

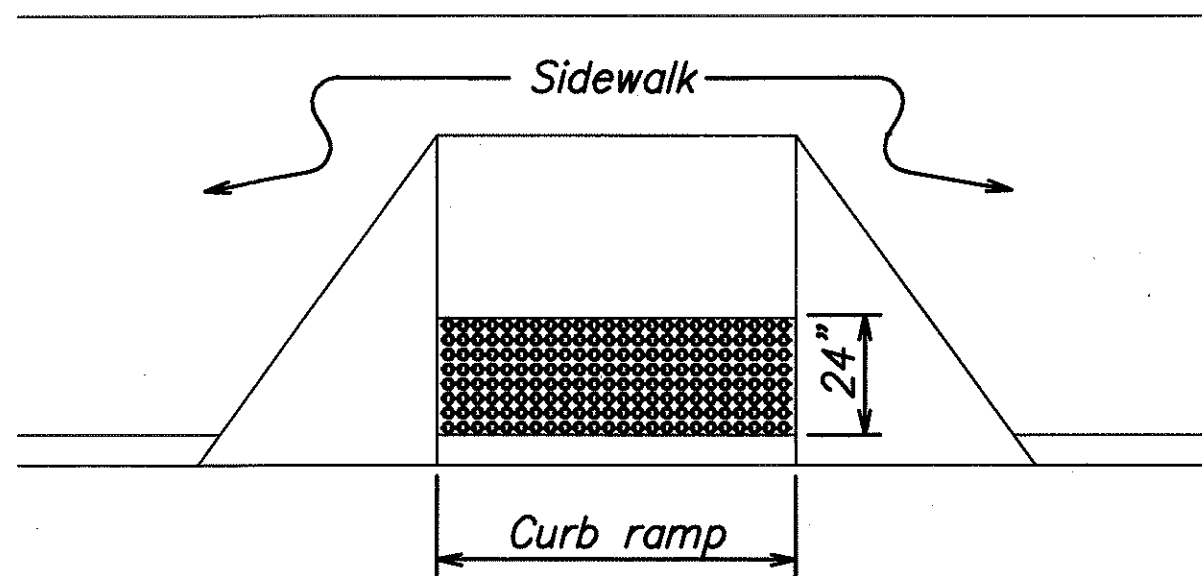
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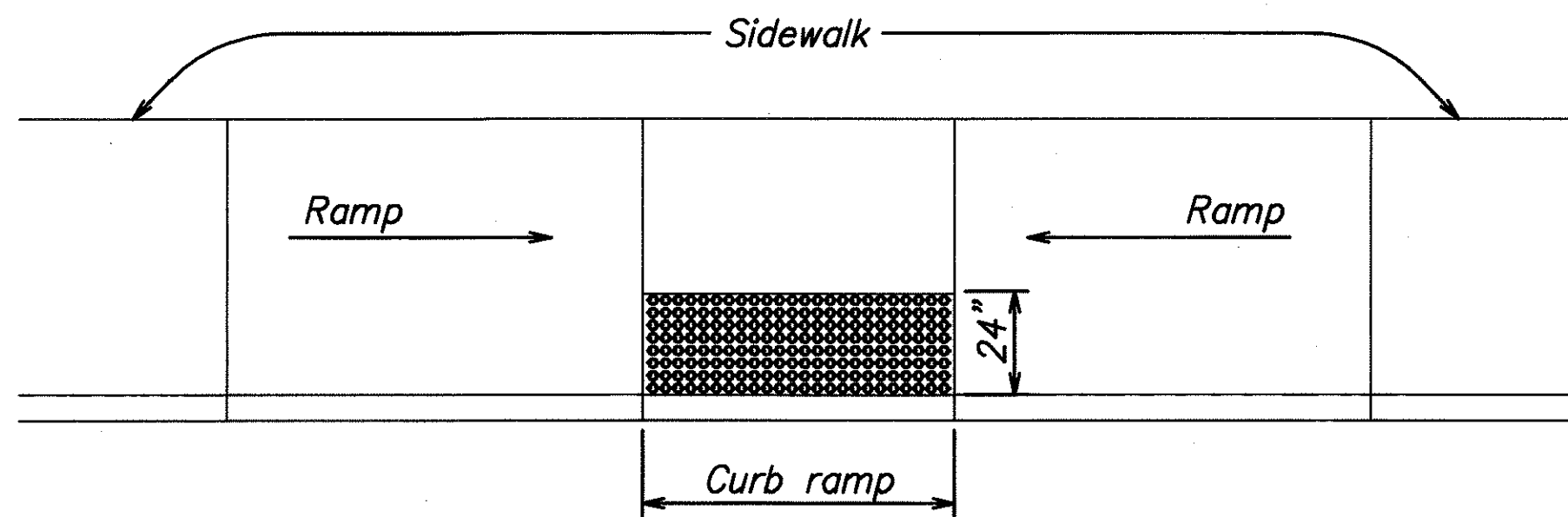
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DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

CURB RAMP AND SIDEWALK NOTES:

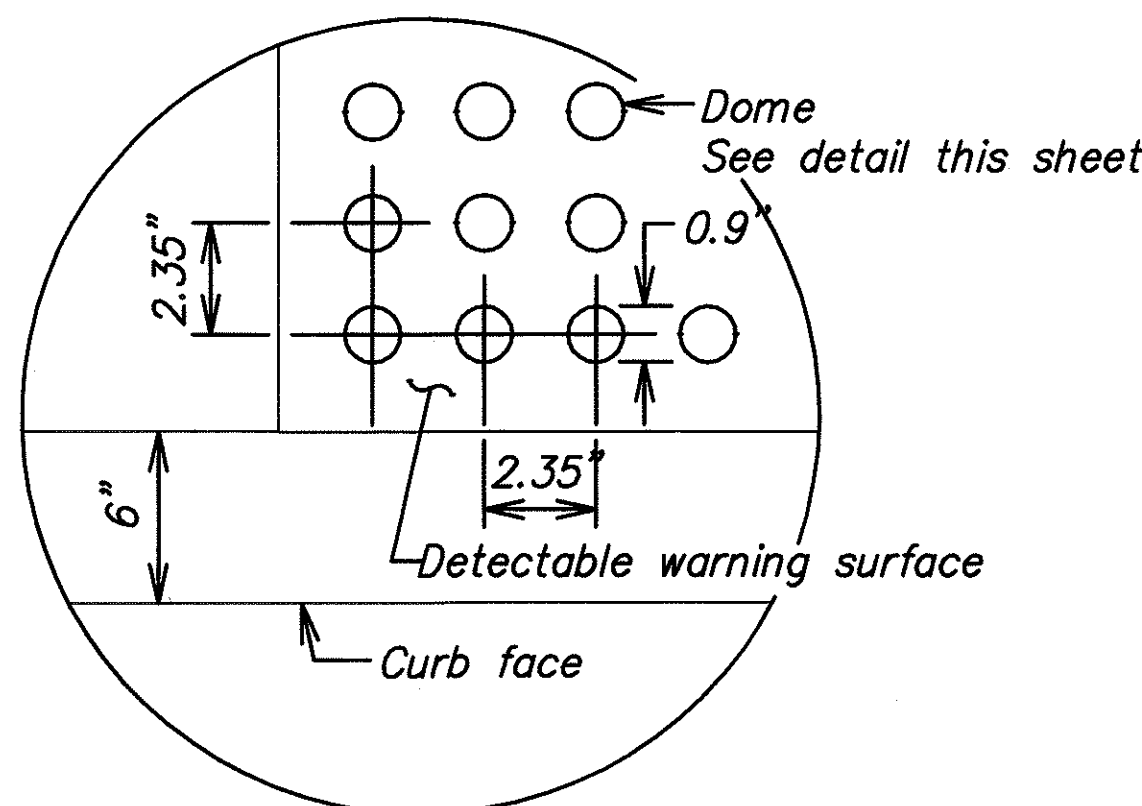
1. These typical details are intended as curb ramp guidelines for design and construction.
2. A 2% maximum cross slope shall be maintained in the direction of pedestrian traffic.
3. Subject to field conditions, the Engineer shall determine the final location of curb ramps.
4. All pullboxes shall be installed away from the curb ramp and within the sidewalk/unpaved area to the maximum extent feasible.
5. Where necessary, existing pullboxes, handholes, manholes, etc. shall be adjusted to match curb ramp grade. Adjustments shall not be paid for separately but shall be considered incidental to the various curb ramp items unless indicated otherwise.
6. Transitions from ramps to gutters and roadways shall be flush.
7. Curb ramps and sidewalks shall be constructed to eliminate ponding to the maximum extent feasible.
8. The pedestrian push button shall meet operational and reach requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG) section 4.27:
 - a) Forward Reach. The maximum height for forward reach shall be 48".
 - b) Side Reach. The maximum height for side reach shall be 54".
 - c) operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
9. The maximum slopes of adjoining gutters or road surface immediately fronting the curb ramp shall not exceed 5% for type a and d ramps and 8.33% for type b, c, and e ramps. The counterslope may be exceeded when the change of grade does not exceed 13% (11% preferred) over a distance of 2 ft. Exceeding the 13% (11% preferred) change in grade will cause a person in a wheelchair to tip forward and/or fall backward.
10. There shall be a 30"x48" level ground surface (2% max. Cross slope, both directions) for a forward or side approach, as appropriate, to a pedestrian push button.
11. Construction joints are required to join curb ramps with sidewalks.
12. Unless otherwise noted, new gutters are required as shown.
13. All curb ramps shall be reinforced with 6x6 w1.4/w1.4 welded wire fabric.
14. Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistant. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
15. Bed course material is required for curb ramps, sidewalks, and gutters.
16. All sidewalks shall provide a minimum clear width of 3'-0" (excluding curb) for pedestrian circulation. If this cannot be met, a minimum 32-inch clear width is allowed for a distance of 24-inches.
17. Passing spaces along new sidewalks with less than 5' clear width shall be provided at maximum 200' intervals as required by ada guidelines. The passing area shall be a minimum 5' wide by 5' long as feasible.
18. If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. Off of sidewalk but within the right-of-way.
19. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e. Wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current American with Disabilities Act Accessibility Guidelines (ADAAG) section 4.4.1 and will be subject to Engineer's approval.
20. If a curb ramp is not constructed according to the plans, the Contractor shall reconstruct the curb ramp at no cost to the State. Construction tolerance for portland cement concrete shall be based on 1/4 inch per 10 ft. ($\pm 0.2\%$). Remedial measures will not be accepted.
21. Additional information is available from:
 - a) American with Disabilities Act Accessibility Guidelines (ADAAG), Jan. 1998, The Access Board.
 - b) Accessible Rights-of-Way: A Design Guide, Nov. 1999, The Access Board.
 - c) Designing Sidewalks and Trails for Access, Part 1, July 1999, FHWA.
 - d) Designing Sidewalks and Trails for Access, Part 2, Sept. 2001, FHWA.



DETECTABLE WARNING AT CURB RAMP



TRANSITION RAMP WITH DETECTABLE WARNING



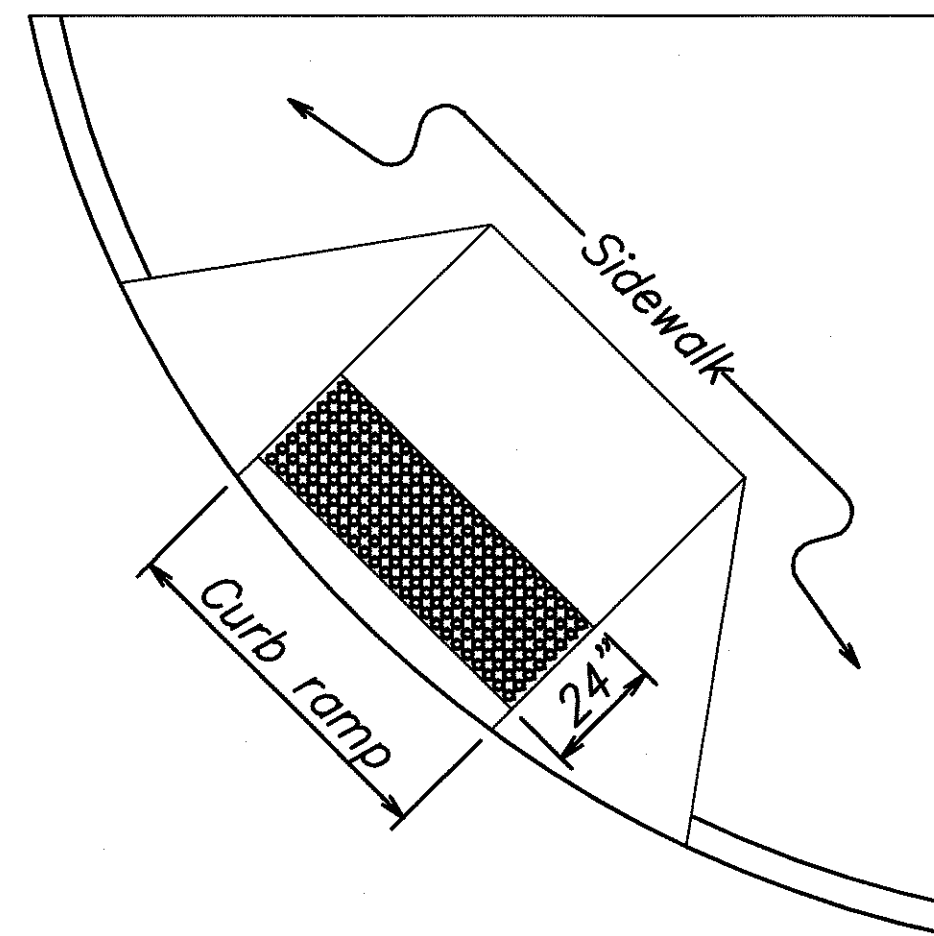
ENLARGEMENT

DETECTABLE WARNING DETAIL

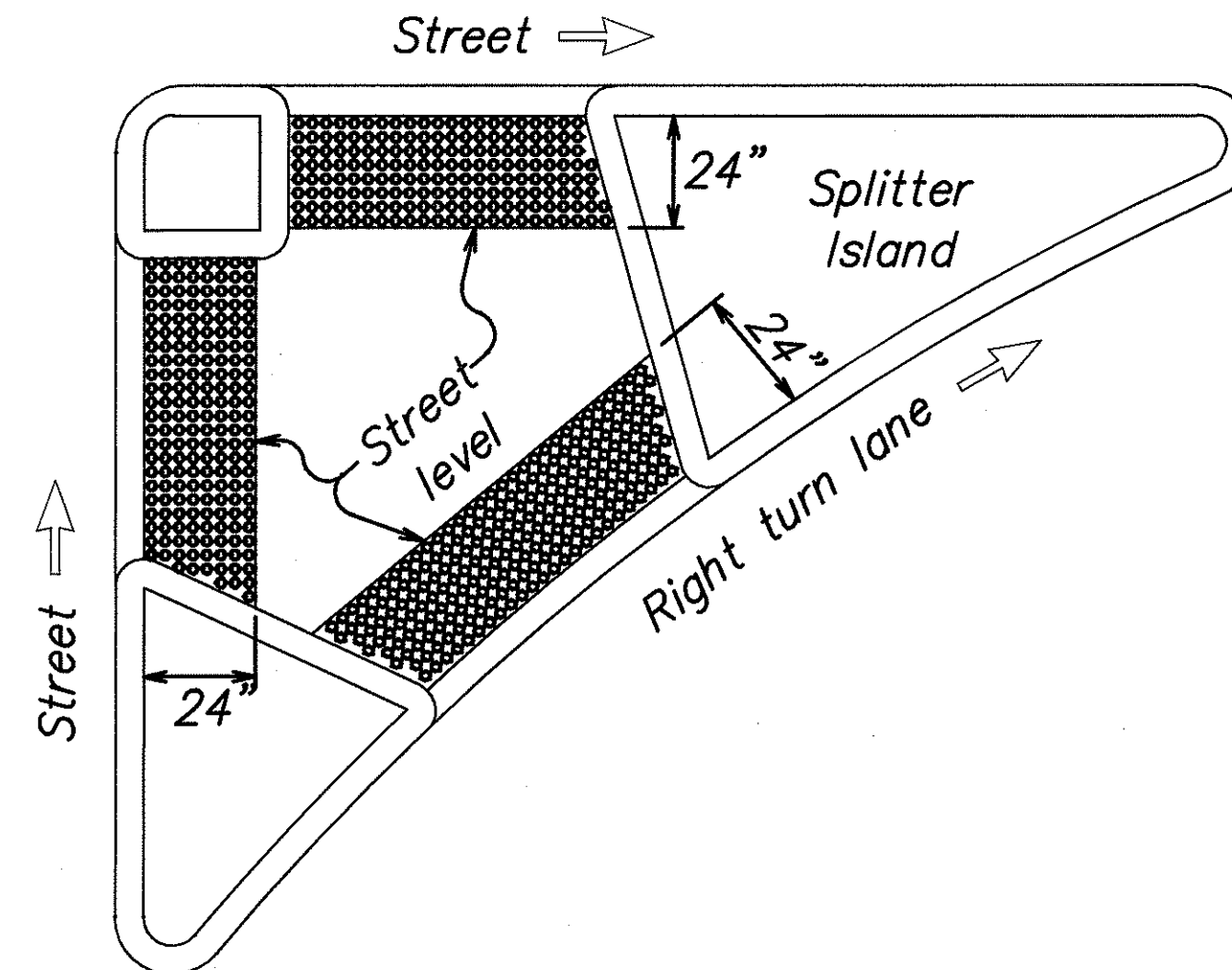
Not to Scale

NOTES:

1. Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
2. Truncated domes shall have a diameter of 0.9 inch at the bottom, a diameter of 0.4 inch at the top, a height of 0.2 inch and a center-to-center spacing of 2.35 inches measured along one side of a square arrangement.
3. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
4. There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning and an adjoining surface, or the detectable warning shall be "safety yellow".
5. The material used to provide visual contrast shall be an integral part of the detectable warning surface.
6. The detectable warning shall be located so that the edge nearest the curb line or other potential hazard is 6 to 8 inches from the curb line or other potential hazard, such as a reflecting pool edge or the edge of a transit platform.



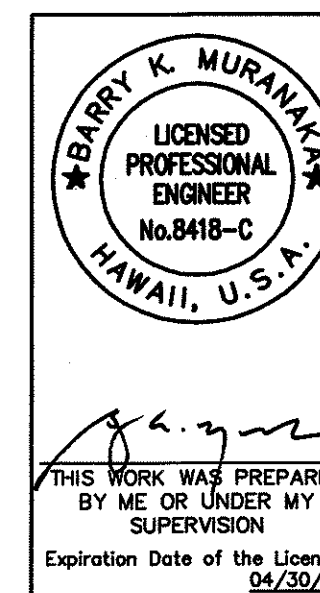
SHARED CURB RAMP WITH
DETECTABLE WARNING



REFUGE ISLAND WITH DETECTABLE WARNING

TYPICAL INSTALLATION OF DETECTABLE WARNINGS

Not to Scale



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: As shown

Date: May 2003

SHEET NO. 70 OF 193 SHEETS

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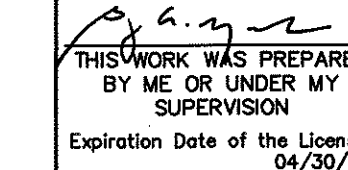
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LAST MODIFIED: Sat, 21 Dec 2002 - 12:10pm

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NOTEBOOK	DRAWN BY _____
	TRACED BY _____
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	QUANTITIES BY _____
No. _____	CHECKED BY _____



CURB RAMP – TYPE "A"
SIDEWALK WIDTH 12'-0" OR GREATER

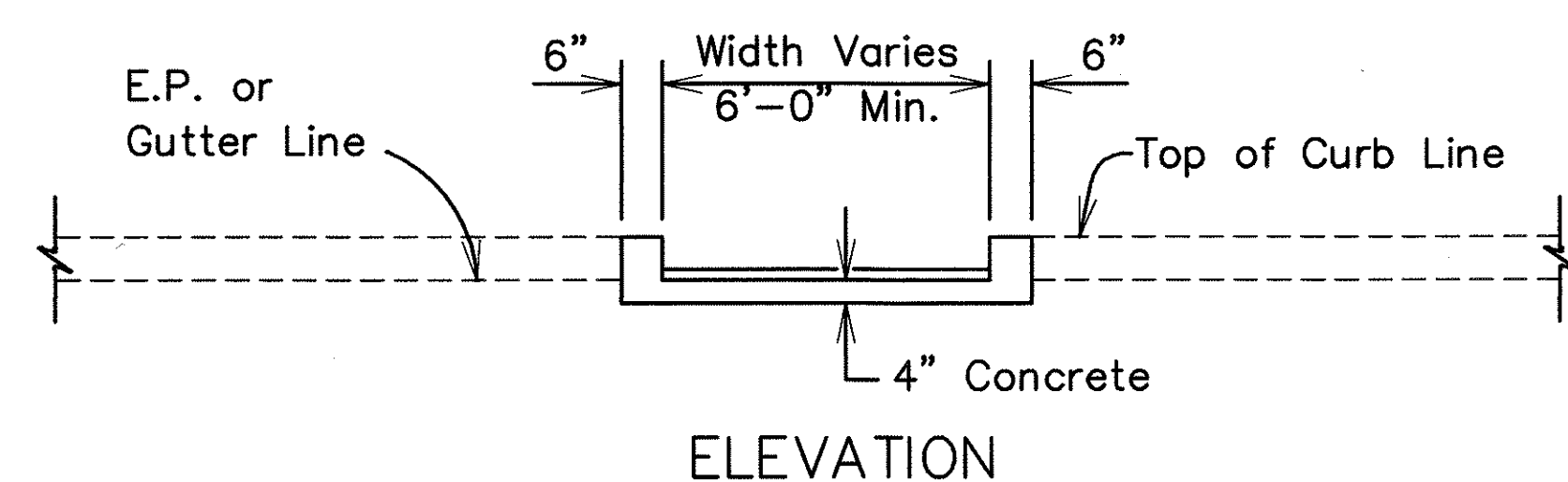


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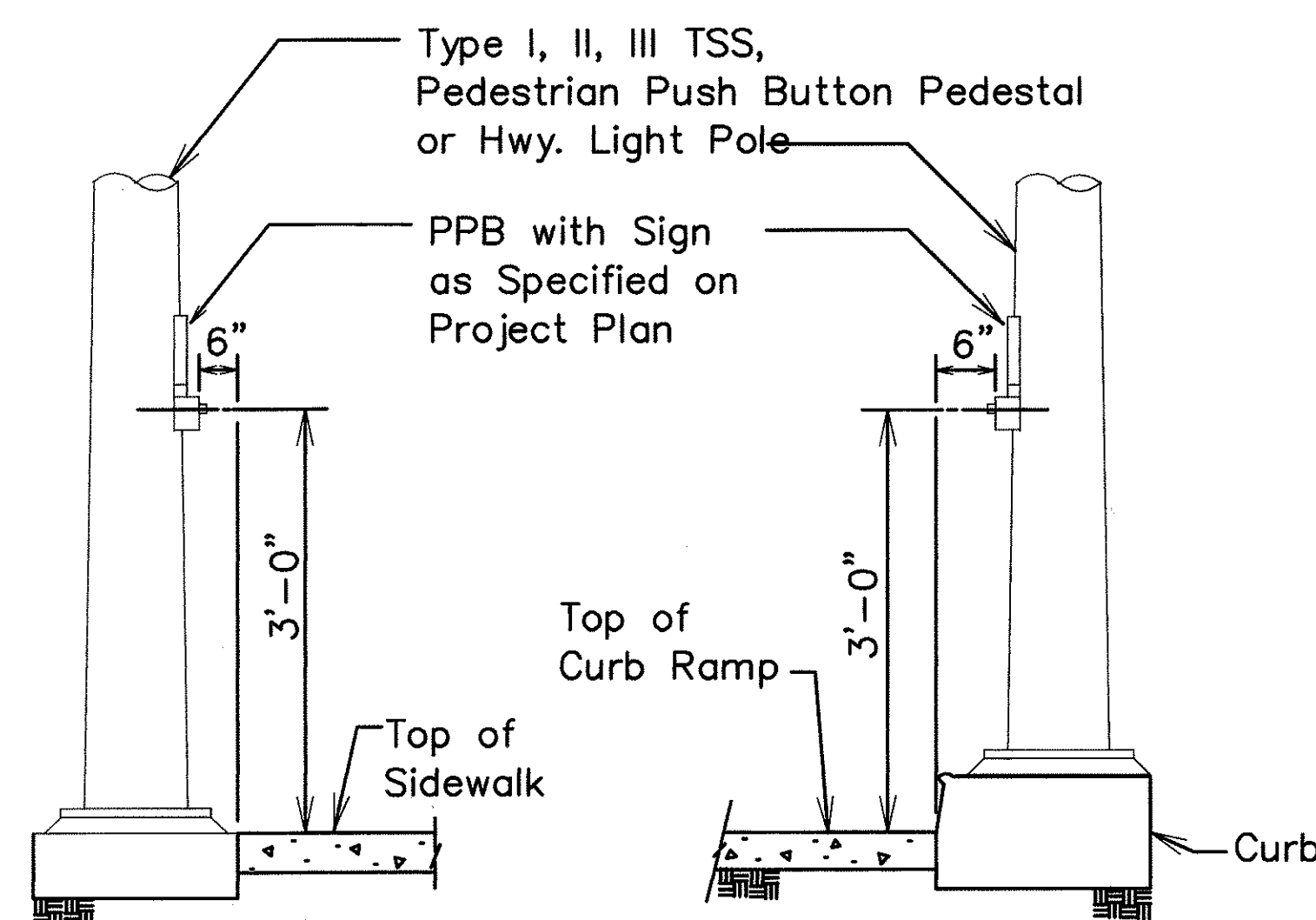
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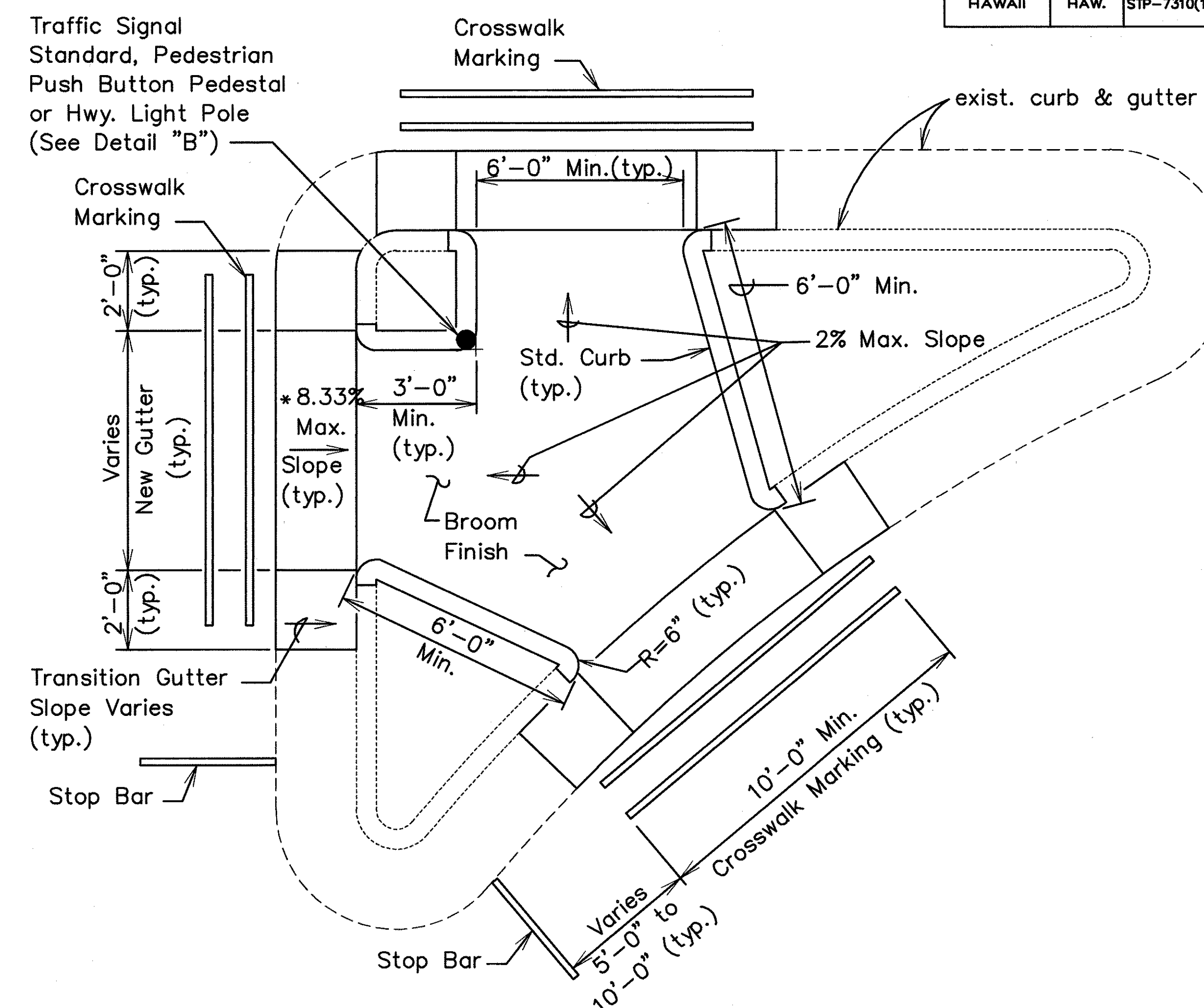


CURB RAMP - TYPE "C"
USE AT MEDIAN CROSSINGS, ISLANDS

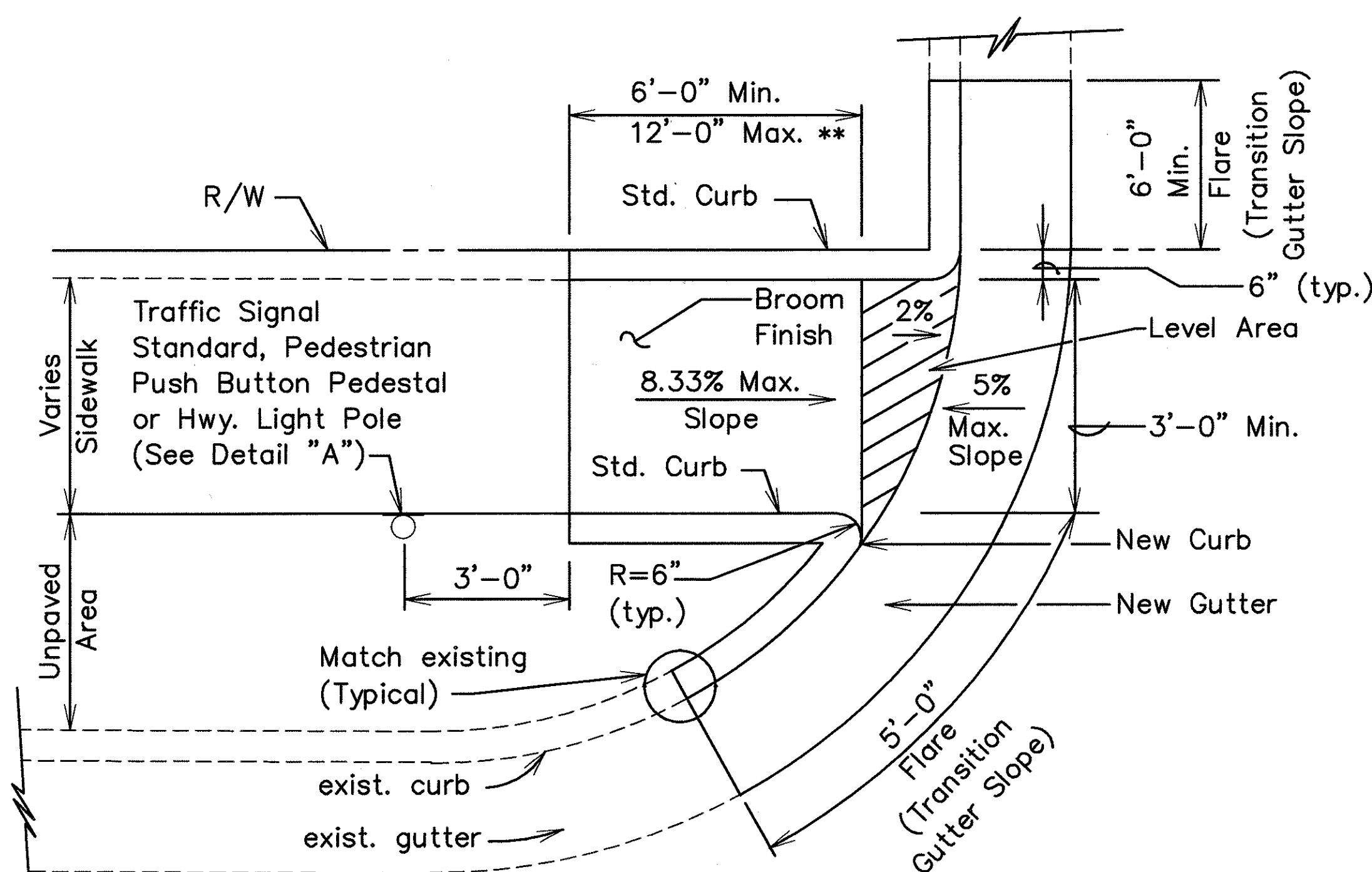


DETAIL "A"

DETAIL "B"



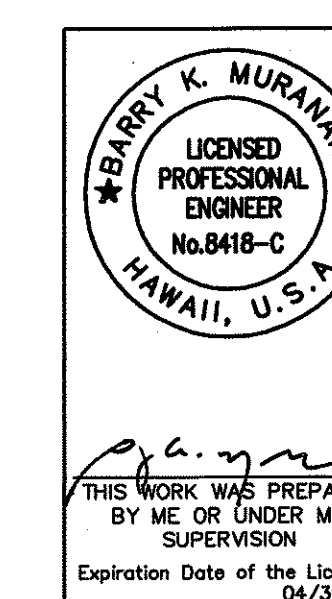
CURB RAMP - TYPE "C" MODIFIED



CURB RAMP - TYPE "D"

CURB RAMP - TYPE "D" MODIFIED

- * See Curb Ramp and Sidewalk Note No. 9
- * * The slope of the ramp shall take precedence over the length of the ramp. If the maximum slope of a ramp cannot be met within a length of 12 feet, then the slope of the ramp shall be set when the length of the ramp is set at the maximum of 12 feet.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

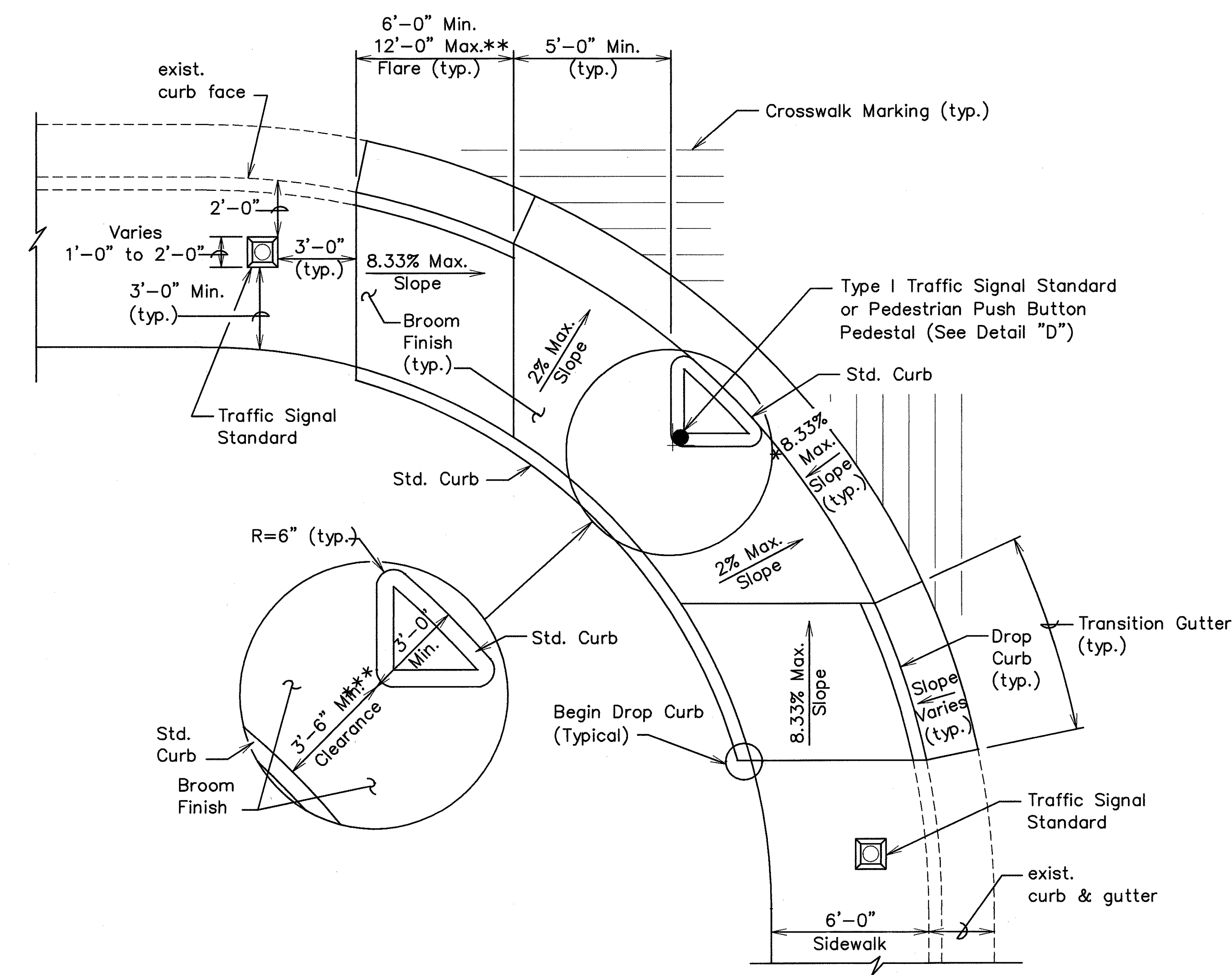
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SHEET NO. 73 OF 193 SHEETS

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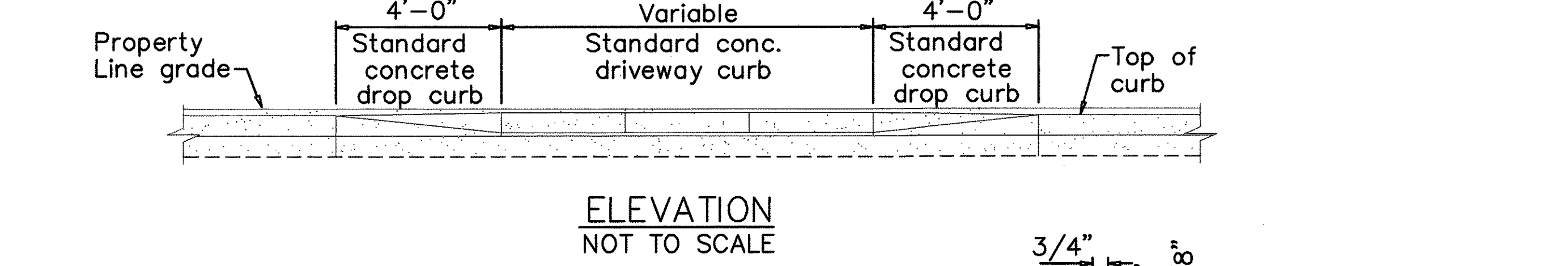
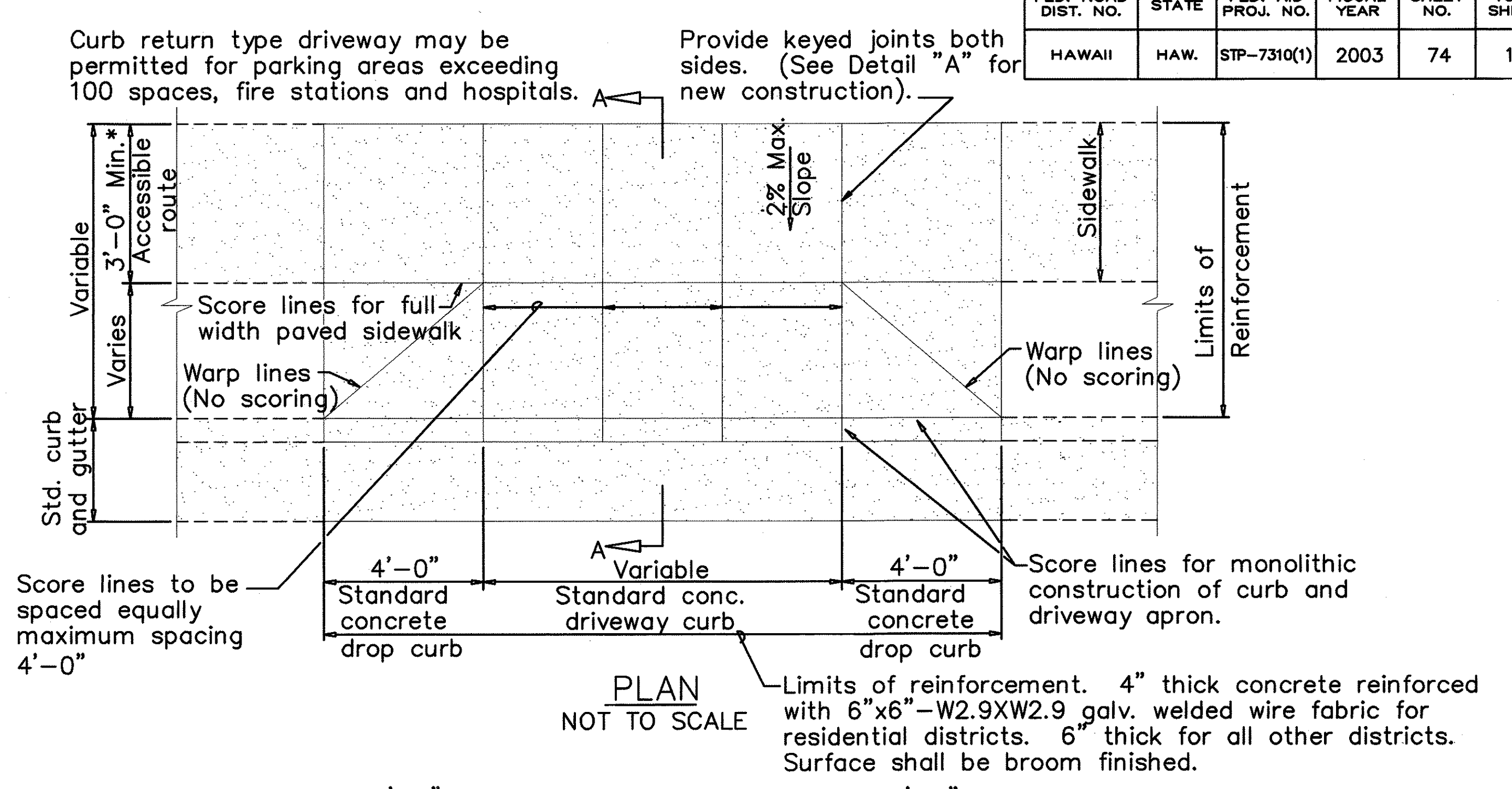
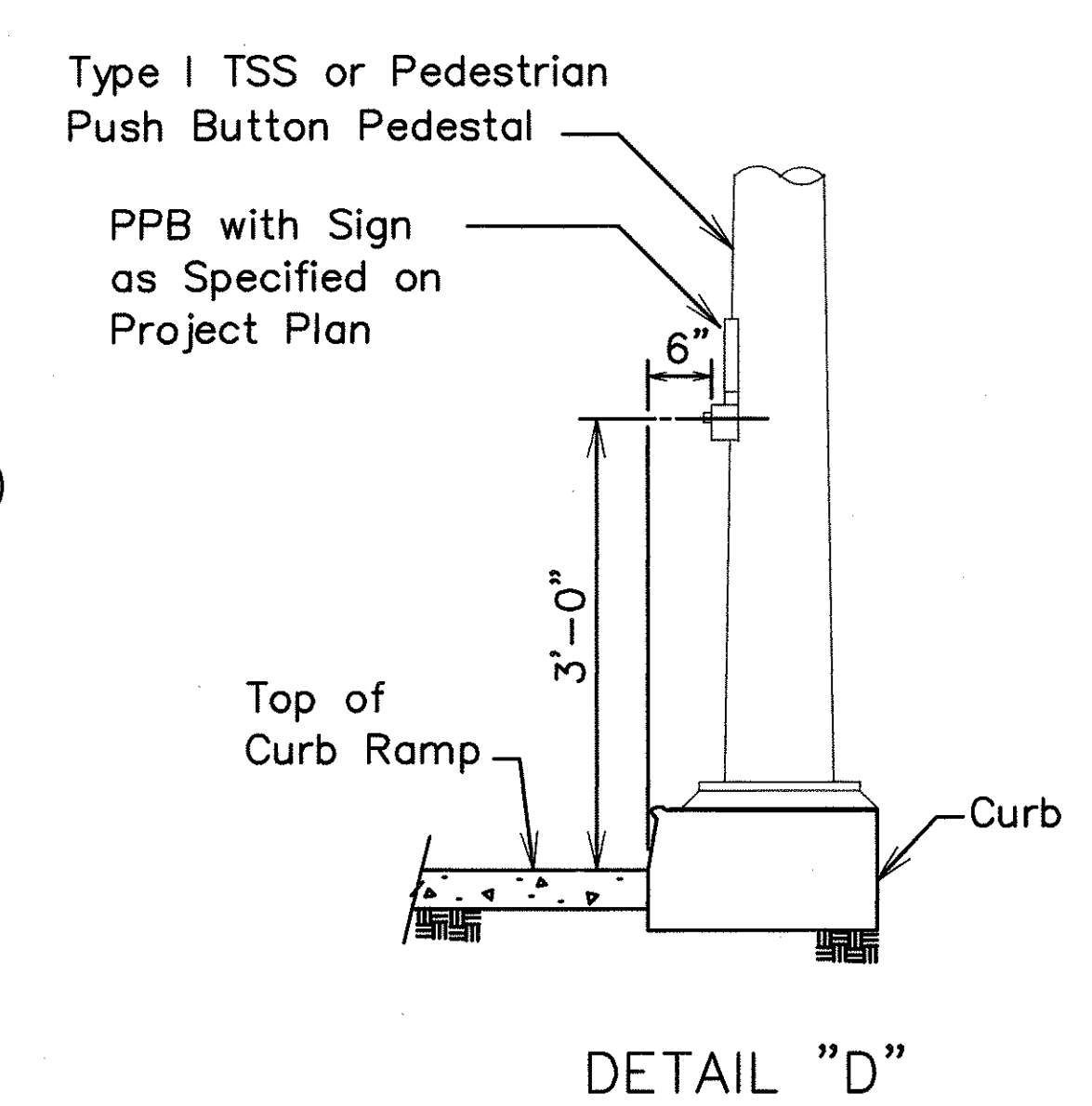
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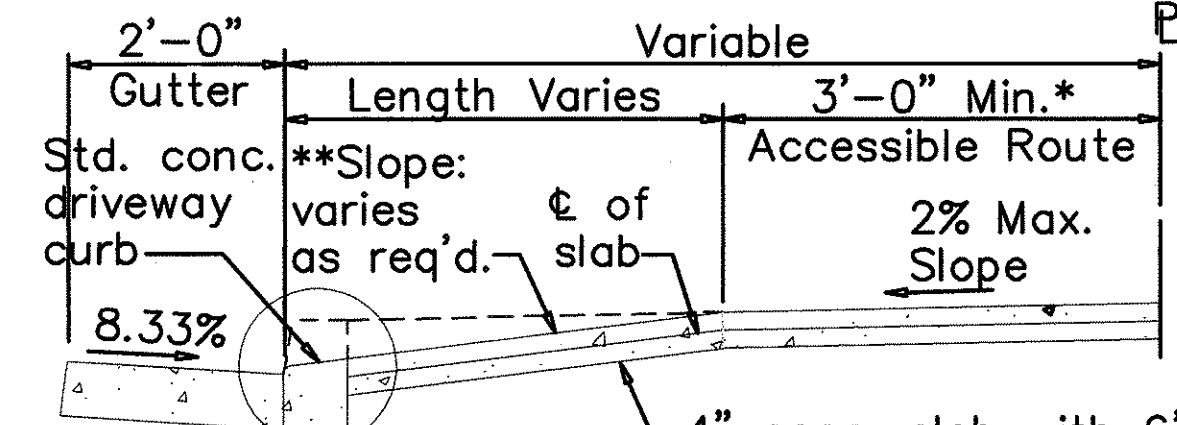
CURB RAMP - TYPE "E"
SIDEWALK WIDTH 7'-0" OR GREATER

(TO BE USED ONLY WITH TRAFFIC SIGNAL STANDARD OR PEDESTRIAN PUSH BUTTON PEDESTAL ON TRIANGULAR "ISLAND")

- * See Curb Ramp and Sidewalk Note No. 9
- ** The slope of the ramp shall take precedence over the length of the ramp. If the maximum slope of a ramp cannot be met within a length of 12 feet, then the slope of the ramp shall be set when the length of the ramp is set at the maximum of 12 feet.
- *** The Clearance shall be increased to 6'-0" or wider at areas with high pedestrian traffic or as directed by the Engineer or as shown on the plans.



- * Match width of existing sidewalk whenever possible.
- ** Breakover and departure angles should not exceed 10 degrees or 17%.



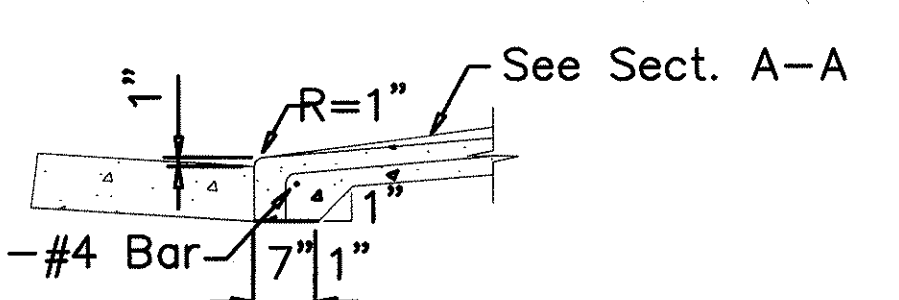
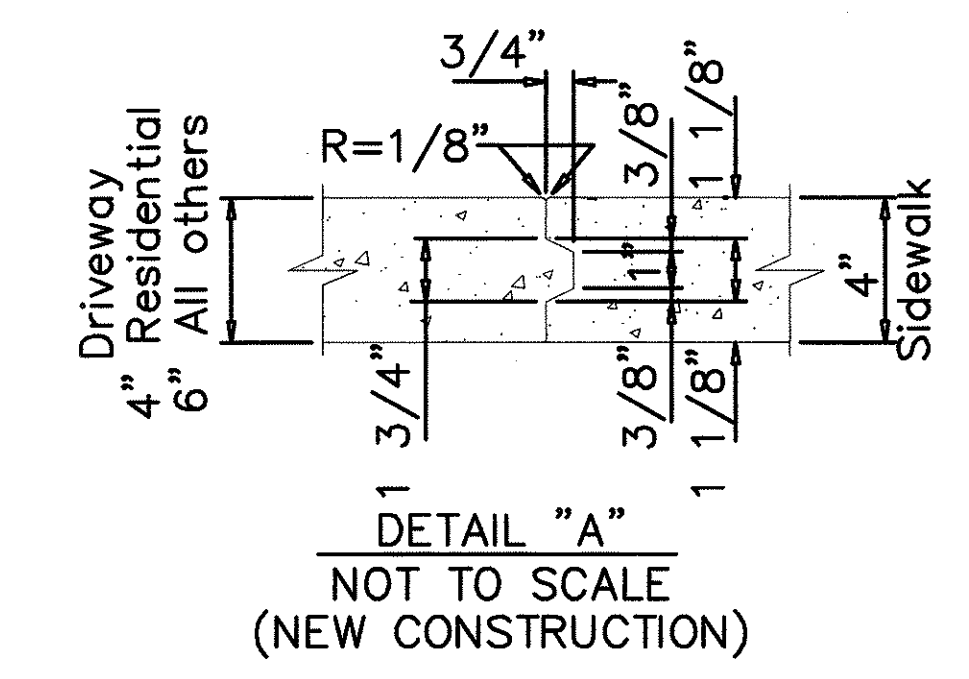
See Alternate Detail for monolithic construction of curb and driveway apron

4" conc. slab with 6"x6"-W2.9XW2.9 galv. mesh for residential districts.
6" conc. slab with 6"x6"-W2.9XW2.9 mesh for all other districts.

SECTION A-A
NOT TO SCALE

DRIVEWAY APRON

- NOTES:
1. For extension to existing driveway, scoring and finish shall match existing scoring and finish. For driveway constructed in built up areas, scoring conforming to scoring at adjacent driveways may be authorized.
 2. This detail is only one method for providing ADA access. Other methods can be used. These methods are shown in references listed in Curb Ramp and Sidewalk Note No. 21.



ALTERNATE DETAIL
NOT TO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL

PUILOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: As shown Date: May 2003

SHEET NO. 74 OF 193 SHEETS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

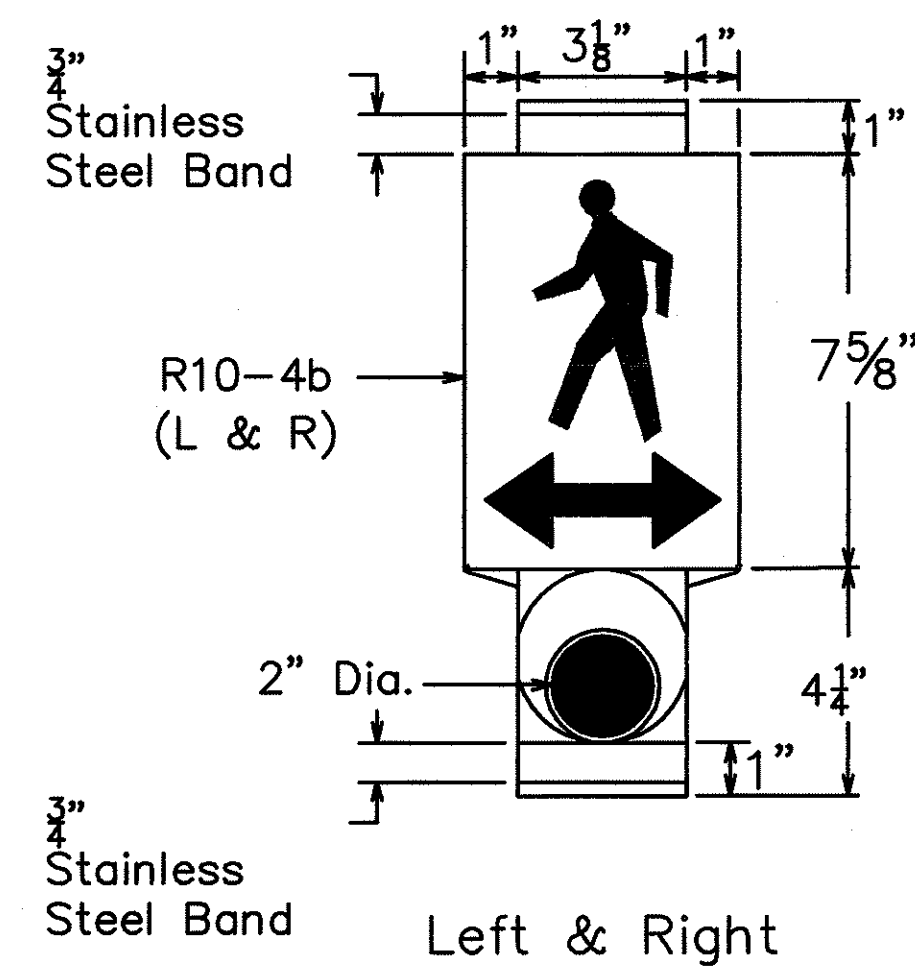
Expiration Date of the License: 04/30/04

Barry K. Murakami
LICENSED PROFESSIONAL ENGINEER
No. 8418-C
HAWAII, U.S.A.

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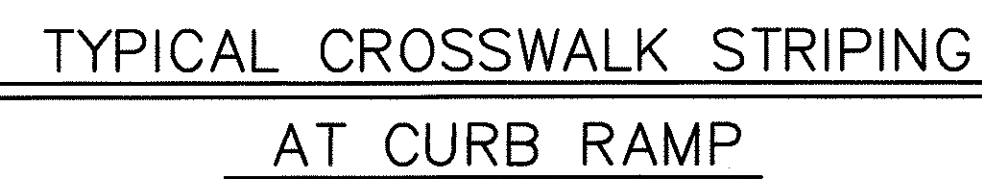
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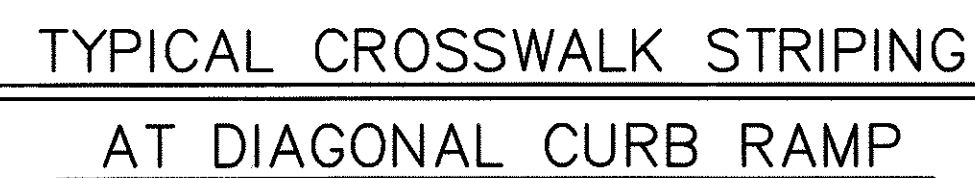


Man, Arrow & Push Button - White
Background - Black

NOTE:
Arrowhead to be installed
in proper direction.

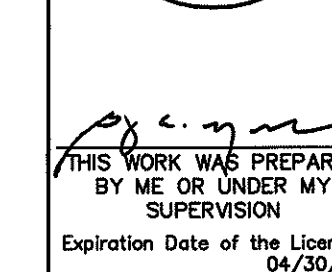


TYPICAL CONSTRUCTION JOINT
AT EXISTING SIDEWALK



DETAIL - BACK CURB

NOTE:
This detail can be used in situations where the edge of sidewalk cannot be flush with the face of (back) curb due to right of way restrictions.



CURB RAMP DETAIL

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

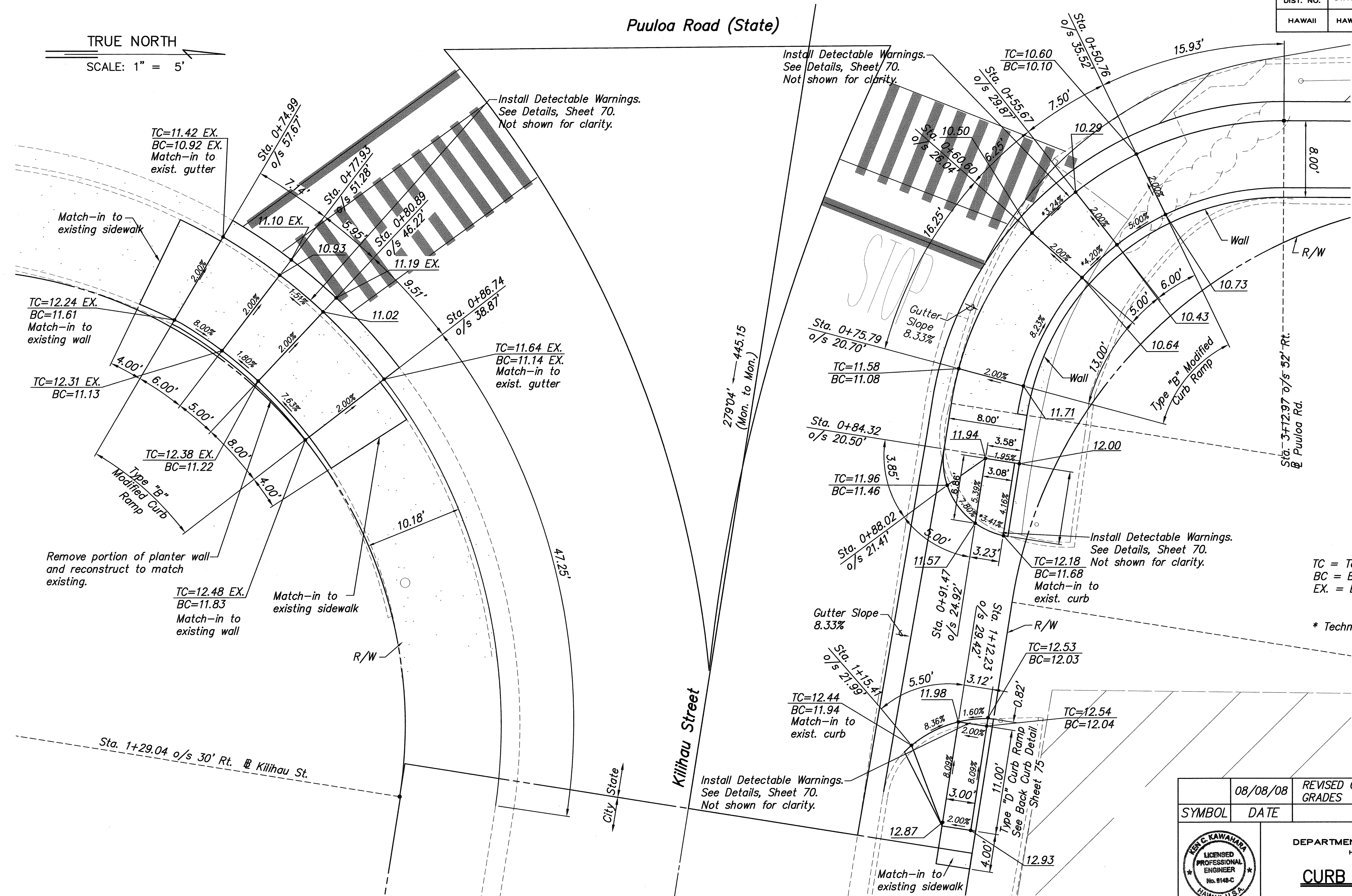
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SHEET NO. 75 OF 193 SHEETS

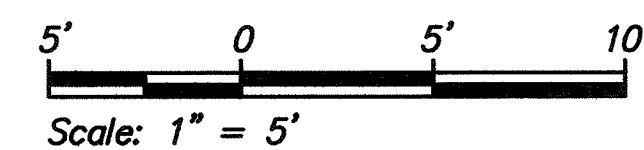
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HAWAII	HAW.	STP-7310(1)	2003	C.O.76	193

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 LAST MODIFIED: Fri, 30 Mar 2012 - 4:56pm

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SURVEY PLOTTED BY	____
DRAWN BY	____
DESIGNED BY	____
CHECKED BY	____
ORIGINAL PLAN	____
NOTES	____
NO.	____



CURB RAMP DETAILS
 Scale: 1" = 5'



08/08/08	REVISED CURB RAMPS & GRADES	AA
SYMBOL	DATE	REVISION

KENG C. KAWAHARA
 LICENSED PROFESSIONAL ENGINEER
 No. 8148-C
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
 Signature: [Signature]
 Date: 04/30/04
 License: 04/30/04

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

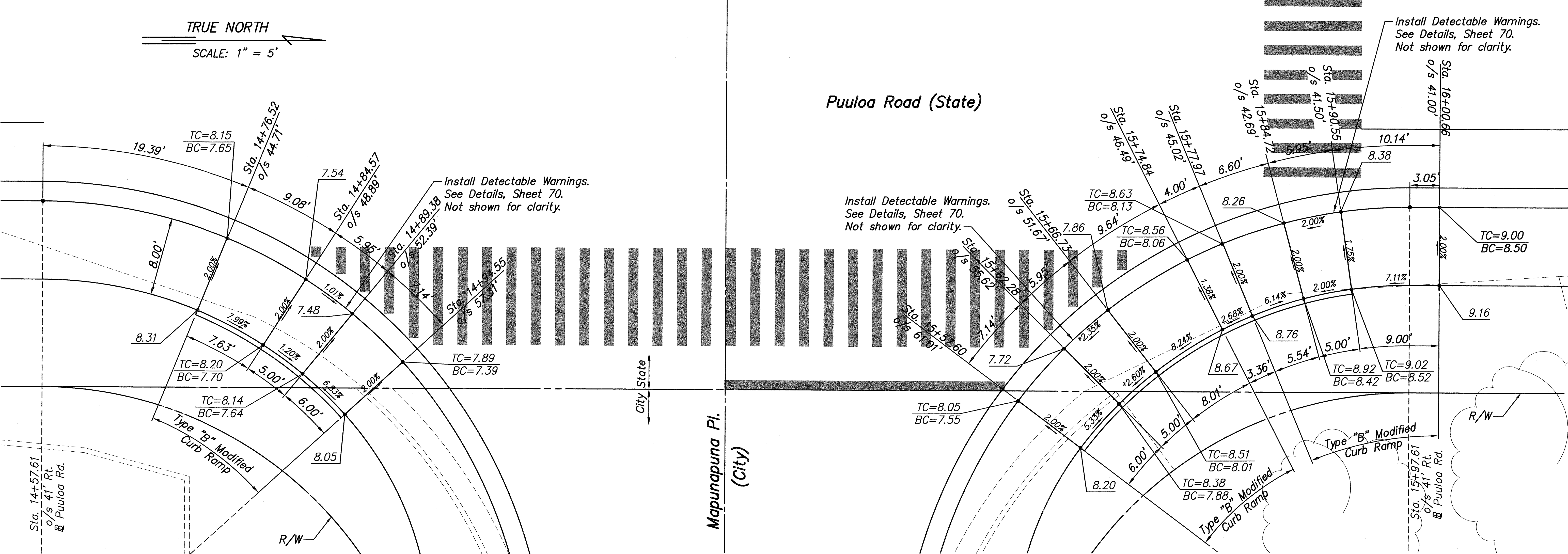
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SHEET NO. 76 OF 193 SHEETS

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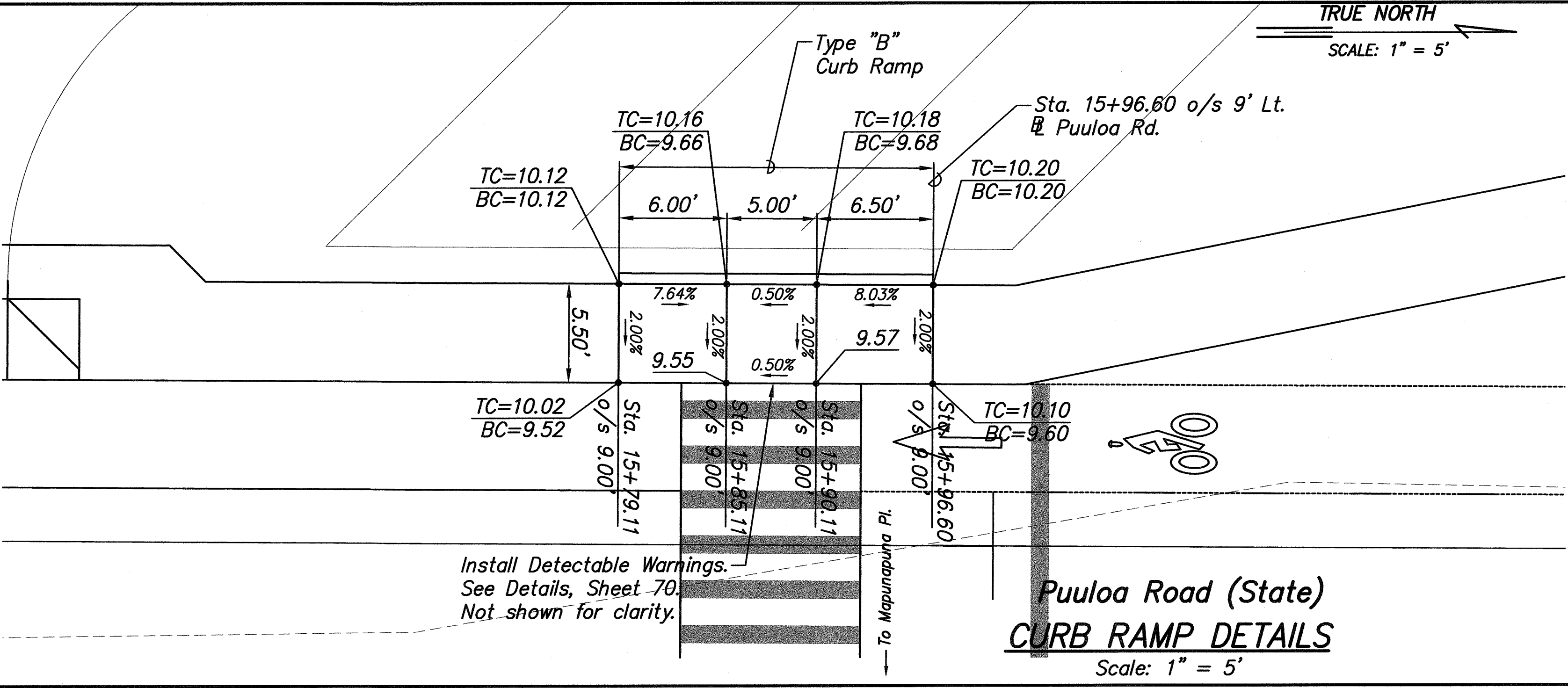
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DATE	
SYNOPSIS	
DESIGNED BY	
CHECKED BY	
NOTED	
NO.	



CURB RAMP DETAILS

Scale: 1" = 5'

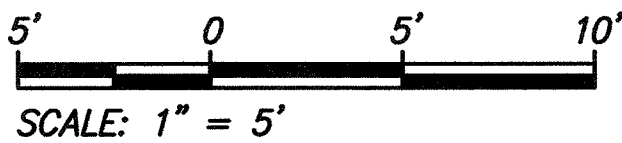


Puuloa Road (State) CURB RAMP DETAILS

Scale: 1" = 5'

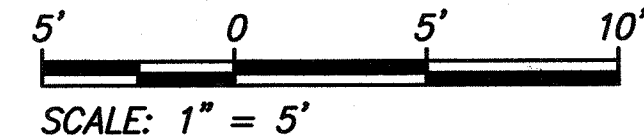
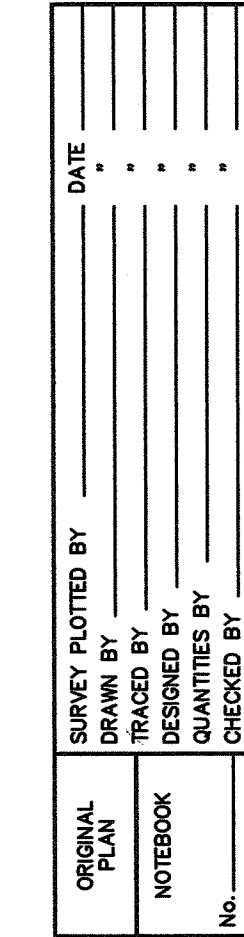
TC = Top Curb
BC = Bottom Curb
EX. = Existing Grade

* Technically Infeasible Condition



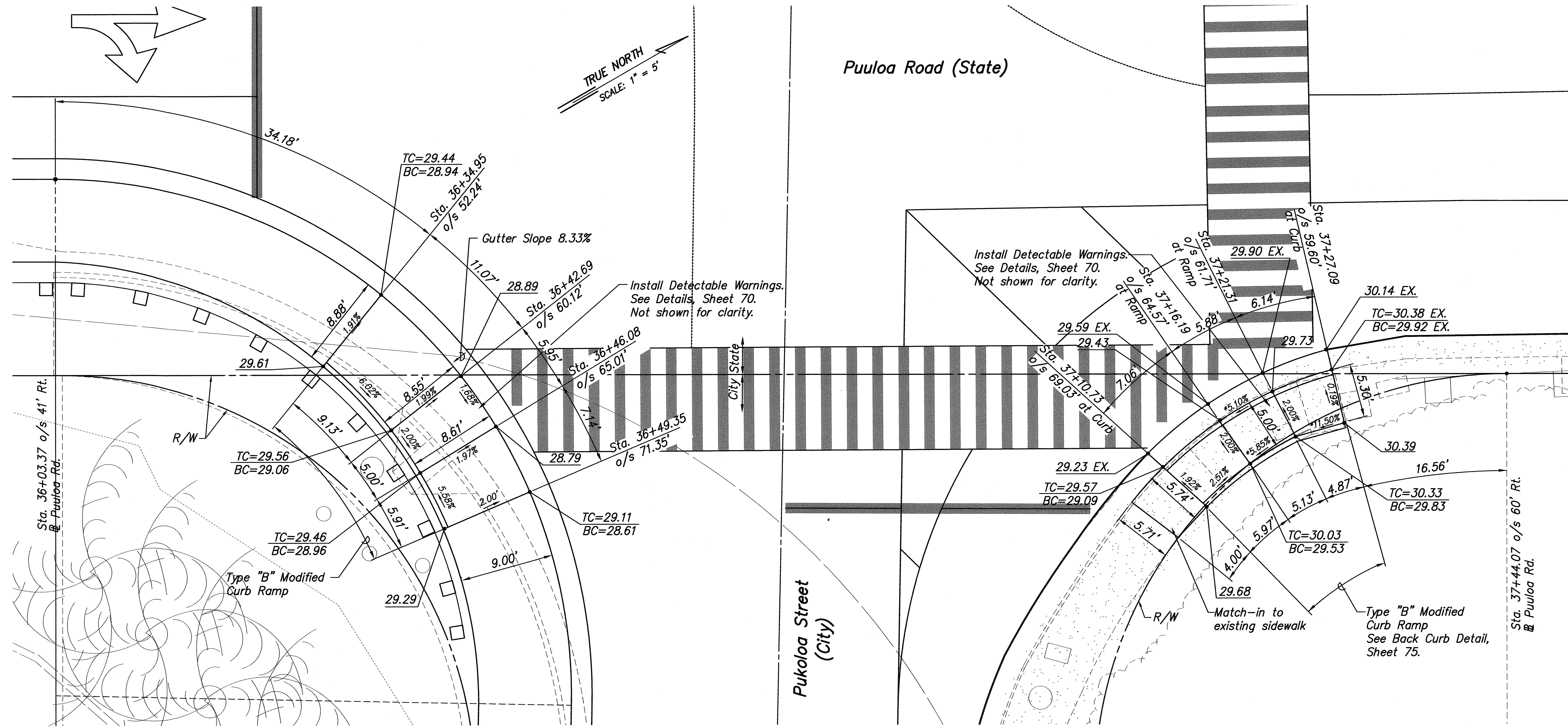
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SYMBOL	DATE	REVISION	BY
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C.O. 78

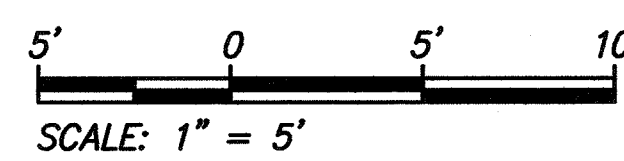
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HAWAII	HAW.	STP-7310(1)	2003	C.O.79	193



CURB RAMP DETAILS
Scale: 1" = 5'

TC = Top Curb
BC = Bottom Curb
EX. = Existing Grade

* Technically Infeasible Condition



	08/08/08	REVISED CURB RAMP GRADES	AA
SYMBOL	DATE	REVISION	BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

PUULOA ROAD IMPROVEMENTS
Kamehameha Hwy. to Salt Lake Blvd.
Federal Aid Project No. STP-7310(1)

Scale: As shown Date: May 2003

SHEET NO. 79 OF 193 SHEETS

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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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NO.	