NOTES:

1. THE ENTIRE CROSSOVER TO BE FULLY FLOOR ASSEMBLED INCLUDING END FROGS AND HF GUARD RAILS.

2. THE DISTANCE OF 4" FROM EDGE OF NEAREST TIE PLATE.

3. THE SWITCH PLATES NO 1A AND 1B PER ES2840-49.

4. THE FROG PLATE DETAILS NO 8 136 LB RE DOUBLE SLIP CROSSING.

5. THE GUARD RAIL DETAILS 13'-0" LONG.

6. THE GUARD RAIL MATERIALS AND WORKMANSHIP, ALSO ANY CONSTRUCTION DETAILS NOT SHOWN, SHALL BE PER CURRENT SCRRA STANDARDS.

7. THE FROG PLATES WILL BE FURNISHED INSULATED. SWITCH RODS WILL BE FURNISHED INSULATED UNLESS OTHERWISE SPECIFIED.

8. THE MANUFACTURER SHALL SUBMIT TWO COPIES OF SHOP DRAWINGS TO THE SCRRA DIRECTOR OF ENGINEERING FOR APPROVAL PRIOR TO FABRICATION OF TURNOUT SHOP DRAWINGS. SUCH SHOP DRAWINGS MUST CLEARLY SPECIFY ALL PROPOSED CHANGES.

9. THE MATERIALS REQUIRED FOR HAND OR MACHINE OPERATED SWITCH OPERATION WILL BE FURNISHED PER REQUIREMENTS OF THE SCRRA STANDARDS OR CONSTRUCTION.

10. SUITABLE SUSPENDED JOINTS MUST BE LOCATED IN A CRIB AREA BETWEEN TIES, A MINIMUM DISTANCE OF 4" FROM EDGE OF NEAREST TIE PLATE.

11. THE MATERIALS, TOOLS AND WORKMANSHIP ALSO ANY CONSTRUCTION DETAILS NOT SHOWN, SHALL BE PER CURRENT SCRRA STANDARDS OR CONSTRUCTION.

12. ALL INSULATED JOINTS TO BE ADHESIVE BONDED INSULATED JOINTS UNLESS OTHERWISE SPECIFIED.

13. INSULATED JOINTS ARE TO BE ADHESIVE BONDED INSULATED JOINTS UNLESS OTHERWISE SPECIFIED.

14. THE MATERIALS REQUIRED FOR HAND OR MACHINE OPERATED SWITCH OPERATION WILL BE FURNISHED PER REQUIREMENTS OF THE SCRRA STANDARDS OR CONSTRUCTION.

15. THE MATERIALS, TOOLS AND WORKMANSHIP ALSO ANY CONSTRUCTION DETAILS NOT SHOWN, SHALL BE PER CURRENT SCRRA STANDARDS OR CONSTRUCTION.

16. THE MANUFACTURER SHALL SUBMIT TWO COPIES OF SHOP DRAWINGS TO THE SCRRA DIRECTOR OF ENGINEERING FOR APPROVAL PRIOR TO FABRICATION OF TURNOUT SHOP DRAWINGS. SUCH SHOP DRAWINGS MUST CLEARLY SPECIFY ALL PROPOSED CHANGES.

17. THE MANUFACTURER SHALL SUBMIT TWO COPIES OF SHOP DRAWINGS TO THE SCRRA DIRECTOR OF ENGINEERING FOR APPROVAL PRIOR TO FABRICATION OF TURNOUT SHOP DRAWINGS. SUCH SHOP DRAWINGS MUST CLEARLY SPECIFY ALL PROPOSED CHANGES.
CROSSING DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Theoretical Points of End Fros &amp; Center Frog</td>
<td>7°-0'-10&quot;</td>
</tr>
<tr>
<td>Between Theoretical Points of End Fros &amp; Center Frog</td>
<td>8°-2'-53&quot;</td>
</tr>
<tr>
<td>From Inside Switch Points to Theoretical Point End Fros</td>
<td>21°-1'-5&quot;</td>
</tr>
<tr>
<td>From Theoretical Point of Center Frog to Heel Joint</td>
<td>3°-6'-9&quot;</td>
</tr>
<tr>
<td>Length of Inside Samson Stock Rails</td>
<td>27'-2&quot;</td>
</tr>
<tr>
<td>Length of Outside Samson Stock Rails</td>
<td>31'-2&quot;</td>
</tr>
<tr>
<td>Length of Fros From Theoretical Point to Toe</td>
<td>6'-8&quot;</td>
</tr>
<tr>
<td>Length of Fros From Theoretical Point to Heel</td>
<td>7'-6&quot;</td>
</tr>
<tr>
<td>Length of Outside Samson End Switch Points (TYP)</td>
<td>23'-3&quot;</td>
</tr>
<tr>
<td>Length of Inside Samson End Switch Points (TYP)</td>
<td>27'-8&quot;</td>
</tr>
</tbody>
</table>

NOTE:
1. All Measurements Given at ½" Below Top of Rail and to ½" From End of Fros.
2. All Rails to Be Fully Heat Treated - Bottom 26'-8".
4. Joint Pilings - All Field Welded Riles.
5. All Insulated Joint Riles 5½" - 6" - 6½" - 7½" Above Base.
6. Proper Location of Edge of Plates to Be Marked With White Paint on Outer Flange of Rail.
7. Water Mark All Riles as Shown.
8. Entire Crossover to Be Fully Shop/Floor Assembled Including End Fros and HF Guard Riles.

SPECIFICATIONS:
1. Crossing Type - No 8 Double Slip Generally Per AREMA Plan Rail 136 Lb Re Heat Treated.
2. Fros - No 8 Rail Bound Manganese Fros 136 Lb Re. 18°-2" Long with Panoral Plates - Manganese Casting to Be Explosive Hardened.
5. Adjustable Braces - Boltless with Spring Clips.
6. Guard Rails - J-49 Section 15'-5" Raised Guard Rail with Braces and Plates.
7. Guard Plates - To Be Furnished Installed.

CROSSING GEOMETRY AND CROSSING DATA
NO 8 136 LB RE DOUBLE SLIP CROSSING
METROLINK
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA 12TH FLOOR L.A. CA 90012

ENGINEERING STANDARDS
NOTES:
1. Switch Points to be made from new head hardened rail.
2. Metal identification tag showing hand of switch point, weight of rail, manufacturer and when made, to be fastened to switch point at location shown.
3. Right hand switch shown, make opposite hand for left hand switch points.
4. Side planning figured on gauge line 1/8" below top of rail.
5. Material, to workshop, also any construction details not shown, shall be per current AREMA "Manual and Portfolio" unless otherwise specified on this plan.
6. In order to eliminate stress rances, manufactured shall plan the ends of the bolt holes as indicated at the heel of the switch point and at the heel end of the switch point, using air hammers with suitable head and finishing with drift pin, brand on rail at edge of bolt hole to be carefully removed by chiseling before peening.
7. The contour planning shall be on the gauge side beginning at a distance of 3'-0" from the point of switch and shall be shaped to the contour of a new stock rail and small run out at the end of the top planning, where the switch point has full head contour.
8. Metal identification tag showing 18" design length of switch 121 in parentheses, the actual length of switch point rail and (3) the turnout number, and tag thus: 18'-0" (121) # 3 1/4 to be fastened to switch point, on gauge side of rail at well spaced block in location shown.
9. At heel end of switch point rail, break sharp corners around the entire periphery by bending and rounding also 5/8" stock marginal rail end.
10. Non-interlocked and interlocked switch points are made the same.
11. Unless switch point order specifically calls for use of 3/16" rivets and 3/16" stop bolts, manufacturer can substitute 7/16" huck fasteners, bolt part no C-50-LR-BR2424 and collar part no L3-2-24G for 3/16" rivets. For 5/16" bolts use huck fasteners, bolt part no C-50-LR-BR2416 and collar part no L3-2-24G for 3/16" rivets.
12. Switch points are to be finished with manganese steel insert on the reverse point (purposeful found and a plan switch point on the normal point (opposite side). Replacement points must specify whether plain point or manganese steel insert are to be furnished.

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

ENGINEERING STANDARDS

136 LB RE 23'-3 7/16" STRAIGHT SWITCH POINT

MADE FROM 40'-0" LONG RAIL

NO 8 DOUBLE SLIP CROSSING
BILL OF SWITCH TIES

<table>
<thead>
<tr>
<th>PIECES</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>FEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>7'x9'</td>
<td>10'-0&quot;</td>
<td>127.5</td>
</tr>
<tr>
<td>22</td>
<td>7'x9'</td>
<td>12'-0&quot;</td>
<td>158.0</td>
</tr>
<tr>
<td>8</td>
<td>7'x9'</td>
<td>15'-0&quot;</td>
<td>180.5</td>
</tr>
<tr>
<td>16</td>
<td>7'x9'</td>
<td>16'-0&quot;</td>
<td>192.0</td>
</tr>
<tr>
<td>0</td>
<td>7'x9'</td>
<td>18'-0&quot;</td>
<td>216.0</td>
</tr>
<tr>
<td>5</td>
<td>7'x9'</td>
<td>18'-0&quot;</td>
<td>216.0</td>
</tr>
</tbody>
</table>

**TOTAL**

4053
NOTES:
1. HOLD DOWN CLIPS TO BE INSTALLED IN THE FIELD.
2. SOLID CAST MANGANESE STEEL CENTER FROGS PER CURRENT AREMA SPECIFICATIONS MODIFIED FOR USE WITH "PANDROL" TYPE FASTENERS.

NO 8 DOUBLE SLIP CROSSING
CENTER SECTION LAYOUT
FROG ANGLE 7°-09' -10" FLANGEWAY 1" WIDE, 1" DEEP

SPECIFICATIONS MODIFIED FOR USE WITH "PANDROL" TYPE FASTENERS.
NOTES:
1. PLATES TO BE MADE OF MILD ROLLED STEEL.
2. THE PLATES AS SHOWN ARE FOR A 136 LB, NO. 8 DOUBLE SLIP CROSSING.
3. THE "PANDROL" TYPE OR APPROVED EQUAL WELD - ON PRESSURE STEEL SHOULDER, MADE OF MILD ROLLED STEEL AND MEETING "PANDROL'S" DESIGN SPECIFICATIONS, MAY BE USED.
4. THE PRESSURE STEEL SHOULDER MUST BE CAREFULLY WELDED TO GAUGE PLATES, ANY WELD PROJECTIONS BEYOND THE VERTICAL FACE OF SHOULDER IN THE AREA OF THE RAIL SEAT MUST BE MACHINED OUT TO PROVIDE A CLEAR RAIL SEAT DIMENSION AS CALLED FOR.
5. STAMP PLATE WITH PROPER PLATE NUMBER AND WEIGHT OF RAIL.
6. ALL WELDS ARE 1/8" FILLET WELDS UNLESS OTHERWISE NOTED.
7. HOLES IN PLATES ARE 1" IN DIAM OR LESS OTHERWISE NOTED.

REFERENCE DRAWINGS
LAYOUT - NO. 8, DOUBLE SLIP CROSSING - 136 LB -------- SHEET NO. 2840-02
DS-GP-1, DS-GP-2 AND DS-GP-3
INSULATED GAUGE PLATE DETAILS
DS-GP-1, DS-GP-2 AND DS-GP-3

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ENGINEERING STANDARDS
136 LB RE NO. 8 DOUBLE SLIP CROSSING

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

DIRECTOR OF ENGINEERING AND CONSTRUCTION
ASSISTANT DIRECTOR: STANDARDS & DESIGN

ENG. DES. DATE REV. DESCRIPTION

DRAWN BY: DATE: FOR NON-SCRRA APPROVED USES:
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BRACE PLATE - DS-1L
4" x 8" x 1'-10"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-2L
7" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-3L
10" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-4L
13" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

SLIDE PLATE - DS-4P
1" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-5P
1" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-6P
1" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

BRACE PLATE - DS-7P
1" x 8" x 1'-0"
MILLED W/ADJ RAIL BRACE

REFERENCES:
- NO 8, DOUBLE SLIP CROSSING
- 136 LB, STANDARD

NOTES:
1. PLATES TO BE MADE OF WELD ROLLED STEEL.
2. EACH PLATE TO BE PLAINLY STAMPED WITH PLATE NO AND 136 LB, AND BARS OF TURNOUT 136LB ON LB.
3. THE PANDROL TYPE, OR APPROVED EQUAL, WELD-ON PRESSED STEEL SHOULDER, MADE FROM WELD STEEL, AND WELDING PROCESSES DESIGN SPECIFICATIONS SHALL BE USED.
4. THE PRESSED STEEL SHOULDER MUST BE CAREFULLY WELDED TO THE PLATE, ANY WELD PROJECTING BEYOND THE VERTICAL FACE OF SHOULDER IN THE AREA OF THE RAIL SEAT MUST BE WASHED OUT TO PROVIDE A CLEAR RAIL SEAT AS SHOWN.
5. THE PLATES AS SHOWN ARE FOR A 136 LB, NO 8 DOUBLE SLIP CROSSING.
6. HOLES IN PLATES ARE 1" IN DIAMETER UNLESS OTHERWISE NOTED.

WELDING SPECIFICATIONS:
1. SET PRESSED STEEL SHOULDER FLUSH AGAINST FACE OF RAIL OR SHOULDER OF MILLED PLATE AS SHOWN AND WELD WITH 1 - PASS 210. WELD.
2. STOP PLATE FOR ADJUSTABLE RAIL BRACE TO BE SET FLUSH WITH SHOULDER OF MILLED PLATE AS SHOWN AND WELD WITH 3 - PASS 210. WELD.
3. SHOULDER AND STOPS ARE TO BE CAREFULLY WELDED TO PLATE. NO WELD MUST PROJECT BEYOND THE VERTICAL EDGE OF THE UNWELDED FOURTH SIDE OF THE STOP PLATE OR VERTICAL FACE OF SHOULDER IN THE AREA OF THE RAIL SEAT. ANY WELD PROJECTING BEYOND THE EDGE OF THE WELDED PLATE OR VERTICAL FACE OF SHOULDER MUST BE WASHED OFF TO PROVIDE A CLEAR DIMENSION AS SHOWN.
4. FOR WELDING PRESSED STEEL SHOULDER OR PLATE STEPS FOR ADJUSTABLE USE THE FOLLOWING:
   A. ELECTRODE 10", WELDING SPEC. 7016MM.
   B. ELECTRODE 2", WELDING SPEC. 7016MM.
   C. WELD, WELDING 10", NO 210, T-NICKEL FLEX CORE. OTHER WIRE OR ELECTRODE MEETING SPECIFICATIONS AS CALLED FOR, APPROVED BY DIRECTOR OF ENGINEERING, MAY BE USED.

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

METROLINK
NOTES:
1. STAMP PLATE WITH PROPER PLATE NUMBER AND WEIGHT OF RAIL
2. HOLES IN PLATES ARE 1" IN DIAMETER UNLESS OTHERWISE NOTED

REFERENCE DRAWINGS
LAYOUT - NO 8, DOUBLE SLIP CROSSING - 136 LB -------- SHEET NO 2840-02

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

METROLINK
NOTES:

ROD NO 1A, BASKET LOCATION A
ROD NO 1B, BASKET LOCATION B

ELEVATION

INSULATION MATERIAL CONSISTS OF:

1. FIBRE CHANNEL 6-7
2. FIBRE ANGLE PLATE NP-34
3. FIBRE BUSHINGS B-11
4. STEEL SPLICE PLANE ST-564
5. STEEL CHANNEL ST-568
6. SJ-WEB-CUT CYCLO-M394-36
7. HUCK COLLARS LC2R-24G
8. 1" DIA HOLES IN RODS
9. 1½" DIA HOLES IN RODS
10. 2½" DIA HOLES IN RODS

SWITCH INFORMATION

CAUSE = 4'-1½" MIN. 4½" MAX
E Distance = 7½" MIN
PT = ½" SAMSON
HEXT + ½" D BOTH SIDES (SLOT ¼" STOCK SIDE)
ROD SPACING = 1½" MIN.
BREAK ALL SHARP CORNERS
DEBURR ALL HOLES

OUTSIDE POINT OVERTEES = 7'-6½""
NOTES:
1. INSULATED SPREAD RODS NO 2 OR 3 WITH CLIPS AND BOLTS ATTACHED WITH HUCKED INSULATED SPIES, TO EACH REQUIRED PER SLIP SWITCH
2. STAMP ROD WITH "RESPECTIVE ROD NO-136-DSS"

INSULATION MATERIAL
CONSISTS OF:
1) FIBRE CHANNEL C-1
2) FIBRE ANGLE PLATE AP-34
3) FIBRE BUSHING B-11
4) STEEL CHANNEL ST-568
5) STEEL SPLICE PLATE ST-684
6) 3/8" HUCK COLLARS C50LR-BR24-36
7) 5/8" HUCK BOLTS C50LR-BR24-36

SWITCH INFORMATION
CAUSE = 4'-6" *
THEIR AT POINT = 4'-4" MIN, 4'-5" MAX
E DISTANCE = 1'-10"
PT = 0" SAMSON
REM = V/2.0 BOTH SIDES (1ST 1/2 STOCK SIDE)
ROD SPACING = 1'-0" X 3'-0" (NO 2 ROD)
ROD SPACING = 1'-5" X 3'-5" (NO 3 ROD)

PLAN

ELEVATION

CLIP LOCATION = 1/8" X 2-1/2" X 3'-1" (APPROX)
8-32 B.S. PLATFORM THREADS
56 THREADS @ 6-INV 1"
CLIP LOCATION = 1/8" X 2-1/2" X 3'-1" (APPROX)
8-32 B.S. PLATFORM THREADS
56 THREADS @ 6-INV 1"