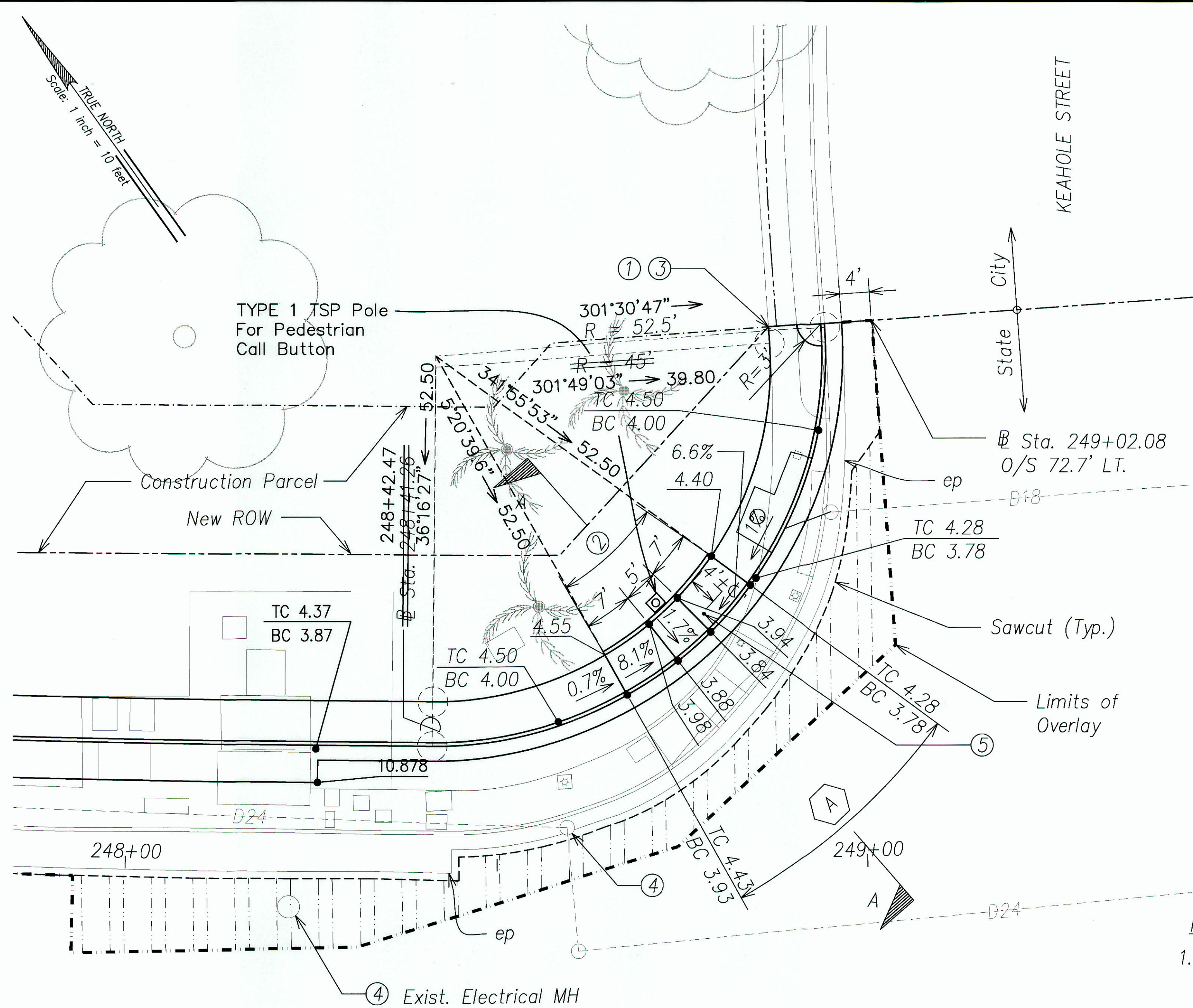


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	14	64



- NOTES:
- ① Saw cut existing curb and gutter, sidewalk, and curb ramp at the limits of removal. If limit is less than 4 feet from an existing expansion joint, remove existing curb and gutter or sidewalk to expansion joint.
 - ② Construct new Type "B" Modified Curb Ramp.
 - ③ Construct new curb and gutter and install construction joints where the new work joins the existing. Drill and install with epoxy grout two #4 x 18" dowels in curb and gutter. See Detail, Sheet C-11. Drilling, furnishing, and installing dowels will not be paid for separately and will be considered incidental to the cost of the curb and gutter.
 - ④ Adjust exist. MH covers to grade. Adjustment of MH covers will not be paid for separately and will be considered incidental to the cost of AC Pavement.
 - ⑤ New Pedestrian Pushbutton should be installed 10" (max.) from the edge of the level landing.

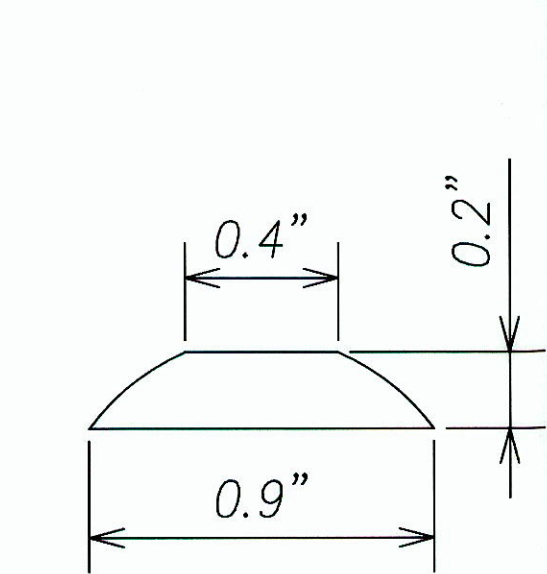
CURB RETURN DATA

	A	
\triangle	24° 25' 25.8"	28°24'46.6"
$\triangle/2$	12° 12' 42.9"	11°42'20"
R	52.5'	
T	11.36'	10.878
C	22.21'	21.303
L	22.38'	21.452

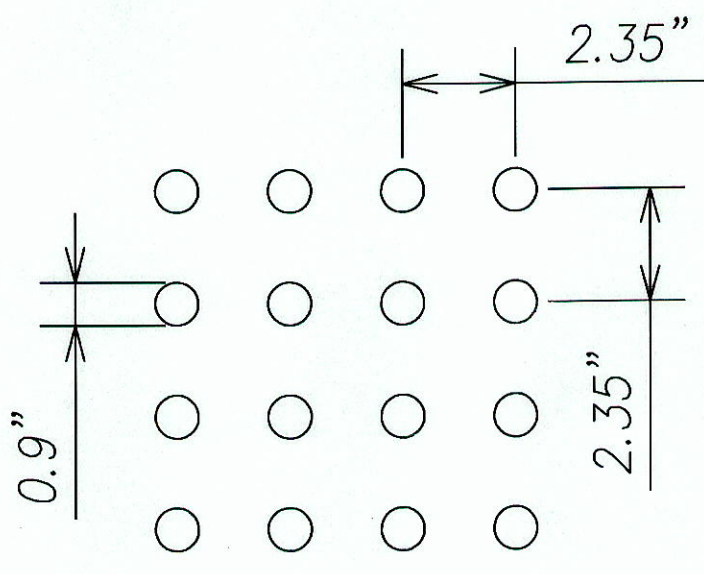
NOTES FOR DETECTABLE WARNING ON CURB RAMPS:

1. Detectable warnings shall be 24 inches min. in the direction of travel and extend the full width of the curb ramp or flush surface.
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. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
3. 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". The material used to provide visual contrast shall be an integral part of the detectable warning surface.
4. 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.

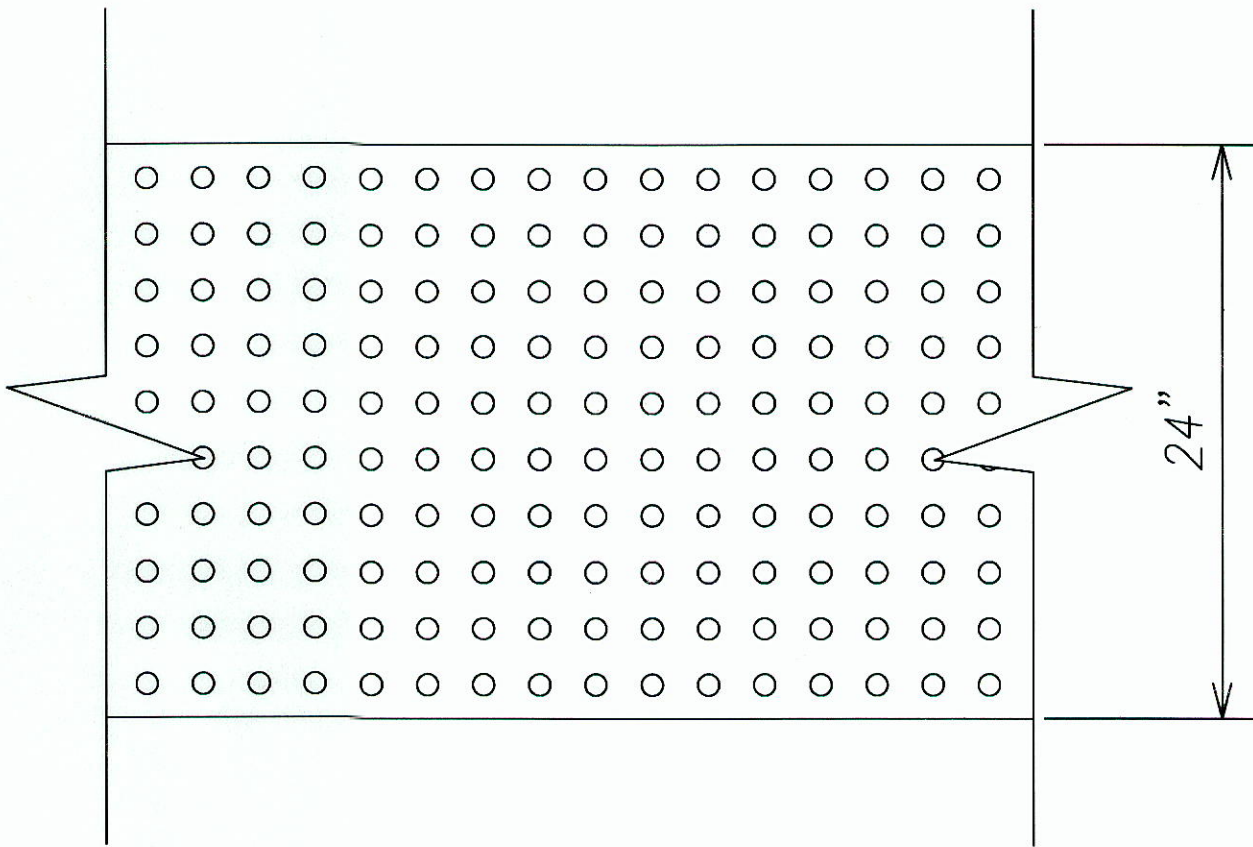
LEGEND FOR AS-BUILT POSTING	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting



DOME SECTION
Not to Scale



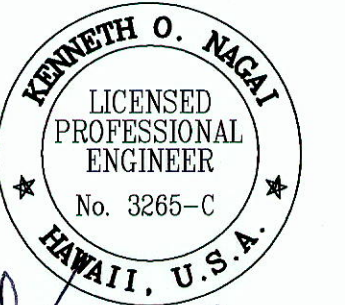
DOME SPACING
Not to Scale



DOME ALIGNMENT
Not to Scale

DETECTABLE WARNINGS ON CURB RAMPS

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



SIGNATURE
APRIL 30, 2010
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

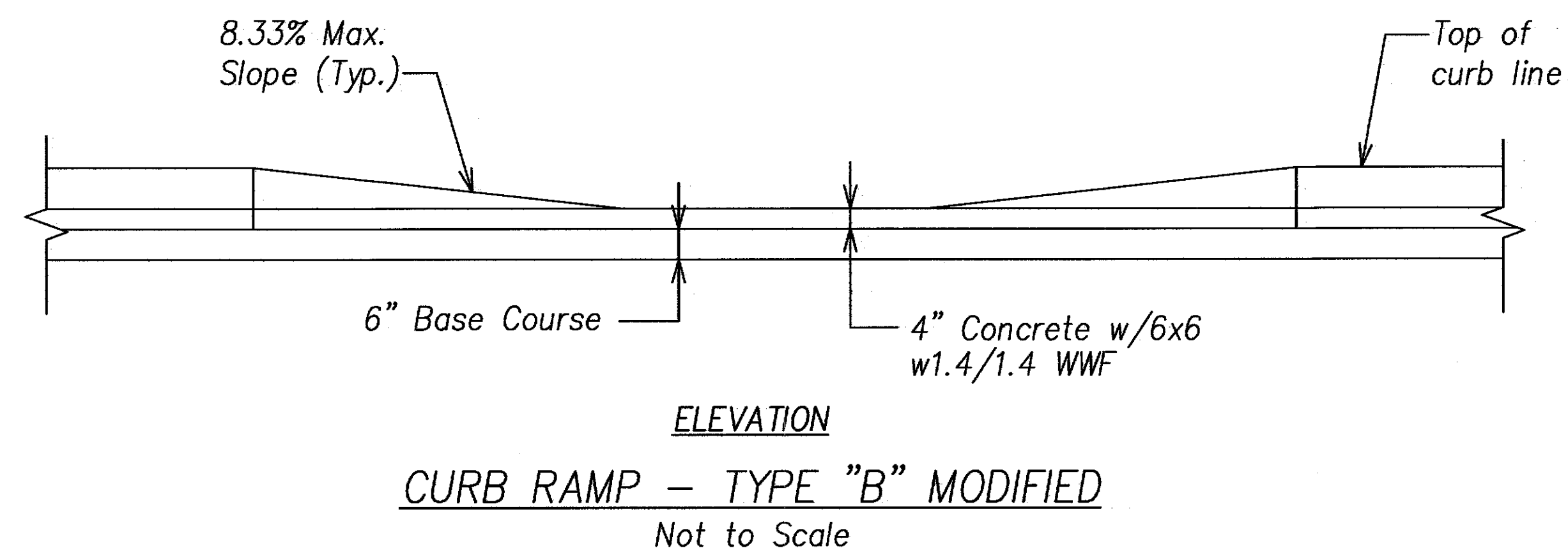
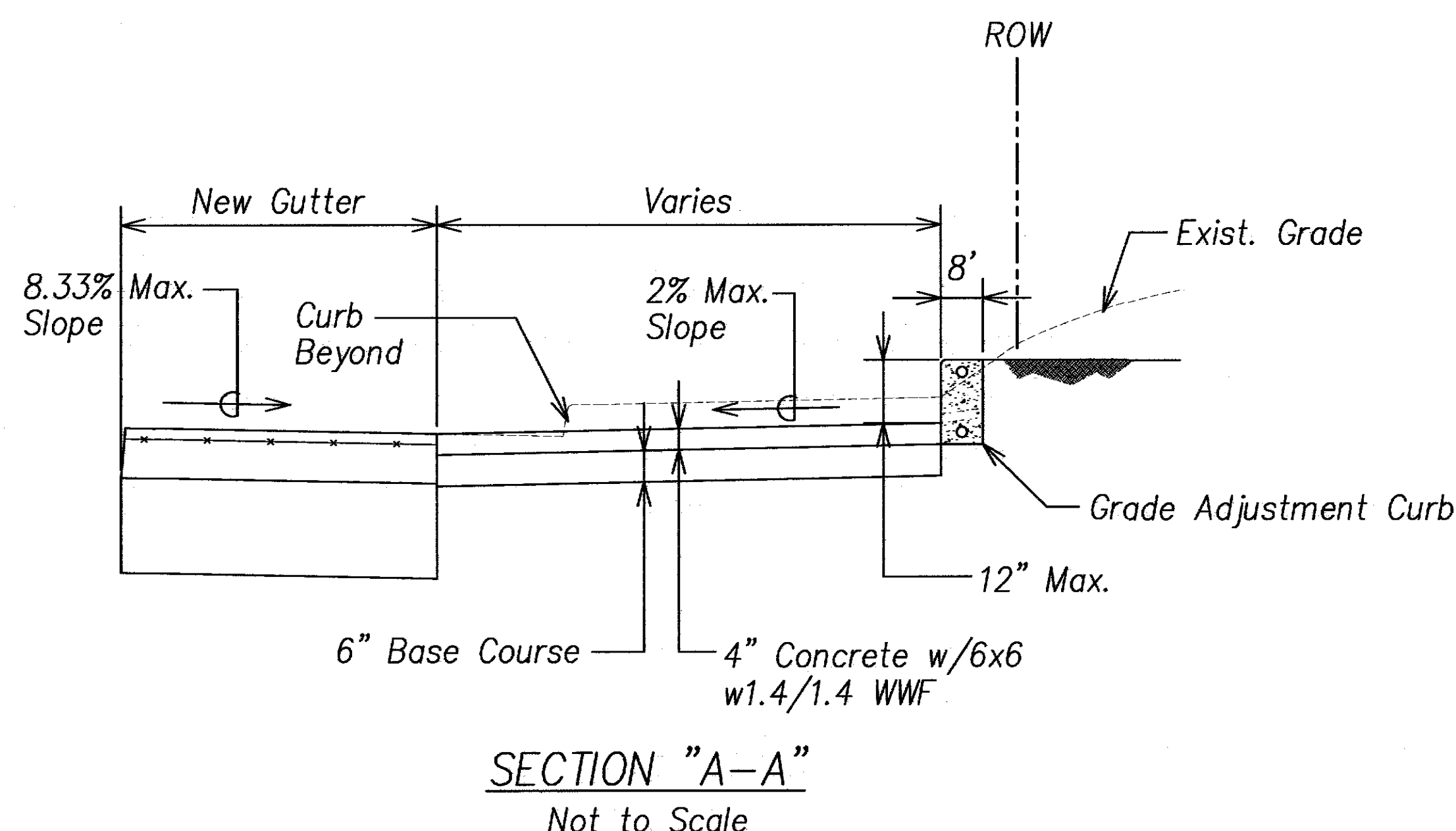
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INTERSECTION DETAIL PLAN

KALANIANA'OLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)
SCALE: 1" = 10' DATE: November 2008

SHEET No. C-9 OF 22 SHEETS

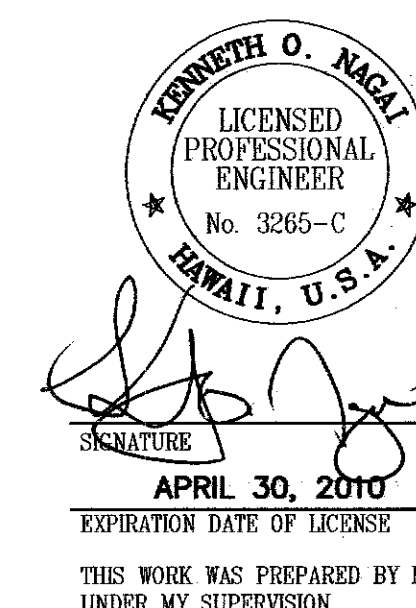
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	15	64



CURB RAMP AND SIDEWALK NOTES:

- These typical details are intended as curb ramp guidelines for design and construction.
- A 2% maximum cross slope shall be maintained in the direction of pedestrian traffic.
- Subject to field conditions, the Engineer shall determine the final location of curb ramps.
- All pullboxes shall be installed away from the curb ramp and within the sidewalk/unpaved area to the maximum extent feasible.
- 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.
- Transitions from curb ramps to gutters and roadways shall be flush.
- Curb ramps and sidewalks shall be constructed to eliminate ponding to the maximum extent feasible.
- The pedestrian push button shall meet operational and reach requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG):
 - Forward Reach. The maximum height for forward reach shall be 48".
 - Side Reach. The maximum height for side reach shall be 54".
 - 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.
- 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.
- 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.
- Construction joints are required to join curb ramps with sidewalks.
- Unless otherwise noted, new gutters are required as shown.
- All curb ramps shall be reinforced with 6x6 W1.4/W1.4 welded wire fabric.
- Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistant. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
- Bed course material is required for curb ramps, sidewalks, and gutters.
- All sidewalks shall provide 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.
- Passing spaces along new sidewalks with 5' clear width or less 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.
- If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right-of-way.
- 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) and will be subject to Engineer's approval.
- 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.
- Additional information is available from:
 - American with Disabilities Act Accessibility Guidelines (ADAAG), Jan. 1998, The Access Board.
 - Accessible Rights-of-Way. Guide, Nov. 1999 The Access Board.
 - Designing Sidewalks and Trails for Access, Part 1 July 1999, FHWA
 - Designing Sidewalks and Trails for Access, Part 2 Sept 2001, FHWA

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

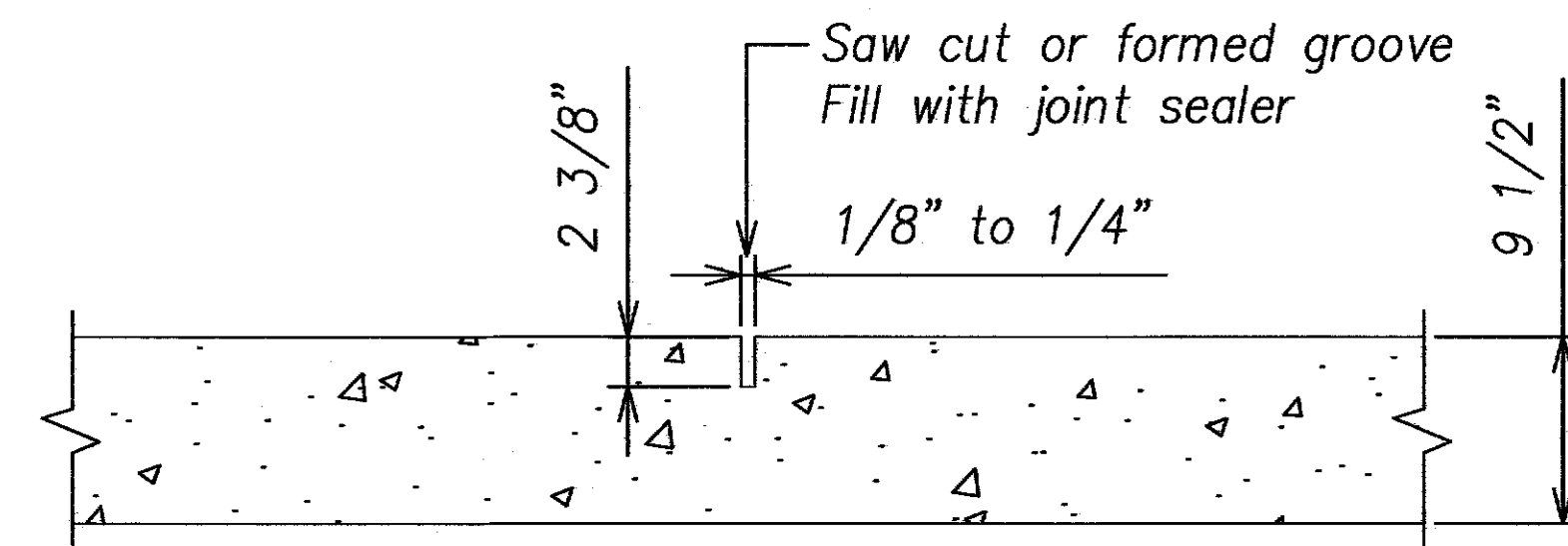


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**CURB RAMP DETAILS
AND NOTES**
KALANIANA'OLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAL DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)
DATE: November 2008

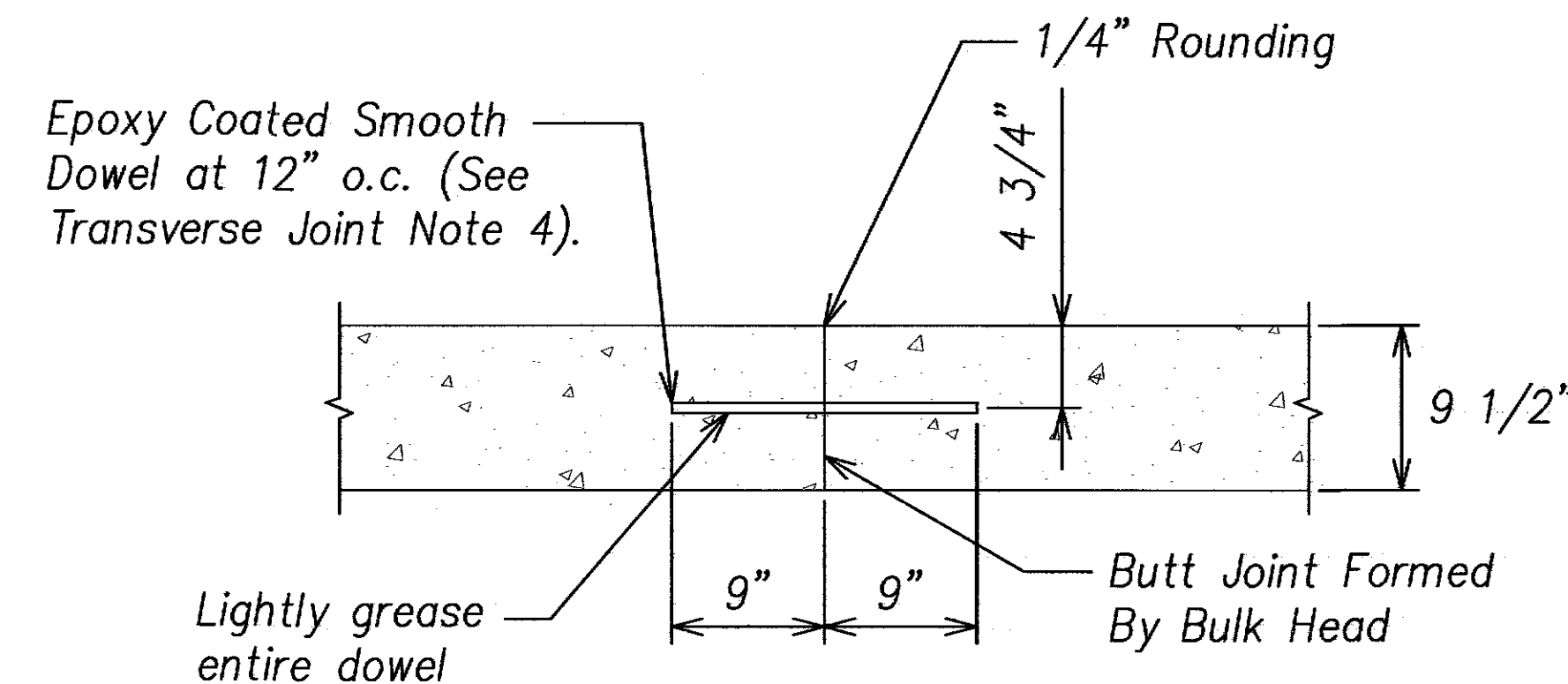
SHEET No. C-10 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	16	64

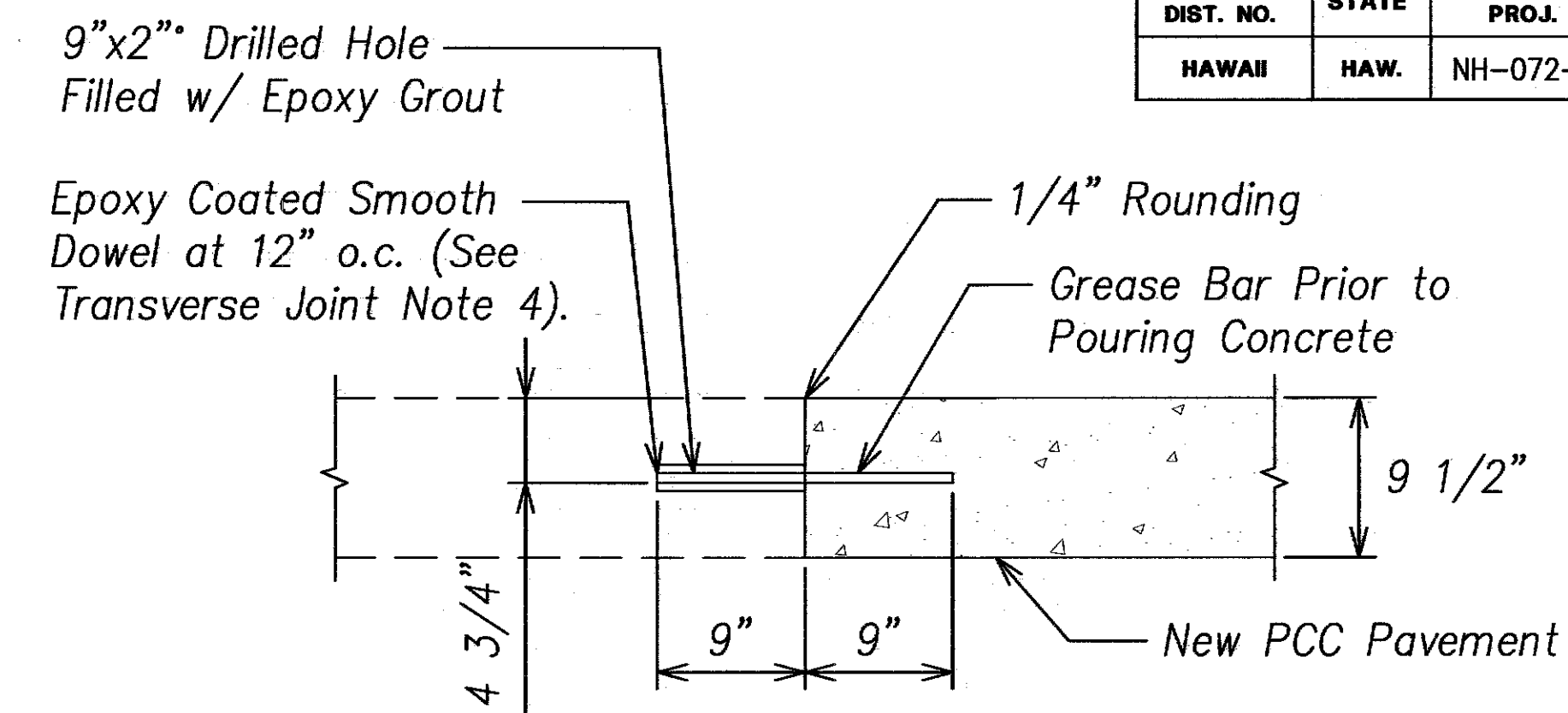


Transverse Contraction Joint

Not To Scale



Transverse Construction Joint



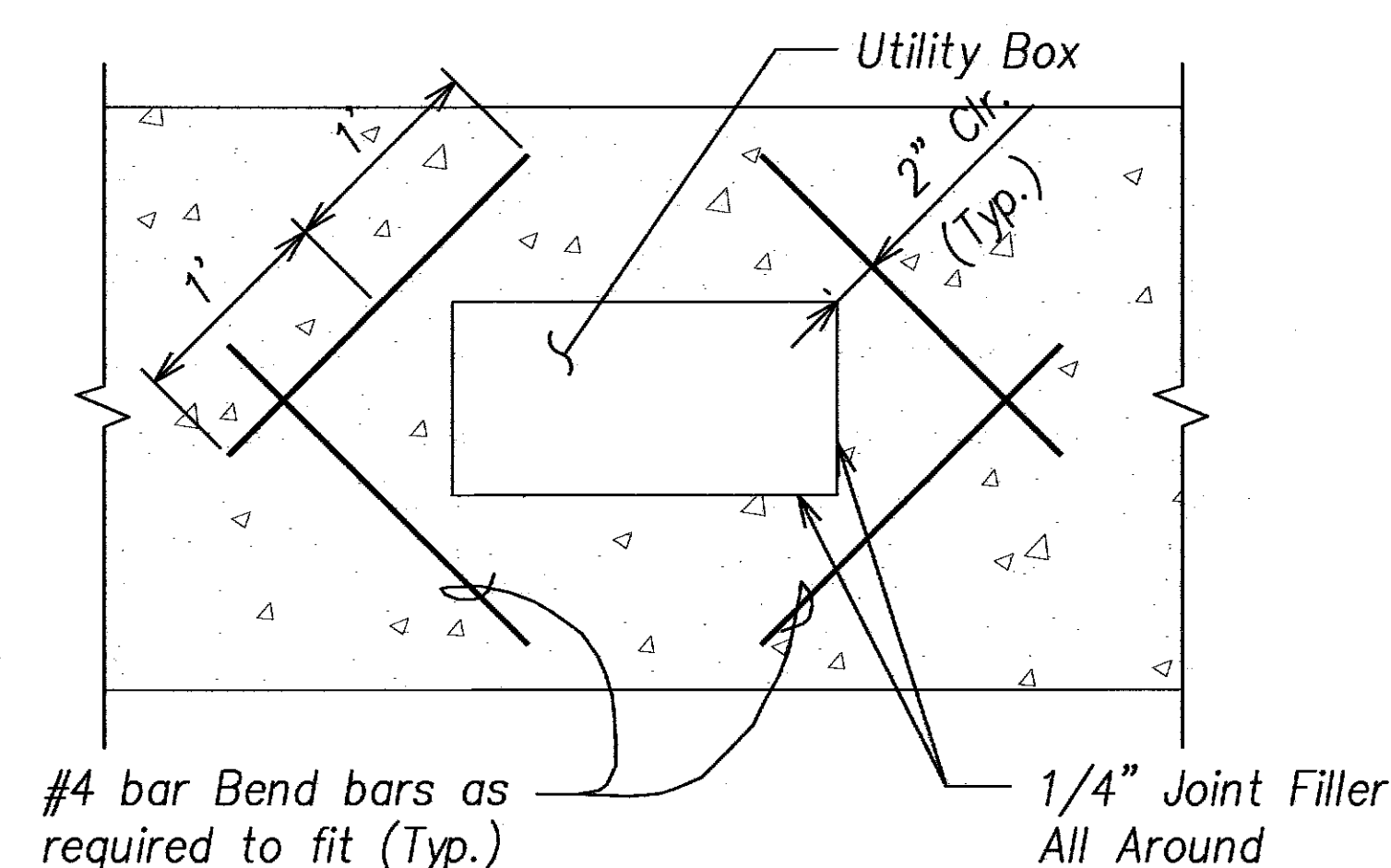
Transverse Construction Joint at Existing PCC Pavement

Longitudinal & Transverse Joint Details for PCC Pavement

Not To Scale

Concrete Pavement Notes:

1. Transverse joints shall be either weakened plane contraction joints or construction joints with dowels and shall be evenly spaced approximately 15 feet apart.
2. Weaken plane joints may be constructed by sawing, forming dummy groove (see detail A) or inserting ribbon or premolded strip.
3. All joints shall be slightly under filled with joint sealer paving asphalt, grade 85-100, AASHTO Designation: M-20.
4. Epoxy-coated dowels, 1-1/4" dia. by 1'-6" long, shall conform to AASHTO M 284/M 284 M Grade 60. Dowel shall be placed parallel to pavement surface and shall not deviate more than 0.024' from parallel in 18" length.

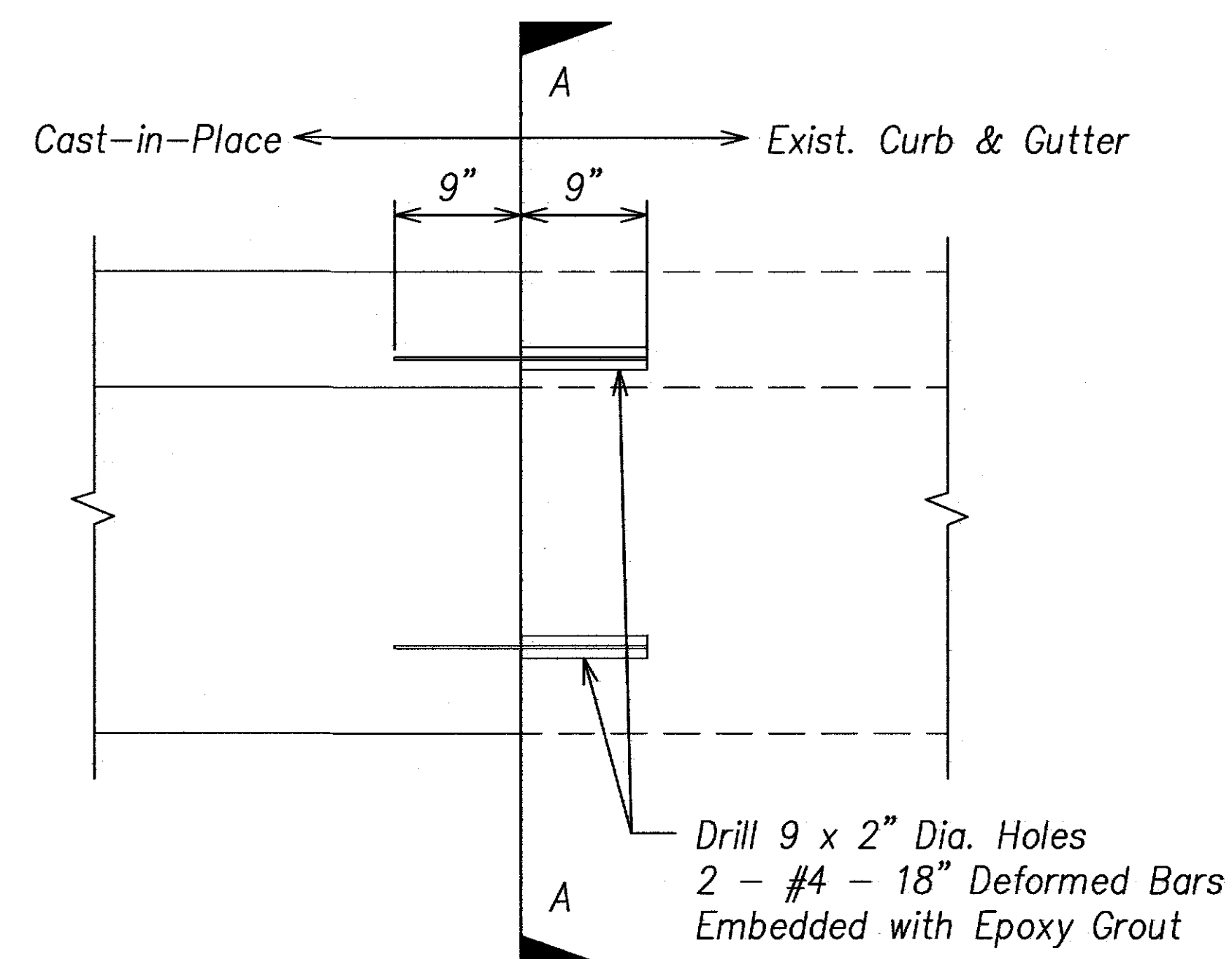


Typical Reinforcement Around Utility Box In PCC Pavement & Sidewalk

Not To Scale

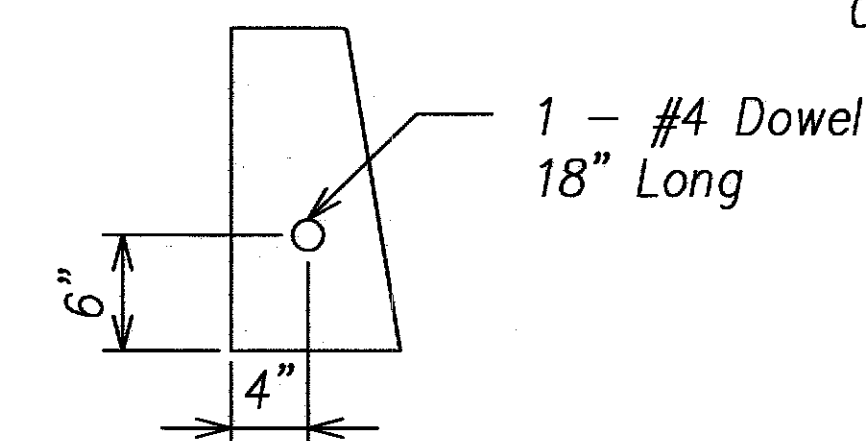
Note:

Payment for reinforcement will be incidental to various contract items.



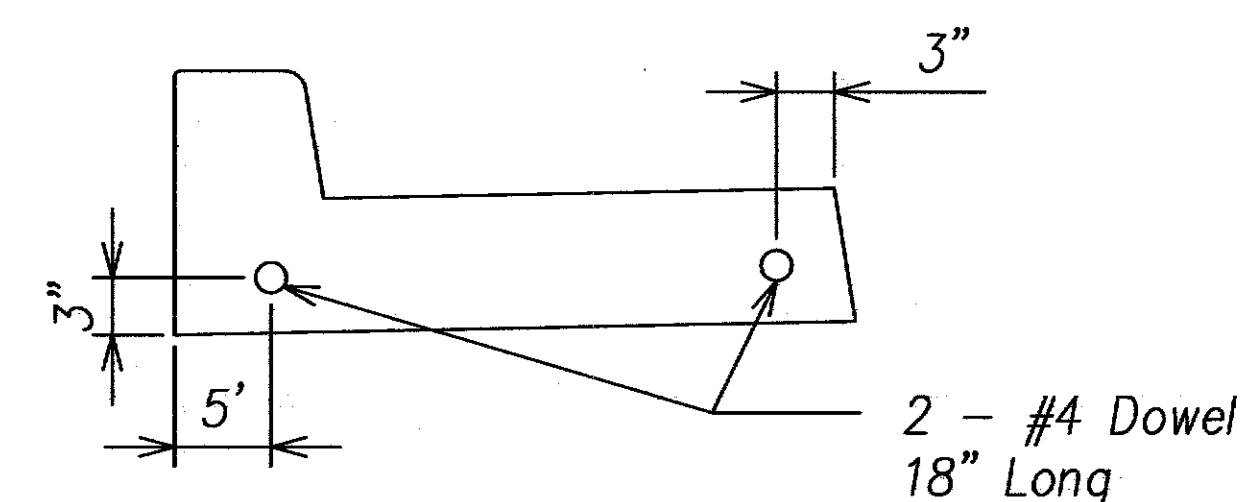
Plan - Curb & Gutter at Existing

Not To Scale



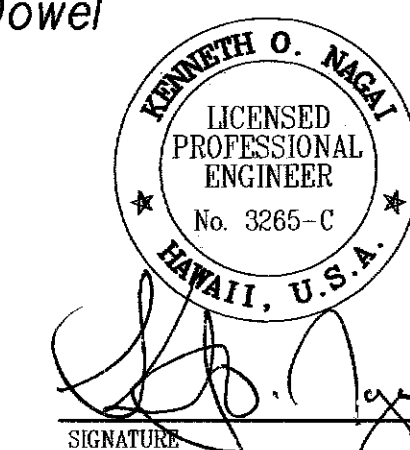
Section - Curb at Existing

Not To Scale



Section A - Curb & Gutter

Not To Scale



APRIL 30, 2010
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PAVEMENT DETAILS
KALANIANA'OLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)
SCALE: As Noted DATE: November 2008

SHEET No. C-11 OF 22 SHEETS