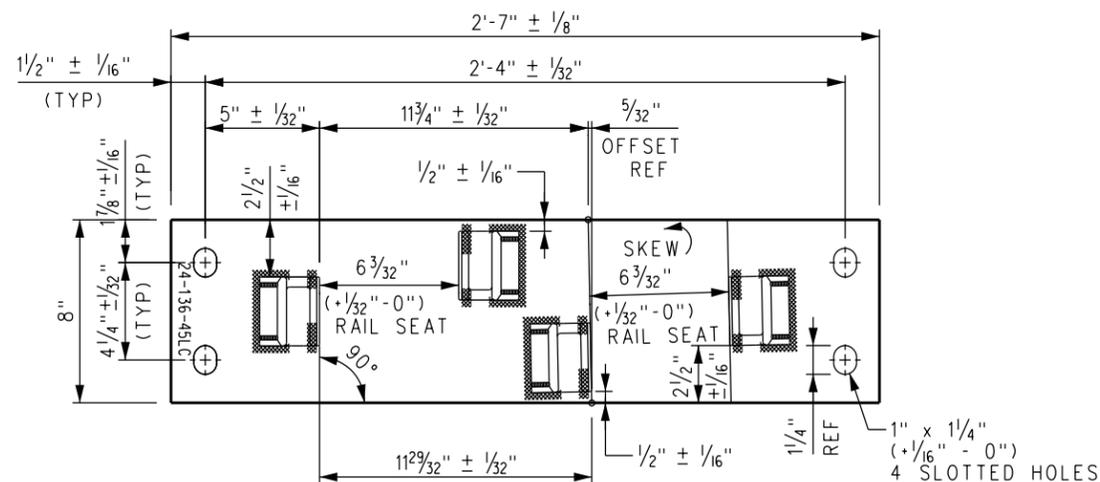
*William D. Dacan*  
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

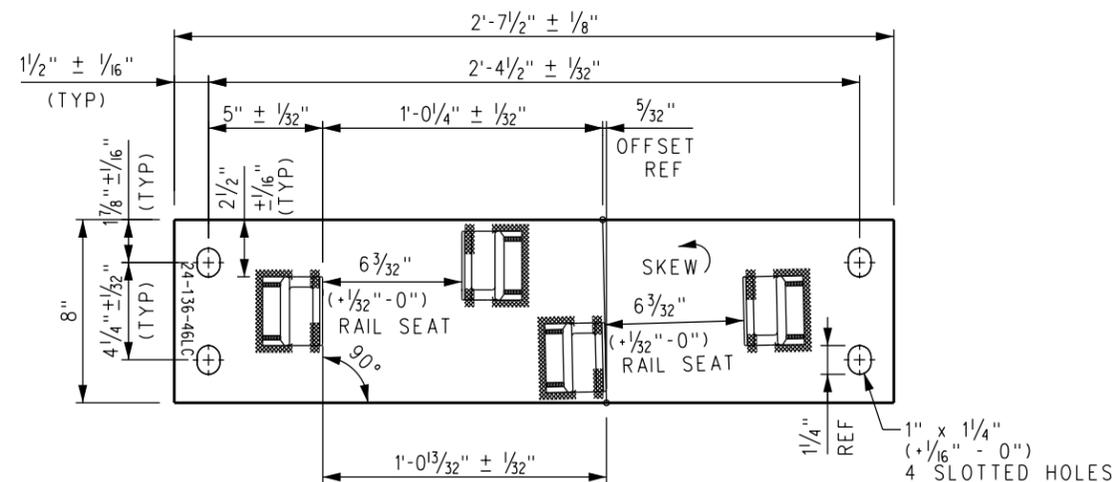
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS	
SWITCH PLATES (24-39LC THROUGH 24-44LC) FOR NO 24 136 LB RE LH CONCRETE TIE TURNOUT	

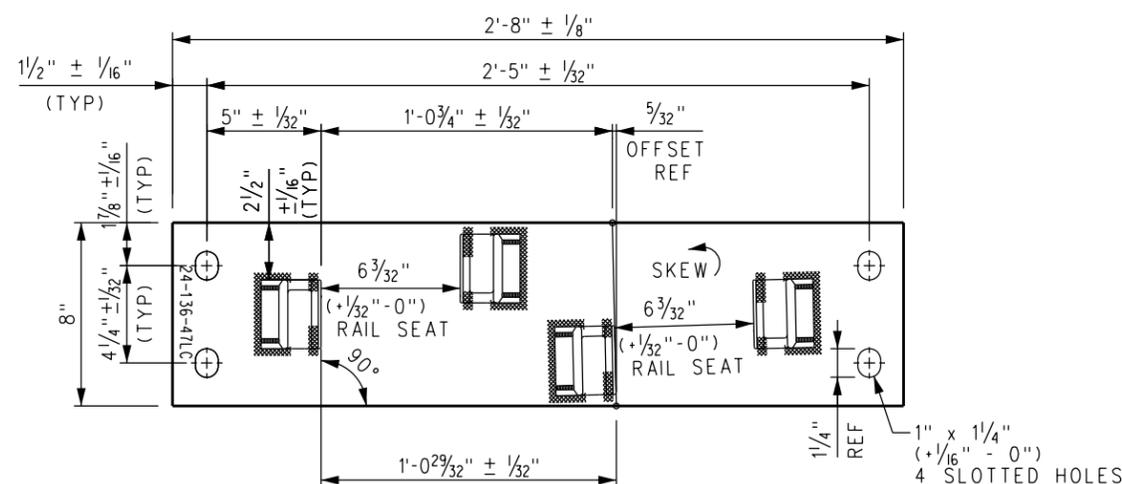
STANDARD	2807
SCALE	NTS
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES2807-83



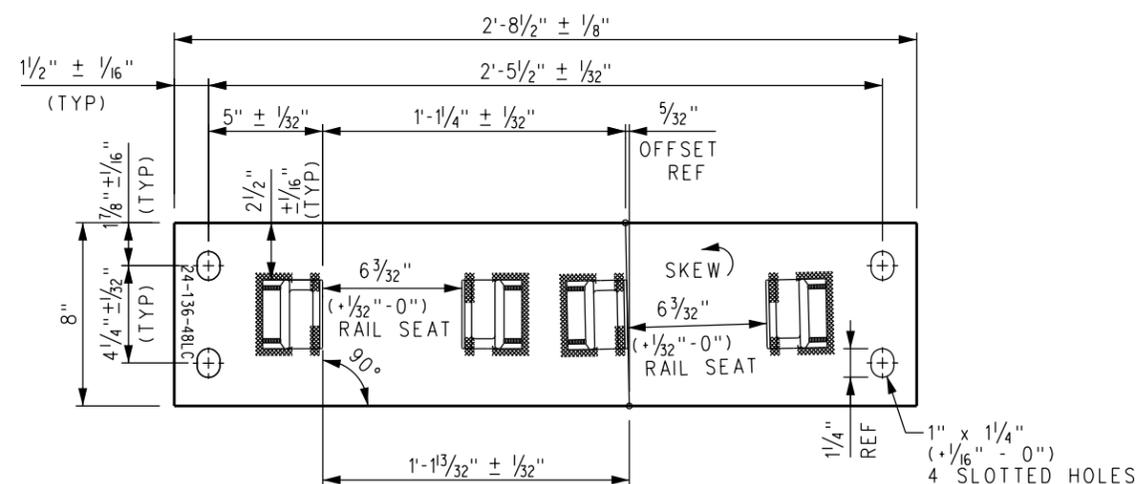
SWITCH PLATE P24-136-45LC



SWITCH PLATE P24-136-46LC



SWITCH PLATE P24-136-47LC



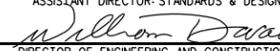
SWITCH PLATE P24-136-48LC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, $\frac{3}{4}'' \times 8'' \times 2'-7''$
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	FLAT BAR, ASTM A36, $\frac{3}{4}'' \times 8'' \times 2'-7\frac{1}{2}''$

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

**NOTES:**

1. I.D. CHARACTERS TO BE  $\frac{1}{2}''$  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.

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: HDR DATE: 03/31/2011				
 ASSISTANT DIRECTOR- STANDARDS & DESIGN				
 DIRECTOR OF ENGINEERING AND CONSTRUCTION				

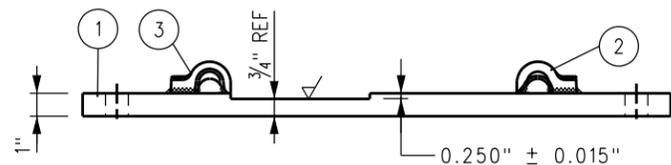
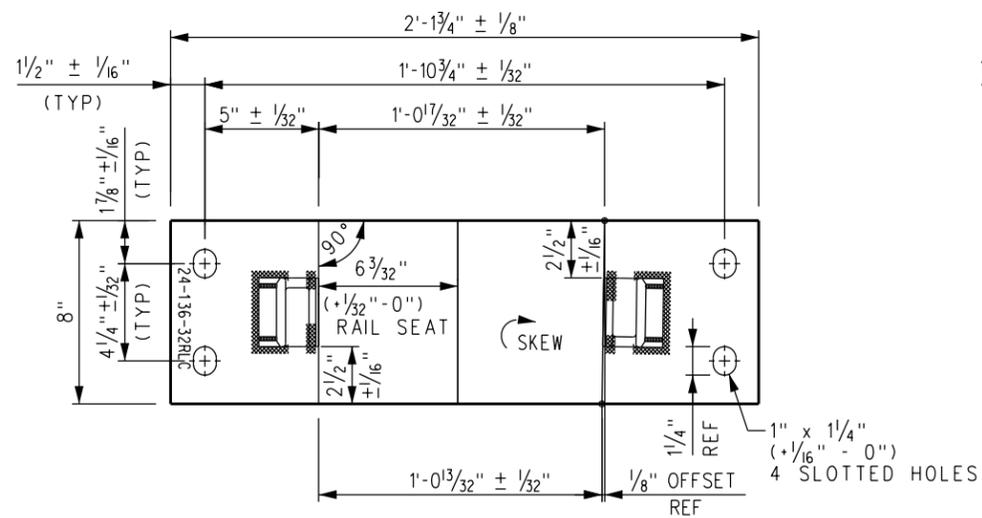
SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE 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.



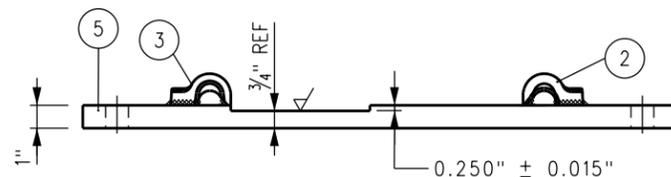
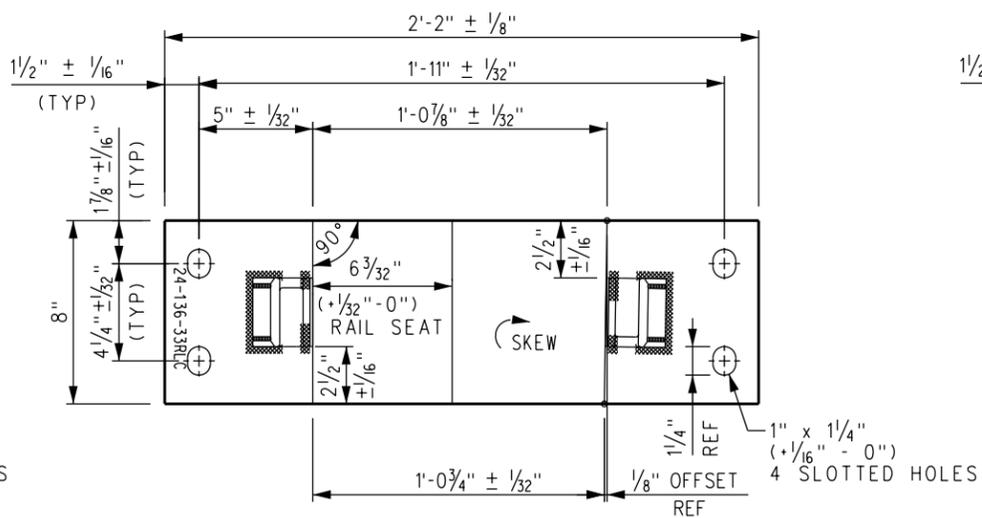
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
SWITCH PLATES (24-45LC THROUGH 24-48LC)  
FOR NO 24 136 LB RE LH CONCRETE TIE TURNOUT

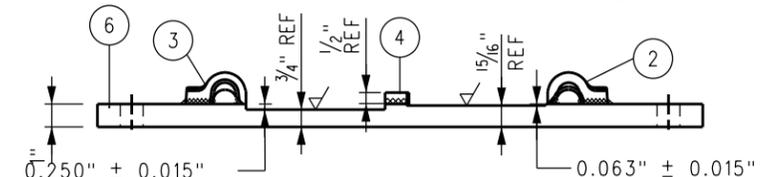
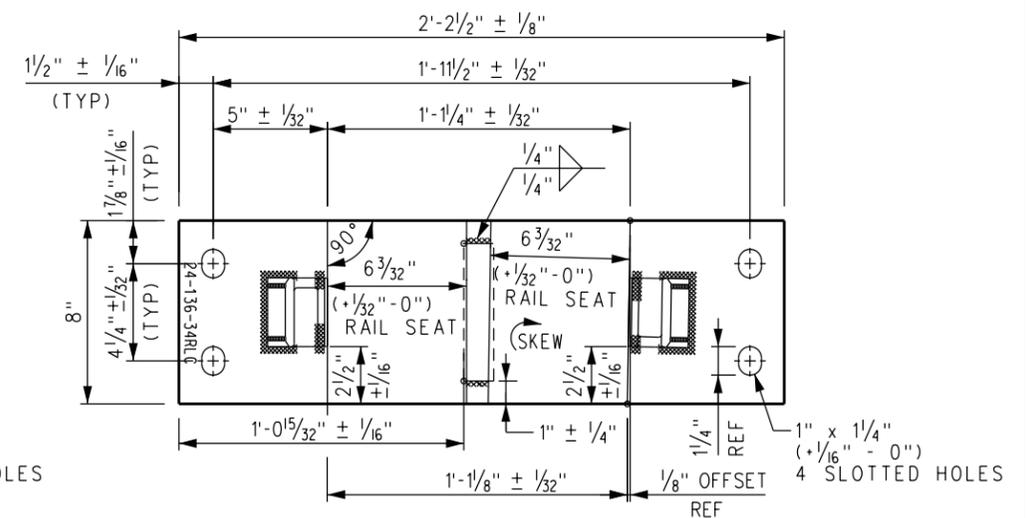
STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-84



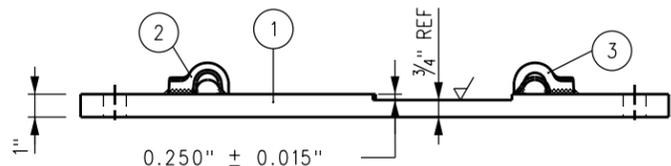
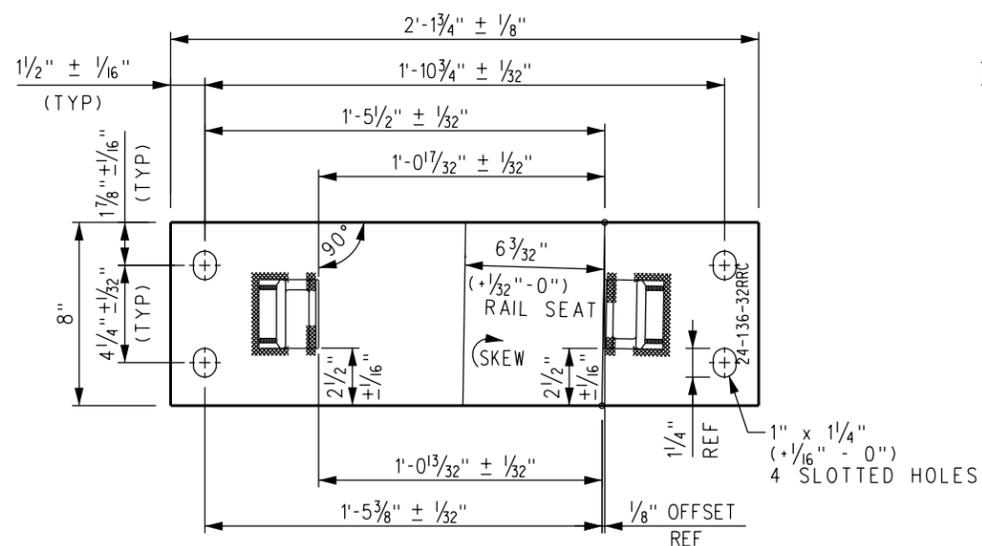
SWITCH PLATE P24-136-32RLC



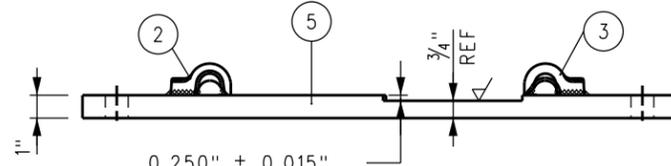
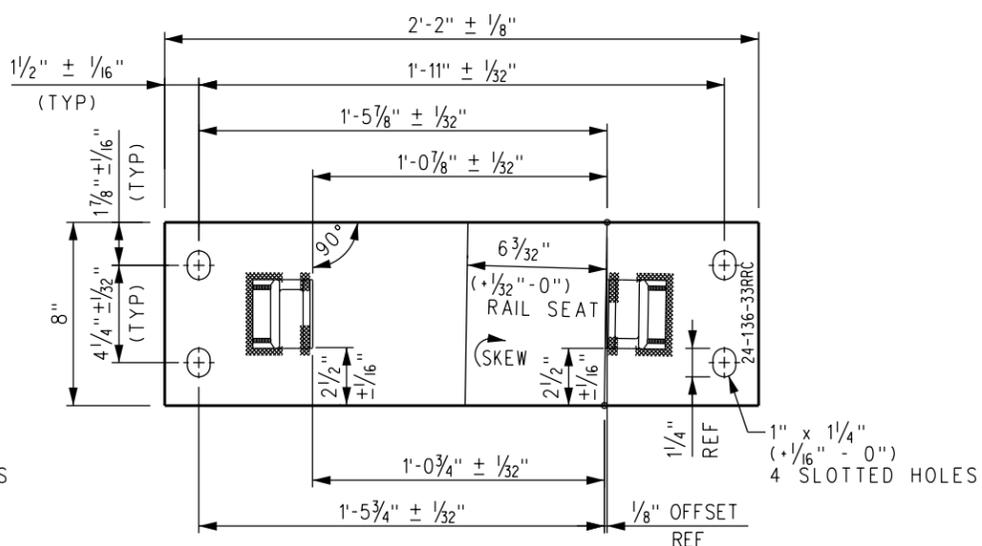
SWITCH PLATE P24-136-33RLC



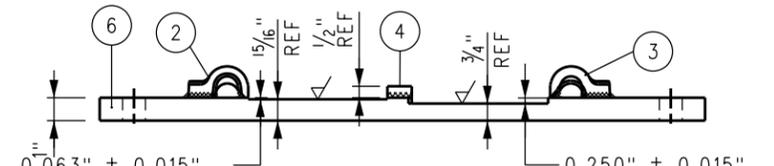
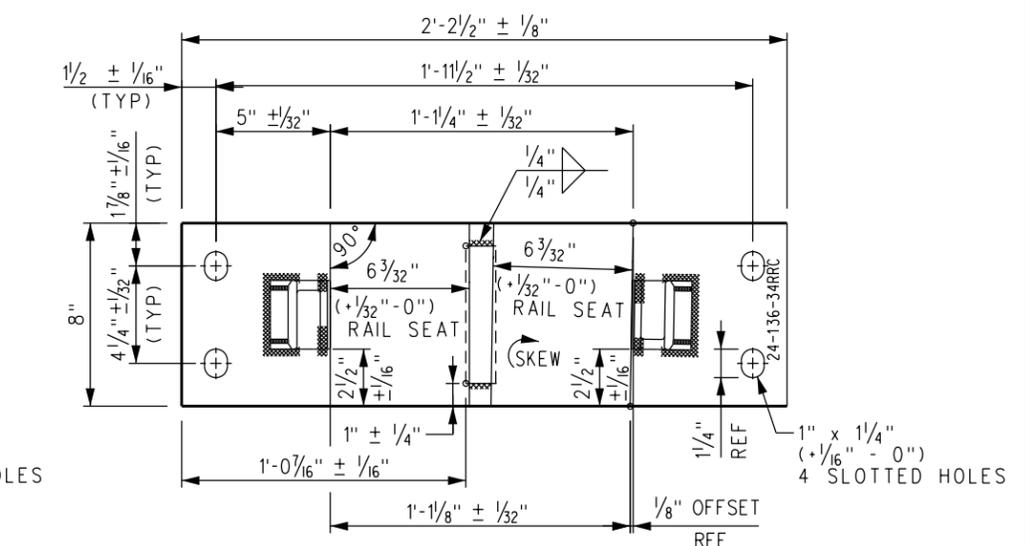
SWITCH PLATE P24-136-34RLC



SWITCH PLATE P24-136-32RRC



SWITCH PLATE P24-136-33RRC



SWITCH PLATE P24-136-34RRC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-1 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	SHOULDER, PANDROL, FORGED, TYPE 5, ANTI-OVERDRIVE

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

**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.

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

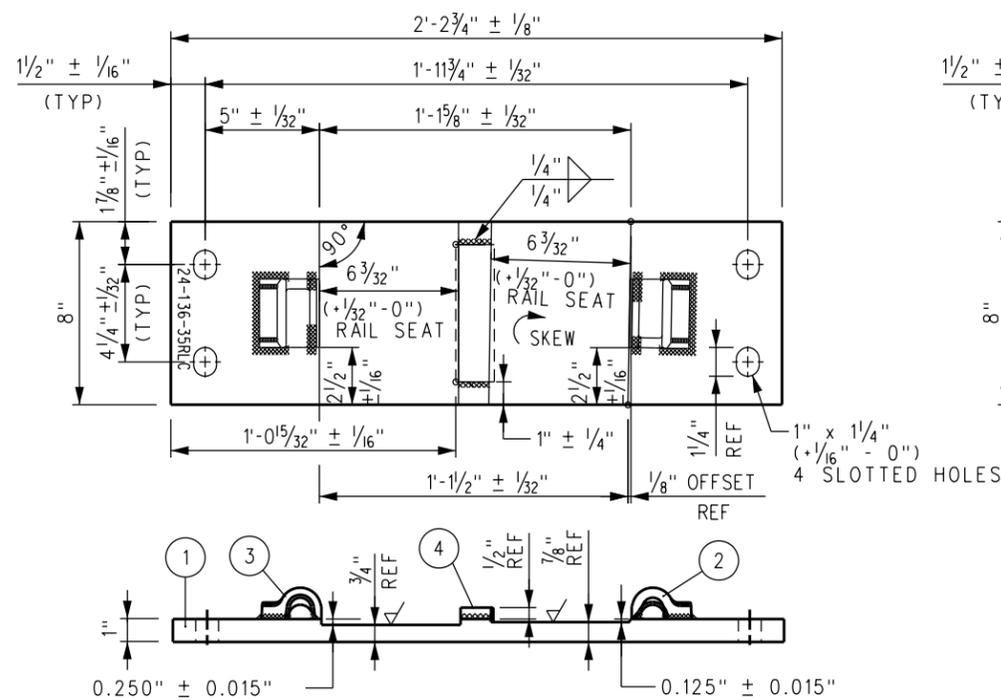
DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

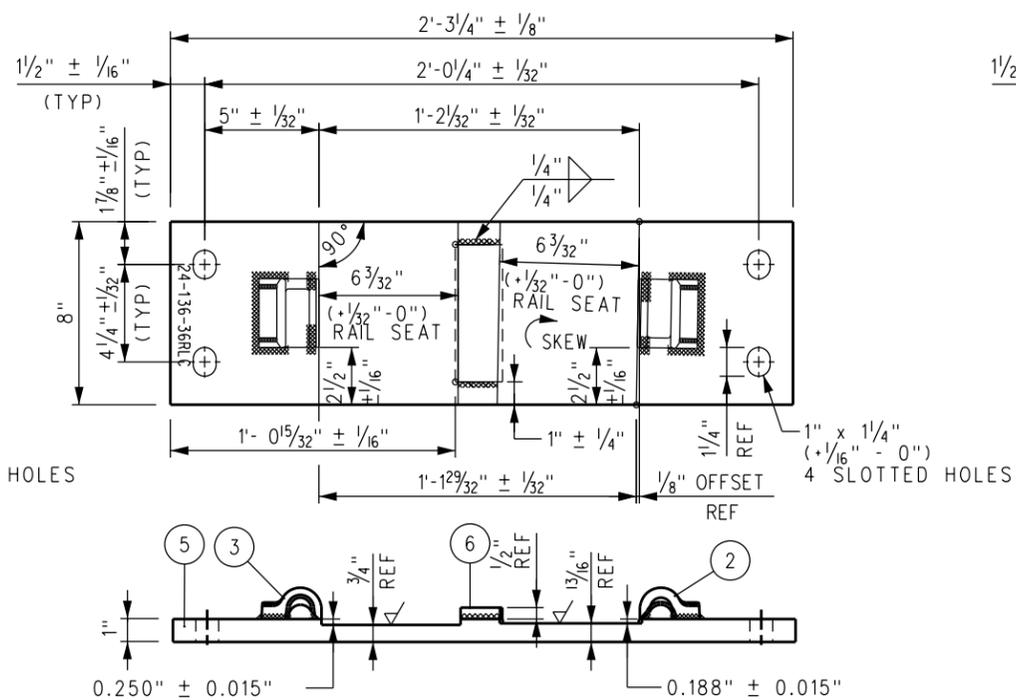
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 SWITCH PLATES  
 (24-32RLC / RRC THROUGH 24-34RLC / RRC)  
 FOR NO 24 136 LB RE RH CONCRETE TIE TURNOUT

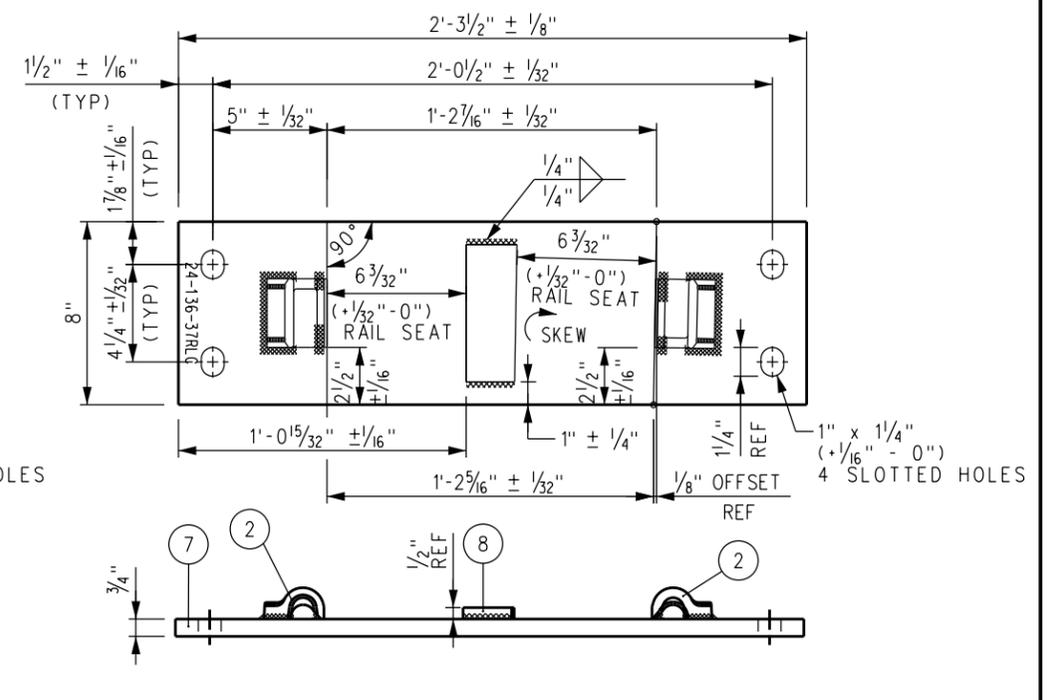
STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-85



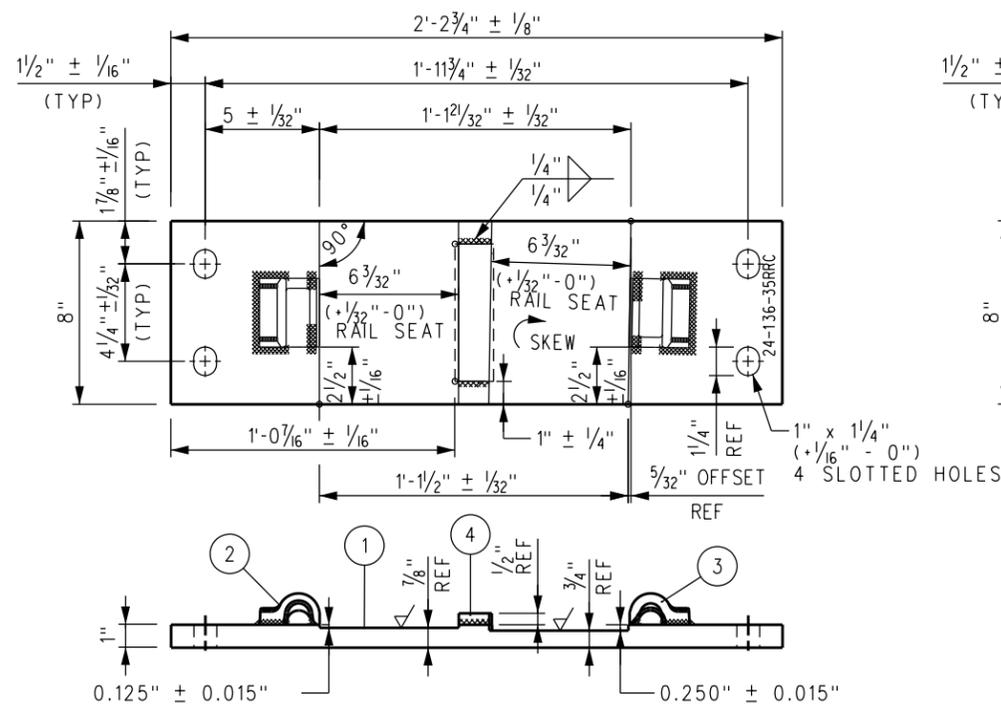
**SWITCH PLATE P24-136-35RLC**



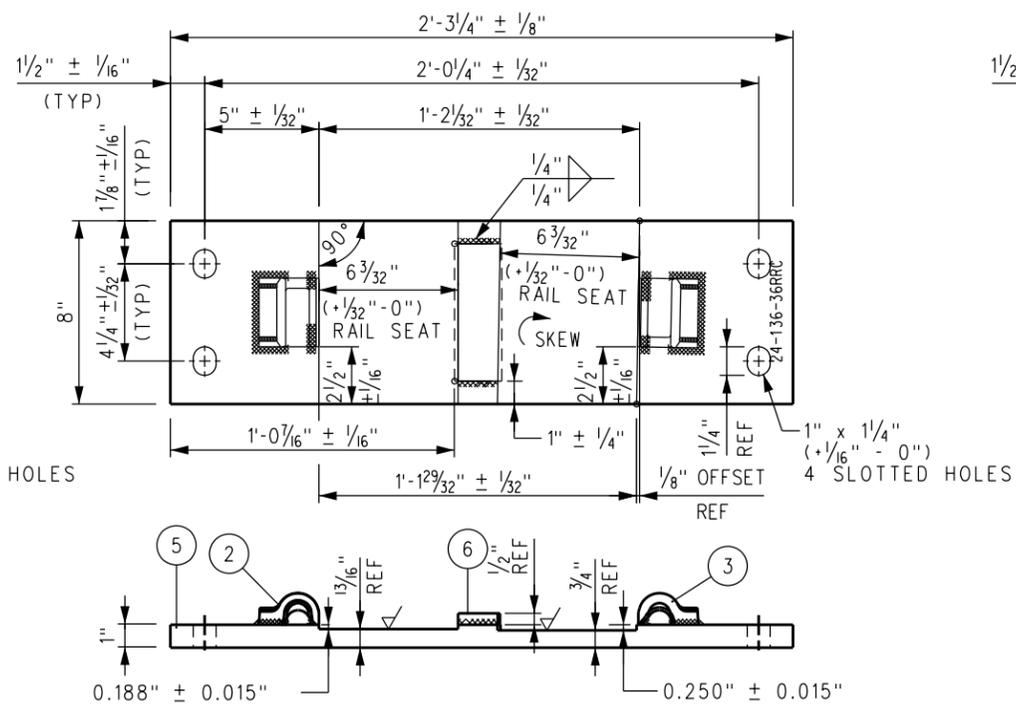
**SWITCH PLATE P24-136-36RLC**



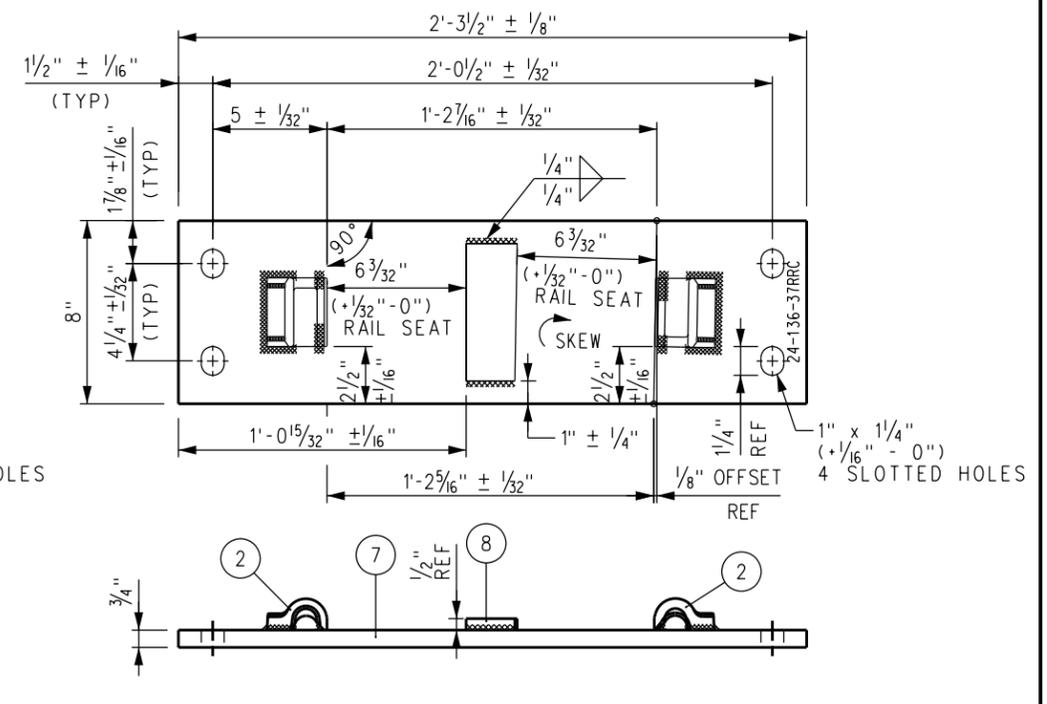
**SWITCH PLATE P24-136-37RLC**



**SWITCH PLATE P24-136-35RRC**



**SWITCH PLATE P24-136-36RRC**



**SWITCH PLATE P24-136-37RRC**

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-2 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	SHOULDER, PANDROL, FORGED, TYPE 5, ANTI-OVERDRIVE
4	FLAT BAR, ASTM A36, 1/2" x 6" x 1 1/16"

BILL OF MATERIALS	
ITEM	DESCRIPTION
5	FLAT BAR, ASTM A36, 1" x 8" x 2'-3 1/4"
6	FLAT BAR, ASTM A36, 1/2" x 6" x 2 1/16"
7	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-3 1/2"
8	BURNED STOP, 1/2" THICK, TAPERED 2 1/8" to 2 1/32" OVER 6"

**NOTES:**

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

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

DRAWN BY: *Nareh D. Papp* HDR DATE: 03/31/2011  
 ASSISTANT DIRECTOR- STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

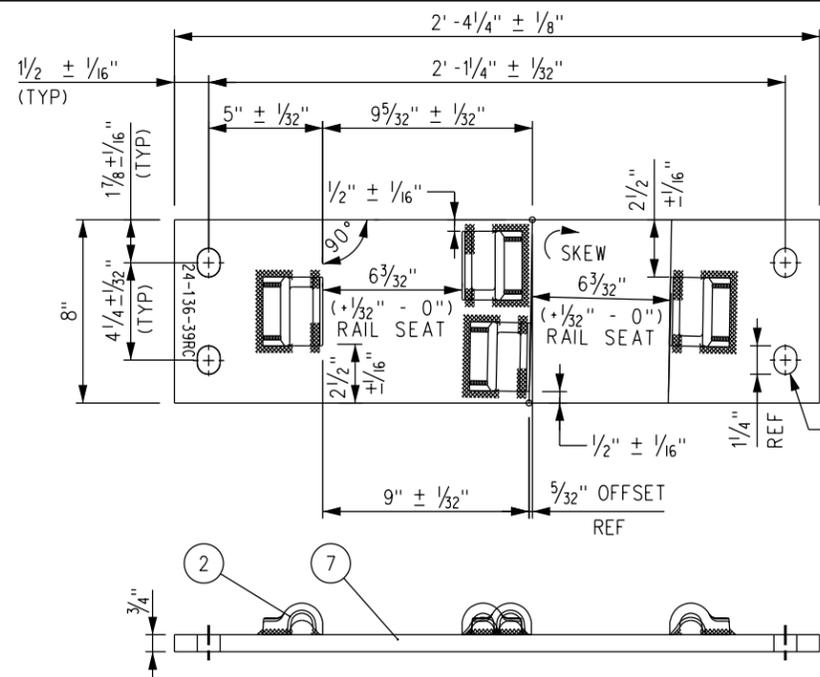
SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE 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

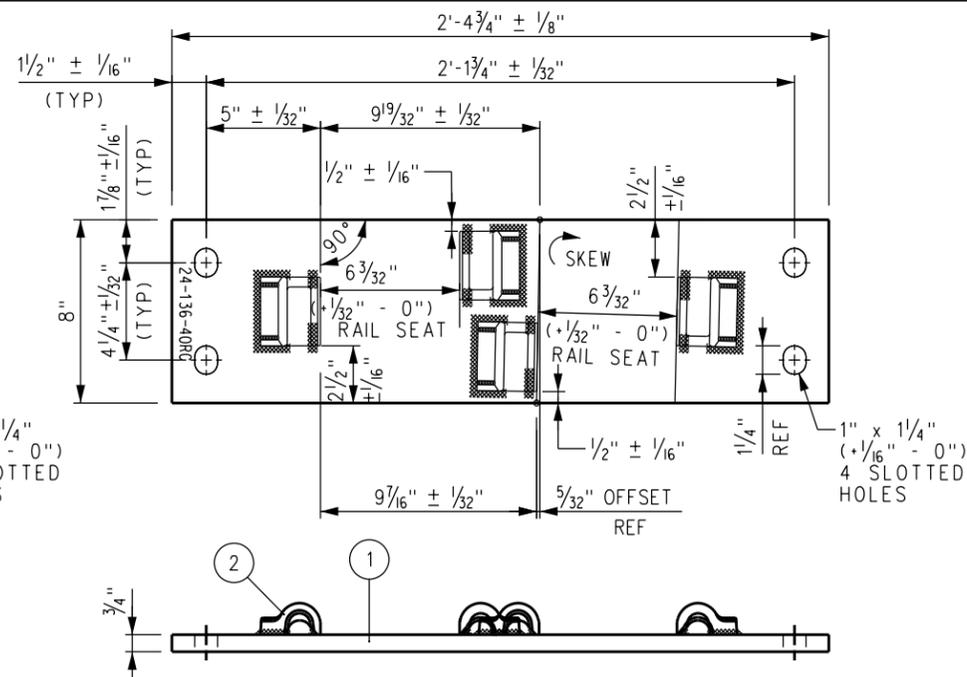
**ENGINEERING STANDARDS**
  
 SWITCH PLATES
   
 (24-35RLC / RRC THROUGH 24-37RLC / RRC)
   
 FOR NO 24 136 LB RE RH CONCRETE TIE TURNOUT

STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-86

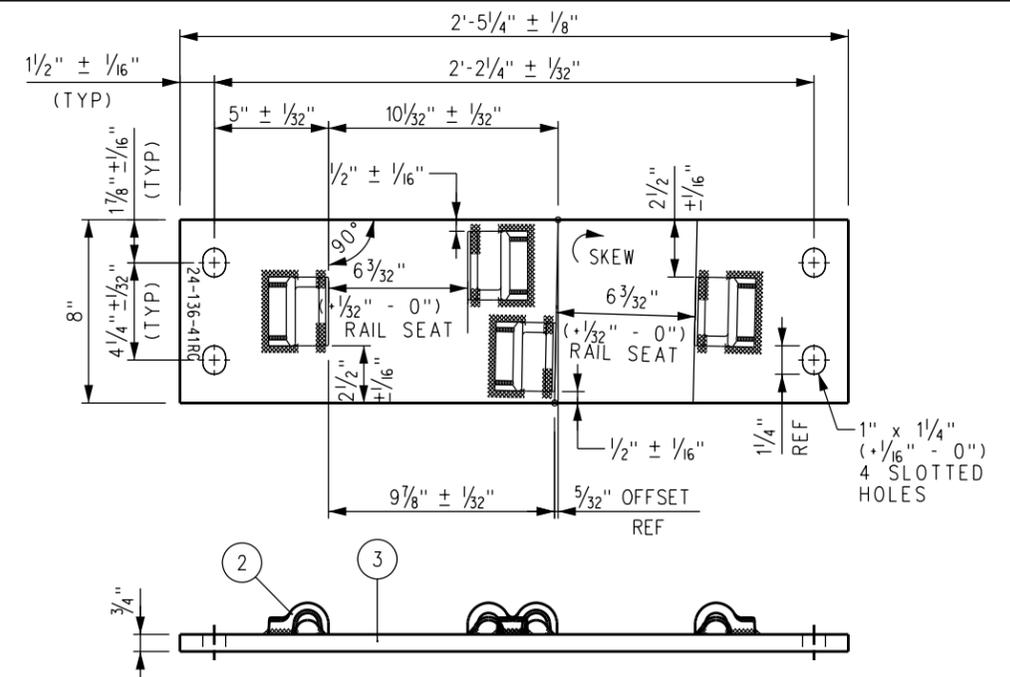




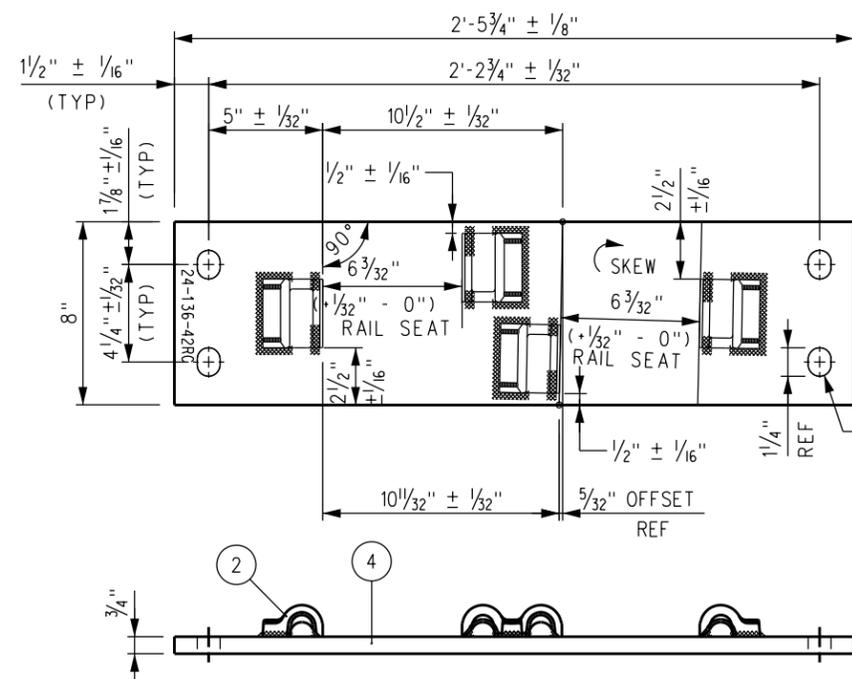
SWITCH PLATE P24-136-39RC



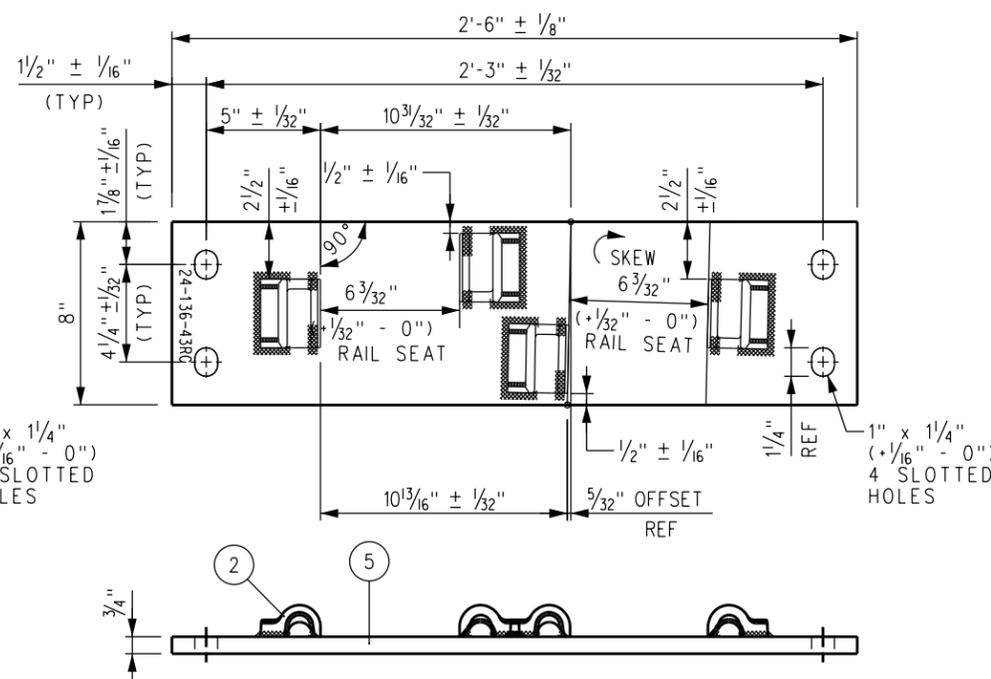
SWITCH PLATE P24-136-40RC



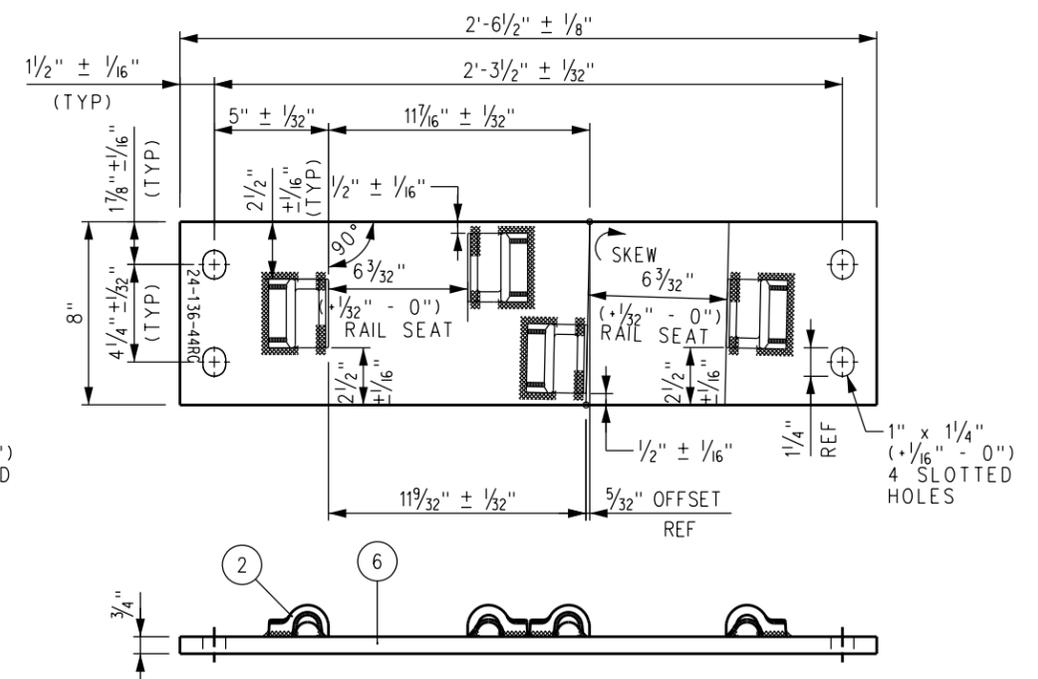
SWITCH PLATE P24-136-41RC



SWITCH PLATE P24-136-42RC



SWITCH PLATE P24-136-43RC



SWITCH PLATE P24-136-44RC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-4 3/4"
2	SHOULDER, PANDROL, FORGED, TYPE 1, ANTI-OVERDRIVE
3	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-5 1/4"

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

**NOTES:**

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

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

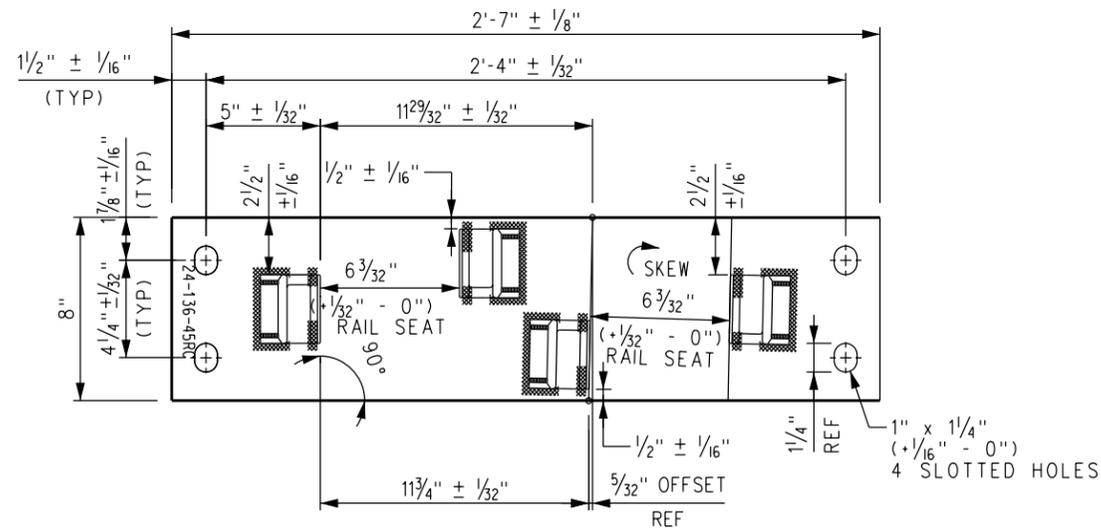
DRAWN BY: *Nareh D. Papp* HDR DATE: \_\_\_\_\_  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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.

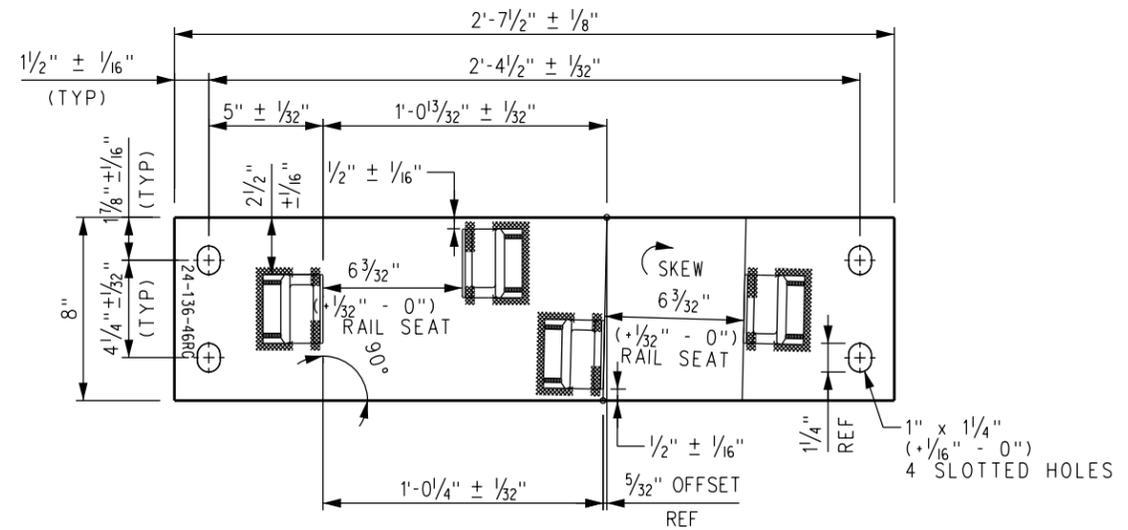
**METROLINK**
  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
   
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS
   
 SWITCH PLATES (24-39RC THROUGH 24-44RC)
   
 FOR NO 24 136 LB RE RH CONCRETE TIE TURNOUT

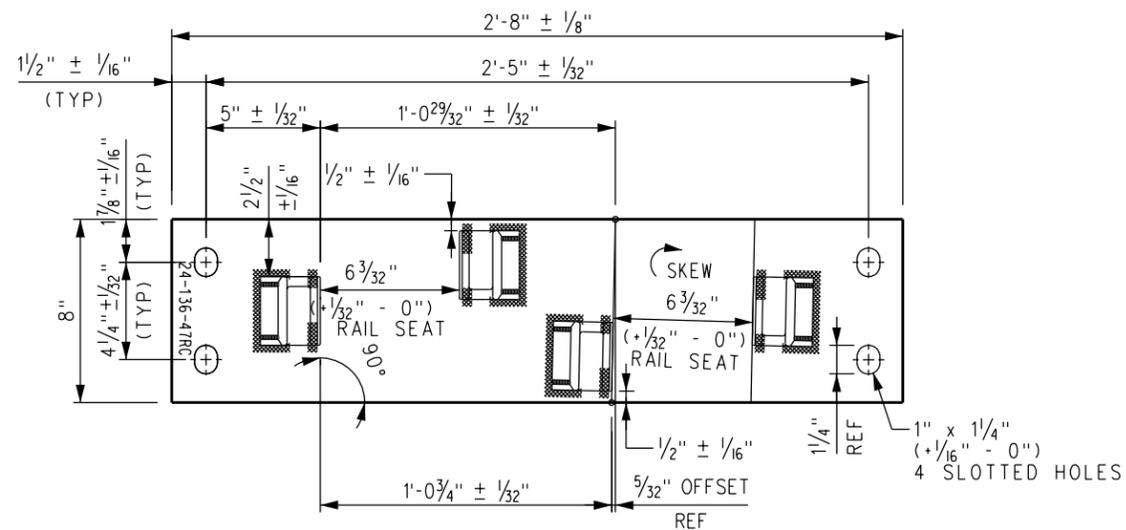
STANDARD	2807
SCALE	NTS
REVISION SHEET	1 OF 1
CADD FILE	ES2807-88



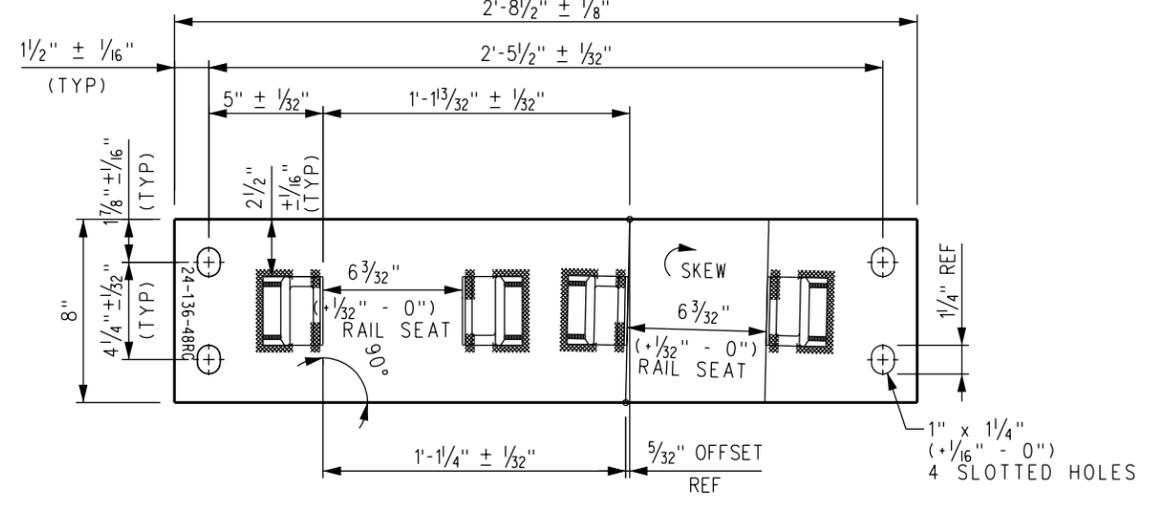
SWITCH PLATE P24-136-45RC



SWITCH PLATE P24-136-46RC



SWITCH PLATE P24-136-47RC



SWITCH PLATE P24-136-48RC

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7"
2	SHOULDER PANDROL FORGED TYPE 1 ANTI-OVERDRIVE
3	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2"

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

**NOTES:**

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

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

DRAWN BY: *Nareh D. Papp* HDR DATE: \_\_\_\_\_  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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  
 SWITCH PLATES (24-45RC THROUGH 24-48RC)  
 FOR NO 24 136 LB RE RH CONCRETE TIE TURNOUT

STANDARD	2807
SCALE	SCALE
REVISION SHEET	1 OF 1
CADD FILE	ES2807-89