

ADA Considerations

Presented by
Caltrans District 8
February 2018

Americans with Disabilities Act of 1990

- It's the law.
- It's a Civil Right of persons with disabilities.
- It's the right thing to do.
- Failure to comply = costly settlements:
2009: Caltrans: \$1.1 billion
2016: Los Angeles: \$1.3 billion

Other Applicable Laws and Guidelines

- California Government Code 4450 *et seq.*
Title 24 California Code of Regulations
- California Vehicle Code, Section 21949
- Highway Design Manual (HDM) Topic 105
- Manual on Uniform Traffic Control Devices,
California 2014 edition (2014 CA MUTCD)
- U.S. Access Board's draft
Public Rights-of-Way Accessibility
Guidelines (draft PROWAG)

Typical Pedestrian Facilities and Design Features

Pedestrian Facilities

- Sidewalks
- Driveways
- Curb Ramps
- Crosswalks
- Signals with push buttons
- Bike Path (Class 1)

Design Features

- Surface
- Clear Width
- Running Slope/Grade
- Turning Space/Landing
- Cross slope

Other Pedestrian Features

- Walkways (non-adjacent to roadway)
- Parking Lots
- Bus Stops
- Access through Medians
- Shoulders (in certain situations)
- Trails (separate ADA Design criteria)

Design Information Bulletin 82


- Caltrans primary guidance for pedestrian facilities
- Based on Federal & State codes
- Sixth Edition:
DIB 82-06

DESIGN INFORMATION BULLETIN NUMBER 82-06

Department of Transportation
Division of Design
Office of Standards and Procedures

PEDESTRIAN ACCESSIBILITY GUIDELINES
FOR
HIGHWAY PROJECTS

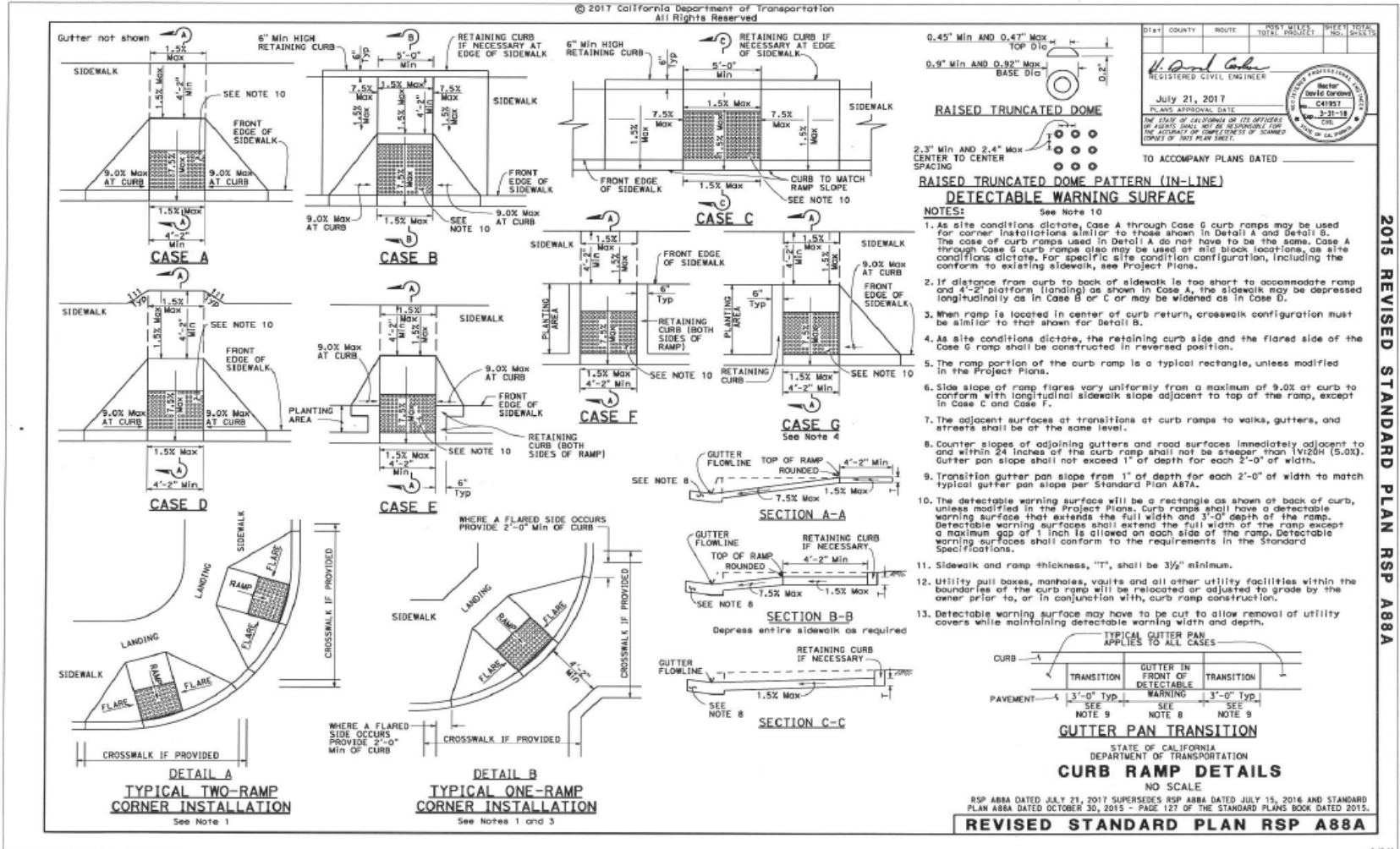
APPROVED BY:


THOMAS S. BOUQUIN
ACTING DIVISION CHIEF
DIVISION OF DESIGN

November 16, 2017

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Standard Plans: ADA Details



Comparison of DIB 82 and Caltrans Standard Plan Requirements

Design Information

Bulletin 82

- ADA-allowable Slopes and Widths
 - * Cross slope: 2.0% Max
 - * Running slope: 8.3% Max
 - * Flare slope: 10% Max
 - * 4'-0" Min. Width

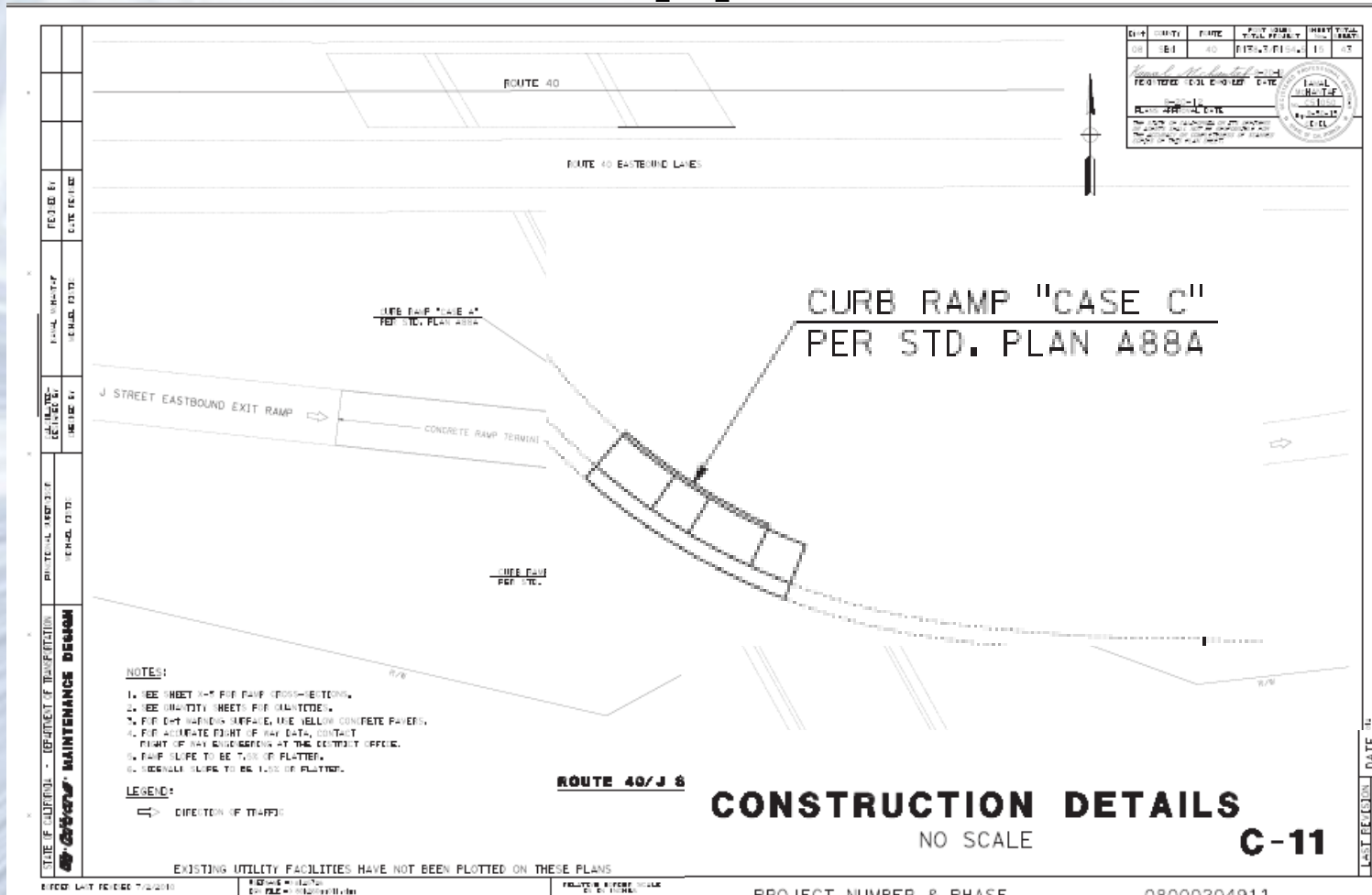
Standard Plans

- Conservative Slopes and Widths
 - * 1.5% Max
 - * 7.5% Max
 - * 9.0% Max
 - * 4'-2" (50") Min

General Design Process

- Project Development
 - Scoping involving pedestrian facilities
 - Apply Standards
- Exceptions are handled similar to geometric design exceptions.
- Compliance Approval at RTL, or at Encroachment Permit Issuance
- ADA Certification by Project Engineer

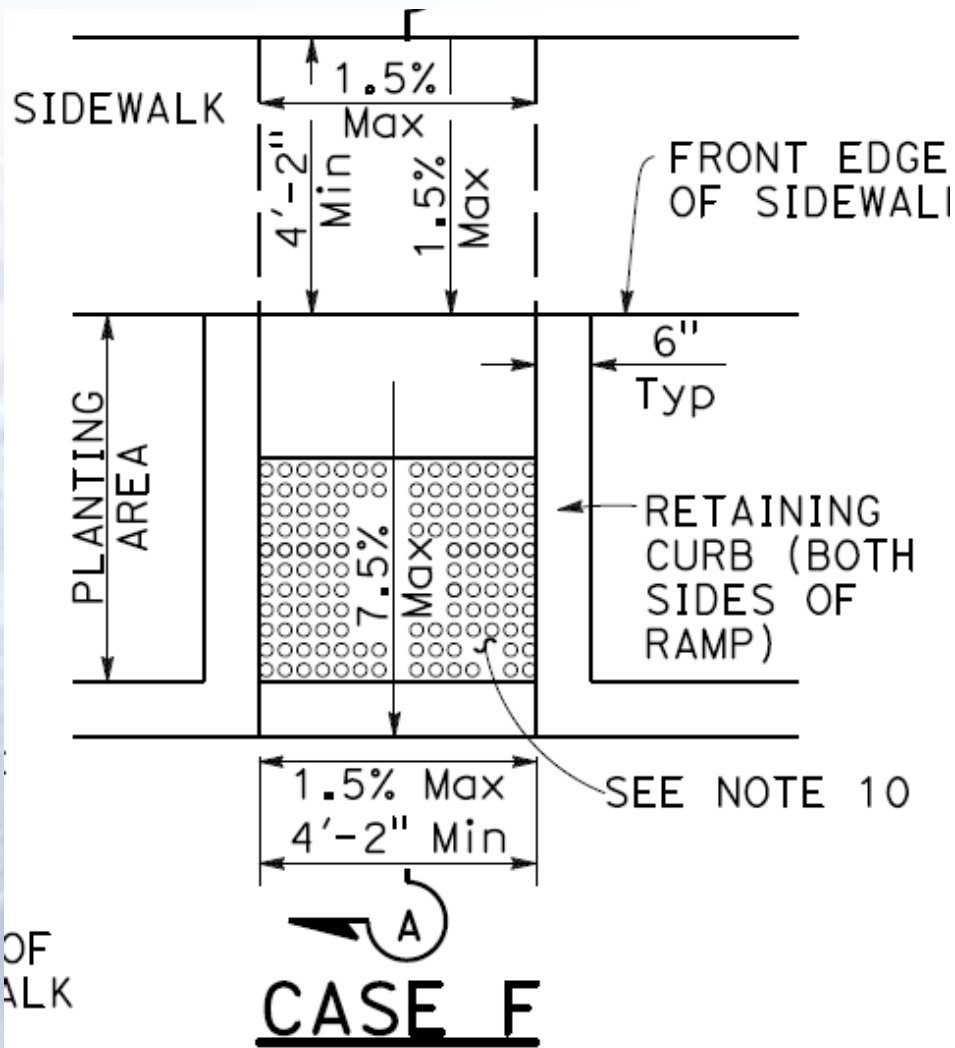
Curb Ramp Design: Old Approach



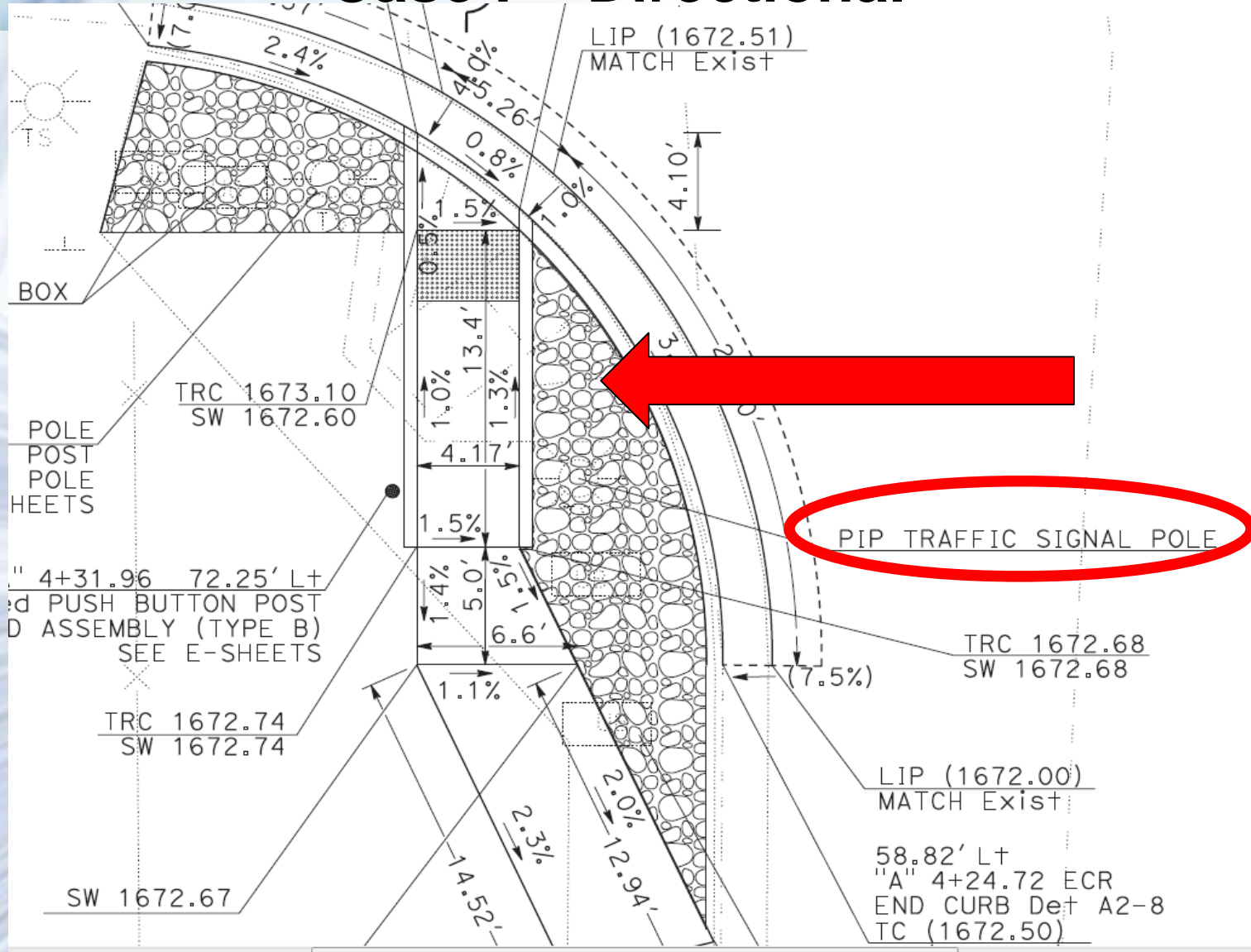


Curb Ramp Design Concepts

Case F



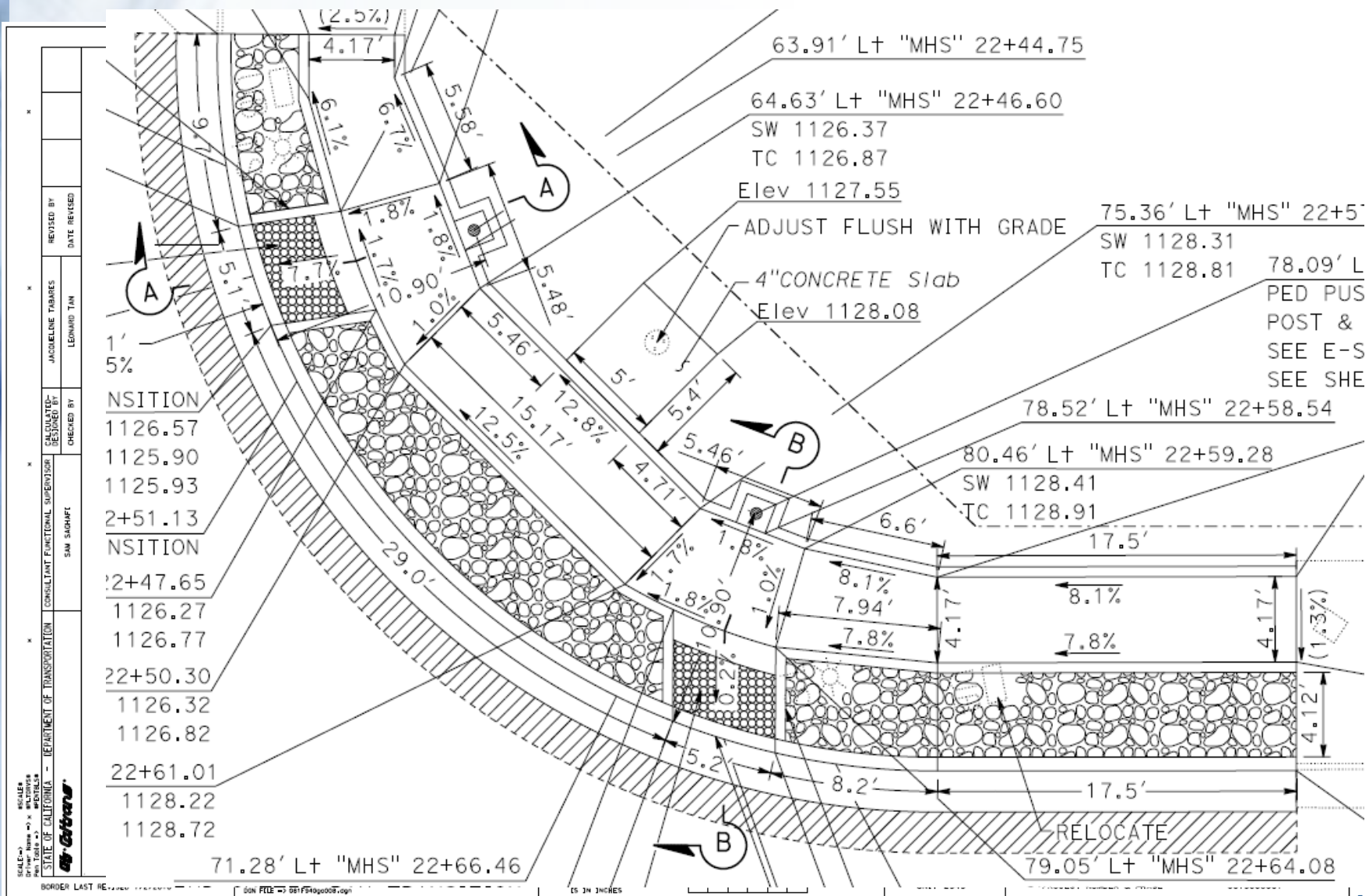
Case F - Directional



Case C

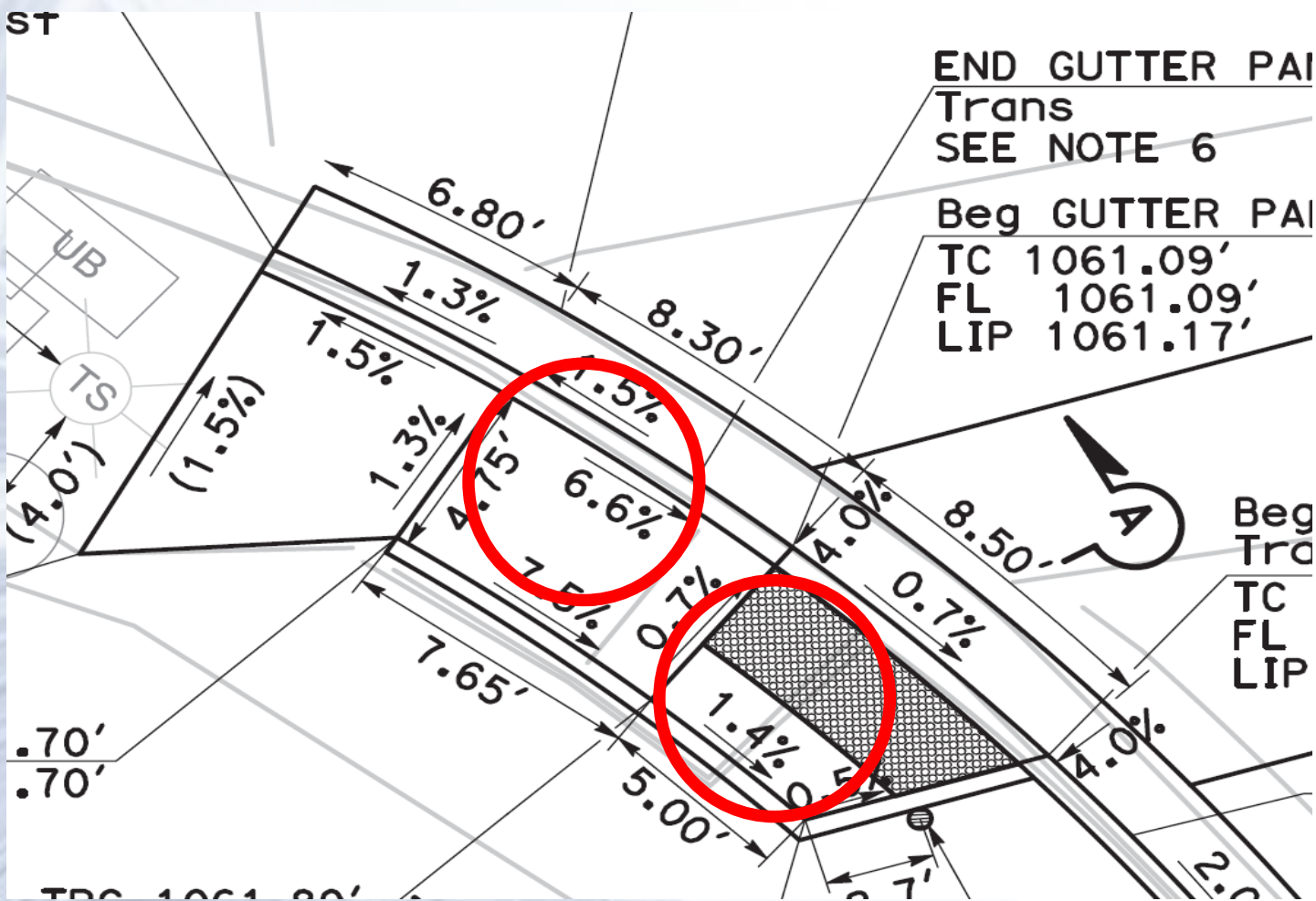


Modified Case C – Large Radius



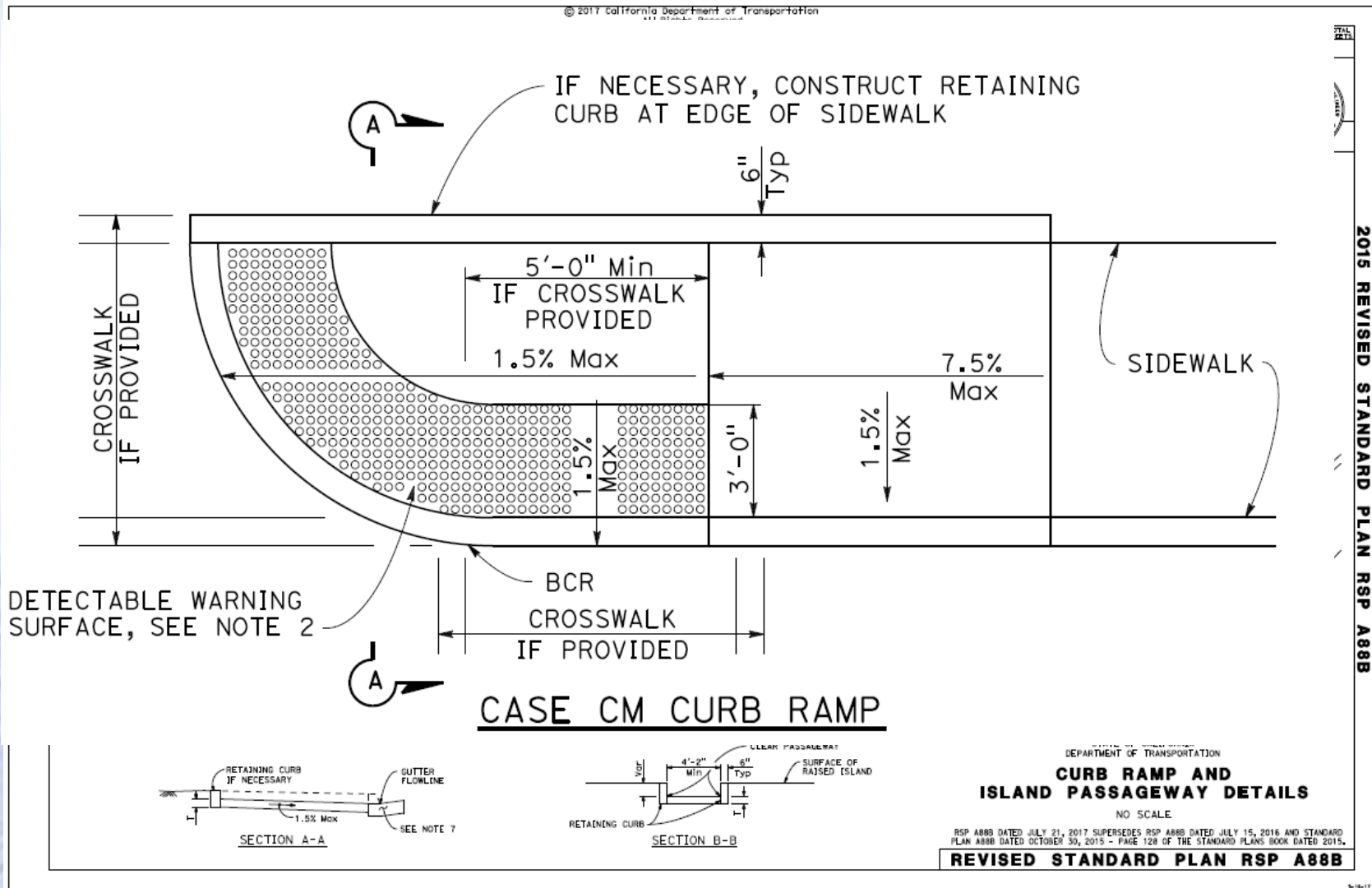
DESIGNED BY	REVISIONS
CHECKED BY	DATE
CONSULTANT SUPERVISOR	DATE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DATE
CONSULTANT FUNCTIONAL SUPERVISOR	DATE
SM SURFAC	DATE
JACQUELINE TABARES	DATE
LEONARD TAN	DATE

Case CH



Case CM

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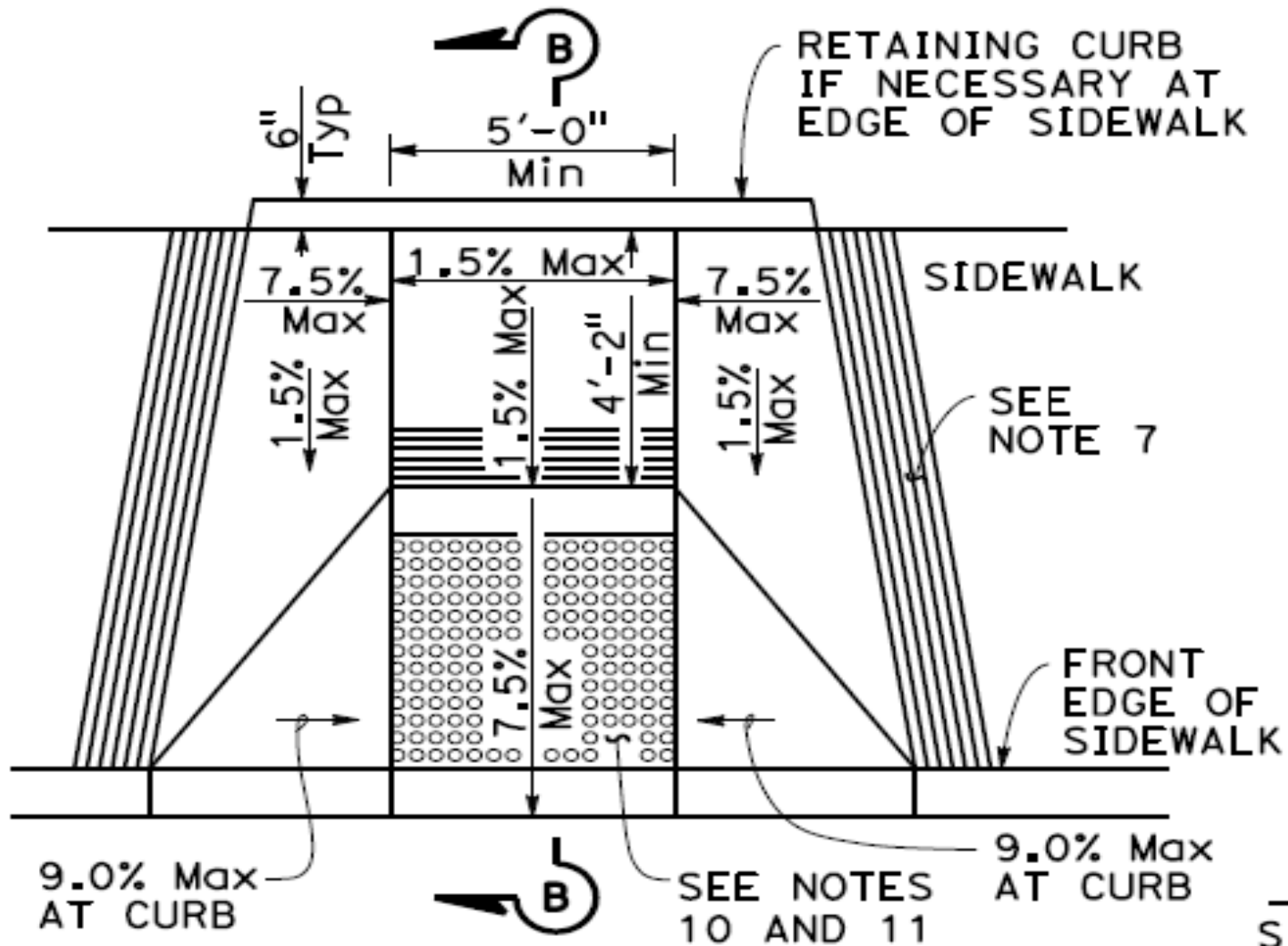


2015 REVISED STANDARD PLAN RSP A88B

Case CM



Case B



CASE B

Case B/F



Double Case B/F

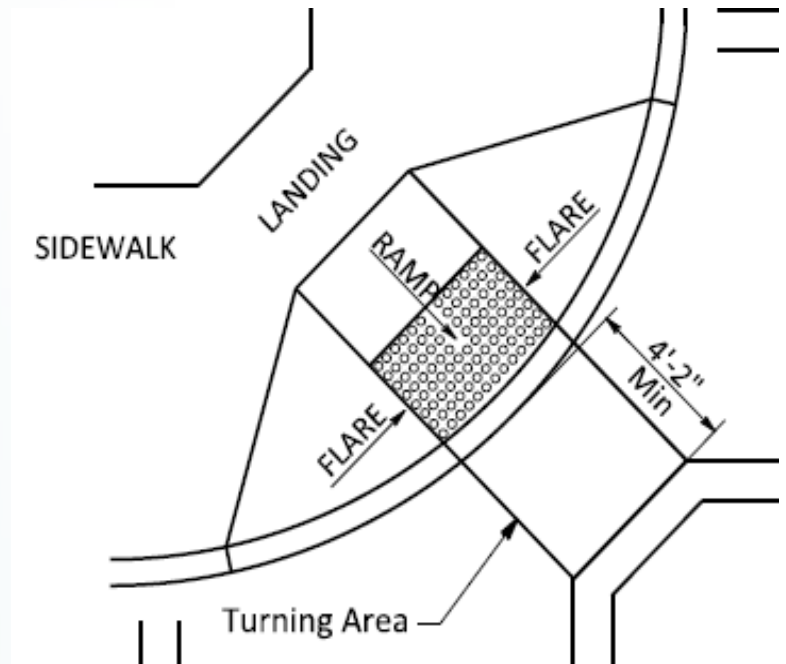


Blended Transition

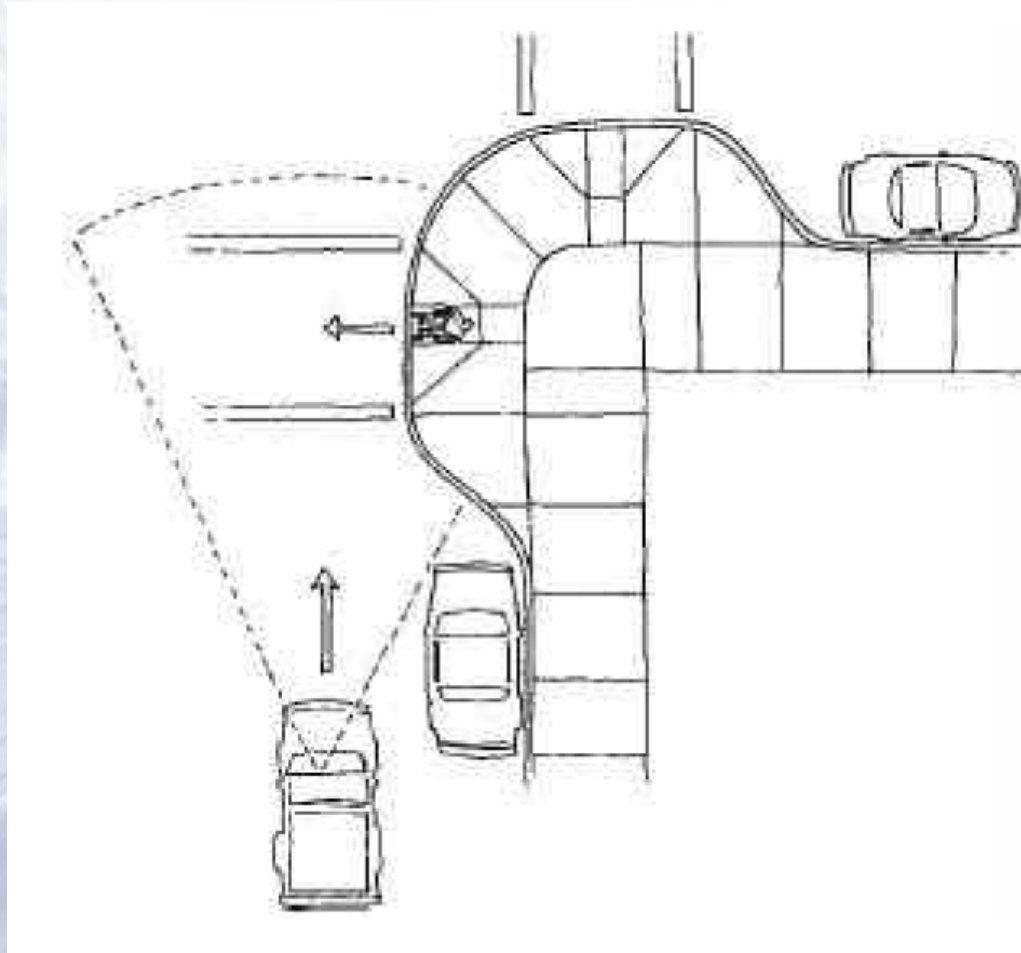


Diagonal Curb Ramp

- Not recommended
- Directs users into the middle of intersection
- Pedestrians will spend longer time in the roadway (4'-2" turning area)



Curb Extension (Bulbout)



Curb Ramp to Nowhere

Curb Ramp to Nowhere

Write a description for your map.

Legend

Untitled Path



Google Earth

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5.18 ft

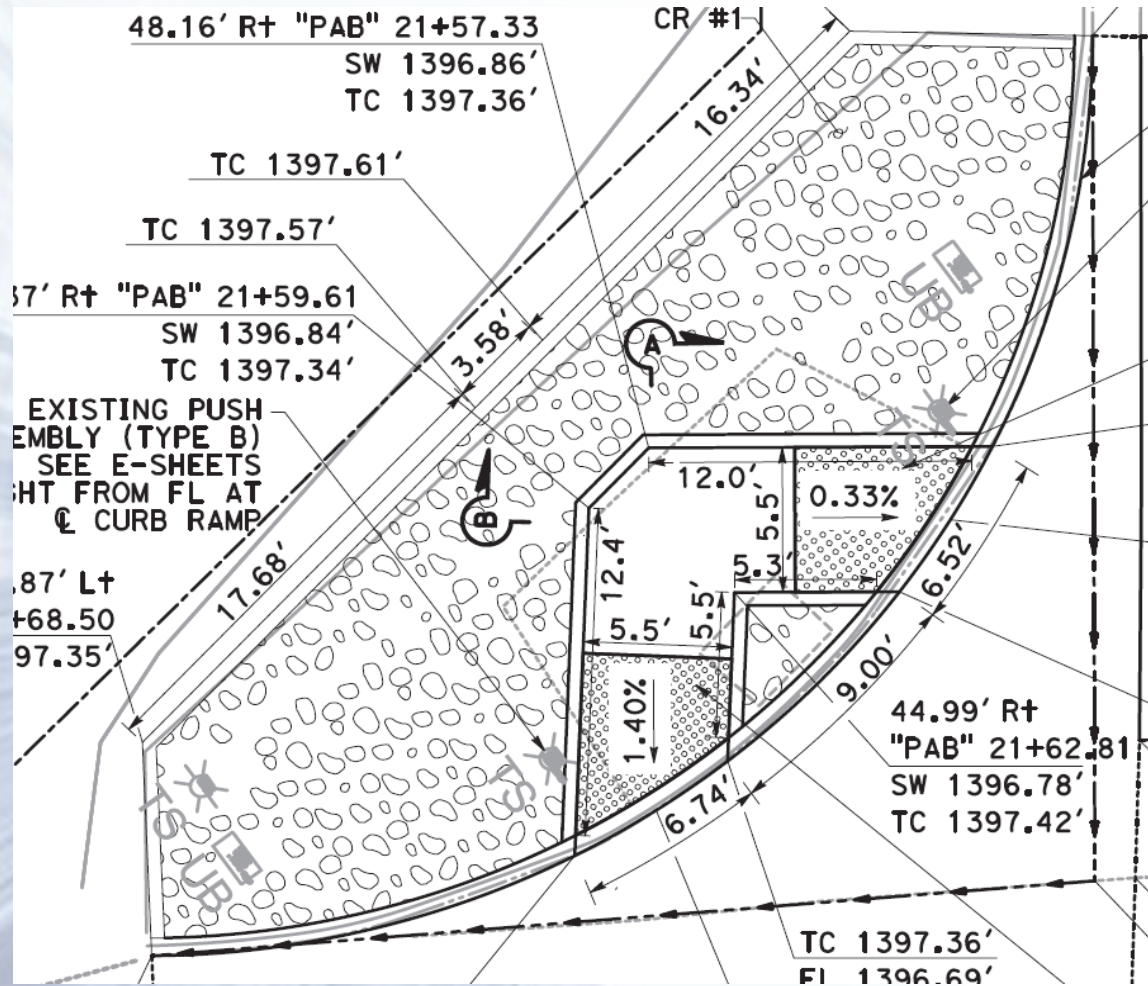
Pedestrian Refuge Pad



Pedestrian Refuge Pad



Pedestrian Refuge Pad



Curb Ramp Detectable Warning Surface



Curb Ramp Cross Slopes: Recommend 1.5% or less

Allowable Exceptions: At signalized intersection, if in intersection leg not controlled by a yield or stop sign, or at a midblock crossing:

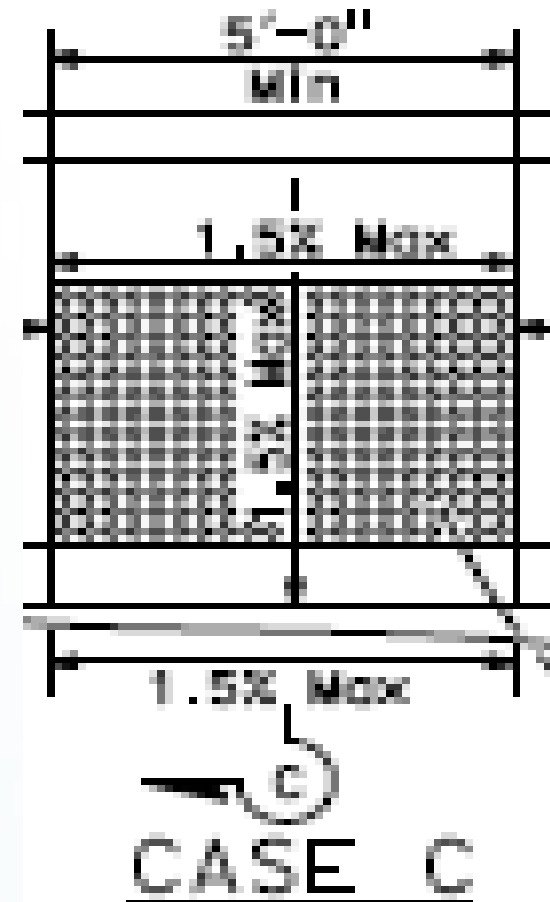
- Can = Street/highway grade
(see DIB 82-06 4.3.5 and 4.3.8.8)
- However, try to achieve 1.5%, esp. by the landing:
 - * Start at bottom/gutter pan.
 - * Warp if needed.

(PROWAG R304.5.3: 2%, CT RSP A88A: 1.5%)

Curb Depression Running Slopes

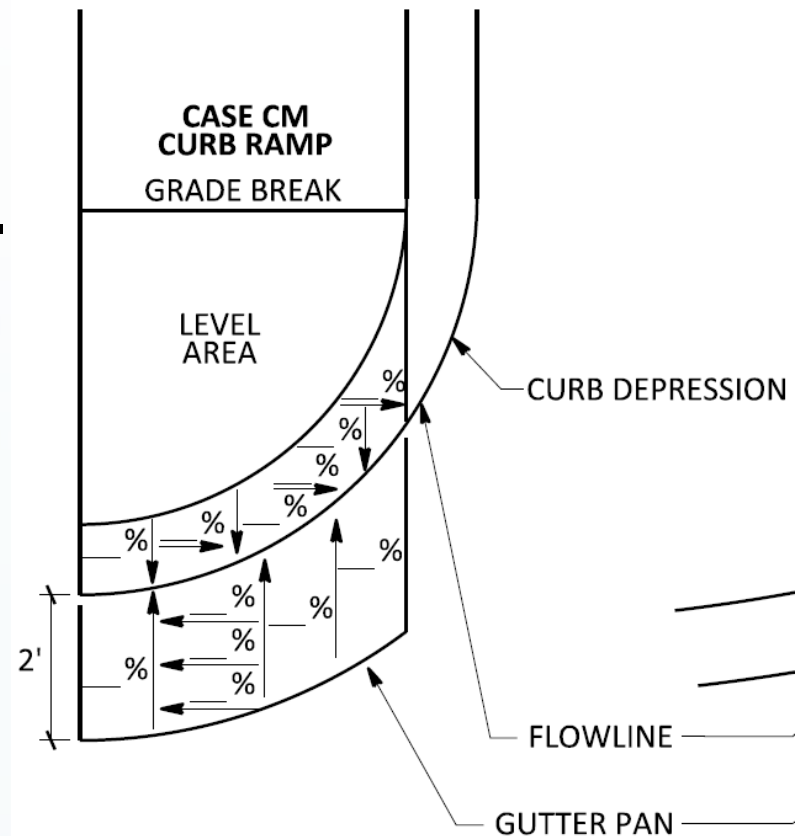
- Cases C, CH, & CM:
Match adjacent landing
slope

(CT RSP A88A & A88B)



Curb Depressions & Gutter Pans

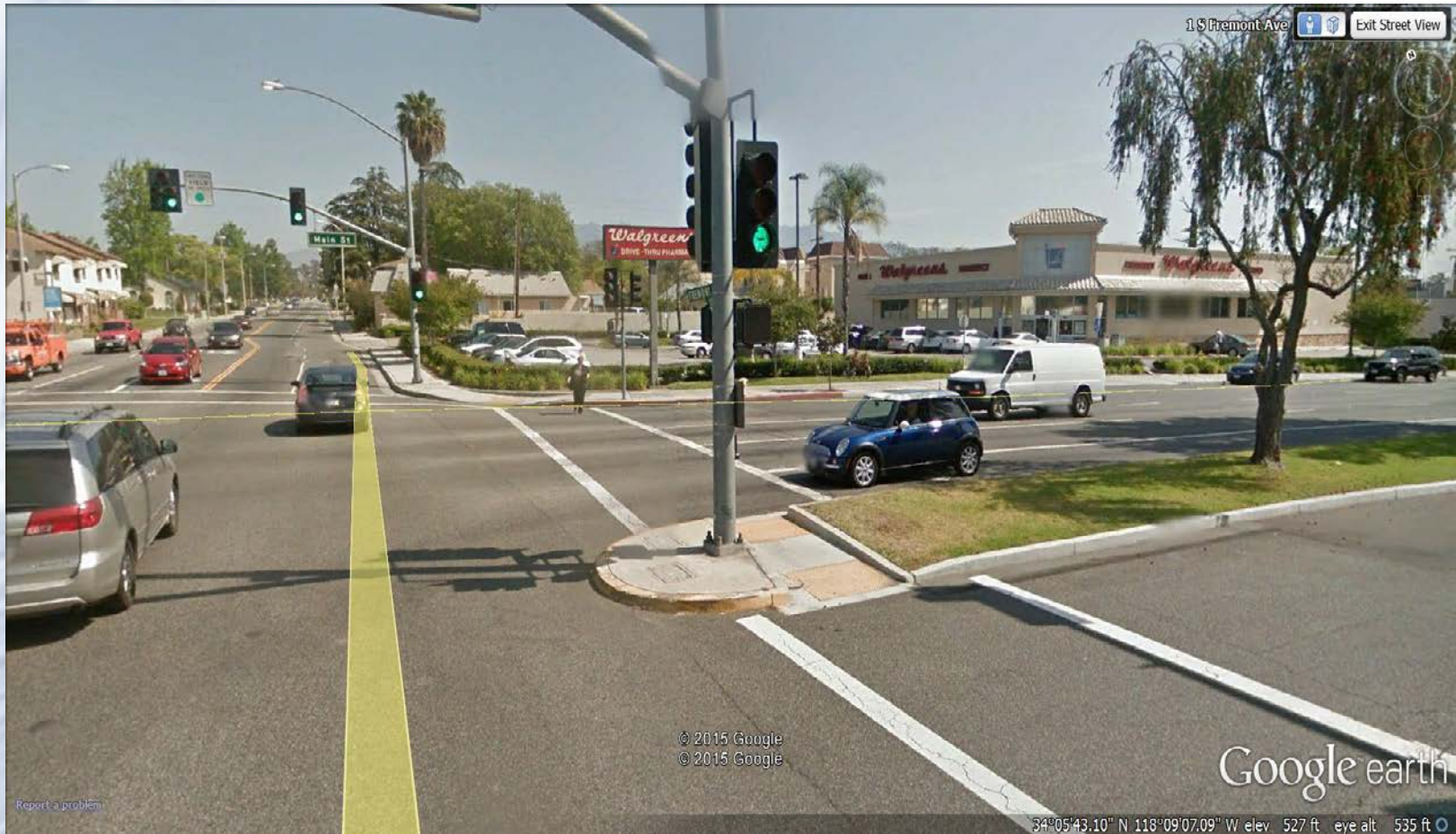
- Both cross & running slope readings needed.
- Orient to the path of pedestrian travel – not to the flowline.



Pedestrian Passageways

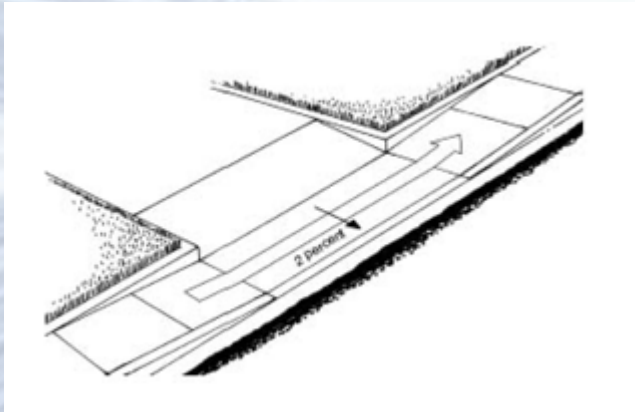


Pedestrian Passageways

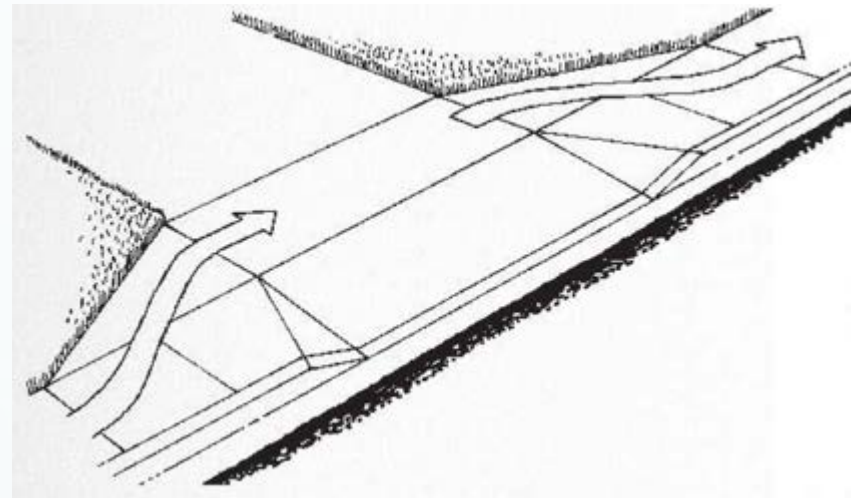


Sidewalk/Driveway Connections

Depressed ramp sidewalk

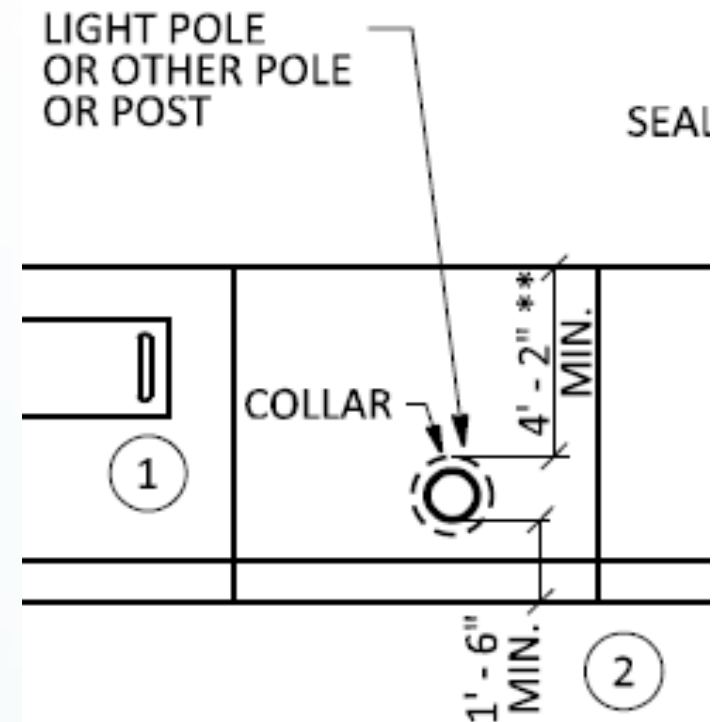


Apron offset sidewalk



Setback of Poles/Posts from Street Curbs

- Must meet min. 1'-6" setback from face of curb to face of pole (CT HDM)
- Must not impinge into min. 48" wide path of pedestrian travel (Title 24 11B-403.5.1.3 & PROWAG R302.3)



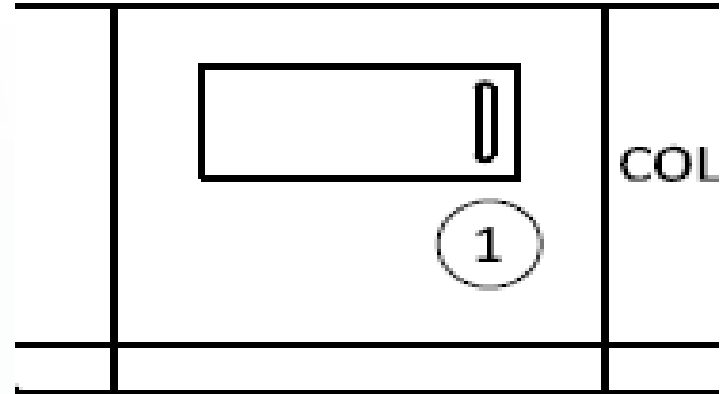
Sidewalks

Warning Curb

- **Provide 6 inch high warning curb at drops in level to adjacent areas exceeding 4 inch (except between sidewalks and adjacent street).**

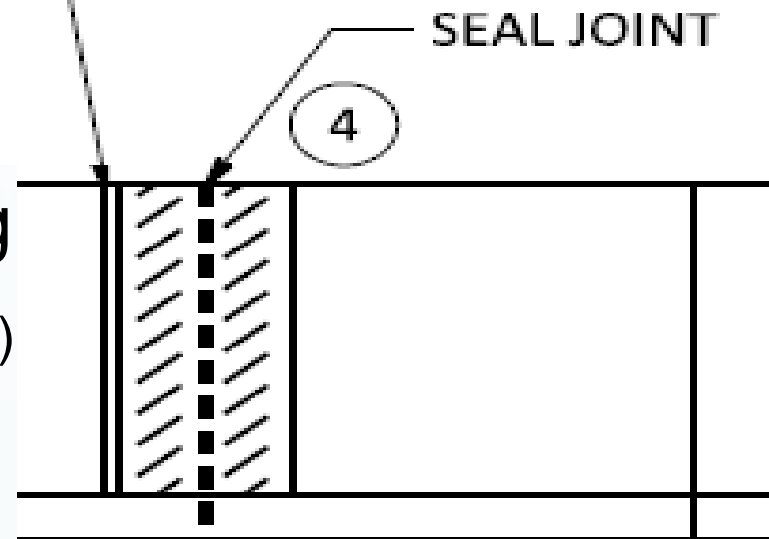
Vault Lids & Grate Openings

- When one obvious direction of travel, opening in that direction can't exceed $\frac{1}{2}$ ". (2010 ADA Std 302.3 & Title 24 11B-302.3)
- When > one direction of travel, as in a plaza, openings can't exceed $\frac{1}{2}$ " in any direction.



Sidewalk Armor Plate

Recess to accommodate sidewalk armor plate during periods of bridge or overcrossing expansion.

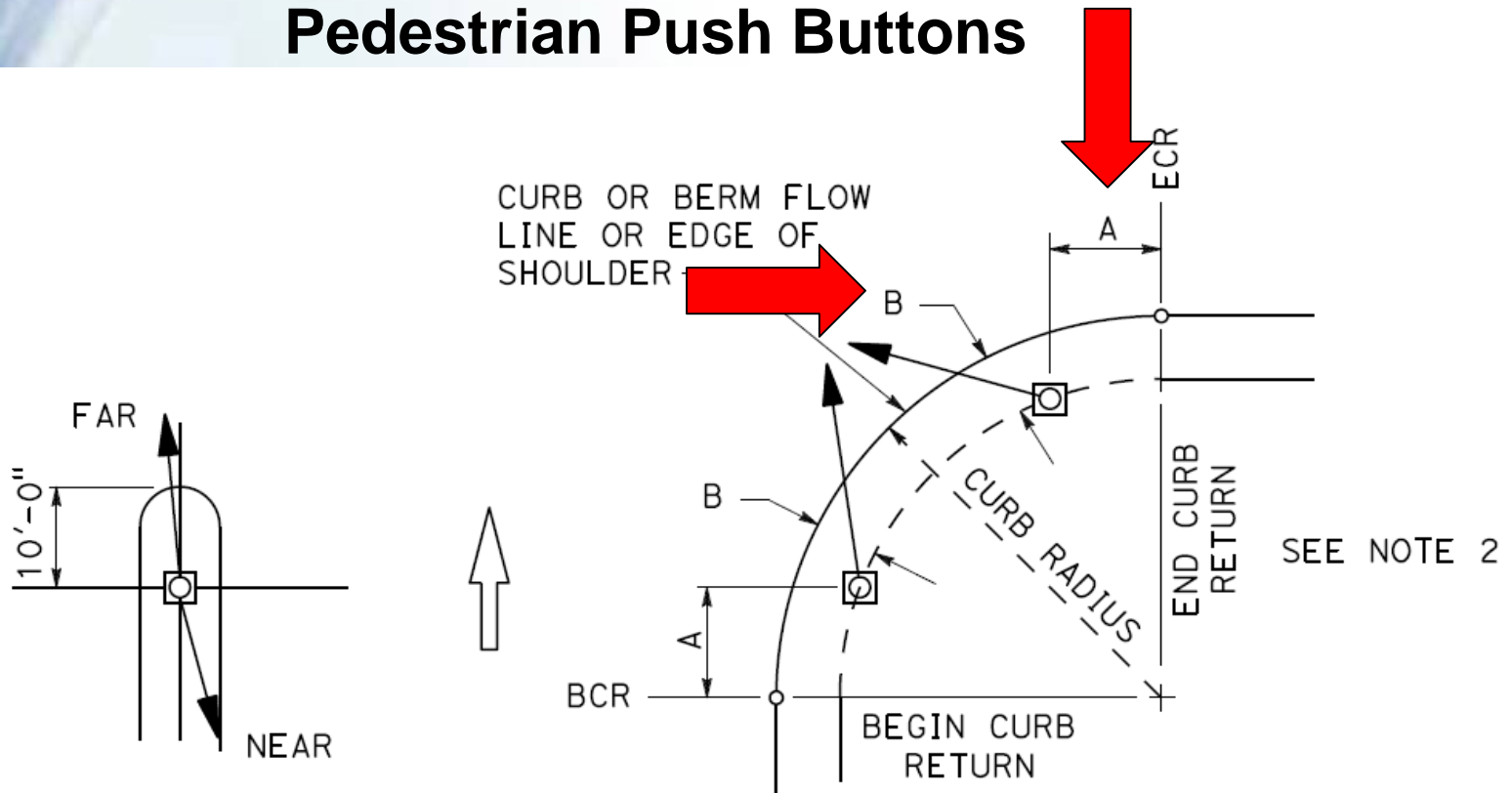


- At bridge or overcrossing
- Seal joints (usually rubberized)
- Use armor plate to cover the seal joint.
- Detail A of Section 8 – CT Bridge Joint Seals

Sidewalk Armor Plate



Pedestrian Push Buttons



NOTES:

1. Typical signal pole placement unless dimensioned on plans.
2. For A and B dimensions, see Pole Schedule.

Push Buttons; PE/Electrical Coordination

- Project Engineer locates the following areas:
 1. Push buttons/related poles/posts
 2. 30" x 48" level areas (unless such already within min. 48" x 48" landings)
- Show spatially specific location of No. 1 in both the Construction Detail plans and Electrical plans, and....

* District recommendation

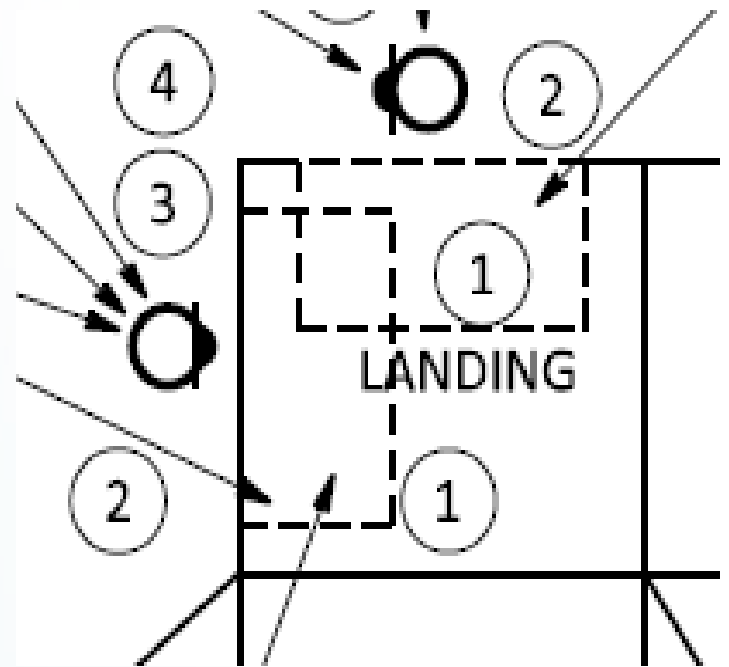
Push Buttons; PE/Electrical Coordination

- ...Add to each elect. plan w/push buttons:
“For exact location of _____
(name the feature, like “push button”),
see _____ (name the
sheet the PE has located it/them on).”
- Also add:
“Push button arrows shall be parallel with
the crosswalk.”

District recommendations

Push Button Locations

- Center post to a 30" x 48" level area
- Usually best to place the 30" x 48" area within landing
- Inferred from MUTCD, & District recommendation

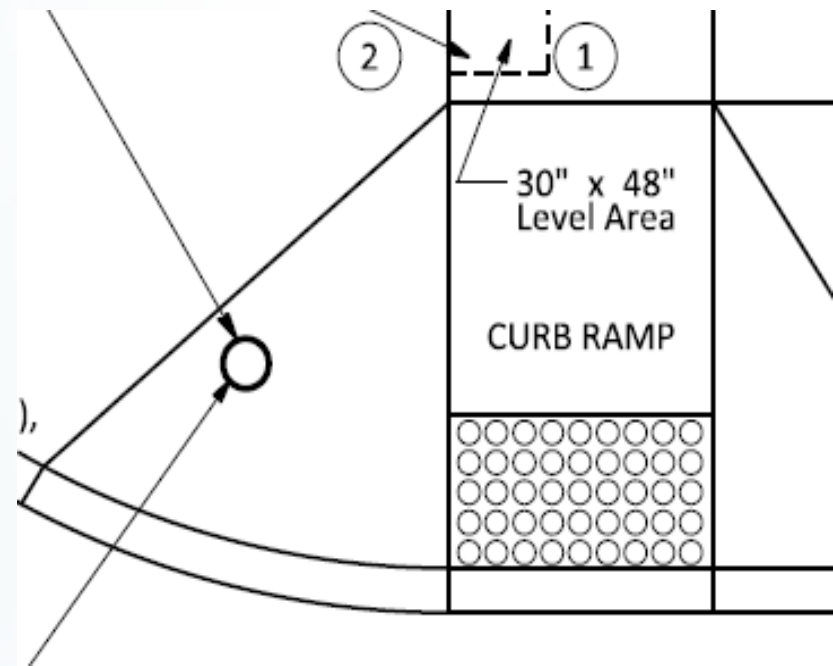


Use of Push Buttons on Signal Poles

Though technically o.k. to locate signal poles in flares:

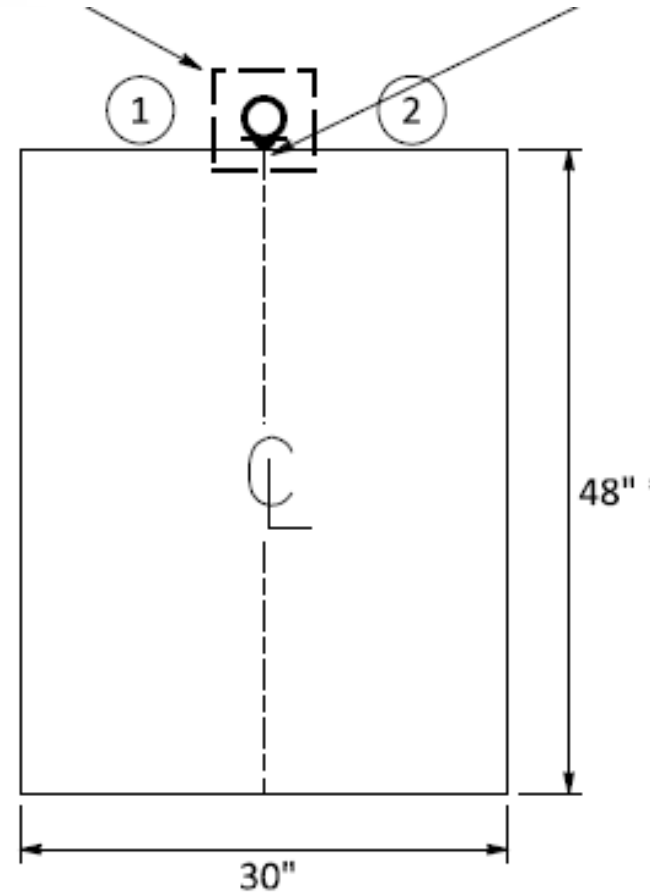
- don't locate poles in level areas, landings, or ramps
- TSPs with p. buttons: button must be at accessible location

(Inferred by MUTCD, CA ed., District Recommendation)

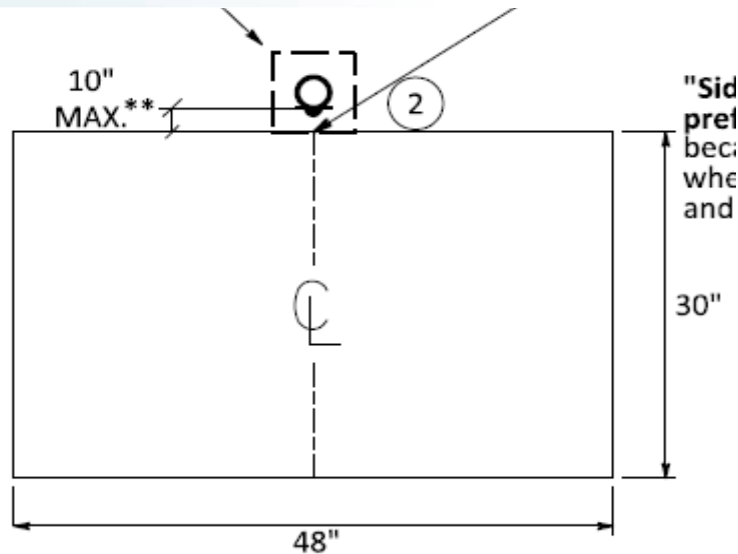


Unobstructed “Front Reach”

- Often requires a change in direction of travel; a little harder to design
- Outer edge of button, when pressed, to be exactly at edge of 30” 48” area. (PROWAG)

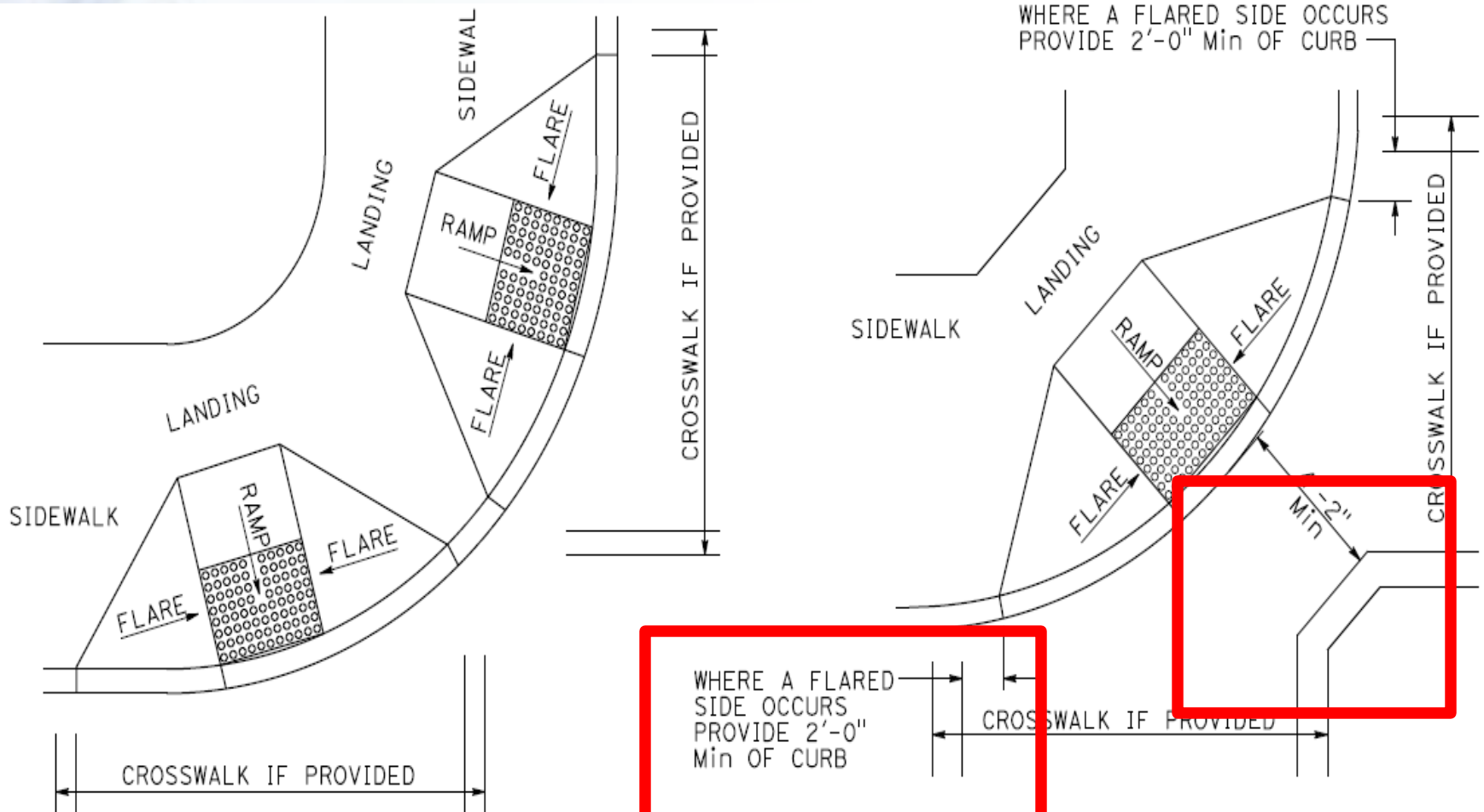


“Unobstructed” Side Reach



- 10" max from paved surface (PROWAG)...
when button is pressed (Dist. recommendation)
- Don't design to the 10" maximum.
- Center button to 48" side (Distr. recommend.)
- Easier to design and use than "Front Reach"

Striping Plans



TYPICAL TWO-RAMP CORNER INSTALLATION

See Note 1

TYPICAL ONE-RAMP CORNER INSTALLATION

See Notes 1 and 3

HQ ADA CONSTRUCTION CHECKLISTS

&

CHECKLIST TIME SAVERS

ADA Construction Checklists

- Issued by Caltrans HQ Construction
- Used by District 8 during design:
 - * Of new ADA features
 - * To confirm compliance of existing features to remain
 - * Tip: Ensure all smart level slope readings are taken in percentages, and not degrees.
 - * ADA Certification by Resident Engineer

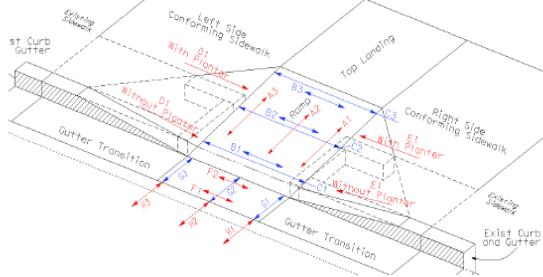
HQ Construction ADA Checklists

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CURB RAMP (CASE A, D, OR E) AMERICANS WITH DISABILITIES (ADA)
COMPLIANCE INSPECTION REPORT
 CEM-5773ADE (REV 11/2017)

Page 2 of 9

CONTRACTOR NAME AND ADDRESS		CONTRACT NUMBER/CORTE/PM			
		PROJECT IDENTIFICATION NUMBER			
		PROJECT INFORMATION NAME			
Location Number	Route Name	Ramp Case	Intersection Quadrant	Ramp	
	Cross Street	<input type="checkbox"/> Case A <input type="checkbox"/> Case D <input type="checkbox"/> Case E	<input type="checkbox"/> Northwest <input type="checkbox"/> Northeast <input type="checkbox"/> Mid-Block	<input type="checkbox"/> Southwest <input type="checkbox"/> Southeast	<input type="checkbox"/> Single <input type="checkbox"/> Dual Ramp 1 <input type="checkbox"/> Dual Ramp 2

ADA CURB RAMP (CASE A, D, or E) FIELD MEASUREMENTS



Measure and verify the dimensions and slopes:

Ramp Slope (x.x%)	Ramp Cross Slope (x.x%)	Ramp Width (inches)	Left Flare Slope at Back of Curb (x.x%)	Right Flare Slope at Back of Curb (x.x%)	Gutter Slope (x.x%)	Gutter Cross Slope (x.x%)	Road Surface Cross Slope within 2' from Ramp (x.x%)
A1	B1	C1	D1	E1	F1	G1	H1
A2	B2	C2			F2	G2	H2
A3	B3	C3				G3	H3
7.7% or less?	1.7% or less?	49.75" or greater?	0.2% or less?	0.2% or less?	1.7% or less?	4.4% or less?	5.2% or less?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No N/A Gutter is 24" or more wide.

Remarks

Inspection by (print name) _____ Signature _____ Date _____

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CURB RAMP (CASE A, D, OR E) AMERICANS WITH DISABILITIES (ADA)
COMPLIANCE INSPECTION REPORT
 CEM-5773ADE (REV 11/2017)

Page 5 of 9

CONTRACTOR NAME AND ADDRESS		CONTRACT NUMBER/CORTE/PM			
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Location Number	Route Name	Ramp Case	Intersection Quadrant	Ramp	
	Cross Street	<input type="checkbox"/> Case A <input type="checkbox"/> Case D <input type="checkbox"/> Case E	<input type="checkbox"/> Northwest <input type="checkbox"/> Northeast <input type="checkbox"/> Mid-Block	<input type="checkbox"/> Southwest <input type="checkbox"/> Southeast	<input type="checkbox"/> Single <input type="checkbox"/> Dual Ramp 1 <input type="checkbox"/> Dual Ramp 2

ADA CURB RAMP (CASE A, D, or E) FIELD INSPECTION CHECKLIST

No.	Requirement	Compliant	Photo	Remarks
1	Detectable warning surface was on the Authorized Material List?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2	Detectable warning surface is yellow in color?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3	Detectable warning surface is in compliance with standard plan AB8A detail Raised Truncated Dome for dome diameter and height?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4	Detectable warning surface is in compliance with standard plan AB8A detail Detectable Warning Surface for truncated dome spacing?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5	Detectable warning surface edge nearest the street is in contact with the back of curb projection? If answer is yes, then mark item 6 N/A.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6	Detectable warning surface edge nearest the street is installed as shown on the project plans? Mark N/A if installed per standard plan.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7	Detectable warning surface 5-year manufacturer's warranty is on file?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8	Curb ramp surface has a broom finish, which provides slip resistant surface?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
9	Are all changes in surface level less than 1/4"?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
10	For any utility pull boxes, manholes, or vaults within the boundary of curb ramp are they flush with the finished curb ramp surface? Mark item N/A if there are no utility pull boxes, manholes, or vaults.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
11	For openings or gratings located within the boundary of curb ramp, are spaces less than 1/2" in one direction and are elongated openings oriented perpendicular to dominate direction of travel? Mark item N/A if there are no openings or gratings.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Remarks

Field inspection checklist completed by (print name) _____ Signature _____ Date _____

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HQ Construction ADA Checklists

- Push Button Info

17	For curb ramp at a signalized intersection, complete items 18-22. If not at signalized intersection mark items 18-22 N/A.	Item 18-22 <input type="checkbox"/> N/A
18	Is the pedestrian push button height within 38-42 inches from the sidewalk surface or ground?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
19	Is the pedestrian push button wheelchair accessible from unobstructed forward reach?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
20	Is the pedestrian push button wheelchair accessible from unobstructed side reach?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
21	For unobstructed side reach, is the pedestrian push button within 10 inches of the edge of sidewalk?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
22	Is the sidewalk slope and cross slope less than 1.7 percent within the 48" x 48" area adjacent to pedestrian push button?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Time Savers – Curb Ramp Checklists

- If there is a “fatal flaw”, like curb ramp being $> 8.33\%$ (when ramp is $< 15'$ long):
 - * Enter slope reading in checklist
 - * Stop taking any other readings at the curb ramp
 - * Mark as “Complete Redesign Needed”
 - * Move on to the next curb ramp
 - * Use judgement: 8.5% could be grinded

Time Savers - Curb Ramp Checklists

- Middle Readings Only:
- Allowable if not > following percentages:
 - a. Curb ramp running slopes: 7.0%
 - b. Cases A, B, & D - G curb depression running slopes: 6.0%

Time Savers – Sidewalk Checklists

- 3 (not 5) readings in both directions.
- < 12' long: Readings every panel/6'.
- >12' long, in one plane, does not meander:
Slope readings for the first and last panels and
a panel every 50' between.
- Warped & meandering sidewalks: Every 10'.
- At angled sidewalk: Slope readings at each of
the panels where angle occurs.

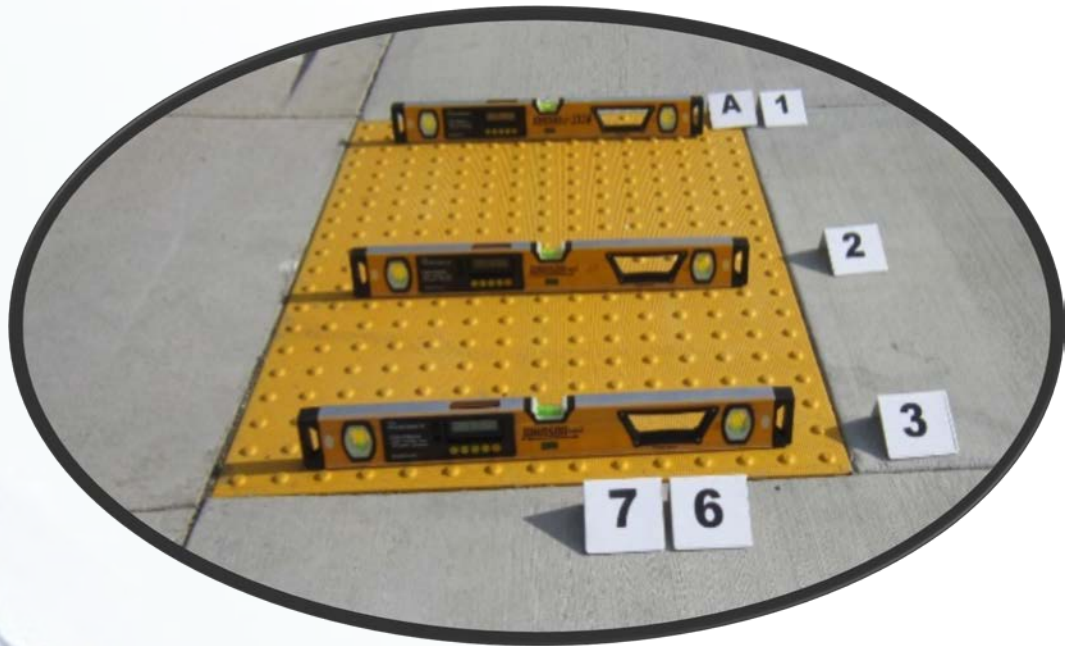
Time Savers – Curb Ramp Checklists

- Construction Inspection “Kit”:
 - * Smart levels
 - * ID letters & Nos.
 - * Measuring tape
 - * Wood block



Time Savers – Curb Ramp Checklists

- Can use 3 smart levels simultaneously
- Number the curb ramp and key to a plan



Other Recommendations

- Photos are not mandatory, but very helpful to:
 - a. Prove slope readings are in percentages, and not in degrees
 - b. Prove readings were taken in the correct locations
 - c. Provide helpful evidence if an auditor measures incorrectly

Sample Photos



Sample Photos



Sample Photos



Sample Photos



Sample Photos



Information

- **Design Information Bulletin 82-06:**
<http://www.dot.ca.gov/design/stp/dib/dib82-06.pdf>
- **Caltrans ADA Design:**
<http://www.dot.ca.gov/design/stp/accessibility.html>
- **Plans Preparation Manual:**
<http://www.dot.ca.gov/design/cadd/manuals/ppm.html>

The background of the slide features a series of overlapping, curved, light blue lines that create a sense of motion and depth, set against a white background. The lines are most prominent on the left side and curve towards the right.

Questions?