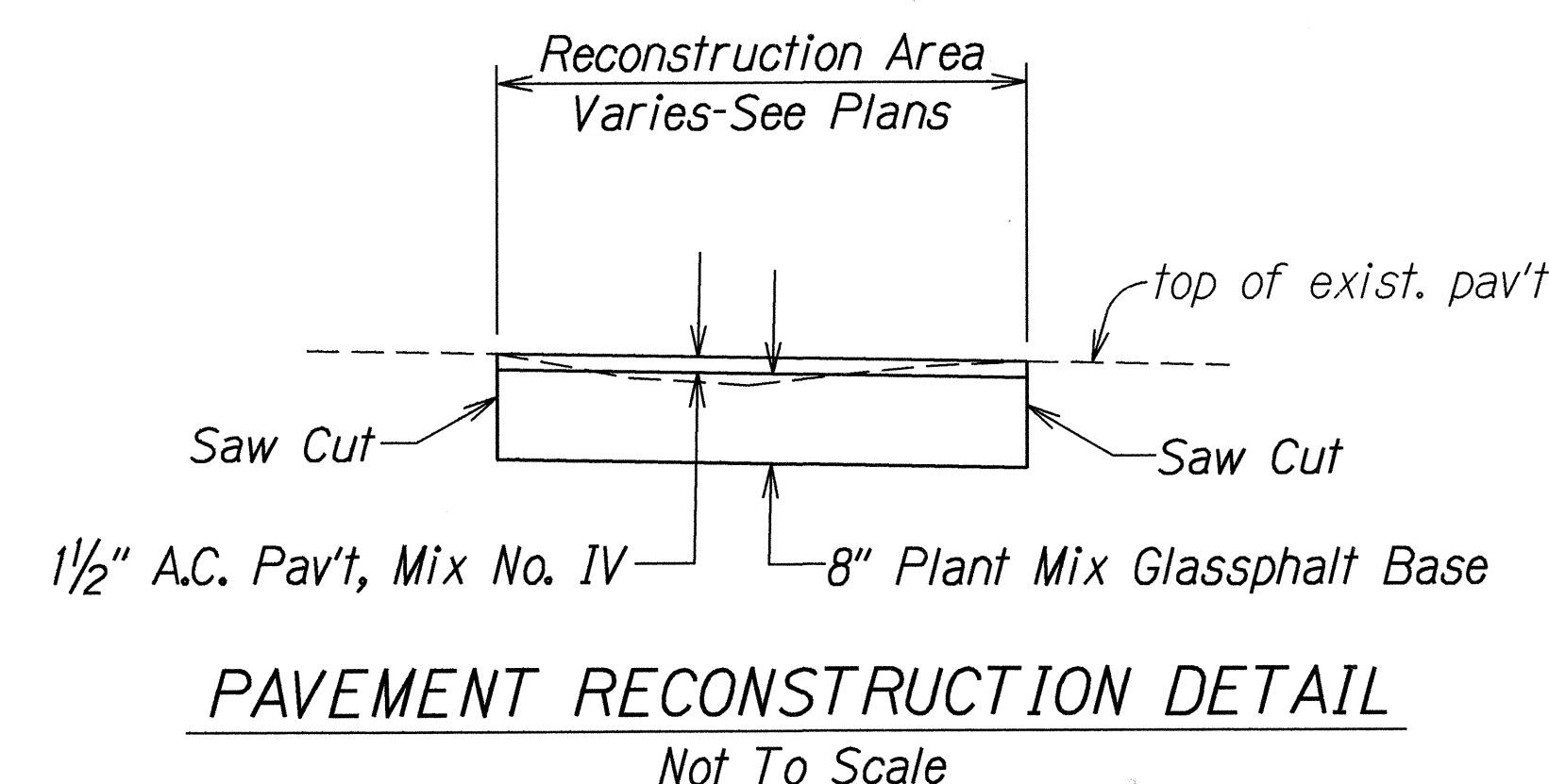
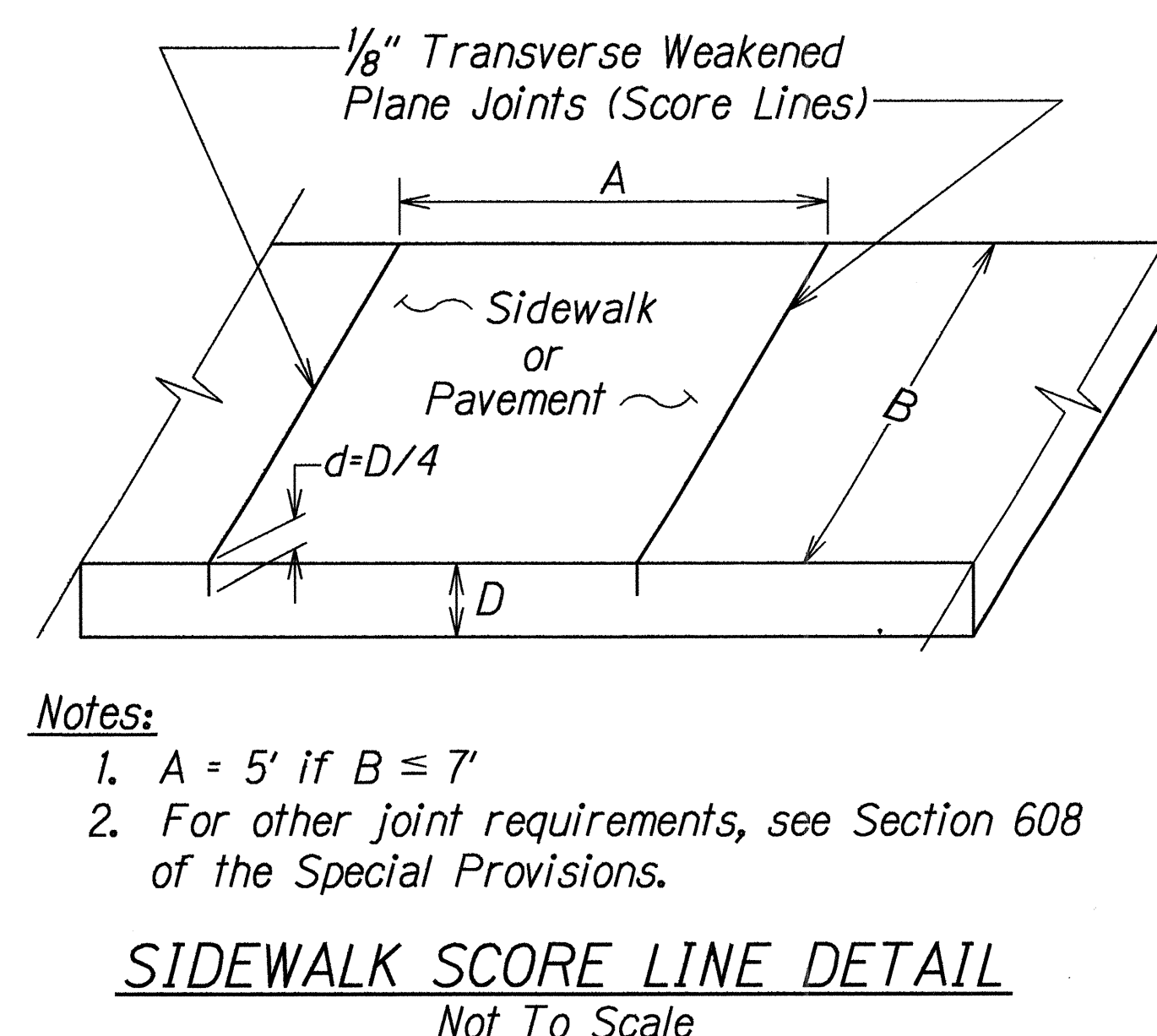
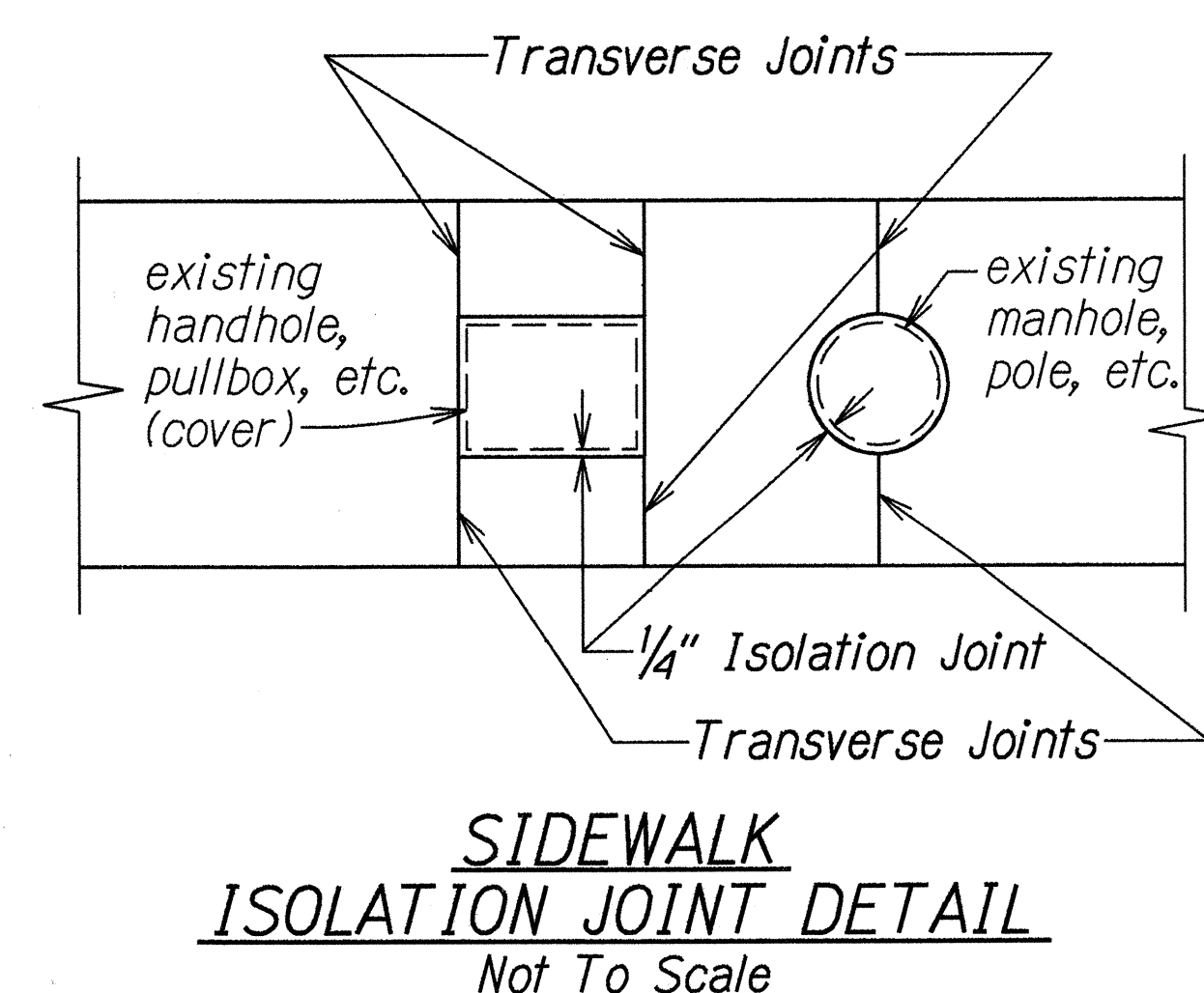
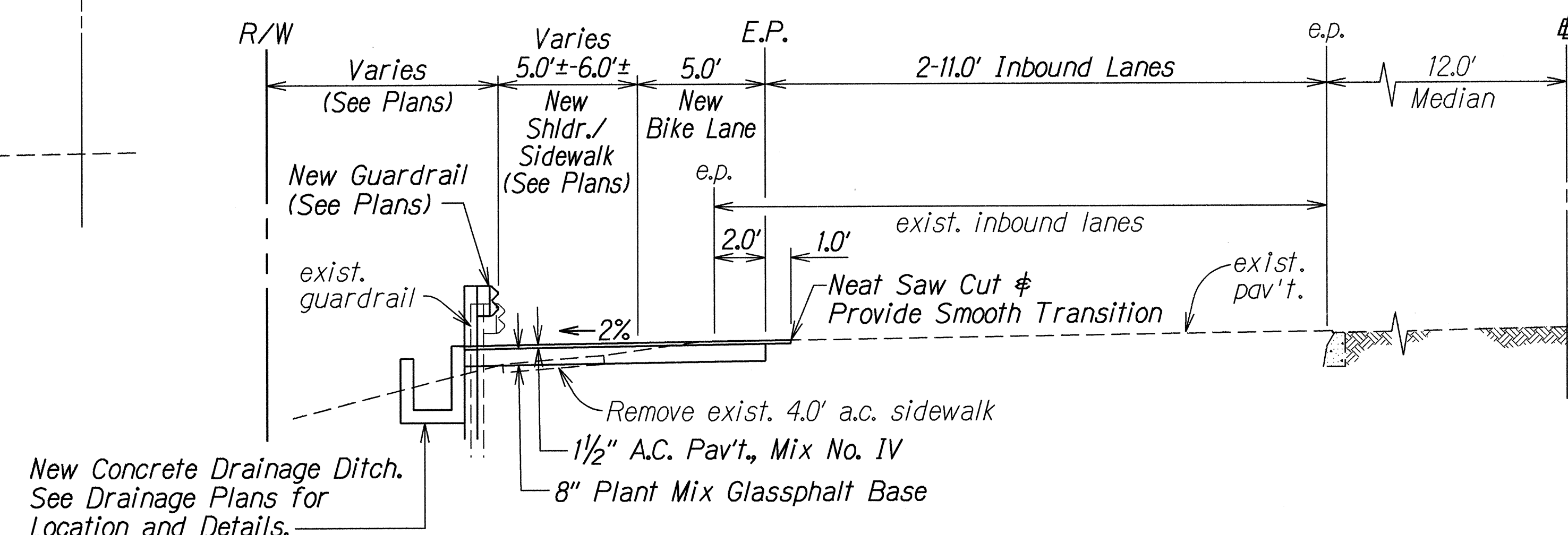
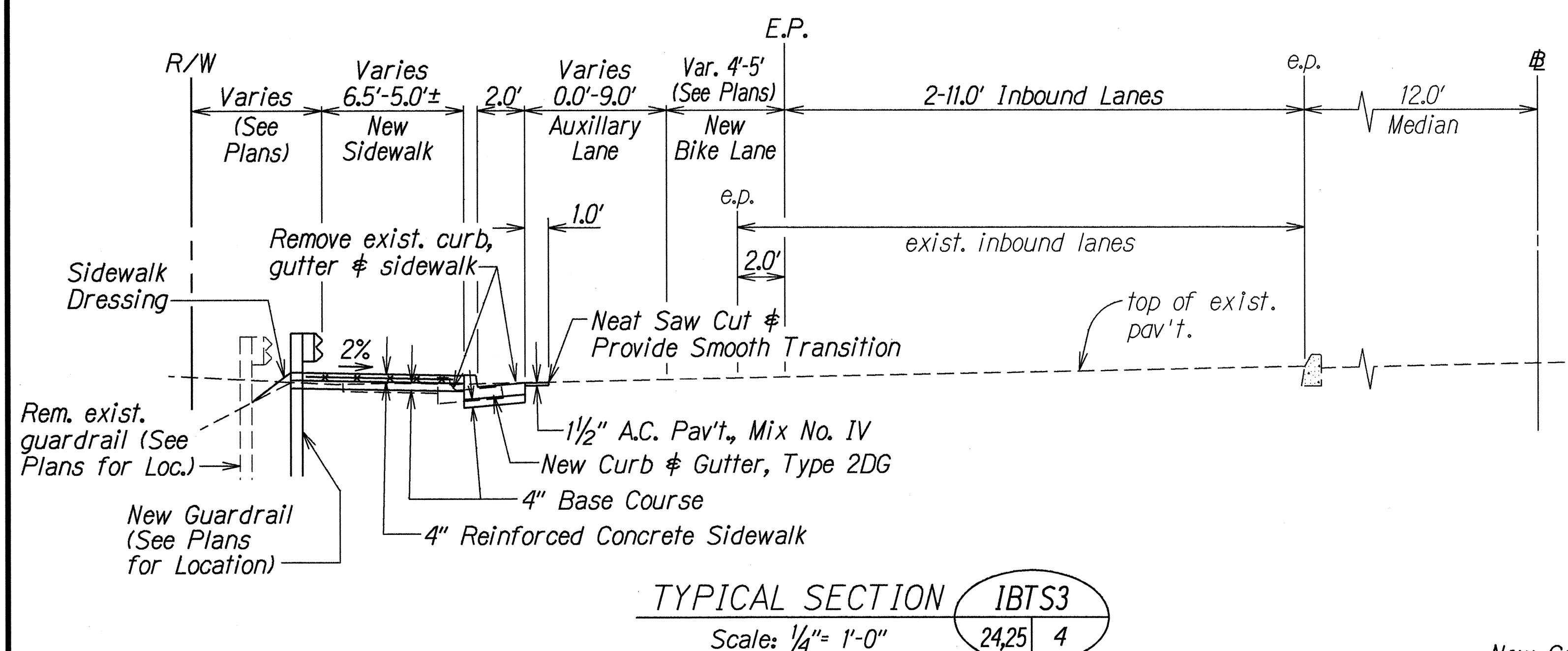
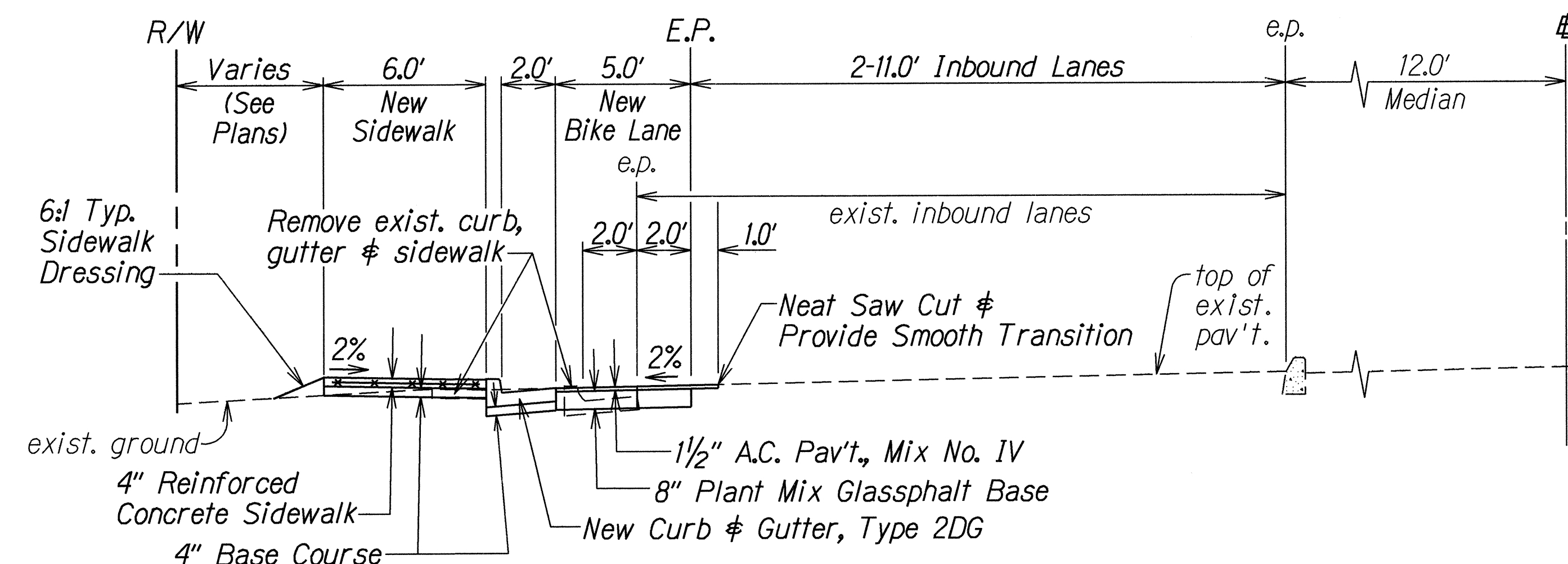
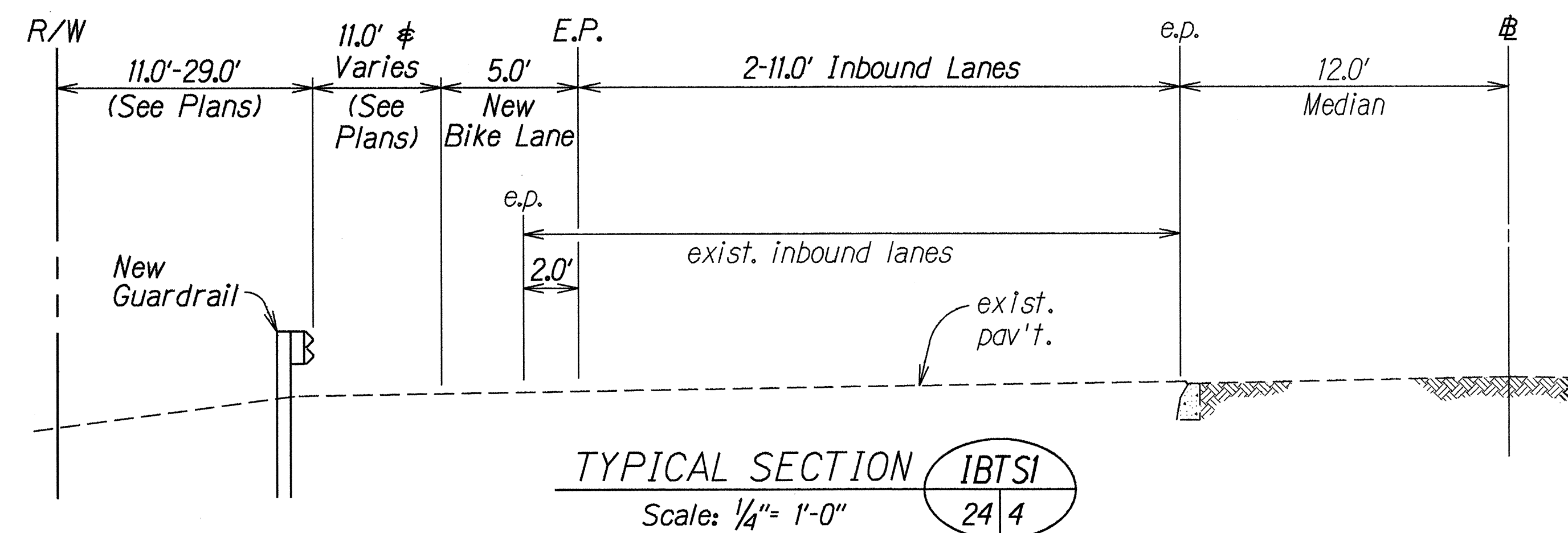
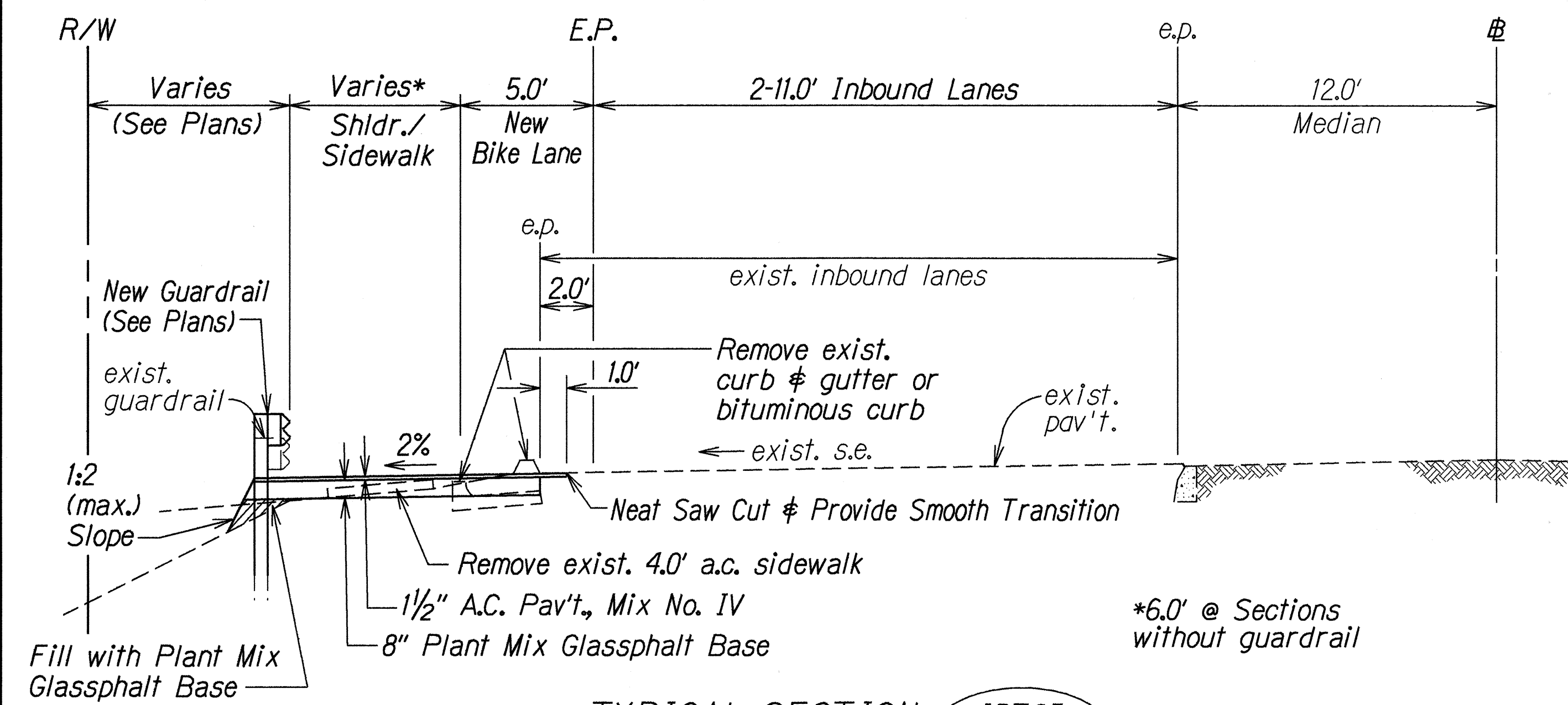


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1999	4	58



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
TYPICAL SECTIONS & DETAILS	
KAILUA ROAD	
Shoulder Improvements For Bicycle Route, Kalanianaʻole Hwy. To Kawaiʻnui Bridge	
F.A. Proj. No. STP-061-K(33)	
Scale: As Shown	Date: Jan. 1999
SHEET No. 1 OF 6 SHEETS	

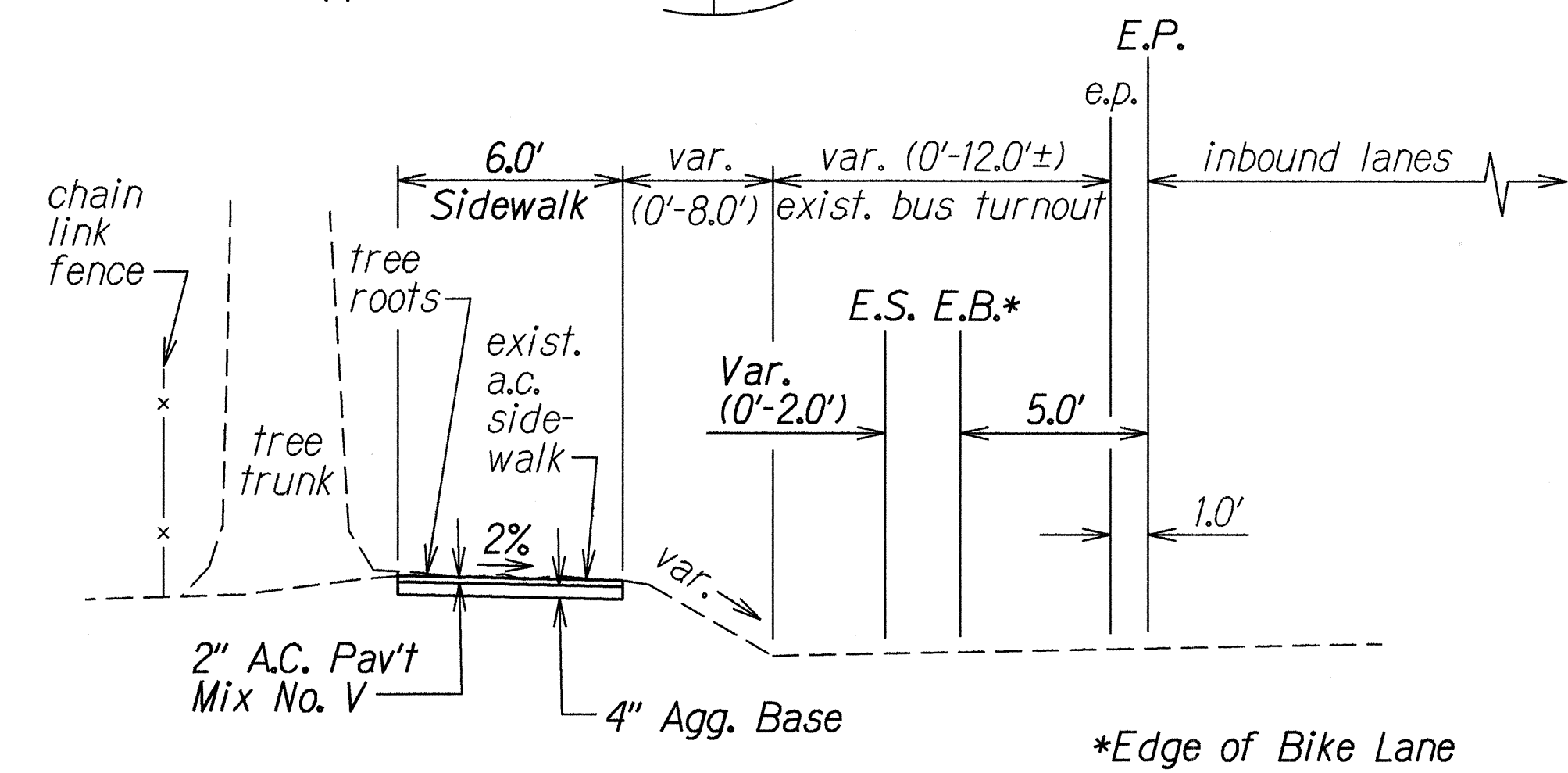
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HAWAII	HAW.	STP-061-1(33)	1999	5	58



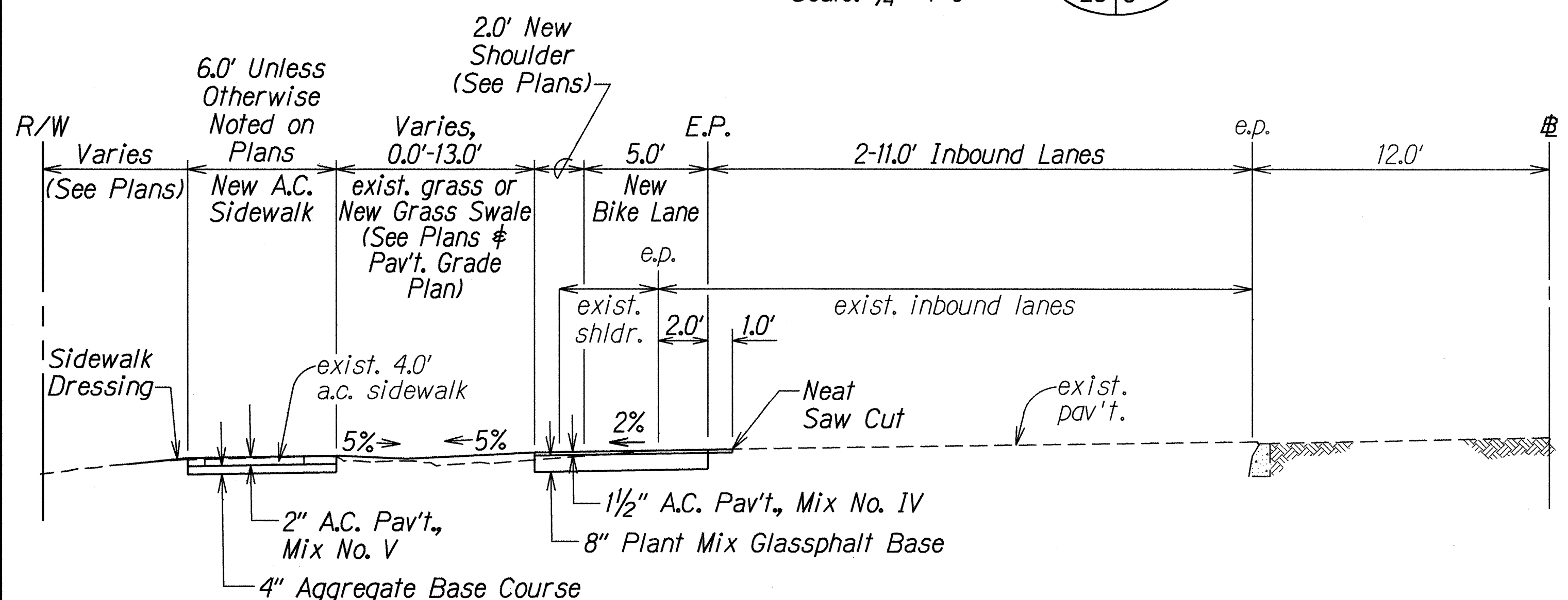
TYPICAL SECTION IBTS5
Scale: 1/4" = 1'-0" 25,26,27 5

NOTES

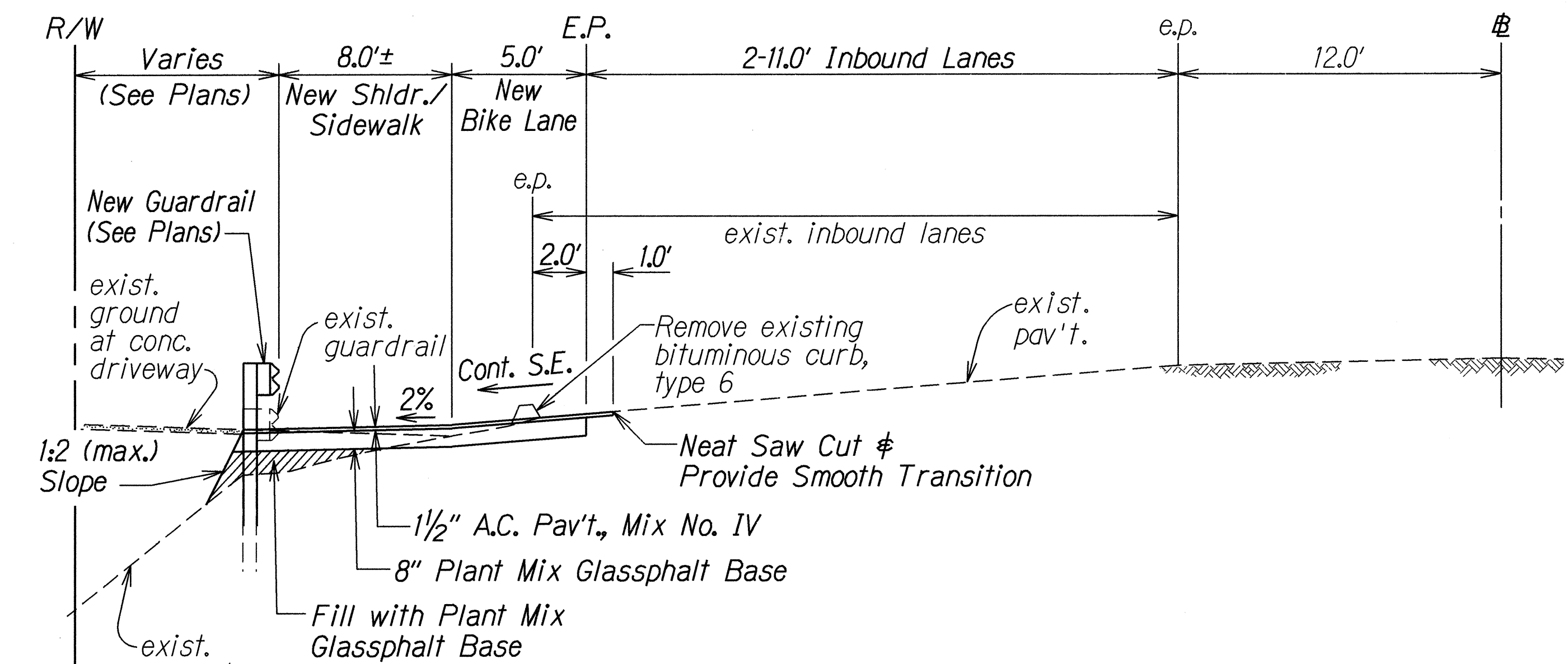
1. Roots of tree encroaching in New Sidewalk at Sta. 330+70± shall be cut off and removed neatly. All cuts and scars from the removal shall be treated with a heavy coat of an approved tree paint.
2. Cutting, removal and disposal of roots and painting shall be incidental to sidewalk.



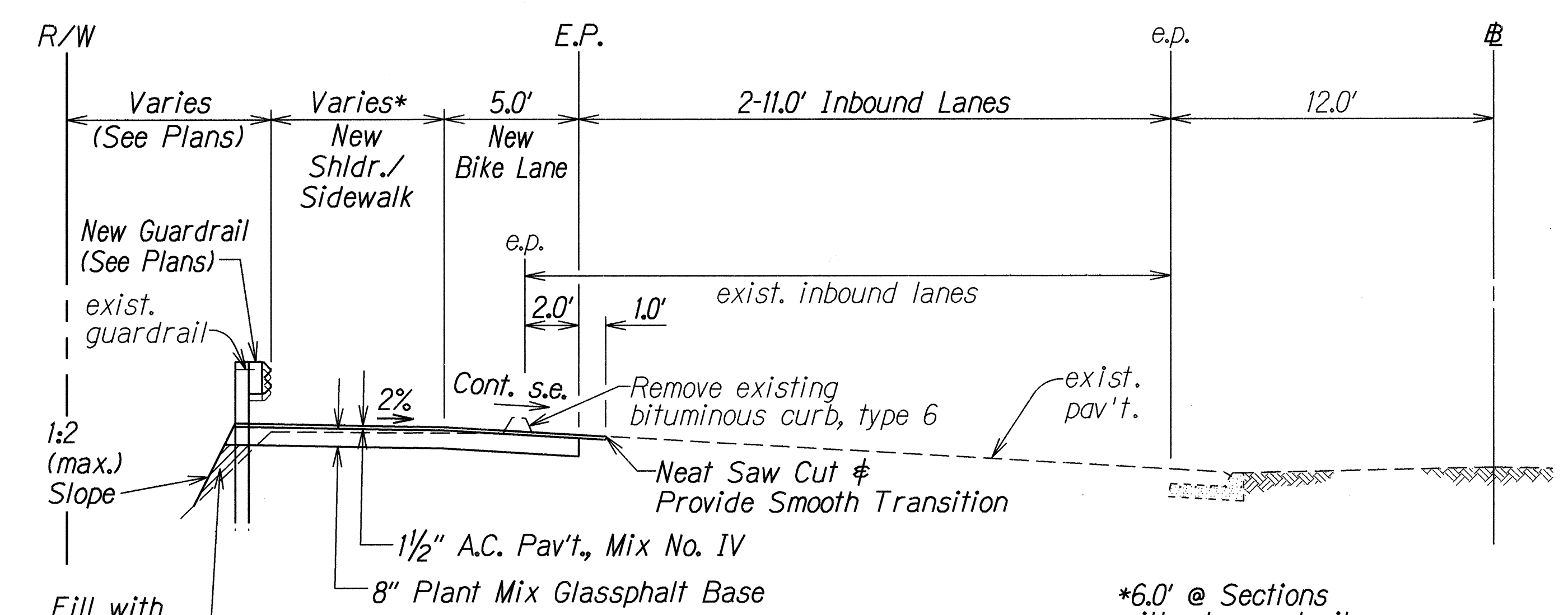
TYPICAL SECTION IBTS5A
Scale: 1/4" = 1'-0" 25 5



TYPICAL SECTION IBTS6
Scale: 1/4" = 1'-0" 25,26 5



TYPICAL SECTION IBTS7
Scale: 1/4" = 1'-0" 26 5



TYPICAL SECTION IBTS8
Scale: 1/4" = 1'-0" 27 5

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTIONS & DETAILS

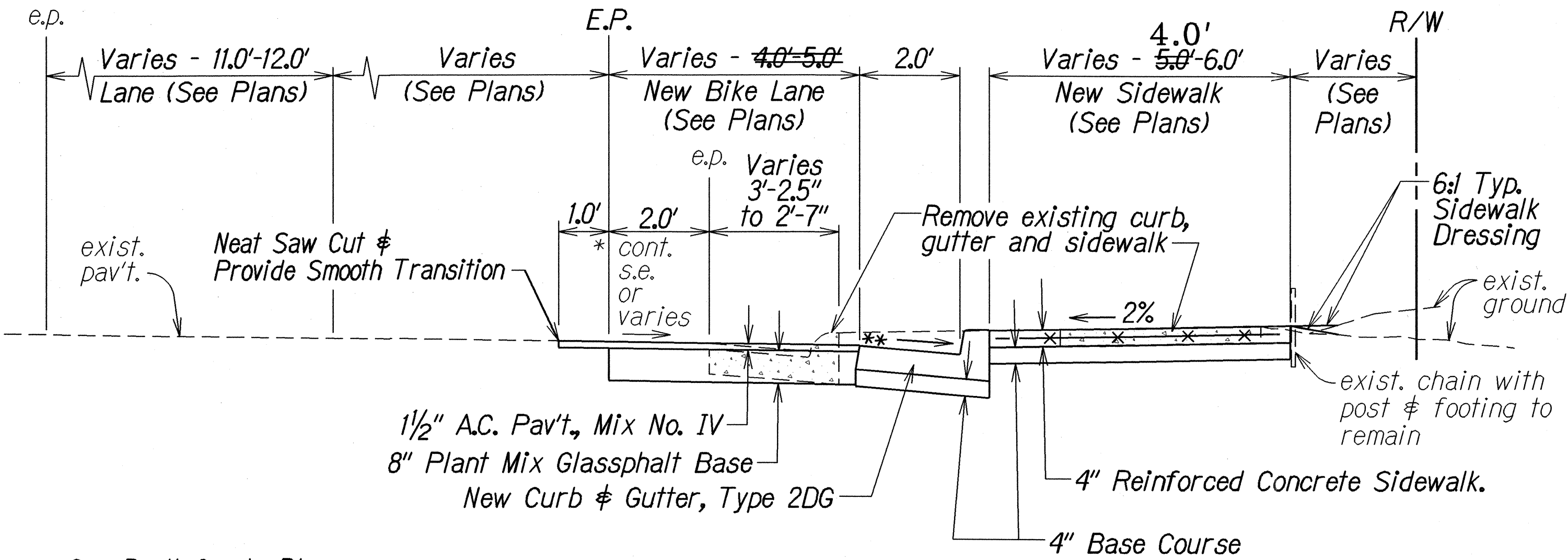
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-1(33)

Scale: As Shown Date: Jan. 1999

SHEET No. 2 OF 6 SHEETS

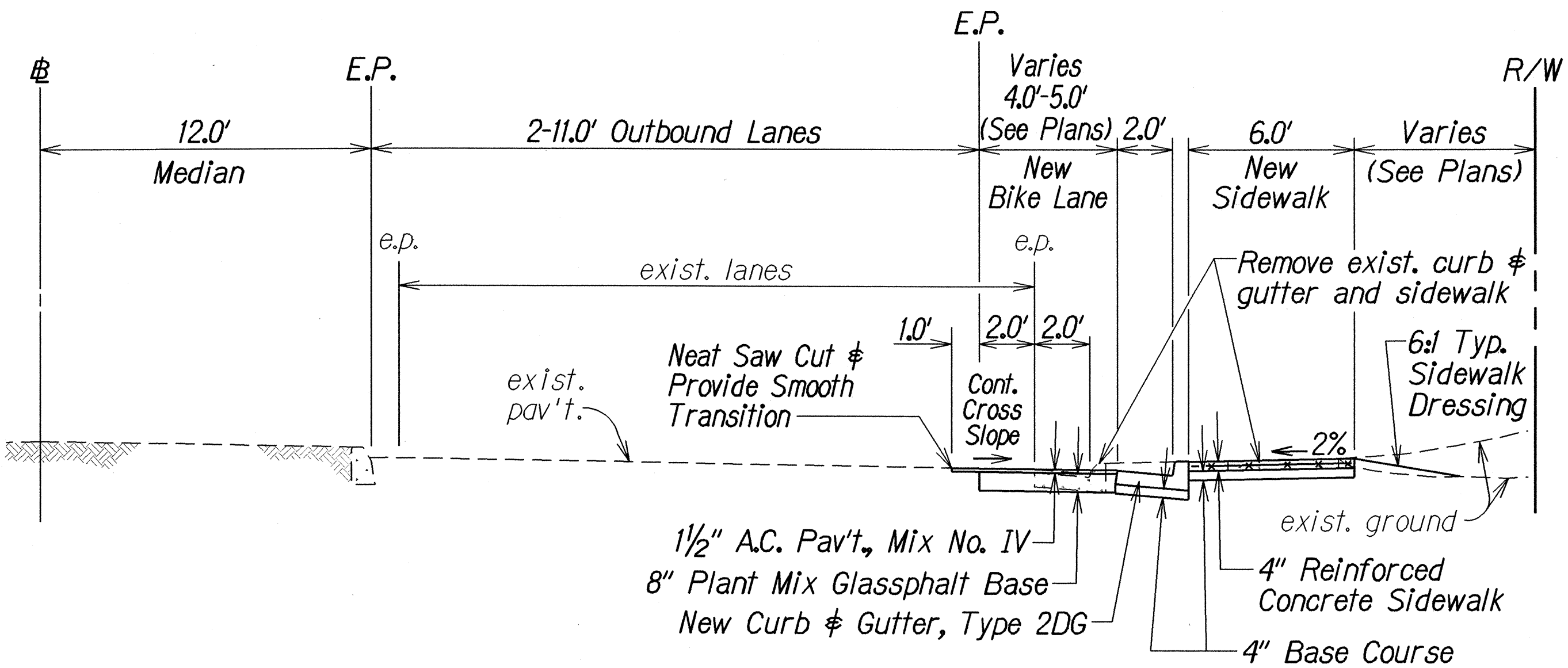
DESIGNED BY	DATE
DRAWN BY	1/28/99
CHECKED BY	
IN CHARGE	
NOTED BY	
QUANTITIES BY	
REVISIONS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-I(33)	1999	6	58

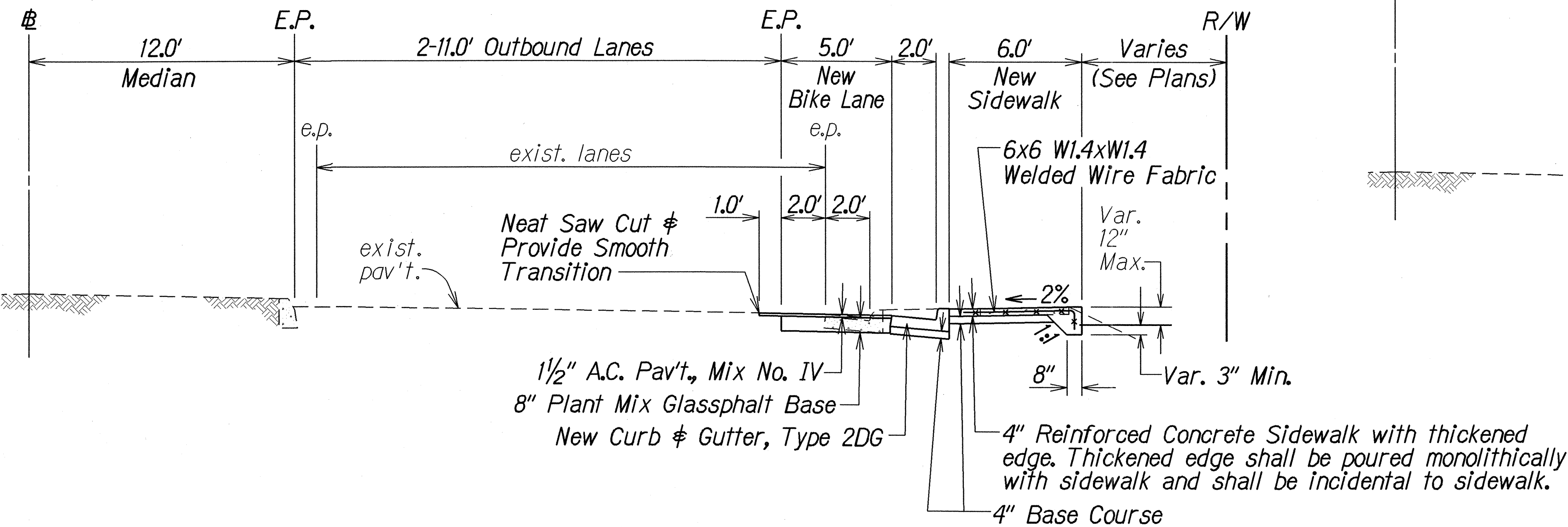


* See Pav't Grade Plan on Plan Sheet No. 18.
 ** From Kal Hwy Sta. 3+35± Lt Kailua Rd Sta. 307+89± Lt. Gutter Slope=20:1.

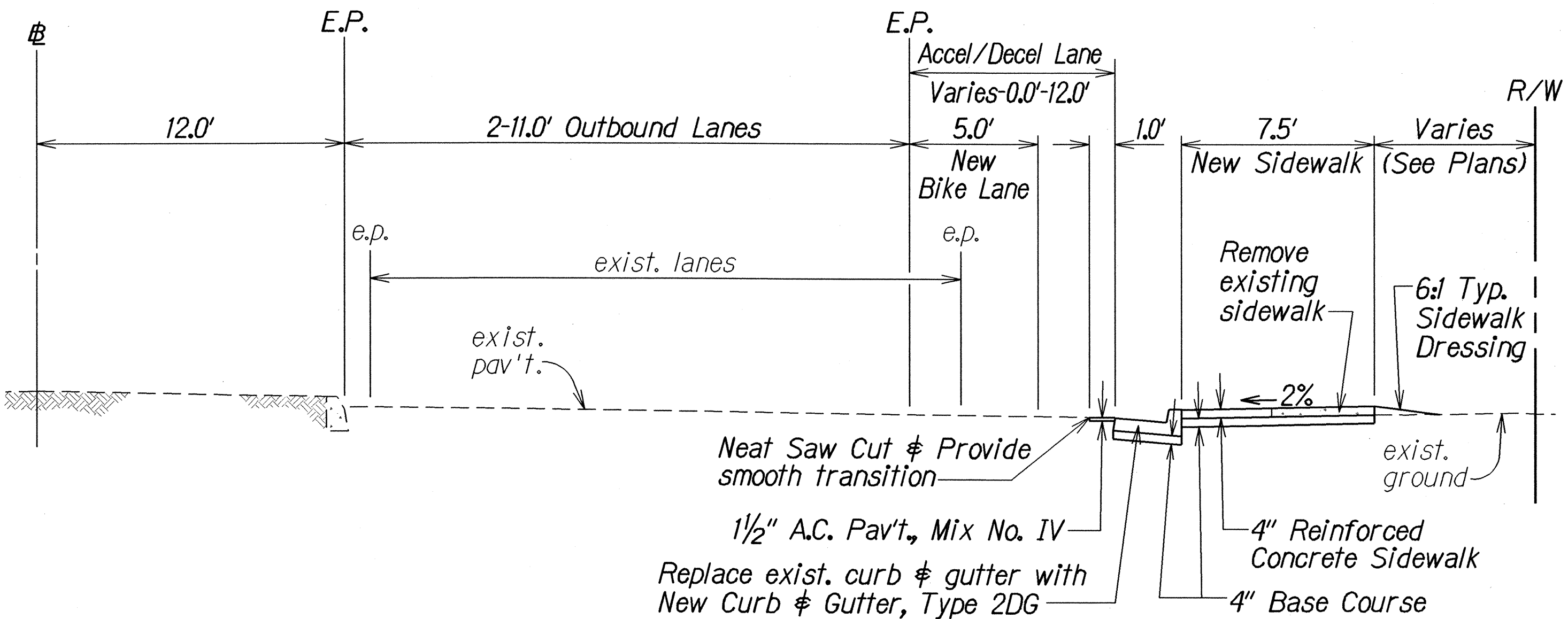
TYPICAL SECTION **OBTS1**
 Scale: 1/2"= 1'-0"



TYPICAL SECTION **OBTS2**
 Scale: 1/4"= 1'-0" 20,21,24,25,26,27



TYPICAL SECTION **OBTS3**
 Scale: 1/4"= 1'-0"



TYPICAL SECTION **OBTS4**
 Scale: 1/4"= 1'-0"

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

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPICAL SECTIONS & DETAILS

KAILUA ROAD

Shoulder Improvements For Bicycle Route

Kalaniana'ole Hwy. To Kawaiū Bridge

F.A. Proj. No. STP-061-I(33)

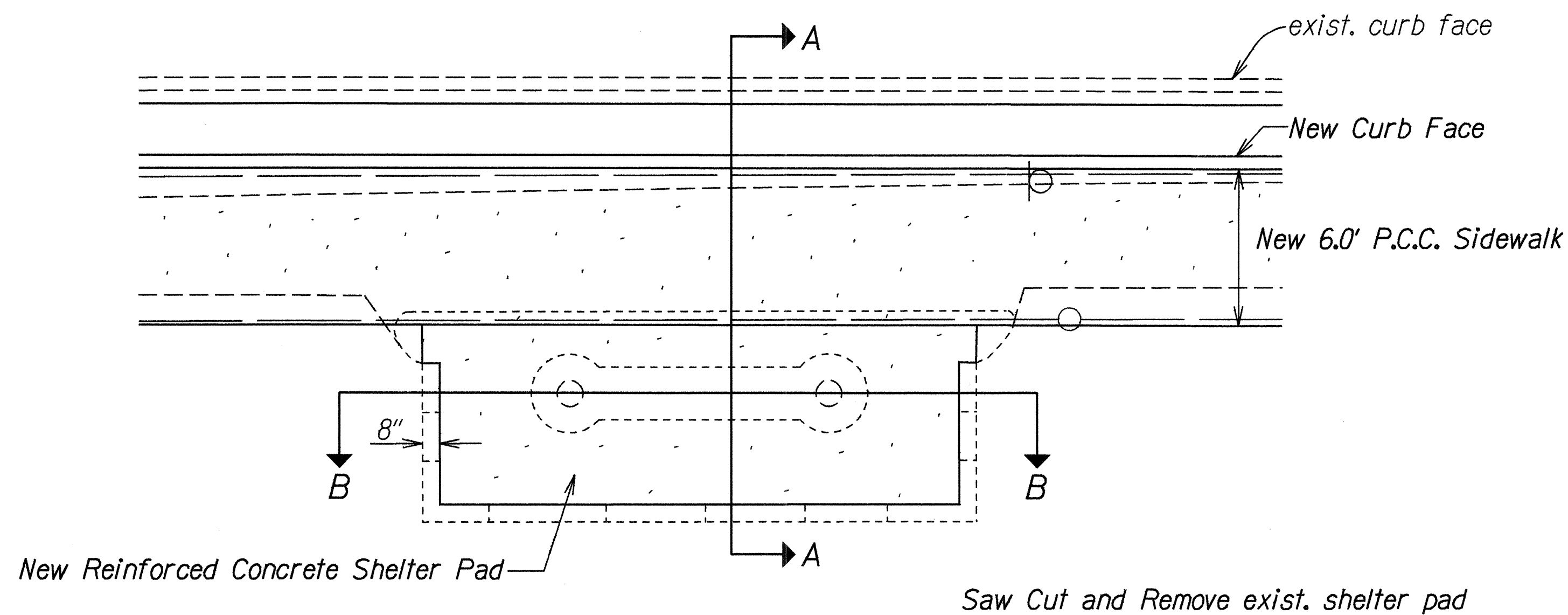
Scale: As Shown

Date: Jan. 1999

SHEET No. 3 OF 6 SHEETS

ORIGINAL PLAN	DATE
NOTED	1-26-99
DESIGNED BY	W. S. S. S.
CHECKED BY	W. S. S. S.
IN CHARGE	W. S. S. S.

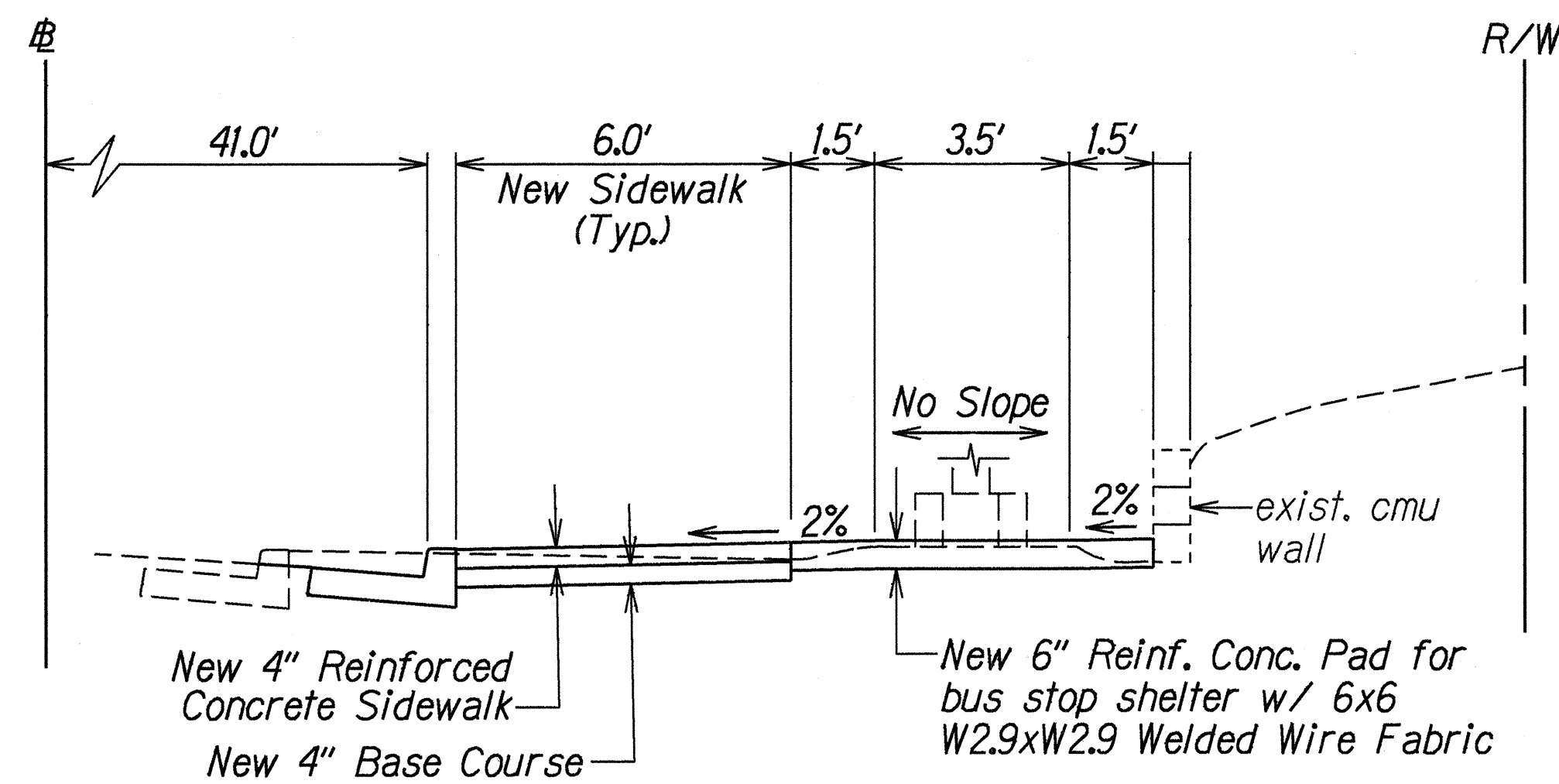
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-I(33)	1999	7	58



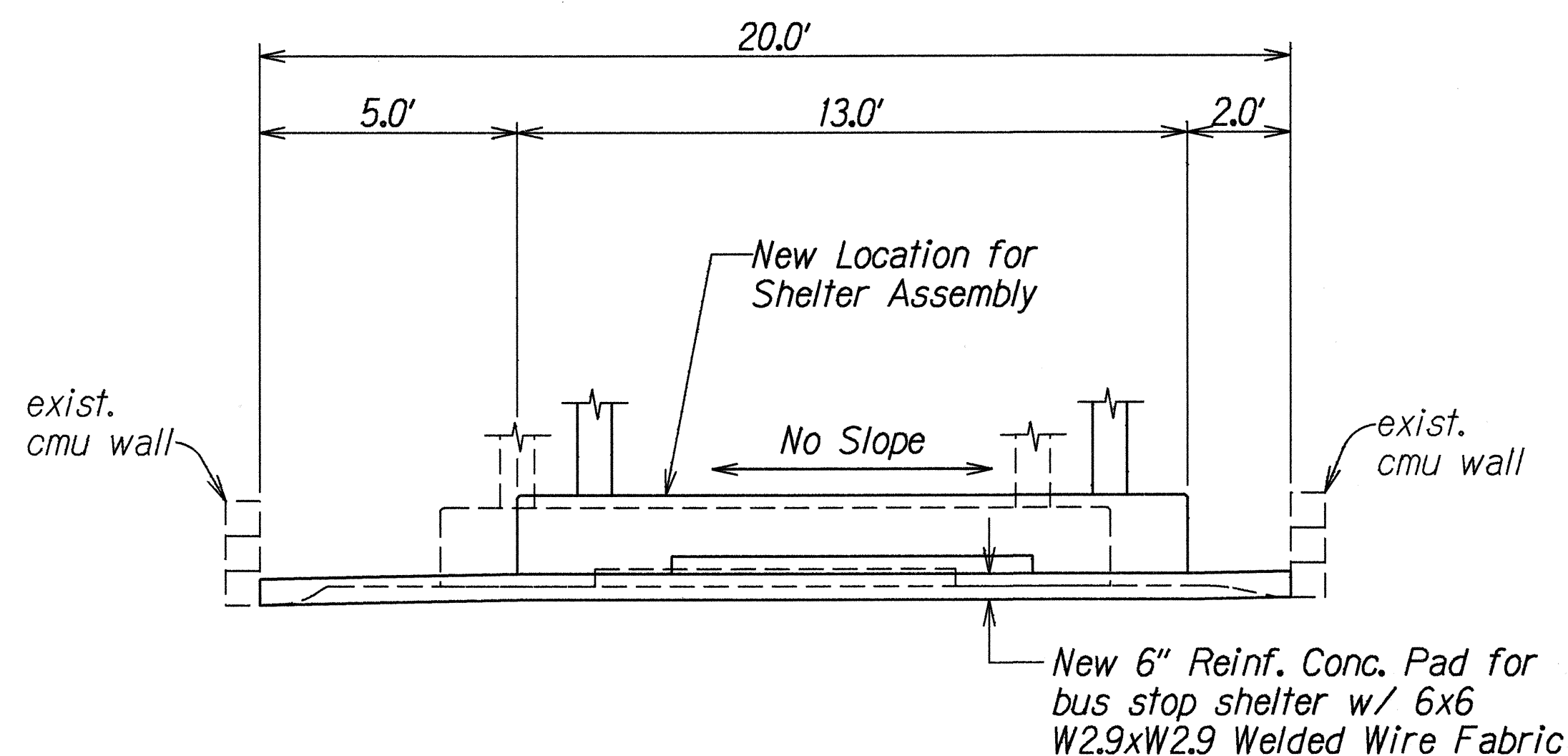
PLAN
Scale: $\frac{1}{4}" = 1.0'$

NOTE:

Contractor shall temporarily remove bus shelter and place in a suitable location for the duration of shelter pad reconstruction. Shelter weighs approximately 8 tons and shall be moved using a fork lift that has a hydraulic lift with boom such as Grade All 534B or similar. A cushion shall be placed between the shelter and fork lift blades to prevent damage. The Contractor shall be responsible for any damage incurred to the shelter during moving, storage and placement. Concrete demolition, shelter movement and new reinforced concrete shelter pad shall be incidental to Item No. 608.1260, 6-Inch Reinforced Concrete Pad for bus stop shelter.



SECTION A-A
Scale: $\frac{3}{8}" = 1.0'$



SECTION B-B
Scale: $\frac{3}{8}" = 1.0'$

BUS STOP SHELTER AND SIDEWALK DETAIL AT
STA. 331+10± Rt.

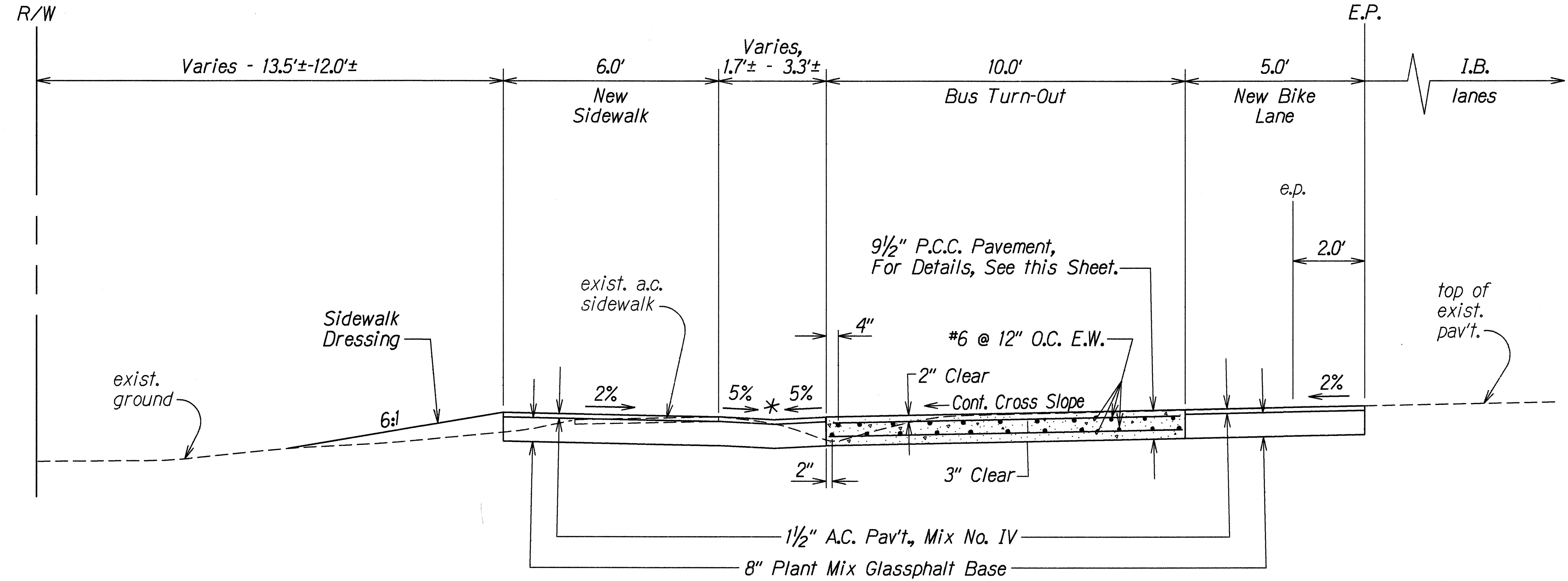
ORIGINAL PLAN	DATE
SURVEY MONITOR BY	1/26/99
DRAWN BY	W. S. S. S.
DESIGNED BY	W. S. S. S.
CHECKED BY	W. S. S. S.
NOTED BY	W. S. S. S.
QUANTITIES BY	W. S. S. S.
CHECKED BY	W. S. S. S.

5/25/99 Revised last sentence of Note per Addendum No. 1.

DATE REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DETAIL
KAILUA ROAD
Shoulder Improvements For Bicycle Route, Kalaniana'ole Hwy. To Kawai'i Bridge
F.A. Proj. No. STP-061-I(33)
Scale: As Shown Date: Jan. 1999
SHEET No. 4 OF 6 SHEETS

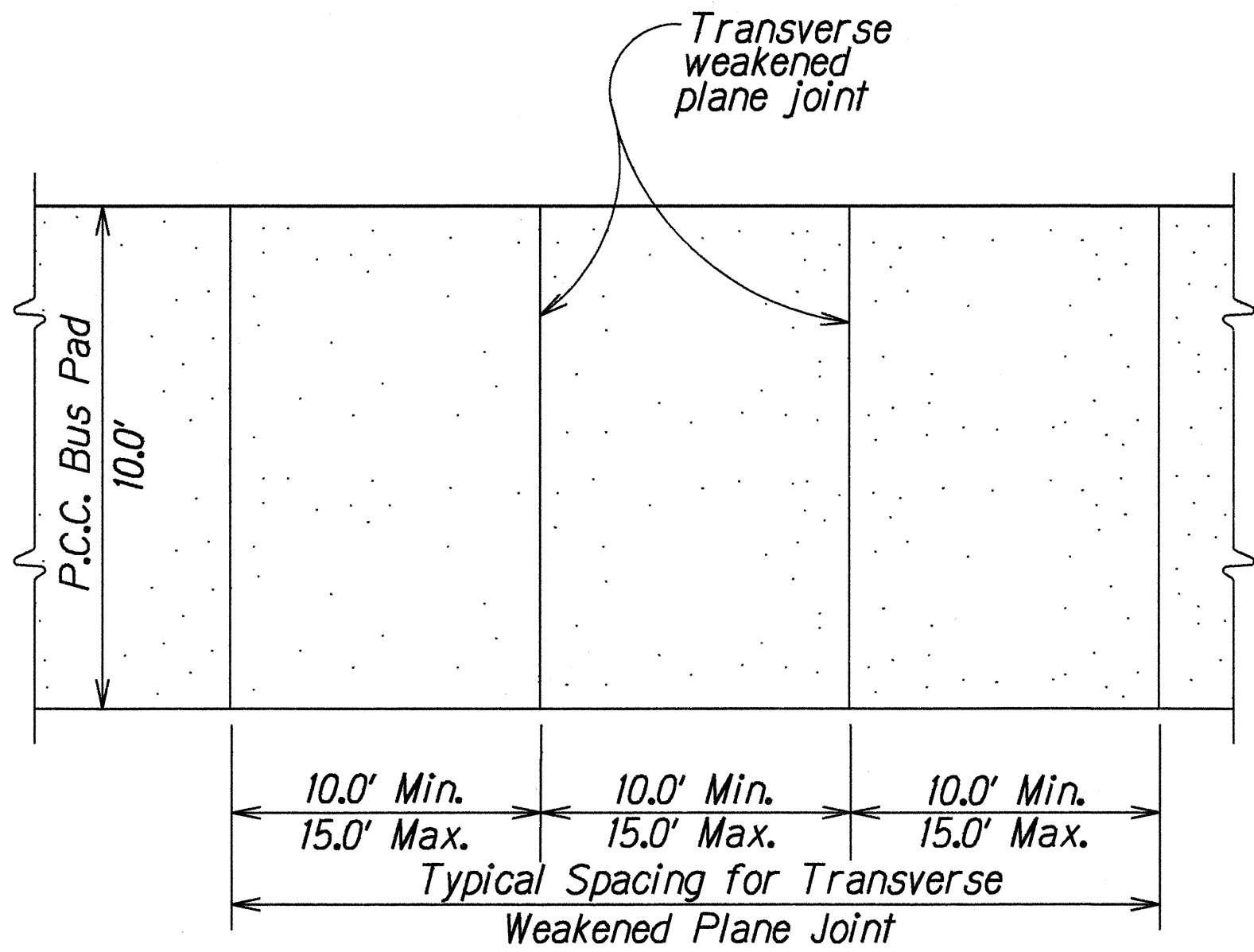
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	ADD.7S-1	58



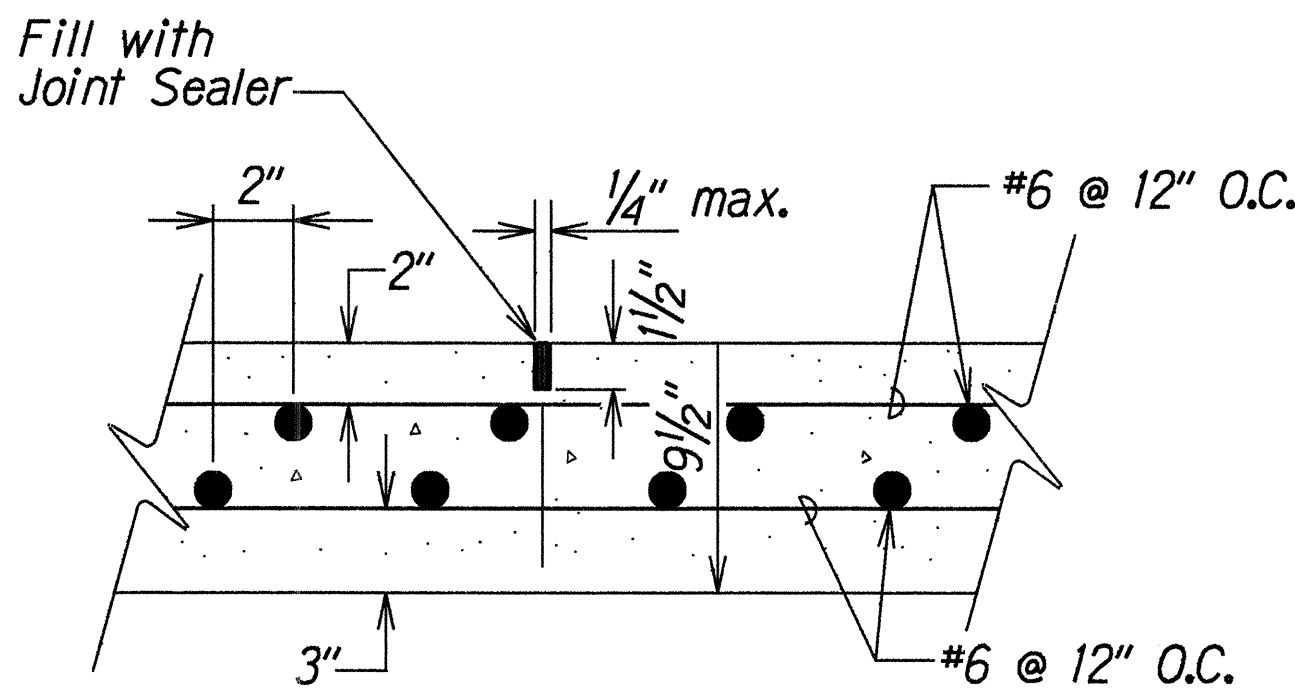
*The Cross Slope at Lift Pad shall be 2%.
See Plan Sheet No. 19 for details.

**REINFORCED CONCRETE BUS PAD DETAIL AT
STA. 341+75 to # STA. 342+25 LT.**

Scale: 1/2"=1.0'



**TYPICAL JOINT LOCATION AND LAYOUT
PLAN FOR P.C.C. BUS PAD**
Not To Scale



**TRANSVERSE WEAKENED PLANE JOINT
FOR P.C.C. BUS PAD
(SAWED CONTRACTION)**

Not To Scale

Notes:

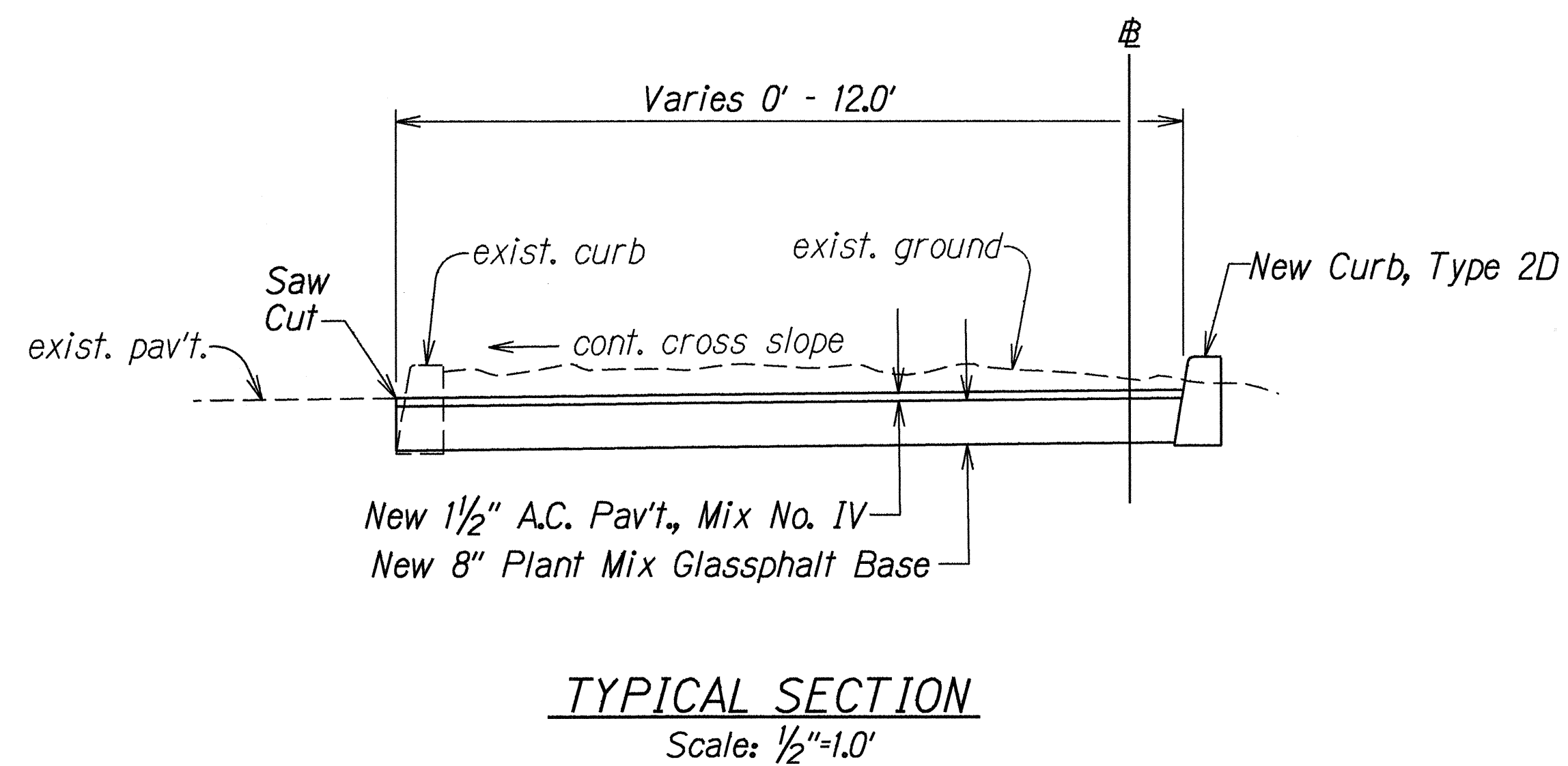
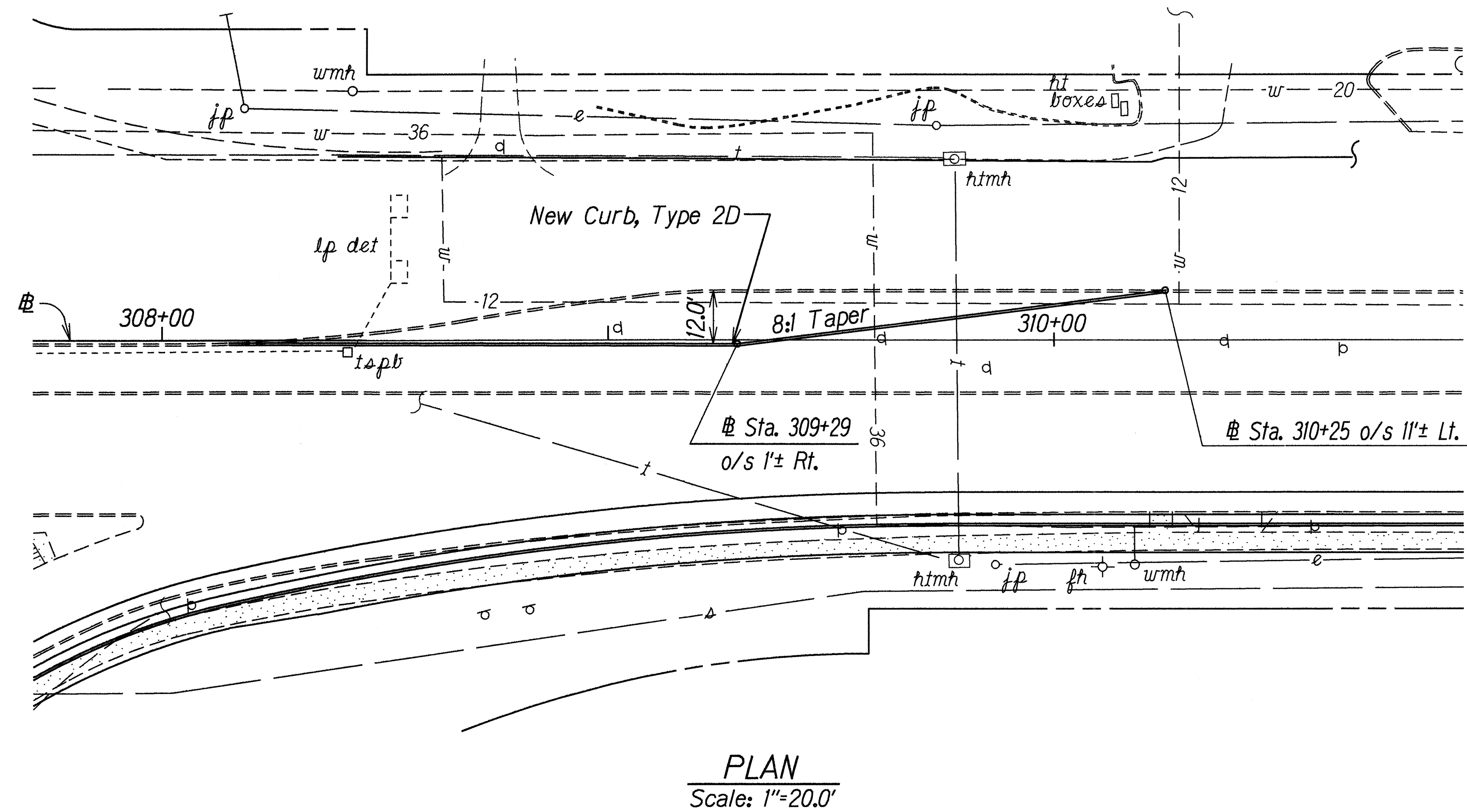
- Roadway excavation required for the installation of P.C.C. bus stop, and disposal of excavated materials shall be considered incidental to Item No. 411.1212, 9 1/2 Inch Reinforced Concrete Pavement, and will not be paid for separately.
- Transverse weakened plane joints required for the installation of P.C.C. bus pads shall be considered incidental to Item No. 411.1212, 9-1/2 Inch Reinforced Concrete Pavement, and will not be paid for separately.

DESIGNED BY	DATE
DRAWN BY	4/27/99
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

4/27/99	This sheet added to the contract plans.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION P.C.C. PAVEMENT DETAIL KAILUA ROAD Shoulder Improvements For Bicycle Route, Kalanianaʻole Hwy. To Kawainui Bridge F.A. Proj. No. STP-061-1(33) Scale: As Shown Date: Jan. 1999 SHEET No. 1 OF 1 SHEETS
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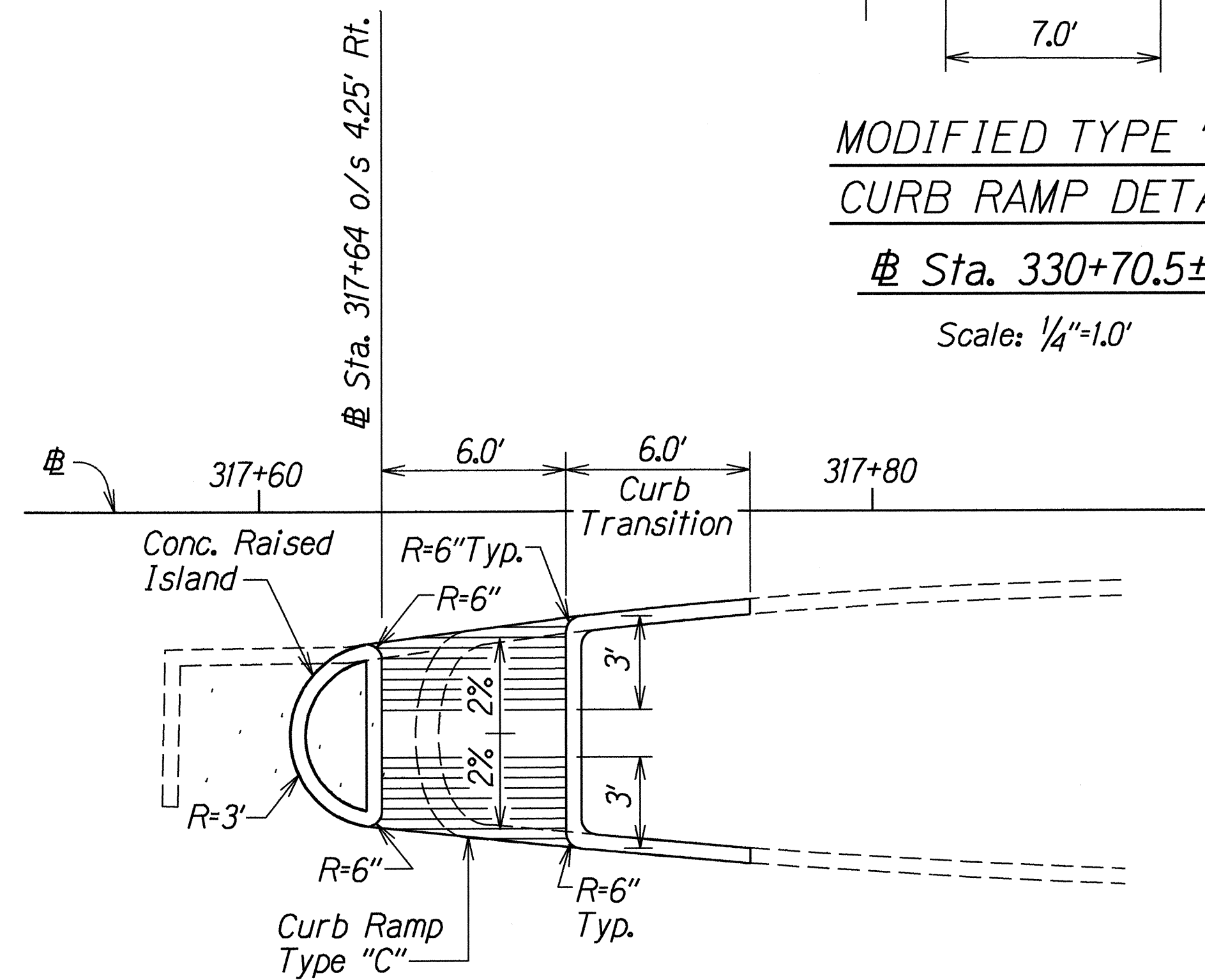
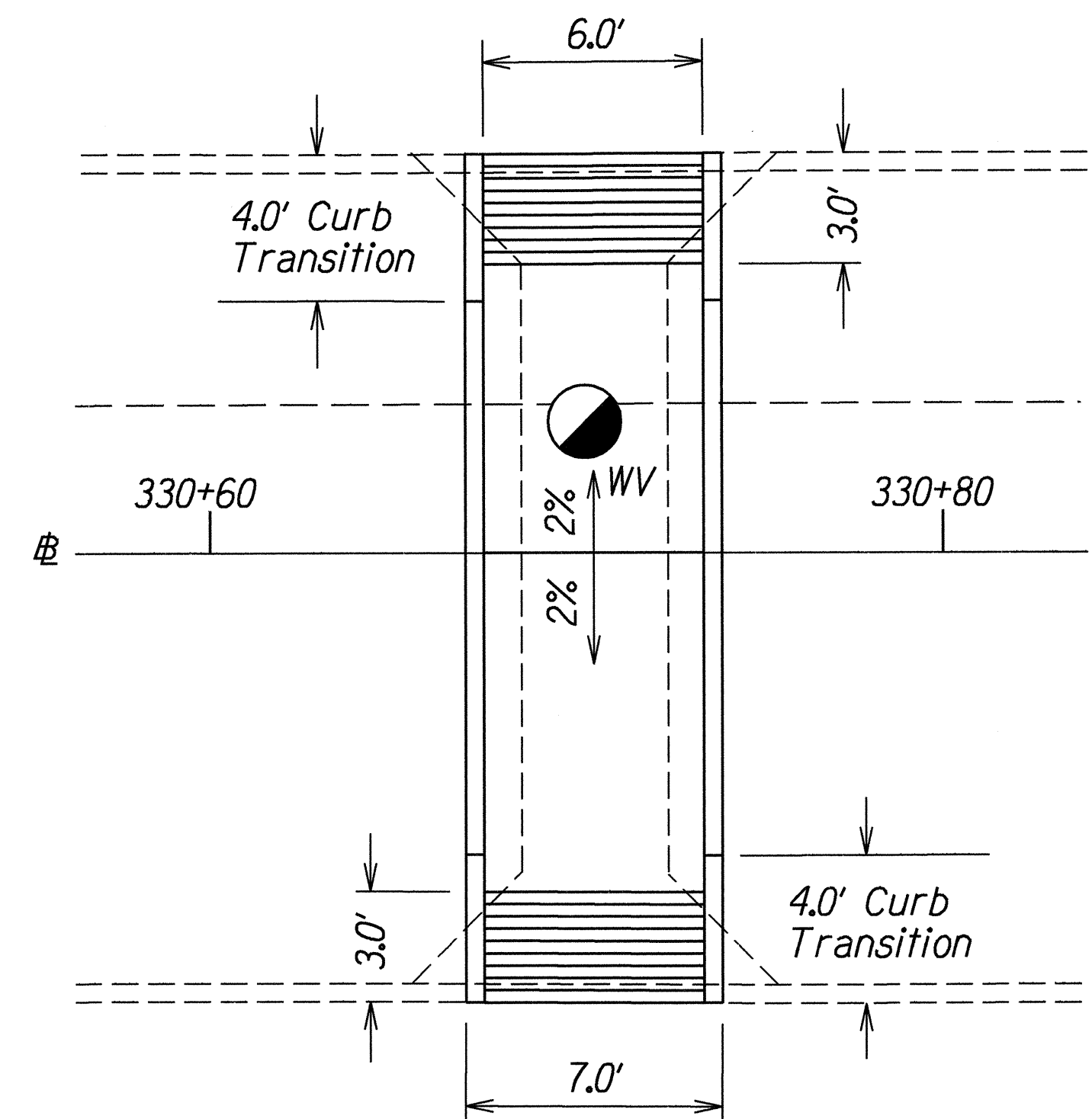
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1999	8	58



LEFT TURN STORAGE BAY DETAILS # Sta. 308+15± TO # Sta. 310+25±

NOTES:

1. Install New Curb, Type 2D from # Sta. 308+15± to # Sta. 309+29± o/s 1.0' Rt.
2. Install New Curb, Type 2D, 8:1 Taper from # Sta. 309+29± to # Sta. 310+25± o/s 1.0' Rt. to 11.0' Lt.
3. Construct 6.0' Transition Area between existing and New Curb at both ends.
4. Roadway excavation, A.C. Mix No. IV and ACB to be paid for under their respective pay items.



NOTES:

1. Sawcut, remove & Dispose Existing Gore.
2. Reconstruct Pavement with 1 1/2" A.C. Pav't. Mix No. IV & 8" Plant Mix Glassphalt Base.
3. Concrete Corners shall be Rounded-off 6" unless otherwise noted.

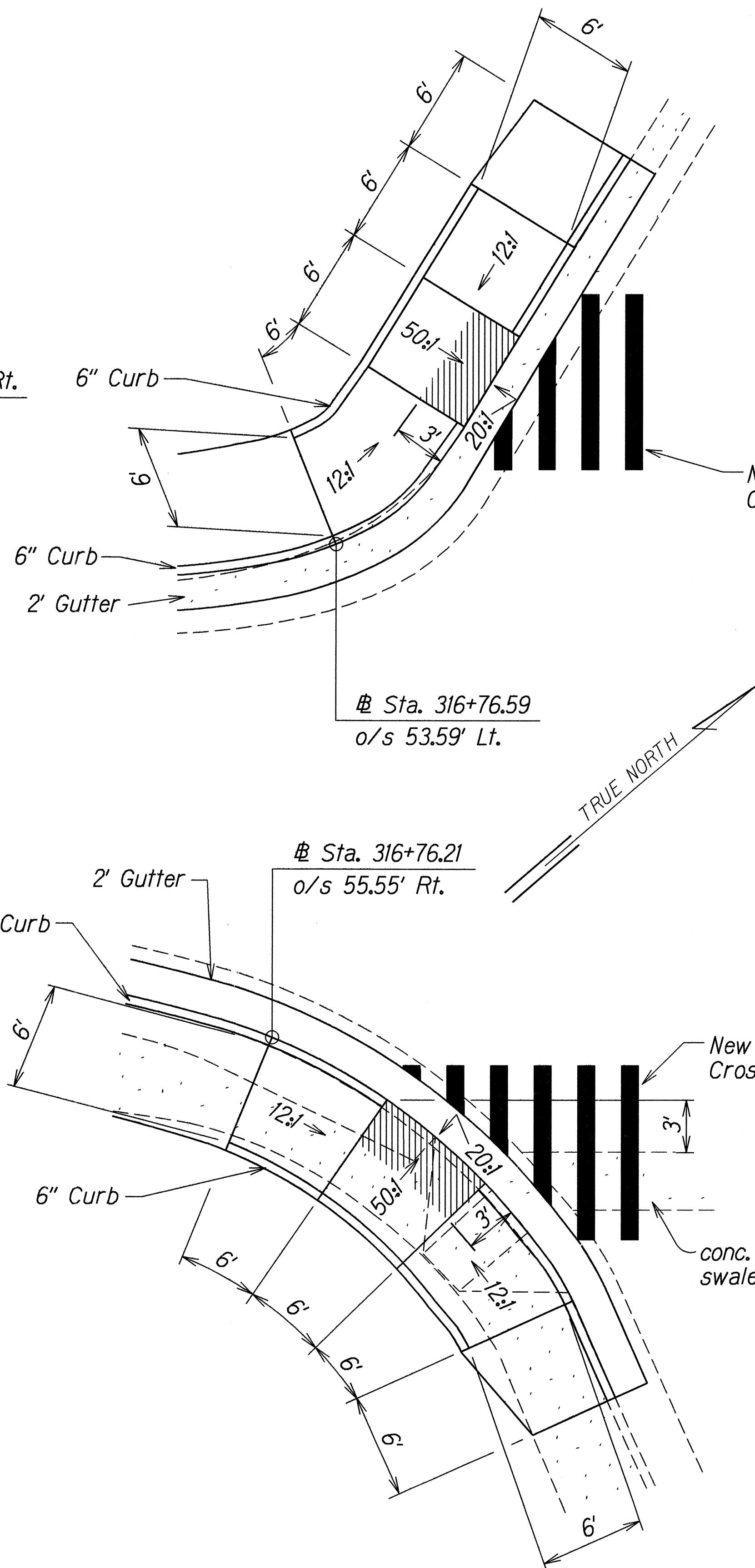
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DETAILS	
KAILUA ROAD	
Shoulder Improvements For Bicycle Route, Kalaniana'ole Hwy. To Kawainui Bridge F.A. Proj. No. STP-061-K(33)	
Scale: As Shown	Date: Jan. 1999
SHEET No. 5 OF 6 SHEETS	

The plan view shows two proposed crosswalks. The first crosswalk is at Sta. 307+78.13 o/s 48.82' Rt. and the second is at Sta. 307+88.57 o/s 66.62' Rt. Both crosswalks are 4' wide and 6' long. The crosswalks are located on the right side of the road, adjacent to the 6" curb. The road has a 2' gutter and a 6" curb. The crosswalks are marked with black rectangles. The plan view also shows the existing road layout, including the 6" curb and the 2' gutter. A north arrow and a scale of 1" = 5' are provided.

Plan view of a 6" curb and gutter. The diagram shows a 6" curb, a 12:1 slope, a 3" deep gutter, and a 6" wide sidewalk. The radius is R=6" Typ. A 20:1 slope is indicated for the curb. A north arrow points towards the top right, and the scale is 1" = 5'. The stationing is Sta. 313+36.87 o/s 41.43' Lt.

NOTES:

1. All slopes indicated are maximum allowed.
2. All tactile warning grooves extend across ramp from base to 3' up the shorter side. See Plan Sht. No. 14 for Tactile Detail.



Technical drawing of curb ramp details showing three cross-sections (A-A, B-B, C-C) and two plan views (D-D, E-E). The drawing includes dimensions for curb height (6 inches), gutter width (2 feet), and various slopes (12:1, 20:1, 50:1). It also shows stationing information: Sta. 317+75.74 o/s 51.92' Lt. and Sta. 317+75.74 o/s 52.13' Rt. The drawing is titled "CURB RAMP DETAILS" and is part of the "STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION".

10

[illegible]

CURB RAMPS @ ± STA. 326+70± RT.

Three cross-section diagrams of a road curb and gutter assembly, showing different stationing and dimensions.

Left Diagram: Stationing: Sta. 329+56.77 o/s 40.02' Rt. Dimensions: 2' Gutter, 6" Curb, 6" Curb, 20:1 slope, R=6" Typ.

Middle Diagram: Stationing: Sta. 329+94.49 o/s 39.89' Rt. Dimensions: 6" Curb, 6" Curb, 6" Curb, 12:1 slopes, R=6" Typ.

Right Diagram: Stationing: Sta. 330+49.23 o/s 41.58' Rt. Dimensions: 6" Curb, 6" Curb, 6" Curb, 12:1 slopes, R=6" Typ.

A north arrow and scale of 1" = 5' are shown.

NOTES:

1. All slopes indicated are maximum allowed.
2. All tactile warning grooves extend across ramp from base to 3' up the shorter side.

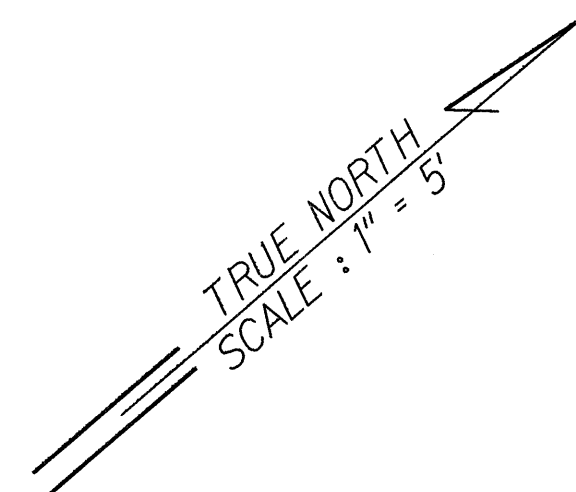
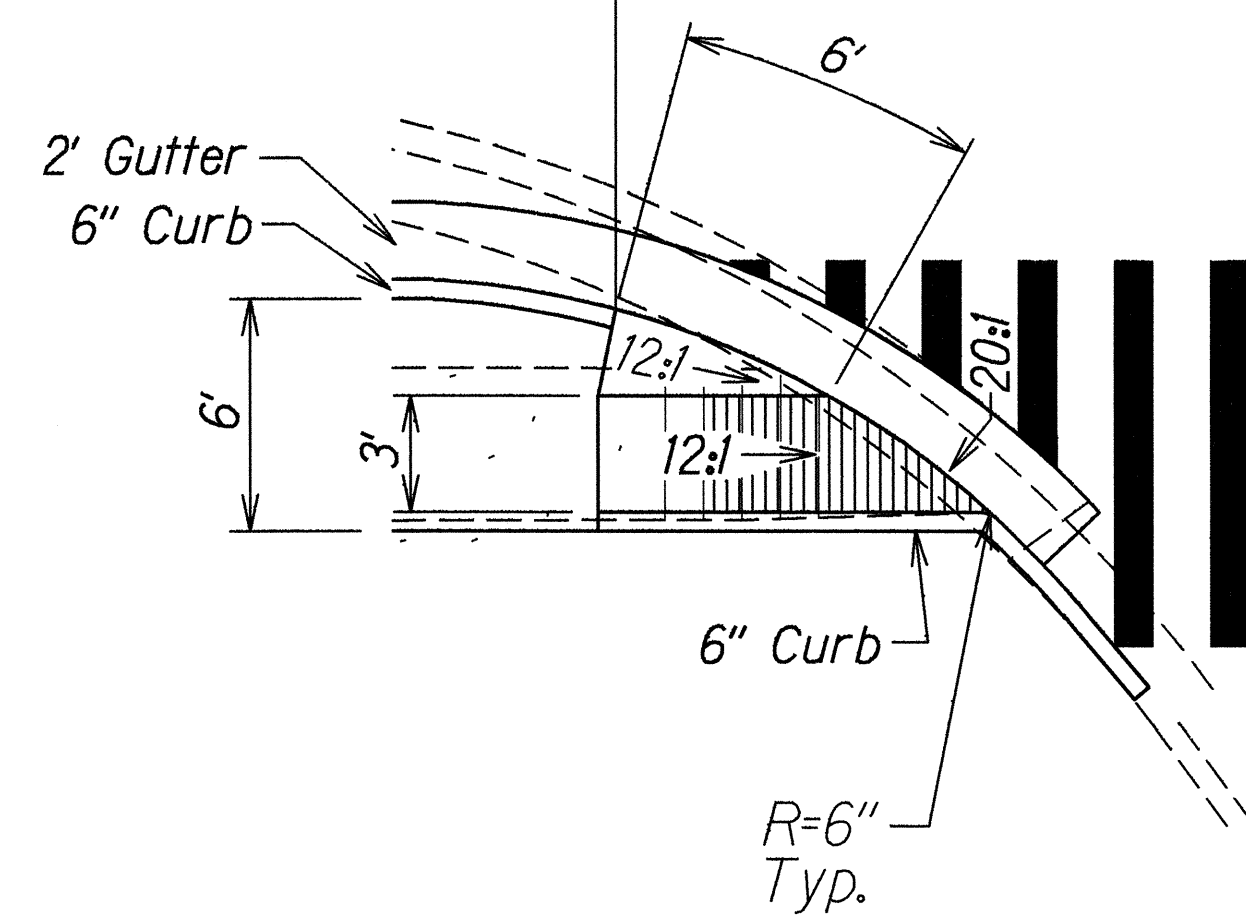
CURB RAMPS @ # STA. 330+10± RT.

1. All slopes indicated are maximum allowed.
2. All tactile warning grooves extend across ramp from base to 3' up the shorter side.

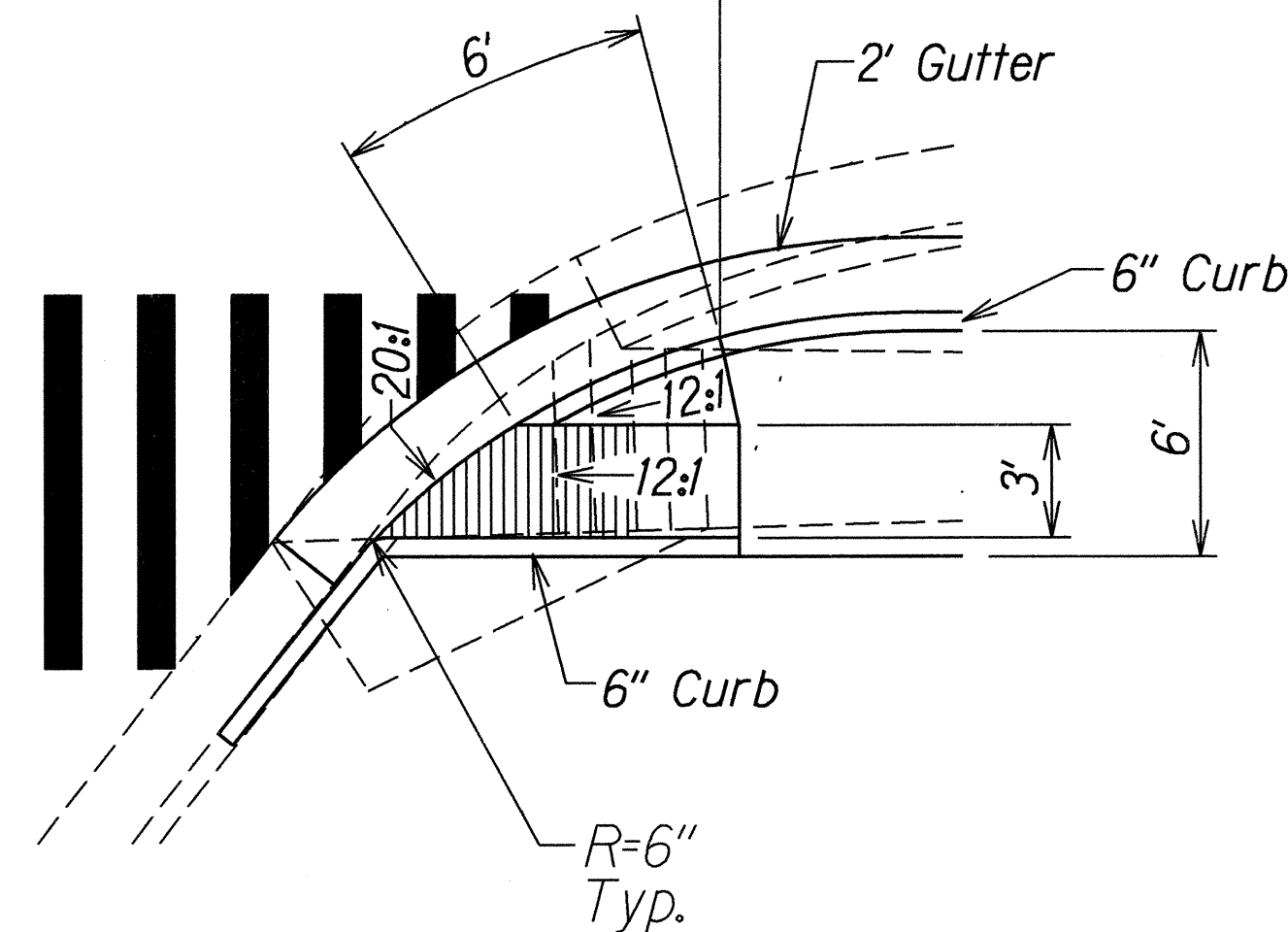
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1999	12	58

Sta. 343+63.56 o/s 41.75' Rt.

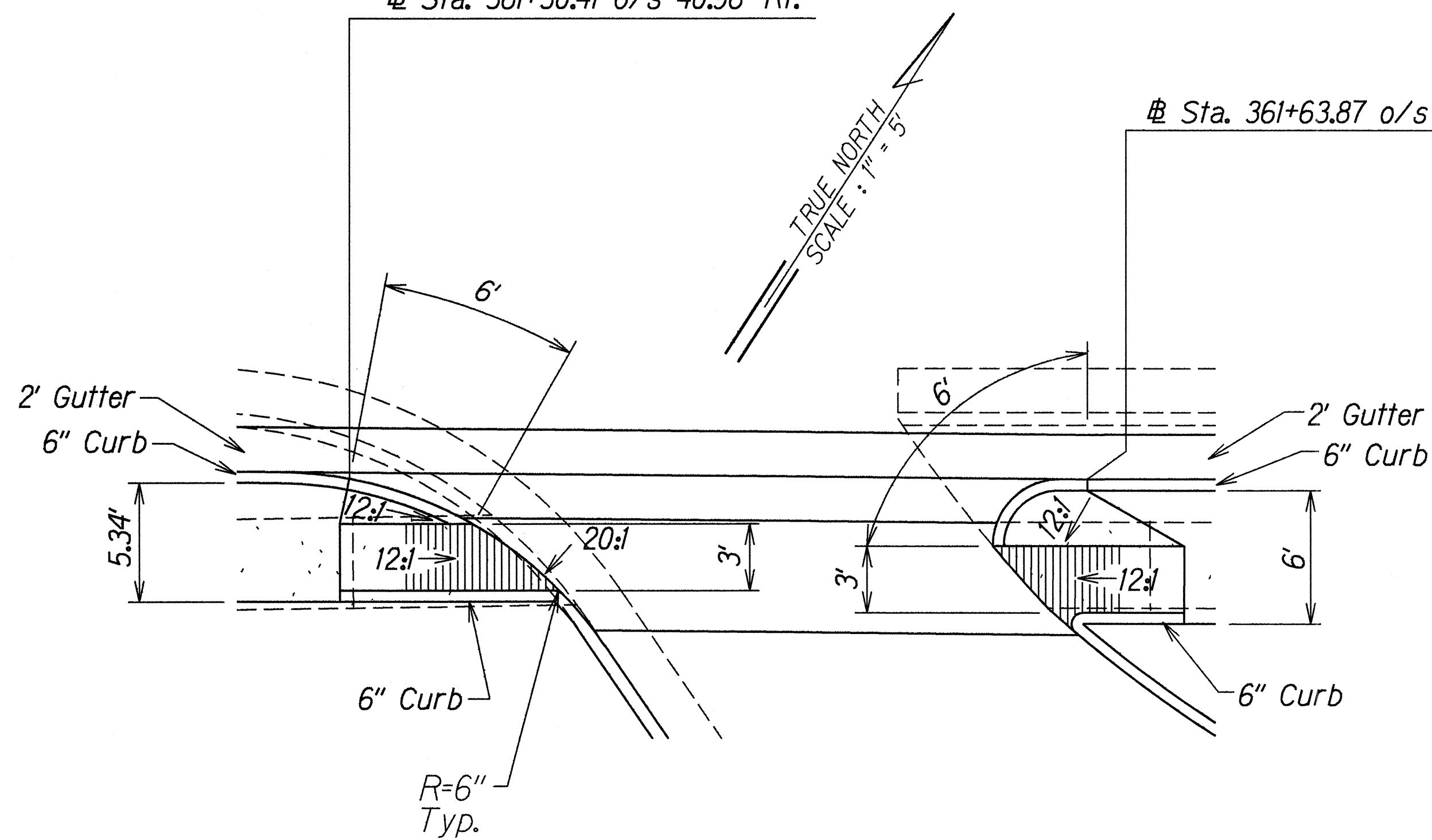


Sta. 344+32.86 o/s 41.65' Rt.

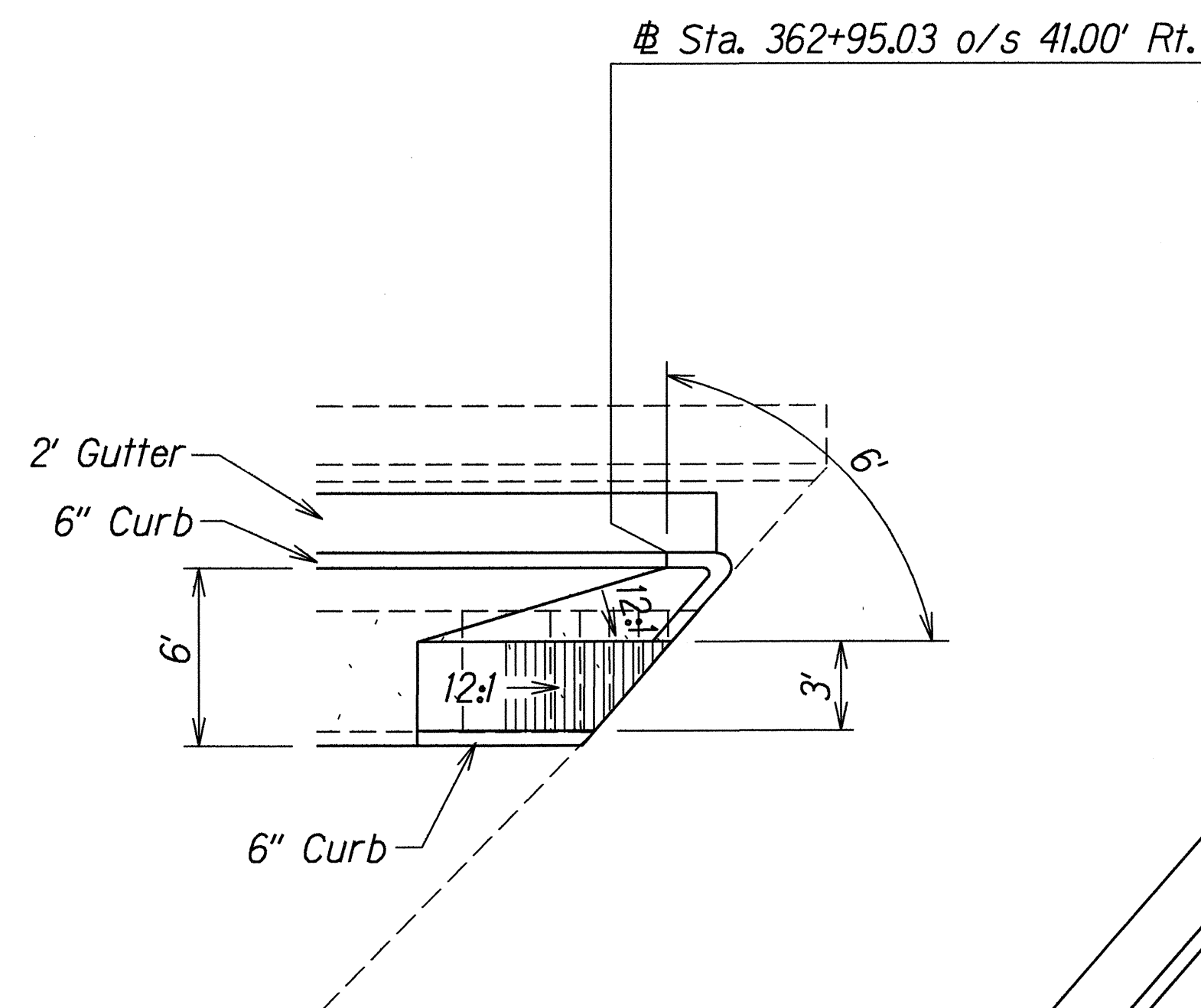


CURB RAMPS @ # STA. 343+98± RT.

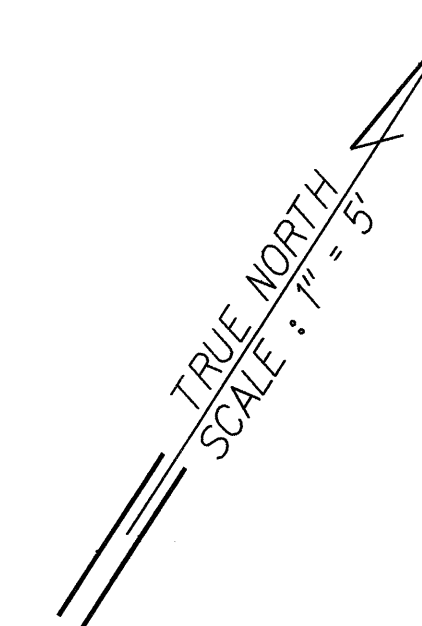
Sta. 361+30.41 o/s 40.96' Rt.



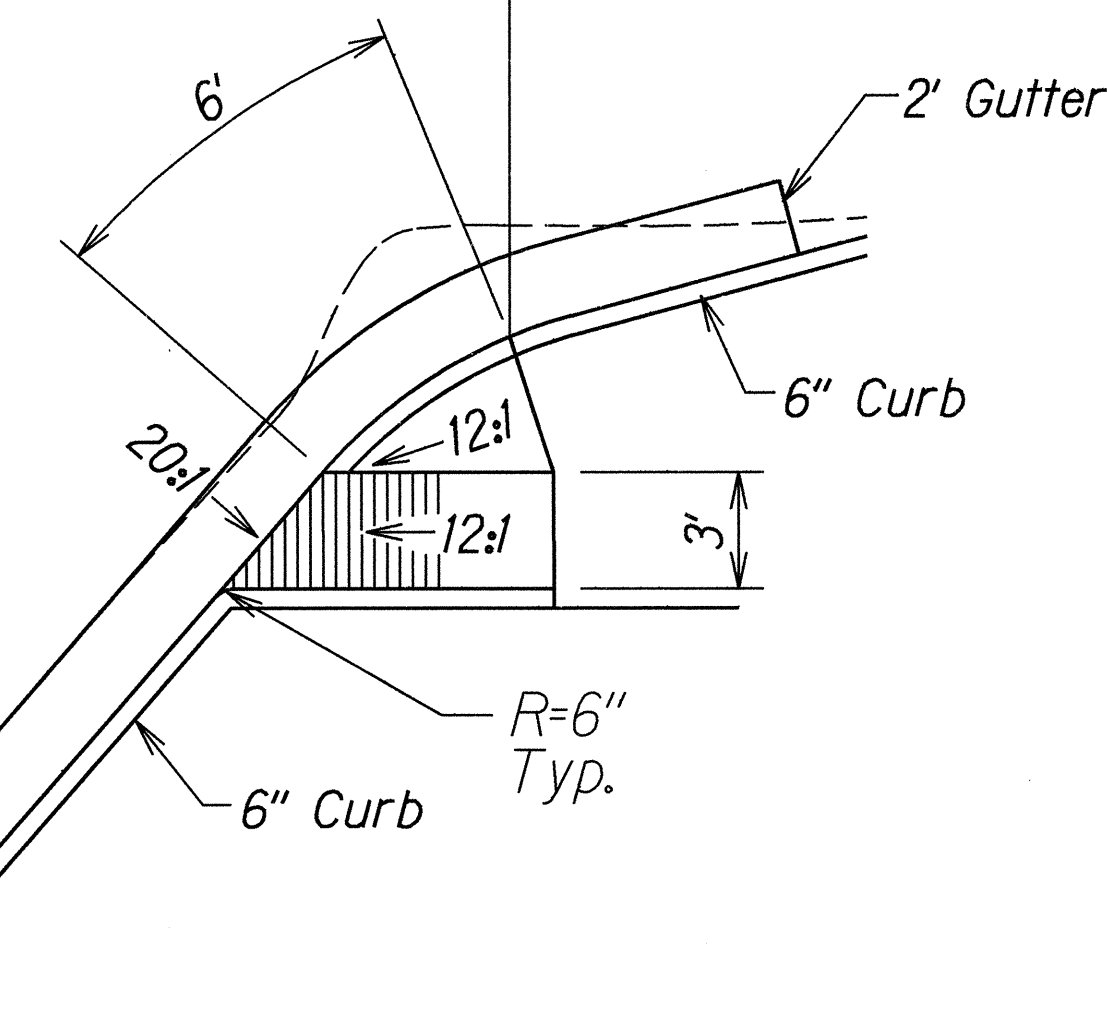
Sta. 361+63.87 o/s 41.00' Rt.



Sta. 362+95.03 o/s 41.00' Rt.



Sta. 363+26.42 o/s 40.63' Rt.



CURB RAMPS @ # STA. 362+28± RT.

NOTES:

1. All slopes indicated are maximum allowed.
2. All tactile warning grooves extend across ramp from base to 3' up the shorter side.

ORIGINAL PLAN	DATE
SURVEY PLANNED BY	1/28/99
DRAWN BY	MLL
DESIGNED BY	MLL
CHECKED BY	MLL
NOTED	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

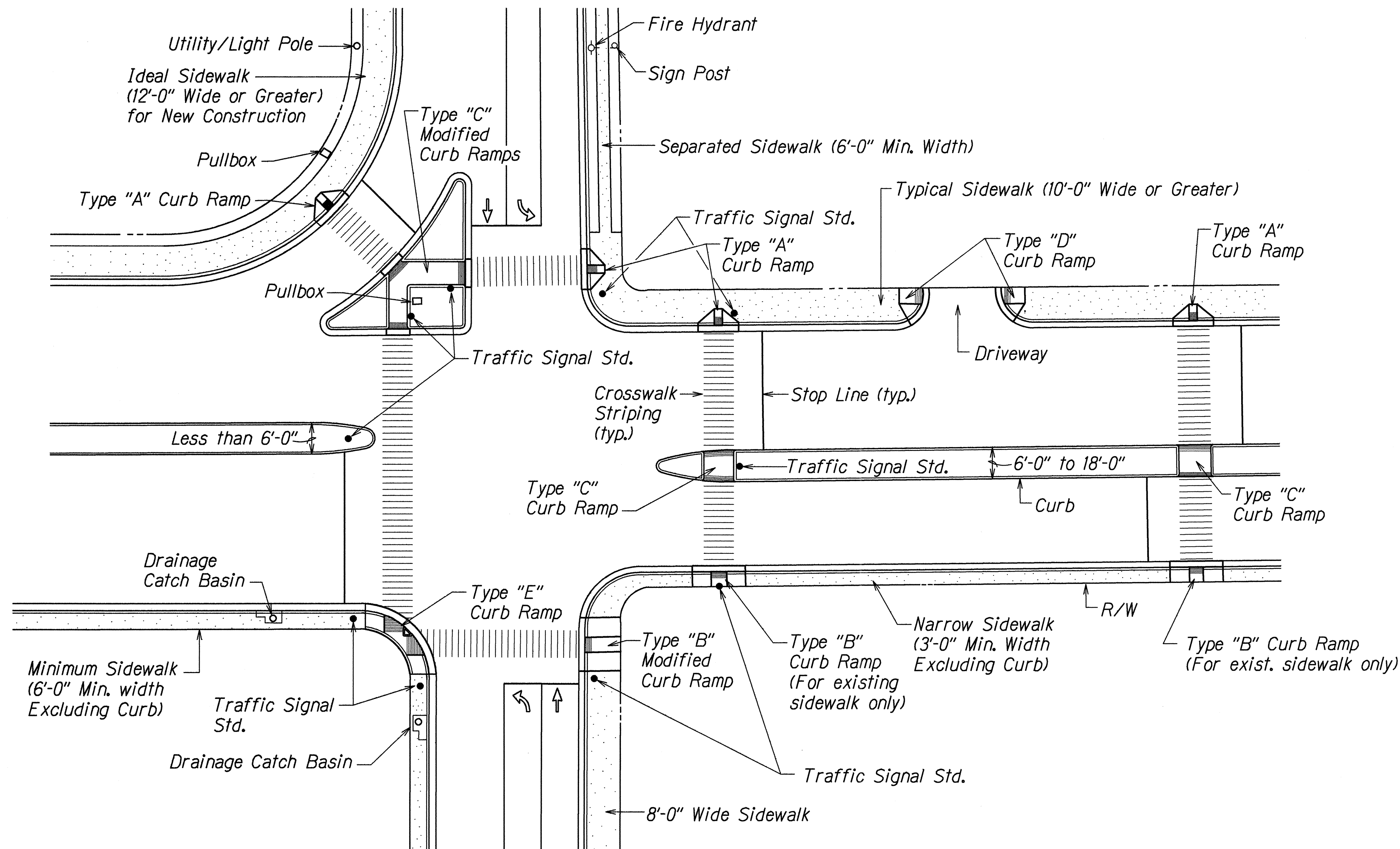
KAILUA ROAD

Shoulder Improvements For Bicycle Route,
Kalanianaʻole Hwy. To Kawaiʻuli Bridge
F.A. Proj. No. STP-061-K(33)

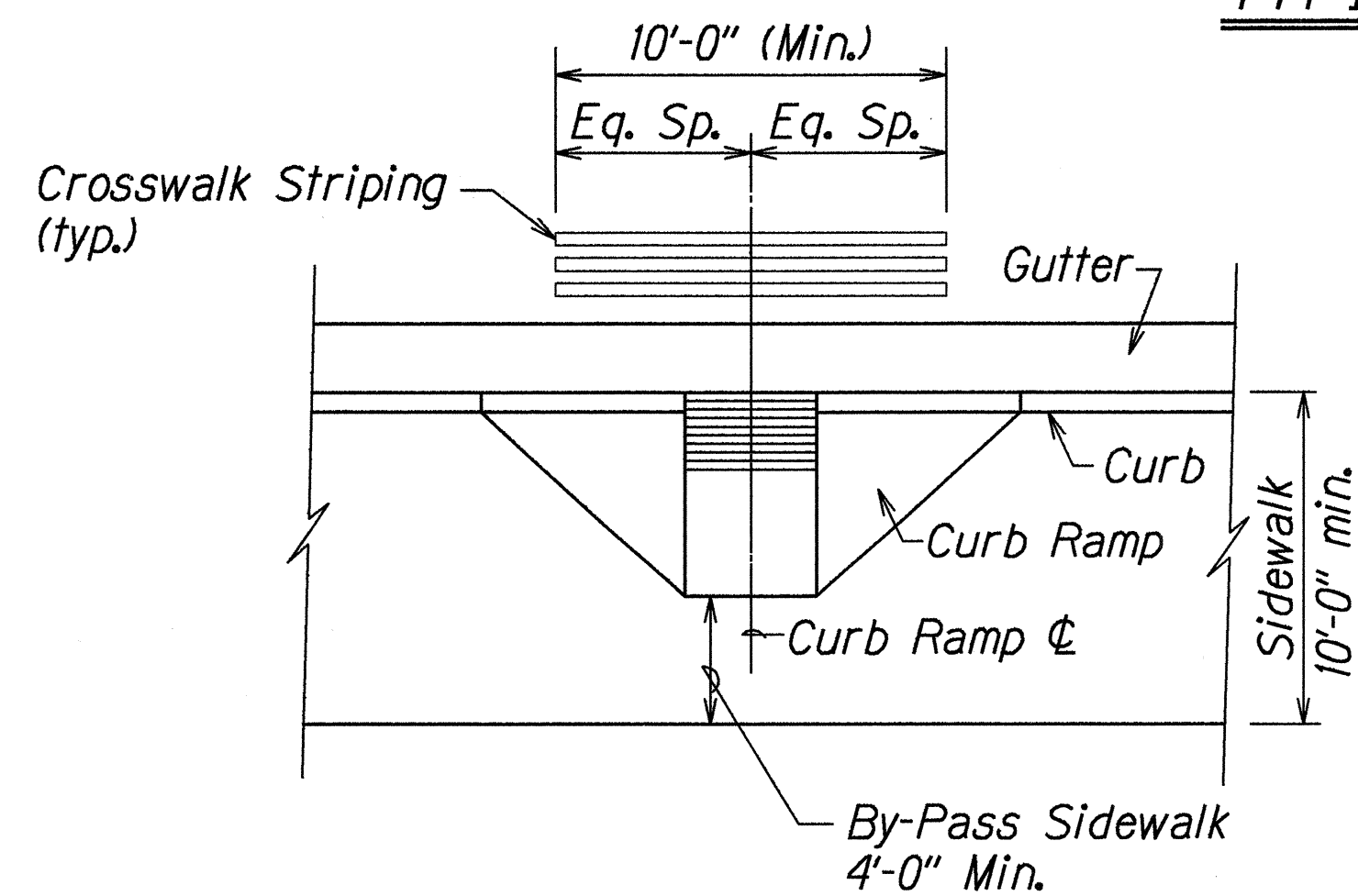
Scale: 1"=5.0' Date: Jan. 1999

SHEET No. 3 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	13	58



TYPICAL CURB RAMPS



**TYPICAL CROSSWALK STRIPING
AT CURB RAMP**

GENERAL NOTES:

- When necessitated by existing physical conditions, alternate Curb Ramps may be used subject to Engineer's approval.
- Subject to field conditions, the Engineer shall determine final location of Curb Ramp.
- 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.
- All sidewalks shall provide a minimum clear width of 3'-0" (excluding curb) for pedestrian circulation.
- Narrow Sidewalks (3'-0" min. width excluding curb) will prohibit the installation of any sign posts, utility poles, fire hydrants, traffic signals standards, light poles, etc. in the sidewalk, which will prevent a 3'-0" wide clear zone for pedestrian circulation. Also, Narrow Sidewalks shall require a minimum 6'-0" wide, excluding curbs, by 10'-0" long passing space at intervals not to exceed 200 feet.
- For New Construction, the minimum sidewalk width shall be 6'-6", excluding curbs at signalized intersections and the cross slope shall not exceed 50:1. Sidewalk width may be decreased to 6'-0" excluding curbs at non-signalized intersections. For high pedestrian traffic the width shall be a minimum of 12'-0" and/or determined by the Engineer.
- If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right-of way.
- Single curb ramps serving two street crossing directions is prohibited in new construction.
- New Curb Ramps shall be installed at 90° to the sidewalk or to the maximum extent feasible.
- 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 (ADA) Accessibility Guidelines and will be subject to Engineer's approval.

DESIGNED BY	DATE
DRAWN BY	1/26/99
CHECKED BY	
NOTED BY	
QUANTITIES BY	
IN CHARGE	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL

KAILUA ROAD
Shoulder Improvements For Bicycle Route
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-1(33)

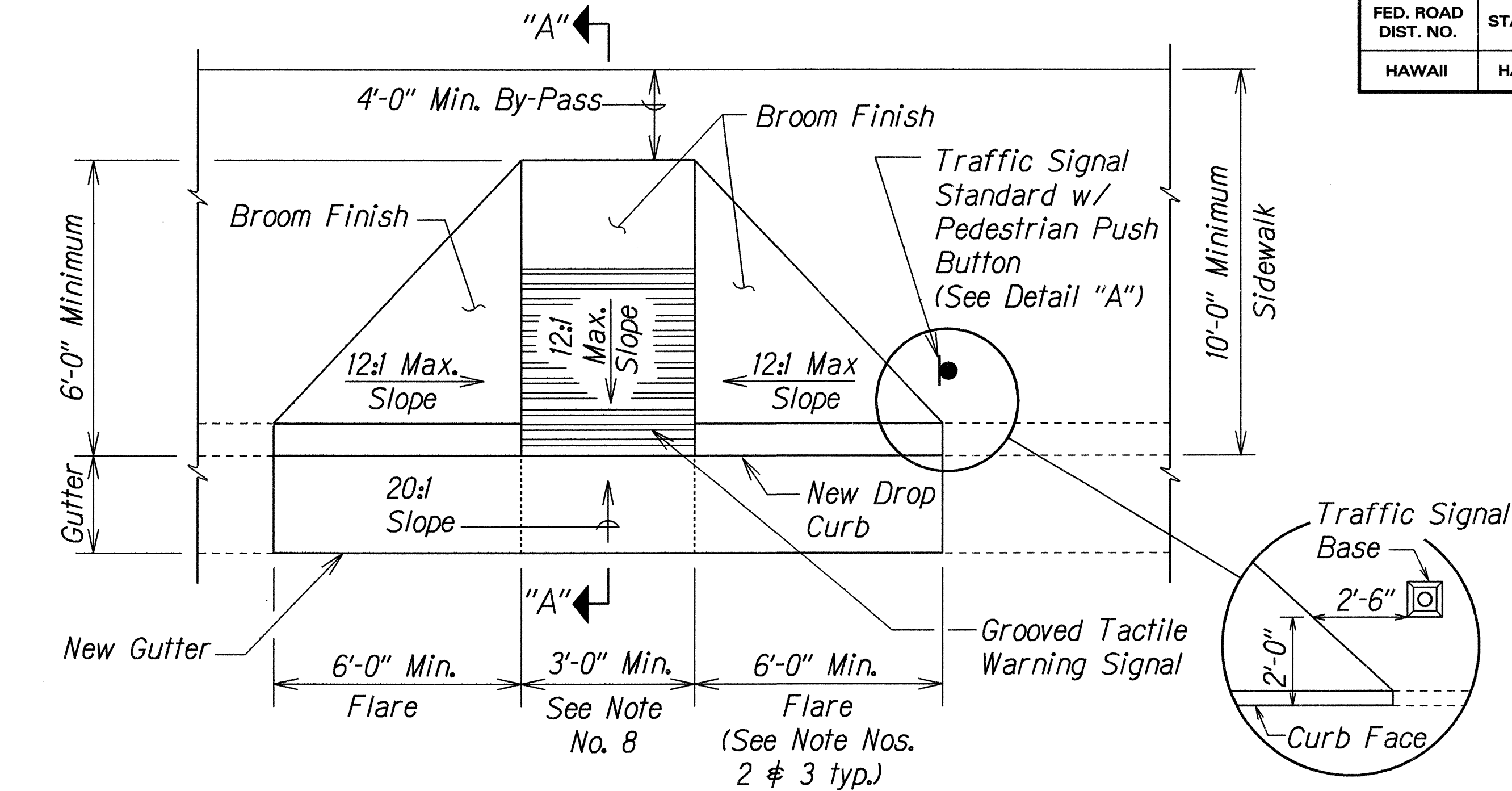
Not to Scale Date: Jan. 1999

SHEET No. 4 OF 8 SHEETS

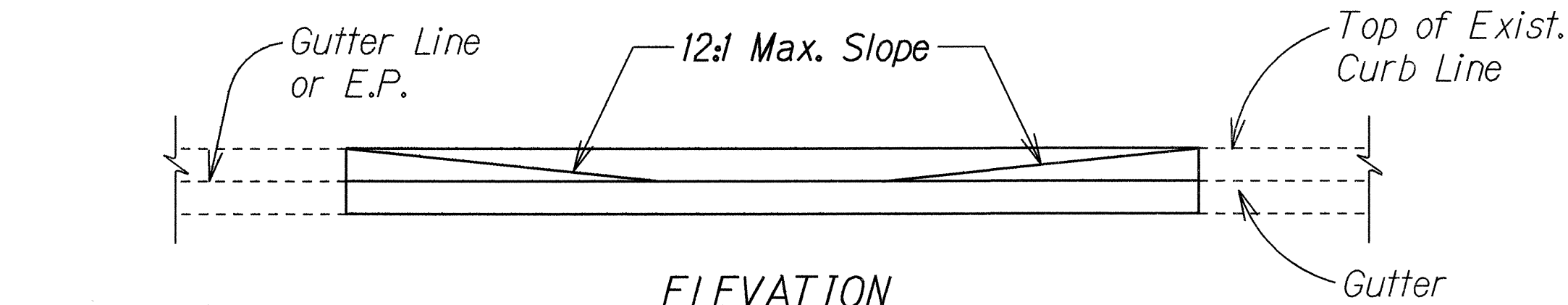
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	14	58

CURB RAMP NOTES:

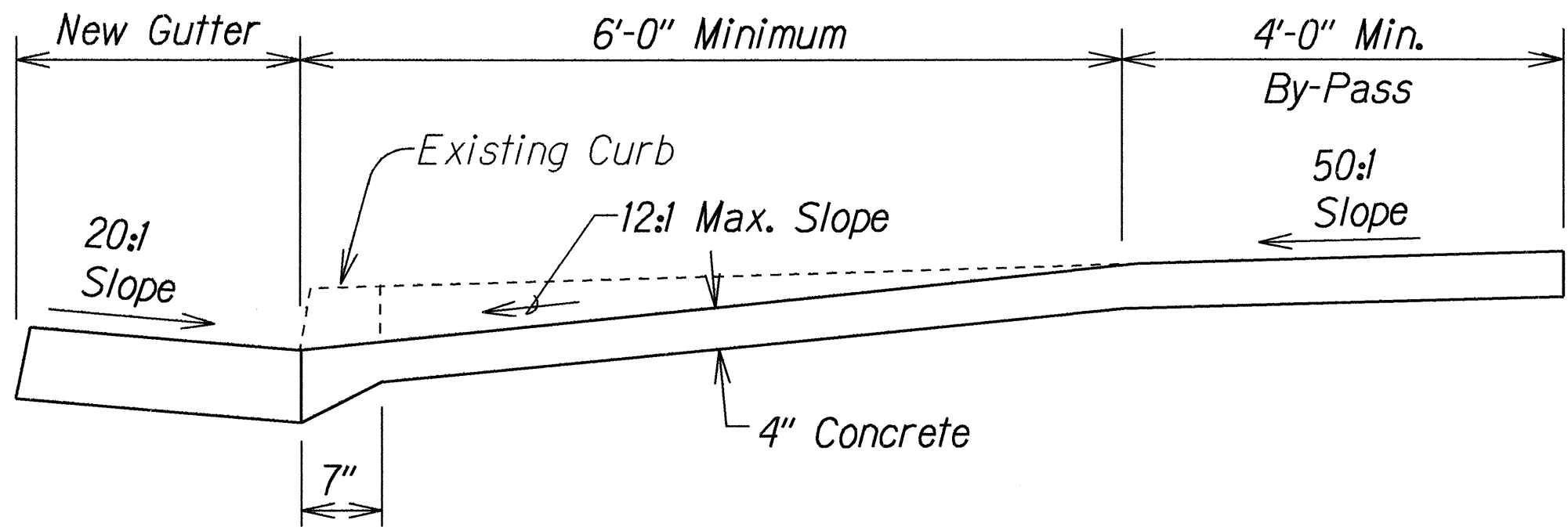
1. The New Gutter fronting the curb ramps shall not exceed a slope of 20:1. Area without a gutter shall be handled on a case by case basis in order to meet the 20:1 slope requirement.
2. The New Gutter fronting the 6'-0" minimum flares on both sides of the New Curb Ramps shall have a transition slope from 20:1 to the existing gutter slope.
3. When the curb exceeds the standard 6" height, the side flares and ramp may be greater than 6'-0" in order to meet the 12:1 maximum slope requirement.
4. Curb Ramps shall be reinforced if adjacent sidewalks are reinforced.
5. The Contractor shall use the Edge of Pavement (E.P.) fronting the new curb ramp or gutter as the control elevation when constructing the New Curb Ramp or Curb Ramp with gutter.
6. For Type "B" & Type "E" Curb Ramps, New Standard Curb shall be 12" wide when installing Type I Traffic Signal Standard (TSS) or Pedestrian Push Button Pedestal (PPB). Where Type II or Type III TSS or Highway Light Pole is utilized, the width of the New Standard Curb shall be determined by the Engineer. For sidewalk less than 4'-0" (excluding curb), an Engineer approved 3'-0" wide minimum curb ramp shall be installed.
7. The width of the curb ramp including curbs shall match the width of the sidewalk. When the sidewalk width is less than 4'-0", an Engineer approved, modified sidewalk with a minimum 3'-0" wide curb ramp excluding curbs shall be installed.
8. The width of the curb ramp run shall be increased to 10'-0" at areas with high pedestrian traffic and as directed by the Engineer or shown on the plans.
9. A minimum 3'-0" wide by 5'-0" long (excluding curbs) flat, stable paved surface with a cross slope of 50:1 shall be provided for a parallel approach to the pedestrian push button.
10. The pedestrian push button shall meet current American with Disabilities Act (ADA) Accessibility Guidelines and will be subject to Engineer's approval.
11. All Pullboxes shall be installed within the sidewalk/unpaved area or as directed by the Engineer. Pullboxes shall not be installed within the curb ramp (including flares).



PLAN

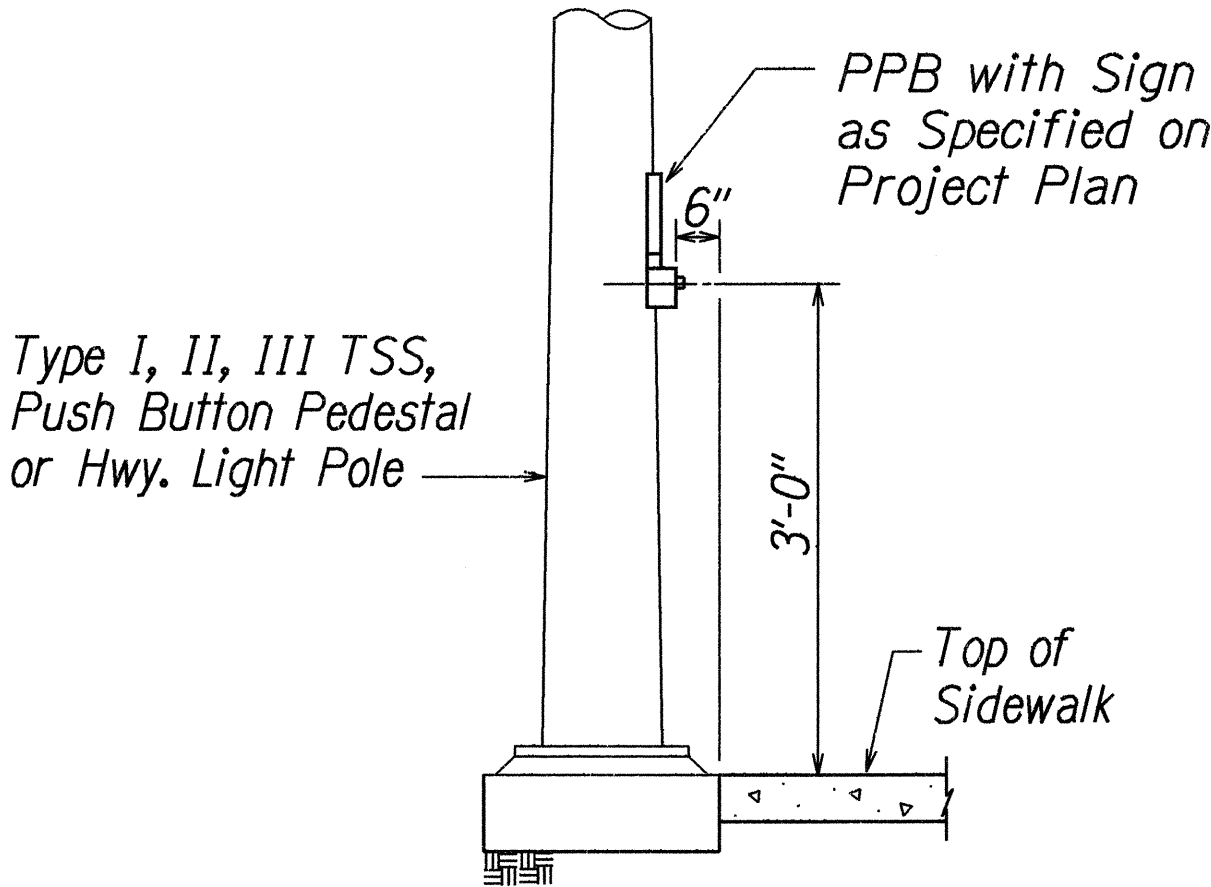


ELEVATION

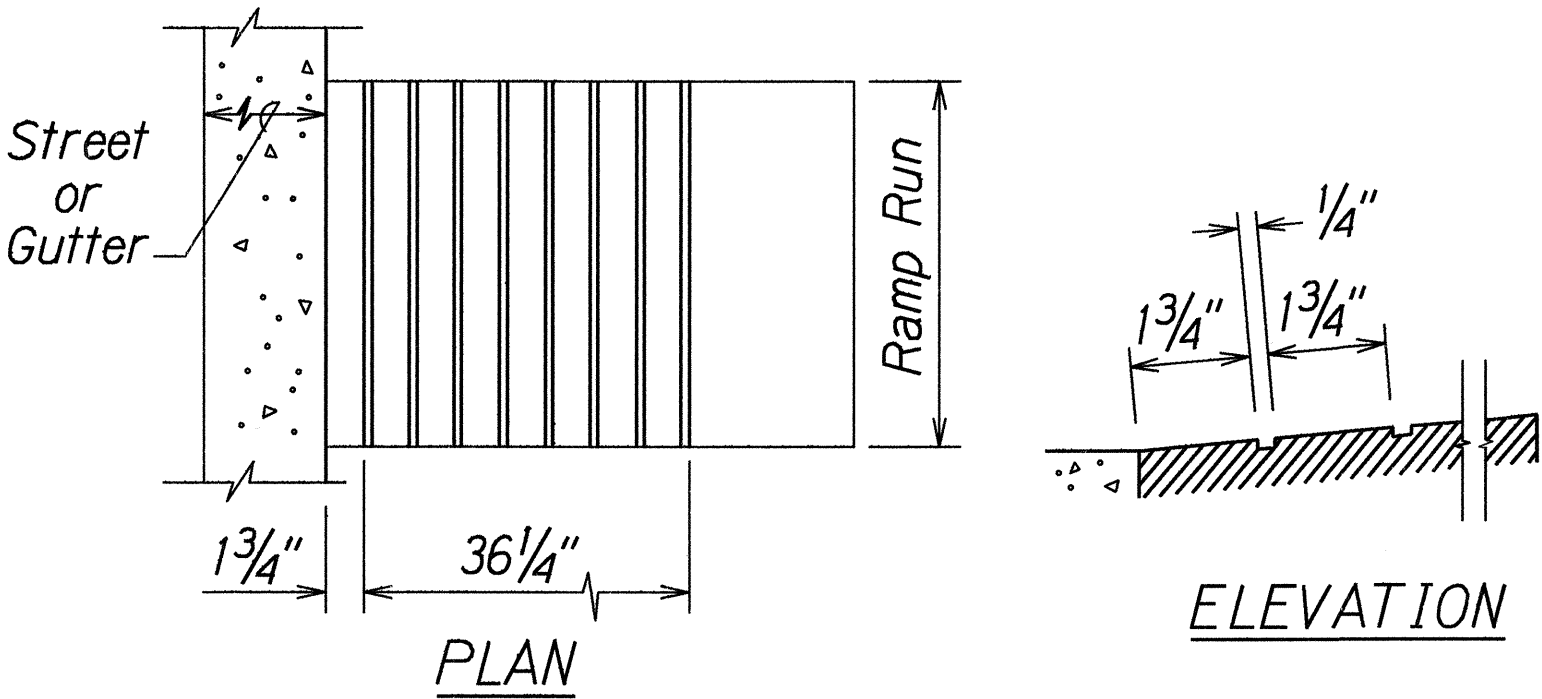


SECTION "A-A"

CURB RAMP - TYPE "A"
SIDEWALK WIDTH 10'-0" OR GREATER



DETAIL "A"



PLAN

ELEVATION

GROOVED TACTILE WARNING SIGNAL

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL

KAILUA ROAD

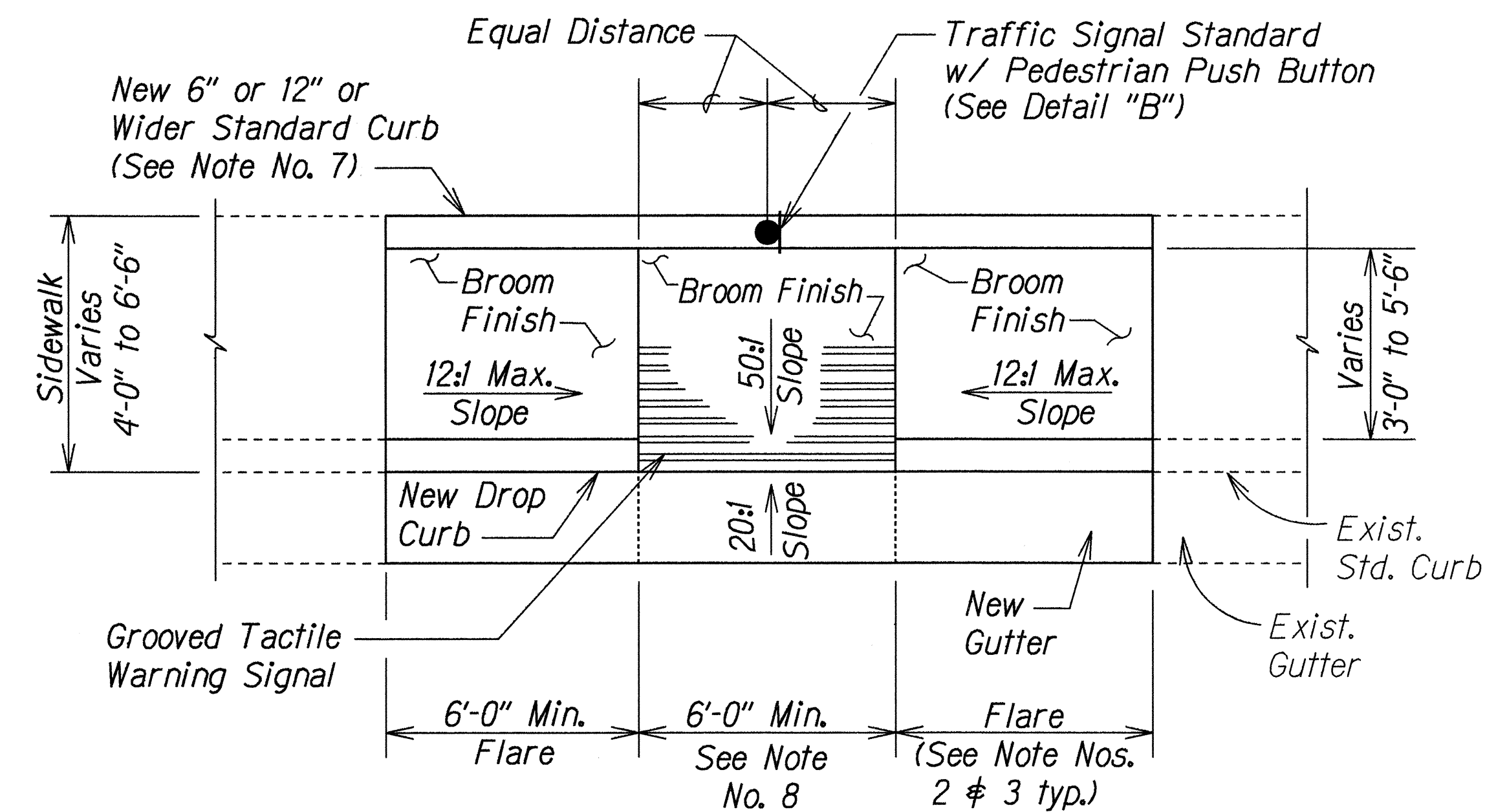
Shoulder Improvements For Bicycle Route
Kalanianaʻole Hwy. To Kawaiʻuli Bridge
F.A. Proj. No. STP-061-1(33)

Not to Scale Date: Jan. 1999

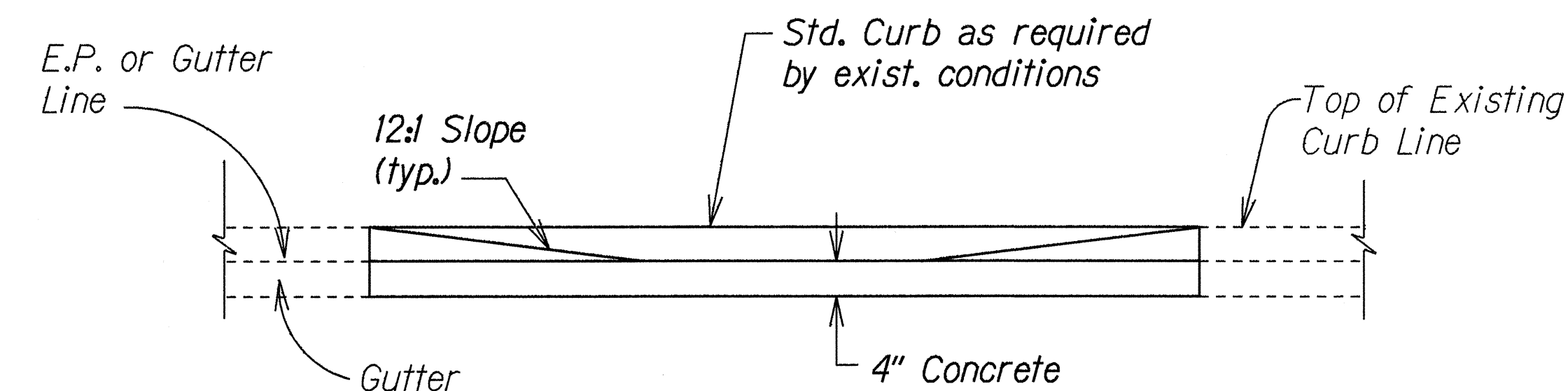
SHEET No. 5 OF 8 SHEETS

DESIGNED BY	DATE
DRAWN BY	1-26-99
CHECKED BY	
NOTED BY	
QUANTITIES BY	
APPROVED BY	

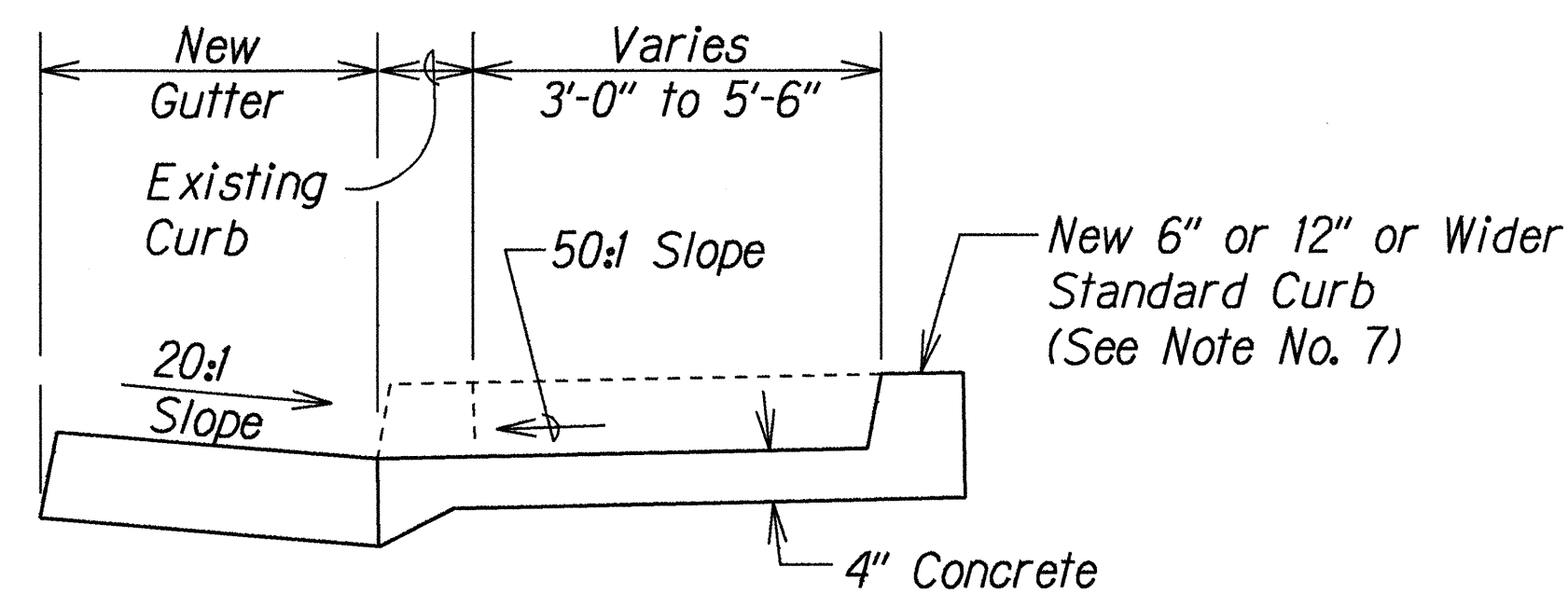
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-I(33)	1999	15	58



PLAN

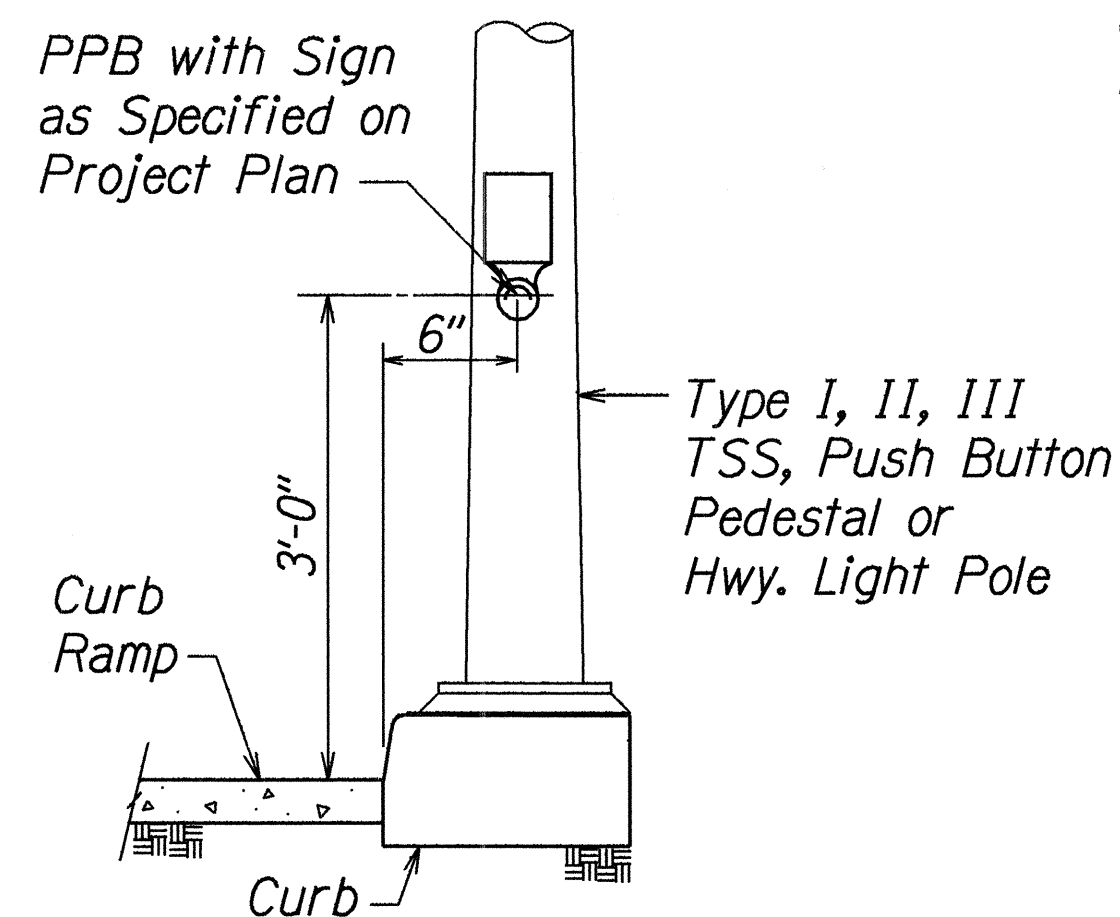


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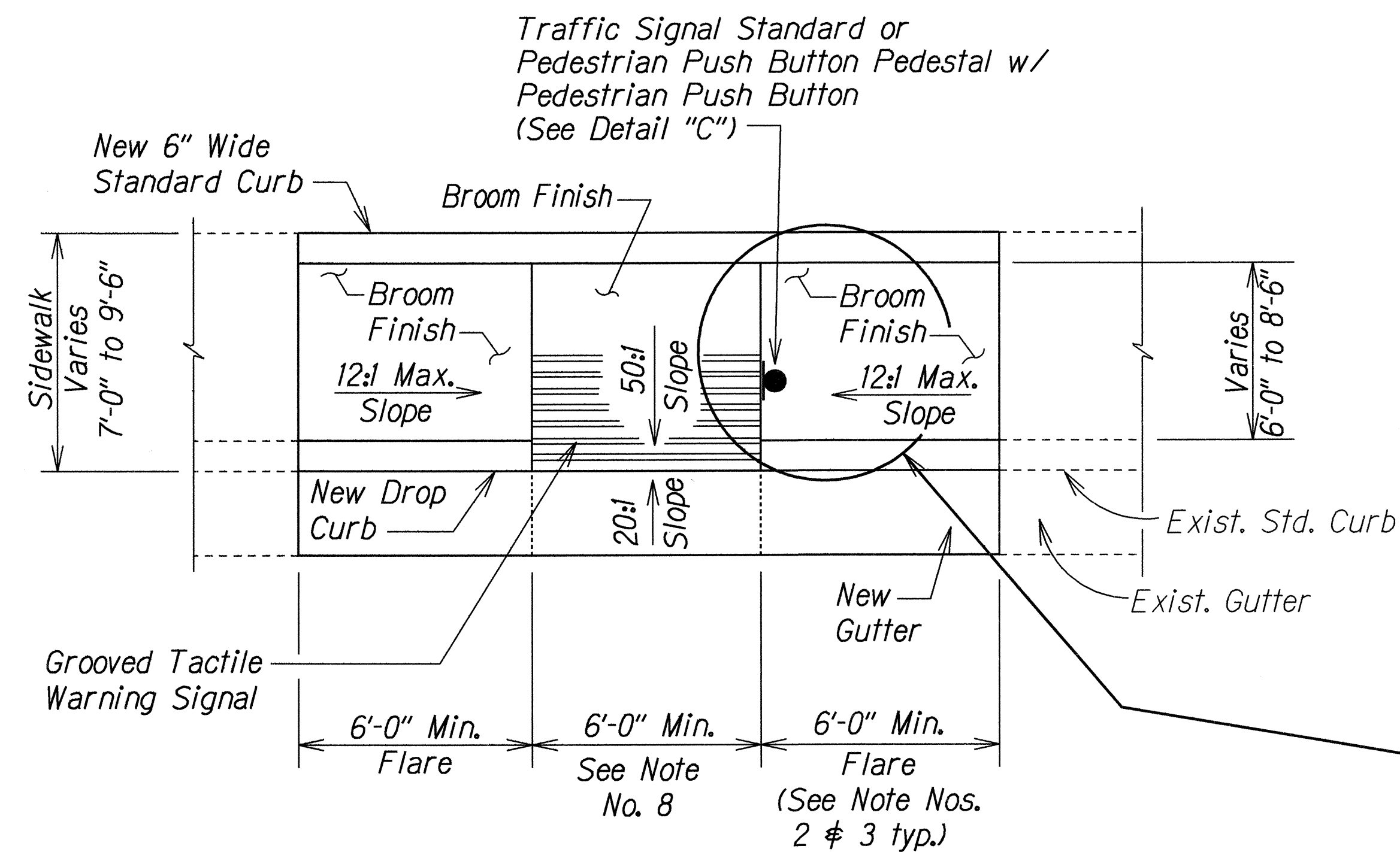


TYPICAL SECTION

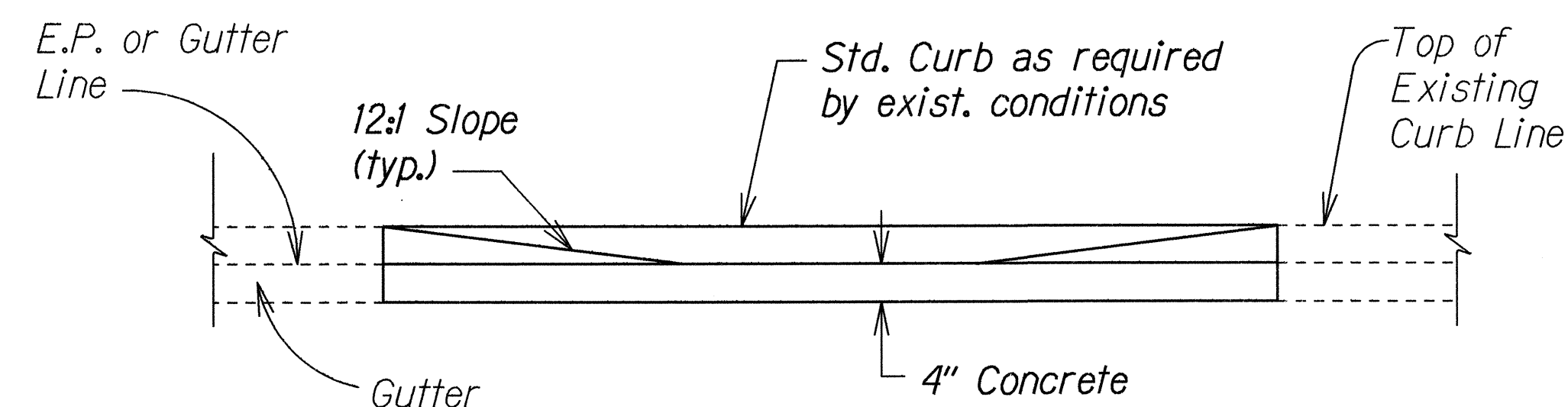
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SIDEWALK WIDTH 4'-0" OR GREATER
BUT LESS THAN 7'-0" WIDTH
(FOR EXISTING SIDEWALK ONLY)



DETAIL "B"

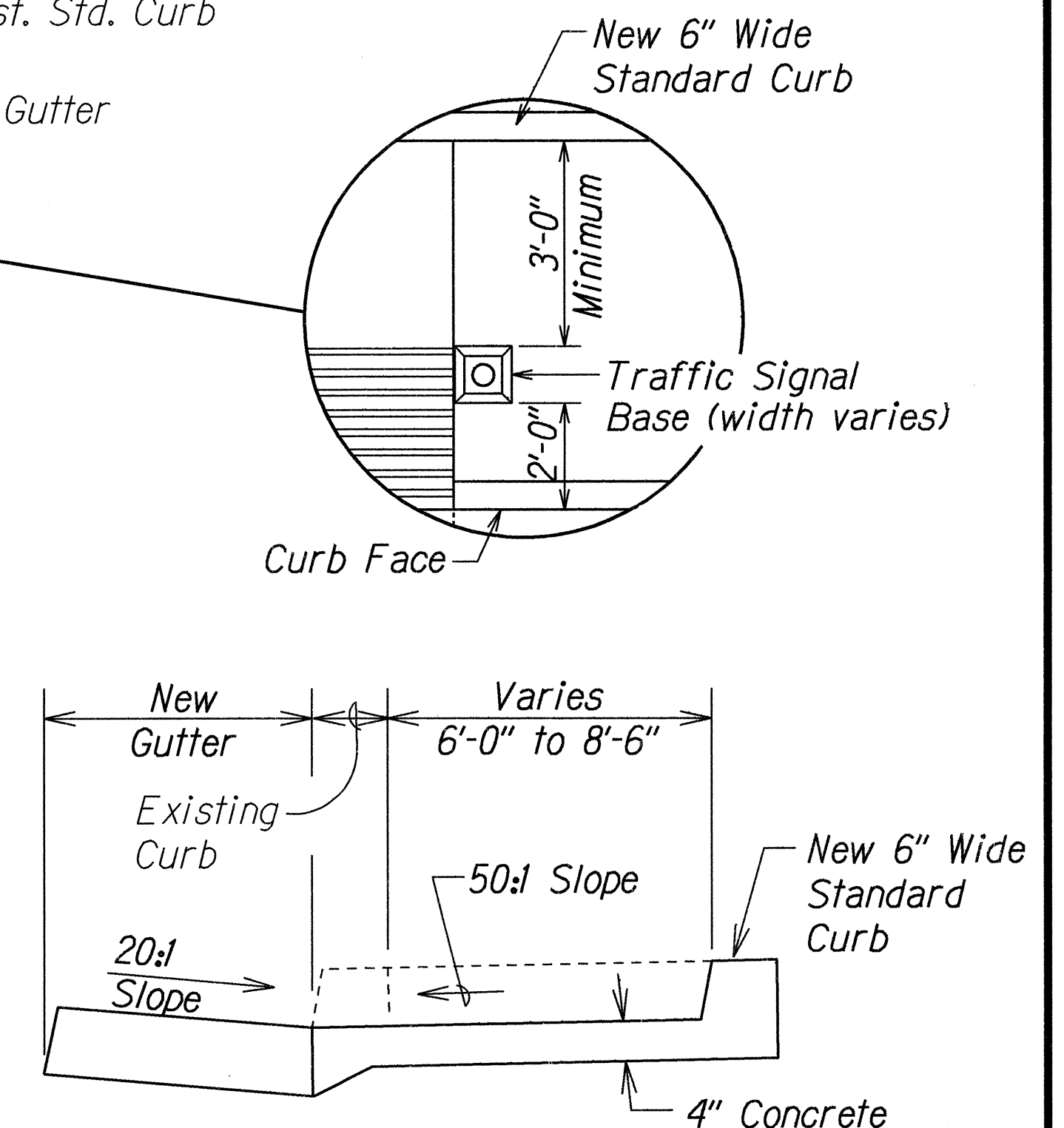


PLAN

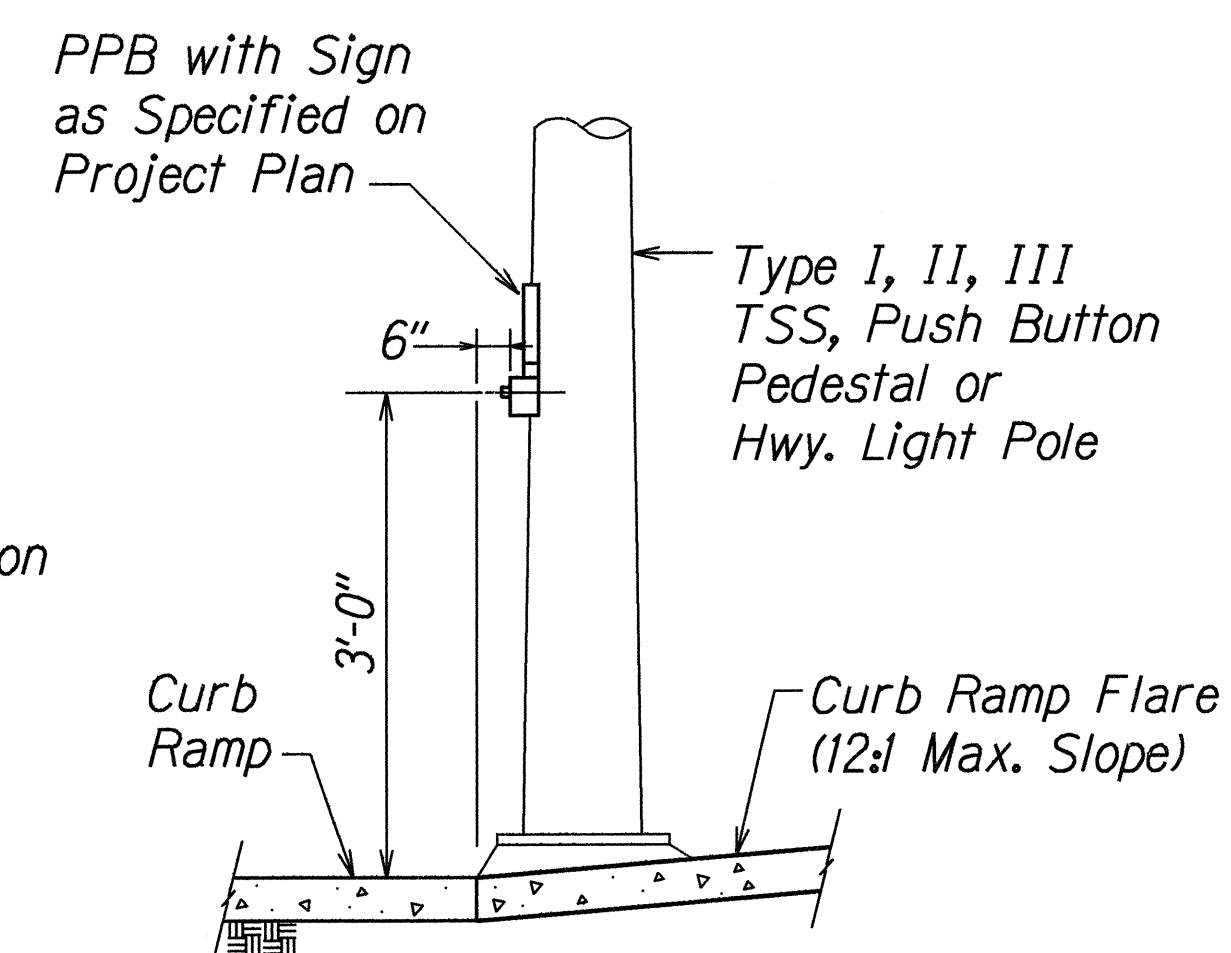


ELEVATION

CURB RAMP - TYPE "B" MODIFIED
SIDEWALK WIDTH 7'-0" OR GREATER
BUT LESS THAN 10'-0" WIDTH



TYPICAL SECTION



DETAIL "C"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

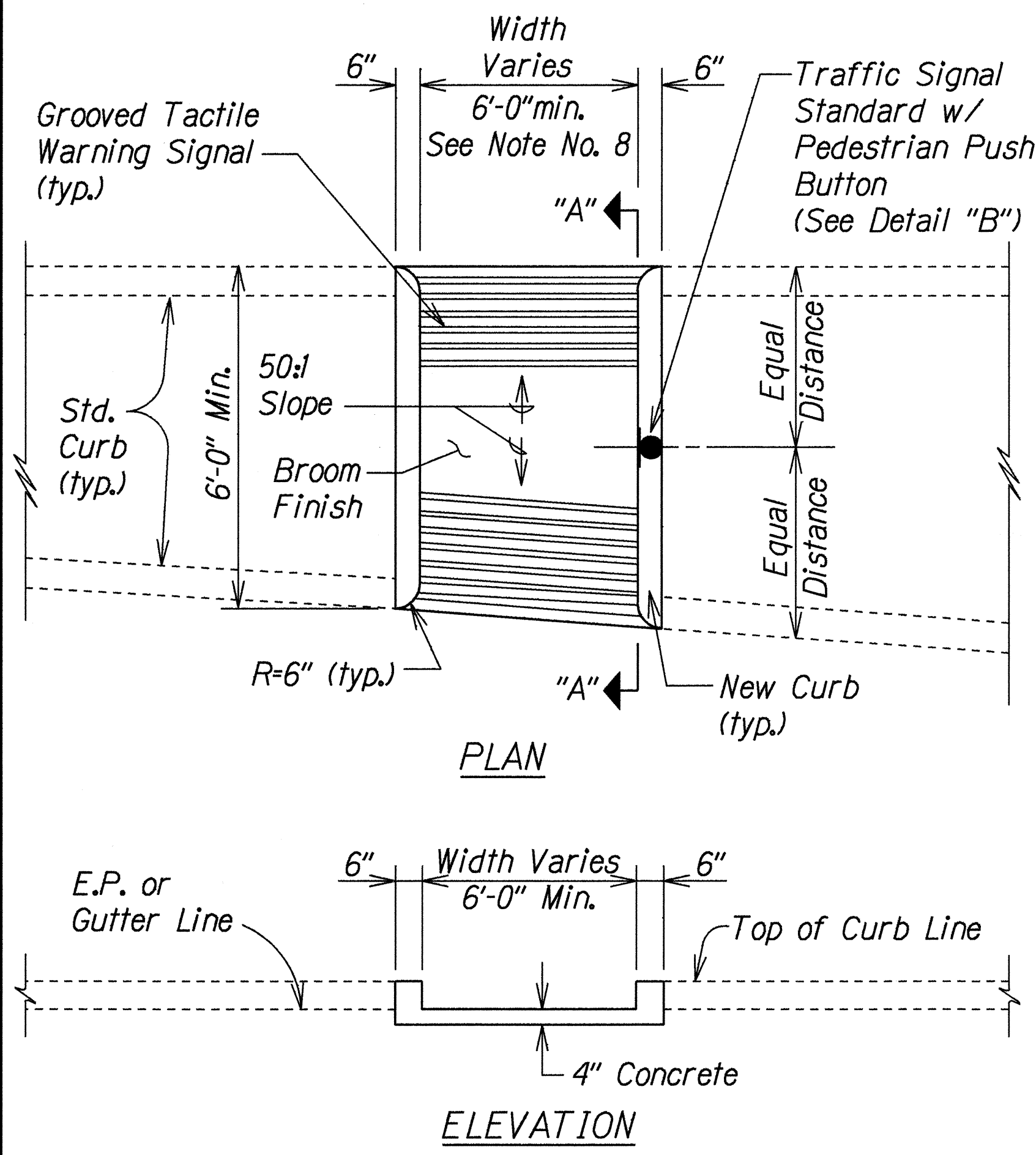
CURB RAMP DETAIL

KAILUA ROAD
Shoulder Improvements For Bicycle Route
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-I(33)

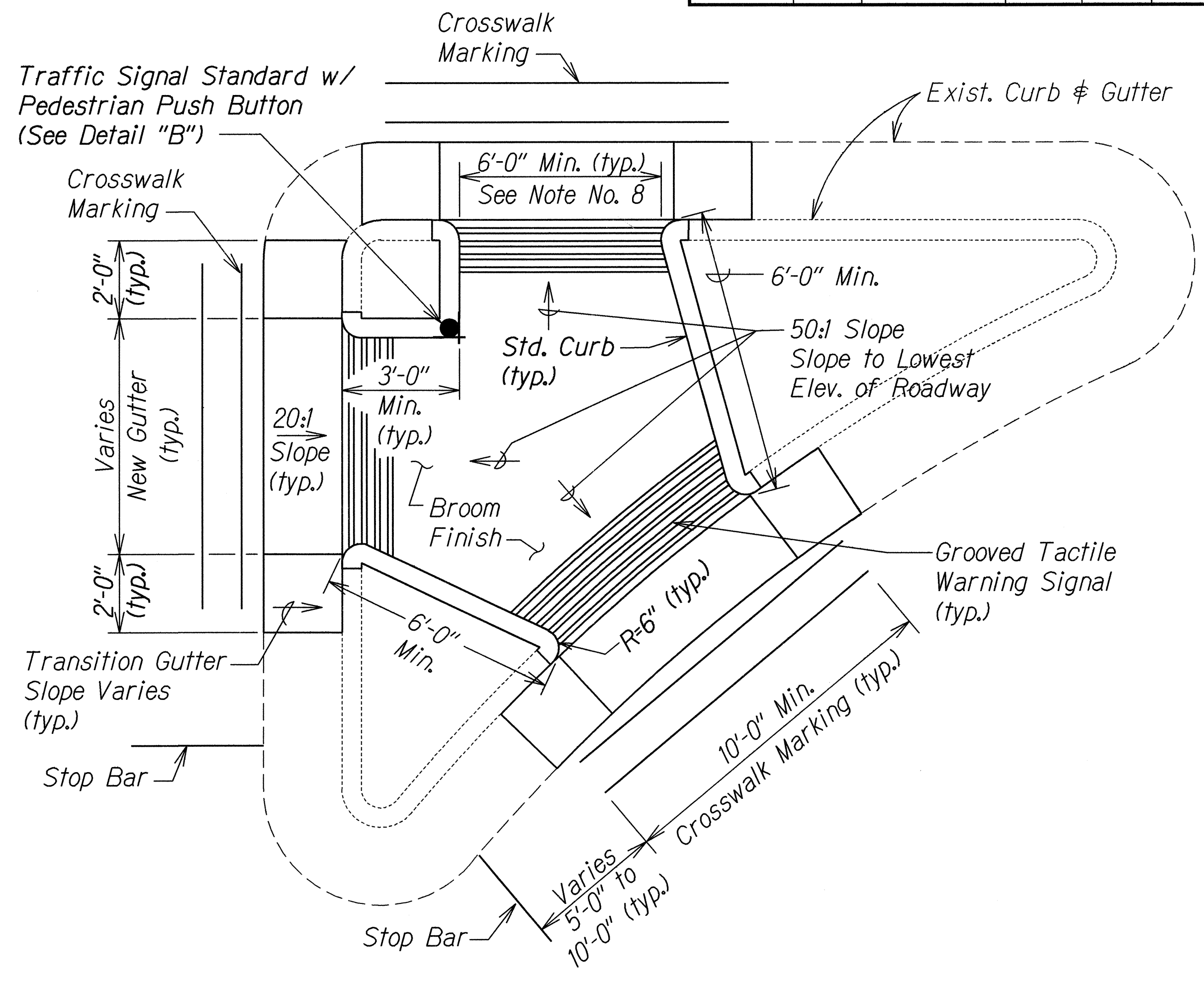
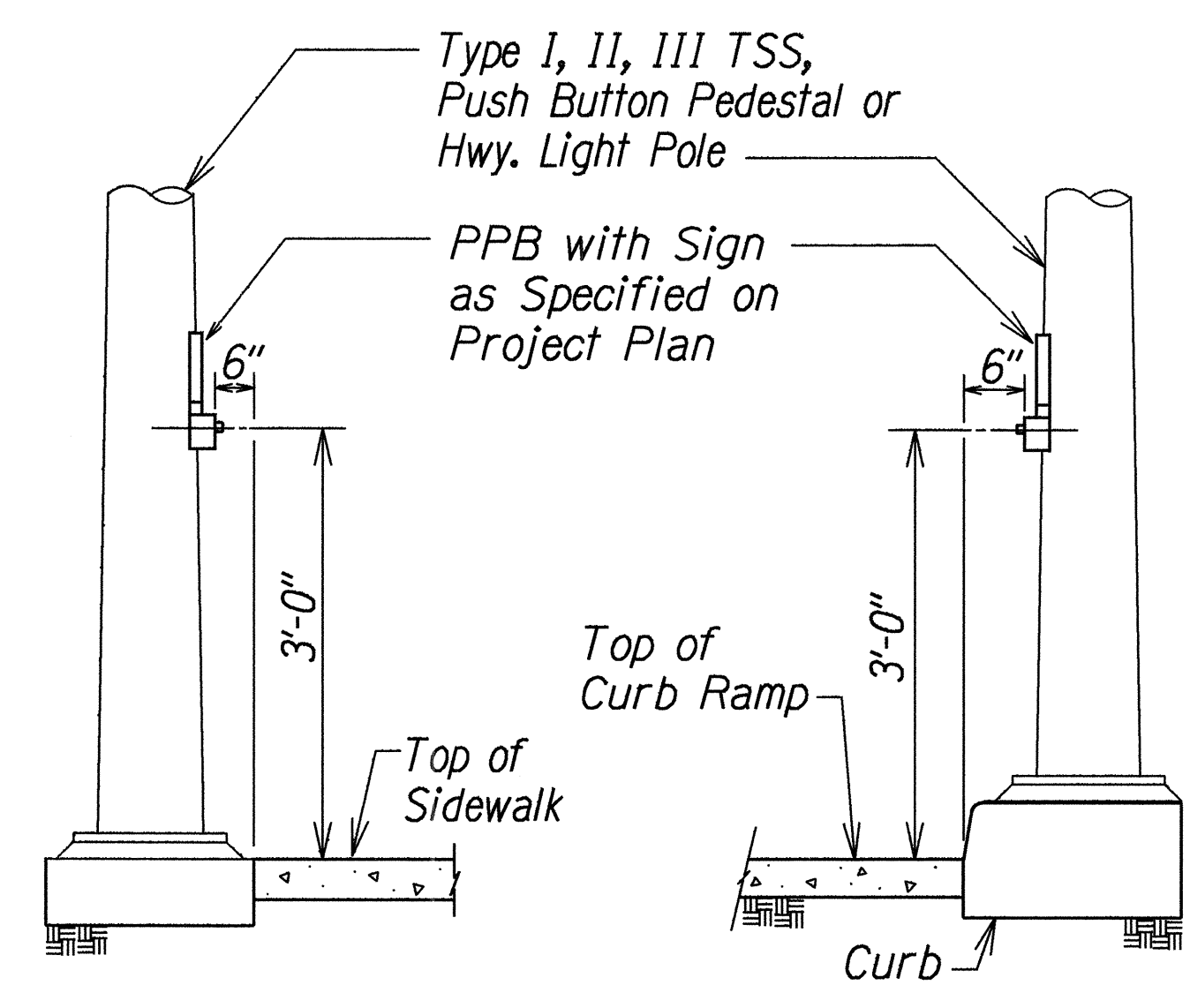
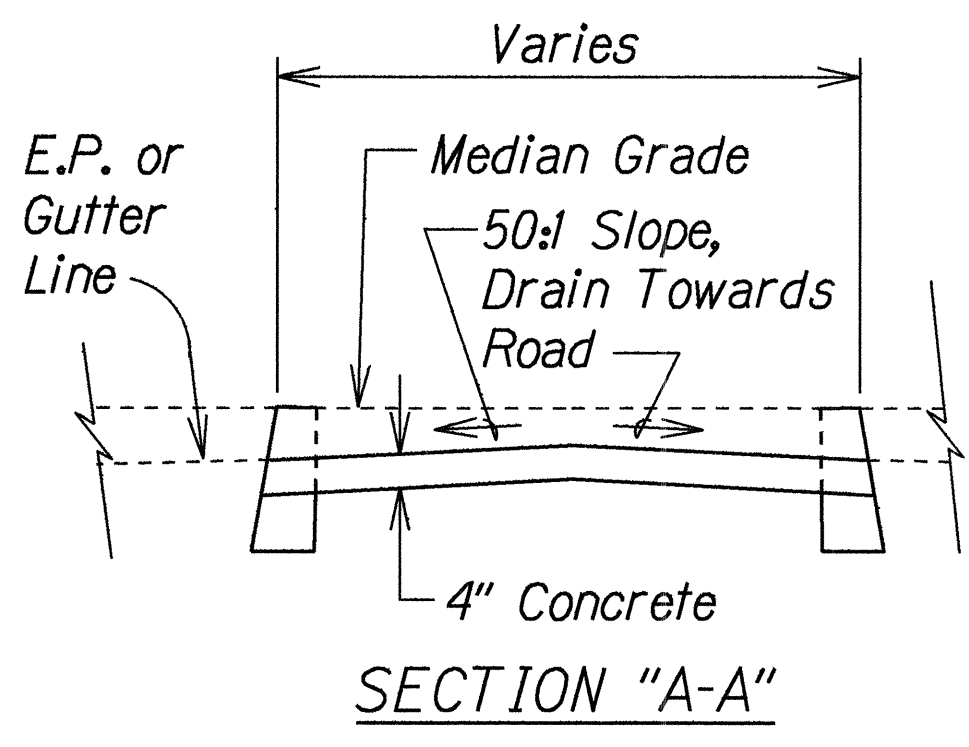
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SHEET No. 6 OF 8 SHEETS

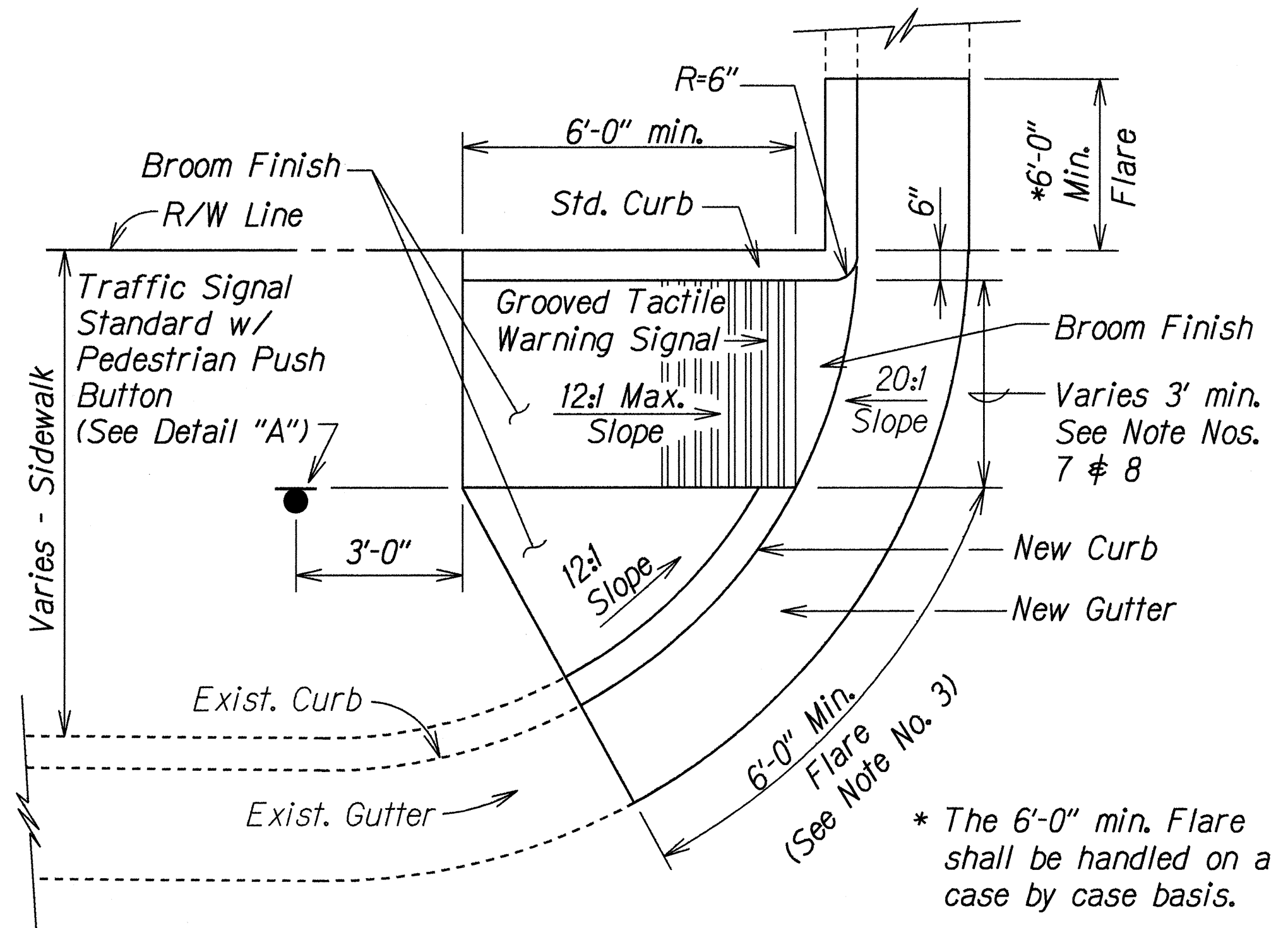
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-I(33)	1999	16	58



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

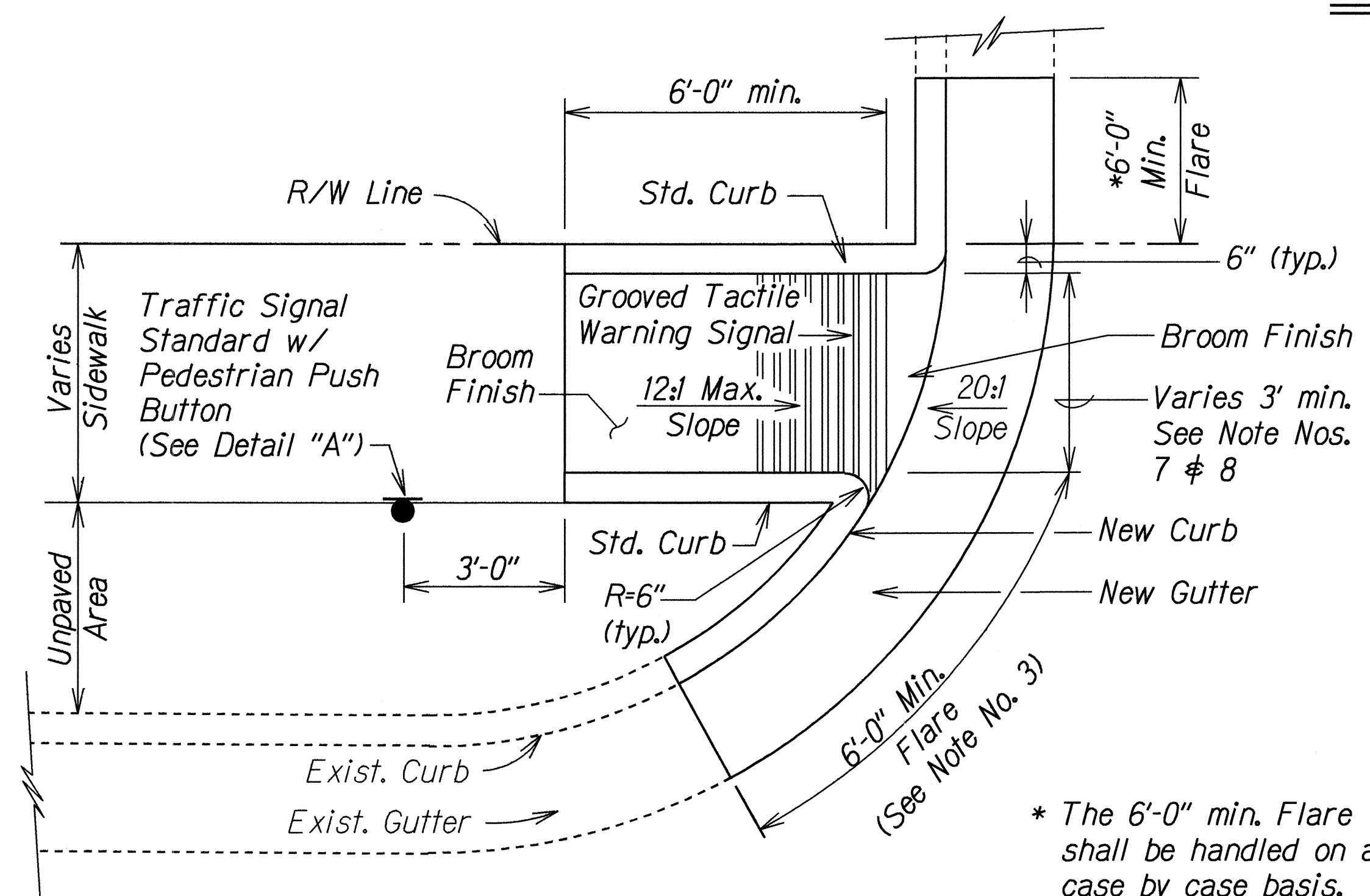


CURB RAMP - TYPE "C" MODIFIED



CURB RAMP - TYPE "D"

* The 6'-0" min. Flare shall be handled on a case by case basis.



CURB RAMP - TYPE "D" MODIFIED

* The 6'-0" min. Flare shall be handled on a case by case basis.

DESIGNED BY	DATE
DRAWN BY	12-99
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NOTED BY	
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APPROVED BY	

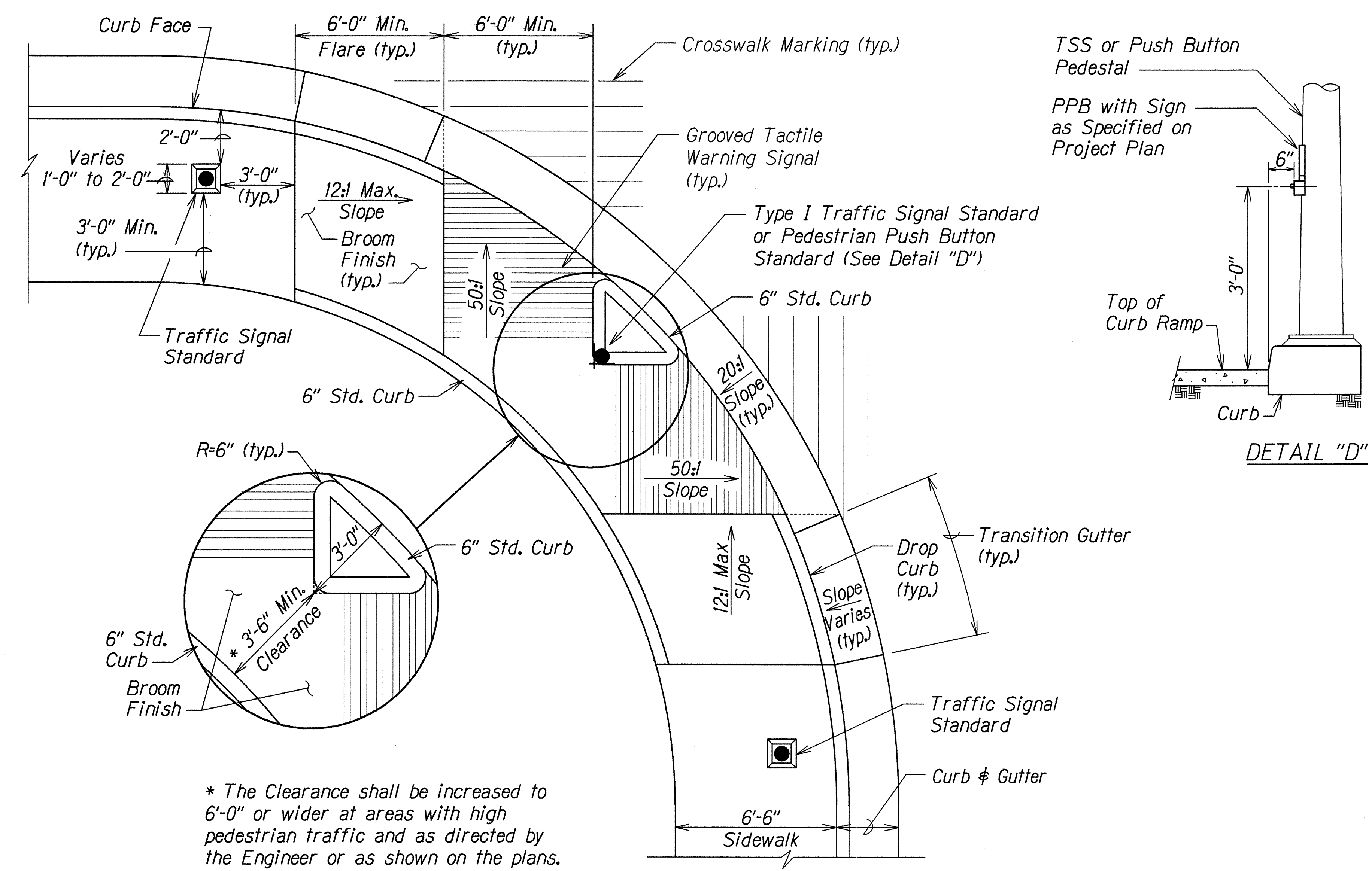
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAIL
KAILUA ROAD
Shoulder Improvements For Bicycle Route
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-I(33)

Not to Scale
SHEET No. 7 OF 8 SHEETS

Date: Jan. 1999

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	17	58



CURB RAMP - TYPE "E"
 SIDEWALK WIDTH 6'-6" OR GREATER
 EXCLUDING CURB
 (FOR EXISTING SIDEWALK ONLY)

ORIGINAL PLAN	DATE	1/26/99
DESIGNED BY	DESIGNED BY	
NOTED BY	NOTED BY	
CHECKED BY	CHECKED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

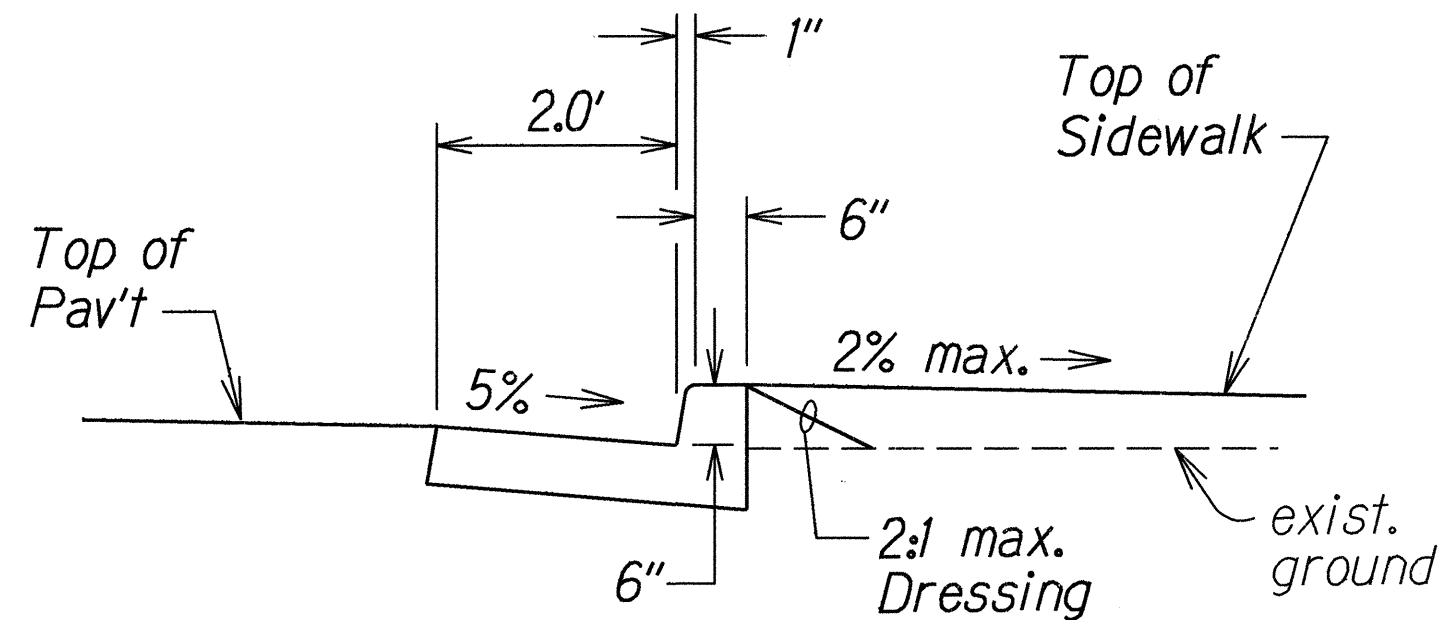
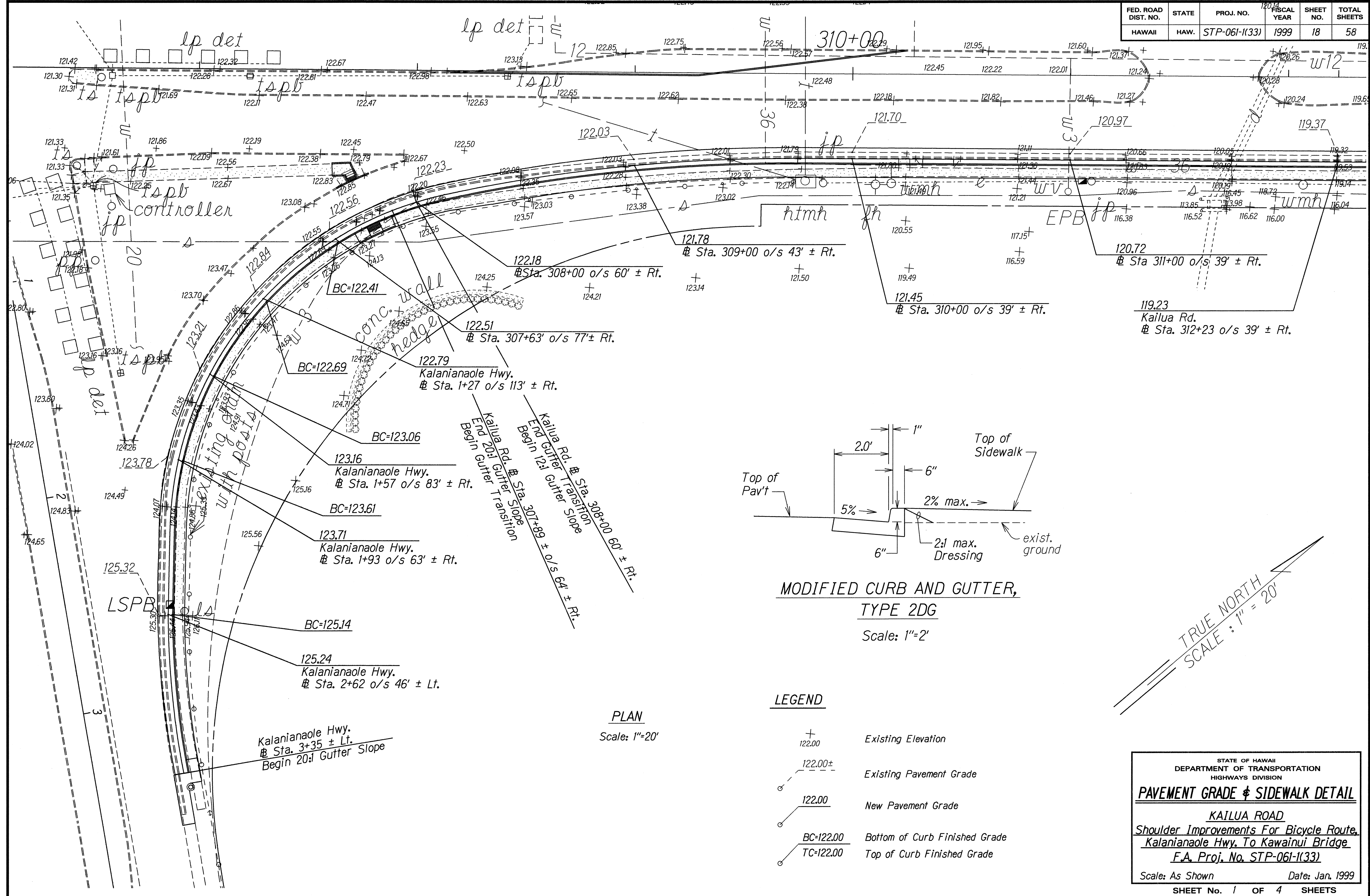
CURB RAMP DETAIL

KAILUA ROAD
 Shoulder Improvements For Bicycle Route
 Kalaniana'ole Hwy. To Kawainui Bridge
 F.A. Proj. No. STP-061-1(33)

Not to Scale Date: Jan. 1999

SHEET No. 8 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1999	18	58



**MODIFIED CURB AND GUTTER,
TYPE 2DG**

Scale: 1"=2'

LEGEND

- Existing Elevation
- Existing Pavement Grade
- New Pavement Grade
- Bottom of Curb Finished Grade
- Top of Curb Finished Grade

PLAN
Scale: 1"=20'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT GRADE & SIDEWALK DETAIL

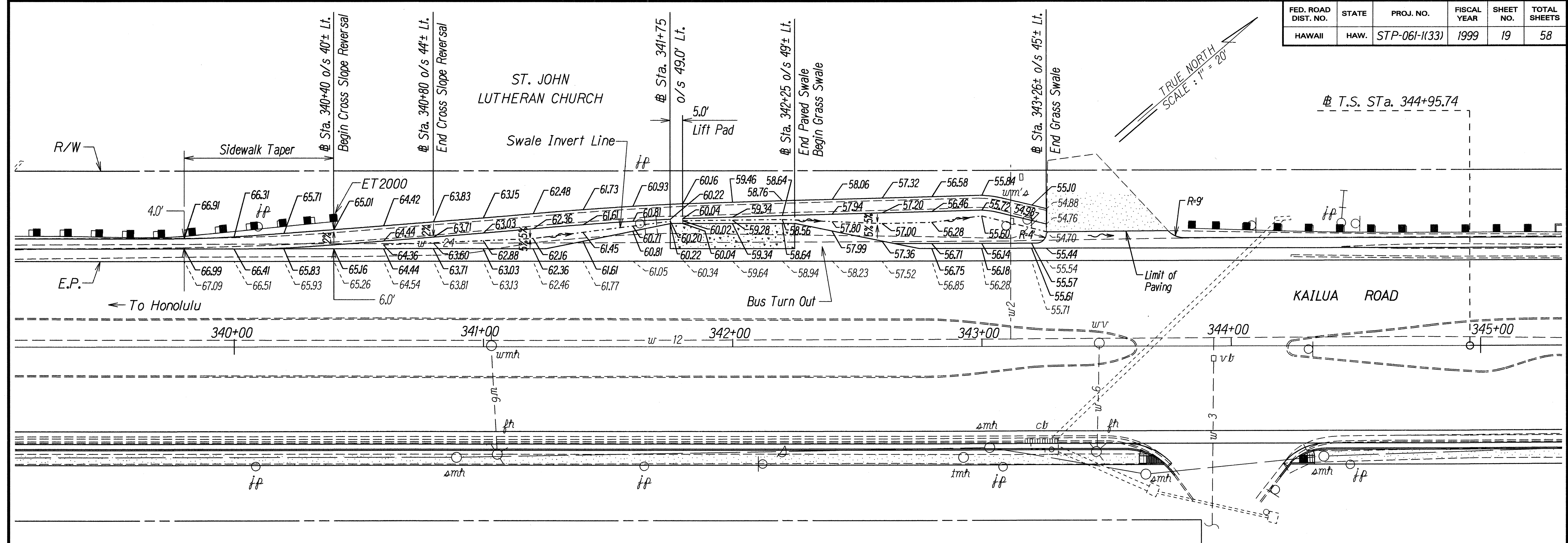
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-K(33)

Scale: As Shown Date: Jan. 1999

SHEET No. 1 OF 4 SHEETS

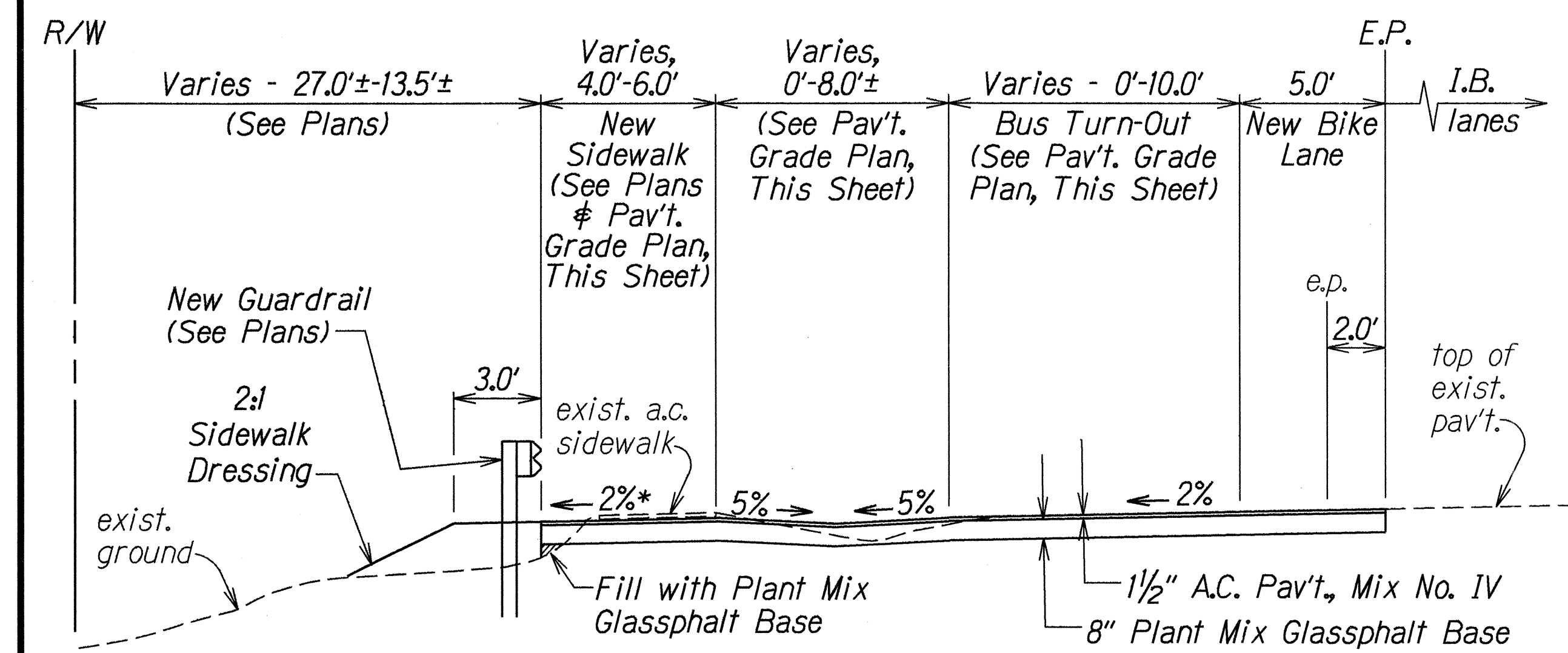
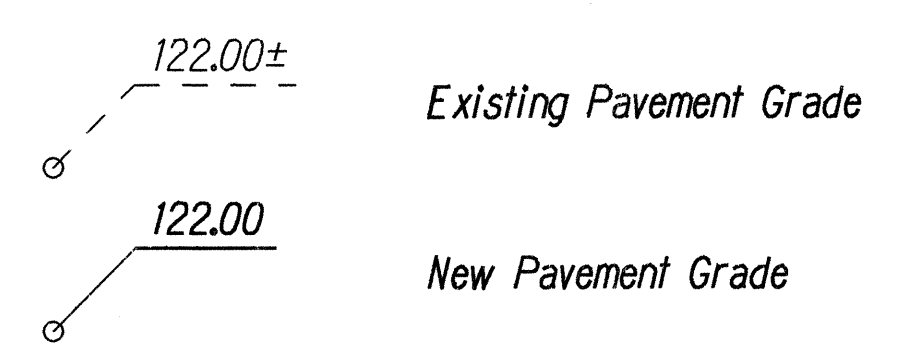
DESIGNED BY	DATE
DRAWN BY	12/18/99
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NOTED BY	
QUANTITIES BY	
REVISIONS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1999	19	58



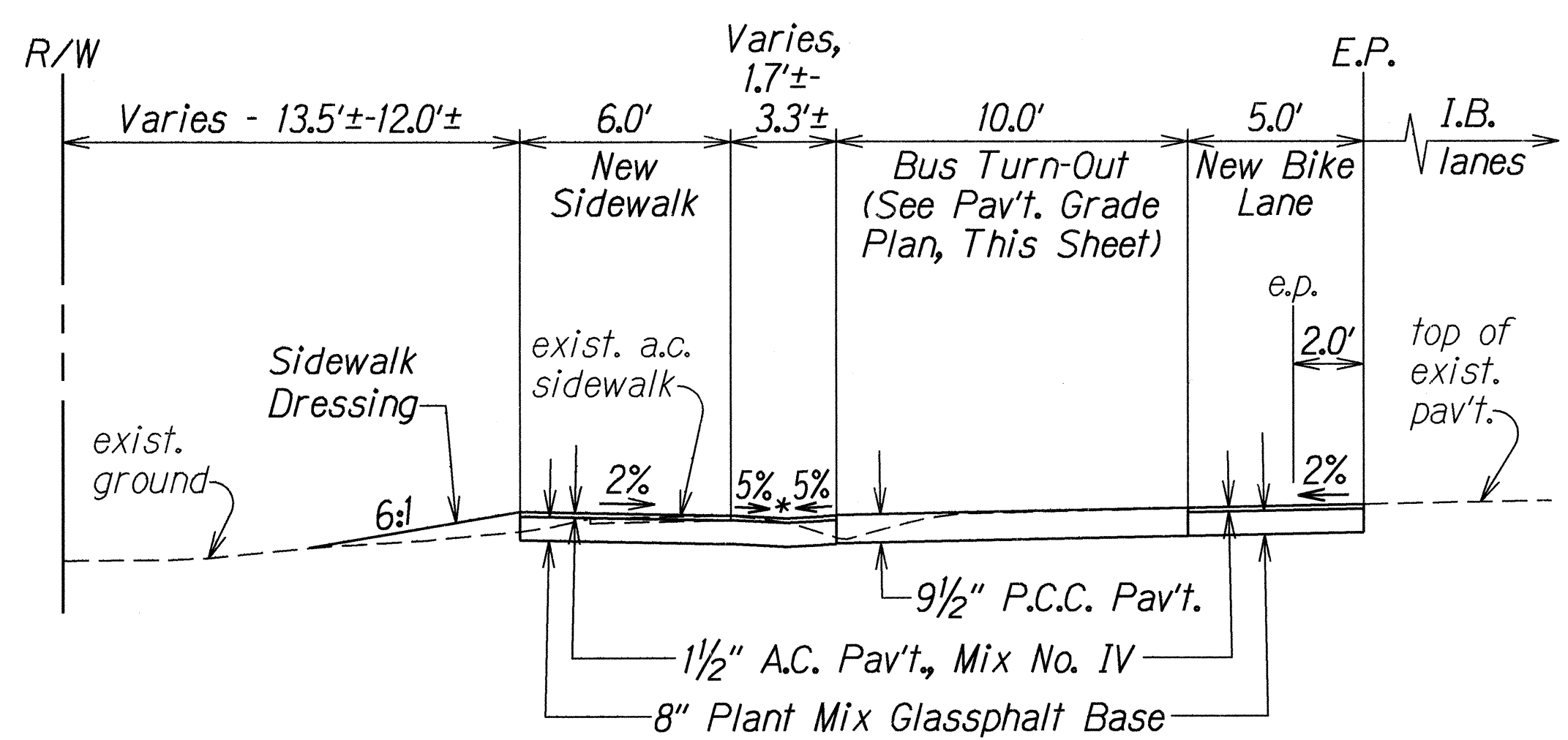
PLAN
Scale: 1"=20'

LEGEND



*Reverse Sidewalk Cross Slope from # Sta. 340+40 to # Sta. 340+80.
See Pavement Grade Plan, This Sheet.

TYPICAL SECTION
STA. 339+80 TO # STA. 341+75 LT.
Scale: 1/4"=1.0'



*The Cross Slope at Lift Pad shall be 2%.
See Pavement Grade Plan, This Sheet.

TYPICAL SECTION
STA. 341+75 TO # STA. 342+25 LT.
Scale: 1/4"=1.0'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAV'T GRADE & SIDEWALK DETAIL

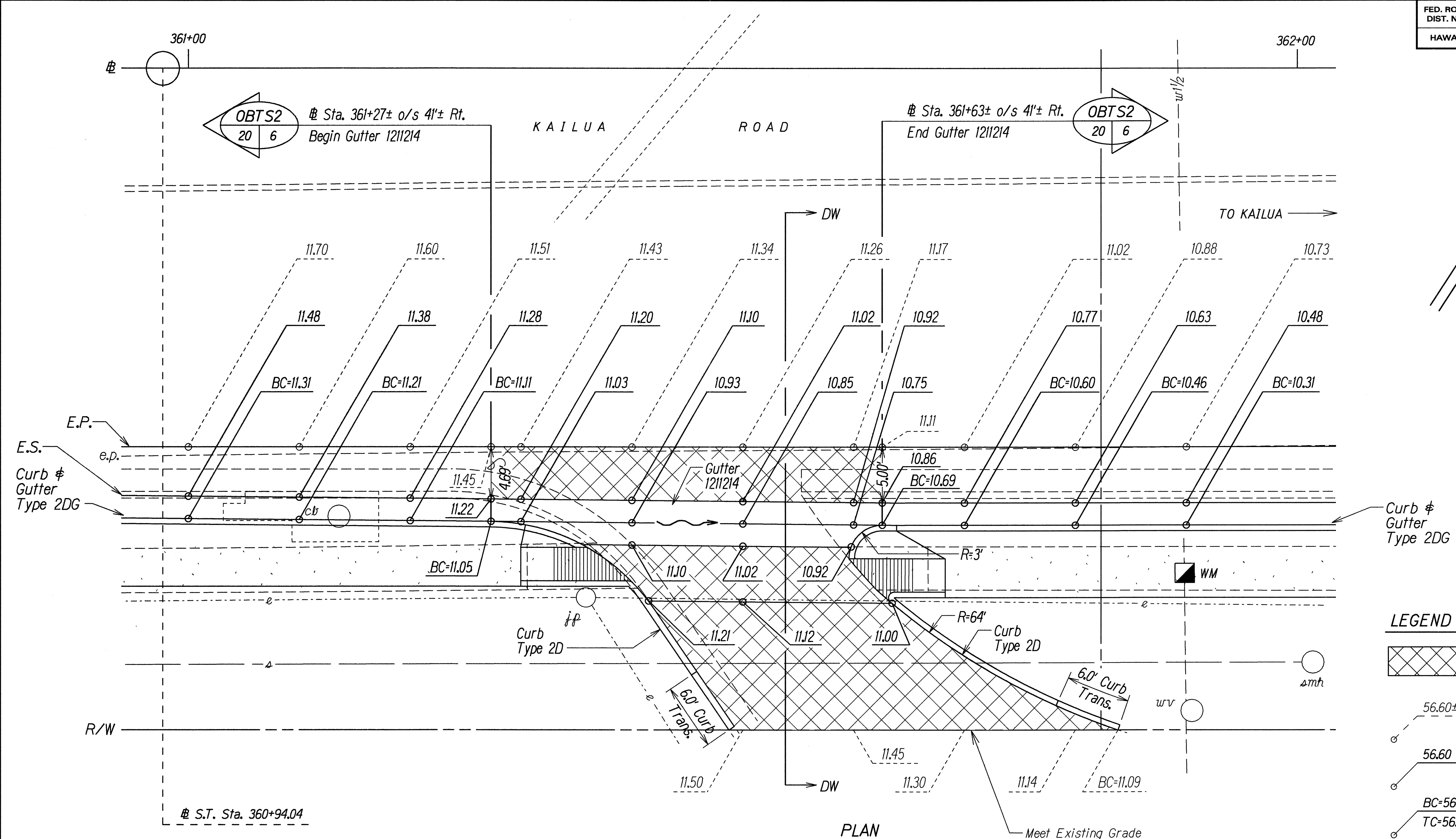
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawaiunui Bridge
F.A. Proj. No. STP-061-K(33)

Scale: As Shown Date: Jan. 1999

SHEET No. 2 OF 4 SHEETS

DESIGNED BY	DATE
DRAWN BY	12-99
CHECKED BY	
NOTED BY	
QUANTITIES BY	
REVISIONS	

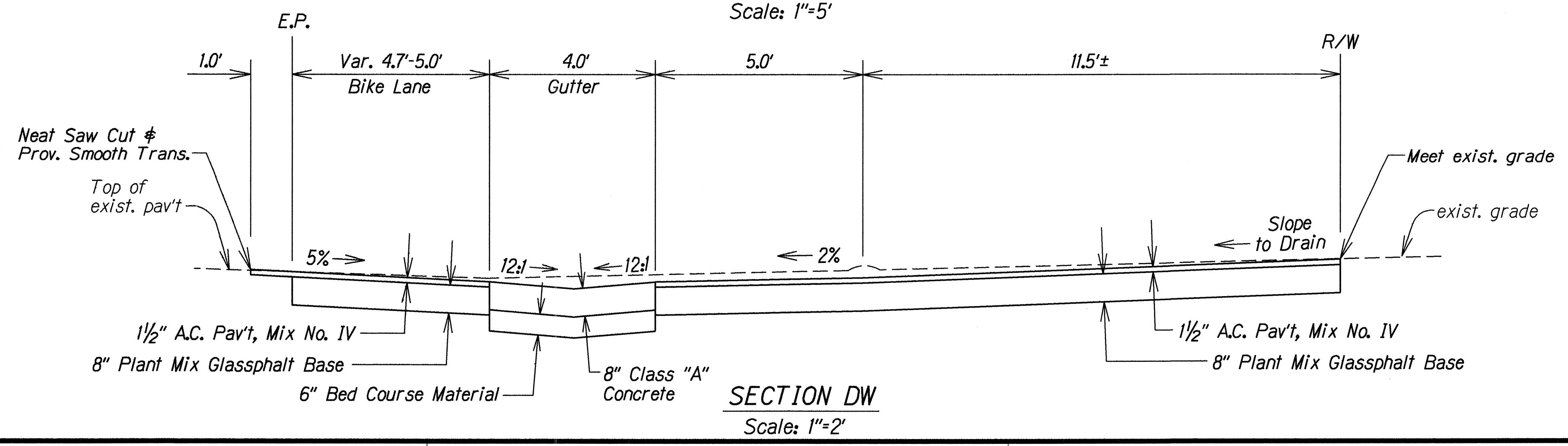
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	20	58



TRUE NORTH
SCALE: 1" = 5'

LEGEND

	Reconstruction Area
	Existing Pavement Grade
	New Pavement Grade
	Bottom of Curb Finished Grade
	Top of Curb Finished Grade



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT GRADE & SIDEWALK DETAIL

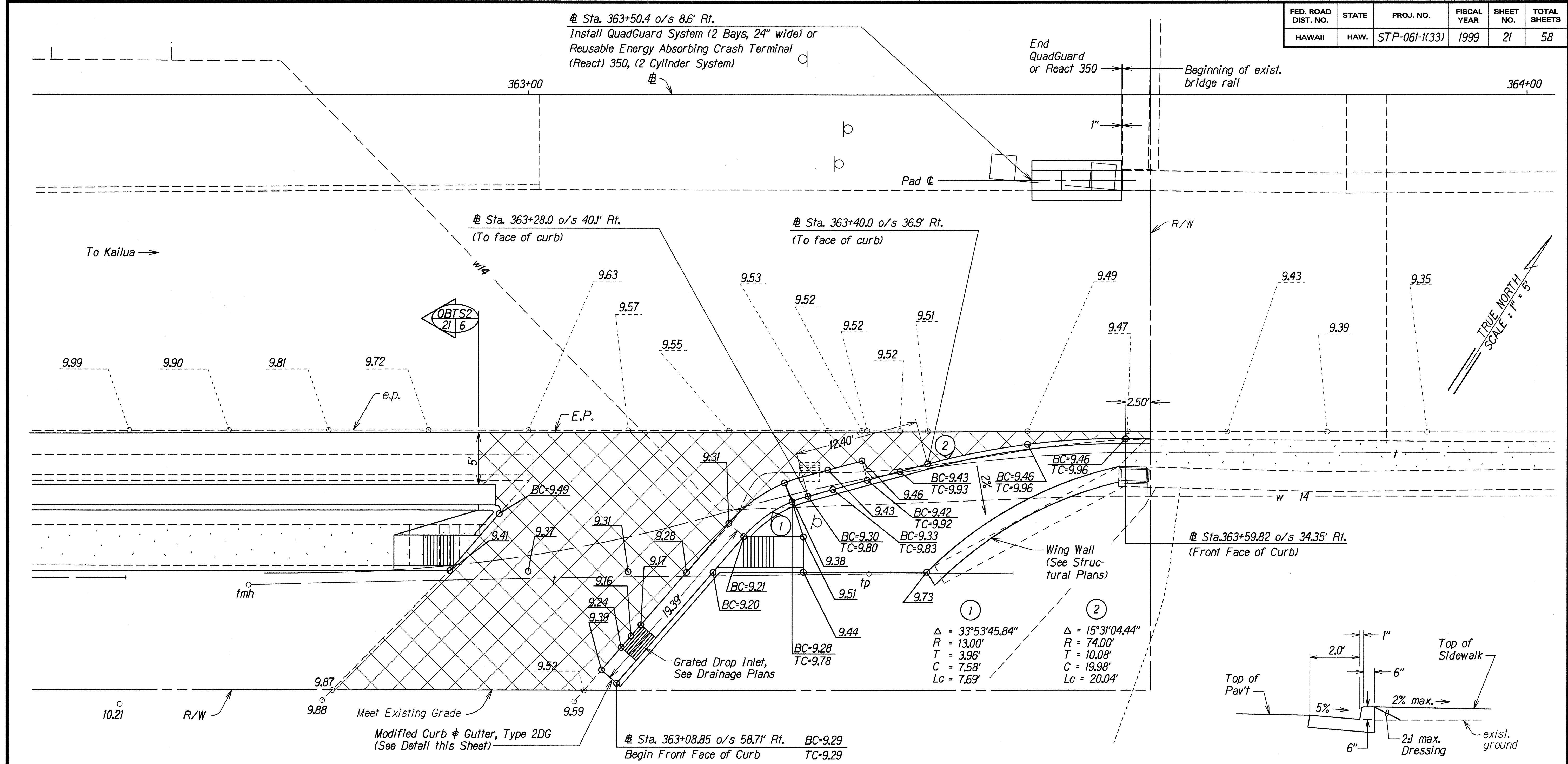
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalanihale Hwy. To Kawaihuli Bridge
F.A. Proj. No. STP-061-1(33)

Scale: As Shown Date: Jan. 1999

SHEET No. 3 OF 4 SHEETS

DESIGNED BY	DATE
DRAWN BY	2-8-99
CHECKED BY	
NOTES	
QUANTITIES	
BY	
DATE	

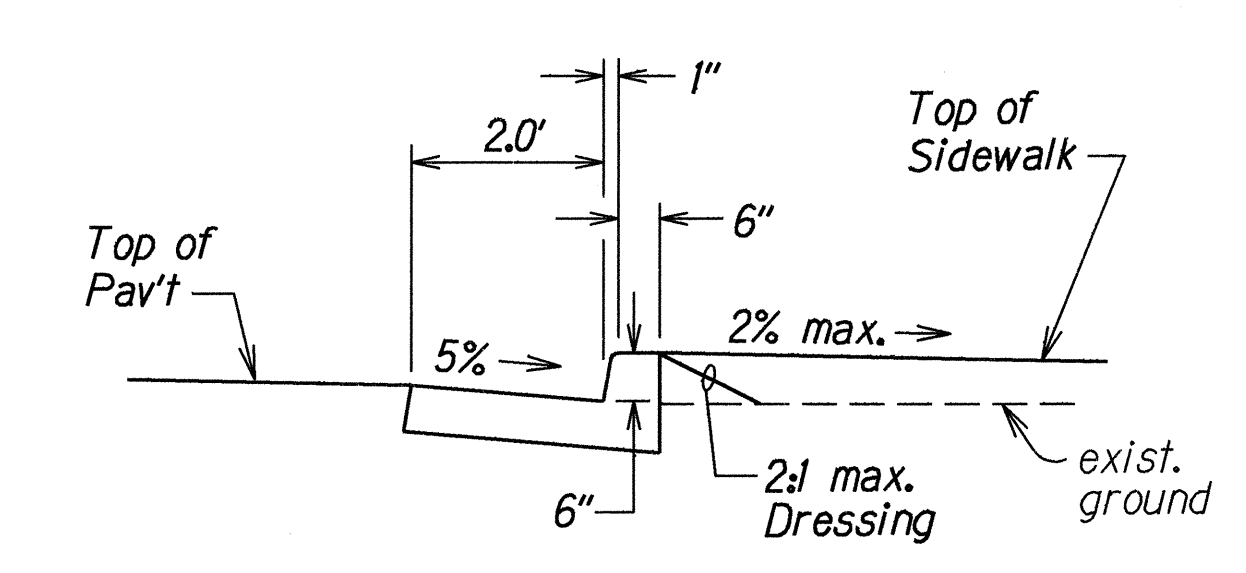
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	21	58



- LEGEND**
- Reconstruction Area
 - Existing Pavement Grade
 - New Pavement Grade
 - Bottom of Curb Finished Grade
 - Top of Curb Finished Grade

PLAN
Scale: 1"=5'

NOTE:
QuadGuard or REACT 350 concrete pad finish grade shall be constructed flush to the exist. pav't grade.



MODIFIED CURB AND GUTTER, TYPE 2DG
Scale: 1"=2'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

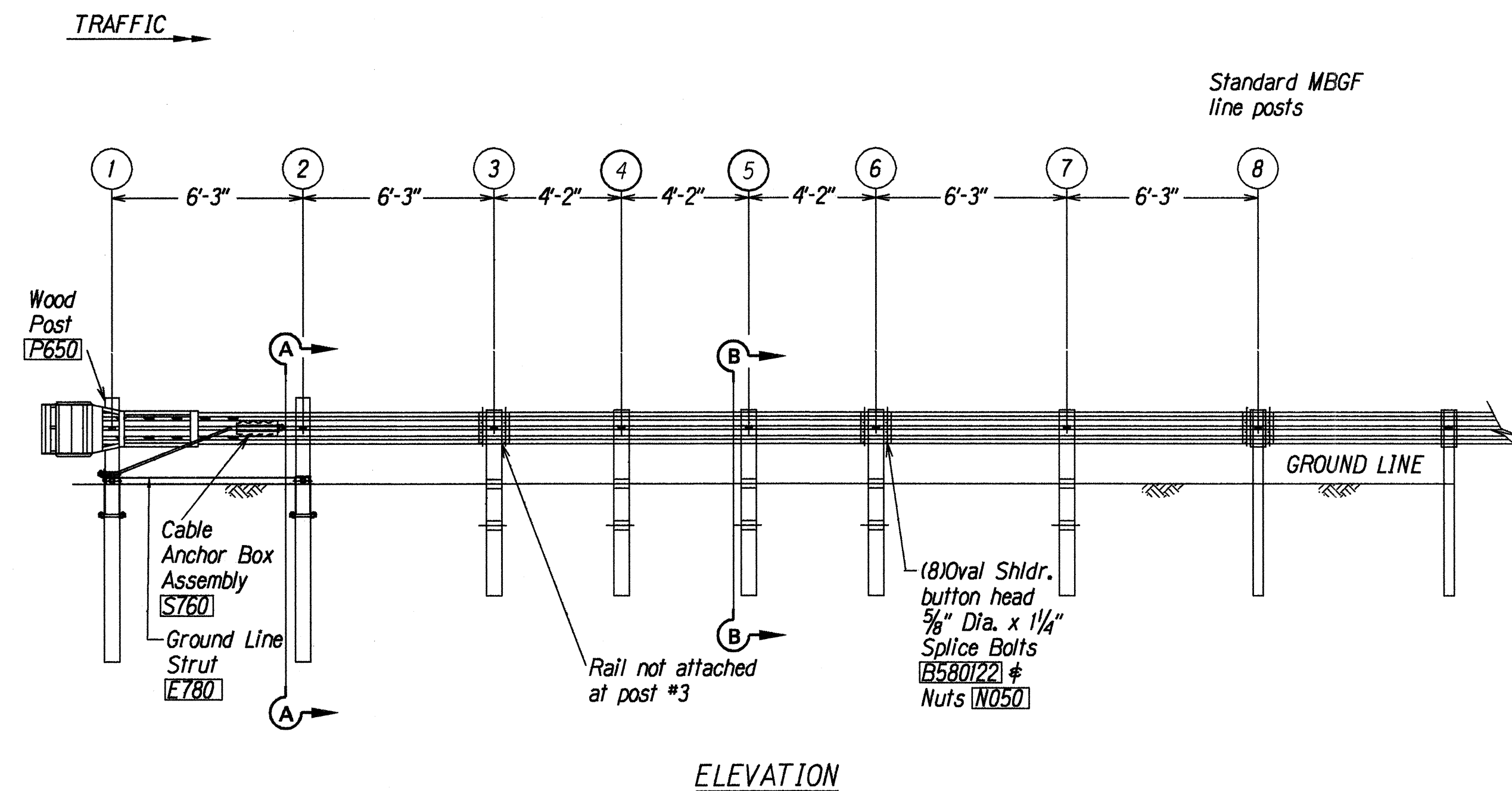
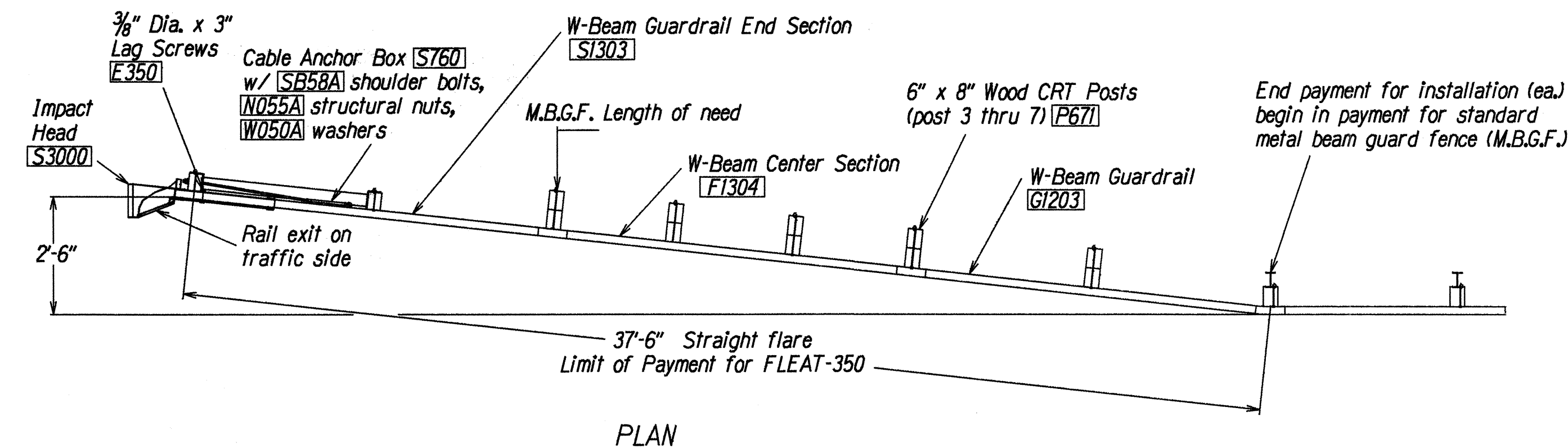
PAVEMENT GRADE & SIDEWALK DETAIL

KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawainui Bridge
F.A. Proj. No. STP-061-1(33)

Scale: As Shown Date: Jan. 1999

SHEET No. 4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-K(33)	1998	23	58



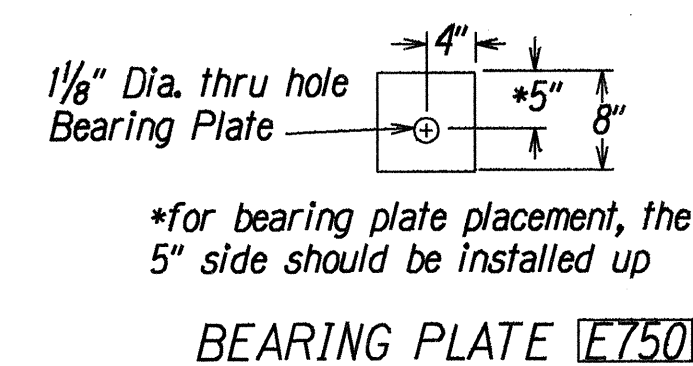
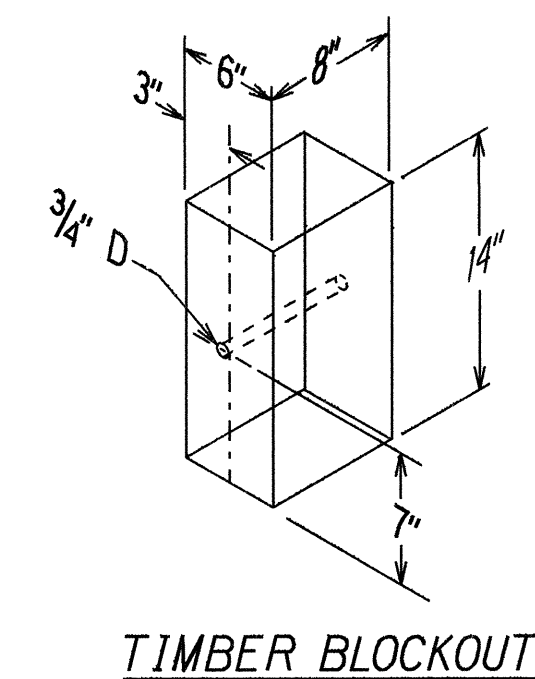
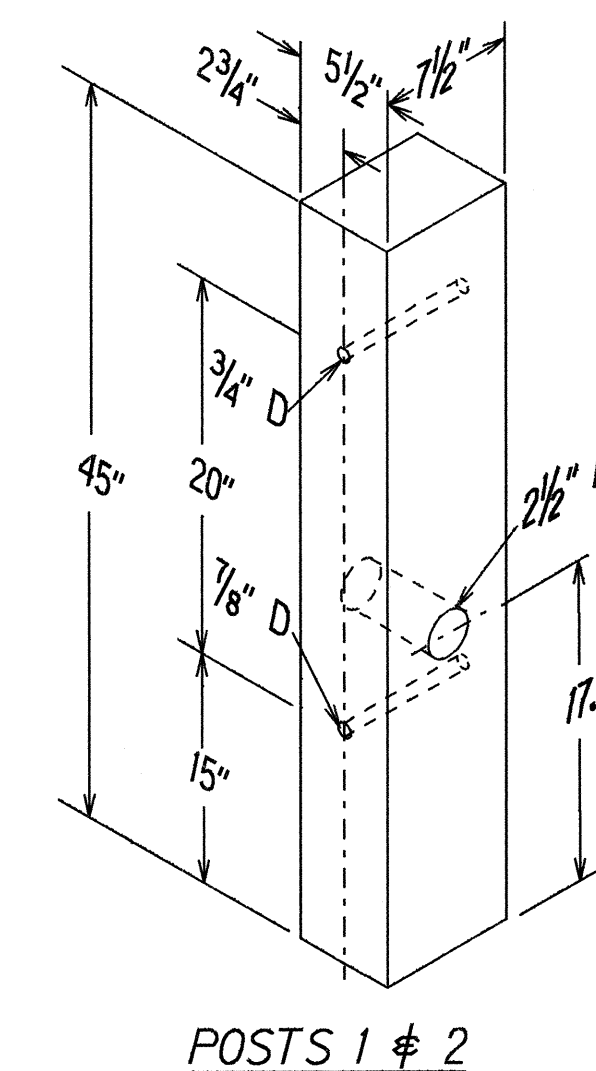
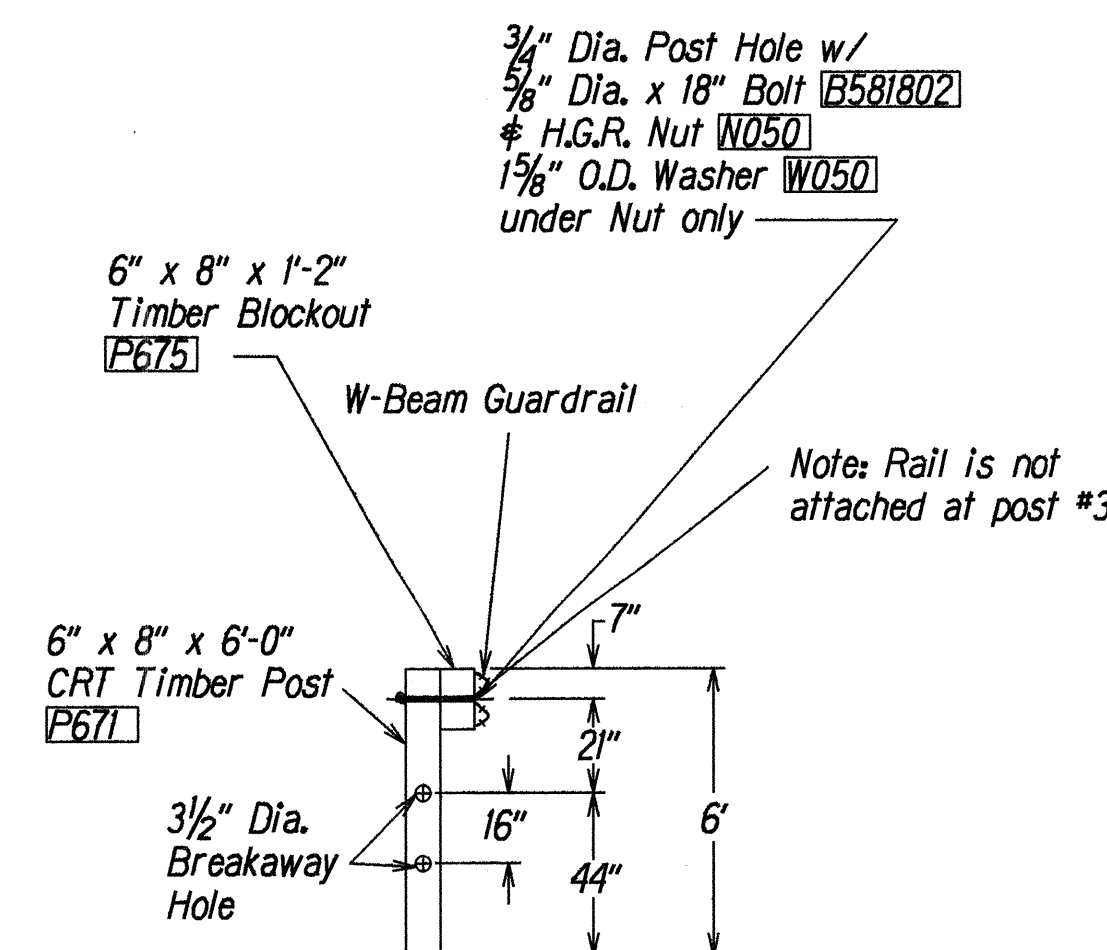
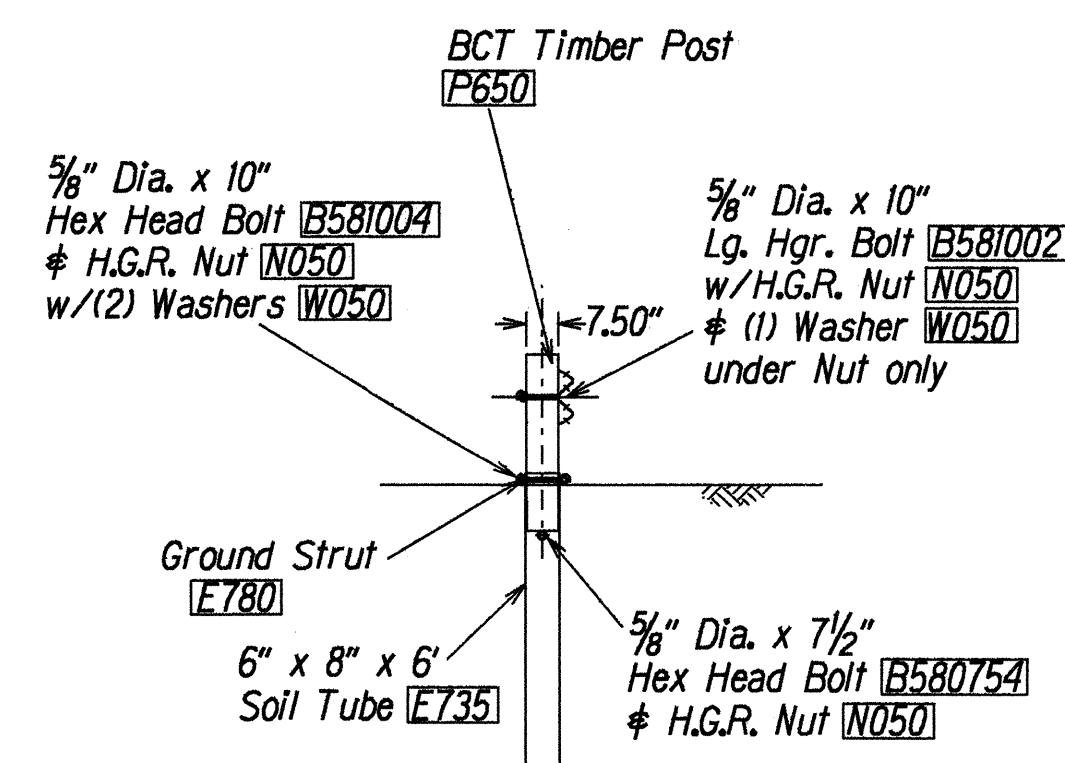
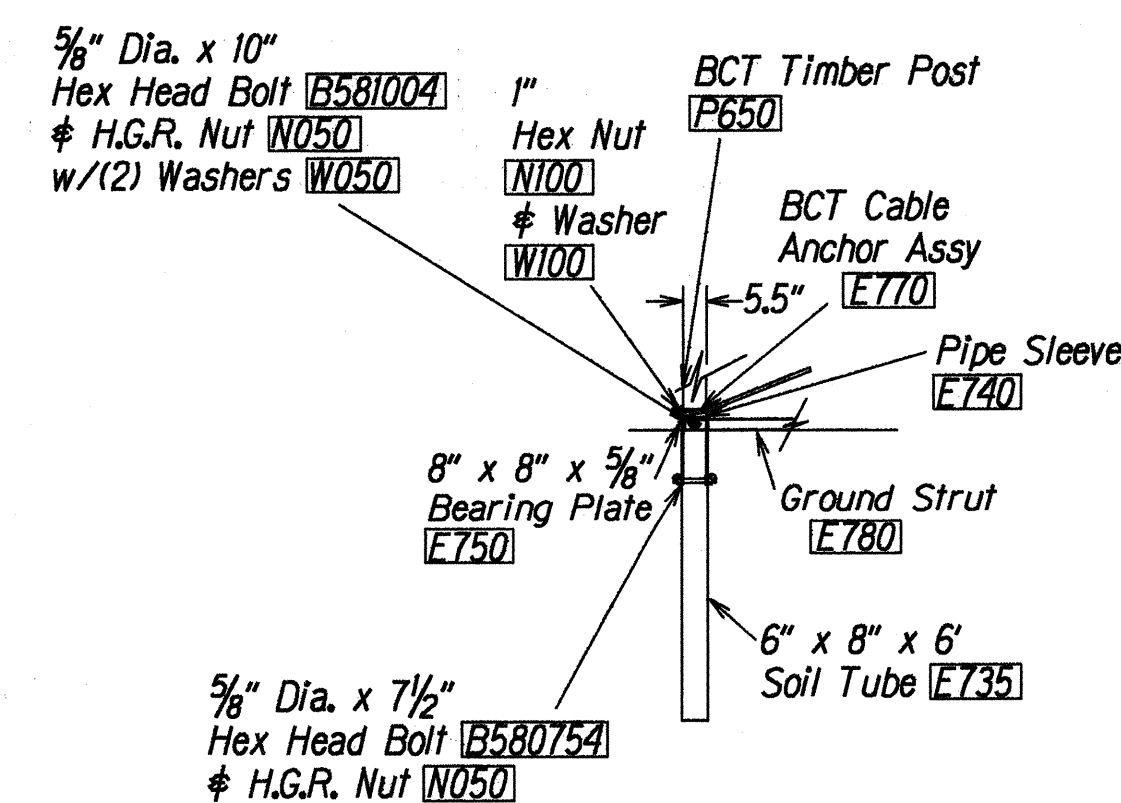
GENERAL NOTES

- Wood posts are required with the fleet.
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The soil tube shall not protrude more than 4" above ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The soil tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the soil tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent settlement.
- When rock is encountered during excavation, a 12" Dia. post hole, 20" deep may be used if approved by the engineer. Granular material will be placed in the bottom of the hole approx. 2 1/2" deep to provide drainage. The soil tubes will be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
- The wood blockouts shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.
- For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will require field drilling new holes to accommodate the rail to the post connecting bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed if directed by the engineer.

ITEM NO.	QTY	BILL OF MATERIALS
S3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA.
F1304	1	W-BEAM GUARDRAIL CENTER SEC., 12 GA.
G1203	1	W-BEAM GUARDRAIL, 12 GA.
S730	2	*FOUNDATION SOIL TUBE, 6" x 8" x 6'
E740	1	PIPE SLEEVE
E750	1	BEARING PLATE, 8" x 8" x 5/8"
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
E780	1	GROUND STRUT
P650	2	5.5" x 7.5" x 45" WOOD POSTS
P671	5	6" x 8" x 6' WOOD CRT POST
P675	5	6" x 8" x 14" TIMBER BLOCKOUT
HARDWARE		
B580122	24	5/8" Dia. x 1 1/4" SPLICE BOLT
B580754	2	5/8" Dia. x 7 1/2" HEX BOLT
B581004	2	5/8" Dia. x 10" HEX BOLT
B581002	1	5/8" Dia. x 10" H.G.R. BOLT (POST 2 ONLY)
B581802	5	5/8" Dia. x 18" H.G.R. BOLT (POST 3-7)
N050	34	5/8" Dia. H.G.R. NUT (SPLICE 24, SOIL TUBES 2, STRUT 2, POST 2, 1/4 POST 3 THRU 7, 5)
W050	10	5/8" Dia. H.G.R. WASHER
N100	2	1" ANCHOR CABLE HEX NUT
W100	2	1" ANCHOR CABLE WASHER
E350	2	3/8" x 3" LAG SCREW
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLTS
N055A	8	1/2" A325 STRUCTURAL NUTS
W050A	16	1 1/16" OD x 9/16" ID A325 STR. WASHER

Foundation Tube Options For Posts 1 & 2

- *6'-0" Split Foundation Tubes S730
- *6'-0" Solid Foundation Tubes E731
- *5'-0" Foundation Tubes S735 W/Soil Plates SP600
- *4'-6" Foundation Tubes E735 W/Soil Plates SP600

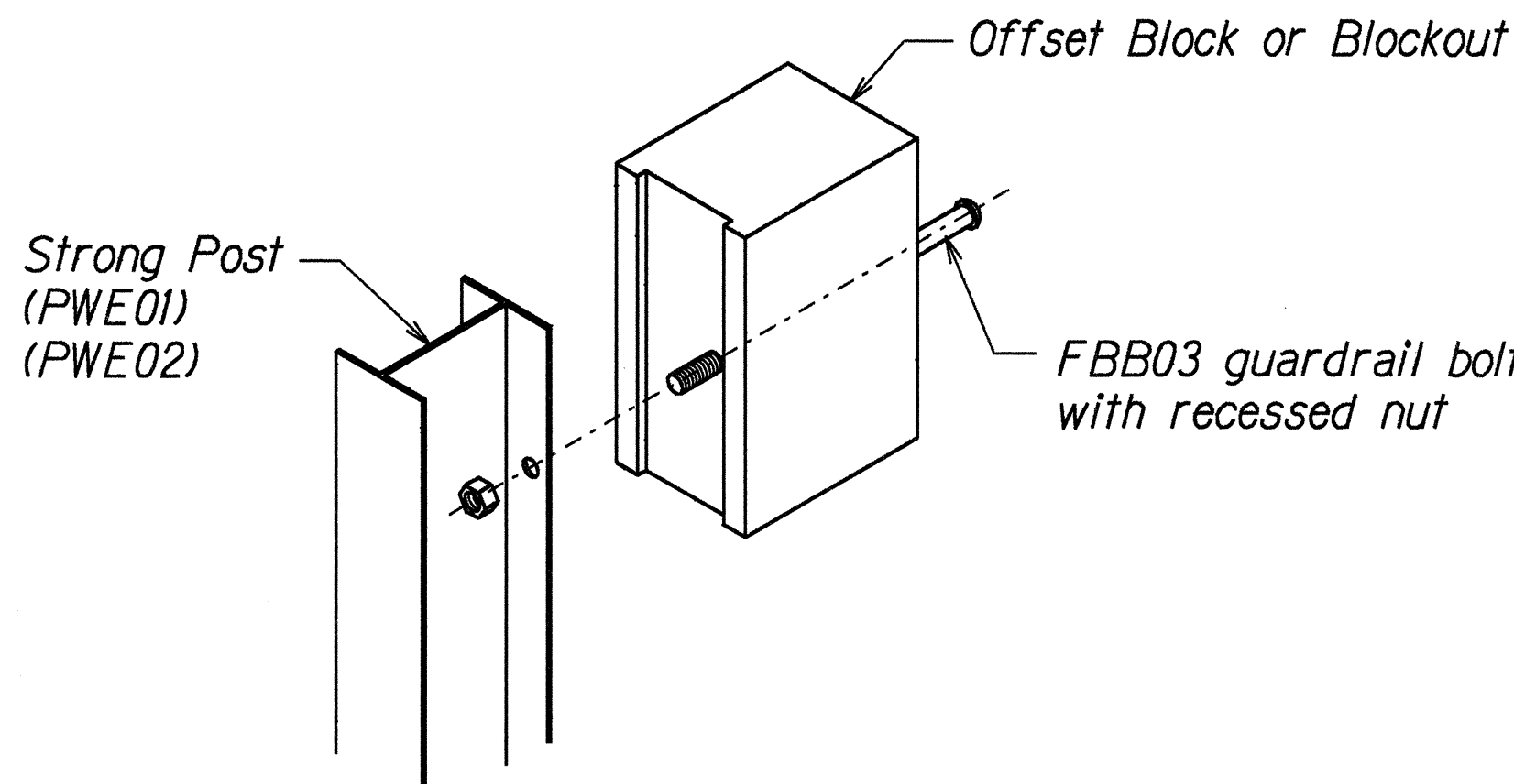
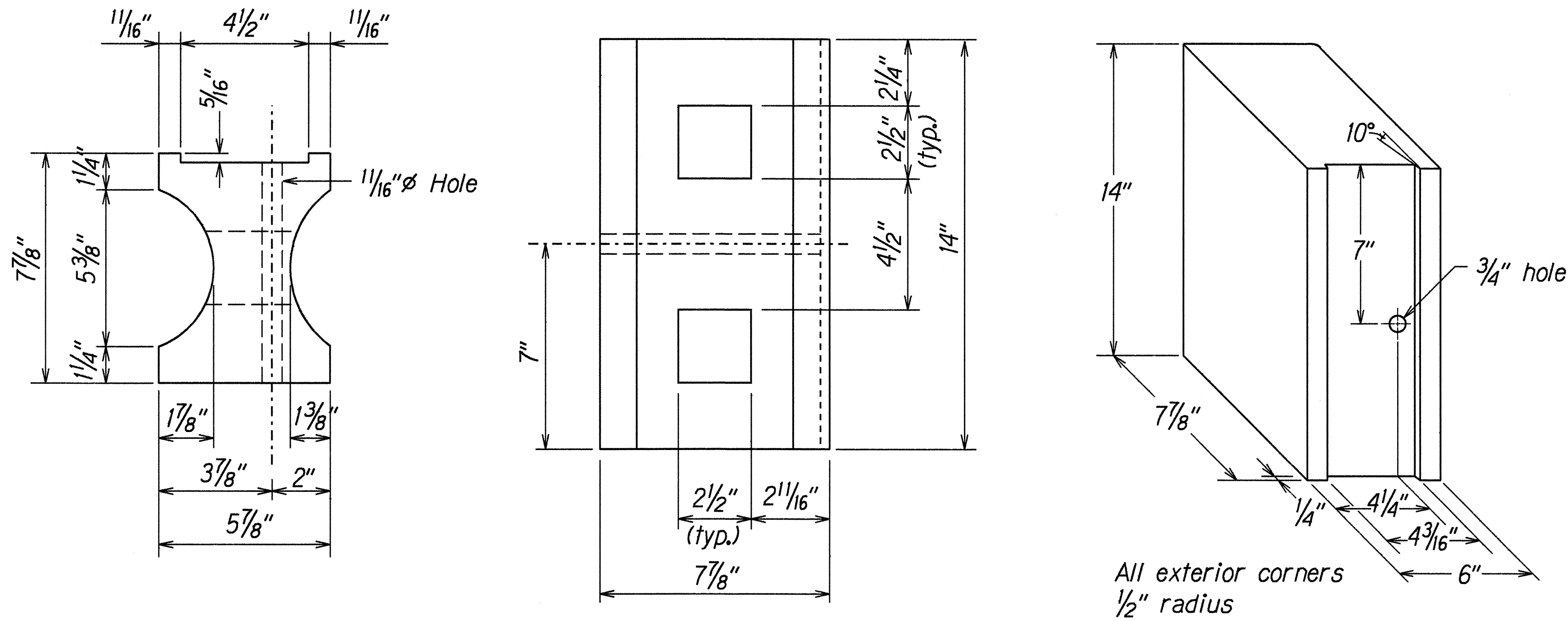


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FLAT-350
FLARED ENERGY ABSORBING TERMINAL
KAILUA ROAD
Shoulder Improvements For Bicycle Route
Kalaniana'ole Hwy. To Kawaihuli Bridge
F.A. Proj. No. STP-061-K(33)
Not to Scale Date: Jan. 1999
SHEET No. 2 OF 2 SHEETS

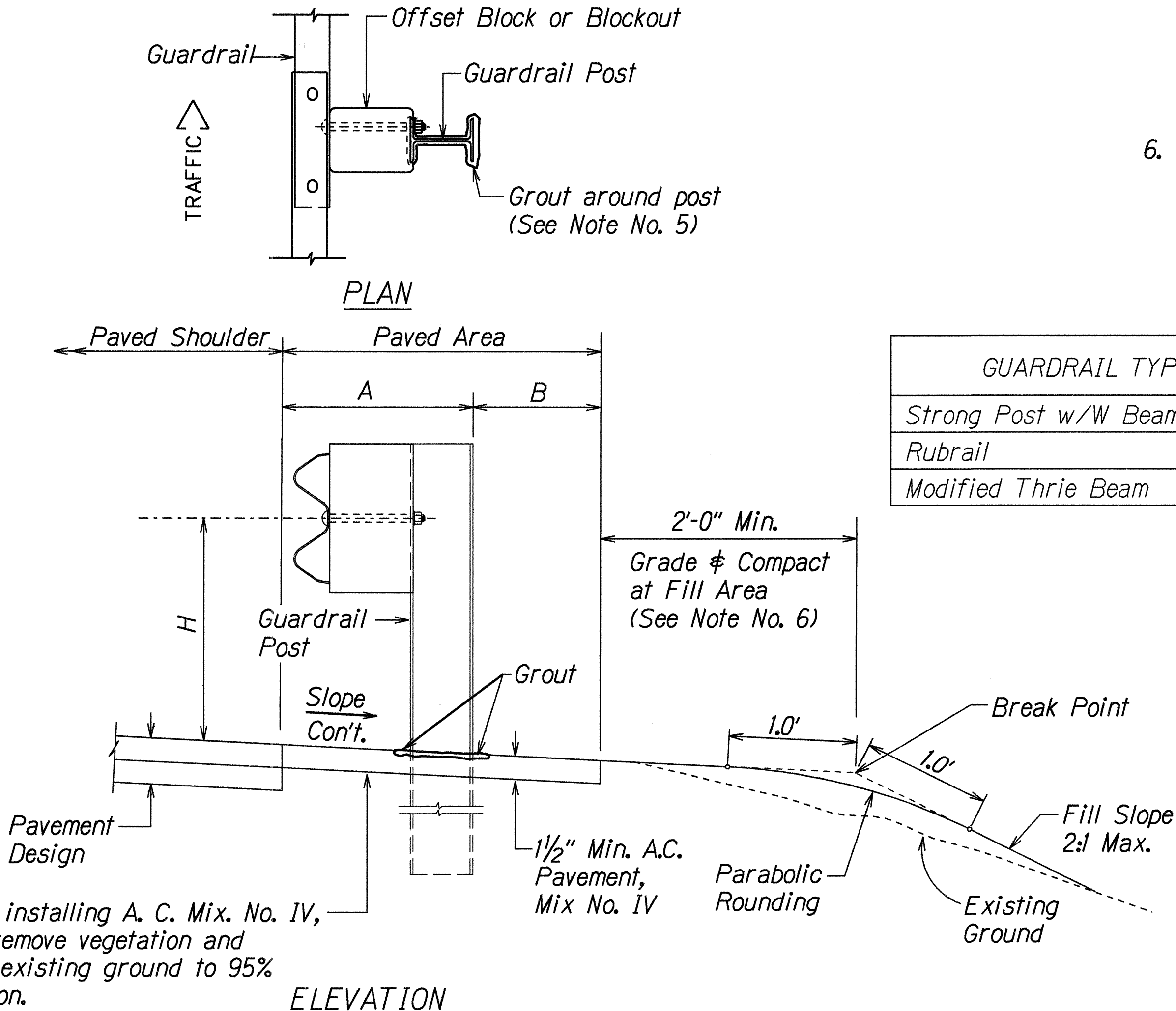
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	ADD23S-1	58

GENERAL NOTES

- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
- The Recycled Plastic Block or Offset Block shall be approved by the State.
- After the guardrail posts are installed in the paved area, the Contractor shall grout around the guardrail post and seal all cracks in the paved area that was caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to grouting. The cost for this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
- When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.



Exploded View
(Rail and washer not shown)
STEEL POST AND BLOCK DETAIL



GUARDRAIL TYPE	DIMENSION		
	H	A	B
Strong Post w/W Beam	1'-9 5/8"	1'-6"	1'-0"
Rubrail	2'-0"	1'-6"	2'-0"
Modified Thrie Beam	2'-0"	2'-0"	1'-0"

4-26-99 This sheet added to the contract plans.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES

KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawainui Bridge
F.A. Proj. No. STP-061-1(33)

Scale: NTS Date: April, 1999

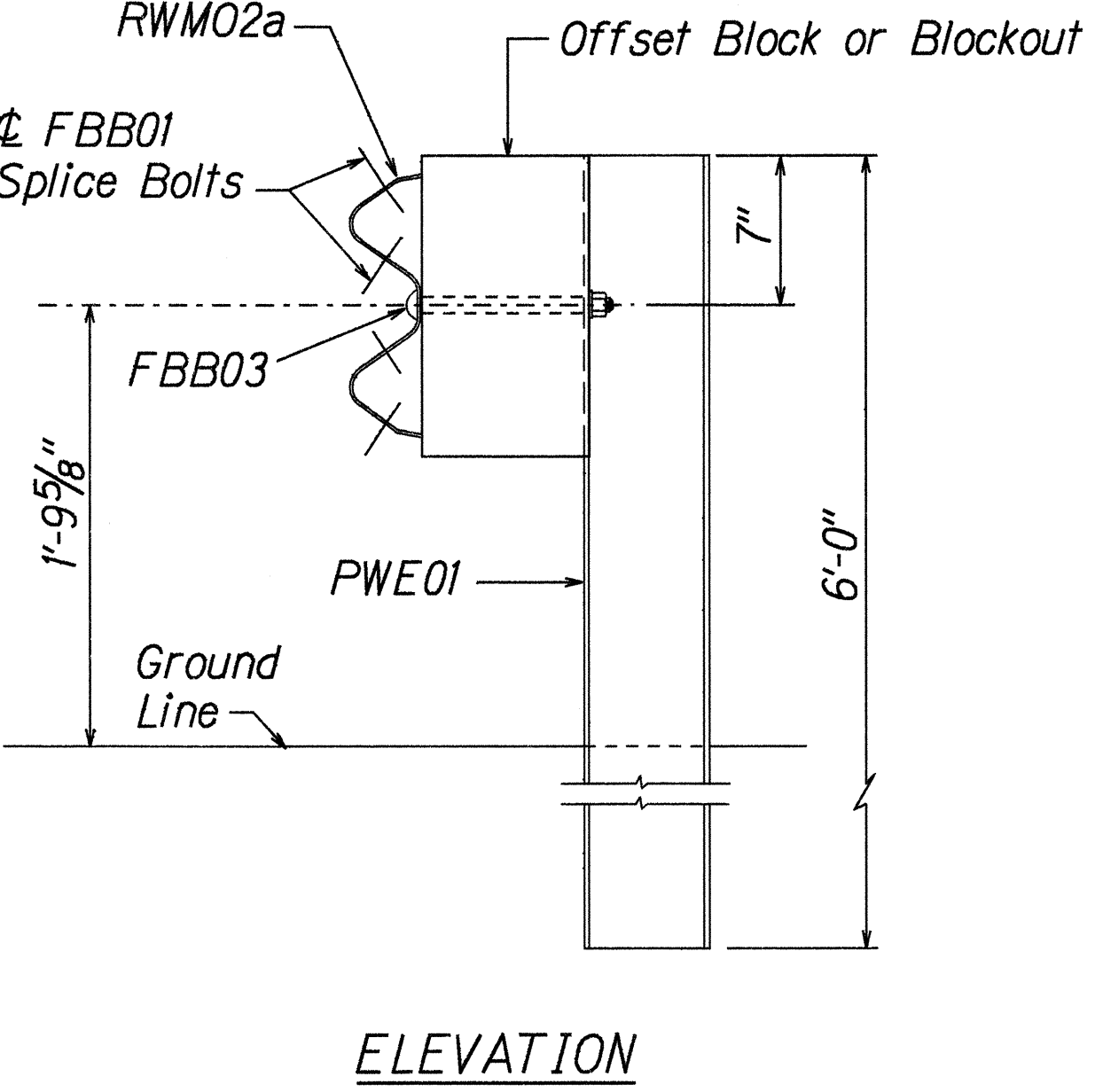
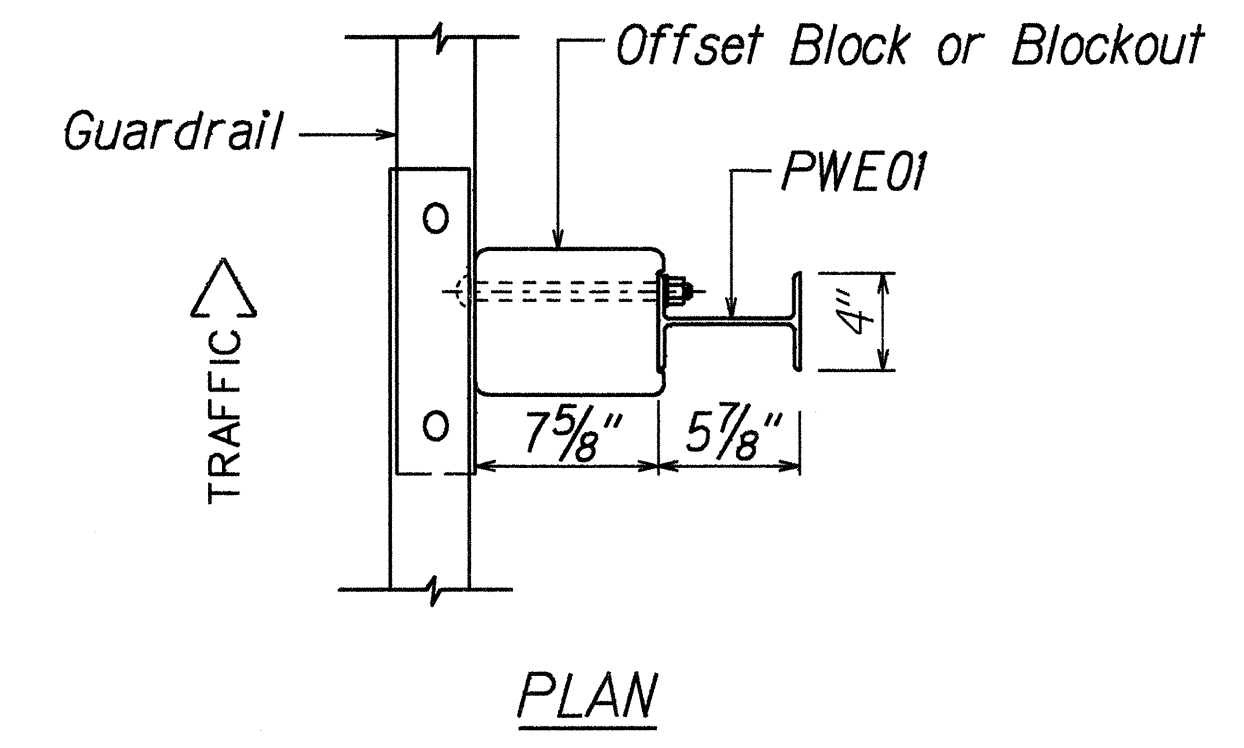
SHEET No. 1 OF 3 SHEETS

ADD. 23S-1

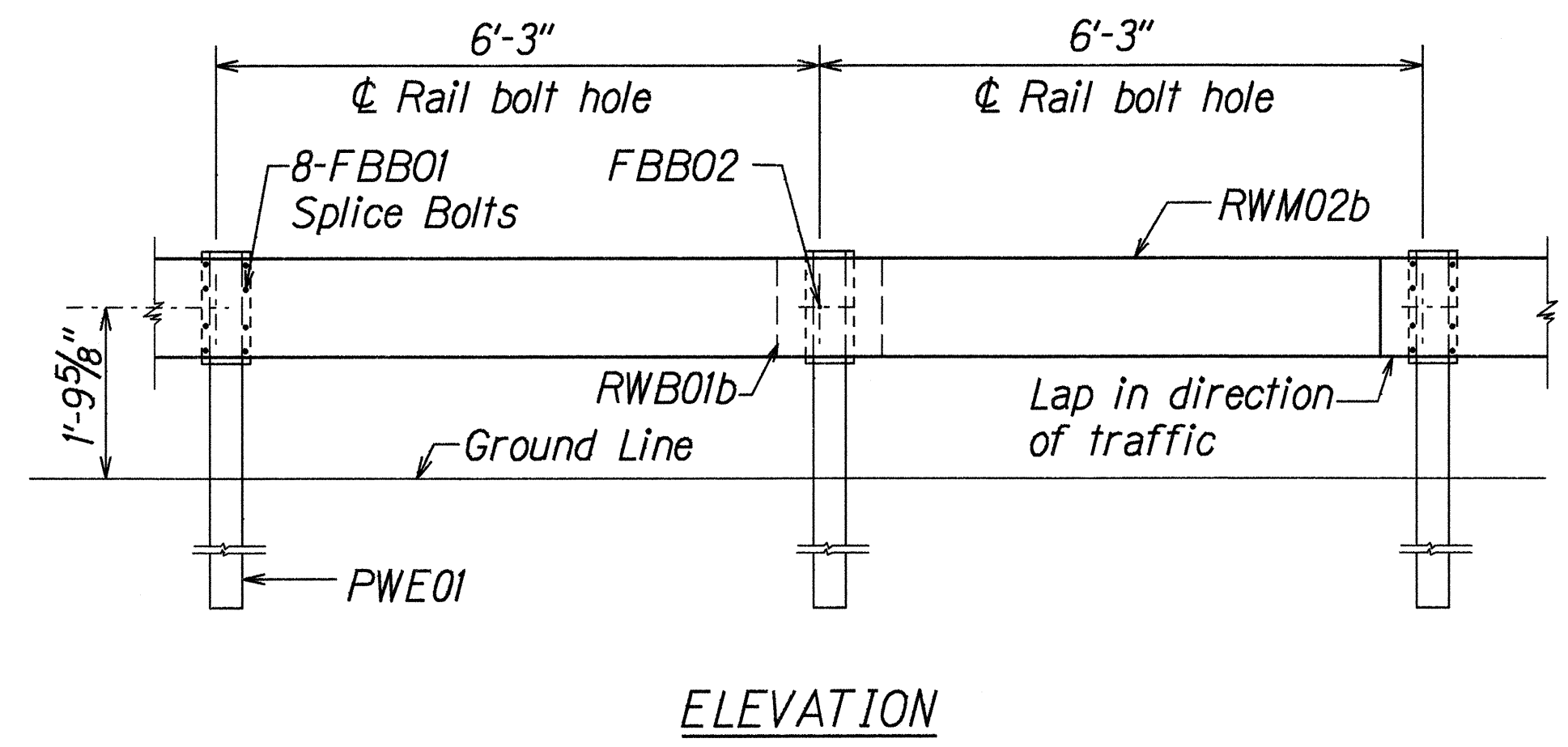
DESIGNED BY	DATE
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NOTED BY	
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ORIGINAL PLAN	

1d1rudy/guardrail/ps07redgn (standard plan TE-50 103/06/07)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-I(33)	1999	ADD23S-2	58

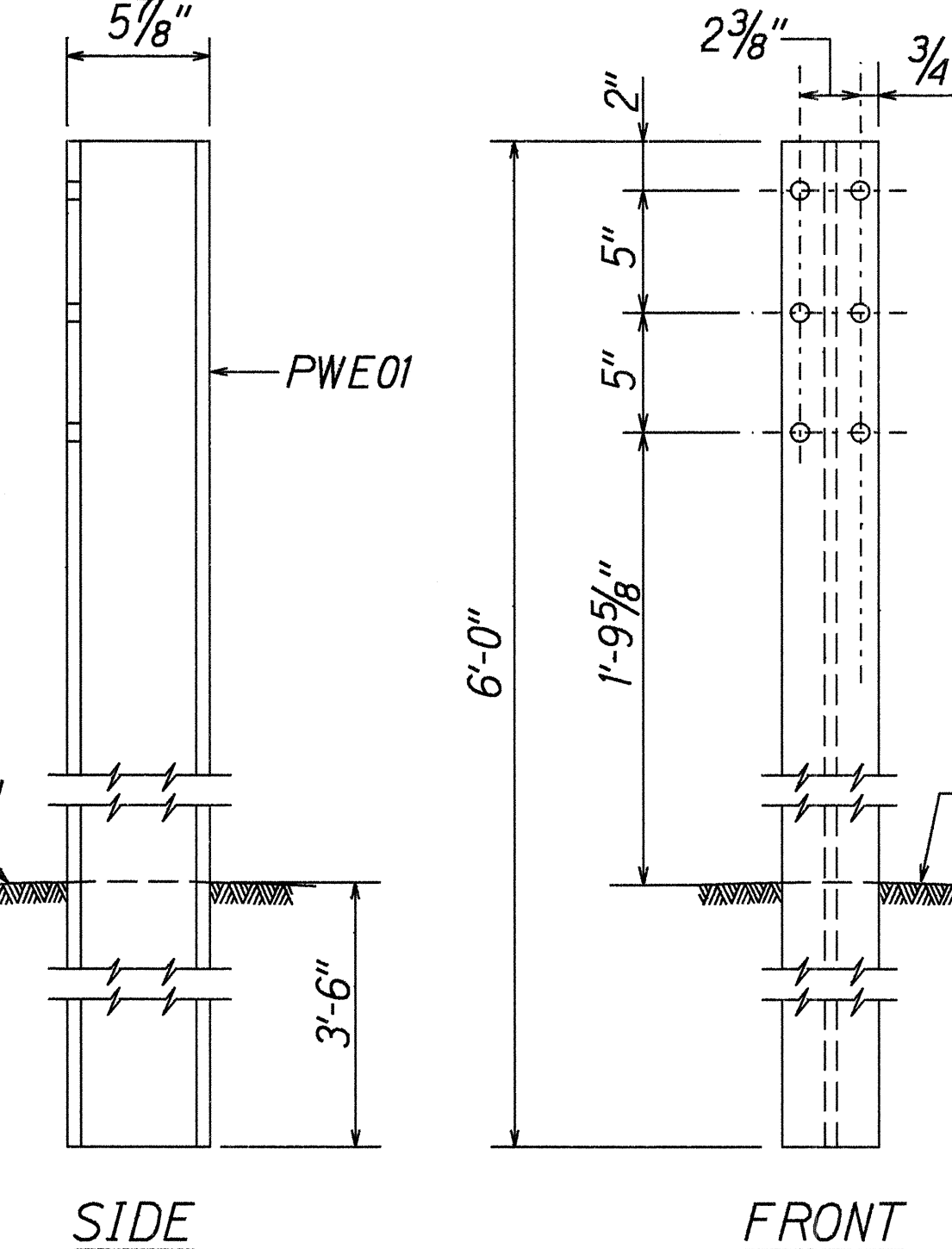


STRONG POST W-BEAM GUARDRAIL (SGR04a)

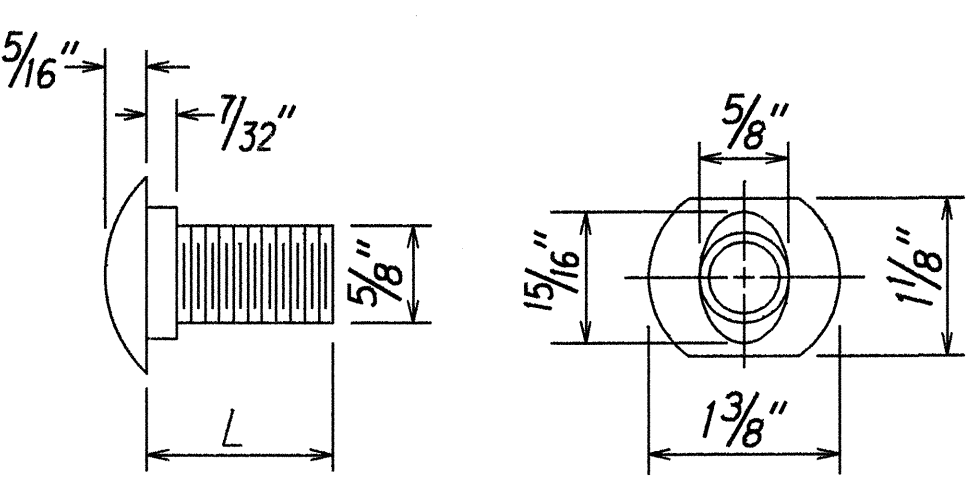
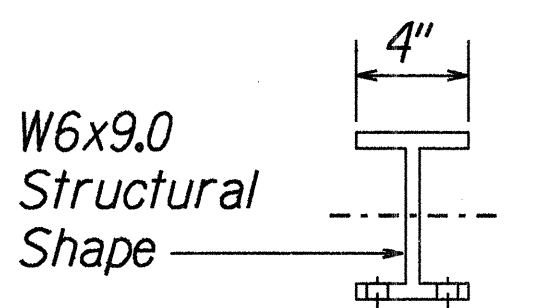


STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

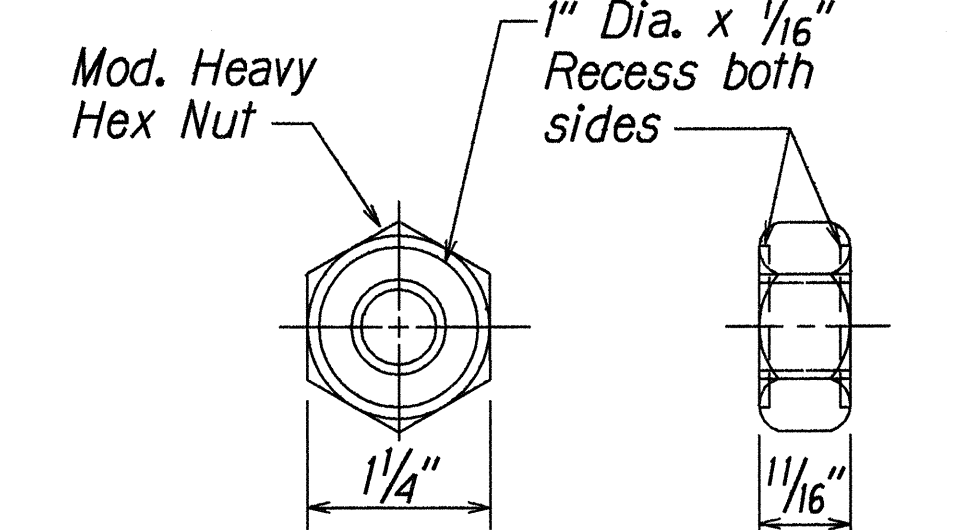
NOTE:
All Holes are 3/4" Dia.



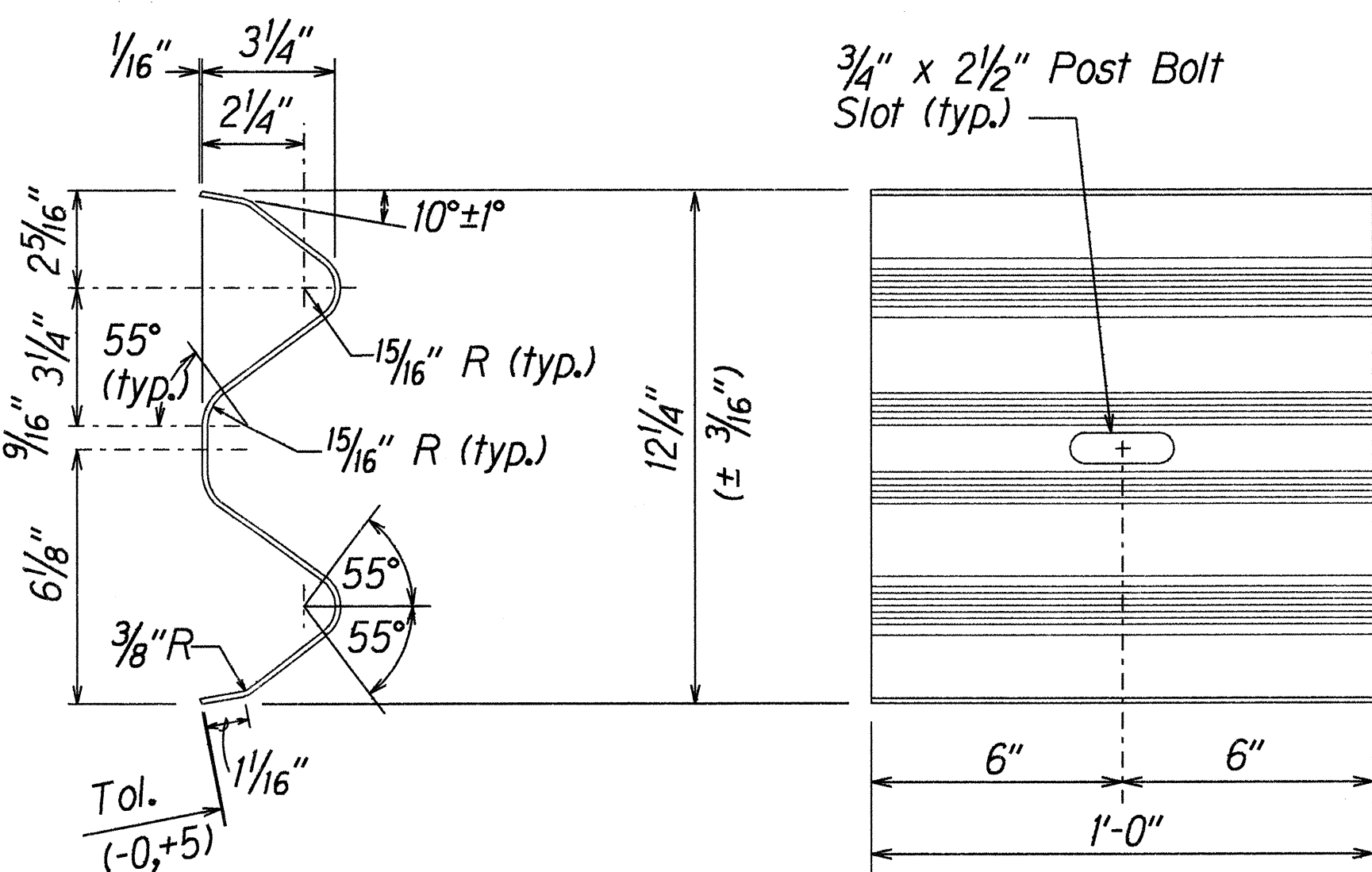
W-BEAM STRONG POST (PWE01)



DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"

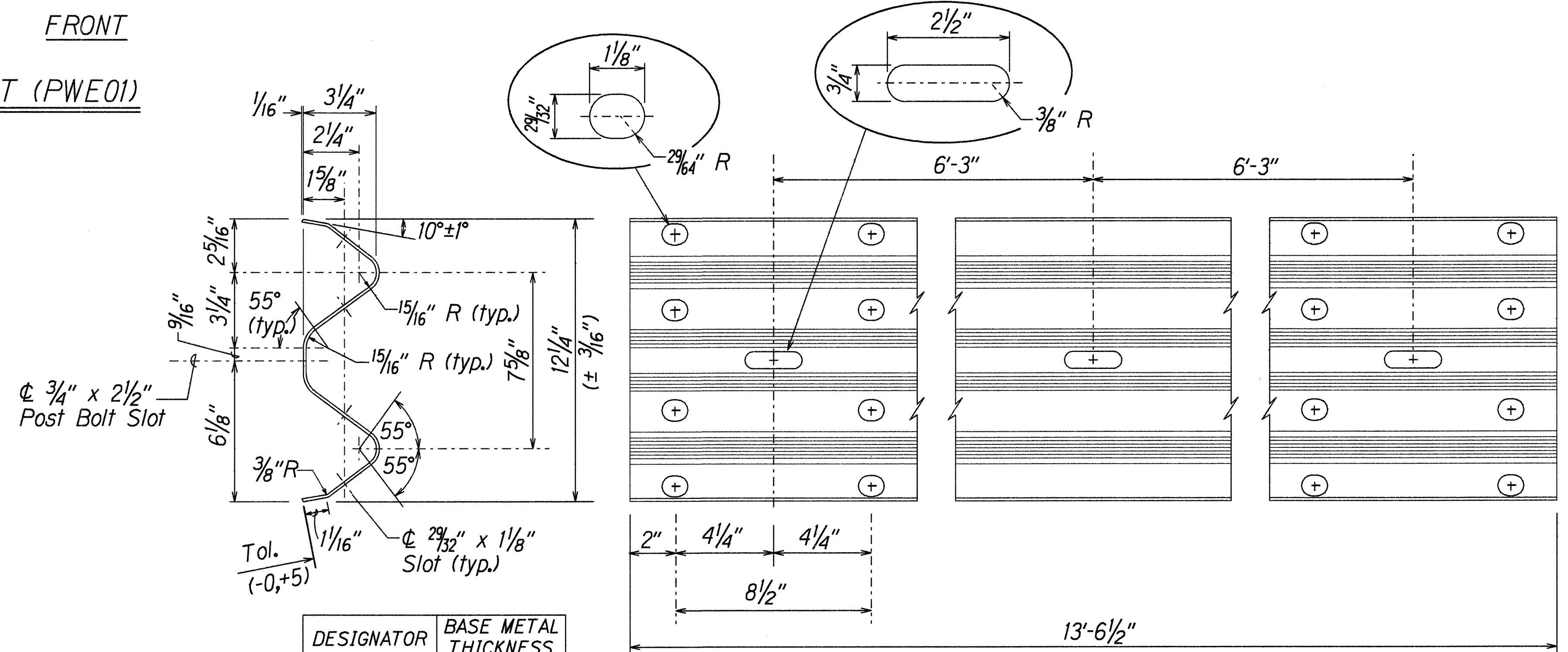


GUARDRAIL BOLTS AND RECESSED NUT



DESIGNATOR	BASE METAL THICKNESS
RWB01b	17/128"

W-BEAM BACK-UP-PLATE (RWB01b)



DESIGNATOR	BASE METAL THICKNESS
RWM02b	17/128"

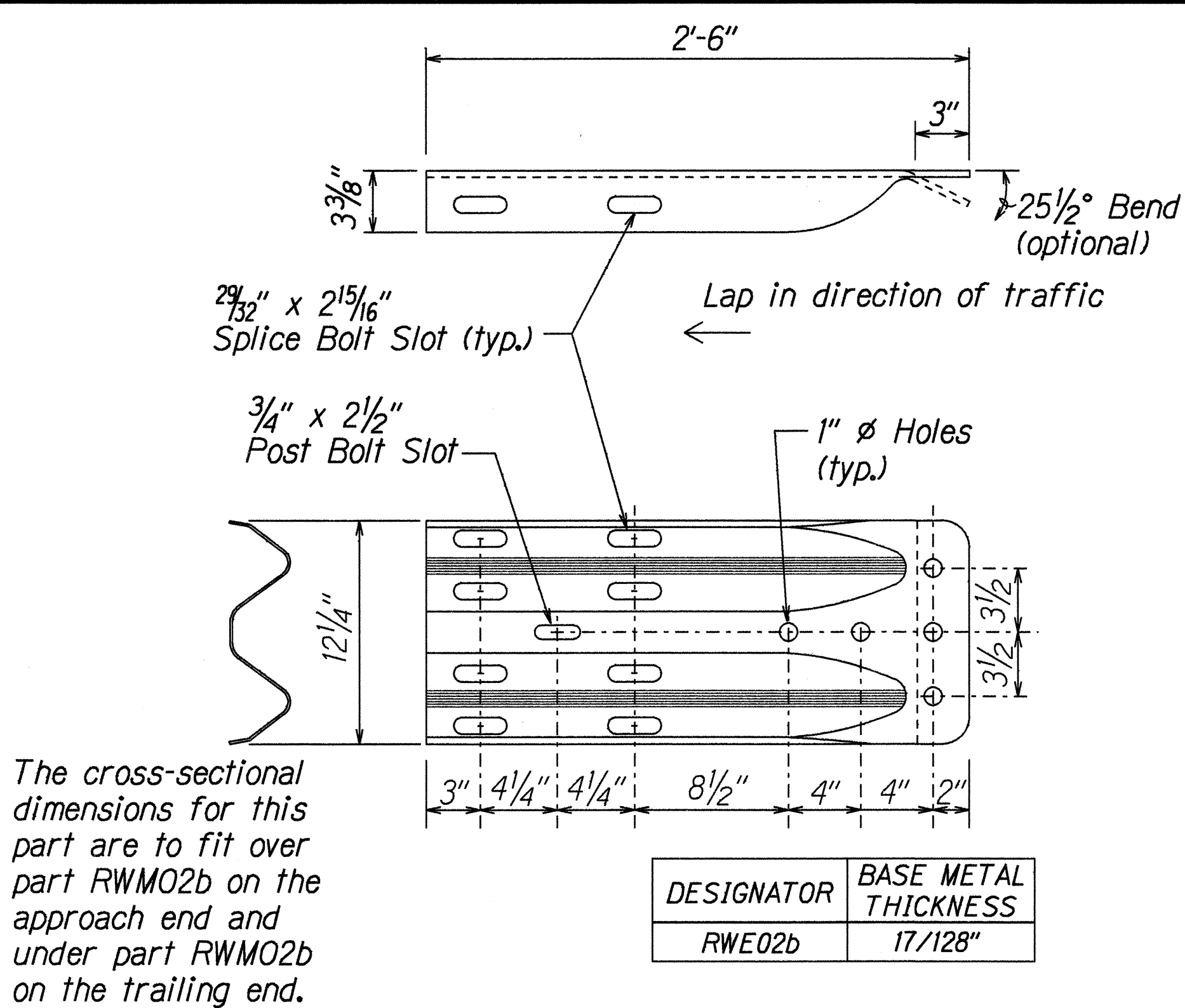
2 SPACE W-BEAM GUARDRAIL (RWM02b)

DATE	REVISION
4-26-99	This sheet added to the contract plans.

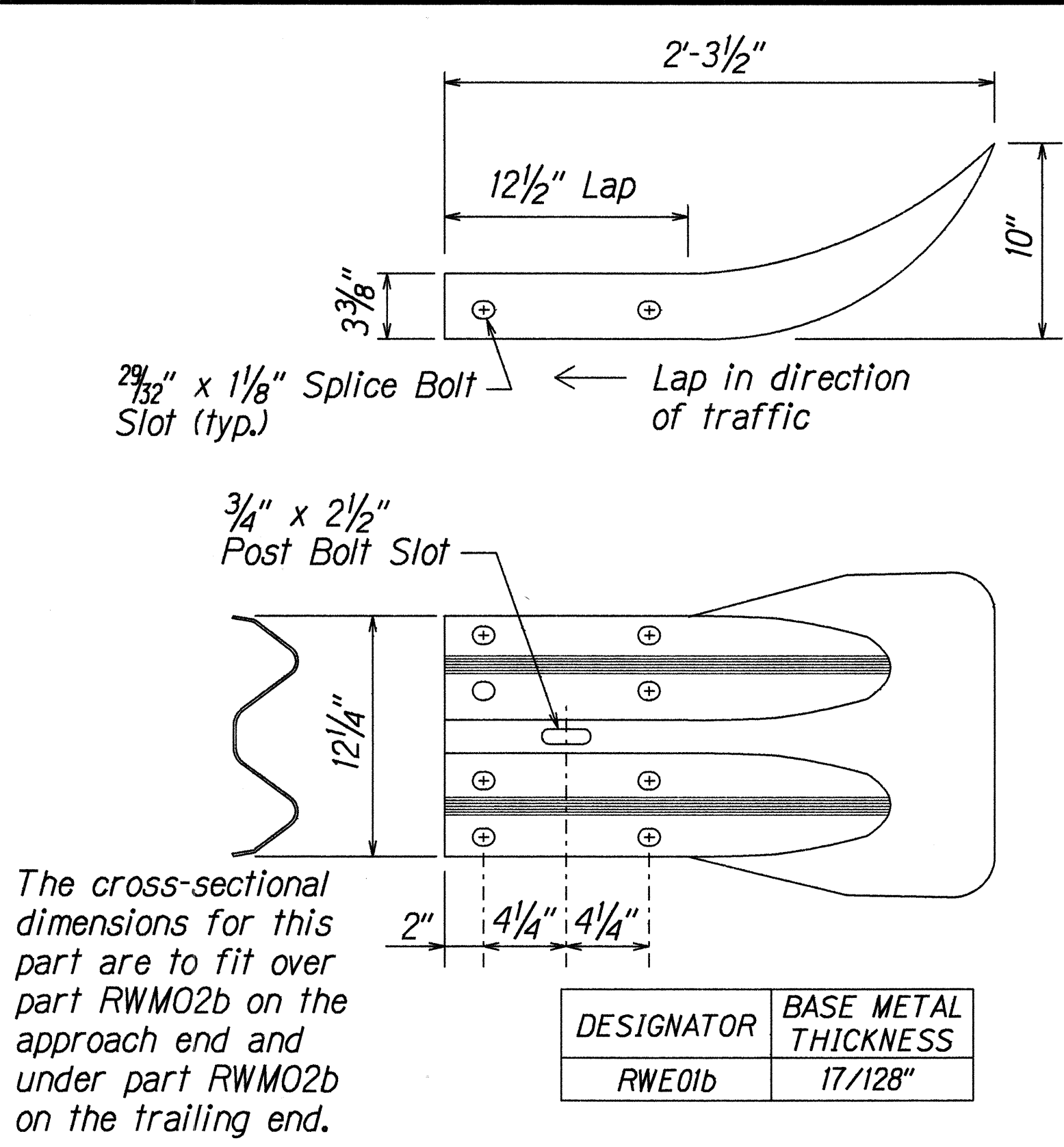
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalanianaʻole Hwy. To Kawaiʻuli Bridge
F.A. Proj. No. STP-061-I(33)
Scale: NTS
Date: April, 1999

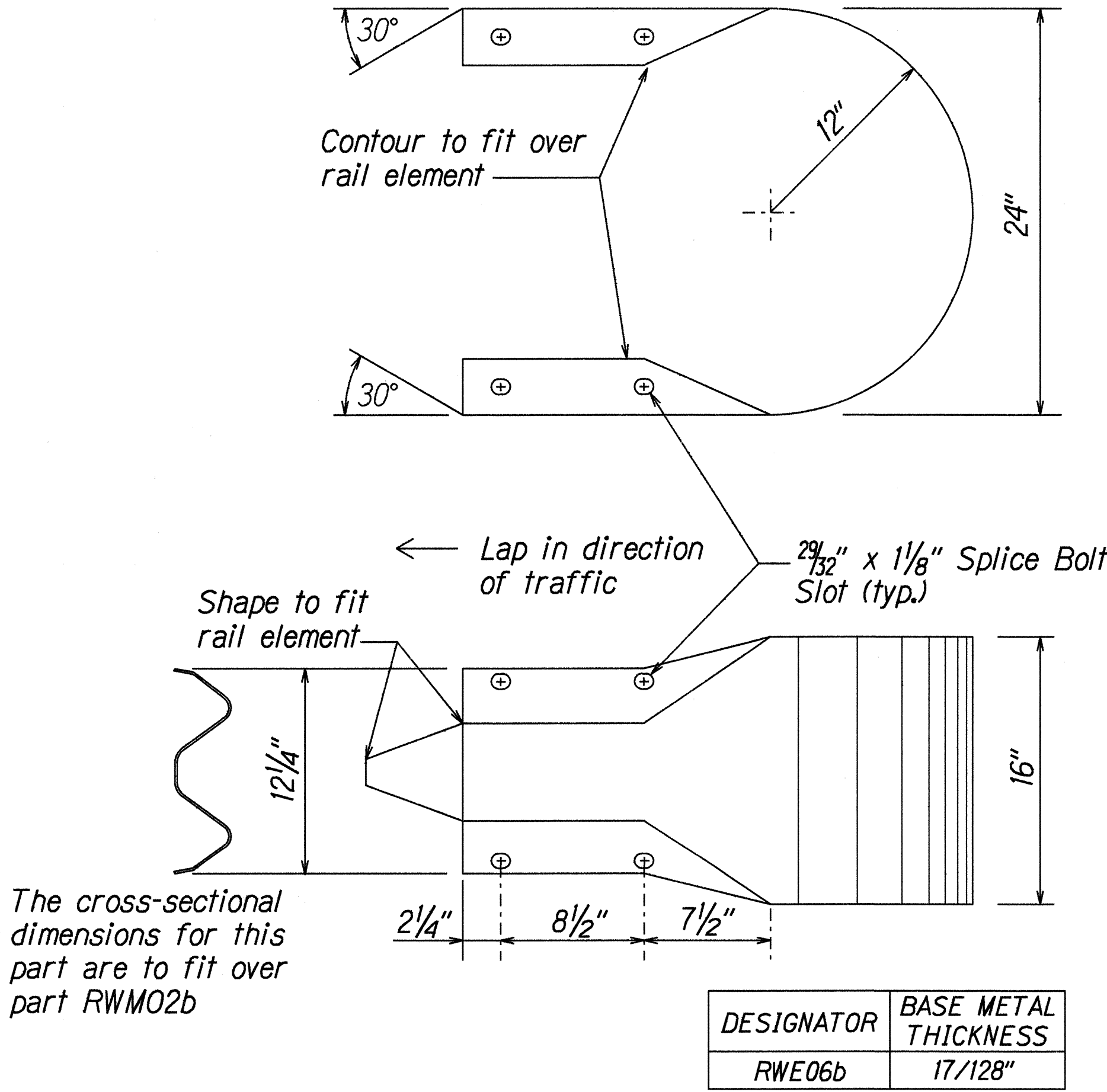
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(33)	1999	ADD23S-3	58



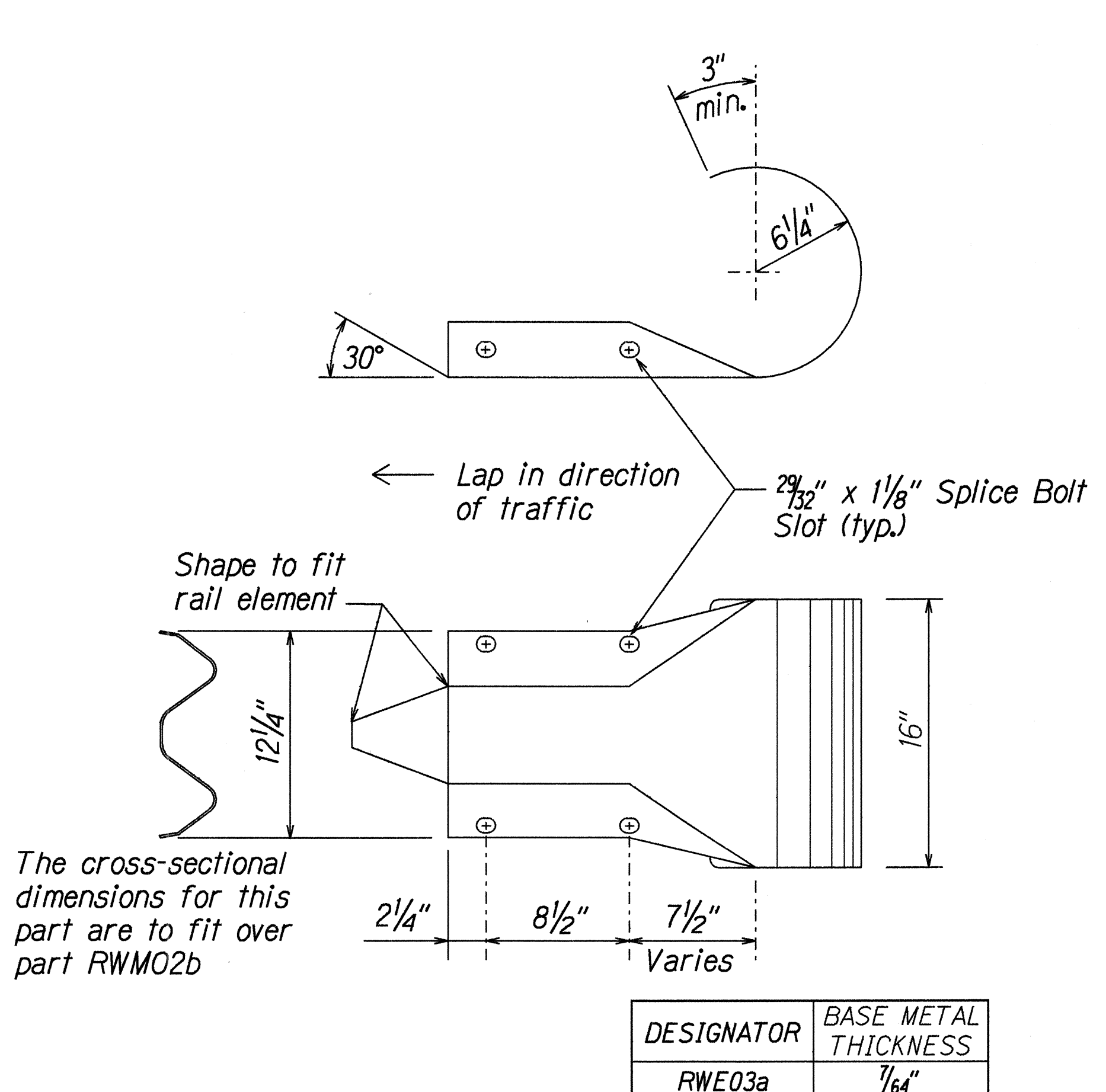
W-BEAM TERMINAL CONNECTOR (RWE02b)



W-BEAM END SECTION (FLARED RWE01b)



W-BEAM END SECTION (BUFFER RWE06b)



W-BEAM END SECTION (ROUNDED RWE03a)

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
DATE	

13/01/99 tdruby/guardrail/rev06dgn (standard plan TE-51 r09/01/87)

4-26-99	This sheet added to the contract plans.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRONG POST W-BEAM GUARDRAIL
KAILUA ROAD
Shoulder Improvements For Bicycle Route,
Kalaniana'ole Hwy. To Kawainui Bridge
F.A. Proj. No. STP-061-1(33)

Scale: NTS Date: April, 1999

SHEET No. 3 OF 3 SHEETS

ADD.23S-3