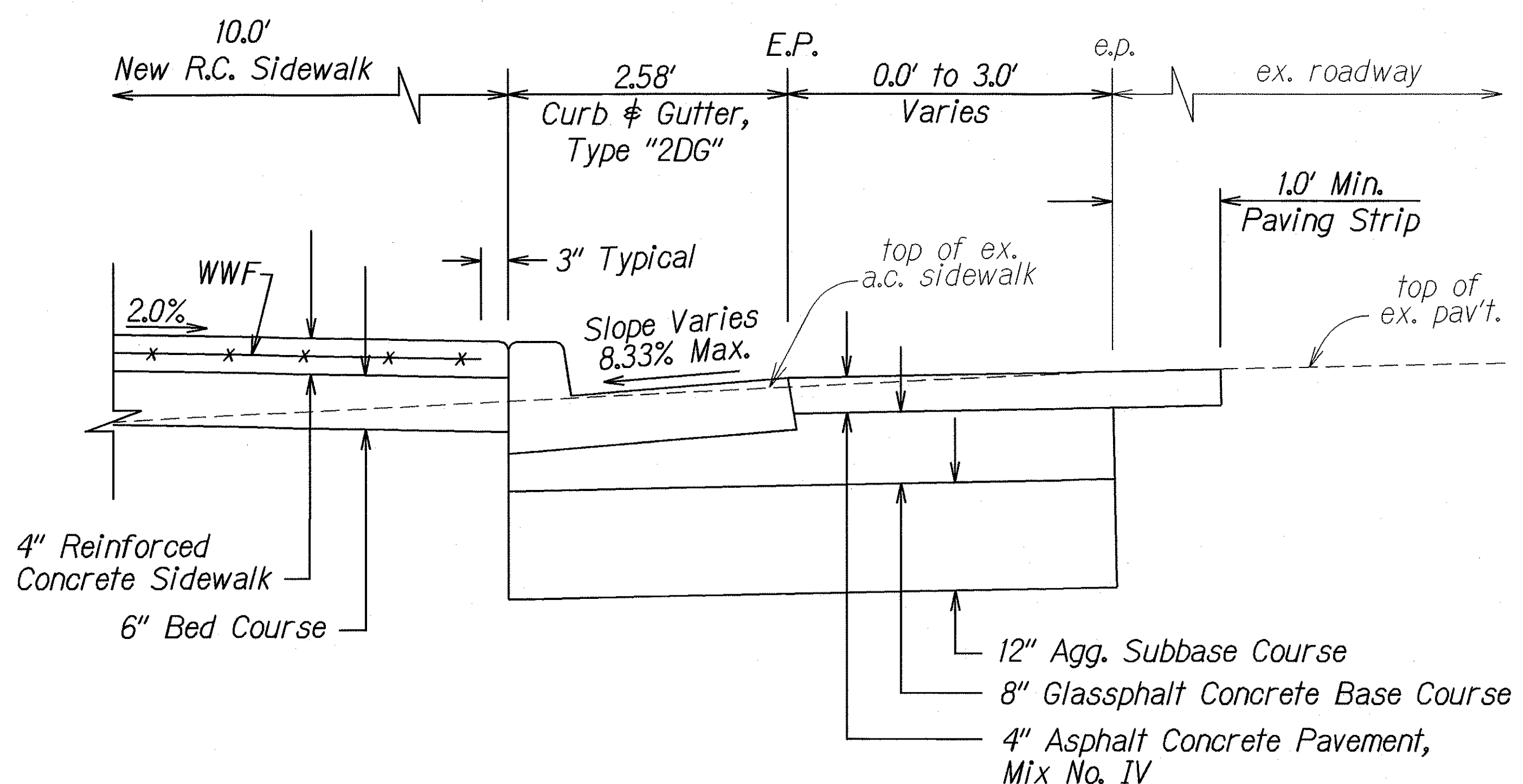
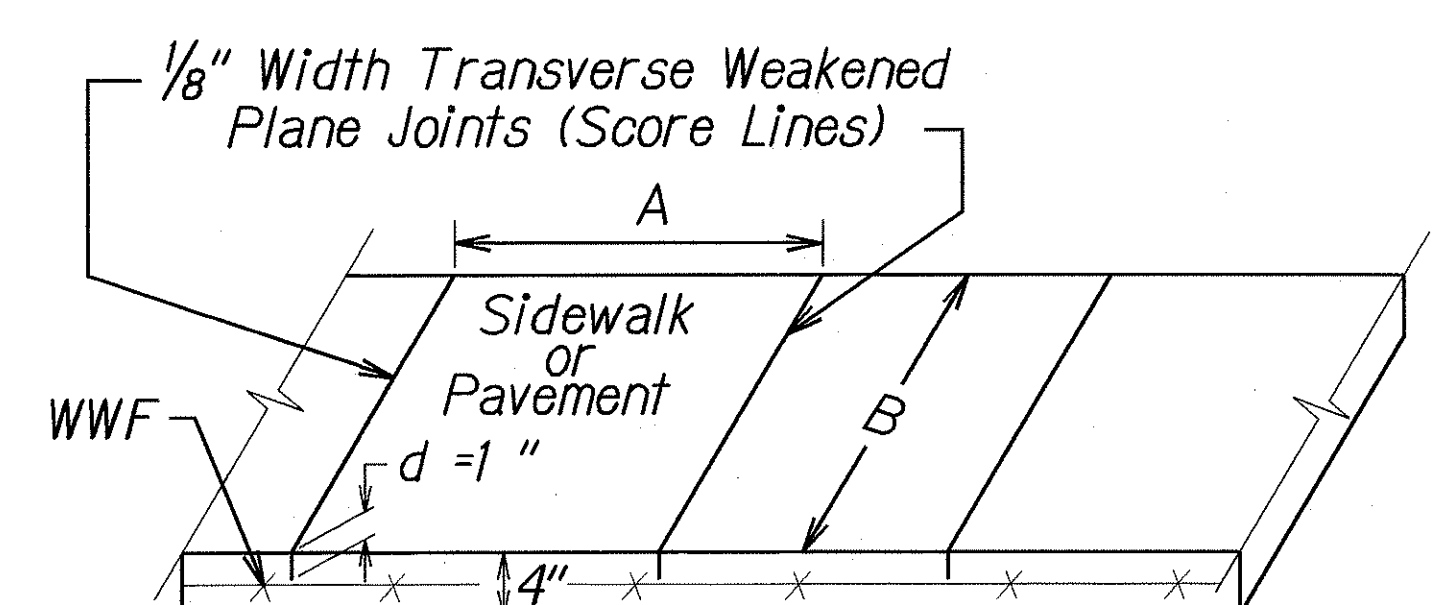


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	10	61

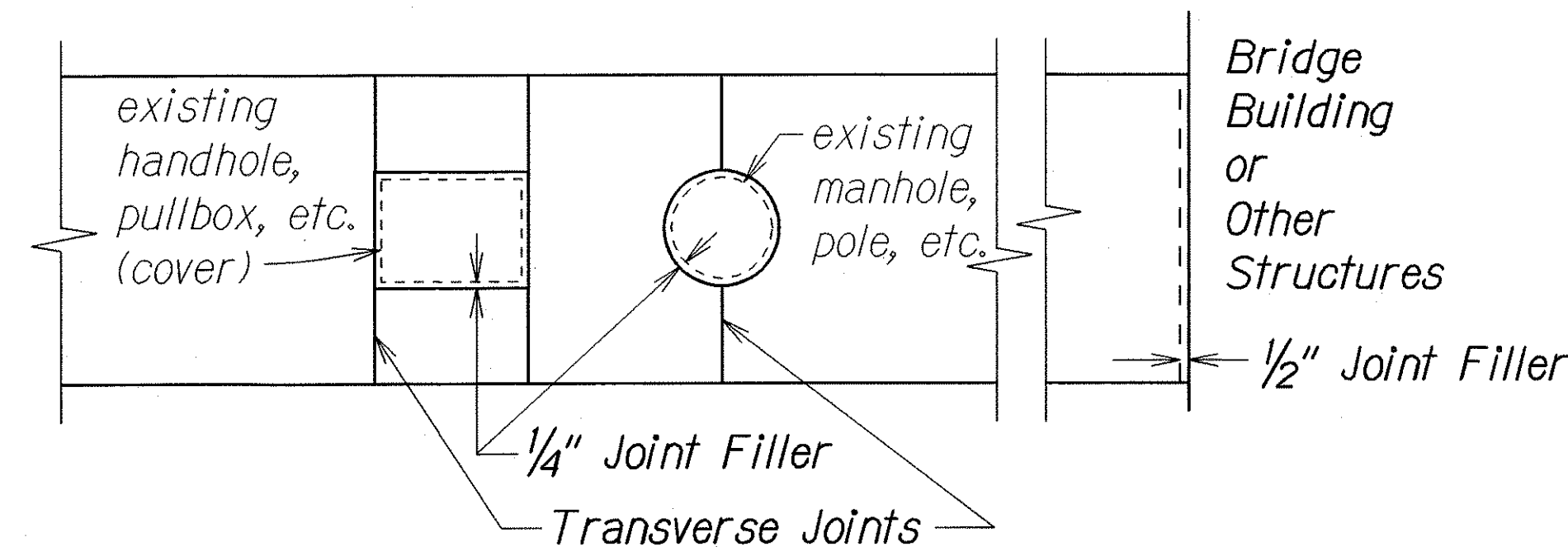


DETAIL @ WAIPAHU STREET
Scale: 1" = 1'



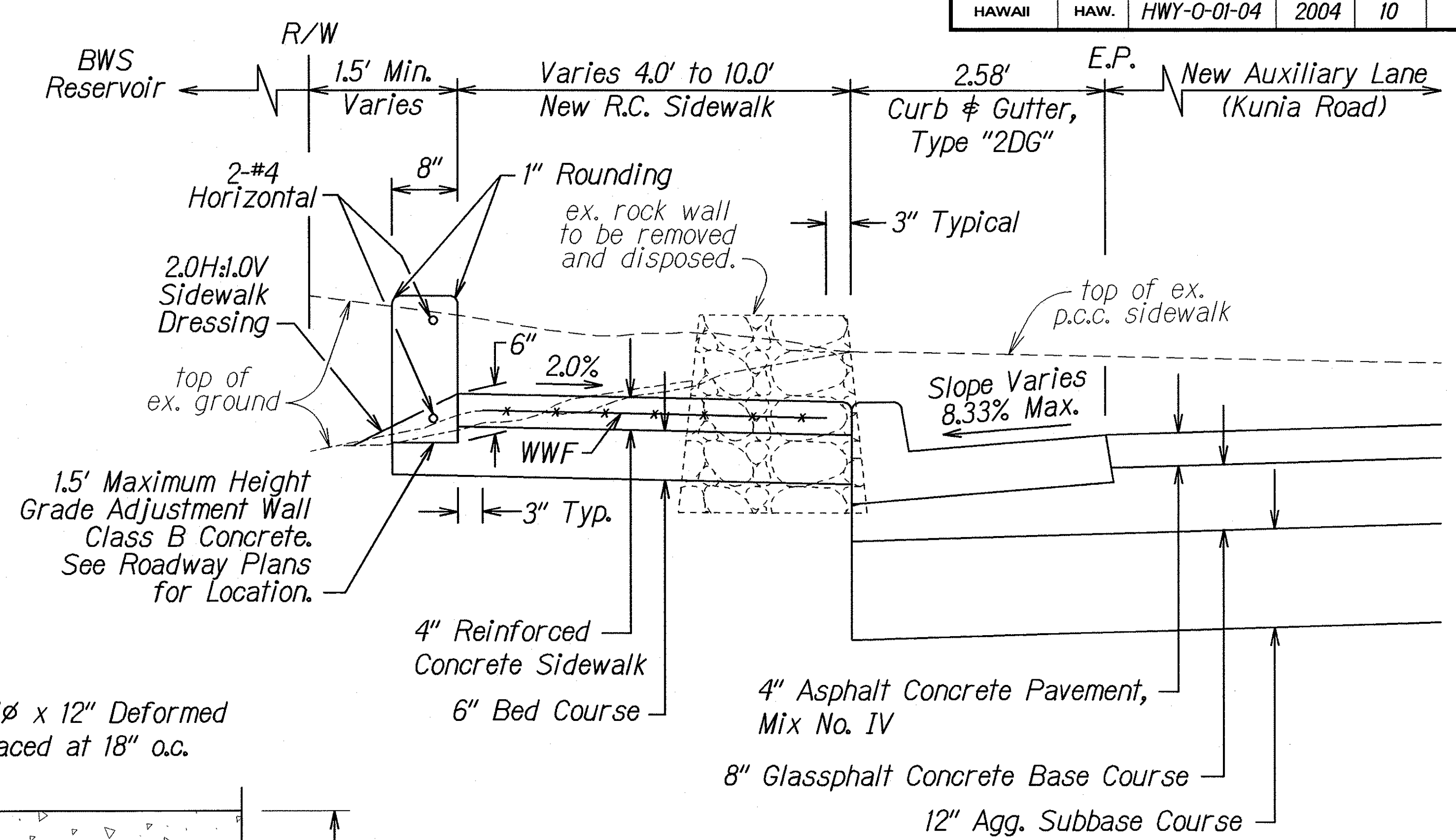
- Note:**
1. Joint dimension ratios (B/A or A/B) < 1.25 and (A or B) not to exceed 7'
 1. Longitudinal weakened plane joints similar to transverse weakened plane joints.

TYPICAL SIDEWALK DETAIL
Not To Scale

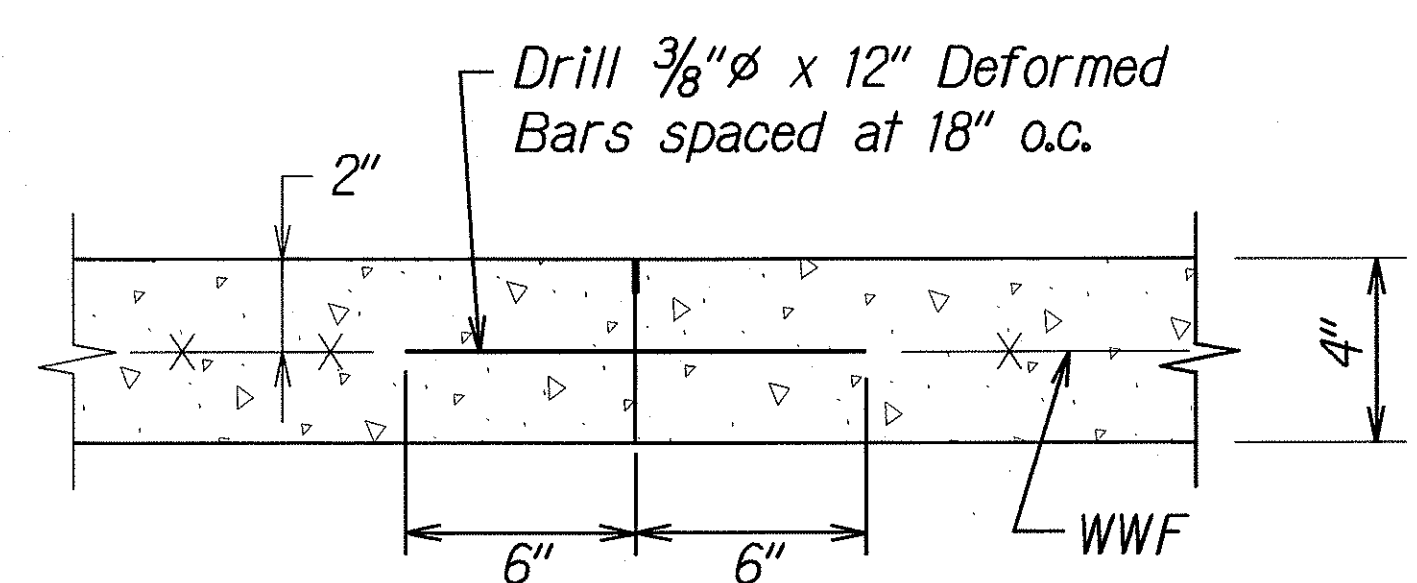


SIDEWALK ISOLATION JOINT DETAIL
Not To Scale

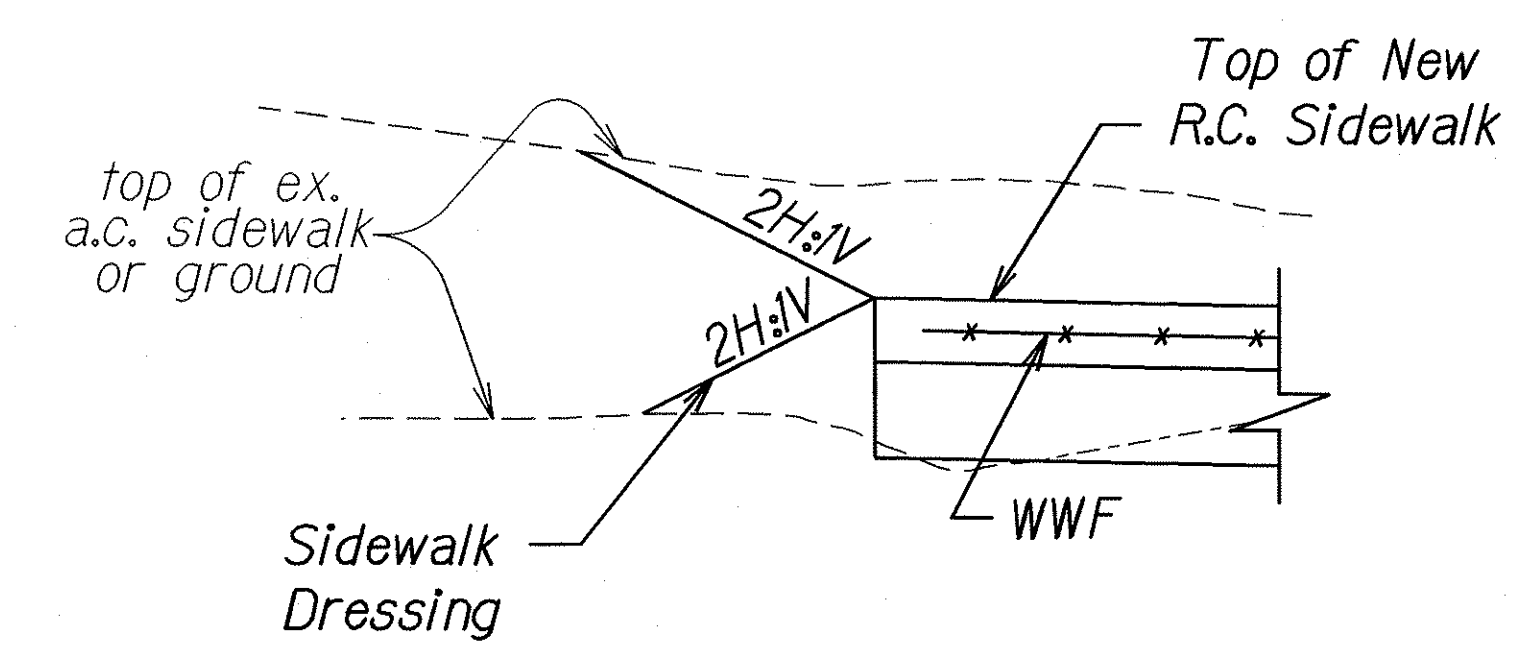
Note: Reinforcement for Concrete Sidewalk and Island Shall Be 6x6 W1.4xW1.4 at Mid-Height of Concrete Depth.



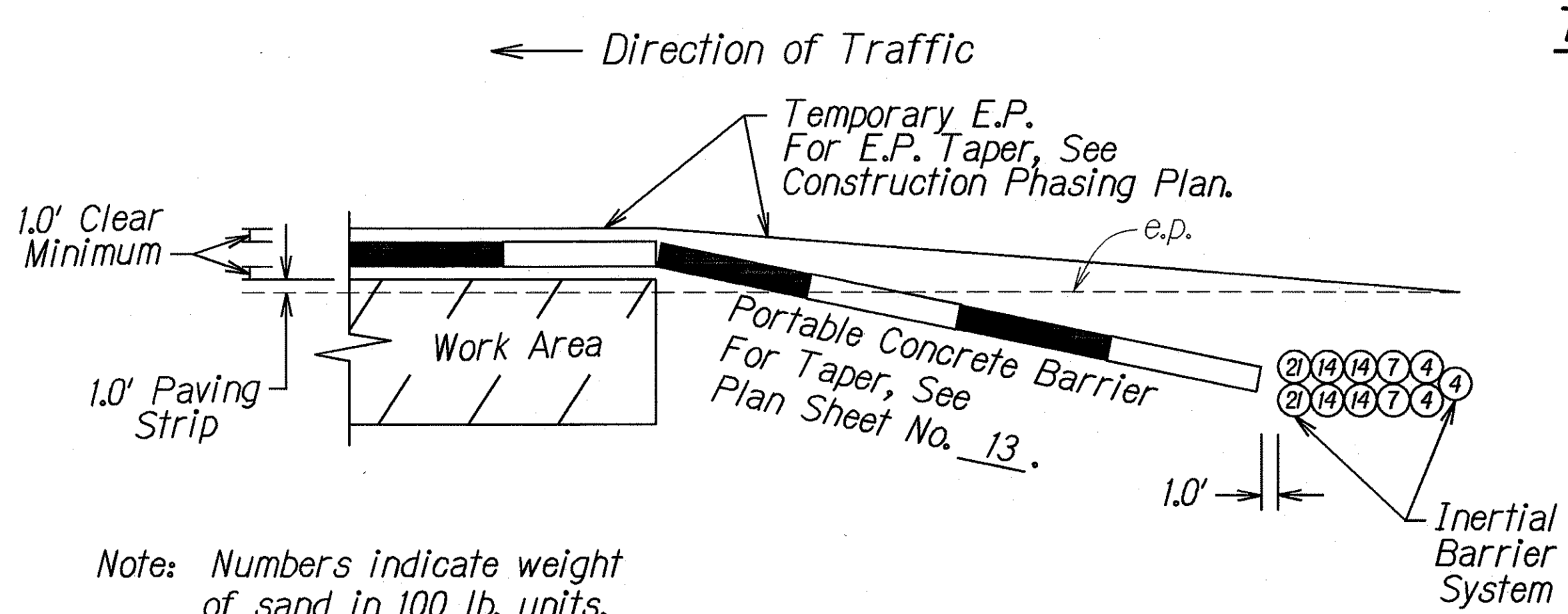
DETAIL @ BWS RESERVOIR
Scale: 1" = 1'



TRANSVERSE CONSTRUCTION JOINT DETAIL
Not to Scale



TYPICAL SIDEWALK DRESSING
Not to Scale



Note: Numbers indicate weight of sand in 100 lb. units.

INERTIAL BARRIER SYSTEM DETAIL
Not To Scale

DATE	01/06/04
DESIGNED BY	MQ
CHECKED BY	MQ
NOTED BY	MQ
APPROVED BY	MQ

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

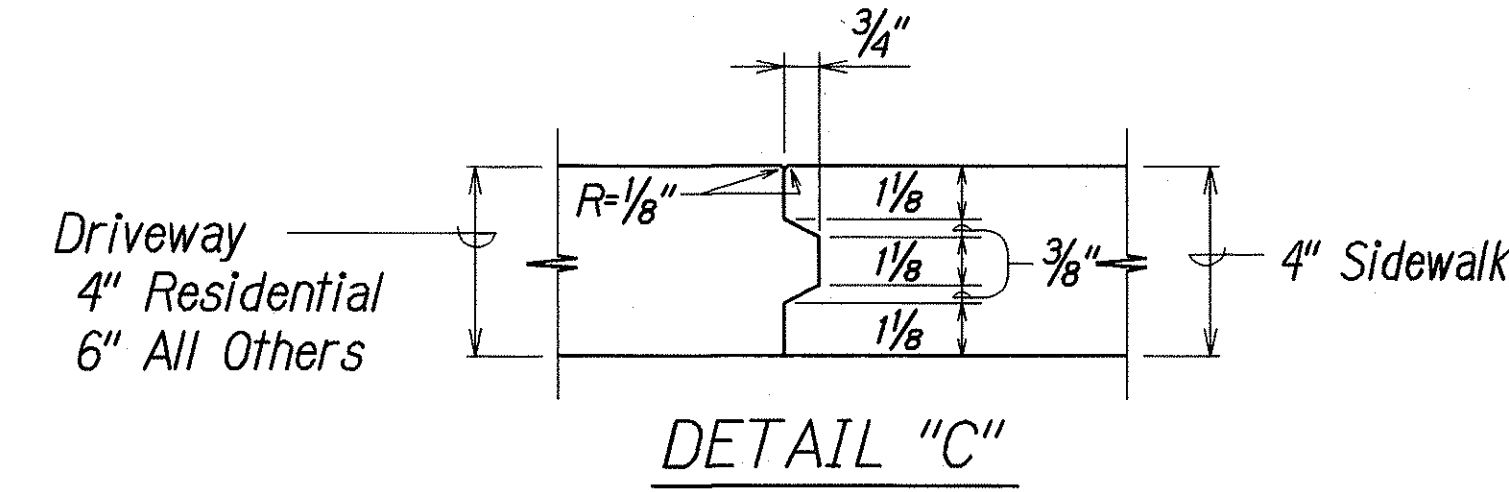
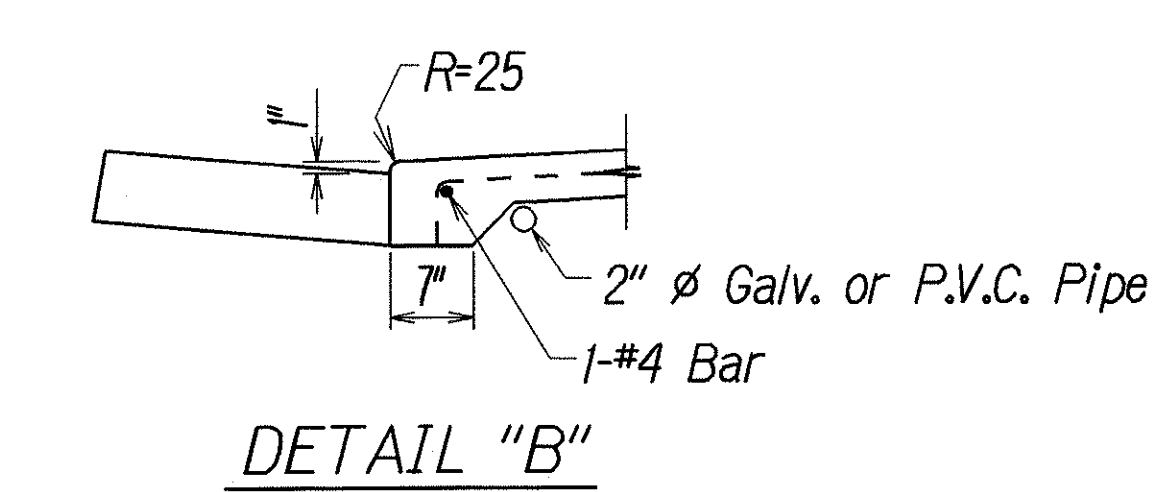
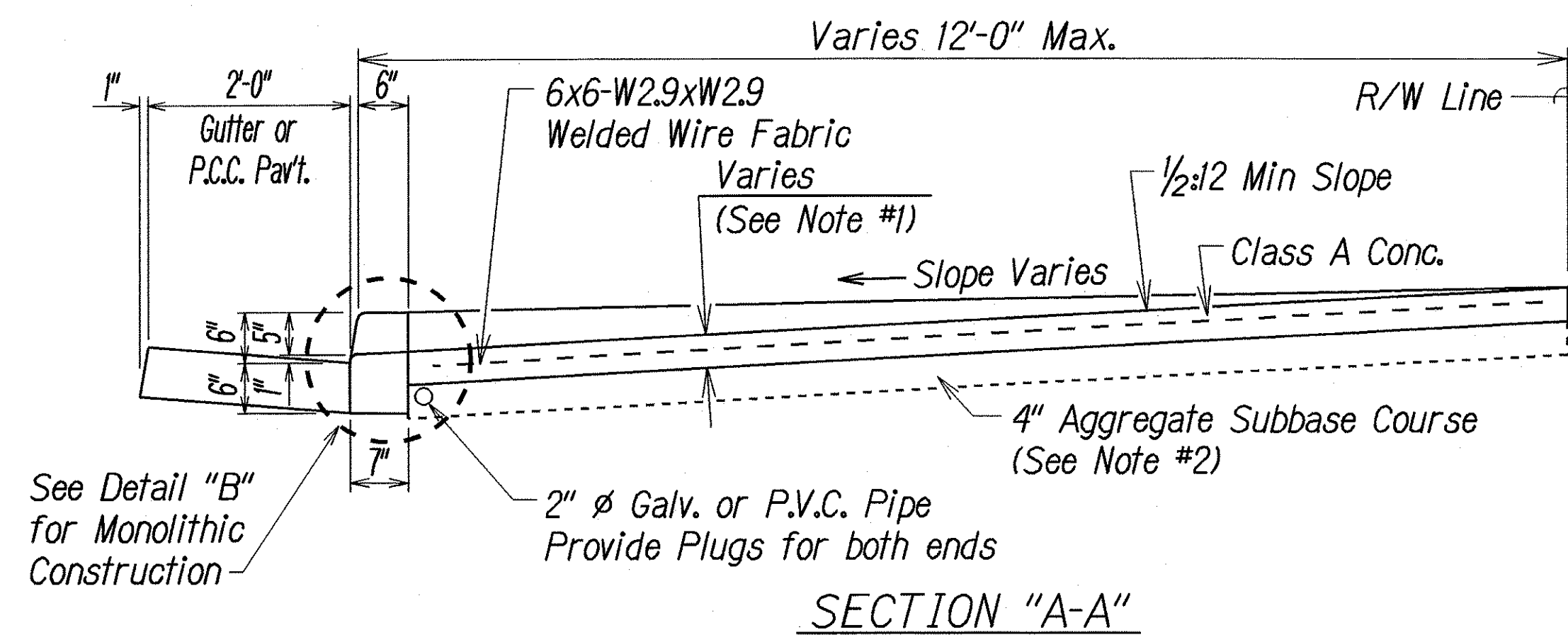
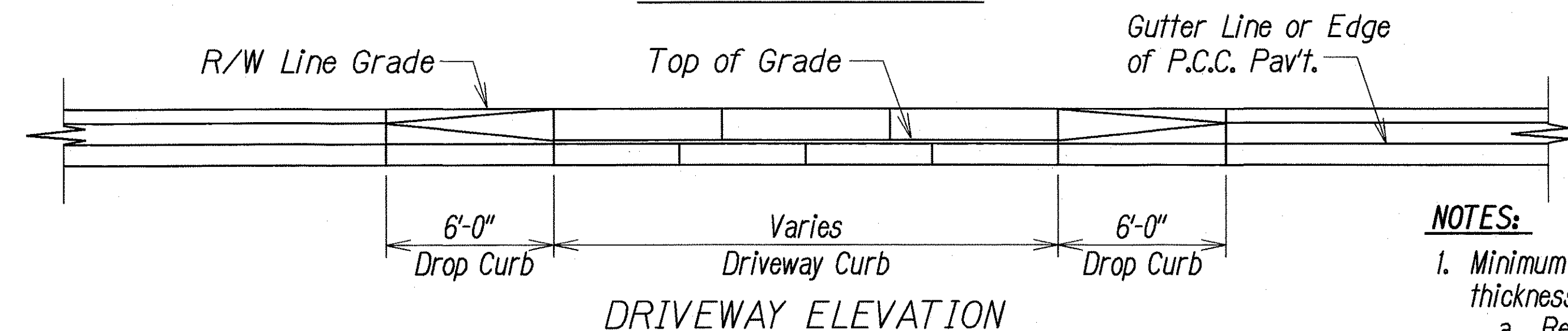
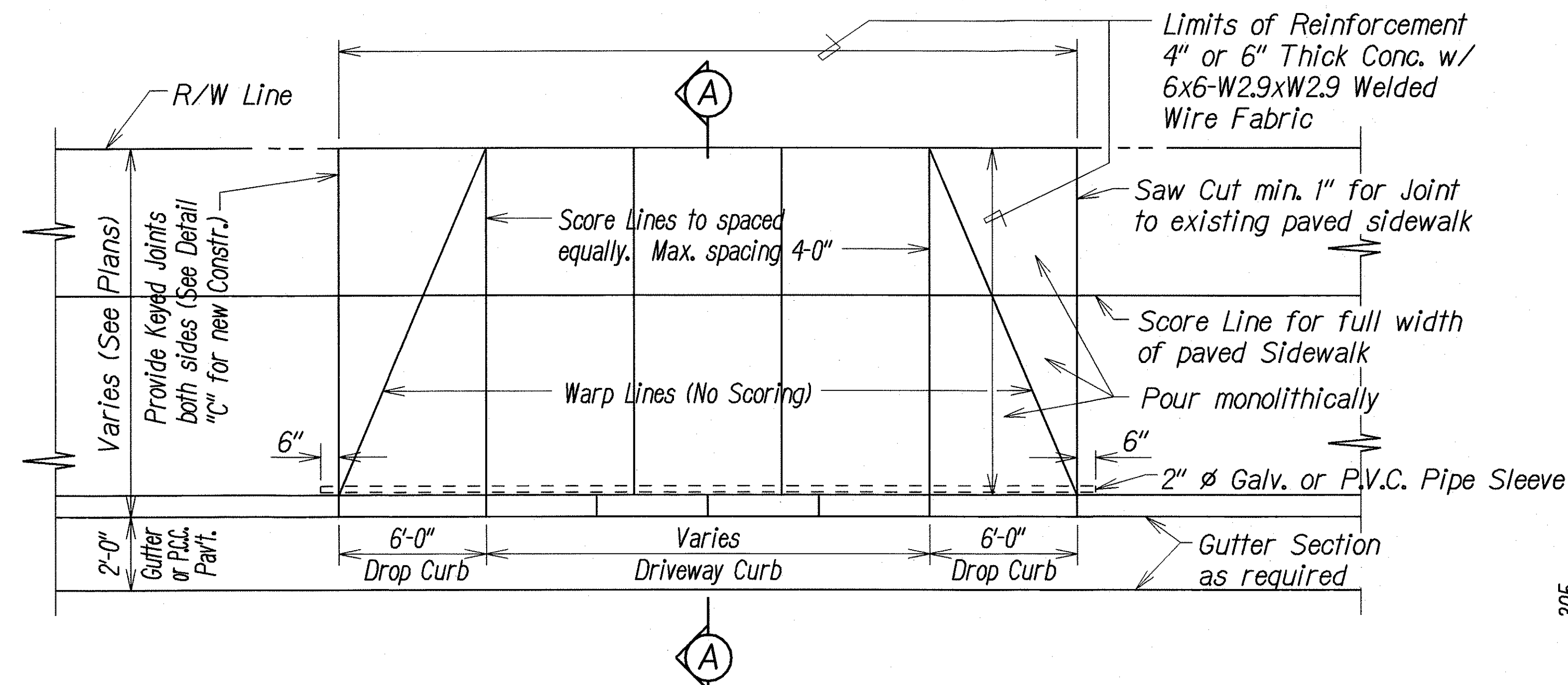
**KUNIA ROAD IMPROVEMENTS
VICINITY OF SOUTH KUPUNA LOOP
to VICINITY OF HONOWAI STREET**

PROJECT NO.: HWY-0-01-04

Scale: As Shown Date: OCT, 2003

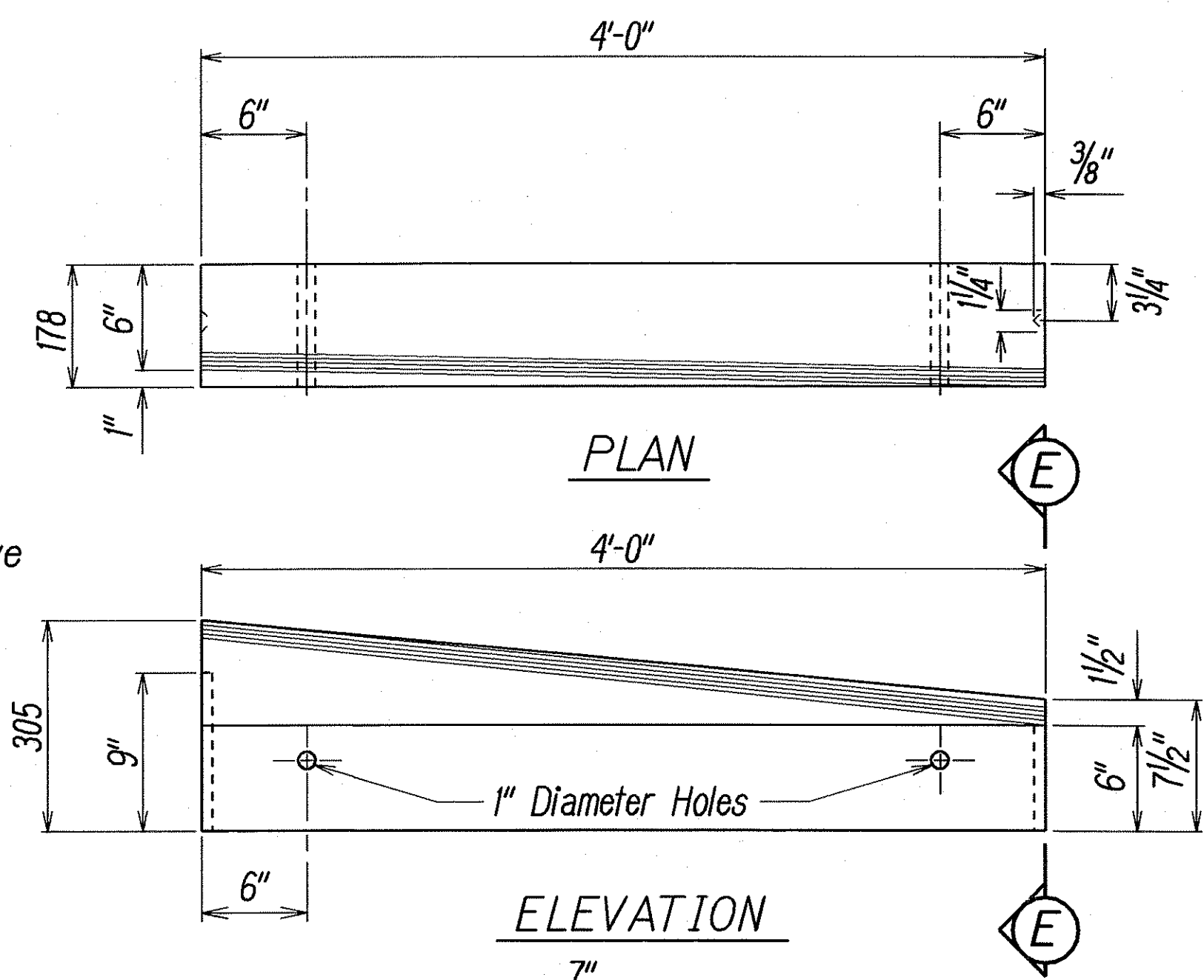
SHEET No. 1 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	11	61

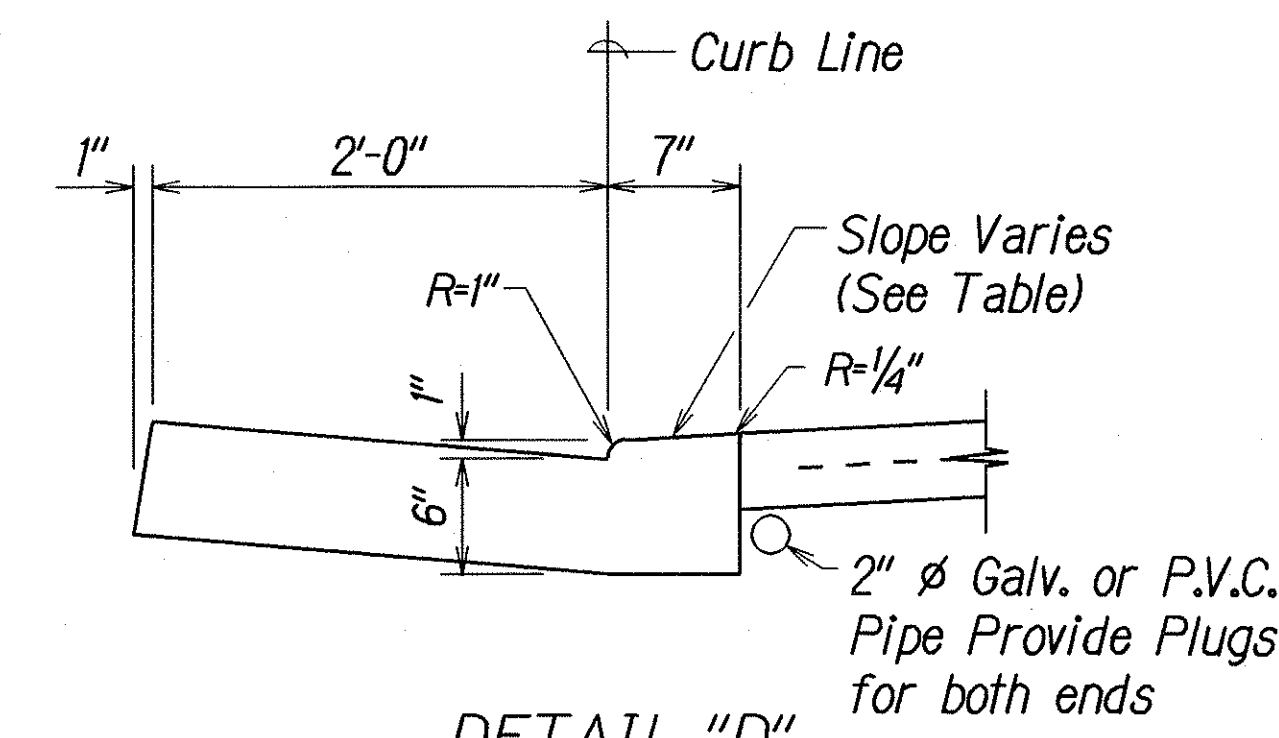


TYPICAL DETAILS OF REINF. CONC. DROP DRIVEWAY

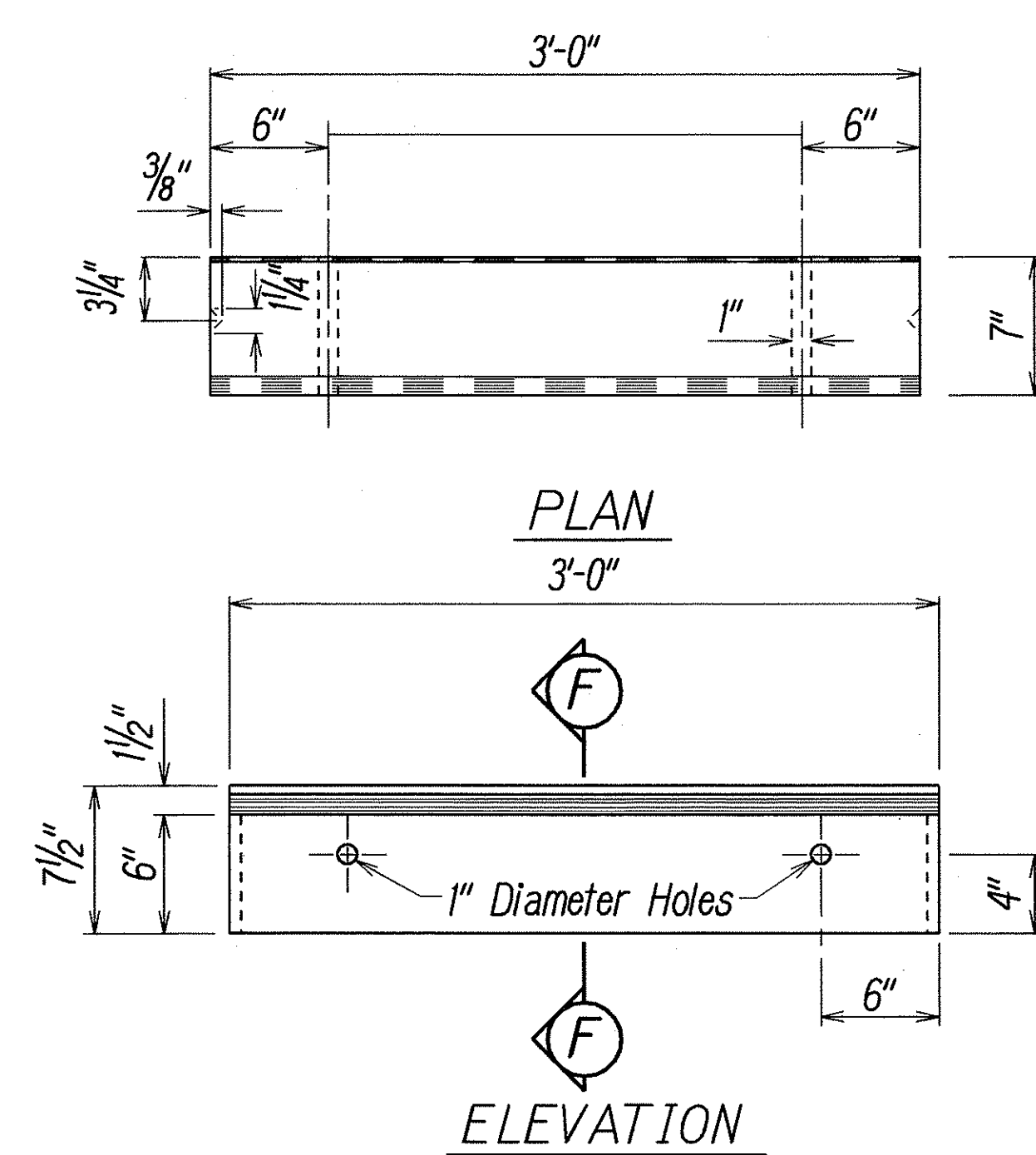
- NOTES:
- Minimum Concrete Approach thickness
 - Residential = 4"
 - Commercial = 6"
 - Thickness of Aggregate Subbase course beneath Concrete Pavement may be revised if deemed necessary by the Engineer.
 - P.C.C. Gutters shall longitudinally broom finished.
 - The top of all types of Concrete Curbs, including Driveway Curbs shall be longitudinally broom finished.



SECTION "E-E"
PRE-CAST CONC.
DROP CURB BLOCK



DETAIL "D"
CAST-IN-PLACE
INTEGRAL DRIVEWAY
CURB AND GUTTER



SECTION "F-F"
PRE-CAST CONC.
DRIVEWAY CURB

DIST.-CURB LINE TO R/W	SLOPE
3.6	17.46 to 305
3	19.05 to 305
2.4	22.22 to 305
2.1	23.81 to 305
1.8	26.98 to 305
0.9	49.21 to 305

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

KUNIA ROAD IMPROVEMENTS
VICINITY OF SOUTH KUPUNA LOOP
to VICINITY OF HONOWAI STREET

PROJECT NO.: HWY-0-01-04

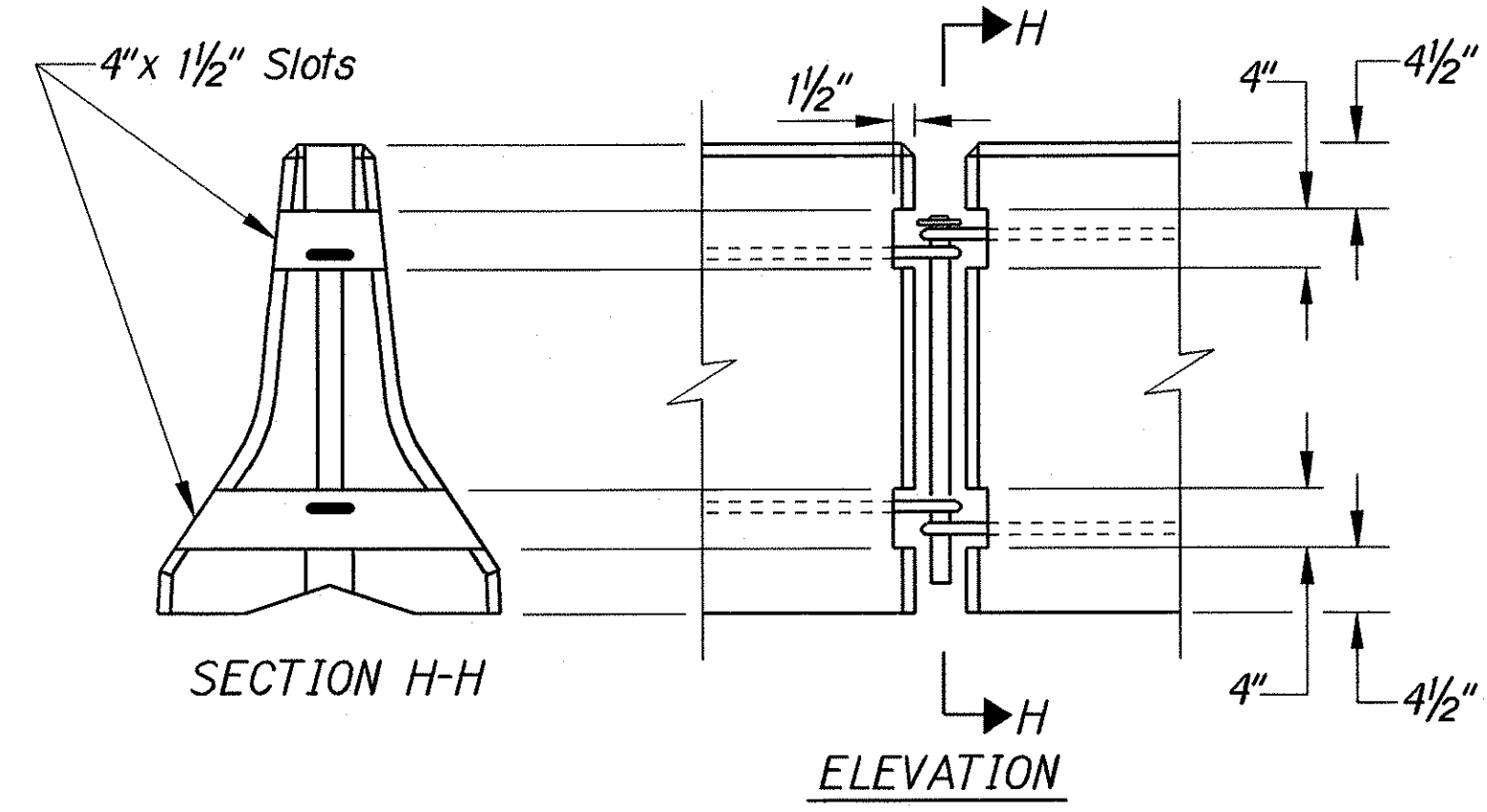
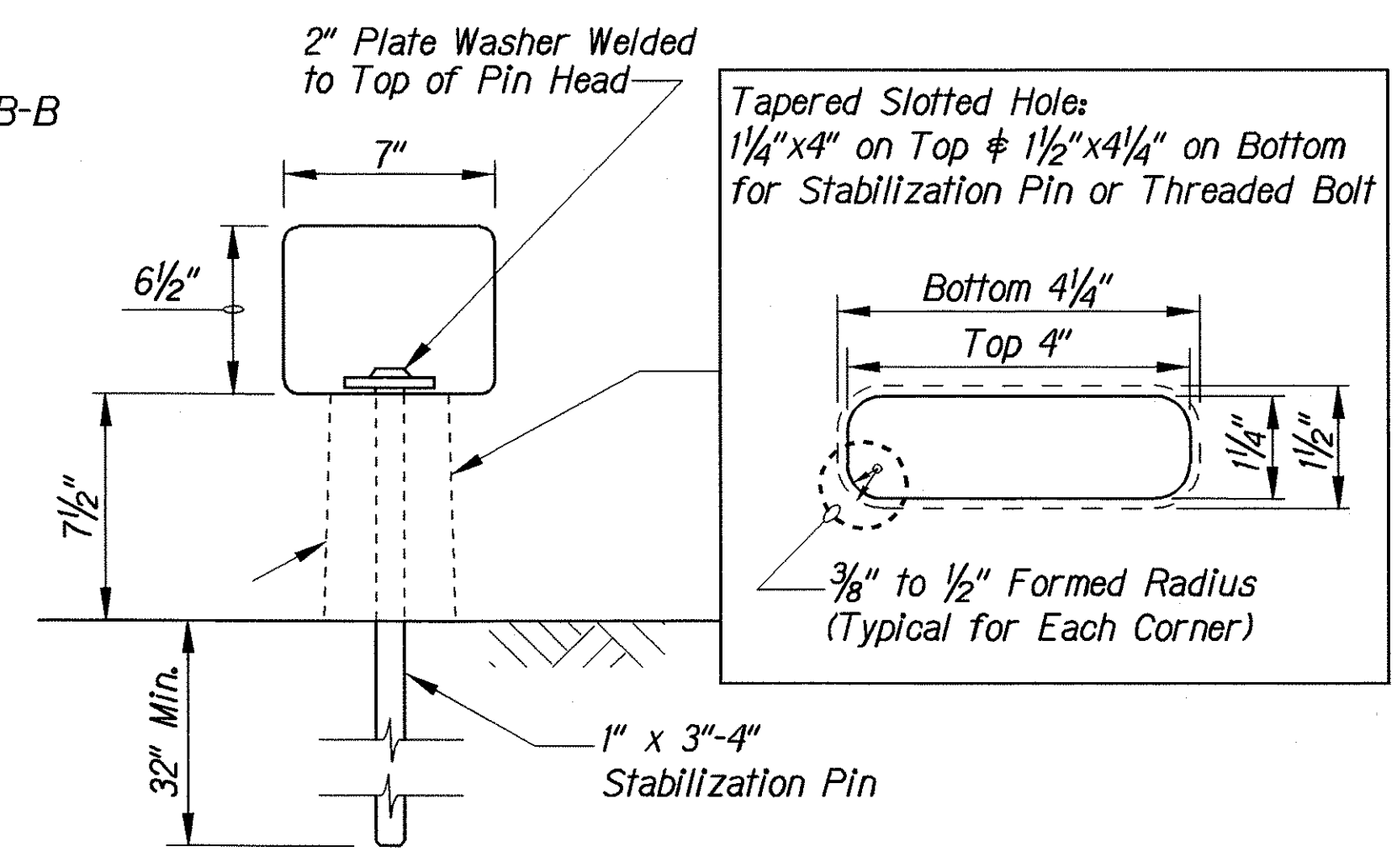
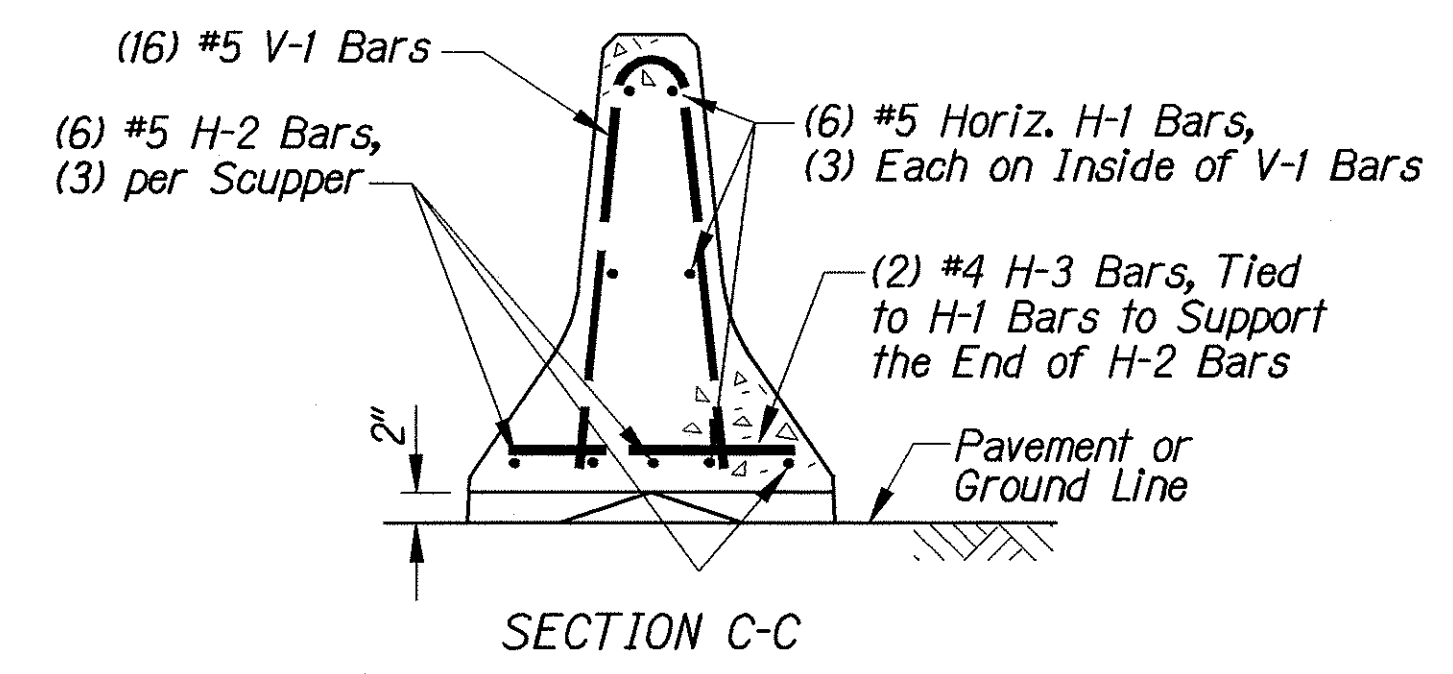
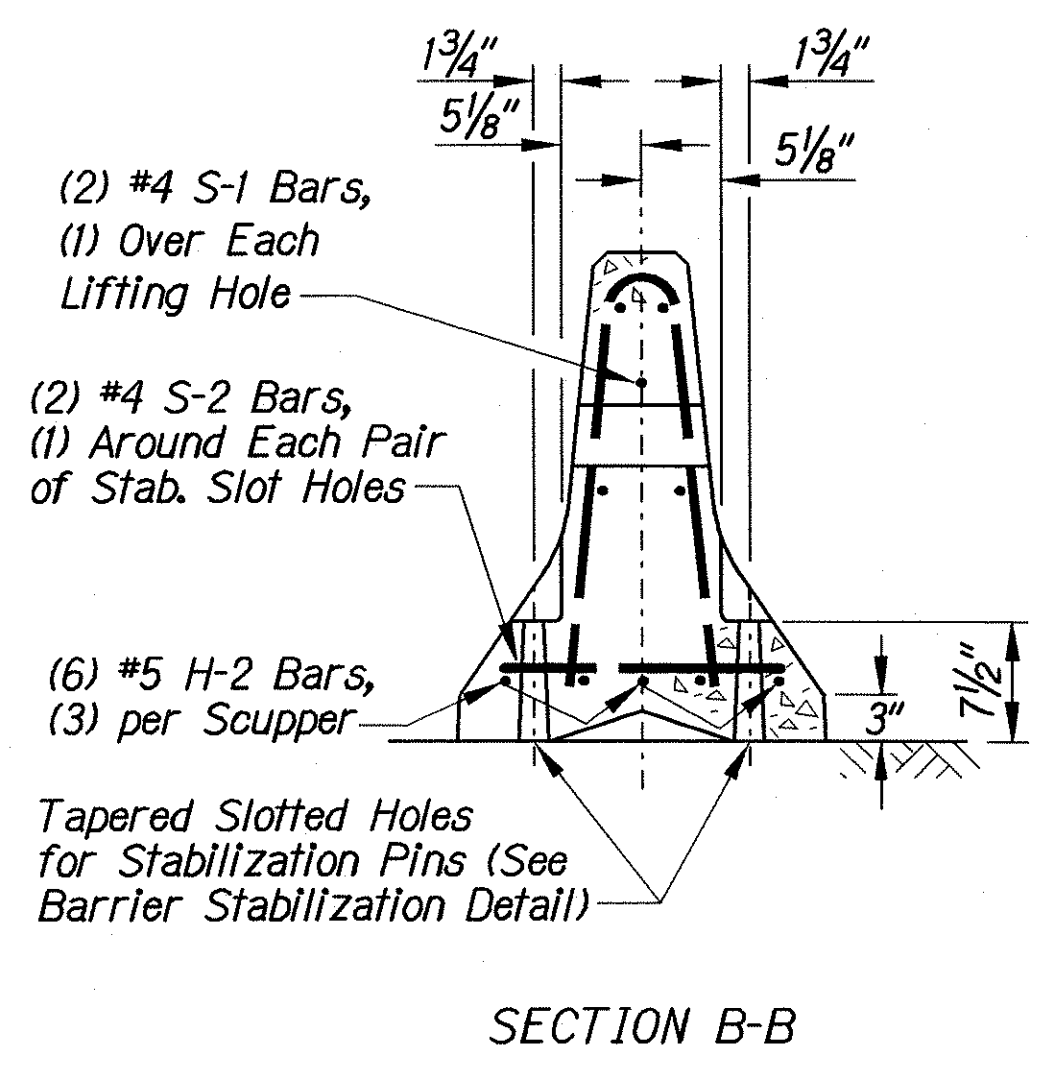
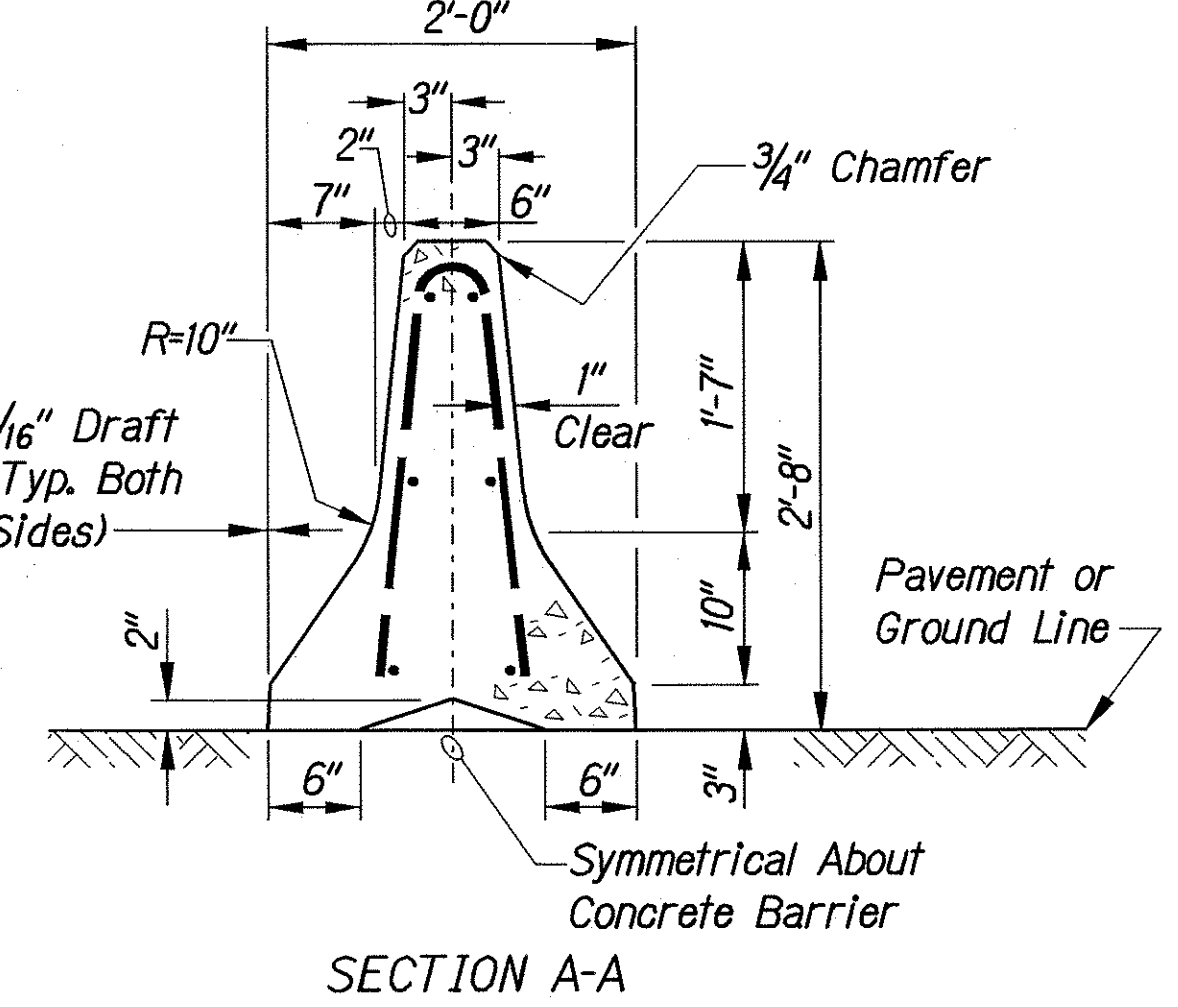
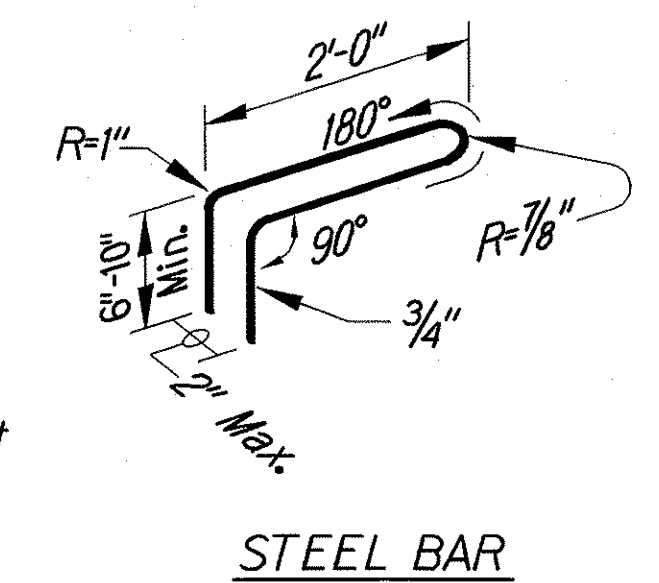
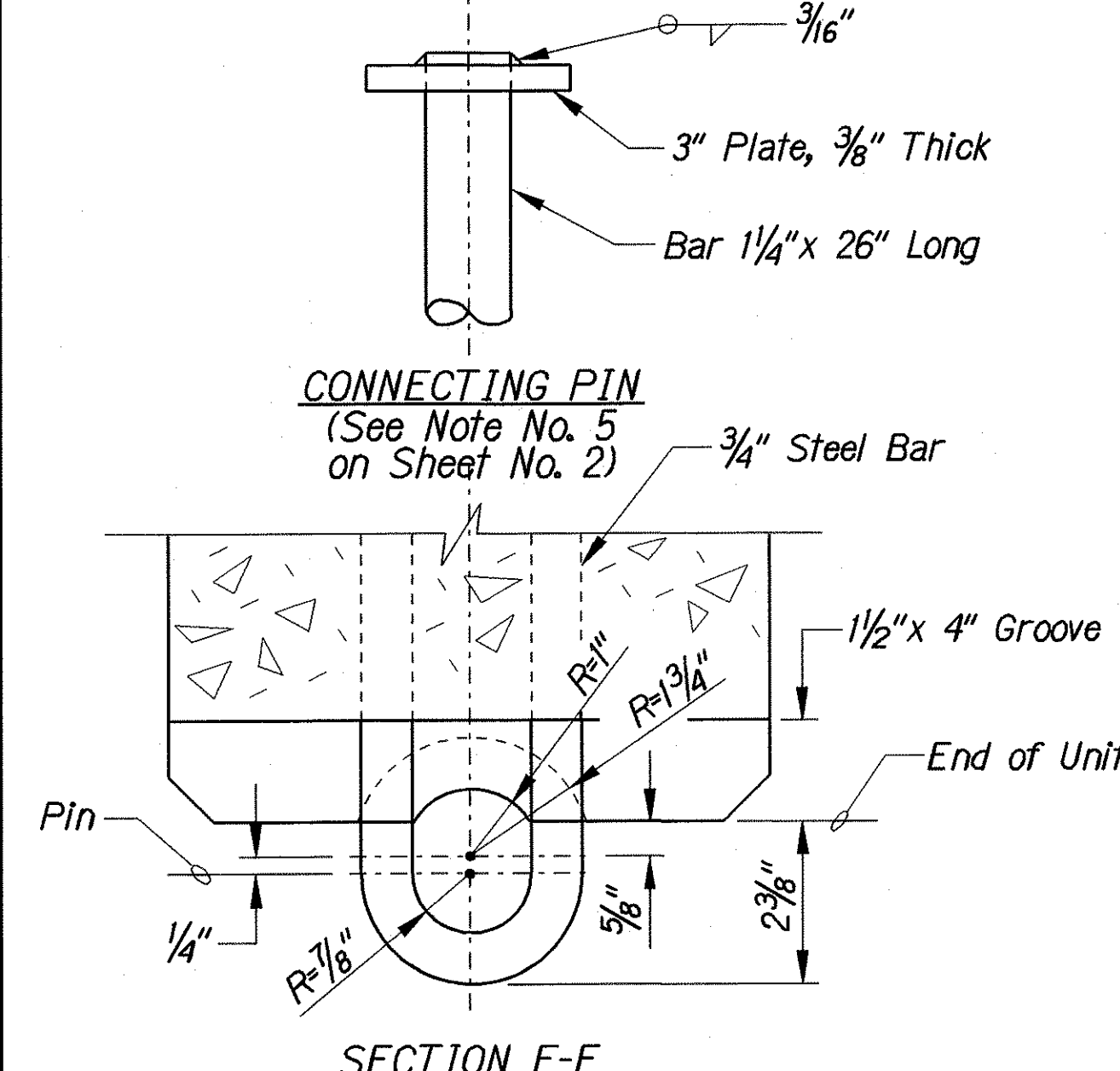
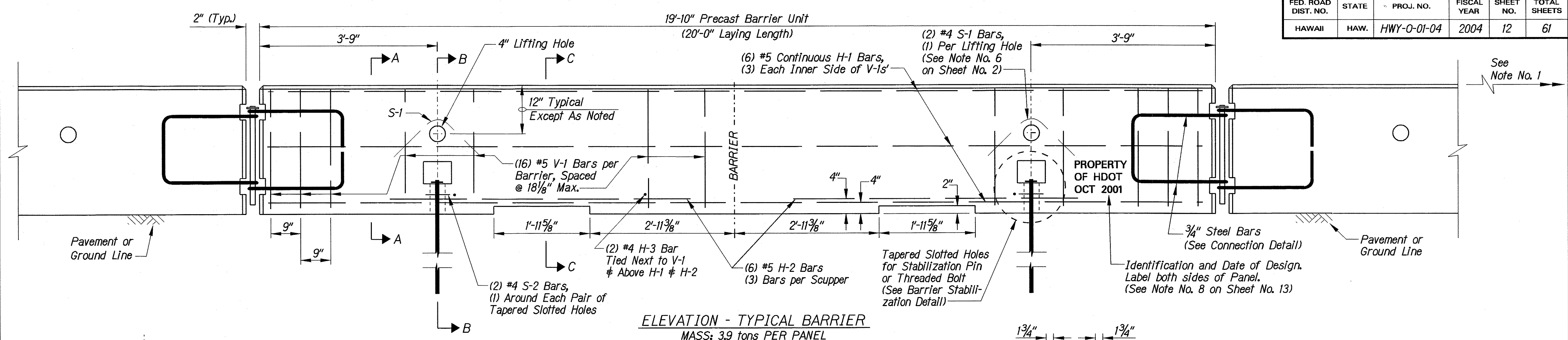
Scale: As Noted Date: OCT, 2003

SHEET No. 2 OF 5 SHEETS

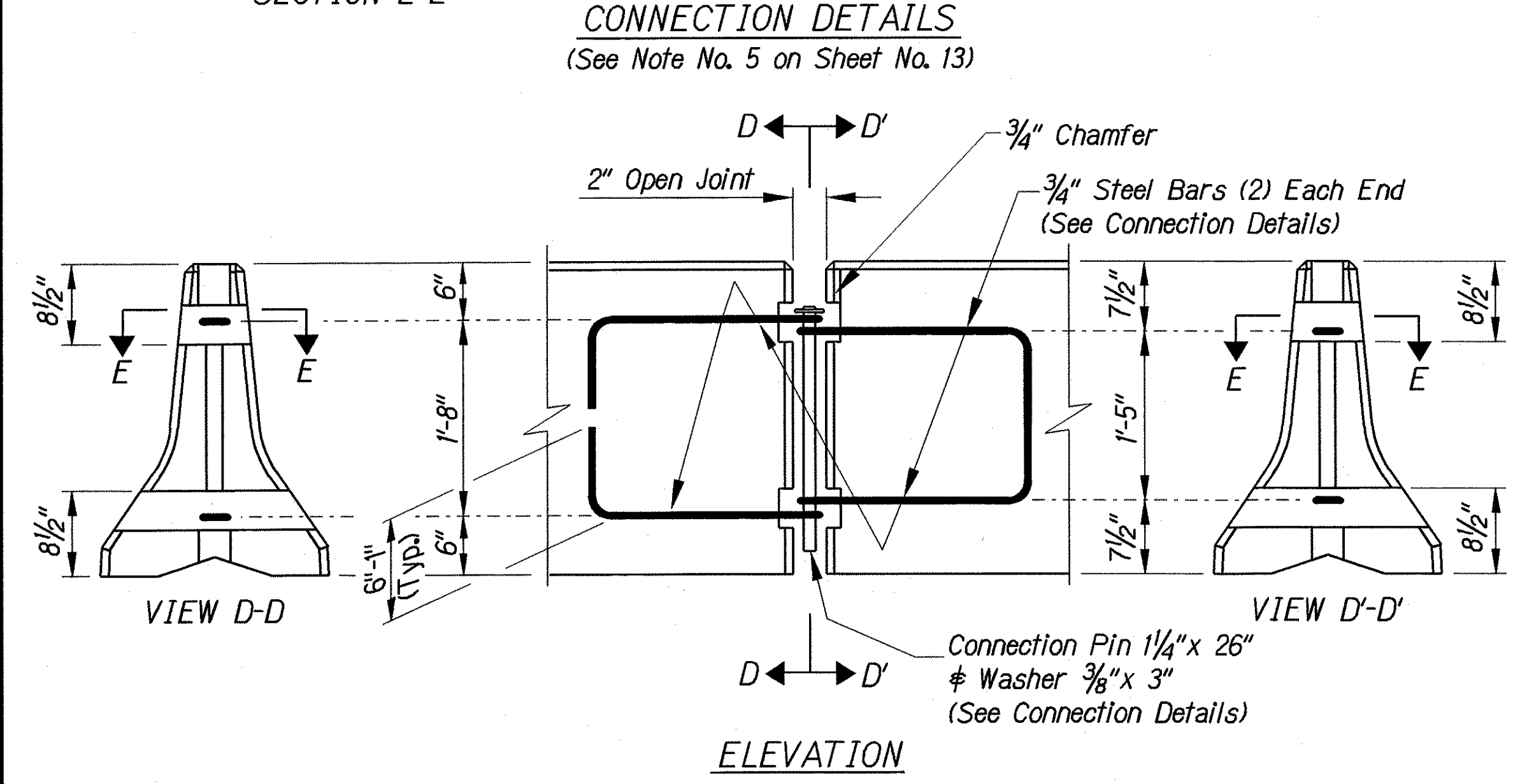
ORIGINAL PLAN	DATE
NOTED BY	11/01/03
DESIGNED BY	11/01/03
CHECKED BY	11/01/03

GENERAL NOTE
All dimensions are in mm unless otherwise noted.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	12	61



BARRIER REMOVAL SLOT DETAILS



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

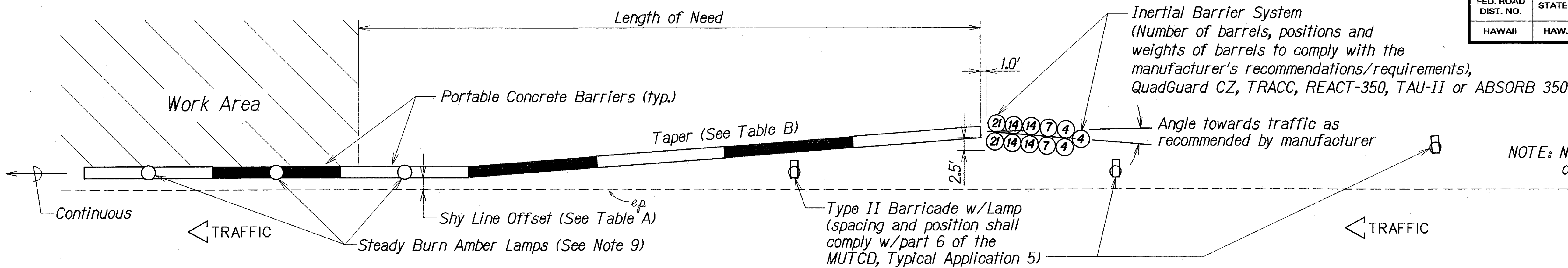
PORTABLE CONCRETE BARRIER

KUNIA ROAD IMPROVEMENTS
VICINITY OF SOUTH KUPUNA LOOP
to VICINITY OF HONOWAI STREET
PROJECT NO.: HWY-0-01-04

Not To Scale Date: OCT, 2003

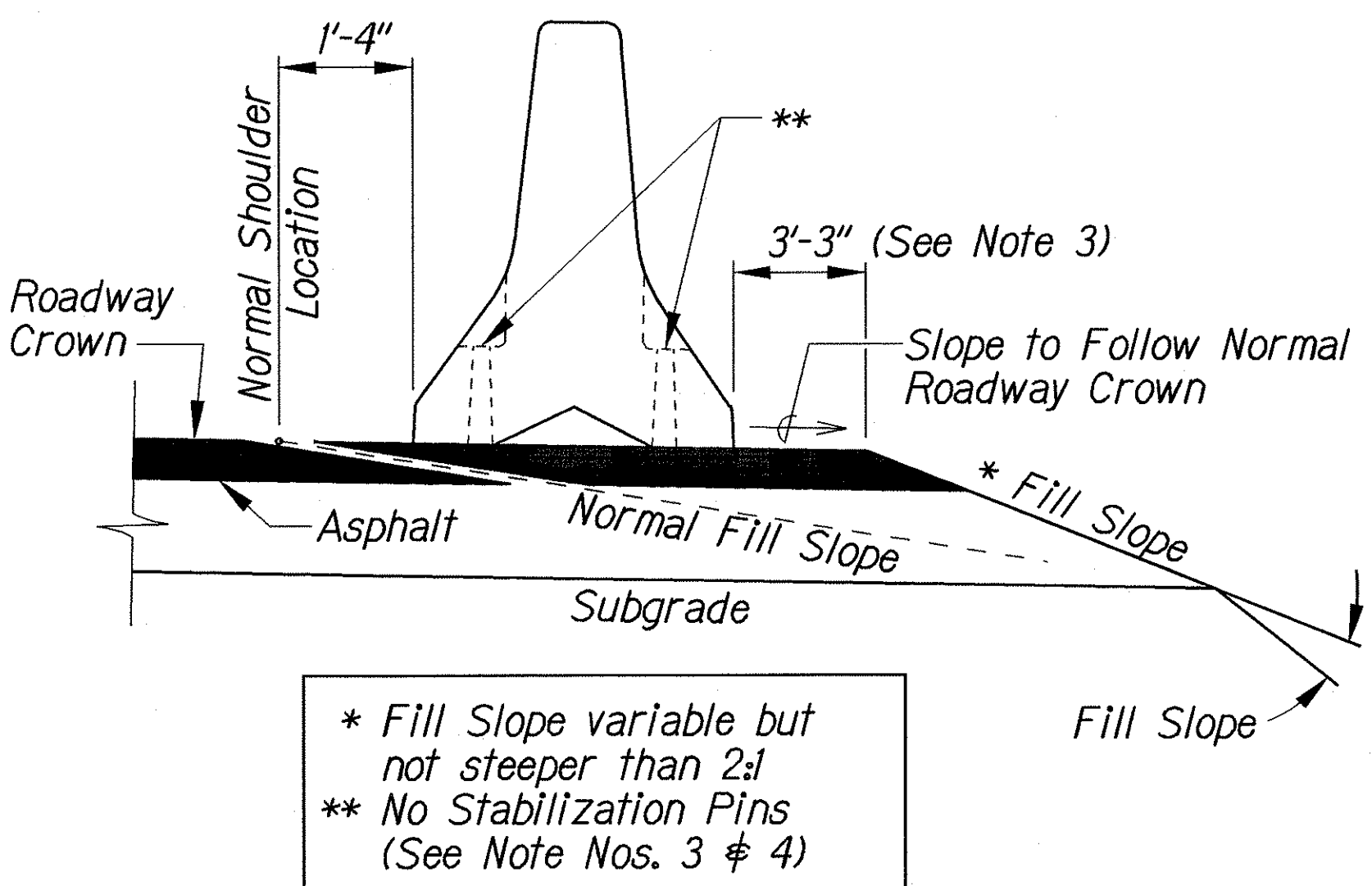
SHEET No. 3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	13	61



TYPICAL DETAIL - PORTABLE CONCRETE BARRIER END TREATMENT
Scale: 1" = 10'-0"

METAL REINFORCEMENT TABLE				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	Horizontal in Barrier Tied Inside V-1 Bars	#5	(6)	19'-3"
H-2	Centered Above Scuppers Long. & Transversely	#5	(6)	6'-6"
H-3	Tied Above H-1 Bars to Support H-2, Tied to V-1	#4	(2)	1'-6"
S-1	Horizontal in Top of Wing Wall & in Floor Back Wall	#4	(2)	
S-2	Horizontal Around Slots Between V-1's @ Scuppers	#4	(2)	
V-1	Vertical in Barrier (3) Each End & (2) at Each Scupper	#5	(16)	



STANDARD INSTALLATION
(See Note No. 1)

TABLE A SHY LINE OFFSETS *	
DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
≤ 25	2.0'

TABLE B MAXIMUM TAPERS FOR CONCRETE BARRIER		
DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
≤ 30	13:1	8:1

* Note: Minimum shy line offset for tangent sections shall be 2'-0".

NOTES:

- For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
- Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
- The concrete barrier "Standard Installation" design allows for 3'-3" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 3'-3" of outward lateral movement should have stabilization pins.
- ASTM A-36 steel shall be used for the connection pin, connection loops and stabilization pins. A one piece pin with a 3" rounded top may be used in place of the detailed connection pin if the one piece pin meets ASTM A-36 requirements.
- A 4" white PVC sleeve may be used to form the lifting hole and if used the sleeve is to be left in place.
- Concrete shall be Class A and reinforcing shall be Grade 60.
- Identification and date of design will be as follows:
PROPERTY OF HDOT
OCT 2001
Text letters and numbers shall be shown as on Standard Plan Sht. No. B-01.
- Minimum tangent length for portable Concrete Barrier System shall be 100' (5 units). This minimum does not include the required system length of the Inertial Barrier System.
- Install steady burn amber lamps on portable concrete barriers @ 20.0' o.c. Installing, maintaining and removing each steady burn amber lamp including changing of batteries and bulbs shall be considered incidental to applicable portable concrete barrier items.
- Furnishing, installing and maintaining the Type II Barricades and Lamps shall be considered incidental to Portable Concrete Barrier and shall not be paid for separately.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

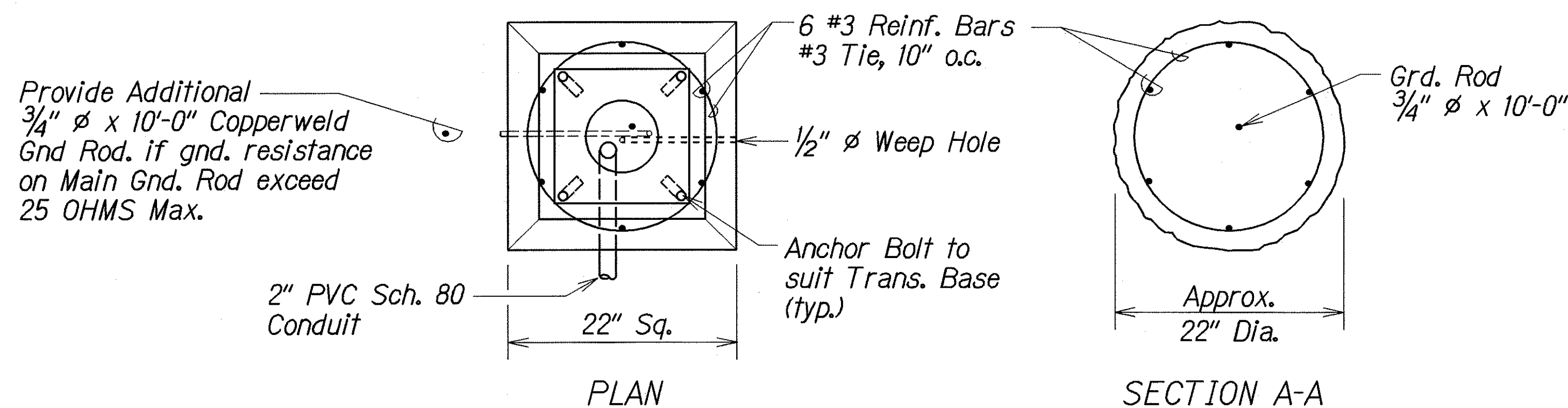
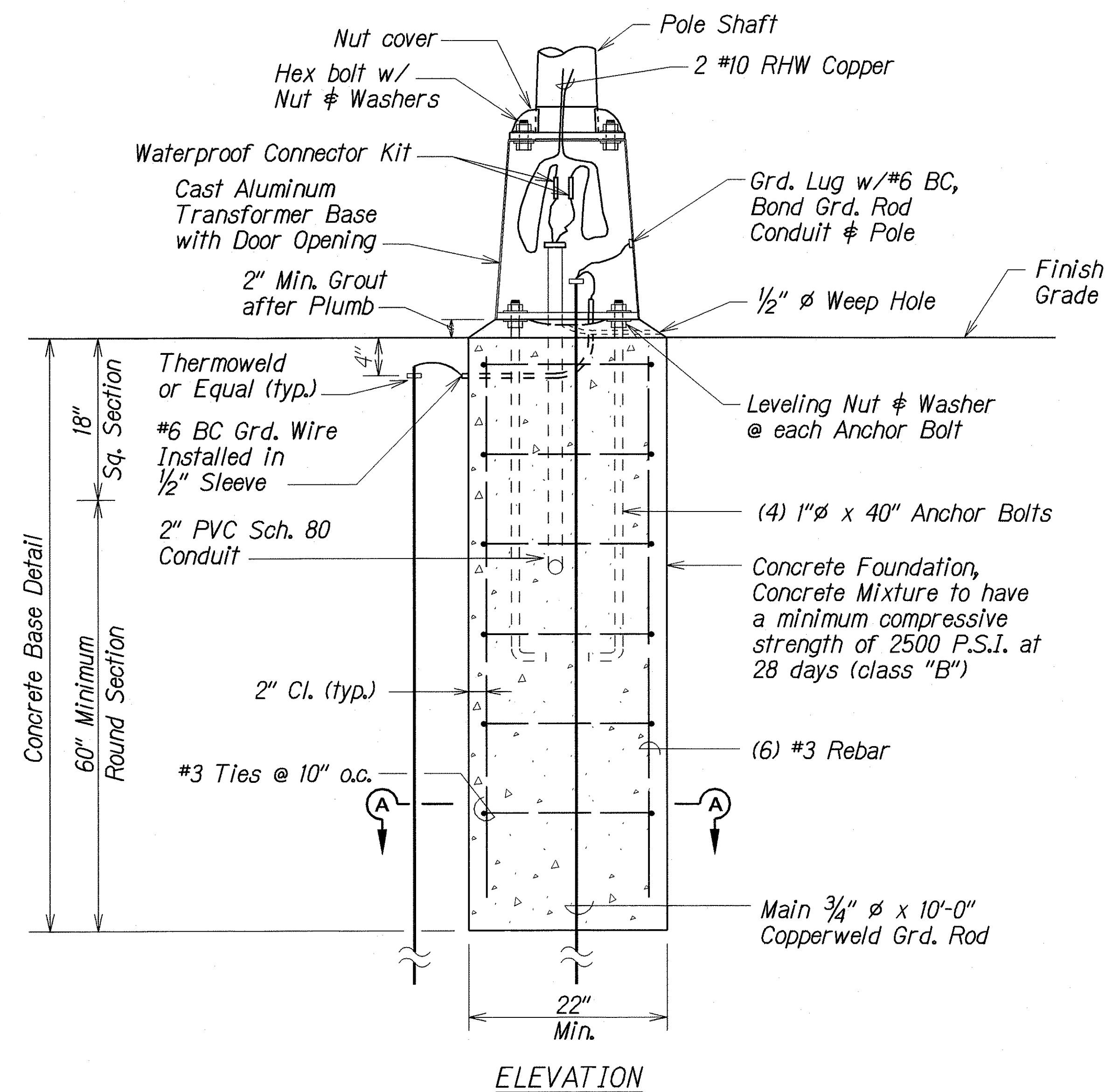
PORTABLE CONCRETE BARRIER

KUNIA ROAD IMPROVEMENTS
VICINITY OF SOUTH KUPUNA LOOP
to VICINITY OF HONOWAI STREET
PROJECT NO.: HWY-0-01-04
Scale: As Shown Date: OCT, 2003
SHEET No. 4 OF 5 SHEETS

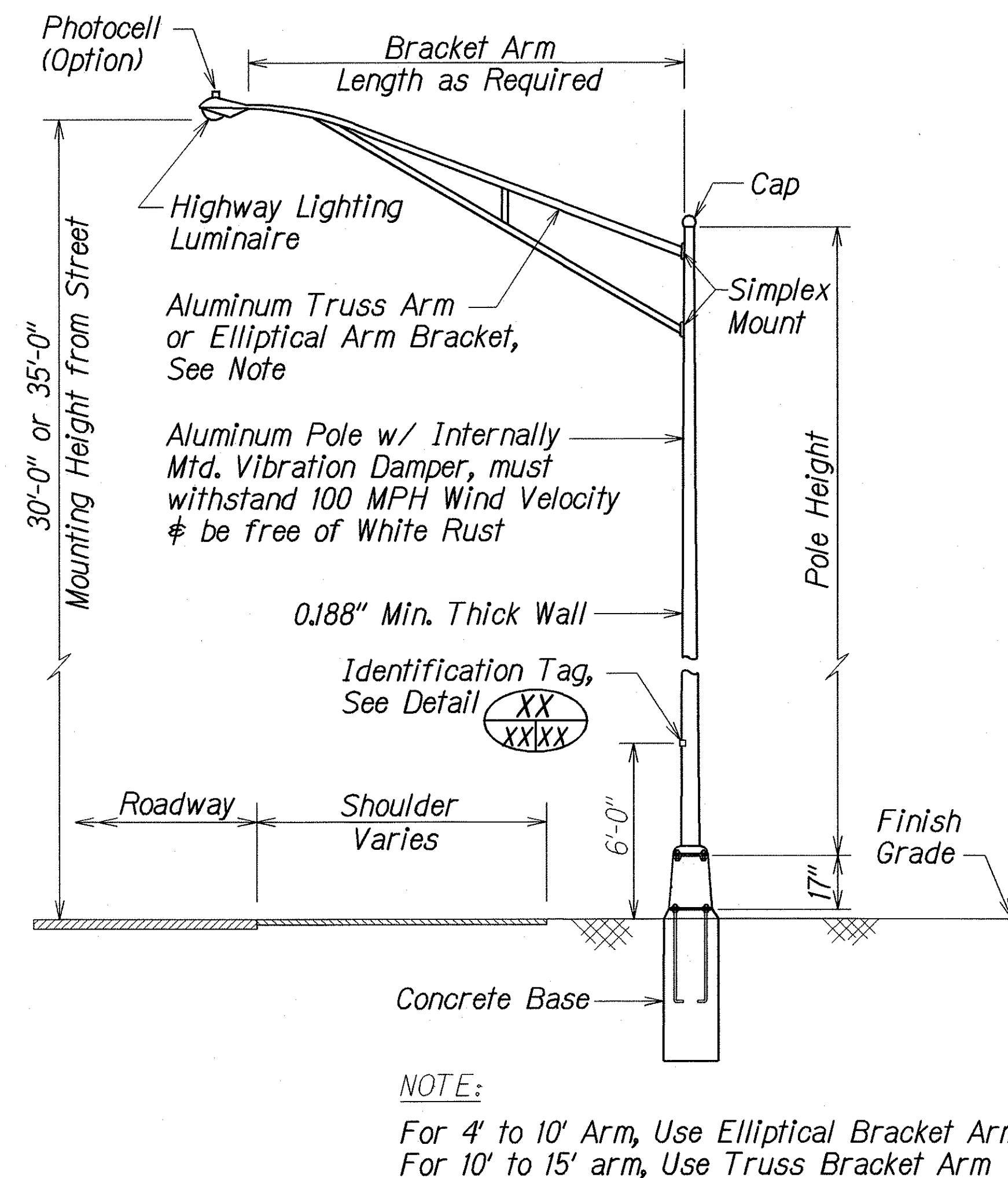
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
REVISIONS	
1	
2	
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10	

tdl/ur2/vhne/traffic/stdplan/pending/portconbarr/pobarr2don

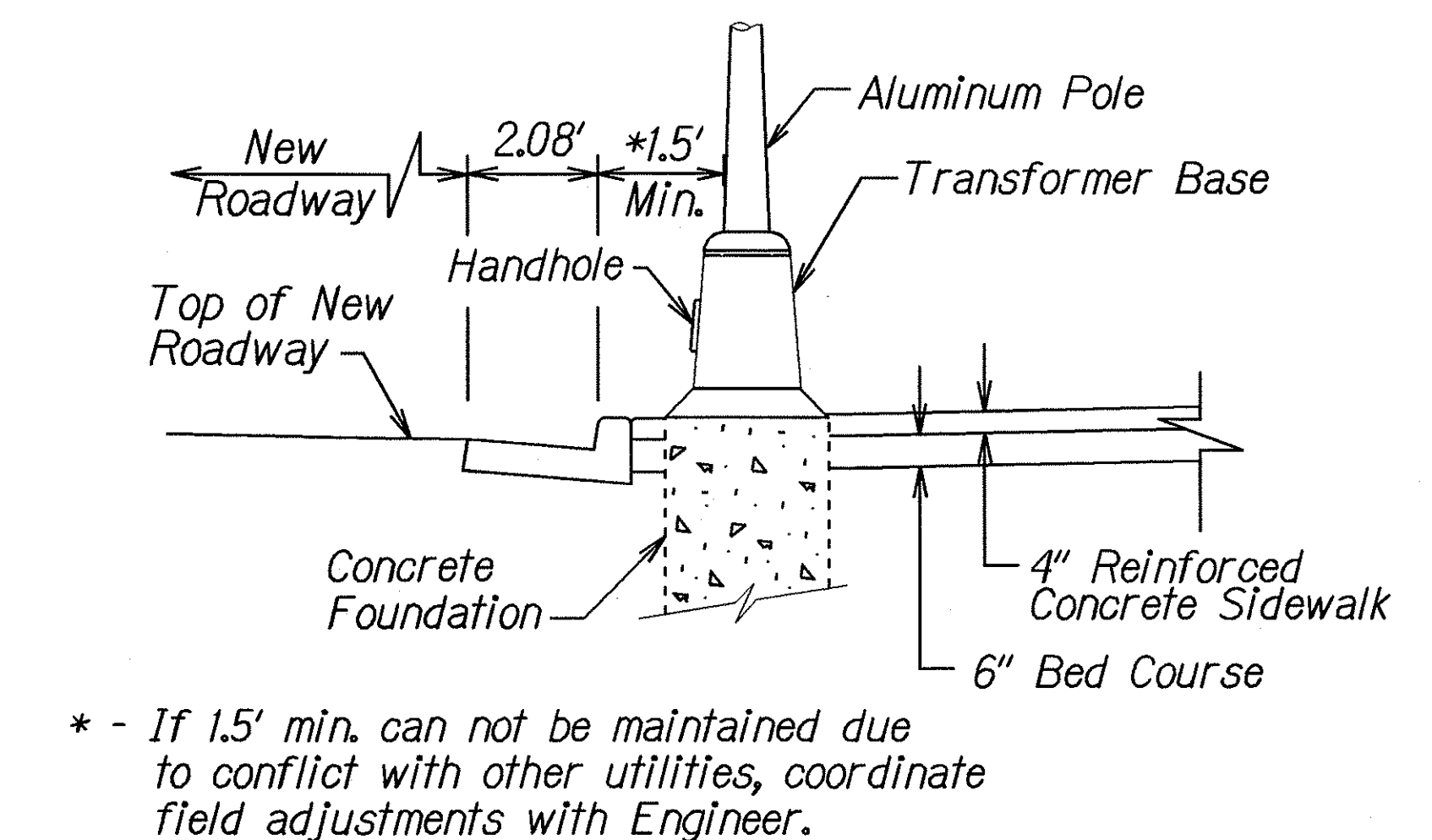
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	14	61



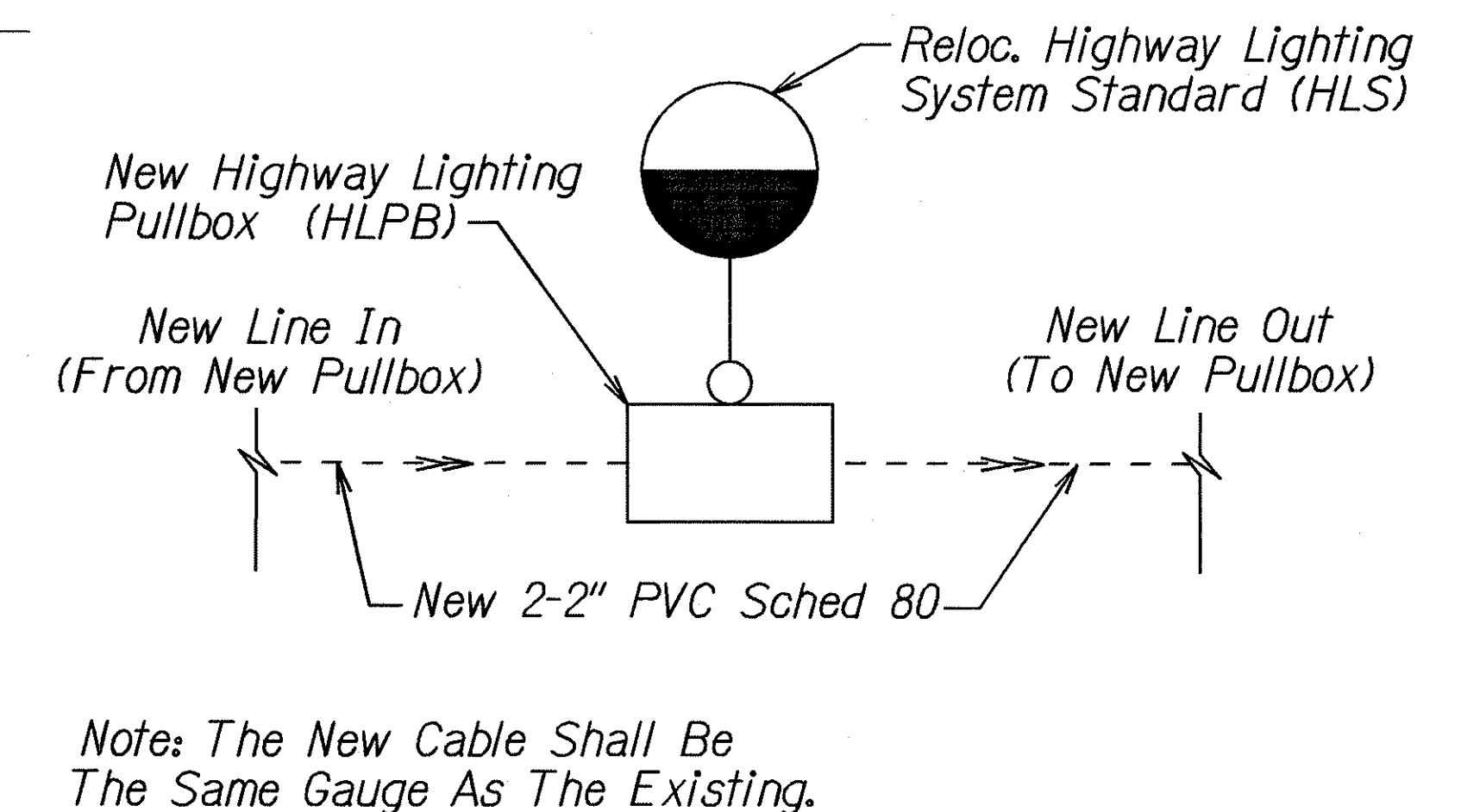
TYPICAL CONCRETE FOUNDATION AND TRANSFORMER BASE DETAIL
Not to Scale



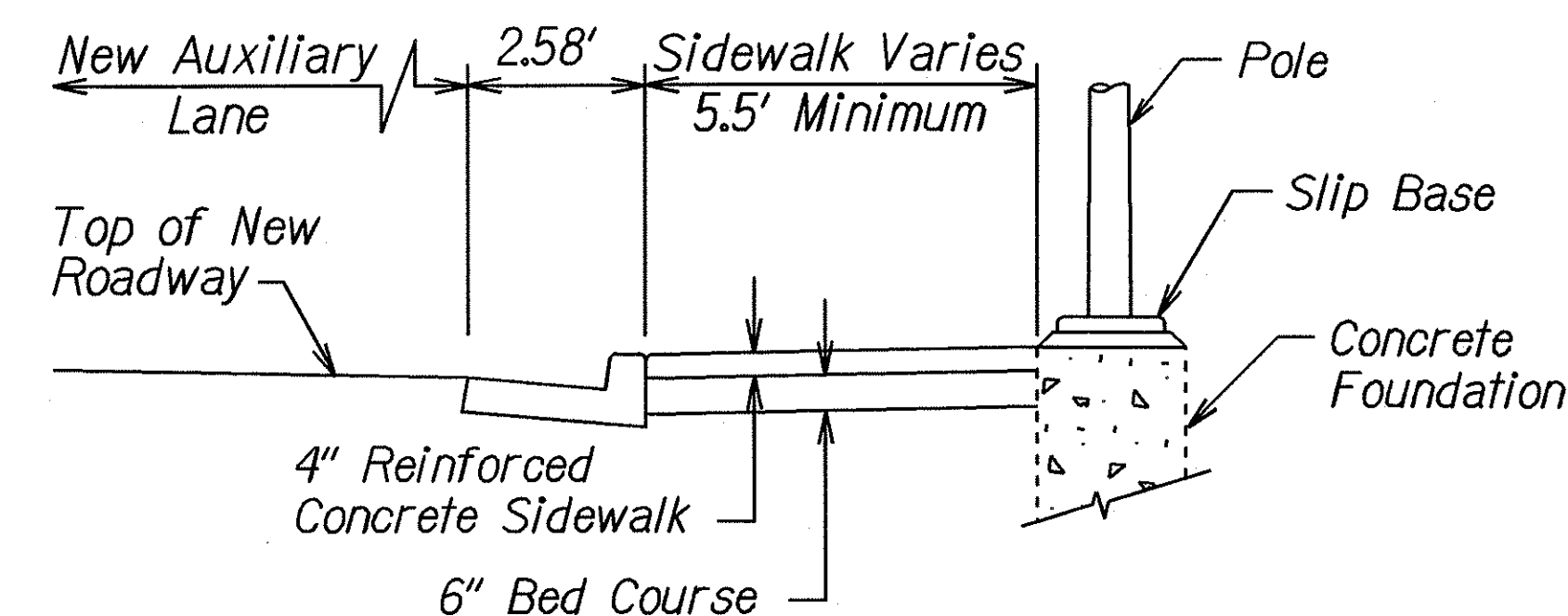
TYPICAL LIGHT STANDARD INSTALLATION WITH TRANSFORMER BASE
Not to Scale



RELOCATED HIGHWAY LIGHTING DETAIL AT HONOWAI STREET
Not to Scale



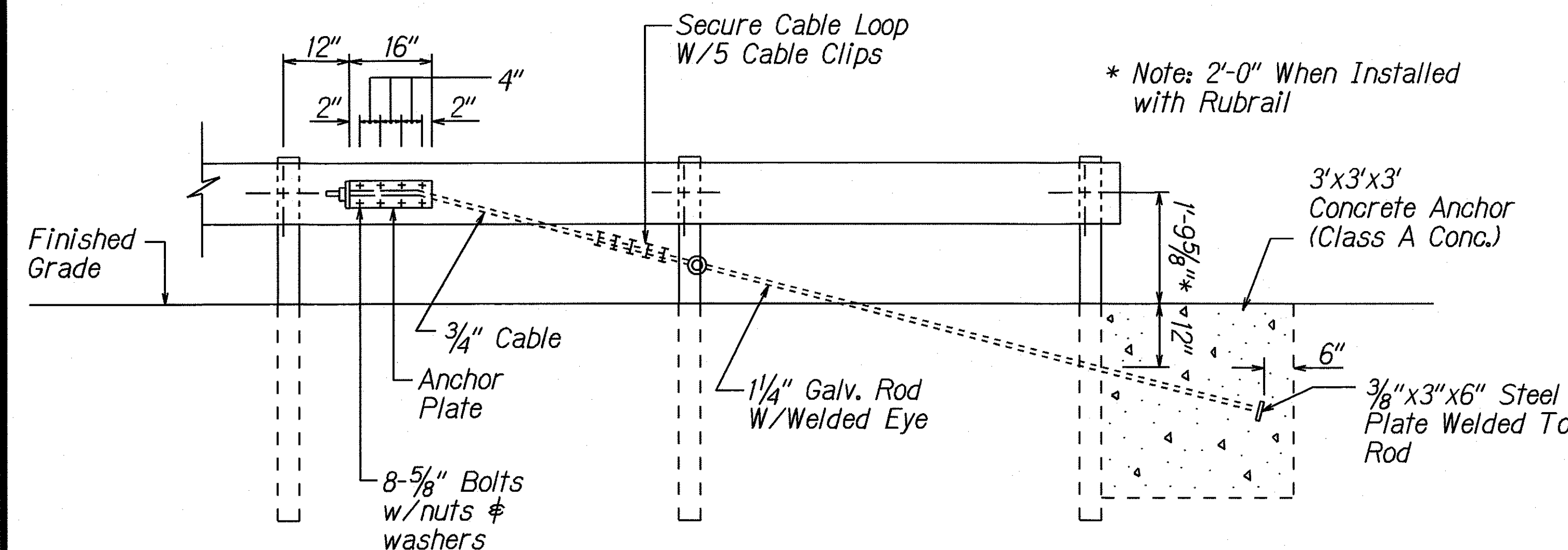
TYPICAL SINGLE LINE DIAGRAM AT KUNIA ROAD
Not to Scale



RELOCATED HIGHWAY LIGHTING DETAIL AT KUNIA ROAD
Not to Scale

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
HIGHWAY LIGHTING SYSTEM	
KUNIA ROAD IMPROVEMENTS	
VICINITY OF SOUTH KUPUNA LOOP	
to VICINITY OF HONOWAI STREET	
PROJECT NO.: HWY-0-01-04	
Not To Scale	Date: OCT, 2003
SHEET No. 5 OF 5 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-01-04	2004	ADD14S-1	61



**TYPE "G" FLARE END TERMINAL
ANCHOR BLOCK DETAIL**

- Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.

GUARDRAIL NOTES:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval.

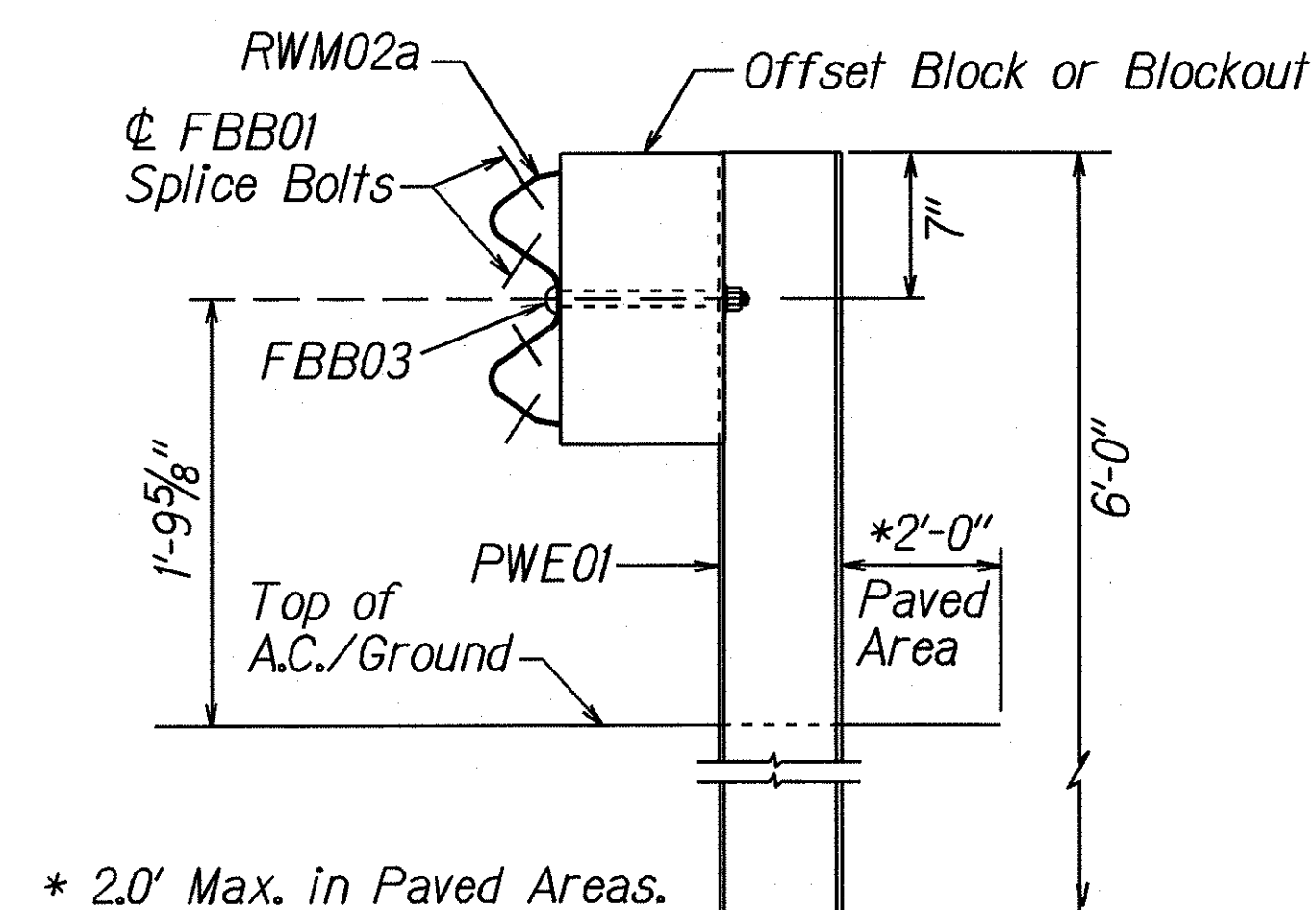
The taper (flare rate) of the guardrail shall follow the latest edition of AASTHO's Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition.)

The radius of the radial termini is an Engineer's judgment based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-Of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier / contractor); posted speed limit; right angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal.

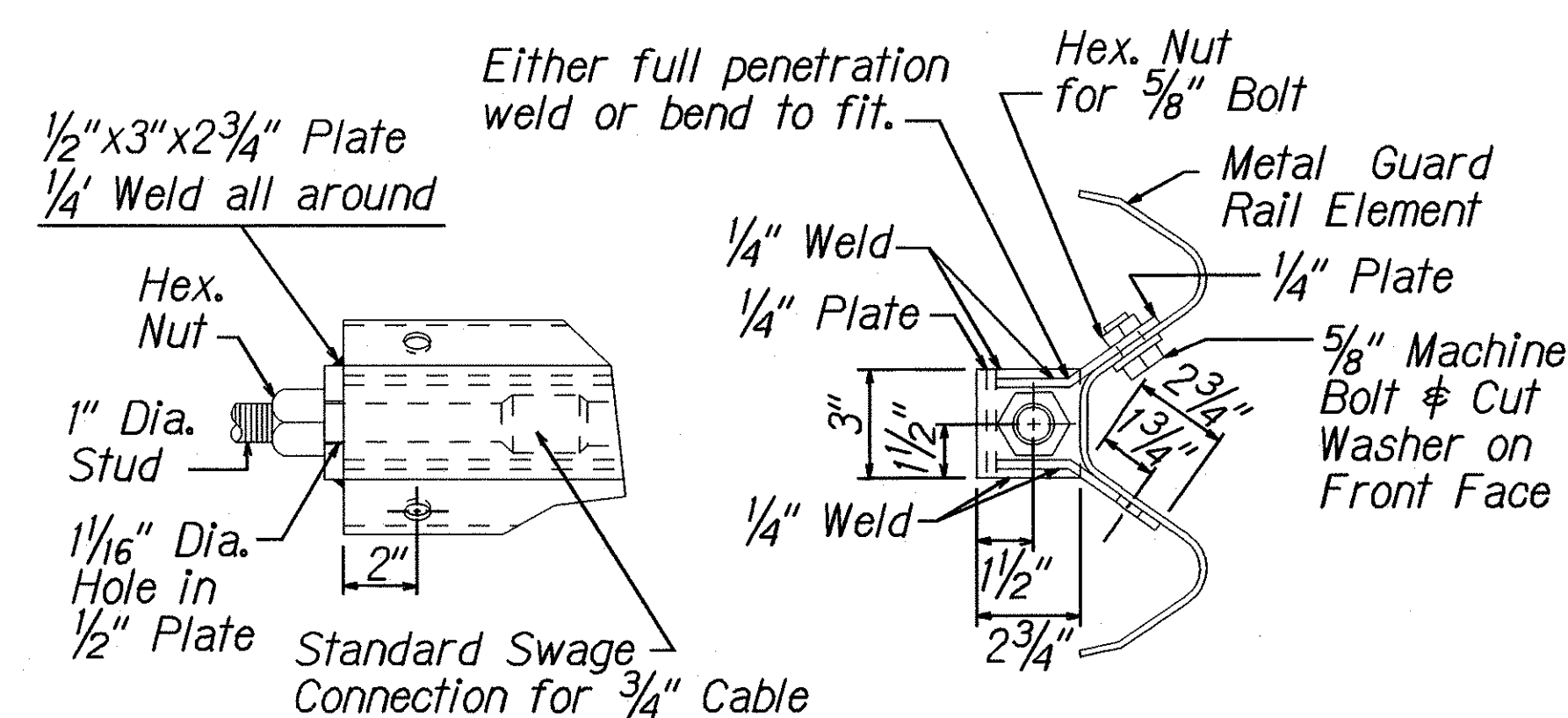
During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

DETECTABLE WARNING DEVICE NOTES:

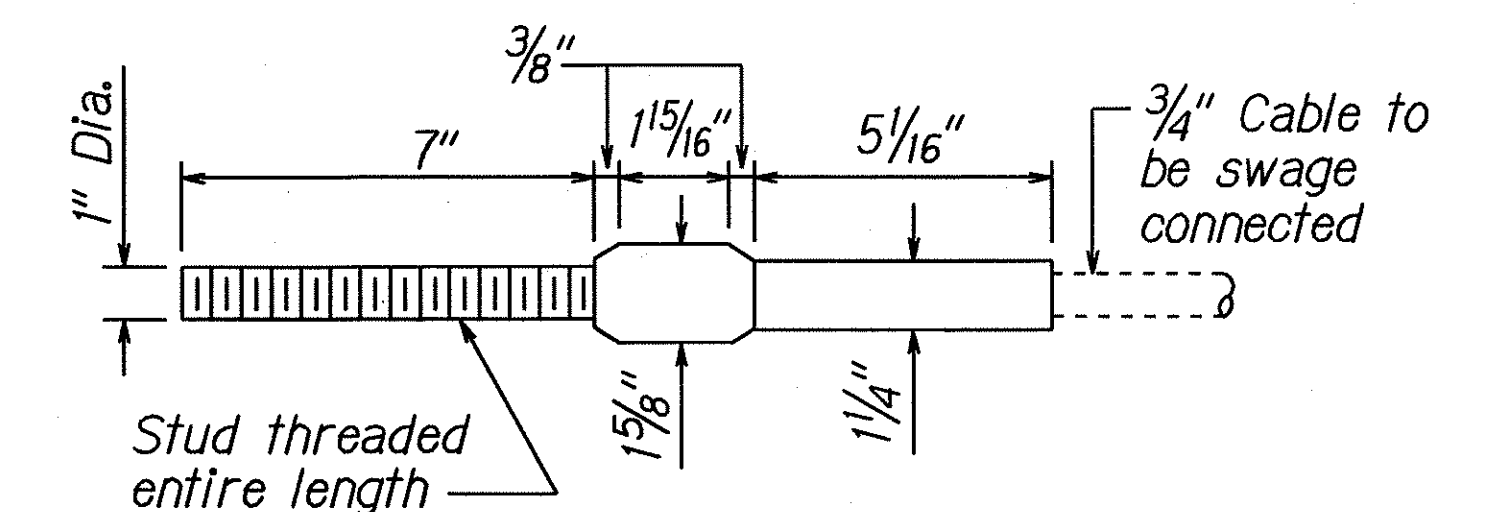
- Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
- Truncated domes shall have a diameter of 0.9 inch at the bottom, a diameter of 0.4 inch at the top, a height of 0.2 inch and a center-to-center 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.
- 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.
- 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.



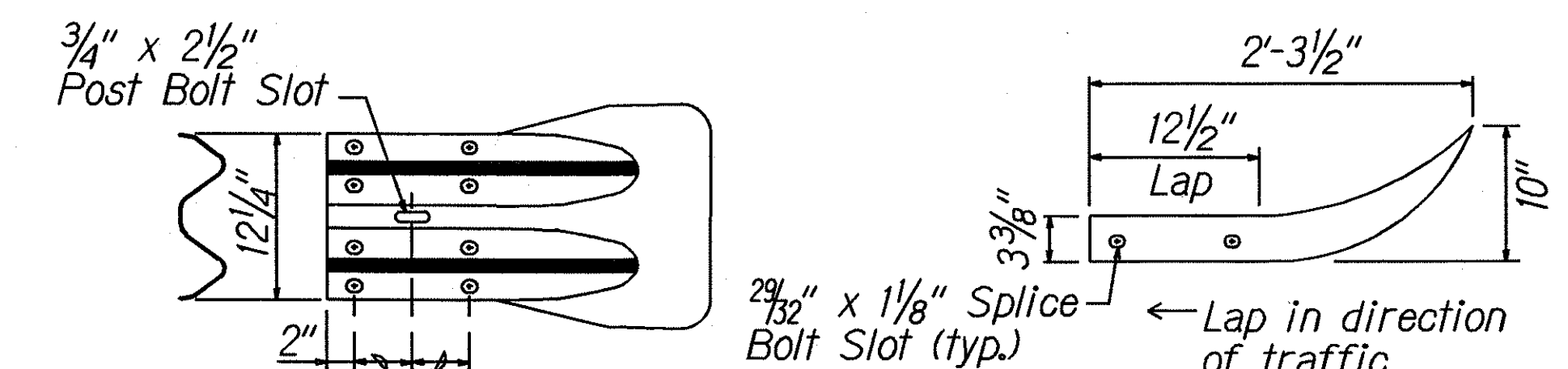
ELEVATION



ANCHOR PLATE DETAILS



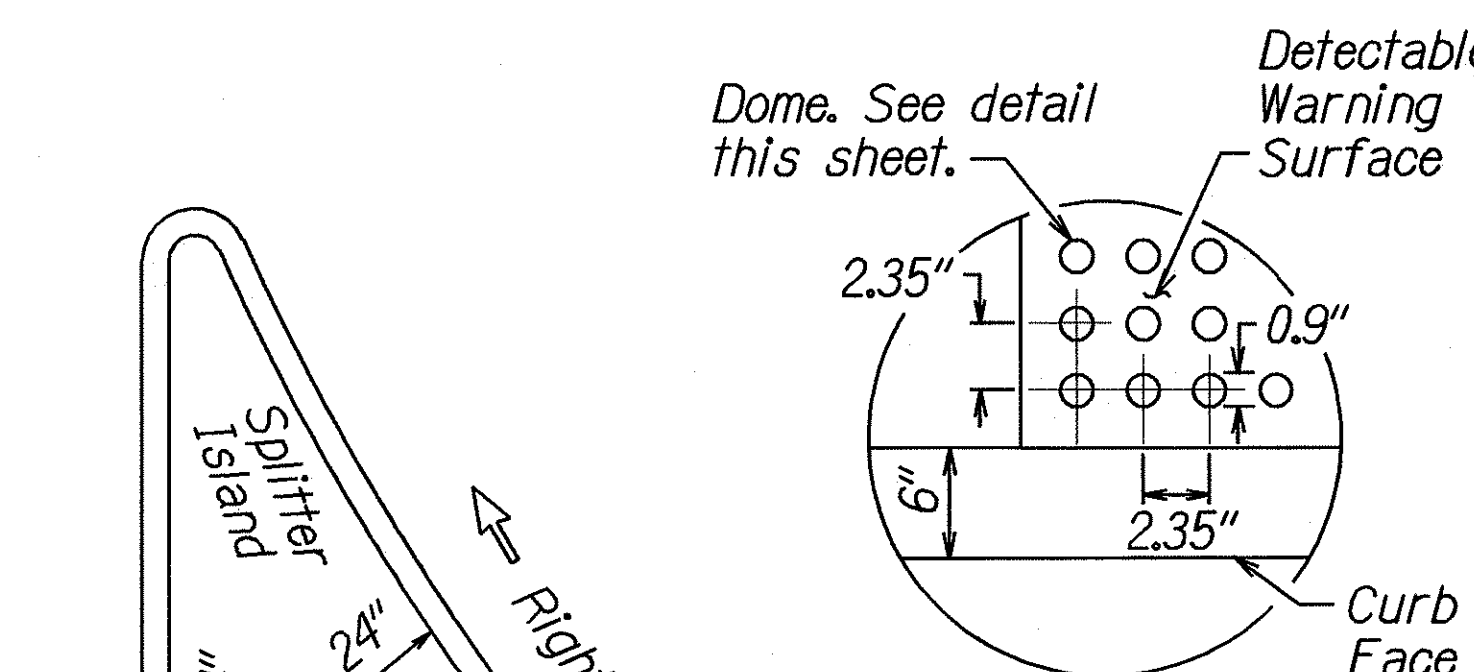
**STANDARD SWAGED FITTING
AND STUD**



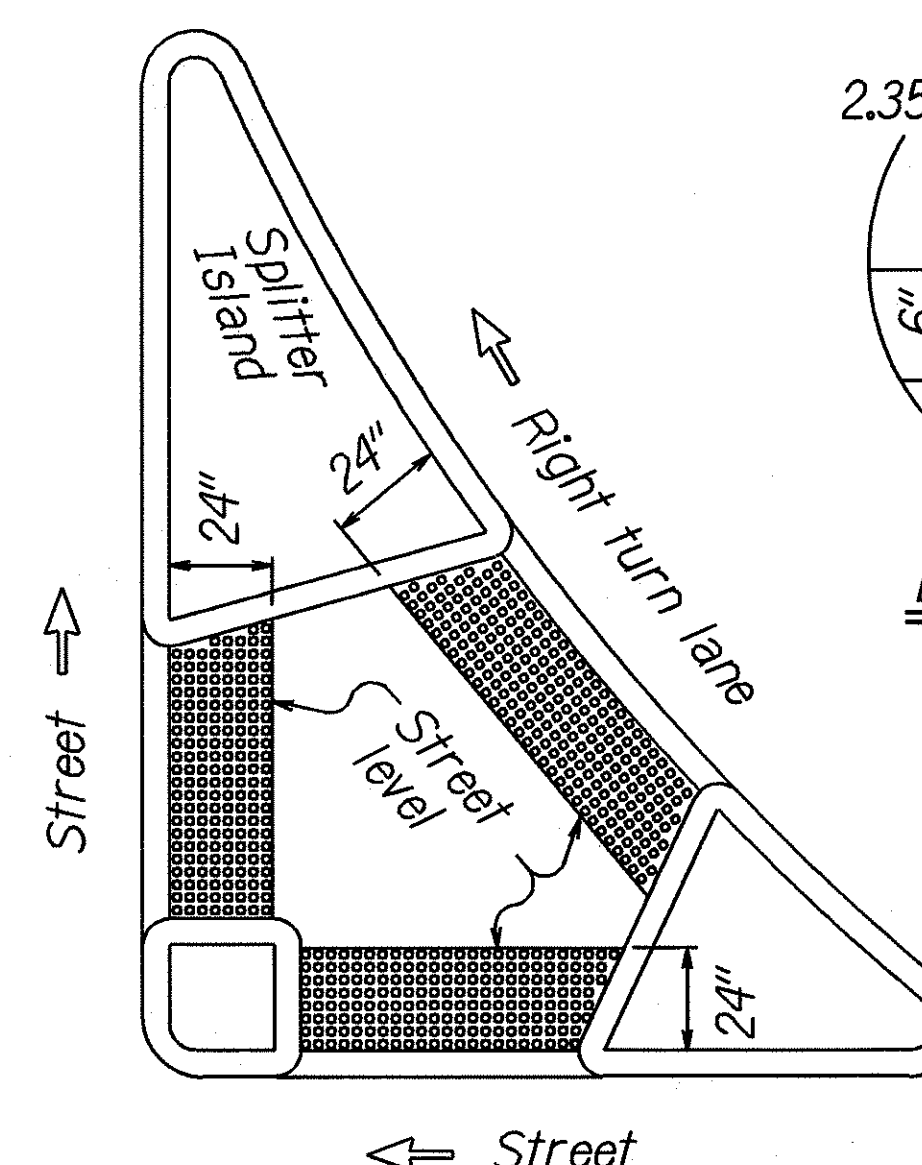
The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

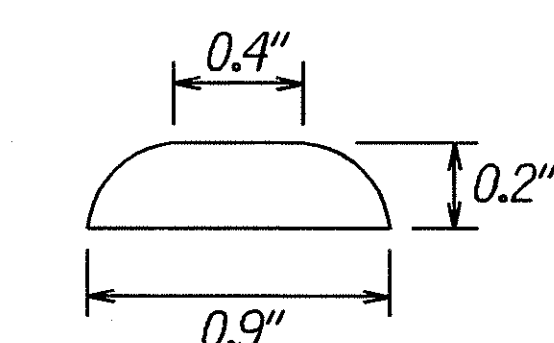
W-BEAM END SECTION (FLARED RWE01a)



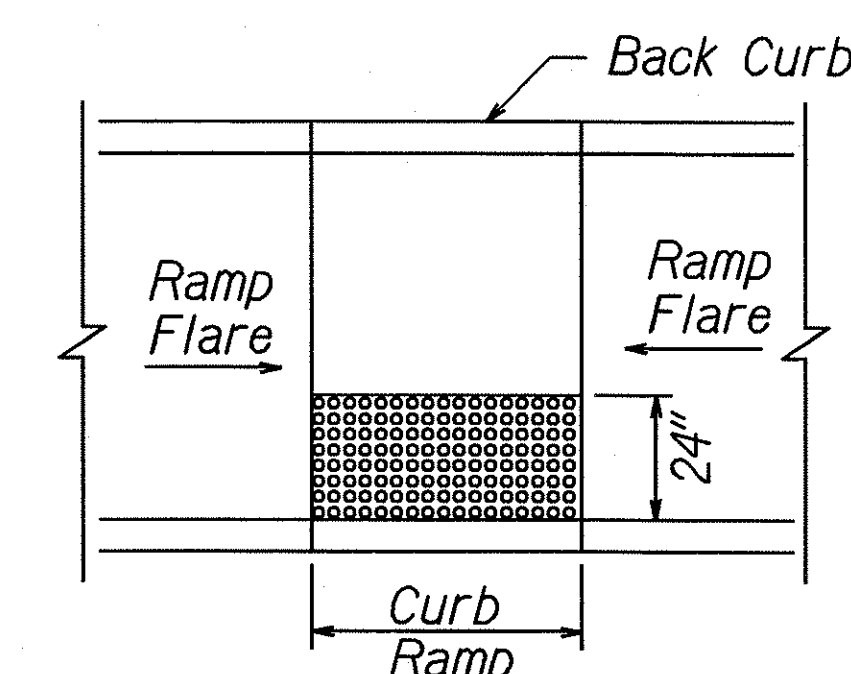
ENLARGEMENT



**DETECTABLE WARNING
AT REFUGE ISLAND**



DOME SECTION



**DETECTABLE WARNING
AT CURB RAMP**

2/05/04	Added New Sheet.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DETAILS and NOTES KUNIA ROAD IMPROVEMENTS VICINITY OF SOUTH KUPUNA LOOP to VICINITY OF HONOWAI STREET PROJECT NO.: HWY-0-01-04 Scale: Not To Scale Date: Feb., 2004 SHEET No. 1 OF 1 SHEETS	

ORIGINAL PLAN	DATE: 02/02/04
DESIGNED BY: JG	DRAWN BY: JG
CHECKED BY: JG	NOTED BY: JG
QUANTITIES BY: JG	DATE: 02/02/04

14504000