DATE: 11/29/2018

STREET CROSS SLOPE TRANSITION

VITAL INDUCTION LOOPS (TYP, SEE NOTE 3)

VITAL INDUCTION LOOPS (TYP ALL SECTIONS)

RACING LINE DEPRESSION = 2"

FLOWLINE GRADE

STREET GRADE DESIGN

STREET PROFILE GRADE AT LIP OF GUTTER PAN

TOP OF CURB

Curb & gutter flowline transition

Varies from zero to 27 TO EXISTING & PROPOSED

STREET GRADE AT CROSSING

STREET PROFILE AT CROSSING

STREET GRADE DESCENDS AWAY FROM TRACKS

STREET GRADE DESCENDS TOWARDS TRACKS

TYPICAL SECTIONS

DRAINAGE PIPE AND CONDUIT DETAILS

LEGEND

ASPHALT PAVING

CRUSHED MISCELLANEOUS BASE

BALLAST

12" MIN. BELOW BOTTOM OF TIE

COMPACTED HOT MIX ASPHALT UNDERSLAB MATERIALS SHALL BE IN ACCORDANCE WITH METROLINK SPECIFICATION 32 12 00.

COMPACTED HOT MIX ASPHALT UNDERSLAB MATERIALS SHALL BE COMPACTED WITH STEEL VIBRATORY ROLLER TO 95% RELATIVE COMPACTION.

COMPACTED HOT MIX ASPHALT UNDERSLAB MATERIALS SHALL BE COMPACTED AT CENTER OF TRACKS WITH 27" SLOPE AWAY FROM CENTER OF TRACKS.

SUBGRADE REQUIRED.

METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

HIGHWAY-RAIL GRADE CROSSING

TYPICAL SECTIONS

ENGINEERING STANDARDS

HIGHWAY-RAIL GRADE CROSSING

TYPICAL SECTIONS
APPLICATION OF SWING GATES:

1. ENTRY/EXIT SWING GATE:
   - Must be used in conjunction with active warning pedestrian gate.
   - Designed to slow pedestrians and to discourage them to stop and look
     with ways down the track for approaching trains before entering the
     crossing.
   - Signage on detail 2, "PULL TO OPEN" and "LOOK" sign to be installed on
     approach side of gate.
   - Signage on detail 4, "PUSH TO OPEN" to be installed on track side of gate.

2. EMERGENCY EXIT GATE:
   - Used in conjunction with active warning pedestrian gate.
   - Designed as an escape route for pedestrians occupying the crossing
     when the active warning pedestrian gate is activated.
   - Signage on detail 3, "EXIT ONLY" on approach side of gate.
   - Signage on detail 4, "PUSH TO OPEN" to be installed on track side of gate.

CONSTRUCTION NOTES:

1. A duplex system (paint or powder coat over galvanizing) should be used for
   the swing gate assembly and hand railing after fabrication and surface
   preparation, the swing gate assembly and hand railing shall be hot dip galvanized
   in accordance with ASTM A653 (products) and A53 (hardware) coating which has
   been coated or foiled, flint, or damaged shall be repaired or recoated in
   accordance with ASTM A653.

2. After cleaning and profiling galvanized surface in accordance with ASTM D6386,
   the swing gate assembly and hand railing shall be painted or powder coated
   with a zinc-rich primer, high-performance first coat and acrylic top coat. The
   paint color shall be RAL 6005 unless noted otherwise.

3. Swing gate will be installed after side rail has been constructed.

PEDESTRIAN SWING GATES HAVE TWO DISTINCT FUNCTIONS AS DEFINED BELOW.

- The appropriate signage shall be installed according to the application of
  the swing gate.

1. Pedestrian swing gates have two distinct functions as defined below.
   - Pedestrian swing gates have two distinct functions as defined below.
   - The appropriate signage shall be installed according to the application of
     the swing gate.
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ENGINEERING STANDARDS
PEDESTRIAN SWING GATE DETAILS

NOTES:
1. HINGE SLEEVE CURVE OF STEEL TO BE ASTM A441
   HARDENED STEEL.
2. ALL HINGE SLEEVE DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
3. HINGE SLEEVE CURVE DETAILS TO BE PRECISION TO THE
   NEAREST THOUSANDTH OF AN INCH (0.001).
4. CURVE "A" SAME AS "B" EXCEPT REVERSE IMAGE
5. HINGE SLEEVE GRADE OF STEEL TO BE ASTM A441
   HARDENED STEEL.
6. FORCE REQUIRED TO OPERATE SHALL BE 22N (5 LBS) MAX.

PIPE GATE POST
GALVANIZED STEEL
3" DIA. x 40 STD

HALF SHELL
4"x4"x 1/8"

FULL LENGTH (NOT SHOWN)

2" DIA. x 40 STD.

HALF SHELL
3"x3"x 1/8"

STEEL PIPE POST
2.30% 1/8" BEND PLATE

V1 - CURVE "A"
- CURVE "B" SAME AS "A"
- CURVE "D" SAME AS "A"
- CURVE "F" SAME AS "A"
- CURVE "G" SAME AS "A"
EXCEPT REVERSE IMAGE

SWING GATE HINGE DETAILS

HINGE SLEEVE CURVE DETAIL

HINGE SLEEVE DETAILS

V1 & V2 HINGE SLEEVE CURVE DETAIL

EXCEPT REVERSE IMAGE

HINGE SLEEVE CURVE DETAIL

 Dự liệu: 11/29/2018 15:21:18 PM
Phần mềm: AutoCAD 2015
Tổng cộng chữ: 4,864
Tổng cộng hình: 2
Tổng cộng số: 2

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ENGINEERING STANDARDS
PEDESTRIAN SWING GATE DETAILS

DECISION POINT 1

THE EXISTENCE OF PEDESTRIAN ACTIVITY SHALL BE DETERMINED AND INCLUDES SIDEWALKS LEADING UP TO THE RIGHT-OF-WAY OR EVIDENCE OF PEDESTRIANS CROSSING AT THE LOCATION. SCRA STANDARDS AND CURRENT CALL FOR THE ADDITION OF PEDESTRIAN TREATMENTS IF PEDESTRIANS CROSS IN THE AREA FOR CROSSING. THE FOLLOWING ACTIONS SHALL BE TAKEN WHEN EVIDENCE OF ACTIVITY EXISTS WITHOUT PEDESTRIAN FACILITIES:

- If the pedestrian activity is legal, seek cooperation with the local municipality to implement sidewalks.
- If warranted, the design should provide sidewalks over the right-of-way.
- If warranted, take steps to prevent possible trespassing.

DECISION POINT 2

IF THE CROSSING IS TO BE INCLUDED IN A QUIET ZONE, THE CROSSING SHALL RECEIVE FULL TREATMENT FOR SAFETY ENHANCEMENTS AND QUIET ZONE CROSSING SIGNALS SHALL BE INSTALLED.

DECISION POINT 3

THE TYPE OF PEDESTRIAN CROSSING IS ANALYZED AT THIS STEP. A PEDESTRIAN CROSSING WITHIN A STATION OR A PEDESTRIAN CROSSING ASSOCIATED WITH A SMALL CROSSING ALONGSIDE THE STATION - REQUIRES FULL PEDESTRIAN TREATMENT.

DECISION POINT 4

IS THE CROSSING LOCATED WITHIN A 10-MINUTE WALKING DISTANCE OF A SCHOOL, HOSPITAL, OR OTHER FACILITY THAT CAN BE EXPECTED TO SUPPORT DISABLED PEOPLE? IF THE ANSWER IS "NO" TO ANY OF THE EXISTING FACILITIES THEN THE CROSSING RECEIVES FULL PEDESTRIAN TREATMENT. IF THE ANSWER IS "YES", THEN THE SIGNIFICANCE OF PEDESTRIAN ACTIVITY AT THE CROSSING IN ORDER TO ANSWER "NO" TO WEATHER THERE IS SIGNIFICANT PEDESTRIAN ACTIVITY. A STUDY OF THE CROSSING SHOULD BE CONDUCTED. IN ORDER TO DETERMINE THE VOLUME OF PEDESTRIANS USING THE CROSSING DURING THE PEAK AND OFF-PeAK HOURS. THE TYPES OF PEDESTRIANS SHOULD BE CONSIDERED: SCHOOL CHILDREN, ELDERLY, DISABLED, PHYSICALLY HANDICAPPED, ETC. AND THE BEHAVIOR PATTERN OF THE PEDESTRIANS ARE THE PEDESTRIANScrossing IN A SAFE MANNER. THE CROSSING IS CONSIDERED AS POTENTIAL FOR PEDESTRIAN ACTIVITY. THE STUDY SHOULD BE DEDICATED TO SCRRA AND CPUC FOR CLEAR CONSENSUS WITH THE SAFETY REVIEW TEAM ABOUT THE PRESENCE OR ABSENCE OF SIGNIFICANT PEDESTRIAN ACTIVITY. FULL TREATMENT IS REQUIRED IN THE EVENT OF A "YES" ANSWER TO ANY OF THESE QUESTIONS.

DECISION POINT 5

DOES THE CROSSING HAVE THREE OR MORE MAIN OR CONTROLLED SIGNALING SIDE THROUGH TRACKS?

DECISION POINT 6

IF THE ANSWER TO DECISION POINT 6a IS "YES", THE DESIGNER SHALL ANSWER "YES" TO WHETHER THERE ARE TWO MAIN TRACKS AT A STATION OR IF THE PEDESTRIAN CROSSING IS ASSOCIATED WITH A PEDESTRIAN CROSSING ALONGSIDE THE STATION - REQUIRES FULL PEDESTRIAN TREATMENT.

DECISION POINT 7

DOES THE CROSSING LOCATION HAVE RESTRICTED VISIBILITY? FULL TREATMENTS ARE REQUIRED WHEN THERE IS LIMITED VISIBILITY AT CROSSINGS.

DECISION POINT 8

IF THE RIGHT-OF-WAY NECESSARY TO COMPLY WITH THE MANUAL UNOBTAINABLE, IT IS NOT FULL PEDESTRIAN TREATMENTS ARE REQUIRED. SCRA STANDARD DETERMINATIONS INCLUDE VARIATIONS TO THE STANDARD CONSIDERATIONS, AND TREATMENTS ON THE RIGHT-OF-WAY. IN CASES WHERE THE RIGHT-OF-WAY REQUIRED FOR THE USE OF ONE OF THESE STANDARD APPLICATIONS CANNOT BE OBTAINED DUE TO EXISTING PROPERTY USES, OR BECAUSE OF OTHER CONDITIONS, A REQUEST FOR SPECIAL DENSITY CONSIDERATION FOR A NON-STANDARD APPLICATION DESIGN APPLICATION MAY BE SUBMITTED TO SCRRA FOR REVIEW AND APPROVAL.

ENGINEERING STANDARDS

PEDESTRIAN CROSSING DESIGN CONSIDERATION TABLE
PEDESTRIAN BARRICADE DETAILS

SECTION A

NOTES:
1. PEDESTRIAN BARRICADE SHALL BE AS PER CALTRANS PLAN 600-2, "TYPE B" AND AS MODIFIED HERewith.
2. SIGNS TO BE SET 2'-6" BACK FROM FACE OF CURB UNLESS OTHERWISE SPECIFIED.
3. METAL HAND RAILING SHALL BE AS PER APWA STANDARD PLAN 600-2, "TYPE B" AND AS MODIFIED HERewith.
4. CONTRACTOR MAY SUBMIT ALTERNATIVE DETAILS FOR APPROVAL BY SCRRA.
5. FOR MINIMUM PIPE DIAMETERS AND WALL THICKNESS REFER TO ASTM A6M.
6. THE LOCATION OF BARRICADE SHALL BE COORDINATED WITH LOCAL AUTHORITY AND SCRRA.
7. ADDITIONAL "NO CROSSING" SIGNS (R9-3) AND "NO PEDESTRIAN CROSSING" SIGNS AS PER CA MUTCD SHALL BE INSTALLED AT APPROPRIATE LOCATIONS AS NEEDED.
8. BARRICADE SHALL BE PAINTED OR POWDERCOATED WITH A SINGLE COAT OF Primer FIRST COAT AND ACRYLIC TOP COAT.
9. THE STAPLE SAFETY HASP SHALL BE PAINTED OR POWDERCOATED TO MATCH HANDRAIL COLOR, UNLESS NOTED OTHERWISE.

ENGINEERING STANDARDS
PEDESTRIAN BARRICADE AND METAL HAND RAILING DETAILS

SLEEVE POST FOR REMOVEABLE METAL HAND RAILING

SECTION B

NOTES:
1. METAL HAND RAILING SHALL BE AS PER APWA STANDARD PLAN 600-2, "TYPE B" AND AS MODIFIED HERewith.
2. SIGNS, POSTS AND POCKETS SHALL BE GALVANIZED STEEL PIPE.
3. MAXIMUM SPACING OF POSTS SHALL BE 8'-0" ON STRAIGHT ALIGNMENTS, AND 6'-0" ON CURVED ALIGNMENTS WITH LESS THAN 30' RADIUS. MAXIMUM SPACING OF HANDRAIL SHOULd BE SAME AS POST SPACING UNLESS NOTED OTHERWISE.
4. HANDRAIL SHOULd BE 2'-0" HIGH AND PAINTED OR POWDERCOATED WITH A SINGLE COAT OF Primer FIRST COAT AND ACRYLIC TOP COAT.
5. INSTALL 3" WIDE, HIGH VISIBILITY YELLOW REFLECTIVE TAPE, WRAP AROUND ENTIRE POST.
6. METAL SLEEVE POSTS TO BE CONSTRUCTED WITH A DIAMETER OF 1/10" LARGER THAN POST DIAMETER.
7. STEEL SLEEVE POST TO BE CONSTRUCTED WITH A DIAMETER OF 1/10" LARGER THAN POST DIAMETER.
8. STEEL SLEEVE POST TO BE CONSTRUCTED WITH A DIAMETER OF 1/10" LARGER THAN POST DIAMETER.
GENERAL NOTES:

1. THE METHODS OF PAVEMENT MARKING AND MARKER INSTALLATION SHALL CONFORM TO CALTRANS LATEST STANDARD SPECIFICATIONS FOR PAVEMENT MARKINGS OR AS REQUIRED BY LOCAL JURISDICTION.
2. NO MARKING TO BE DONE PRIOR TO FIELD INSPECTION AND APPROVAL OF LAYOUT BY SCRRA IN THE FIELD.
3. PAVEMENT MARKING SHALL BE THERMOPLASTIC MATERIALS AND SHALL CONFORM TO SECTION 8-2.0B, "THERMOPLASTIC:" 2 OF THE CALTRANS STANDARD SPECIFICATIONS OR AS REQUIRED BY LOCAL JURISDICTION.
4. THE APPLICATIONS OF THERMOPLASTIC MATERIALS SHALL BE IN ACCORDANCE WITH CALTRANS STANDARD SPECIFICATIONS SECTION 8-2.03, "CONSTRUCTION" OR AS REQUIRED BY LOCAL JURISDICTION.
5. PAVEMENT MARKINGS SHALL CONFORM TO THE DETAILS IN THE CALTRANS STANDARD PLAN A20A, A20B, A20C, A20D AND A24E.
6. PAVEMENT MARKING IN FRONT OF A TURN LANE SHALL BE PLACED APPROXIMATELY 10 FEET FROM THE LIMIT LINE AND THE ARROW AT THE BACK OF A TURN LANE SHALL BE PLACED APPROXIMATELY 5 FEET FROM THE END WHERE THE VEHICLE ENTERS THE LANE.
7. ALL CROSSWALKS SHALL BE IN ACCORDANCE WITH CALTRANS LATEST STANDARD SPECIFICATIONS AND LOCAL JURISDICTION REQUIREMENTS.
8. BEYOND SURFACING LIMIT, ALL CONFLICTING MARKINGS, PAVED SYMBOLS, AND PAINTED MARKING NOTES SHALL BE REMOVED. PAINTED MARKING NOTES SHALL BE REMOVED BY NET SAND BLASTING OR AS REQUIRED BY LOCAL JURISDICTION.
9. ALL EXISTING SIGNS AND POSTS NOT TO BE REUSED SHALL BE REMOVED.
10. RELOCATED OR NEW SIGNS AS SHOWN ON PLANS SHALL BE INSTALLED ON NEW POST, EXCEPT WHERE STREET LIGHT POLES ARE USED FOR SIGN POSTING, NEW SIGNS POSTS SHALL BE UNISTRUT BREAK AWAY TYPE, 2-INCH SQUARE TUBE.
11. ALL TRAFFIC SIGNS SHALL HAVE RETROREFLECTIVE SHEETING AND SHALL CONFORM TO LATEST CALTRANS STANDARD PLAN A24B, DETAIL 38.
12. PEDESTRIAN BARRETTA SHALL BE AS PER SCRRA ENGINEERING STANDARD DRAWING E54005.
13. NO SIGNS SHALL BE INSTALLED PRIOR TO FIELD INSPECTION AND APPROVAL OF LAYOUT BY SCRRA IN THE FIELD. THE SIGNS SHALL NOT BLOCK CLEAR VIEW OF RAILROAD WARNING SIGNAL LIGHTS.
14. QUIET ZONE SIGNS SHALL BE INSTALLED ONLY IN DESIGNATED QUIET ZONES.
15. SIGNS FOR WARNING SIGNS SHALL BE AS SHOWN IN CA MUTCD, TABLE 2C-2.
16. CURB RAMPS AND ISLAND PASSAGeway SHALL BE DESIGNED TO MEET ADA REQUIREMENTS PER CALTRANS STANDARD PLAN A20B.

MARKING NOTES:

1. PAVEMENT MARKING AS PER CALTRANS STD PLAN A24A OR A24D OR A24E OR CA MUTCD LATEST EDITION.
2. 8" WHITE PAVEMENT MARKER PER SCRRA STD. 2017.
3. 4" SOLO YELLOW MARKING AROUND MEDIAN PER CALTRANS STD PLAN A20B, DETAIL 23.
4. 24" WHITE STOP LINE PLACED 8' IN ADVANCE OF GATE ARM.
5. 4" WHITE MARKING AND MARKER PER CALTRANS STD PLAN A20A, DETAIL 24.
6. 4" DOUBLE YELLOW MARKING PER CALTRANS STD PLAN A20A, DETAIL 24.
7. 12" WHITE MARKER TO CROSSWALK LINE PER CALTRANS STD PLAN A24E.
8. CURB (CURB ON HIGHWAY PARALLEL WITH THE TRACK SHALL BE RED WITHIN 150' OF THE CROSSING).
9. MEDIAN ROAD STOP MARKER 2'-0" PER CALTRANS STD PLAN A20B, DETAIL 24.
10. LOCAL JURISDICTION REQUIREMENTS.
11. THERMOPLASTIC MATERIALS SHALL BE IN ACCORDANCE WITH CALTRANS LATEST STANDARD SPECIFICATIONS AND THE LATEST CALIFORNIA MUTCD SPECIFICATIONS. ALL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH CALTRANS STANDARD PLANS AND SPECIFICATIONS OR AS REQUIRED BY LOCAL JURISDICTION.
12. PEDESTRIAN BARRETTA SHALL BE AS PER SCRRA ENGINEERING STANDARD DRAWING E54005.
13. NO SIGNS SHALL BE INSTALLED PRIOR TO FIELD INSPECTION AND APPROVAL OF LAYOUT BY SCRRA IN THE FIELD. THE SIGNS SHALL NOT BLOCK CLEAR VIEW OF RAILROAD WARNING SIGNAL LIGHTS.
14. QUIET ZONE SIGNS SHALL BE INSTALLED ONLY IN DESIGNATED QUIET ZONES.
15. SIGNS FOR WARNING SIGNS SHALL BE AS SHOWN IN CA MUTCD, TABLE 2C-2.
16. CURB RAMPS AND ISLAND PASSAGeway SHALL BE DESIGNED TO MEET ADA REQUIREMENTS PER CALTRANS STANDARD PLAN A20B.

SIGN NOTES:

☑ ROAD SIDE SIGN AND POST SEE GENERAL NOTE 15
☒ NO TRESPASSING SIGN PER E55214 (TYPE)
NOTES:

1. THESE STANDARDS ARE NOT INTENDED TO REPLACE EXISTING REGULATORY STANDARDS. USER IS TO BE RESPONSIBLE FOR ENGINEERING KNOWLEDGE, EXPERIENCE, AND JUDGMENT. NOTHING IN THESE STANDARDS SHALL CONSTITUTE LEGAL ADVICE OR CARL Oversights. VITAL INDUCTIVE LOOPS SHOWN AS NOTED.

2. FOLLOW CALIFORNIA MUTCD FOR STRIPING, SIGNING, AND OTHER TRAFFIC WARNING DEVICES.

3. REFER TO THE FOLLOWING FOR ADDITIONAL DESIGN INFORMATION:

   a. SCRRA ENGINEERING STANDARD ES4201 FOR CONCRETE PANEL AND PAVED END RAMP.
   b. SCRRA ENGINEERING STANDARD ES5106 FOR PEDESTRIAN WARNING DEVICE.
   c. SCRRA ENGINEERING STANDARD ES4002 FOR PEDESTRIAN FACILITIES.
   d. SCRRA ENGINEERING STANDARD ES4003 FOR PEDESTRIAN FACILITIES.
   e. SCRRA ENGINEERING STANDARD ES4004 FOR PEDESTRIAN FACILITIES.
   f. SCRRA ENGINEERING STANDARD ES4005 FOR VITAL INDUCTIVE LOOPS.
   g. SCRRA ENGINEERING STANDARD ES4006 FOR VITAL INDUCTIVE LOOPS.
   h. SCRRA ENGINEERING STANDARD ES4007 FOR SECURITY ACCESS GATE AND BOLLARDS.
   i. SCRRA ENGINEERING STANDARD ES4008 FOR SECURITY ACCESS GATE AND BOLLARDS.
   j. SCRRA ENGINEERING STANDARD ES4009 FOR SECURITY ACCESS GATE AND BOLLARDS.
   k. SCRRA ENGINEERING STANDARD ES4010 FOR SECURITY ACCESS GATE AND BOLLARDS.
   l. SCRRA ENGINEERING STANDARD ES4011 FOR SECURITY ACCESS GATE AND BOLLARDS.
   m. SCRRA ENGINEERING STANDARD ES4012 FOR SECURITY ACCESS GATE AND BOLLARDS.
   n. SCRRA ENGINEERING STANDARD ES4013 FOR SECURITY ACCESS GATE AND BOLLARDS.
   o. SCRRA ENGINEERING STANDARD ES4014 FOR SECURITY ACCESS GATE AND BOLLARDS.
   p. SCRRA ENGINEERING STANDARD ES4015 FOR SECURITY ACCESS GATE AND BOLLARDS.
   q. SCRRA ENGINEERING STANDARD ES4016 FOR SECURITY ACCESS GATE AND BOLLARDS.
   r. SCRRA ENGINEERING STANDARD ES4017 FOR SECURITY ACCESS GATE AND BOLLARDS.
   s. SCRRA ENGINEERING STANDARD ES4018 FOR SECURITY ACCESS GATE AND BOLLARDS.
   t. SCRRA ENGINEERING STANDARD ES4019 FOR SECURITY ACCESS GATE AND BOLLARDS.
   u. SCRRA ENGINEERING STANDARD ES4020 FOR SECURITY ACCESS GATE AND BOLLARDS.
   v. SCRRA ENGINEERING STANDARD ES4021 FOR SECURITY ACCESS GATE AND BOLLARDS.
   w. SCRRA ENGINEERING STANDARD ES4022 FOR SECURITY ACCESS GATE AND BOLLARDS.
   x. SCRRA ENGINEERING STANDARD ES4023 FOR SECURITY ACCESS GATE AND BOLLARDS.
   y. SCRRA ENGINEERING STANDARD ES4024 FOR SECURITY ACCESS GATE AND BOLLARDS.
   z. SCRRA ENGINEERING STANDARD ES4025 FOR SECURITY ACCESS GATE AND BOLLARDS.

4. FENCING AND METAL HAND RAILING LOCATIONS SHALL BE ADJUSTED AS NECESSARY TO PROVIDE SCRRA MAINTENANCE ACCESS TO HIGHWAY-RAIL GRADE CROSSINGS AND SIGNAL & TRACK FACILITIES.

5. PREEMPTION AND TOTAL WARNING TIME SHALL TAKE INTO CONSIDERATION THE PEDESTRIAN WARNING DEVICE AND CLEARANCE TIME AND SHALL MEET THE DEPARTMENT OF TRANSPORTATION AND REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT (ADA) AND CA MUTCD.


7. PAVEMENT MARKING SHALL BE THERMOPLASTIC MATERIALS AND SHALL CONFORM TO SECTION 84-2.02B "THERMOPLASTIC" OF THE CALTRANS STANDARD SPECIFICATION OR AS REQUIRED BY LOCAL JURISDICTION.

8. A DRIVEWAY PER CALTRANS STANDARD PLAN AN AREA SHALL BE PROVIDED FOR MAINTENANCE ACCESS WHERE RAILWAY IS CONSTRUCTED. A 4' HIGH, 4' WIDE DEPRESSED CURB MAY BE USED FOR MAINTENANCE ACCESS CURB WIDTH. VITAL INDUCTIVE LOOPS SHALL BE 9' FOR A 4' CURB AND 6' FOR A 5' CURB OR CURB. USING A 5' DEPRESSED CURB SHALL BE CONSTRUCTED PER DETAIL 7 ON ES4201.

9. TYPE OF PEDESTRIAN GATE LAYOUT AND FENCING SHALL BE SELECTED BASED ON SITE CONDITIONS. VITAL INDUCTIVE LOOPS, MAINTENANCE ACCESS, AND SIGNAL HOUSE LOCATION AND SHALL BE HANDLED AFTER SCRRA REVIEW AND APPROVAL.

10. PEDESTRIAN GATE OPENINGS SHALL BE AS PER EDITOR PLANNING LIMIT NUMBERS LOCATION & CLEARANCE AS PER SIGNAL PLANS AND AS PER SCRRA APPROVAL.

11. ALL FENCING WITHIN 100' OF A CROSSING SHALL BE 4' HIGH.

12. INTER-TRACK FENCE SHALL EXTEND THROUGH THE STATION AND SOPODUCING THE END OF THE PLATFORM OR THE END OF A CROSSING, WHICH-ever IS GREATER.
NOTES:
1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICES, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH. FLASHERS ONLY SHOWN ON ONE APPROACH FOR CLARITY.
NOTES:
1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICES, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH. FLASHERS ONLY SHOWN ON ONE APPROACH FOR CLARITY.

See Note 4 (Typ)
Metal Hand Railing
See Note 8 (Typ)
Maintenance Access
See Note 10

2'-0" wide stop line
At right angles
to traveled way

12" Solid
White Lines

5'-0"
2'-6" (Typ)
SEE NOTE 10

5'-0"
15'-0" Min.

4'-0"
5'-0"
6" (Typ)
10'-0" (Typ)
8'-0"
15'-0" (Typ)

2'-6"

1'-8"
1'-9"
2'-6"
5'-0"
4'-2"
7'-6"
4'-6"
4'-0"
5'-0"
6" (Typ)
15'-0"
8'-0"

3'-0"
1'-0"
"M"IN.
VAR.

7'-6"
45

Curb and gutter

22'-0" Min.
18'-0"
0"

0"
12'
24'
12'
24'
0'
12'
24'
0'

1" = 12'

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PEDESTRIAN FACILITIES AT VEHICLE CROSSING
ENTRANCE / EXIT GATES

REVISED PLAN, OMITTED NOTES AND LEGEND

FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.

1 OF 1
NOTES:

1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICE FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH. FLASHERS ONLY SHOWN ON ONE APPROACH FOR CLARITY.

METAL HANDRAILING

SEE NOTE 4 (TYP)

REMOVEABLE METAL HAND
RAILING SEE ES4005

SEE NOTE 10 (TYP)

DIRECTOR OF ENGINEERING AND CONSTRUCTION

ENG. DES.

DATE

REV.

DRAWN BY:

FOR NON-SCRRA APPROVED USES:

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ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA.

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1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICE, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH. FLASHERS ONLY SHOWN ON ONE APPROACH FOR CLARITY.

DOUBLE YELLOW STRIPING
CALTRANS DETAIL 21 WITH RPM (RAISED PAVEMENT MARKER)
TYPE H (YELLOW) SUPPLEMENT (TYP)

R = 6'
TO BE DETERMINED IN FIELD

SEE NOTE 10 (TYP)

12" SOLID WHITE LINES
TRAVELED WAY
AT RIGHT ANGLE TO
2'-0" WIDE STOP LINE
SEE NOTE 8 (TYP)

MAINTENANCE ACCESS
SEE NOTE 8 (TYP)

VEHICLE CROSSING - ENTRANCE / EXIT GATES
PEDESTRIAN FACILITIES AT OBTUSE ANGLE
REVISION NOTES, LEGEND AND FENCING
REVISED GATE ARMS AND DETECTABLE WARNING STRIPS

12'-0" (5' GATE)
6'-0" (8' GATE)

RAISED MEDIAN
8" HIGH
BY SCRRA AS AUTHORIZED
12'-0" MIN.

R/W LINE

TO BE DETERMINED IN FIELD

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ENGINEERING STANDARDS
PEDESTRIAN FACILITIES AT OBTUSE ANGLE
VEHICLE CROSSING - ENTRANCE / EXIT GATES
NOTES:
1. FOR NOTES AND LEGEND, SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICE, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH. FLASHERS NOT SHOWN FOR CLARITY.

NO PED GATE OR PED SWING GATE

PED GATE IN-LINE WITH WARNING DEVICES WITH EMERGENCY REFUGE AREA
WITH LIMITED RIGHT-OF-WAY

PED GATE WITH EMERGENCY REFUGE AREA

TYPICAL PEDESTRIAN TREATMENT DETAILS
NOTES:
1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICES, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH.

12" SOLID WHITE LINE (TYP)

NO TRESPASSING" SIGN AS PER ES5214

SEE NOTE 10

INTER-TRACK FENCE
SEE NOTE 11 & 12

WARNING SIGNS FOR DEVAL "NO" ON ES5317 (FROM SIDES OF FENCE)

ENGINEERING STANDARDS
PEDESTRIAN CROSSING ONLY

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
900 WILSHIRE BLVD., SUITE 1500, L.A., CA 90017

"NO TRESPASSING" SIGN

FOR PEDESTRIAN WARNING DEVICE, FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH.

FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
SCENARIO 1:
PEDESTRIAN GATE PERPENDICULAR TO TRACK

SCENARIO 2:
PEDESTRIAN GATE PARALLEL TO TRACK

NOTES:
1. FOR ADDITIONAL NOTES AND LEGEND SEE ES4010.
2. FOR PEDESTRIAN WARNING DEVICE FLASHERS ARE REQUIRED FOR EACH PEDESTRIAN APPROACH.
NOTES:
A. CURVED PANEL IS A PANEL THAT IS PIE SHAPED 
WITH A LONGER OUTER LENGTH THAN THE INNER 
LENGTH WITH THEIR HANDED OUTER AND INNER 
STEEL.
B. CURVED PANELS USE STANDARD REINFORCEMENT 
SIMILAR TO TANGENT PANEL STANDARD 
REINFORCEMENT.
C. LAG HOLES MUST LINE UP WITH THE CENTERLINE 
of TIES.

CURVED CONCRETE PANELS
DETAIL 5

CURVATURE TABLE
(ON CONCRETE TIES)

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>CURVES</th>
<th>PANELS</th>
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NOTE:
A. VENDOR SHALL PRE-ATTACHED PLUNGER FILLERS 
AND DETAILS FOR REVIEW AND APPROVAL PRIOR TO 
FABRICATION.
B. SHEET METAL RUBBER FILLERS BOLTED TO STEEL FRAME 
ON 12" CENTERS.
C. LAG-DOWN CONCRETE PANELS WITH PRE-ATTACHED RUBBER 
FIELD COMES IN STANDARD LENGTHS OF 8'-1".

NOTES:
FILLER COMES IN STANDARD LENGTHS OF 8'-1".
LAG-DOWN CONCRETE PANELS WITH PRE-ATTACHED RUBBER 
ON 12" CENTERS.
FABRICATION.
VENDOR SHALL SUBMIT PRE-ATTACHED FLANGEWAY FILLER 
FOR HIGHWAY - RAIL GRADE CROSSING 
ENGINEER STAMPED AND SEALED DETAILS 
MINIMUM SAFETY FACTOR=4.
NOTE: 
DBA - DEFORMED BAR ANCHOR
END FRAME 
DETAIL 9

DETAIL 6

NOTE:
MINIMUM BLOCKOUT DEPTH 3'

TYPICAL SHUNT SPACER
DETAIL 10

DETAIL 11

DETAIL 12

TYPICAL ANGLE DETAILS

ENGINEERING STANDARDS
PRECAST CONCRETE PANELS 
FOR HIGHWAY - RAIL GRADE CROSSING

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY 
900 WILSHIRE BLVD., SUITE 1500, L.A., CA. 90017

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY 
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THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE 
SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF 
SCRRA ENGINEERING STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED 
YOU ARE HELD HARMLESS FOR ANY USE OF THIS INFORMATION.
NOTES:

1. SCRRA EMPLOYEE IN CHARGE (EIC) AND LAW ENFORCEMENT OFFICER/FLAGGER WILL BE PRESENT AT ALL TIMES AT THE CROSSING IF THE WORK IS OF INTERMEDIATE-TERM STATIONARY, SHORT-TERM STATIONARY, OR SHORT DURATION.

2. THE HIGHWAY-RAIL CROSSING WILL BE CLOSED TO ROAD USERS IF THE WORK IS OF LONG-TERM STATIONARY DURATION.

TEMPORARY TRAFFIC CONTROL AT OR NEAR GRADE CROSSINGS

A. CARLOS

VS

REVISION

XX-XX-XX

X

LEGEND:

ROAD WORK AREAS

SIGN

FLASHER OR PORTABLE DELIMITER

FLASHING ARROW SIGN

FLAGGER

ONE-LANE ROAD AHEAD

WORK SPACE

TYPE III BARRICADE

NOTE:

FOR ADDITIONAL NOTES AND CHART SEE SHEET ES4302-02.
1. Transportation Traffic Control Planning and Design shall be coordinated with the Southern California Regional Rail Authority (SCRRA) since public agencies and SCRRA are governed to coordinate all installation, operation, maintenance, use, and protection of grade crossings across the California public entity corridor in order to assure no degradation of the safe operation of grade crossings and to provide safe and efficient movements of trains, vehicles, bicyclists, and pedestrians. SCRRA must approve any and all temporary traffic control plans and devices.

2. Temporary Traffic Control Plan shall be submitted to SCRRA for all activities located within or in the vicinity of highway-rail grade crossings. Traffic Control Plan shall comply with the current editions of the Manual of Uniform Traffic Control Devices (MUTCD) published by the U.S. Department of Transportation, "Work Area Traffic Control Handbook" (WATCH) published by Southern California Chapter of the American Public Works Association, and California MUTCD published by the State of California Department of Transportation (CALTRANS).

3. SCRRA reserves the right to close the crossings to vehicle traffic, revoke the temporary right of entry agreement, or deny the public agency, or the contractor to cancel the temporary traffic control if the public agency or contractor activity does not meet California Section 65 requirements. In the event of denial, the work intensity, work hours, and the movement of road users and rail traffic law enforcement officers, and flaggers are not present at the highway-rail grade crossings or the flagger qualifications, clothing, hand-signal devices, flagger procedures, and flagger stations are not meeting the SCRRA's work intensity, work hours, or flagging requirements. SCRRA reserves the right to close the crossings to vehicle traffic, revoke the temporary right of entry agreement, or deny the public agency, or the contractor to cancel the temporary traffic control if the public agency or contractor activity does not meet California Section 65 requirements.

4. The location and duration of temporary traffic control protection or lack of protection by railroad crossing warning system in both directions, type and level of highway and railroad traffic, and flagging can affect the design and selection of temporary traffic control plan. These variable factors should be especially studied prior to designing and implementing temporary traffic control zones. Refer to the accompanied flow chart that provides a quick reference to the relationship between railroad crossing conditions and traffic control requirements.

5. SCRRA Form No. 5 (Indemnification and Assumption of Liability Agreement) will be executed and submitted when highway-rail grade crossing conditions do not meet the SCRRA, MUTCD, WATCH, or CALTRANS requirements. The Traffic Control Plan shall be submitted to SCRRA for all activities located within or in the vicinity of highway-rail grade crossings. Traffic Control Plan shall comply with the current editions of the "Manual of Uniform Traffic Control Devices" (MUTCD) published by the U.S. Department of Transportation; "Work Area Traffic Control Handbook" (WATCH) published by Southern California Chapter of the American Public Works Association, and California MUTCD published by the State of California Department of Transportation (CALTRANS).
NOTES:

1. Requests for Temporary Construction Crossings will be
   considered by SCRRA only where it is shown that extreme
   hardship and/or unusual conditions exist that justify
   the crossing.

2. Geotextile must be placed over the tie plates and other track
   materials, noting to keep asphalt and base away from the
   minimum width of geotextile shall be 4.5 OZ. per sq. yard and thickness
   shall be 40 MIL.

3. The crossing shall be opened and closed for use when an SCRRA
   authorized employee is present and supervising the use of the crossing. The approval of the EIC must first be obtained each time it is
   opened. Any equipment movement over the crossing is needed. The EIC shall supervise the closure of the crossing before leaving the crossing.

4. The chainlink fence shall meet SCRRA Engineering Standard ES5006.

5. Chainlink fence gates will be locked with SCRRA lock only.

6. Cold mix asphalt is not an SCRRA approved material for the
   pavement. Hot mix asphalt must comply with Caltrans specifications.

7. Environmental rules of the local authority shall be followed
   when depositing the asphalt material.

8. Whistle point signs per ES606 shall be installed 1,320 feet
   from the centerline of the temporary construction crossing and flagged so signs are not visible at the beginning of every shift. When the crossing is to be placed in use, the bags shall be removed by the SCRRA authorized EIC from the whistle
   point signs and replaced at the end of the shift by the SCRRA
   authorized EIC when the crossing is closed and removed from service.

9. Steel plate requirements:
   A. When authorized by the SCRRA EIC, steel plates shall be placed across
      tracks at the beginning of every shift and removed at the end of the
      shift.

   B. Steel plates shall be secured to the roadway to prevent
      unauthorized movement of steel plates. While the crossing is in
      service, the contractor shall provide the appropriate steel plate
      thickness and width needed for the type of equipment proposed
      to traverse the crossing.

   C. Steel plates shall be stored and secured in areas that will not
      foul the tracks or cause a hazard to personnel or equipment when
      not in use. Steel plates shall be only stored on the side of the
      tracks for which it is being used. Steel plates shall not be carried
      over the tracks only for storage.
NOTE:
SIGN R15-2 USED ONLY IF THERE IS MORE THAN ONE TRACK. NUMBER SHALL CORRESPOND TO NUMBER OF TRACKS AT CROSSING.

MATERIAL NOTES:
1. SIGNS SHALL INCLUDE ALUMINUM PANEL RETROREFLECTIVE SHEETING, POLYURETHANE PAINT, SCREENED-PROCESS COLORS OR FILM, UV PROTECTION OVERLAY, ANTI-GRAPHIT OVERLAY, POSTS, ANCHORS AND HARDWARE.
2. ALUMINUM PANEL SHALL BE 0.050 IN. THICK OR EQUAL.
3. TEXT FONT SHALL BE 3/8" HELVETICA AS PER SCRRA ES1212, SIZED AS INDICATED.
4. POSTS, ANCHORS, AND HARDWARE SHALL BE AS PER SCRRA ES5210.
5. PANEL SHALL BE PAINTED ON ALL SIDES WITH TWO PART ACRYLIC POLYURETHANE PAINT COATING.
6. RETROREFLECTIVE SHEETING SHALL CONFORM TO THE REQUIREMENTS OF ASTM D4956, CLASS IX OR GREATER. RETROREFLECTIVE SHEETING SHALL HAVE EQUIVALENT OUTDOOR WEATHERABILITY CHARACTERISTICS AS THE RETROREFLECTIVE SHEETING.
7. SCREENED-PROCESS COLORS AND NONREFLECTIVE, OPAQUE BLACK FILM SHALL HAVE EQUIVALENT OUTDOOR WEATHERABILITY CHARACTERISTICS AS THE RETROREFLECTIVE SHEETING.

NOTES:
1. CPUC STANDARD NO. 1-X PRIVATE CROSSING SIGN:
   TWO SIGNS SHALL BE USED AT EACH PRIVATE GRADE CROSSING NOT EQUIPPED WITH AUTOMATIC WARNING DEVICES, ONE FACING EACH ROAD APPROACH UNLESS THERE IS NO SPACE TO LOCATE THE SIGN OR SIGNS.
2. CPUC STANDARD NO. 1-D PEDESTRIAN AND BICYCLE CROSSING SIGN FOR USE AT LOCATIONS DESIGNATED BY ORDERS OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION. THE WORDING "AND BICYCLES" IS OPTIONAL AND MAY BE OMITTED WHERE APPROPRIATE.
3. THE SIGNS SHALL BE PLACED NO CLOSER THAN 12'-6" FROM THE CENTER LINE OF TRACK TO THE BACK OF POST EXCEPT AS SHOWN FOR INDIVIDUAL STATE REQUIREMENTS.

ENGINEERING STANDARDS
PRIVATE, PEDESTRIAN AND BICYCLE RAILROAD GRADE CROSSING SIGN

CPUC STANDARD NO. 1-X
CPUC STANDARD NO. 1-D

MATERIAL SPECIFICATIONS
MANUFACTURER AND PRODUCT

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<th>PRODUCT SYSTEM</th>
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<tr>
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<td>5</td>
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<tr>
<td>6</td>
<td>3M PREMIUM COLOR SERIES 8851 INK</td>
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<tr>
<td>8</td>
<td>NIPPON CARBIDE GRAFFITI RESISTANT 3803 INK</td>
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<td>9</td>
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<tr>
<td>10</td>
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<tr>
<td>11</td>
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<td>1/4&quot; THICK ALUMINUM, ALCOA 6061-T6 OR EQUAL</td>
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NOTES:
CPUC STANDARD NO. 1-X:
THIS SIGN IS PREFERRED FOR INDIVIDUAL USE AT LOCATIONS DESIGNATED BY ORDERS OF THE CALIFORNIA PUBLIC UTILITIES COMMISSION. THE WORDING "AND BICYCLES" IS OPTIONAL AND MAY BE OMITTED WHERE APPROPRIATE.

CPUC STANDARD NO. 1-D:
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THIS SIGN COMPLIES WITH THE REQUIREMENTS OF CALIFORNIA PUBLIC UTILITIES GENERAL ORDER NO. 75-D.
NOTICE

This private crossing is subject to closure. Please call...

If you believe you are legally entitled to this crossing,
please provide the following information when calling:

Crossing Identification Number:

Date of Posting:

Location Plan

Date Plotted:

Date of Posting:

Material Specifications

Product:

System:

Manufacturer and Product:

High Intensity

Sheeting (White):

1. 3M SCOTCHLITE HIGH INTENSITY PRISMATIC WHITE GRADE 3930 SHEETING

2. NIPPON CARBIDE RETRO-REFLECTIVE SHEETING TYPE VM CRYSTAL GRADE

3. AVERY DENNISON OMNIVIEW T-9500 PRISMATIC HIGH INTENSITY SHEETING

4. 3M PROCESS COLOR SERIES 8851 INK

5. AVERY DENNISON 4930 INK

6. AVERY DENNISON 4930 INK

Anti-Graffiti Overlay:

1. 3M PREMIUM PROTECTIVE OVERLAY FILM 1160

2. NIKKALITE BRAND HI-SCALE T-46801

3. AVERY DENNISON OL - 1000 PREMIUM ANTI-GRAFFITI FILM

Panel:

1. 1/4 THICK ALUMINUM, ALECO 6016-T6 OR EQUAL

Signs shall include:

- Aluminum Panel
- Retro-reflective sheeting
- Polystyrene paint
- Screened-process colors
- UV protection overlay
- Anti-graffiti overlay
- Posts, anchors, and hardware

Panel shall be painted on all sides with two part acrylic polystyrene paint coating.

Retro-reflective sheeting shall conform to the requirements of ASTM D4956, CLASS IX OR GREATER. Retro-reflective sheeting shall have equivalent outdoor weatherability characteristics as the retro-reflective sheeting.

NOTE:

- To be used only at private crossings when the following exist:
  - Real estate cannot find an agreement unable to determine use or owner of the crossing.

Installation and Removal Instructions:

1. One sign to be placed at front of each roadway approach mounted on 12'-0" galvanized post and per ES 5210 sign to be mounted 7'-0" above ground.

2. Sign to be located 20'-0" from centerline of nearest track with center of the post no less than 1'-0" from the edge of the traveled roadway.

3. Position the sign to provide the best possible view from a roadway approach.

4. A photograph of the sign shall be taken upon completion of installation for records file (include date on pictures).

5. Leave sign up for minimum of 90 days if there have been no calls or inquiries after the 90 days remove crossing identification sign date of crossing removal including picture and any other means for purpose of documenting records if called is received and the crossing is being used and can be justified, handle with real estate or appropriate agreement.

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

ENGINEERING STANDARDS

PRIVATE CROSSING CLOSURE NOTIFICATION SIGN