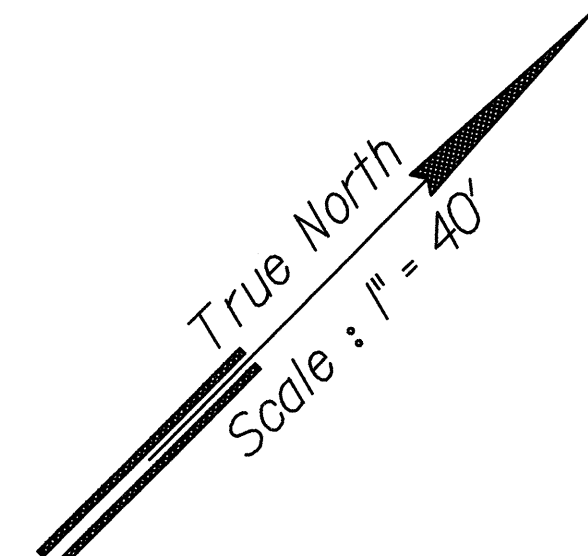
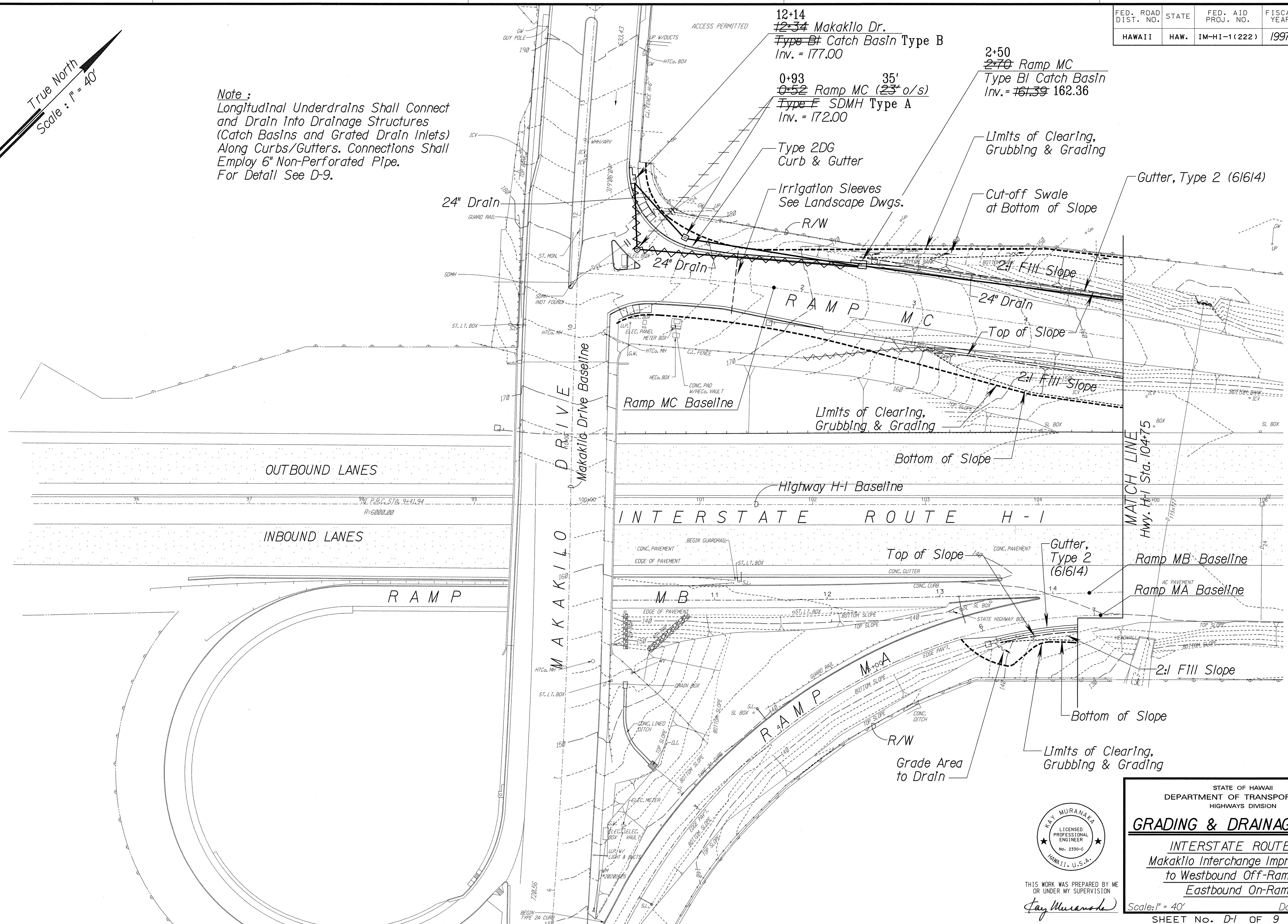


MAKAKILO DRIVE

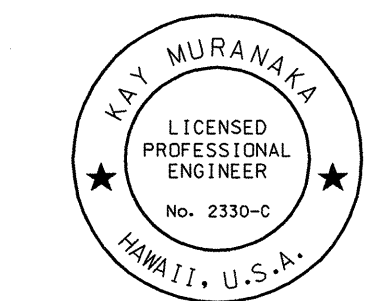


Note:
Longitudinal Underdrains Shall Connect and Drain Into Drainage Structures (Catch Basins and Grated Drain Inlets) Along Curbs/Gutters. Connections Shall Employ 6" Non-Perforated Pipe. For Detail See D-9.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(222)	1997	17	104



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY		
NOTE BOOK		
QUANTITIES BY		
CHECKED BY		



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Kay Muranaka

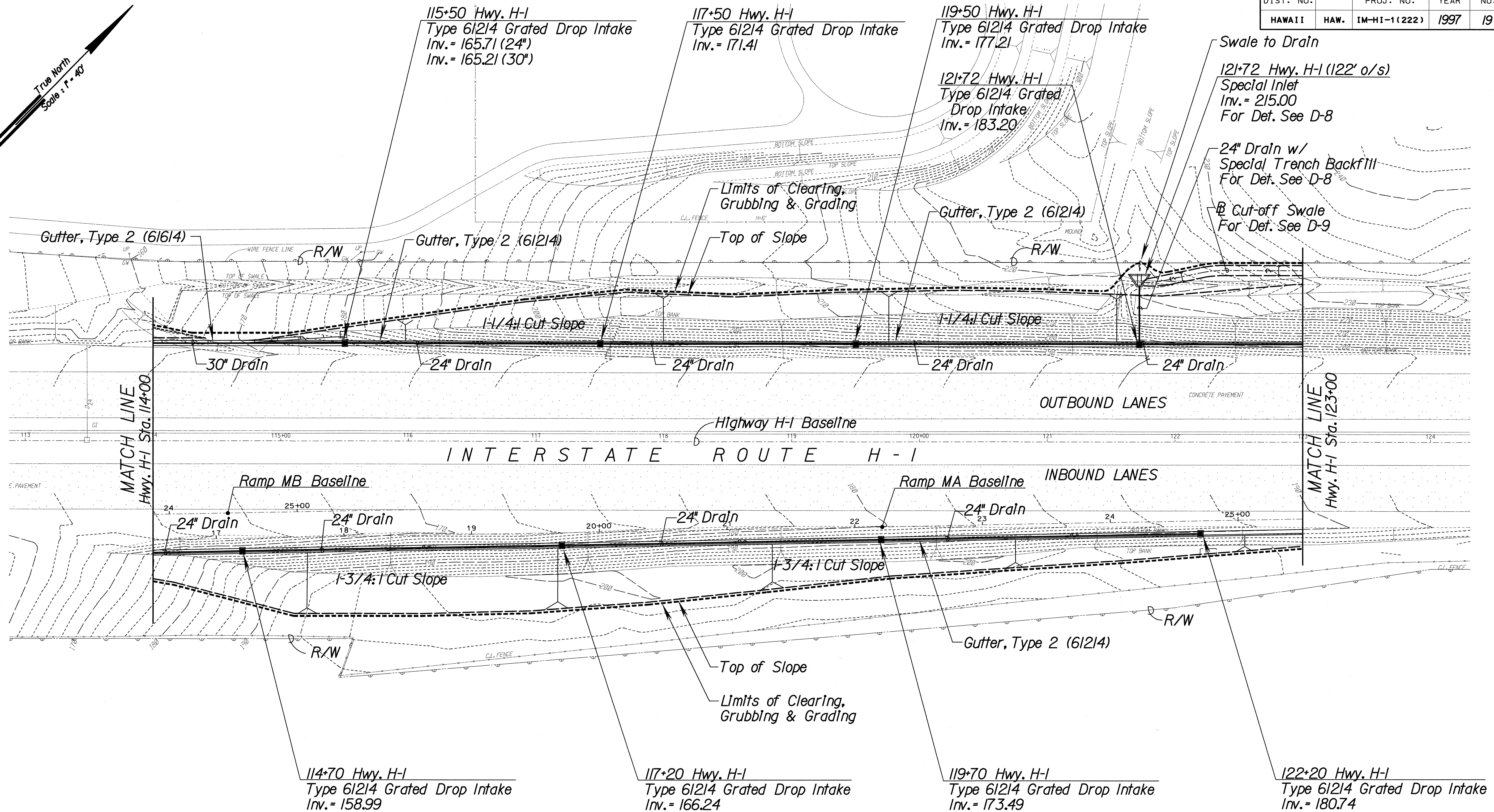
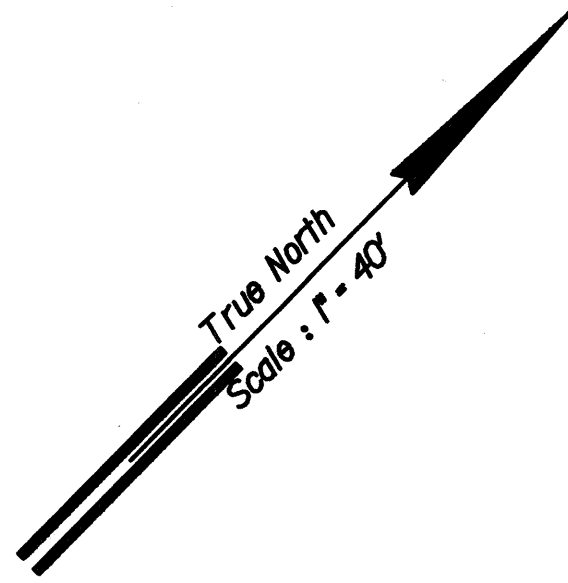
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING & DRAINAGE PLAN
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

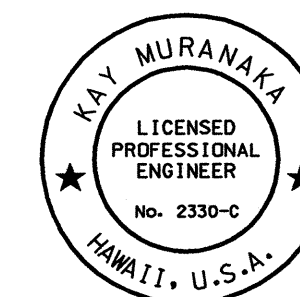
Scale: 1" = 40' Date: May 9, 1997
SHEET No. D-1 OF 9 SHEETS

MAKAKILO INTERCHANGE IMPROVEMENTS GRADE-03.DGN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	19	104



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Kay Muranaka

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

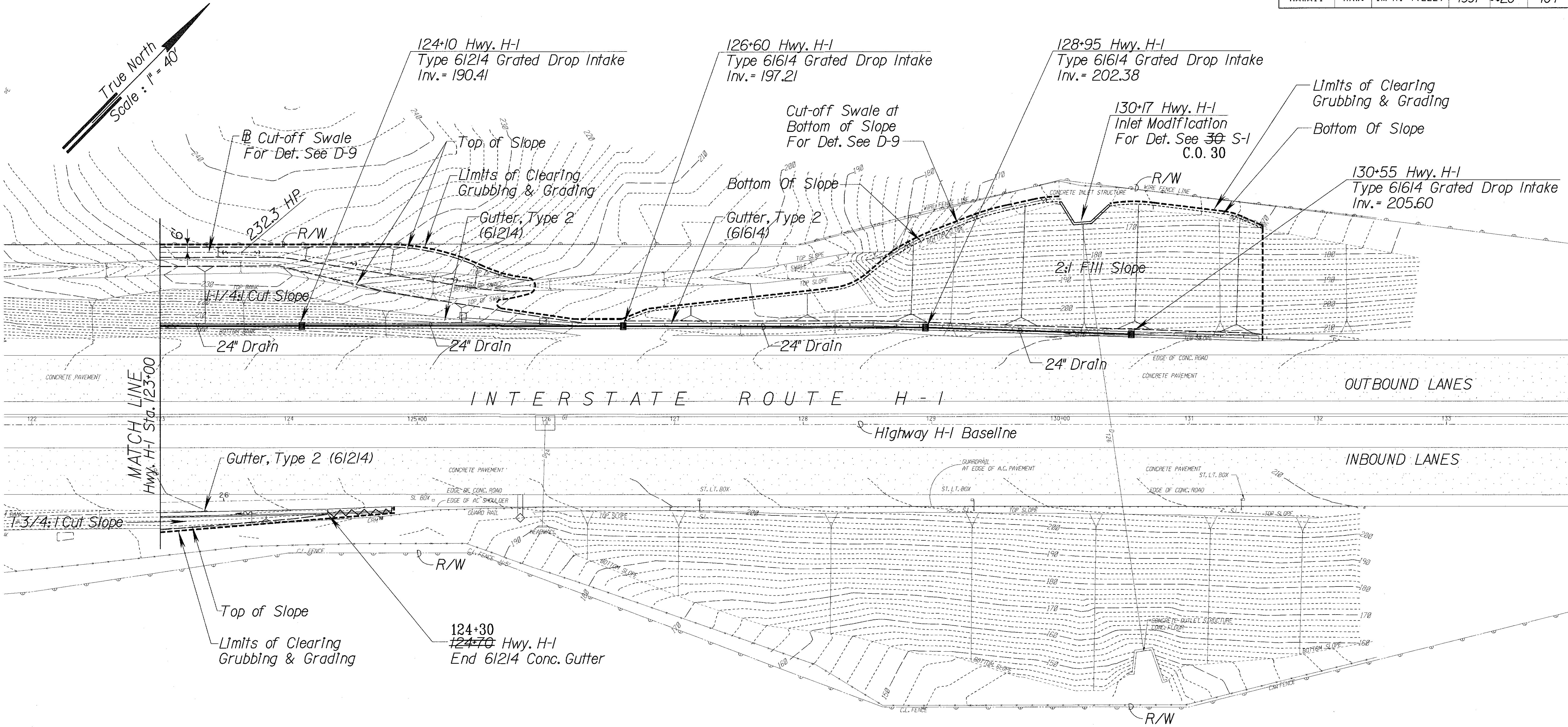
GRADING & DRAINAGE PLAN

INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1" = 40' Date: May 9, 1997

SHEET No. D-3 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	020	104



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

2/9/98 Delete Retaining Wall - 1 & Revise Grading

DATE REVISION

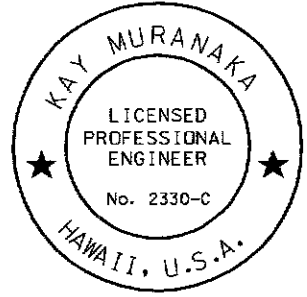
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING & DRAINAGE PLAN

INTERSTATE ROUTE H-1
Makalo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1" = 40' Date: May 9, 1997

SHEET No. D-4 OF 9 SHEETS

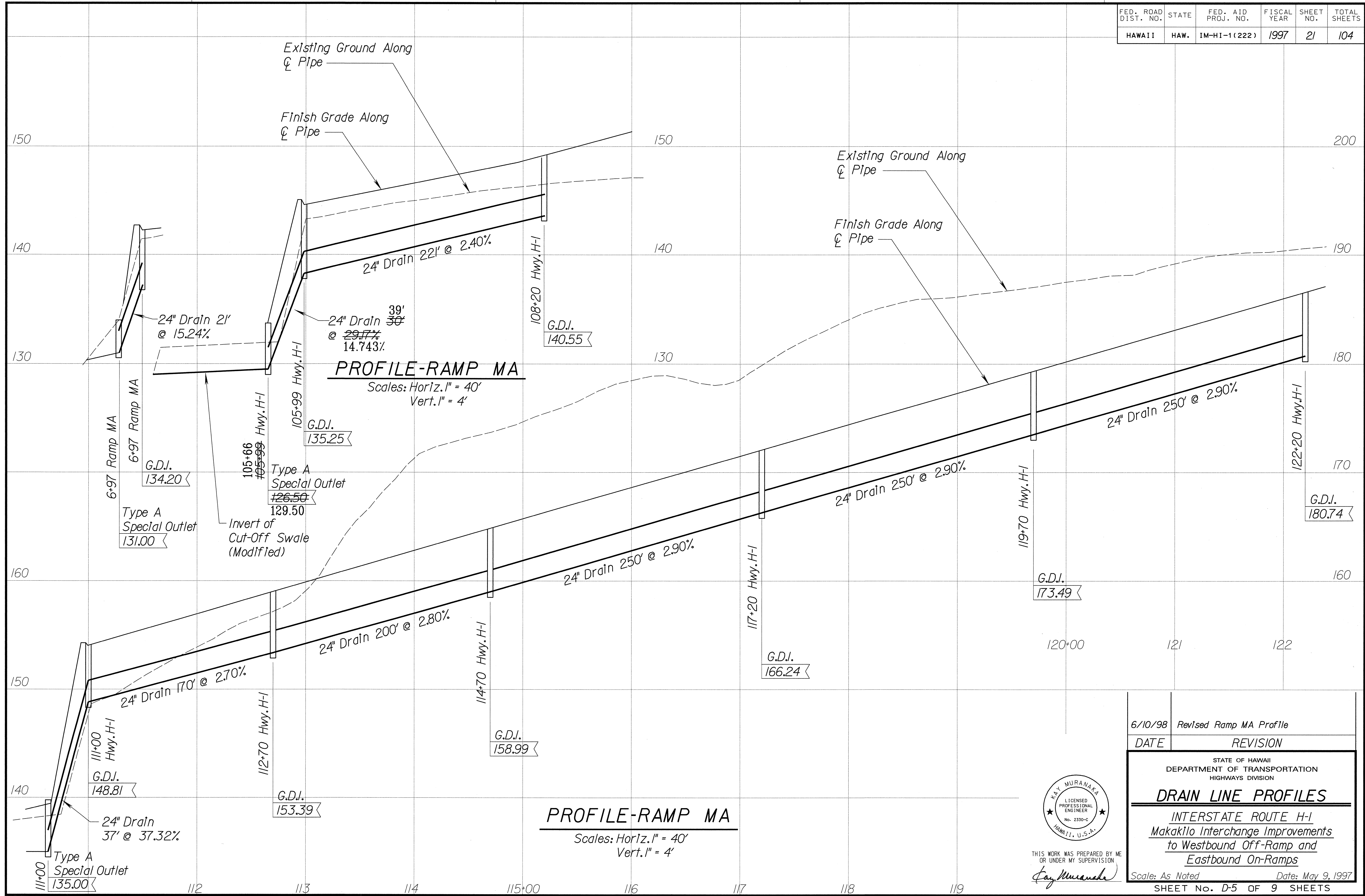


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

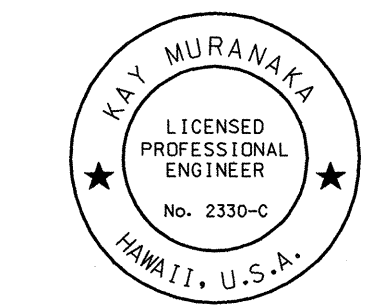
Kay Murenaka

MAKAKILO INTERCHANGE IMPROVEMENTS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1 (222)	1997	21	104



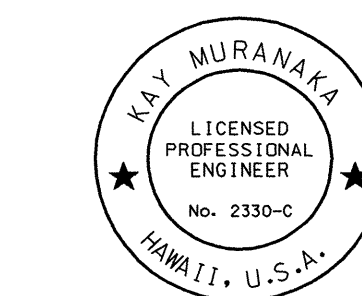
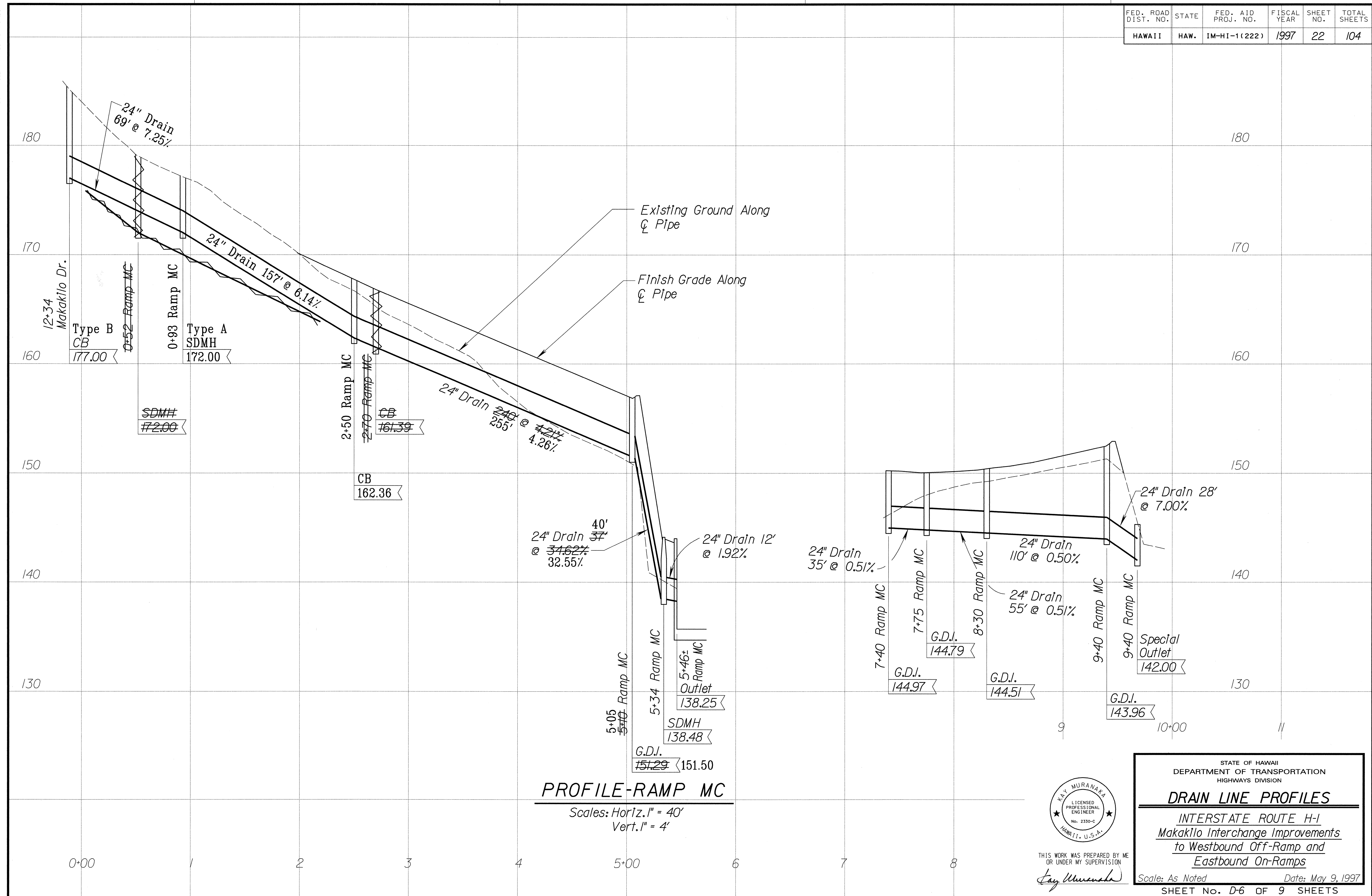
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
DATE	



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Kay Muranaka

6/10/98	Revised Ramp MA Profile
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAIN LINE PROFILES	
INTERSTATE ROUTE H-I Makakilo Interchange Improvements to Westbound Off-Ramp and Eastbound On-Ramps	
Scale: As Noted	Date: May 9, 1997
SHEET No. D-5 OF 9 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	22	104

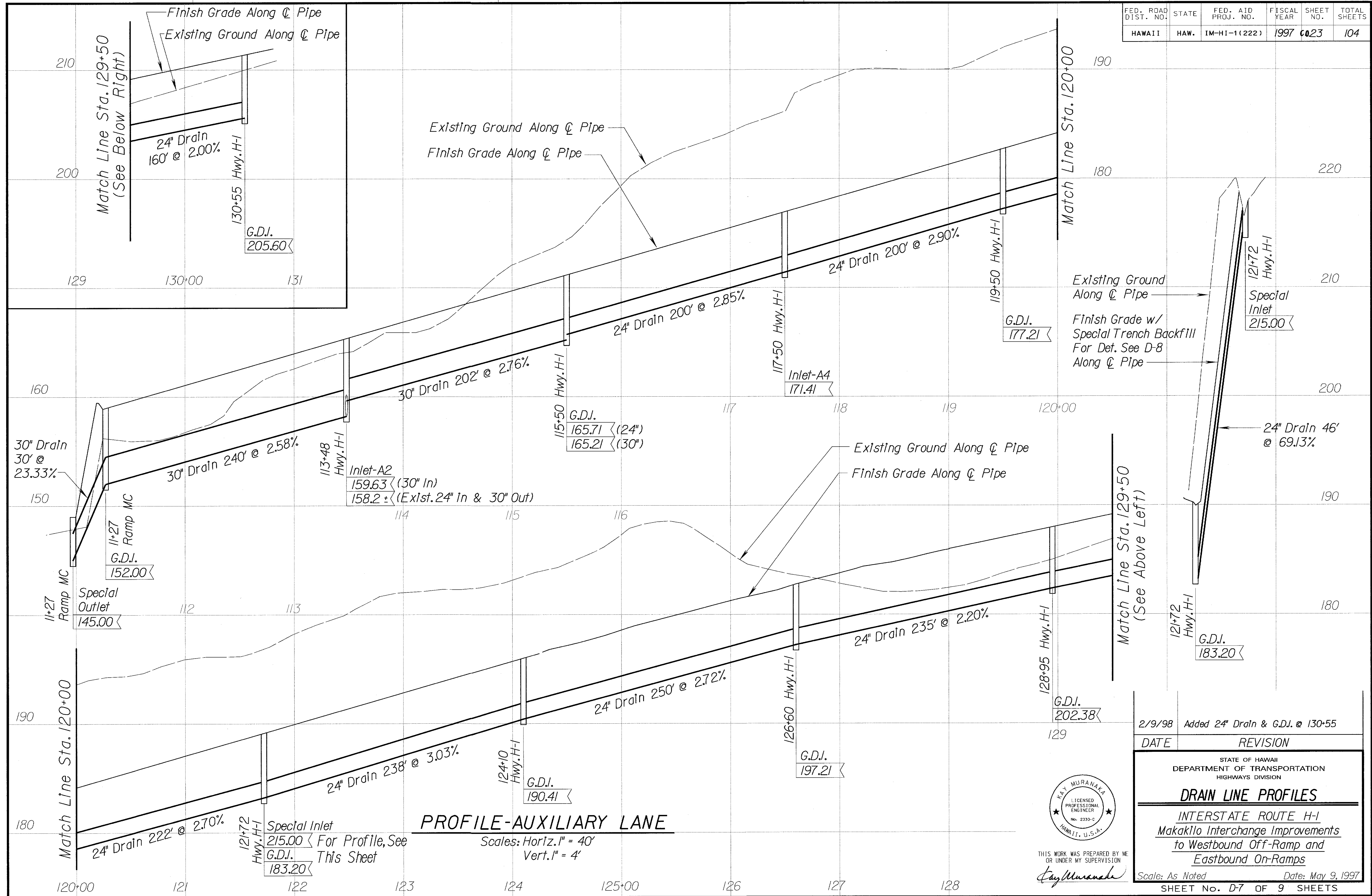


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Kay Muraka

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAIN LINE PROFILES
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps
Scale: As Noted Date: May 9, 1997
SHEET No. D-6 OF 9 SHEETS

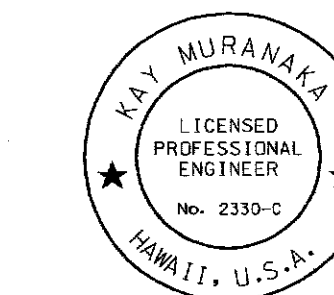
M:\DONKAPOL\EN\MAKALO\H-PROF.DGN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1 (222)	1997	6023	104



PROFILE-AUXILIARY LANE

Scales: Horiz. 1" = 40'
Vert. 1" = 4'



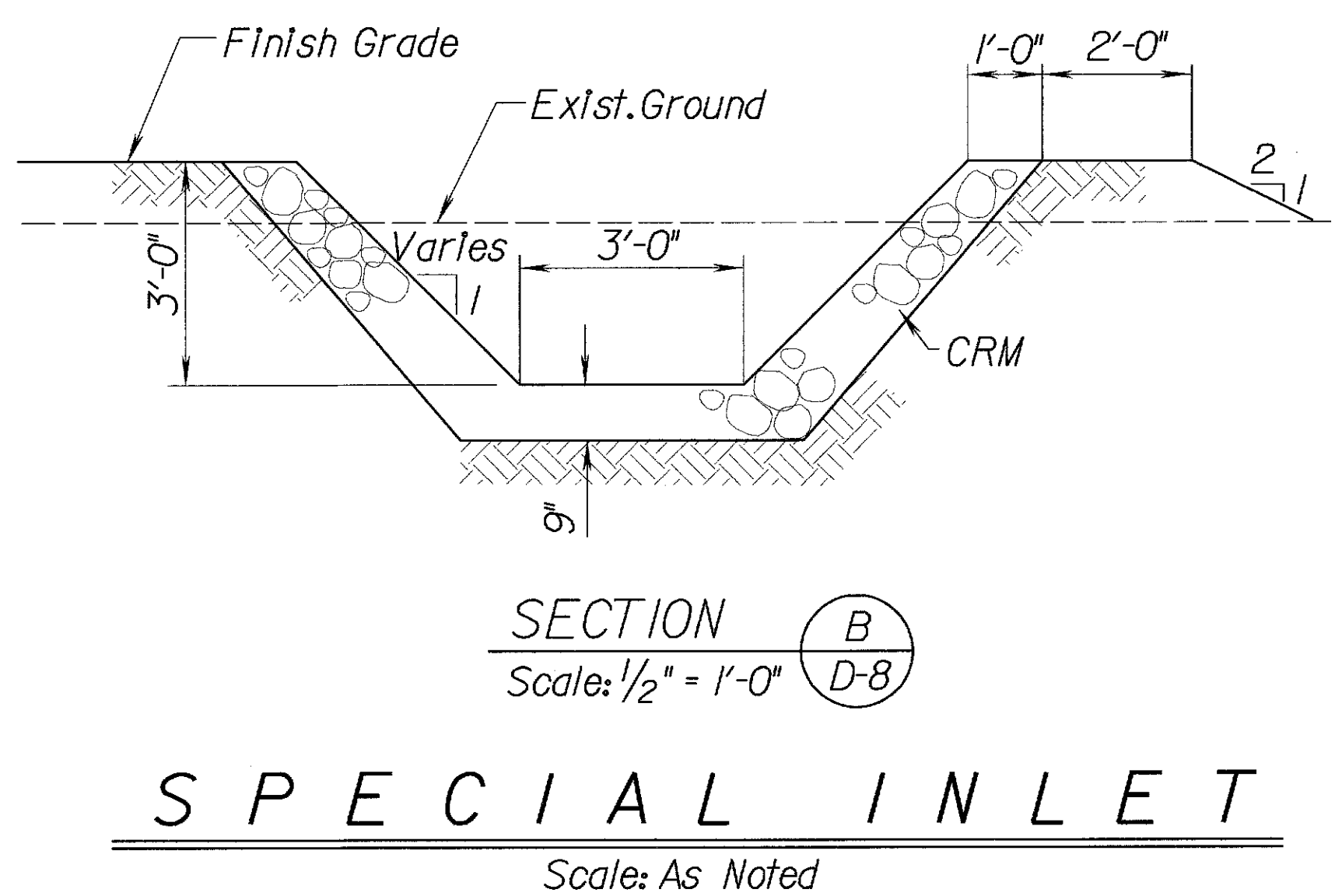
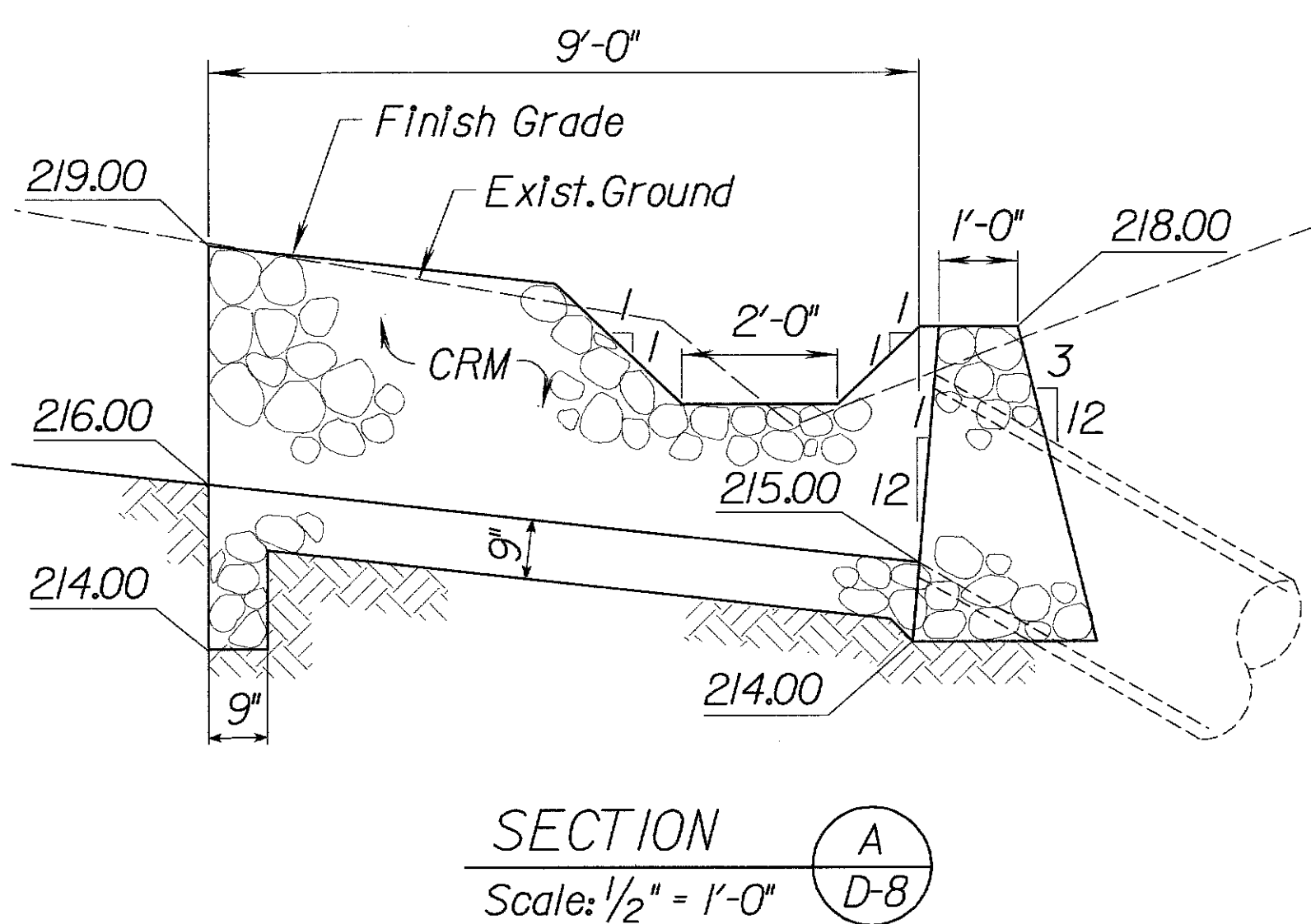
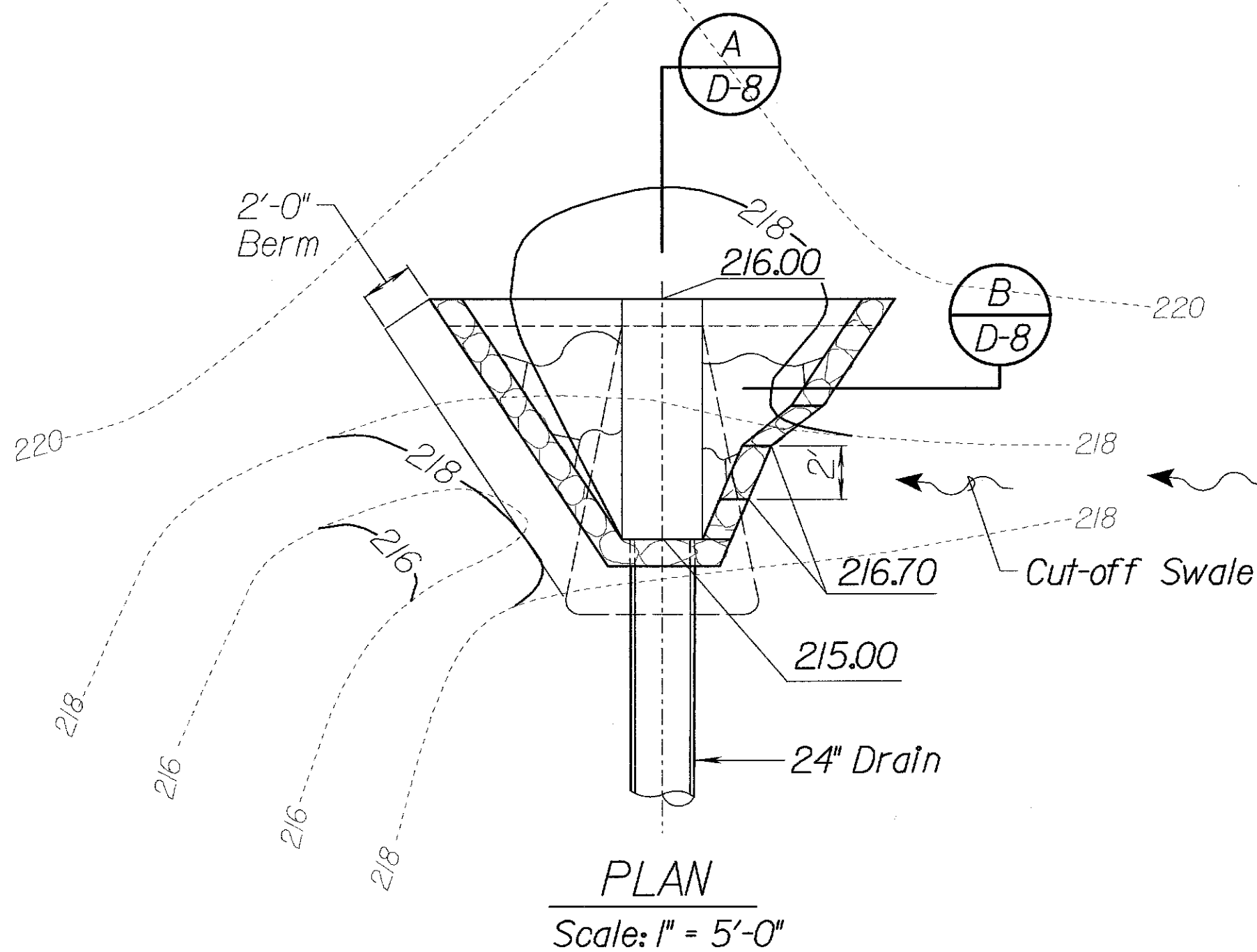
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Kay Muranaka

2/9/98	Added 24" Drain & G.D.I. @ 130+55
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAIN LINE PROFILES	
INTERSTATE ROUTE H-1 Makakilo Interchange Improvements to Westbound Off-Ramp and Eastbound On-Ramps	
Scale: As Noted	Date: May 9, 1997
SHEET NO. D-7 OF 9 SHEETS	

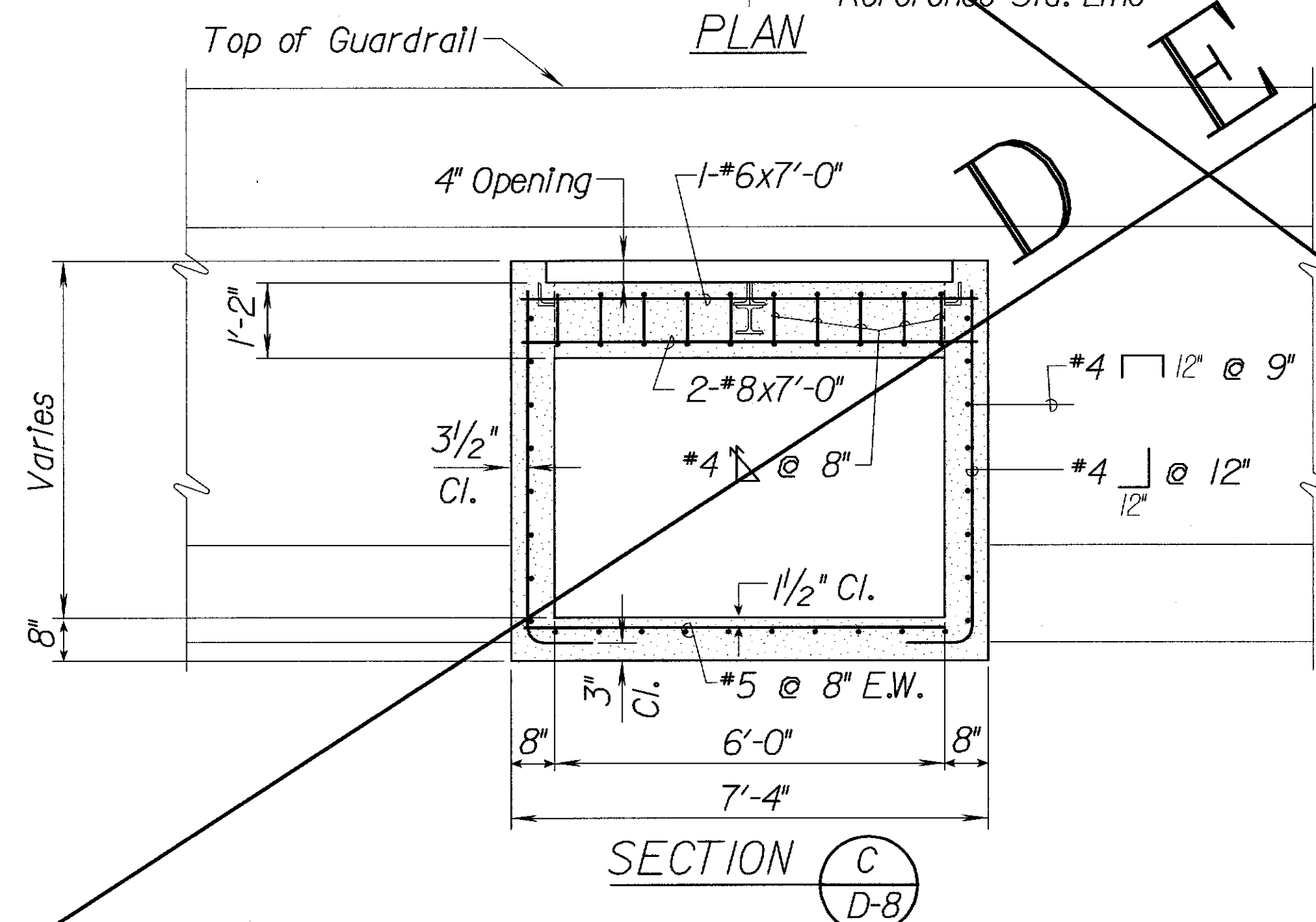
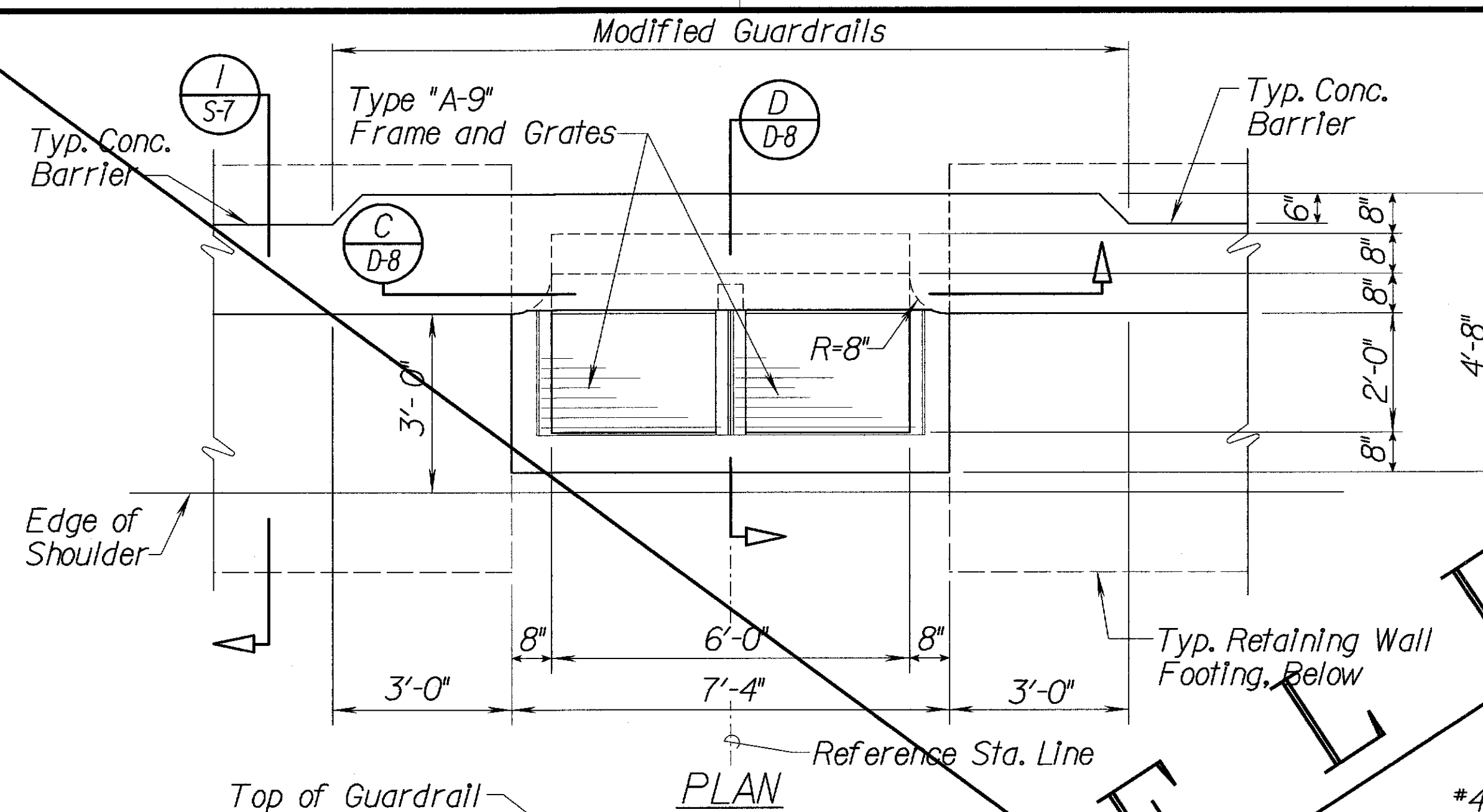
W:\DONVAPOLE\WAKILO\DETAILS.DGN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	C.O.24	104



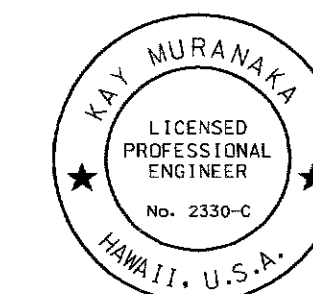
SPECIAL INLET

Scale: As Noted



TYPE 2 MEDIAN DROP INTAKE

Scale: 1/2" = 1'-0"

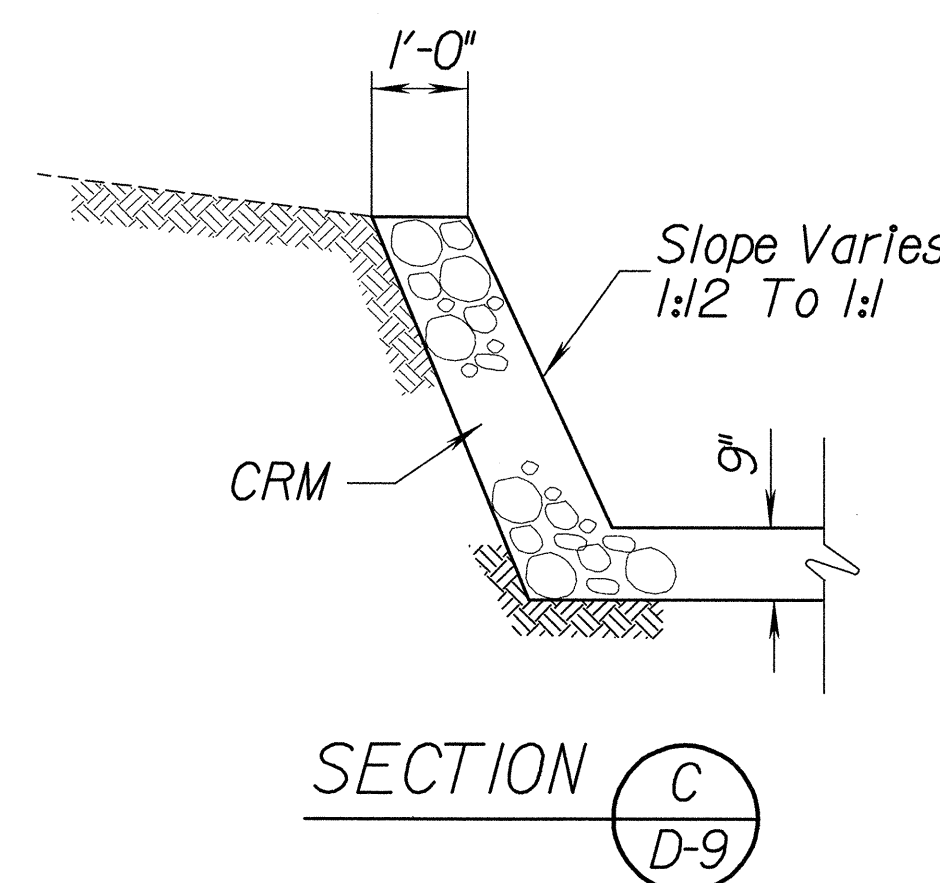
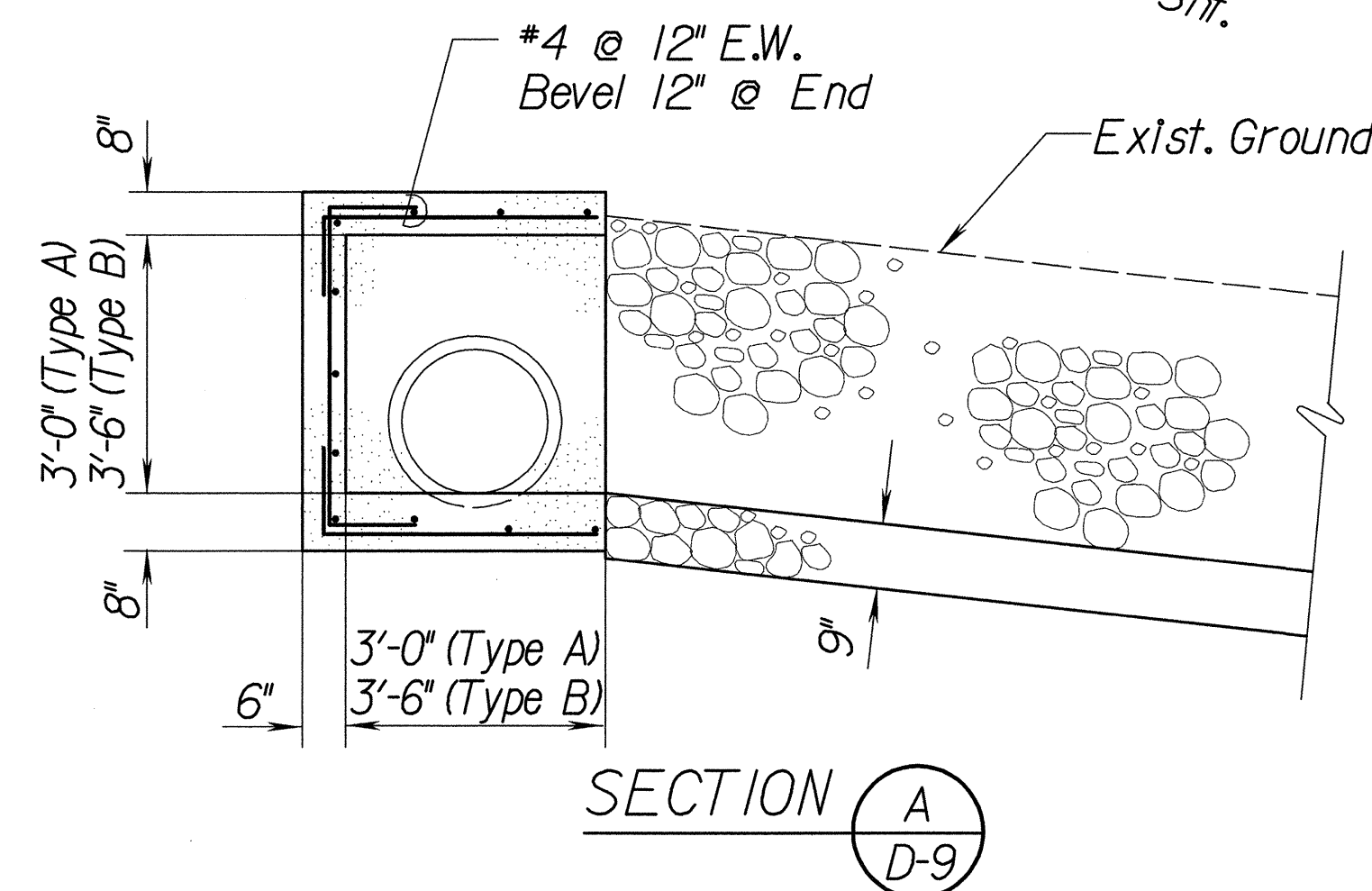
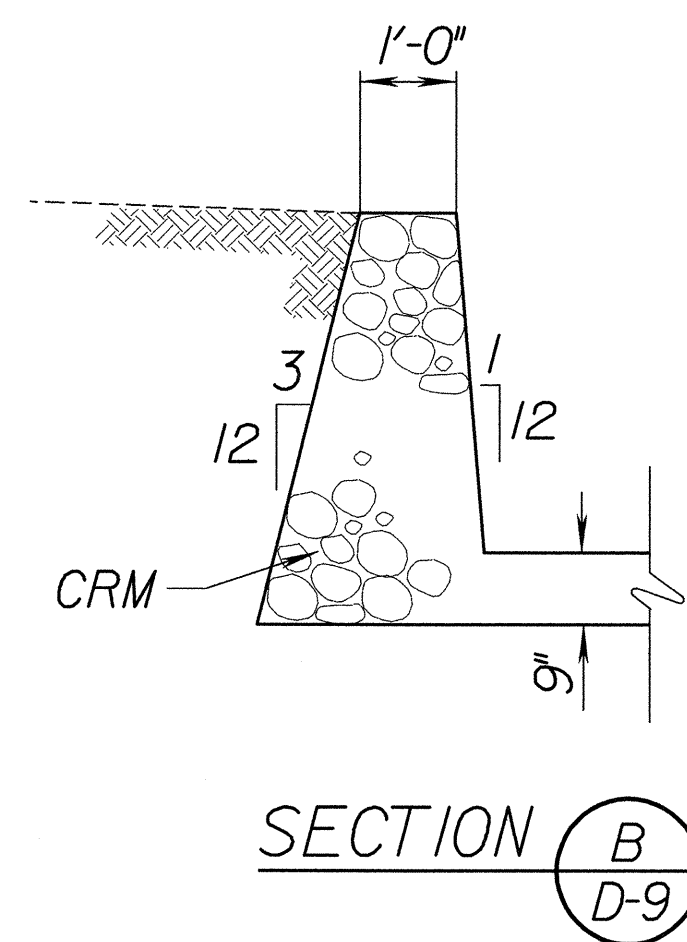
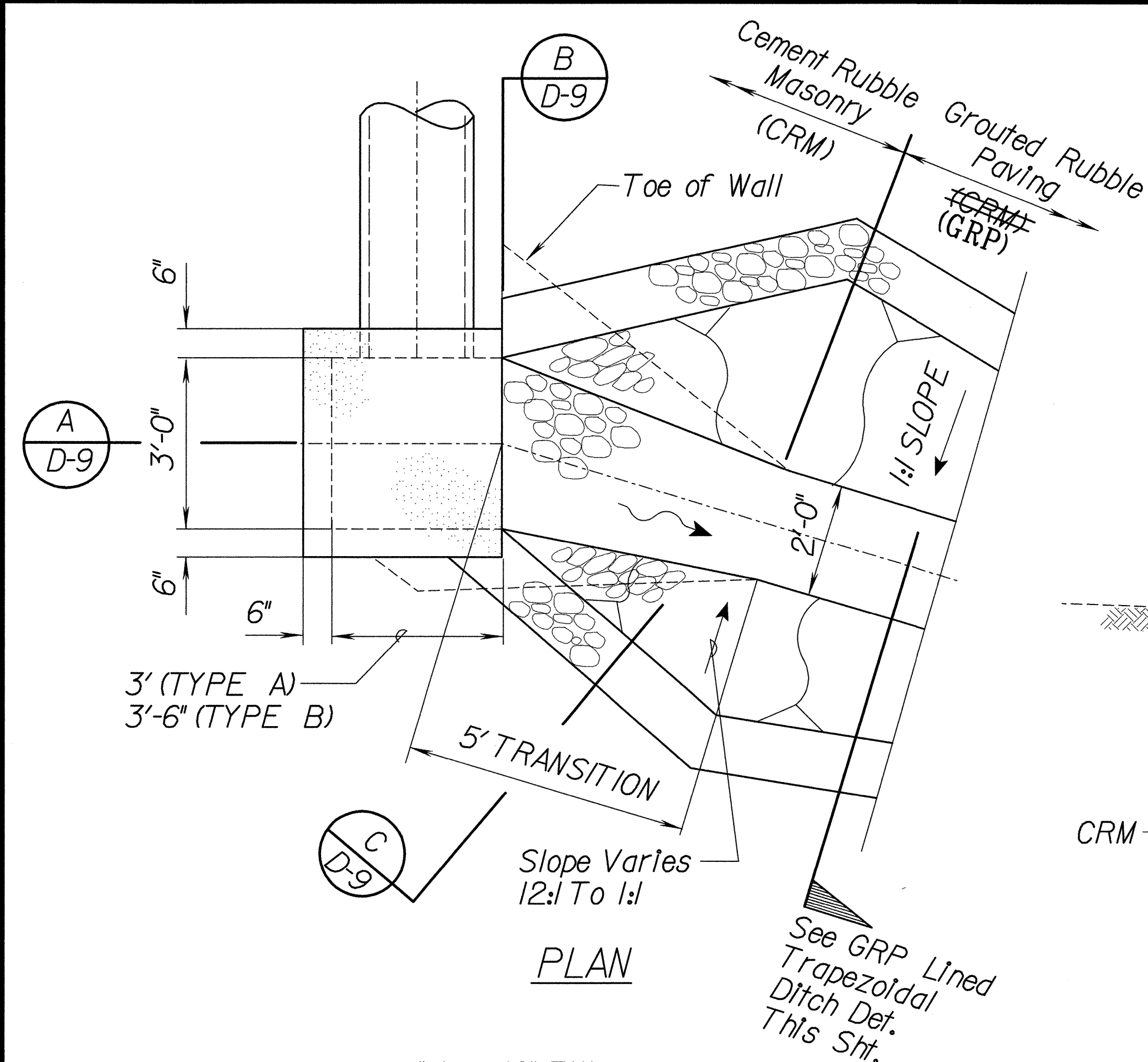


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Kay Muranaka

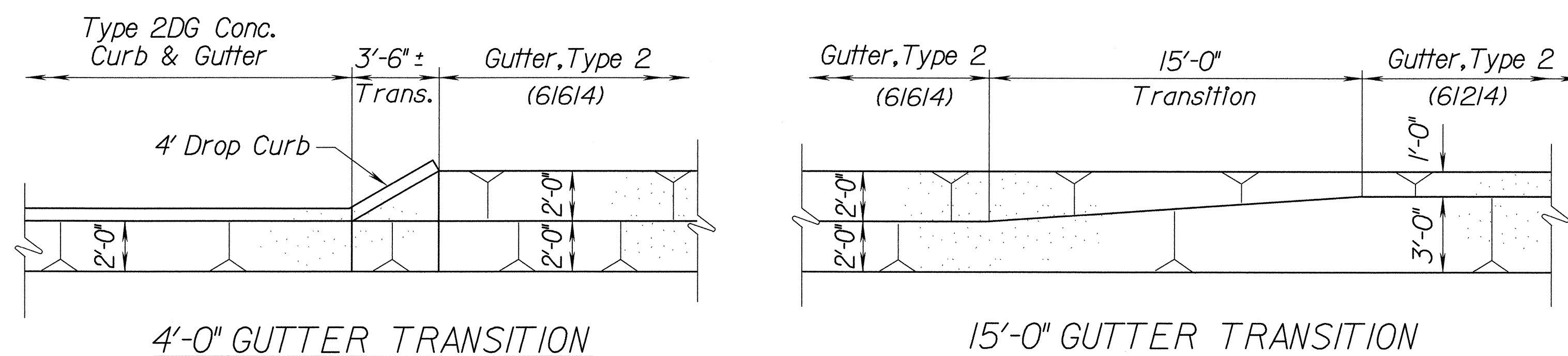
1/30/98	Deleted Type 2 Median Drop Intake
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS	
INTERSTATE ROUTE H-1 Makalo Interchange Improvements to Westbound Off-Ramp and Eastbound On-Ramps	
Scale: As Noted	Date: May 9, 1997
SHEET No. D-8 OF 9 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	25	104



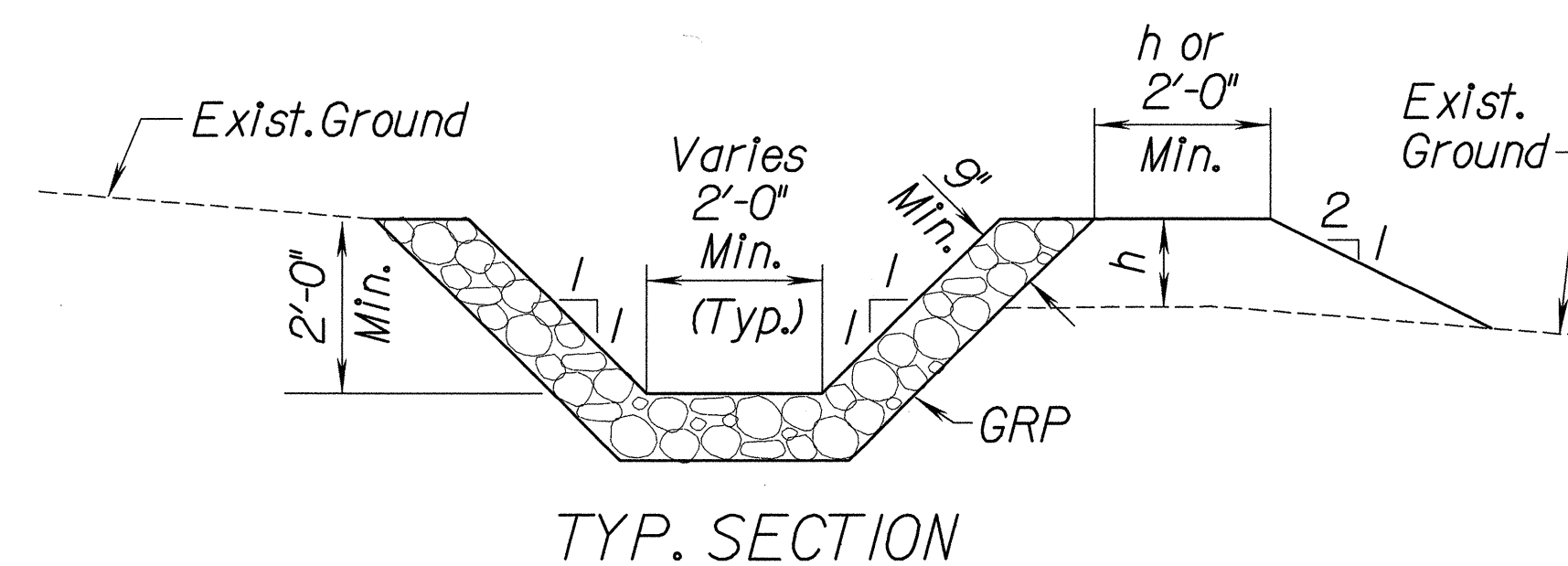
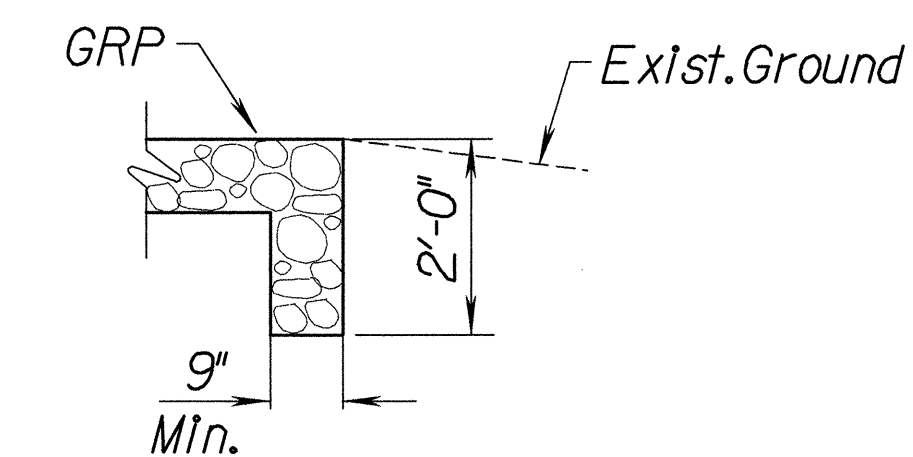
SPECIAL OUTLET

Scale: 1/2" = 1'-0"



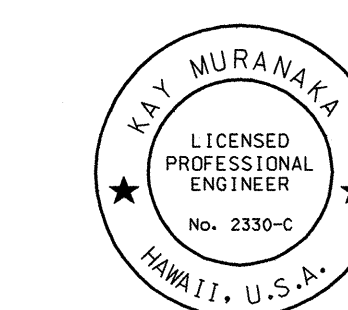
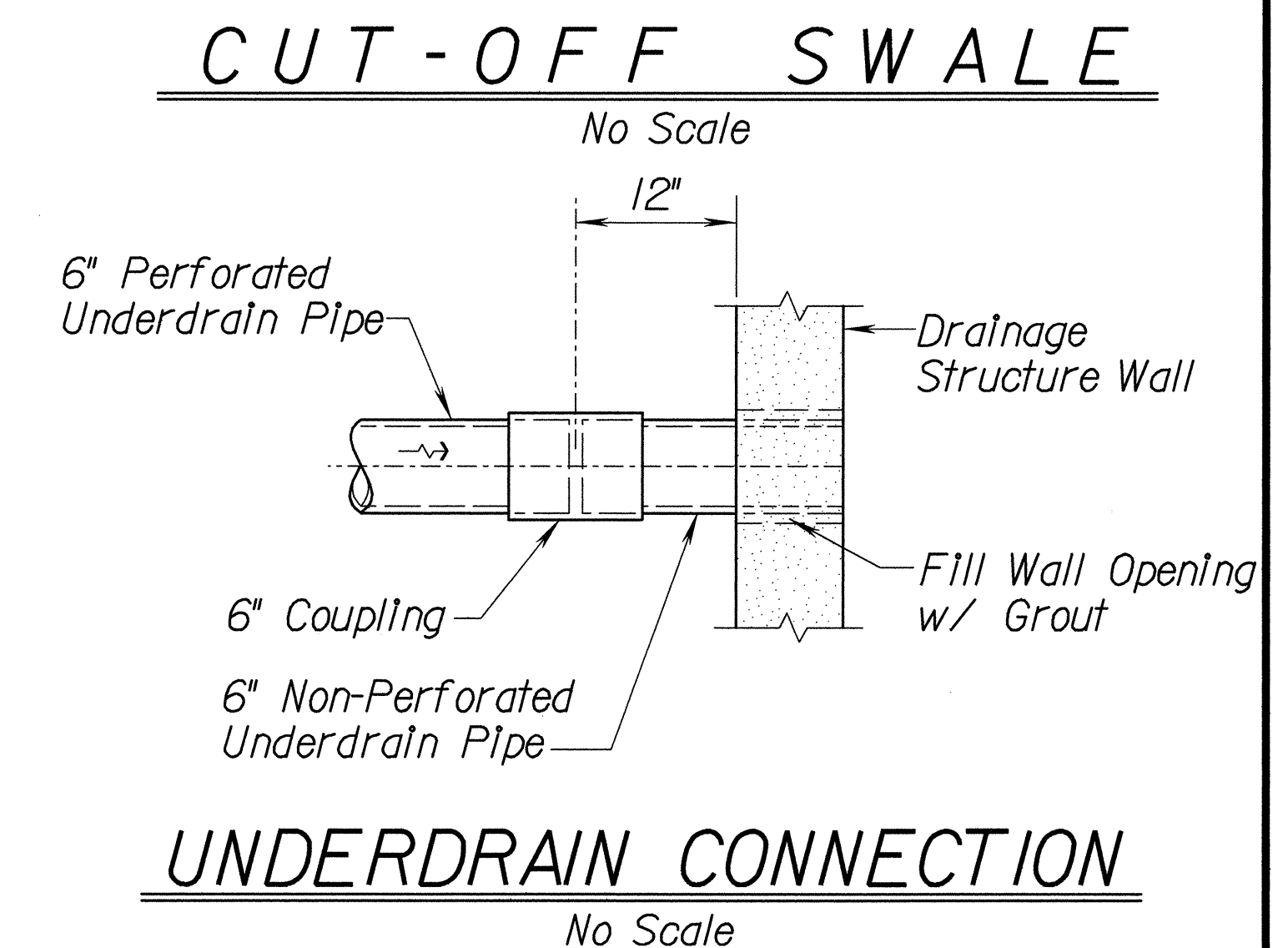
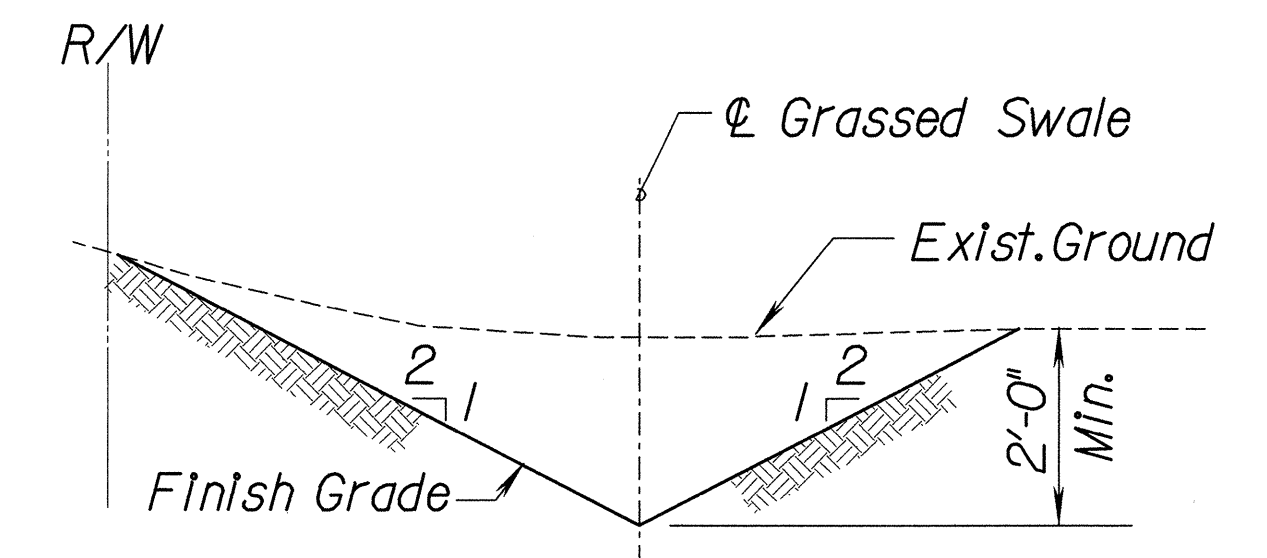
PLAN - GUTTER TRANSITION

Scale: 1/4" = 1'-0"



GRP LINED TRAPEZOIDAL DITCH

No Scale



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Kay Muraka

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

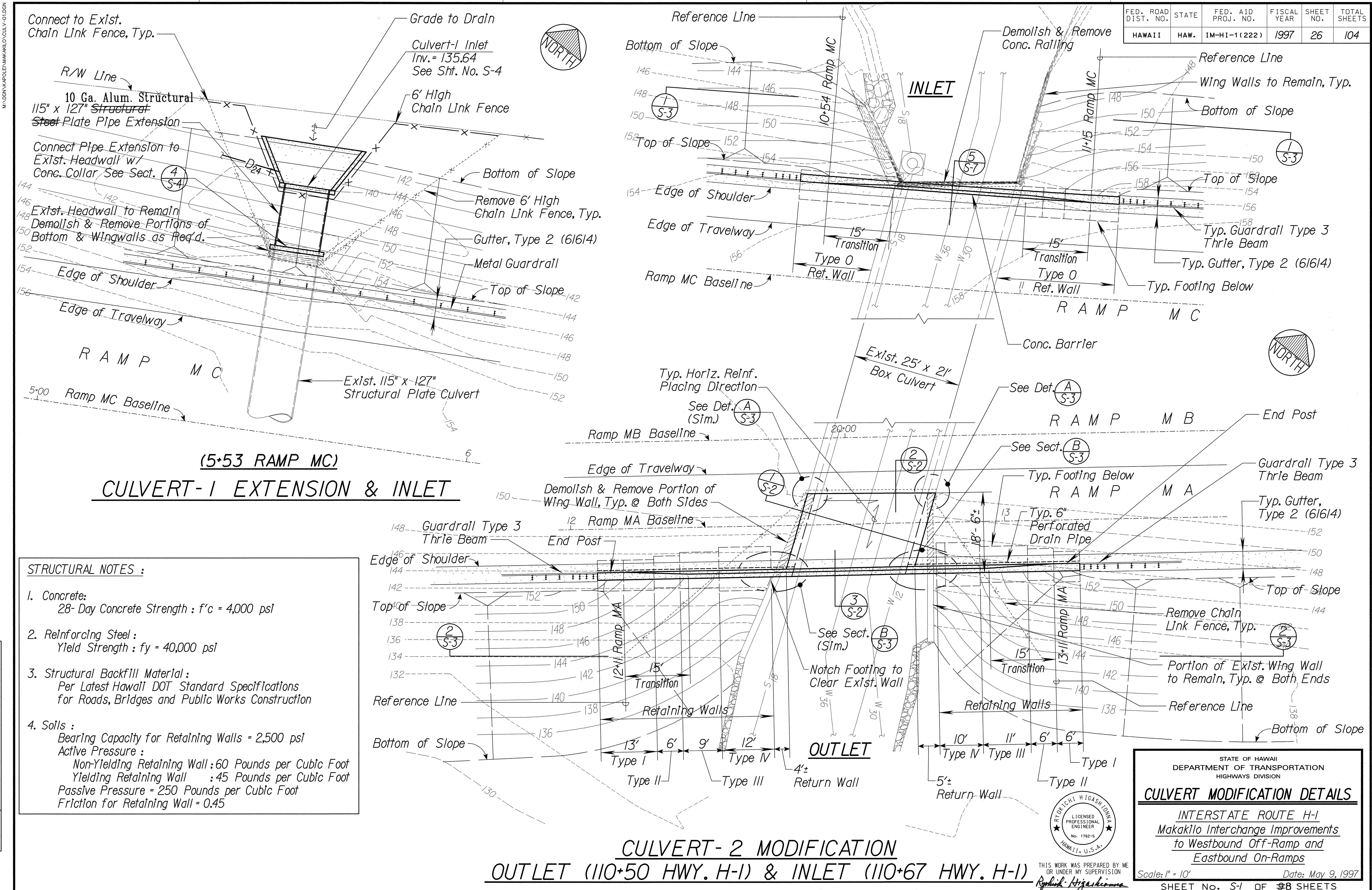
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: As Noted Date: May 9, 1997

SHEET No. D-9 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(222)	1997	26	104



STRUCTURAL NOTES :

- Concrete:
28- Day Concrete Strength : $f'c = 4,000 \text{ psi}$
- Reinforcing Steel :
Yield Strength : $f_y = 40,000 \text{ psi}$
- Structural Backfill Material :
Per Latest Hawaii DOT Standard Specifications
for Roads, Bridges and Public Works Construction
- Soils :
Bearing Capacity for Retaining Walls = 2,500 psi
Active Pressure :
Non-Yielding Retaining Wall : 60 Pounds per Cubic Foot
Yielding Retaining Wall : 45 Pounds per Cubic Foot
Passive Pressure = 250 Pounds per Cubic Foot
Friction for Retaining Wall = 0.45

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT MODIFICATION DETAILS

INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: 1" = 10' Date: May 9, 1997

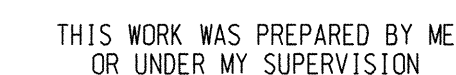
SHEET No. S-1 OF 98 SHEETS



- SECTION (1)
Box Culvert) S-2



RETAINING WALL



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

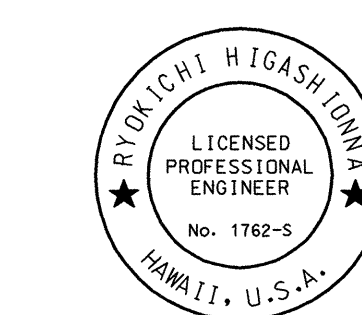
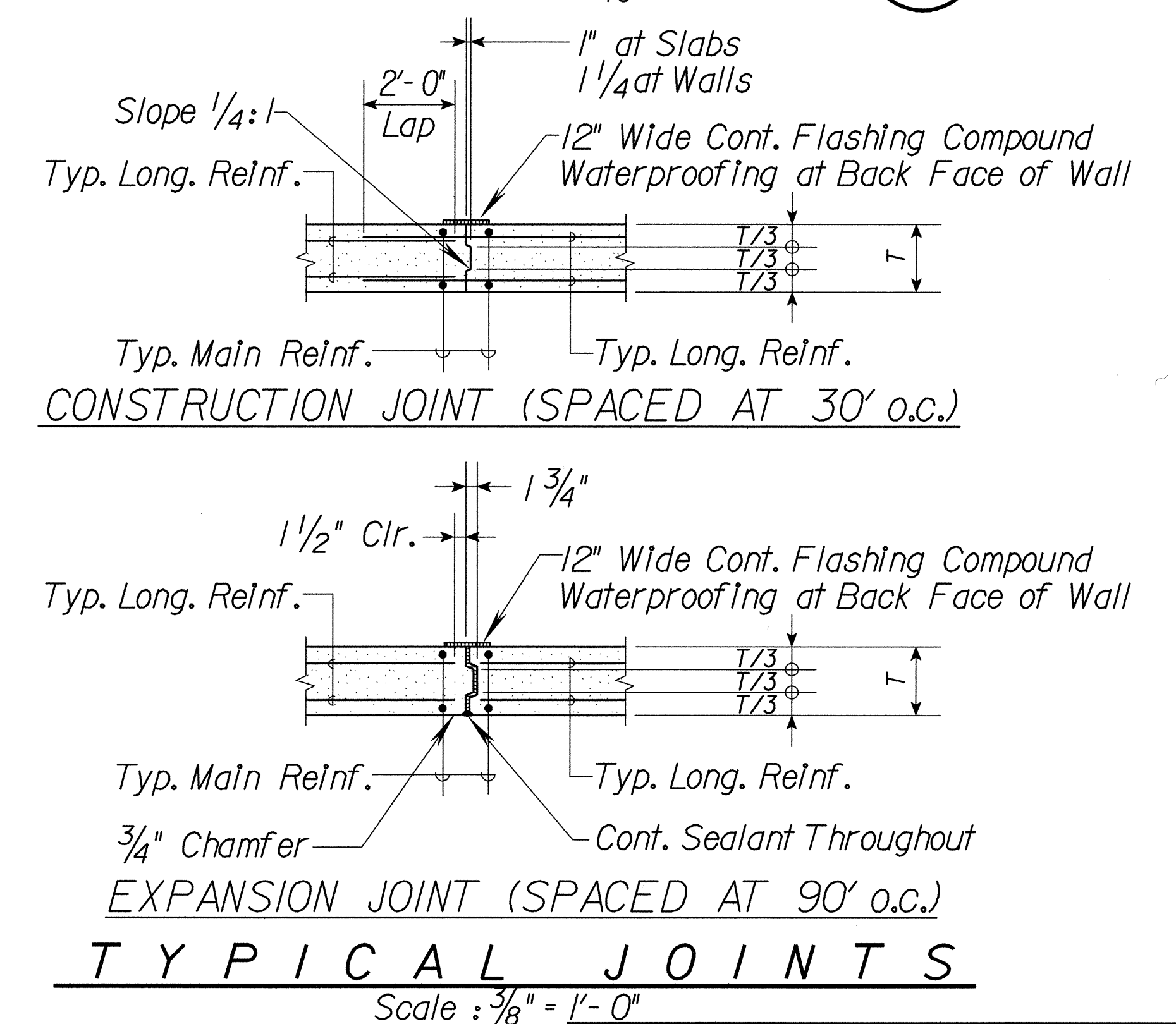
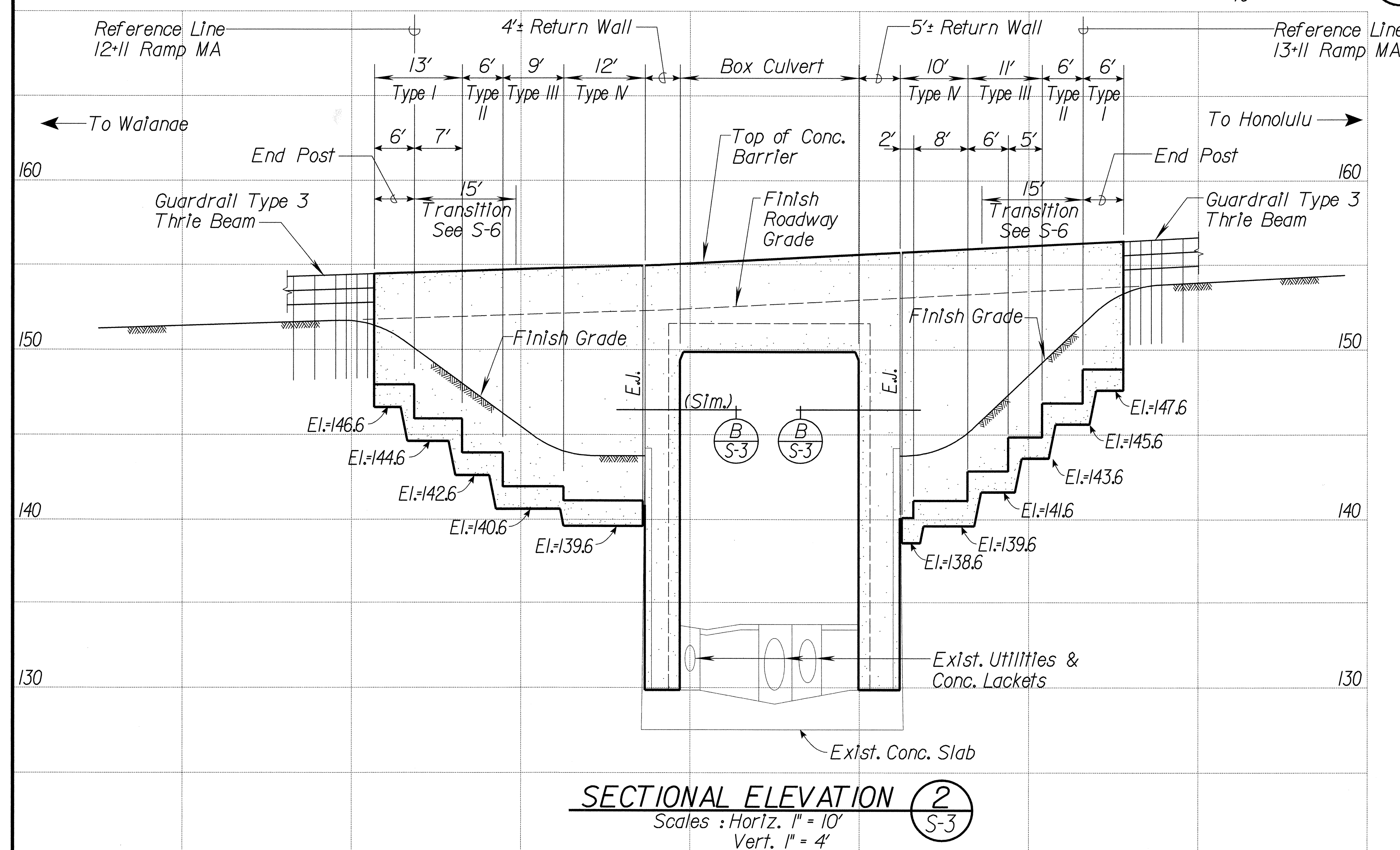
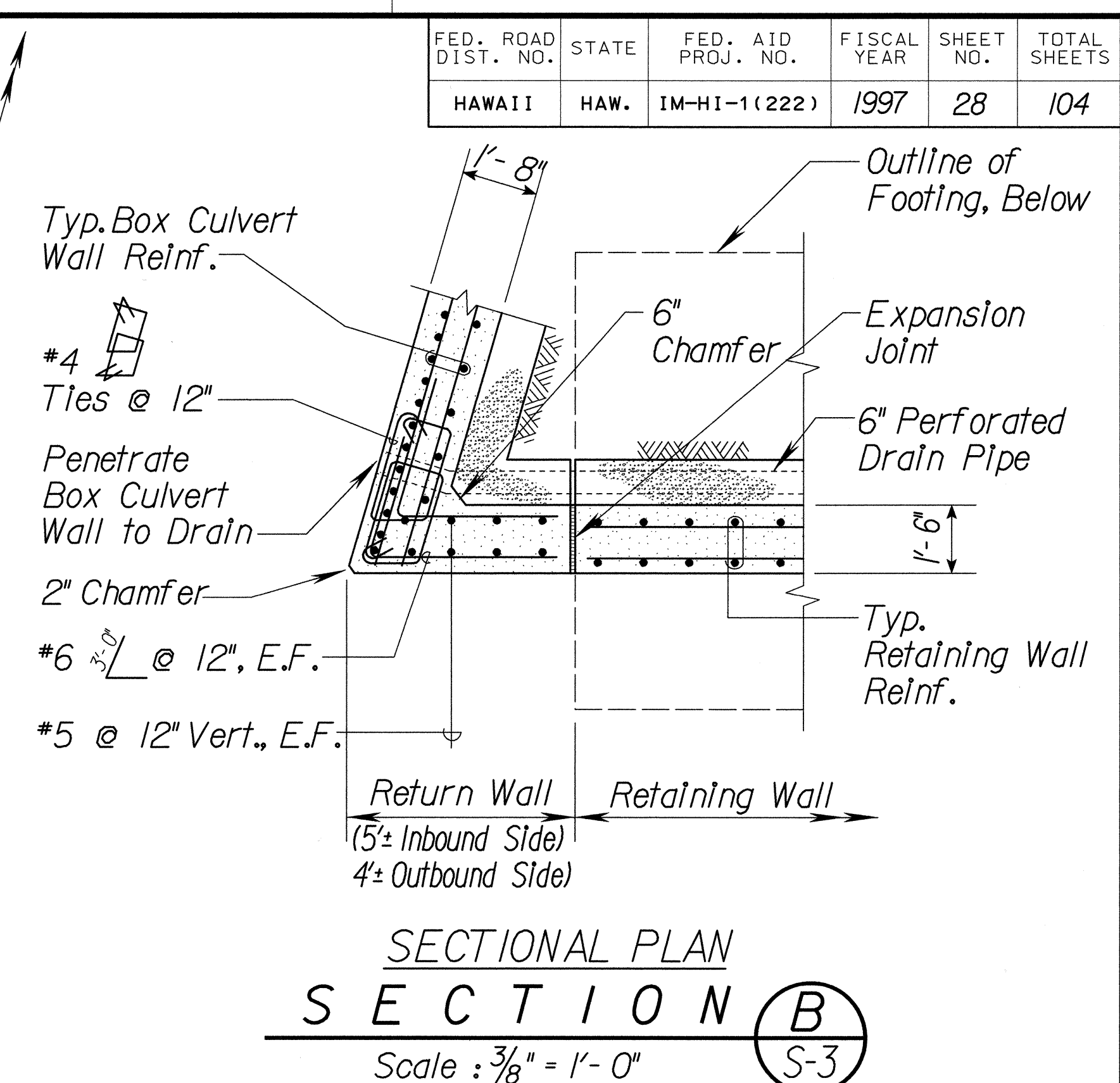
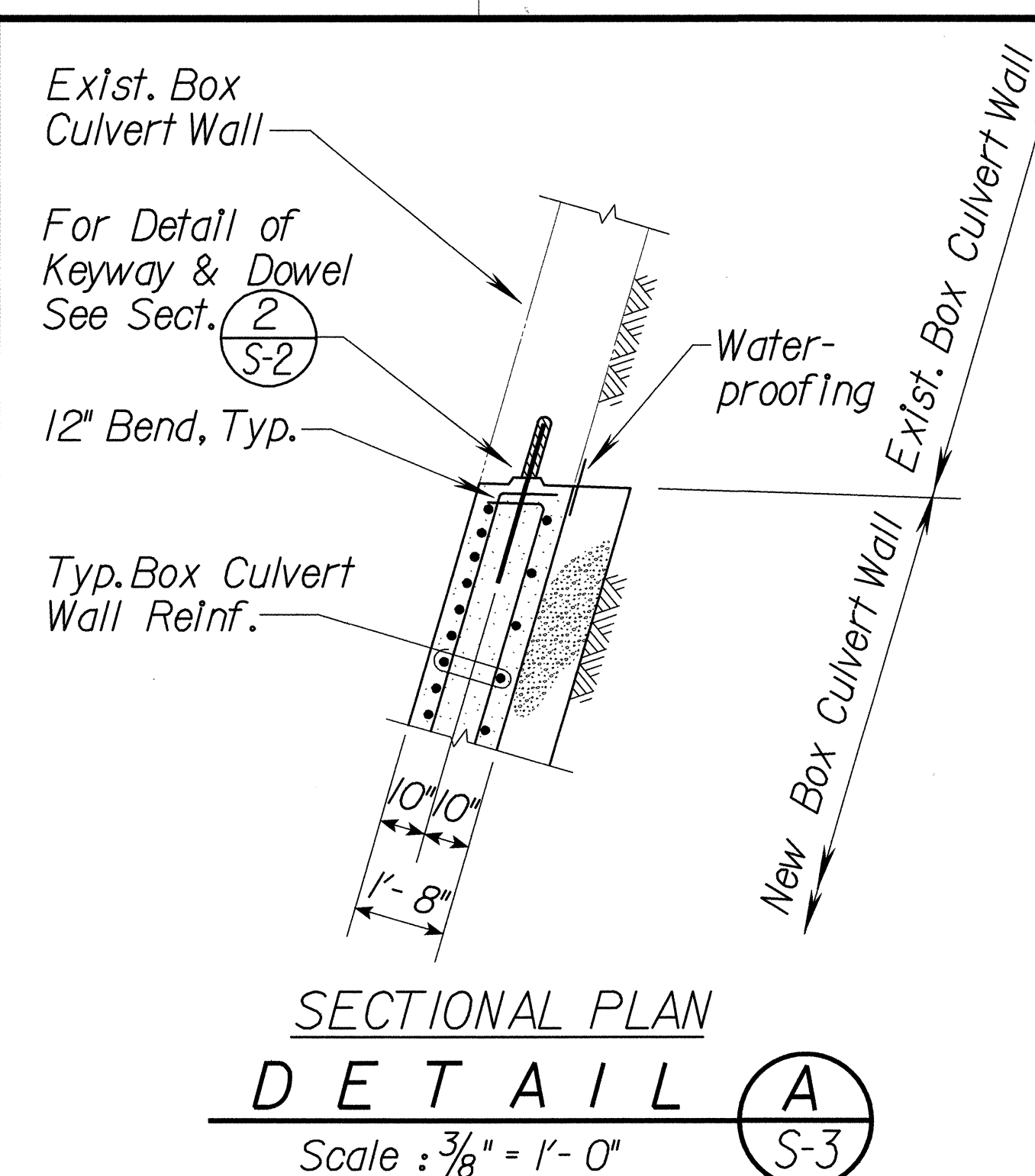
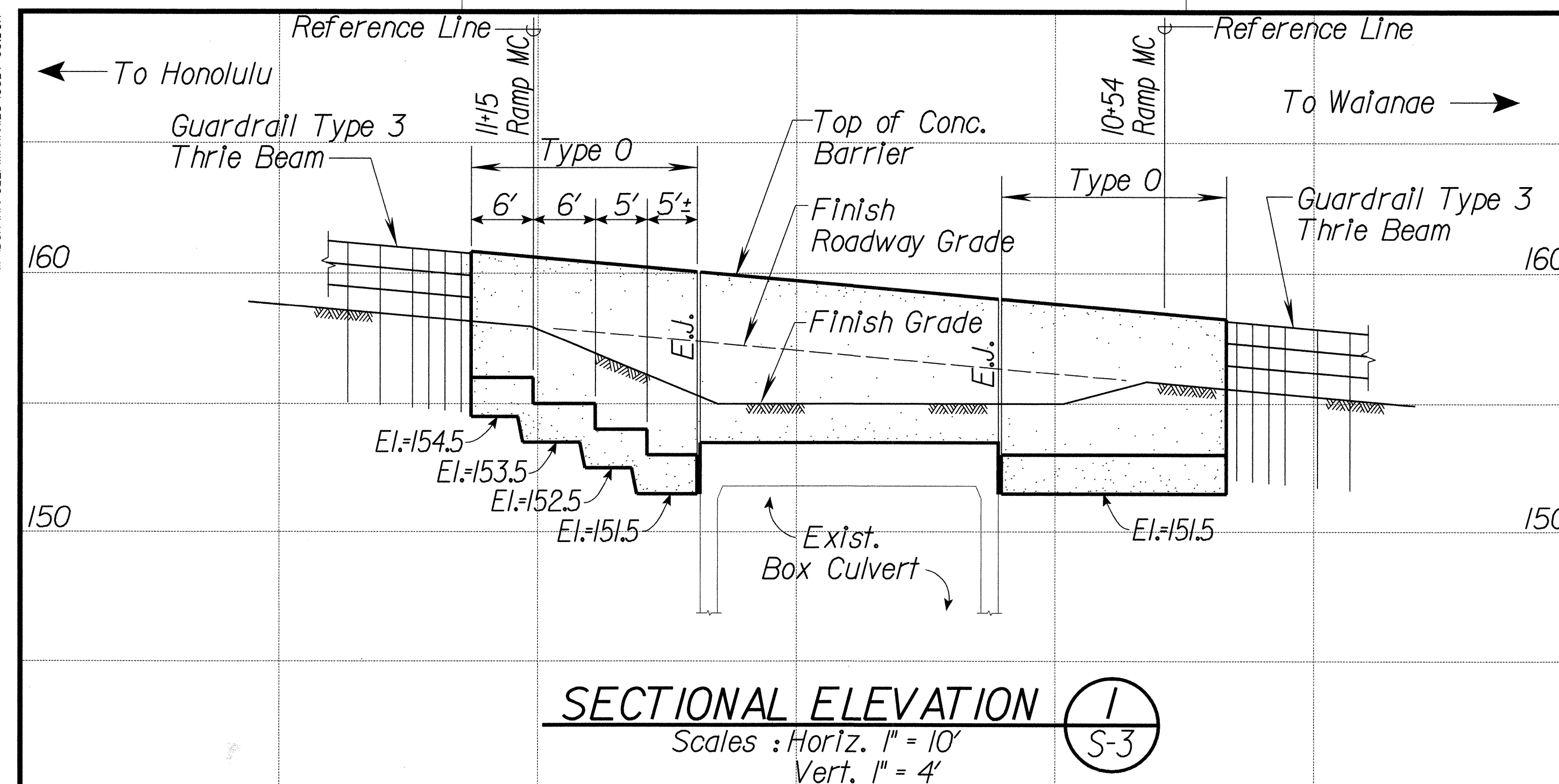
CULVERT MODIFICATION DETAILS

INTERSTATE ROUTE H-1
Makali'i Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: $\frac{3}{8}" = 1' - 0"$ Date: May 9, 1997

SHEET NO. 5-2 OF 98 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	28	104



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Ryokichi Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT MODIFICATION DETAILS

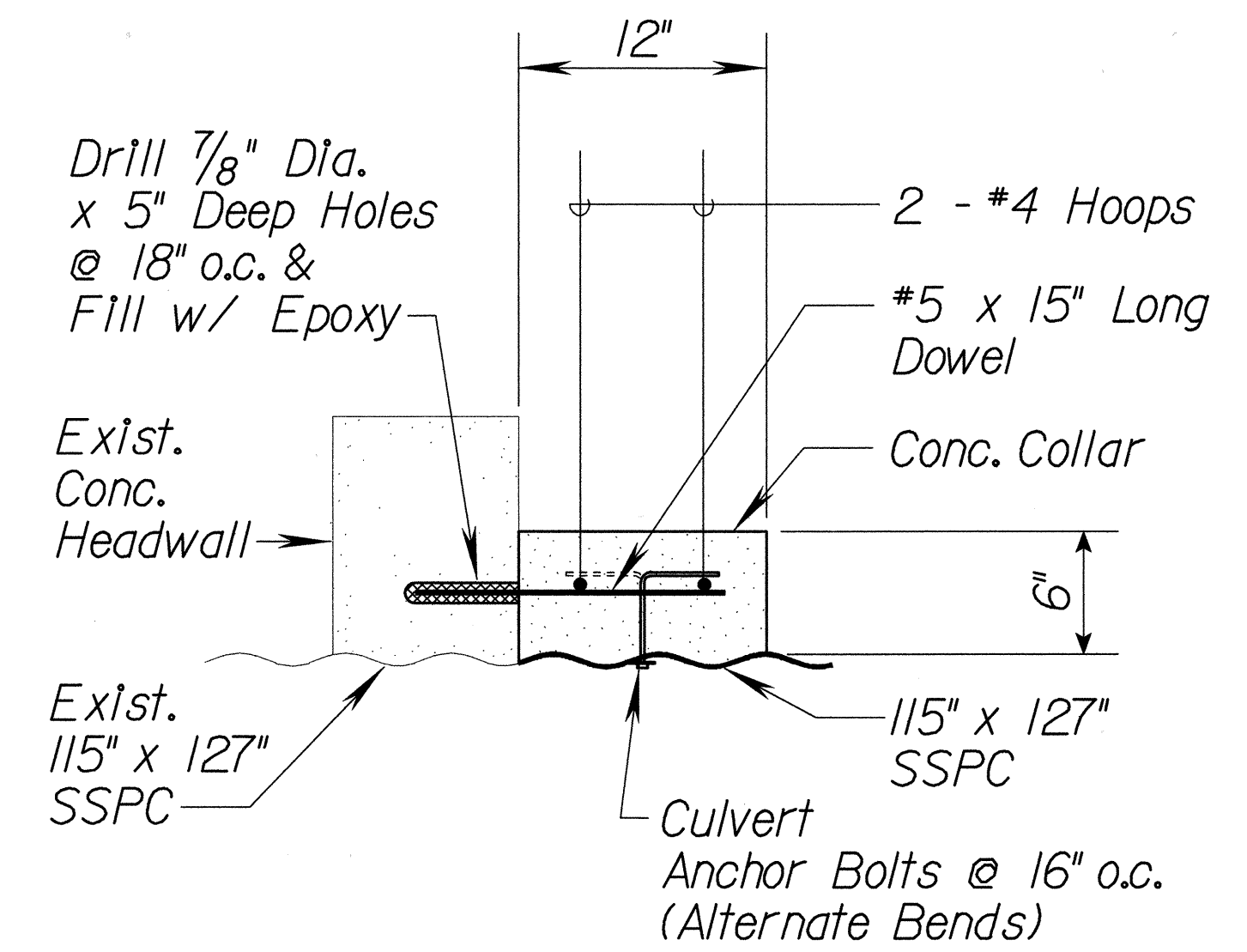
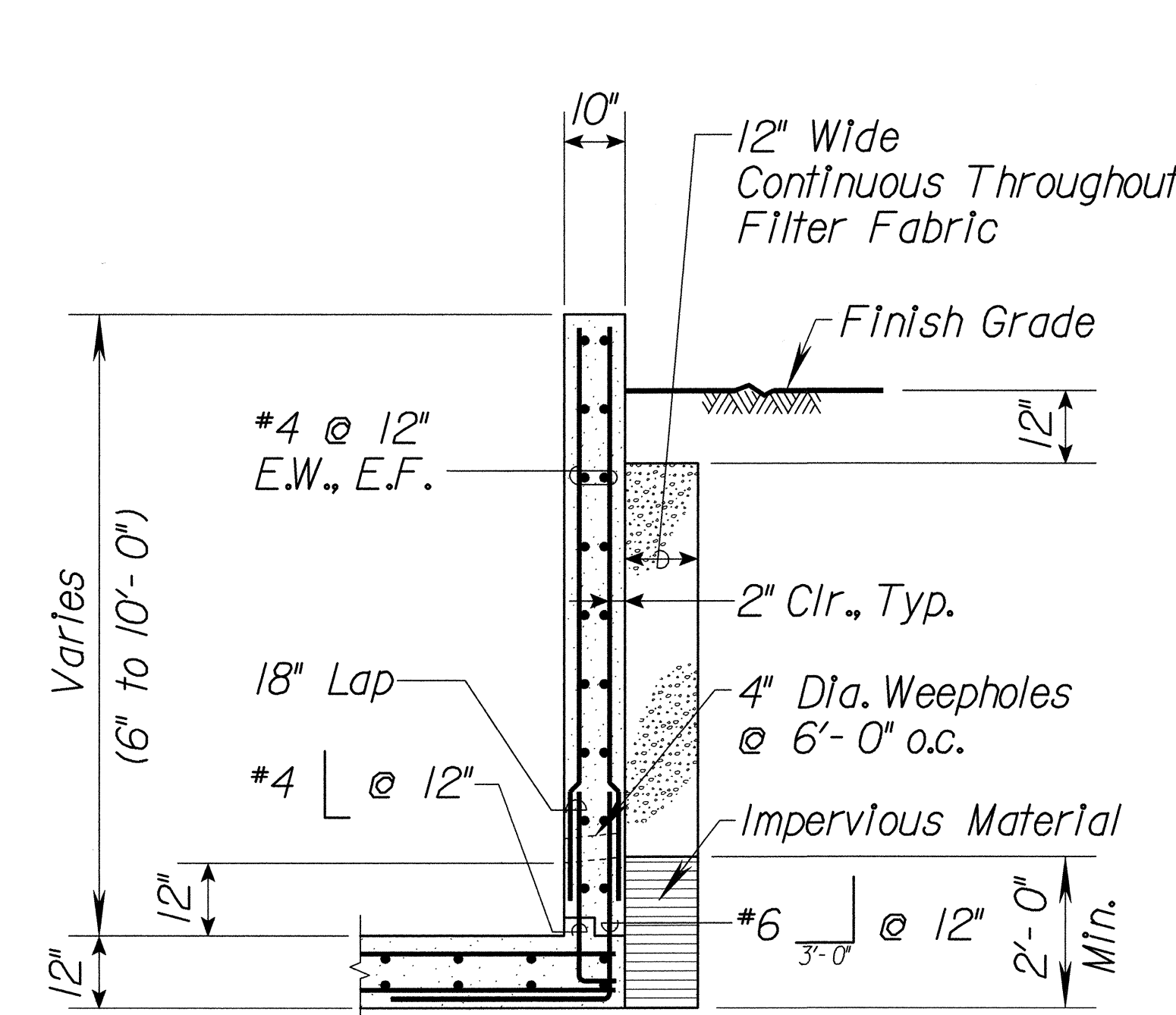
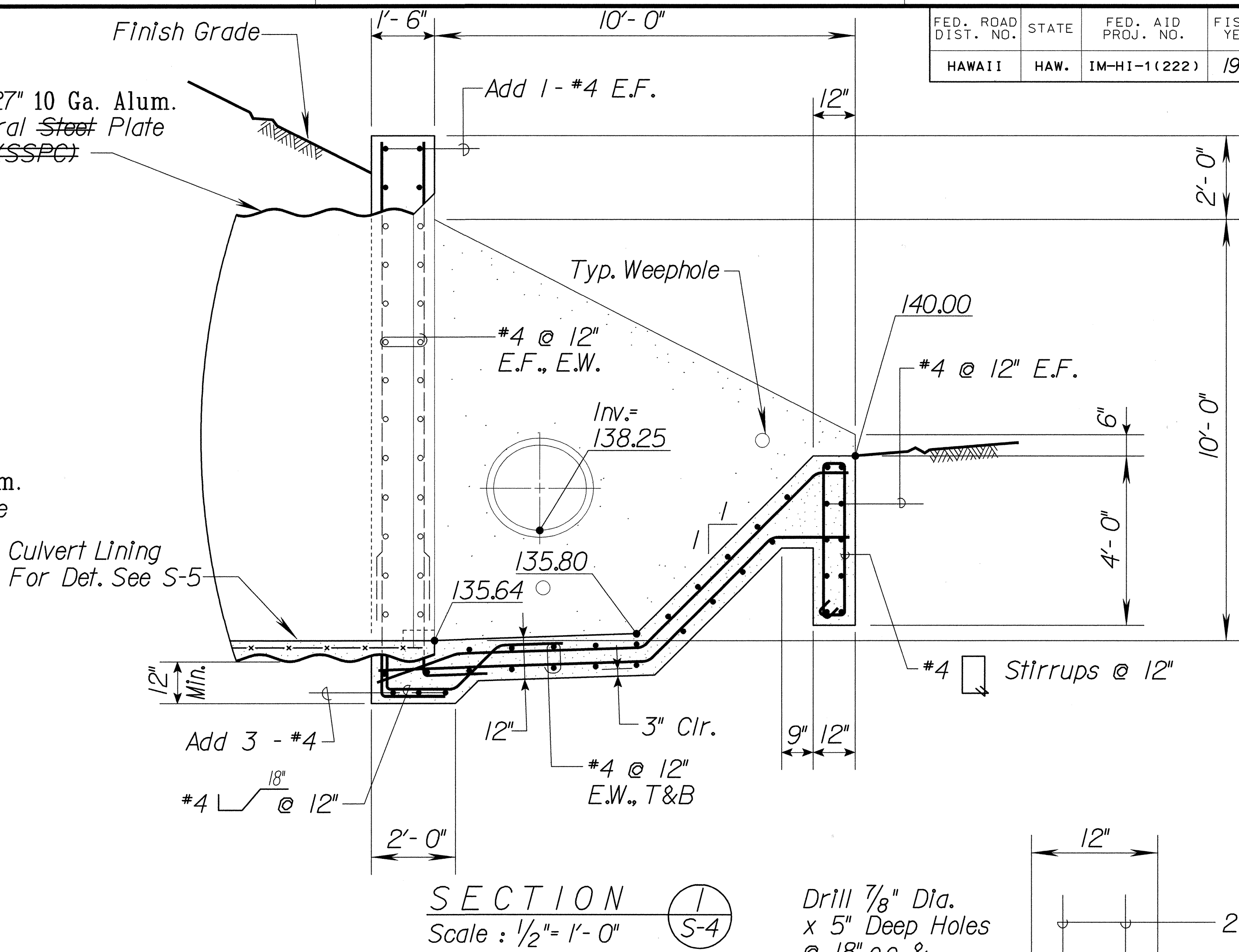
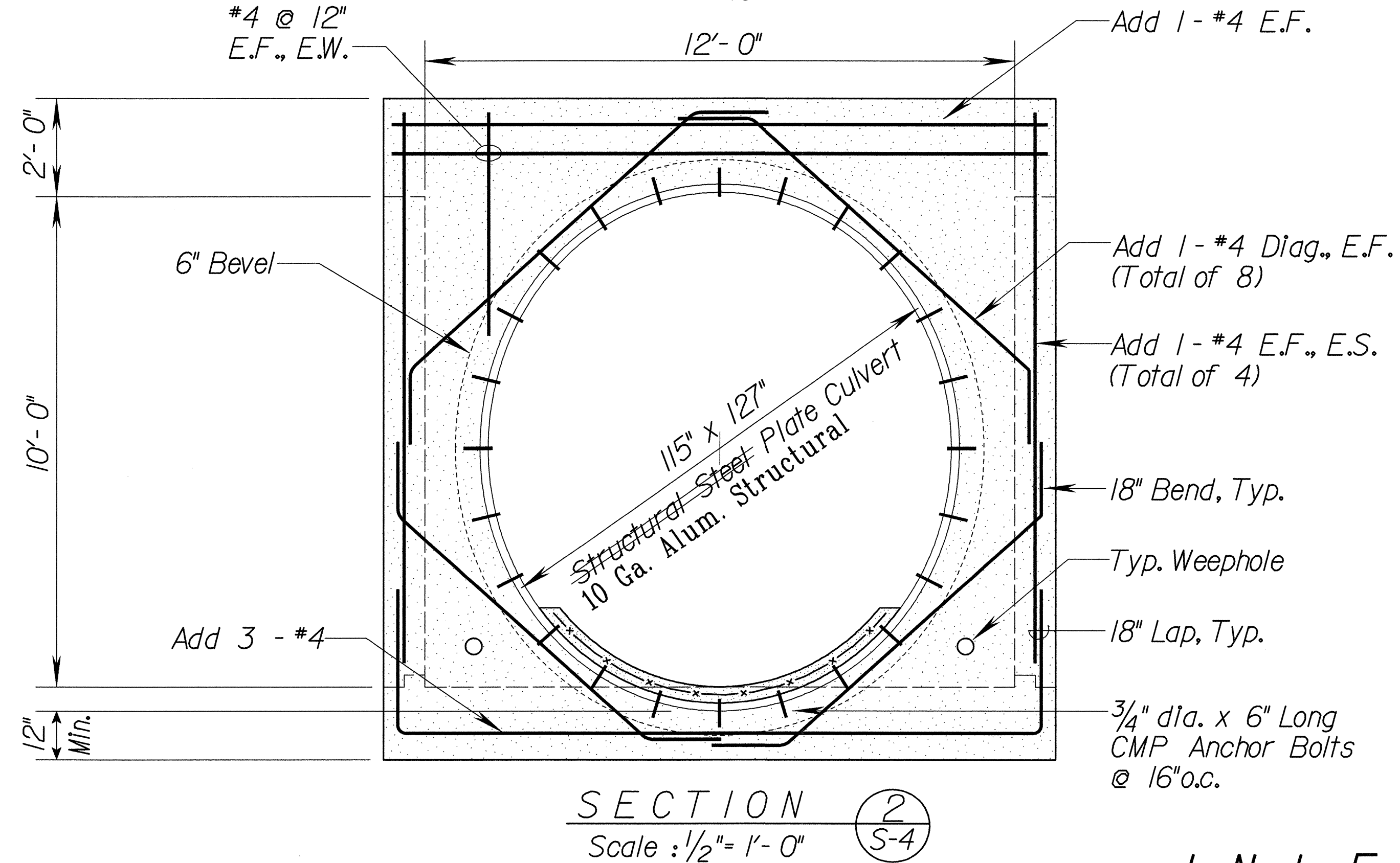
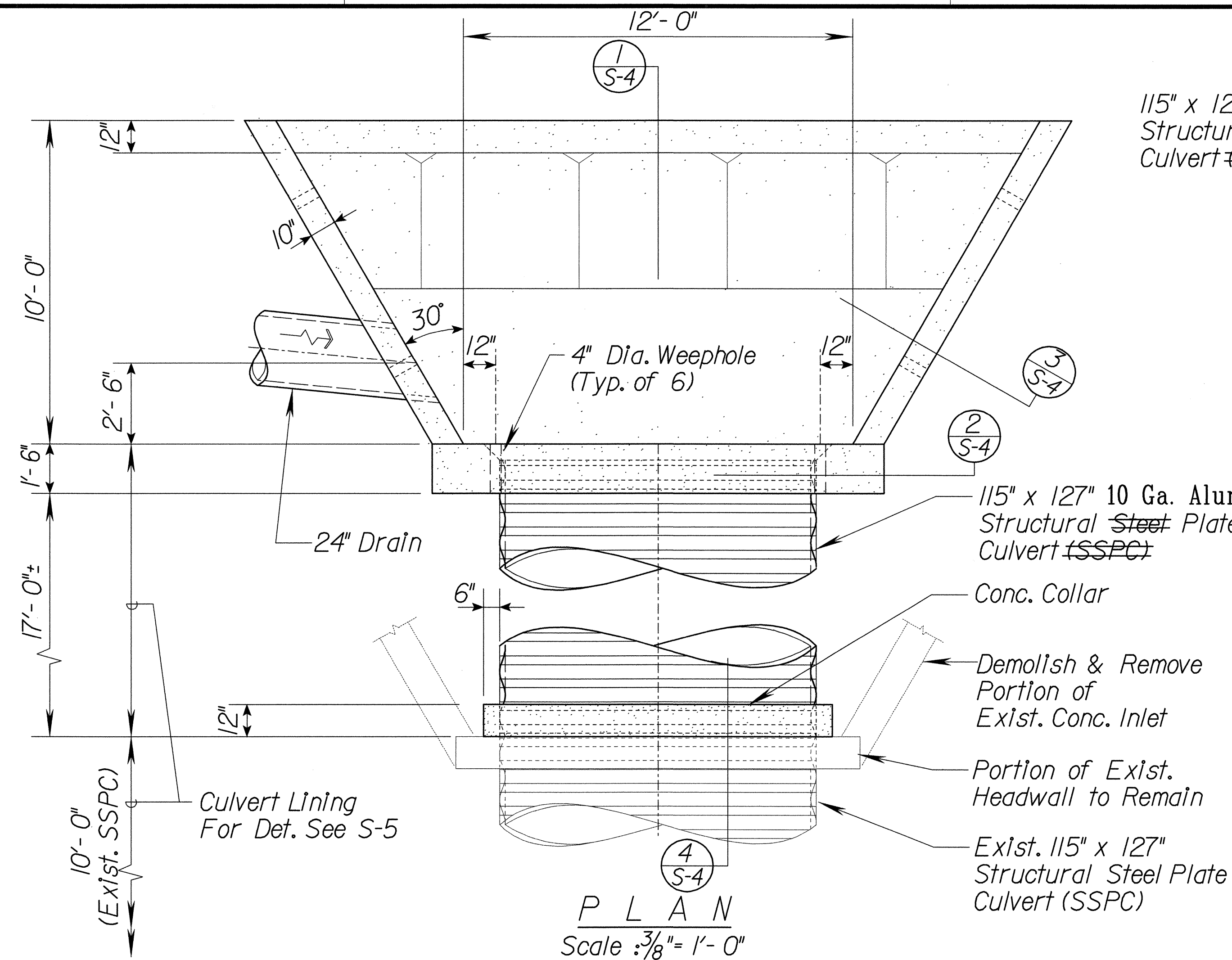
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps

Scale: As Shown Date: May 9, 1997

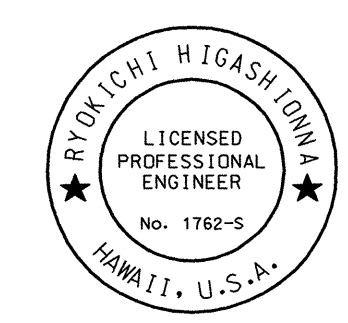
SHEET No. S-3 OF 28 SHEETS

MAKAKILO INTERCHANGE IMPROVEMENTS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(222)	1997	29	104



INLET - I Scale: As Noted



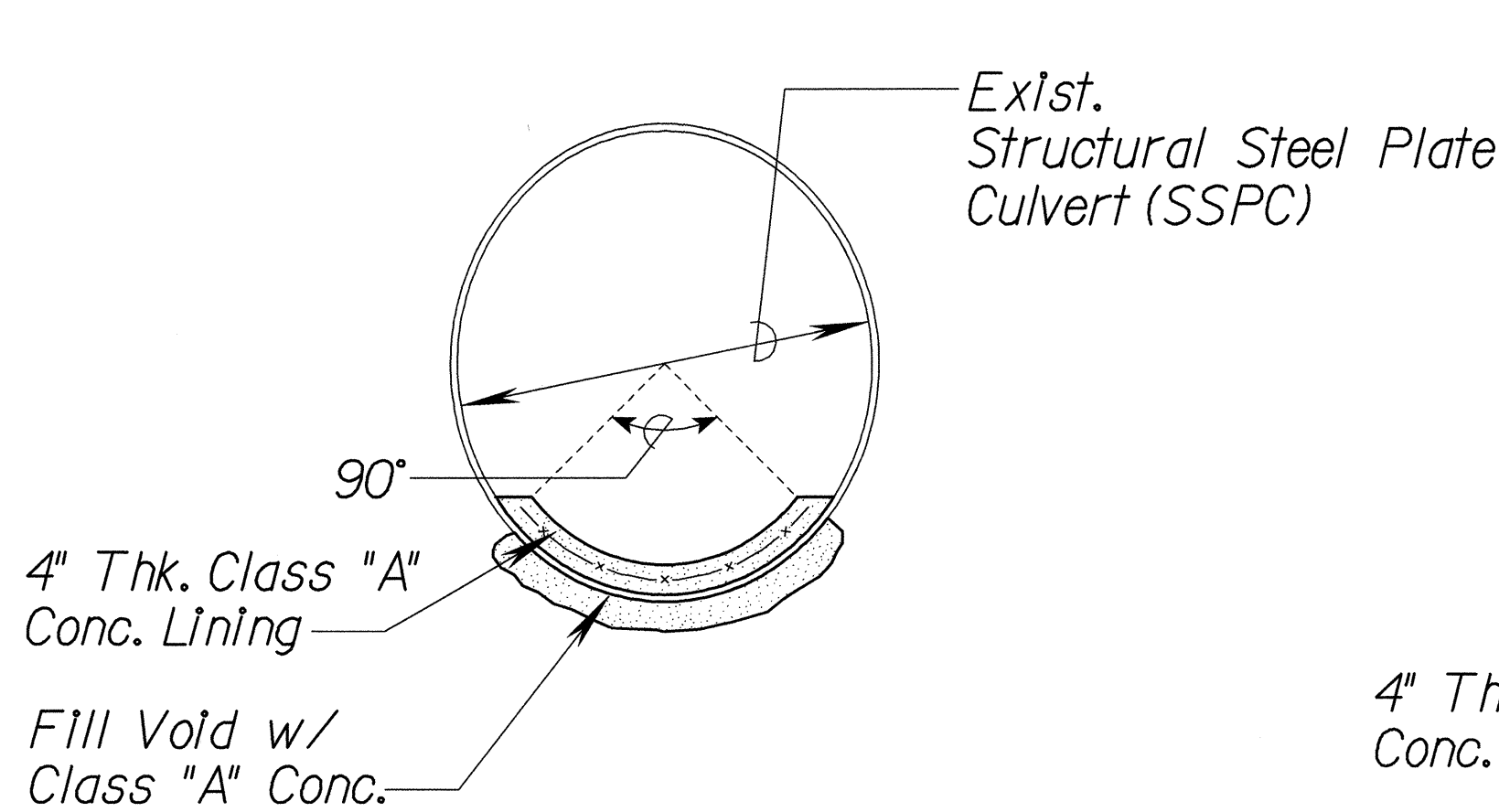
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Ryukichi Higashimura

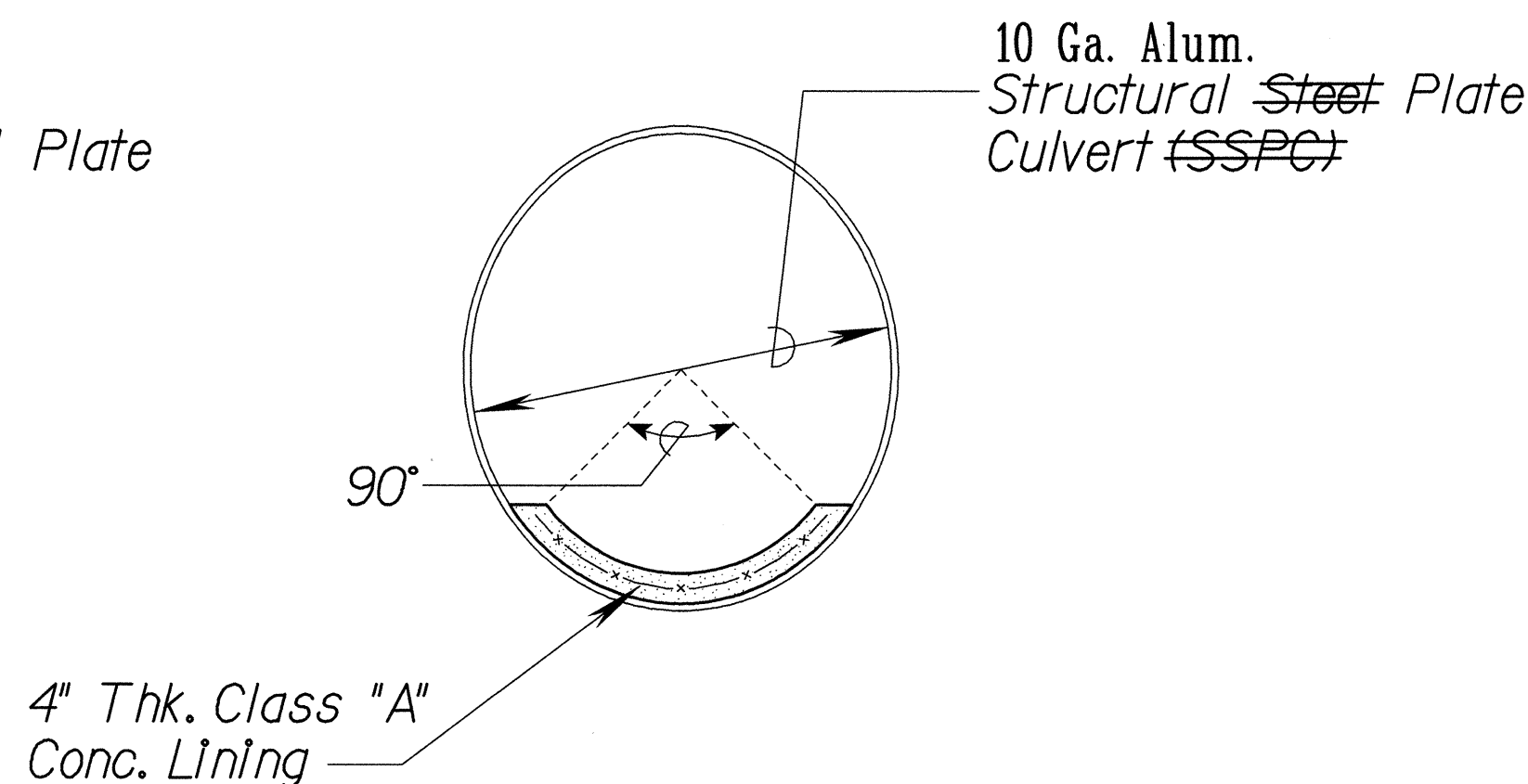
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT-1 INLET DETAILS
INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps
Scale: As Shown Date: May 9, 1997
SHEET No. S-4 OF 98 SHEETS

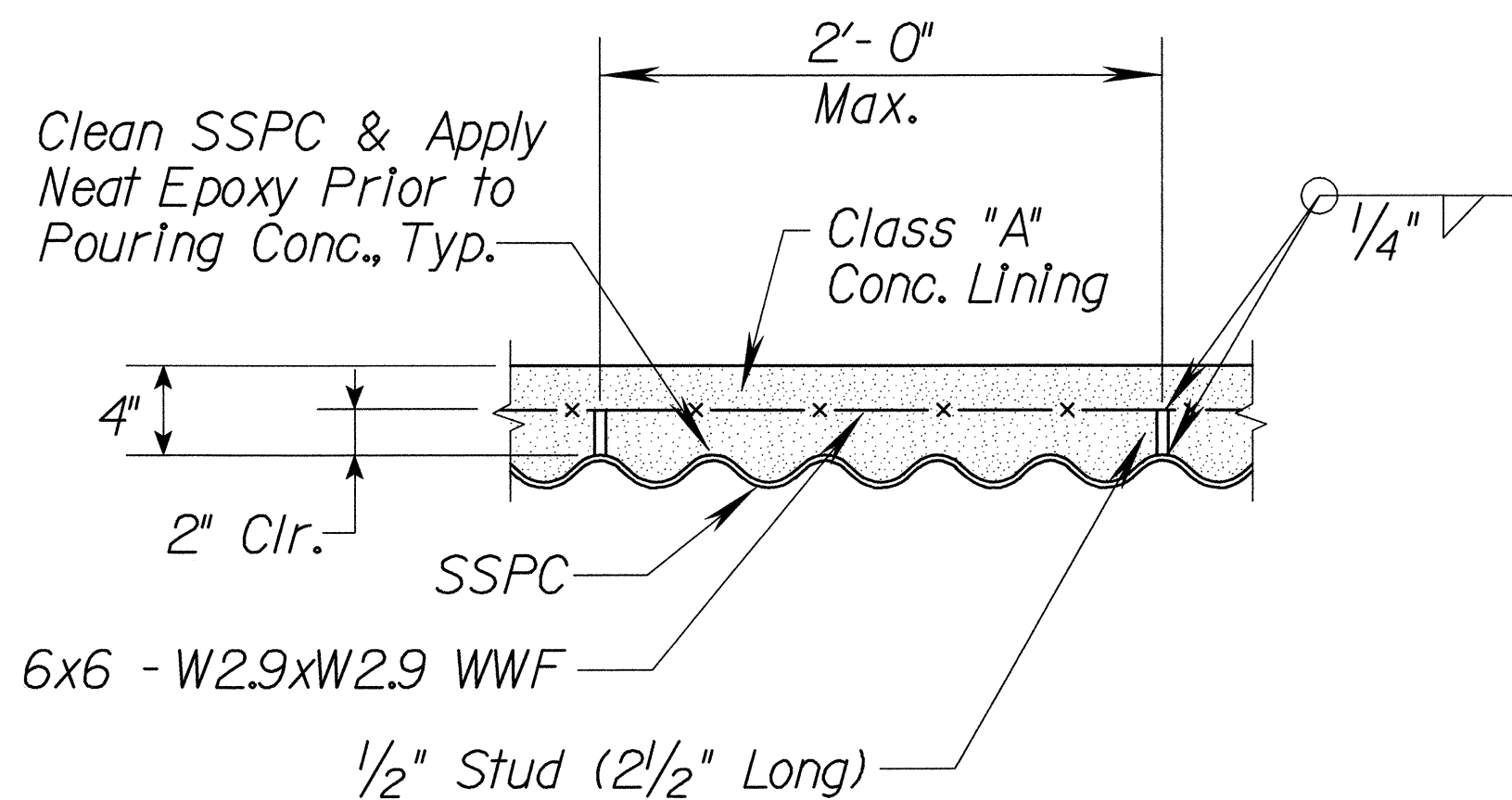
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	30	104



SECTION IN VOID AREA



SECTION IN NON-VOID AREA



CROSS & LONGITUDINAL SECTION

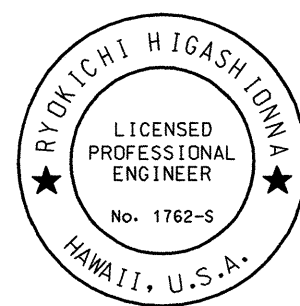
NOTES :

1. The Concrete Lining Shall Not be Placed Until the Backfill and Embankment Over the Pipe is Complete.
2. The Concrete Shall Cure for a Minimum Period of 48 Hours Before Water is Permitted to Flow on the Invert.
3. The Concrete Lining Shall be Finished to a Smooth Surface Acceptable to the Engineer. Within 18 Hours After Completion of Finishing, the Surface Shall be Protected by an Approved Curing Cover or an Approved Membrane Curing Compound.
4. The Concrete Shall be Scored $\frac{3}{4}$ " Deep Longitudinally at 18" on Center.
5. Not Less than 4 Hours After Finishing, an Asphalt Emulsion Shall be Coated Between the Concrete and the Culvert to Extend not Less than 6" on Each Side of the Junction.
6. Asphalt and Epoxy will not be Measured or Paid for Separately, but Shall be Considered Incidental to the Concrete Lining.

CULVERT LINING

No Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

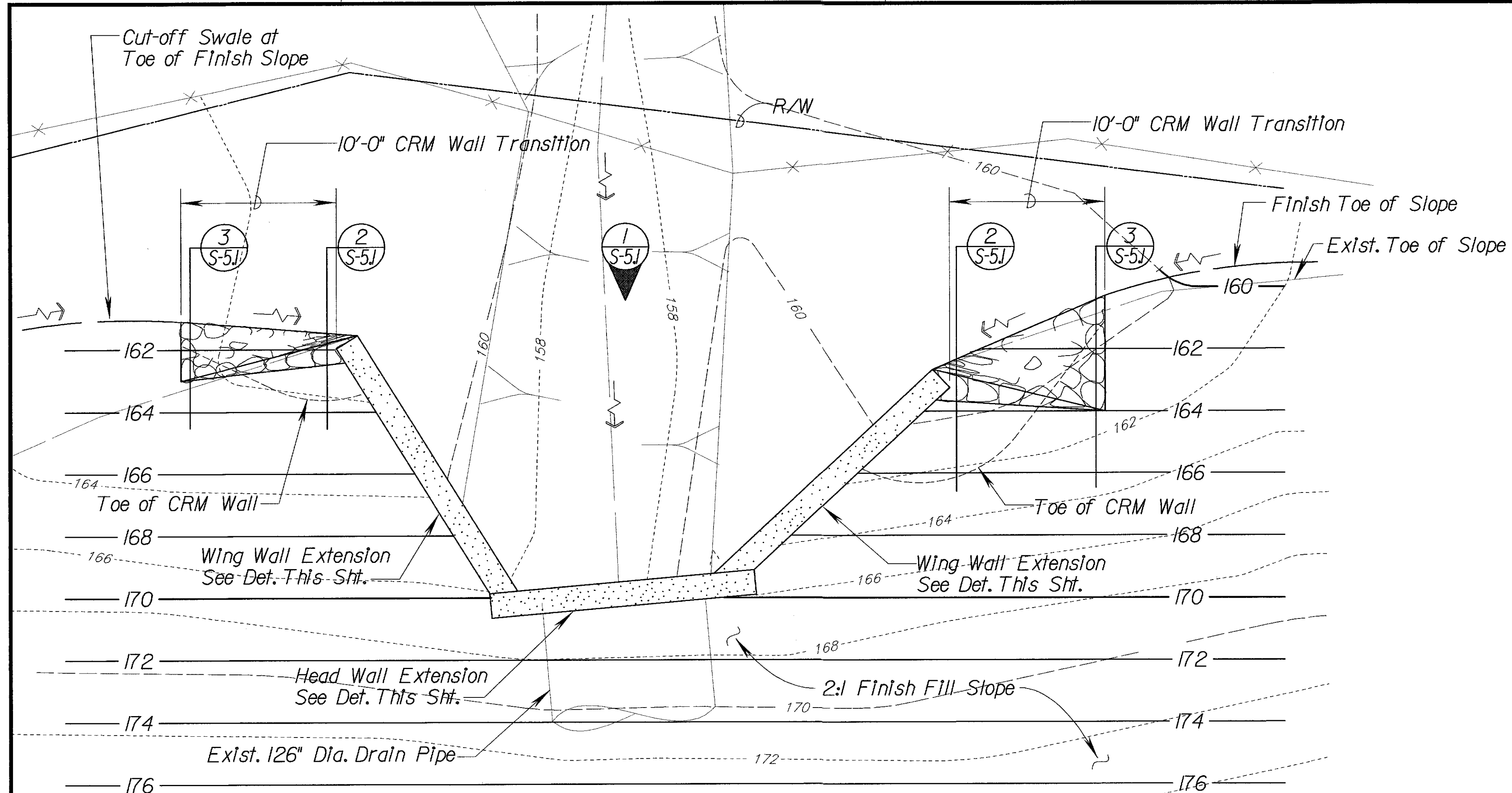
Ryotachi Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

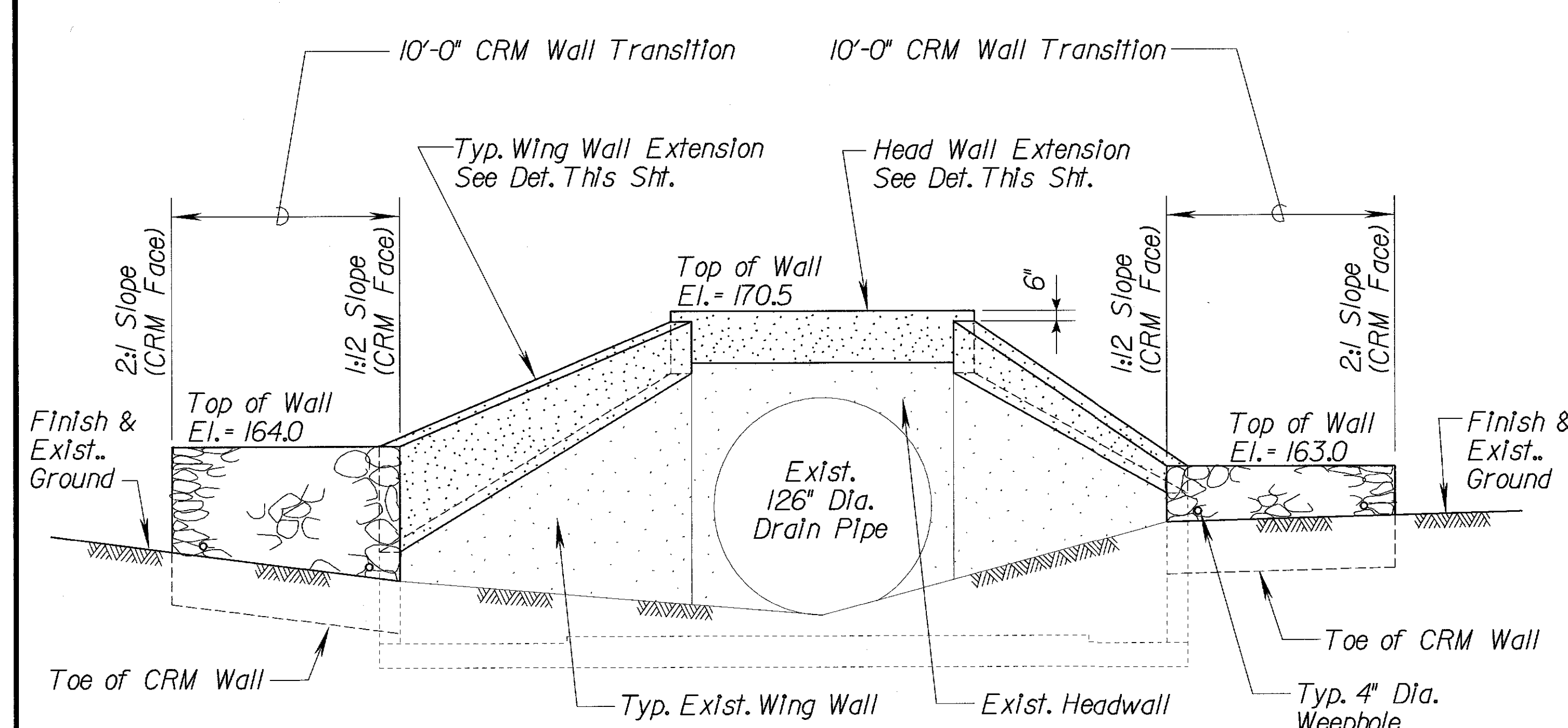
CULVERT-1 INLET DETAILS

INTERSTATE ROUTE H-1
Makakilo Interchange Improvements
to Westbound Off-Ramp and
Eastbound On-Ramps
Scale: None Date: May 9, 1997
SHEET No. S-5 OF 98 SHEETS

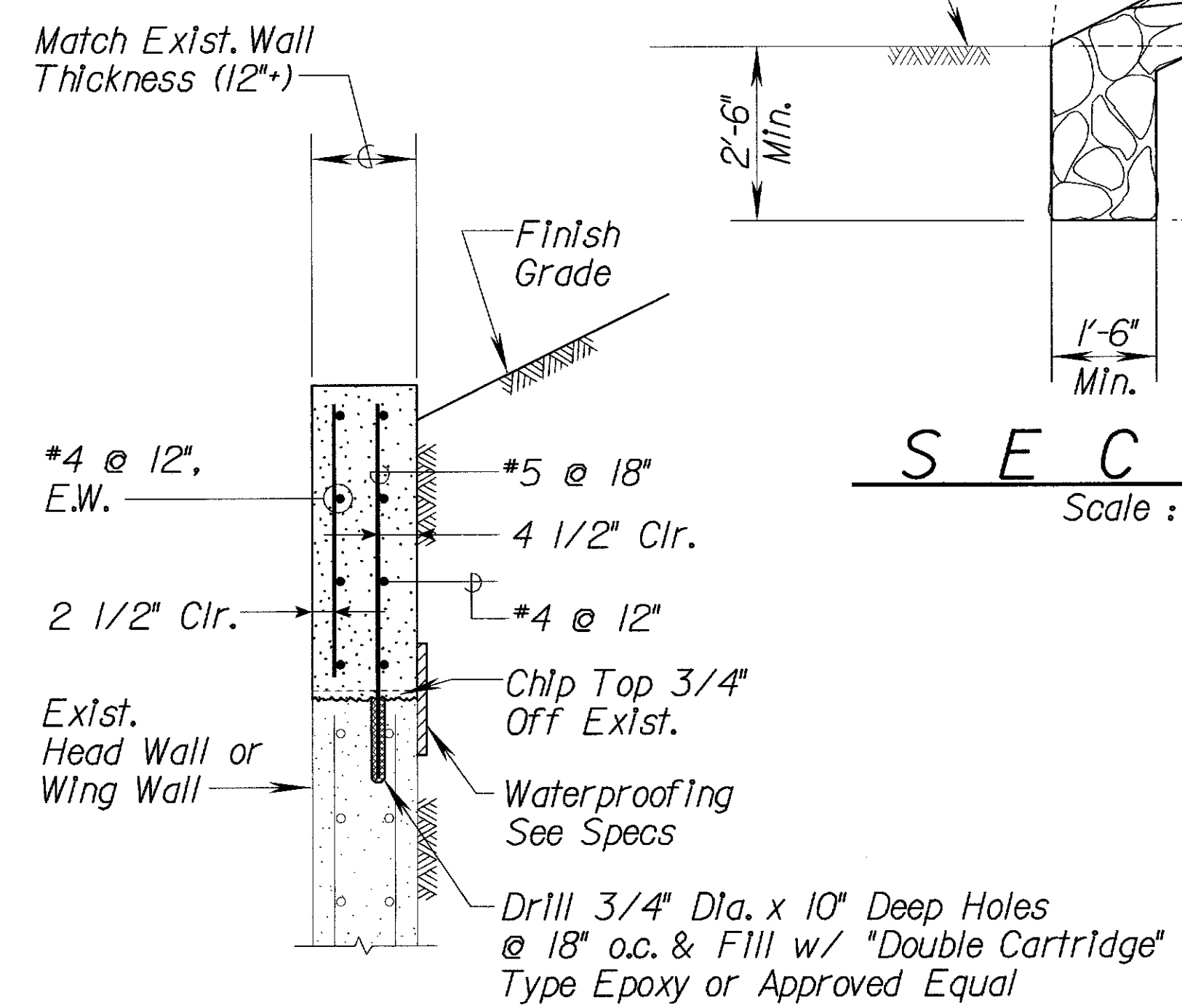
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(222)	1997	00305-1	104



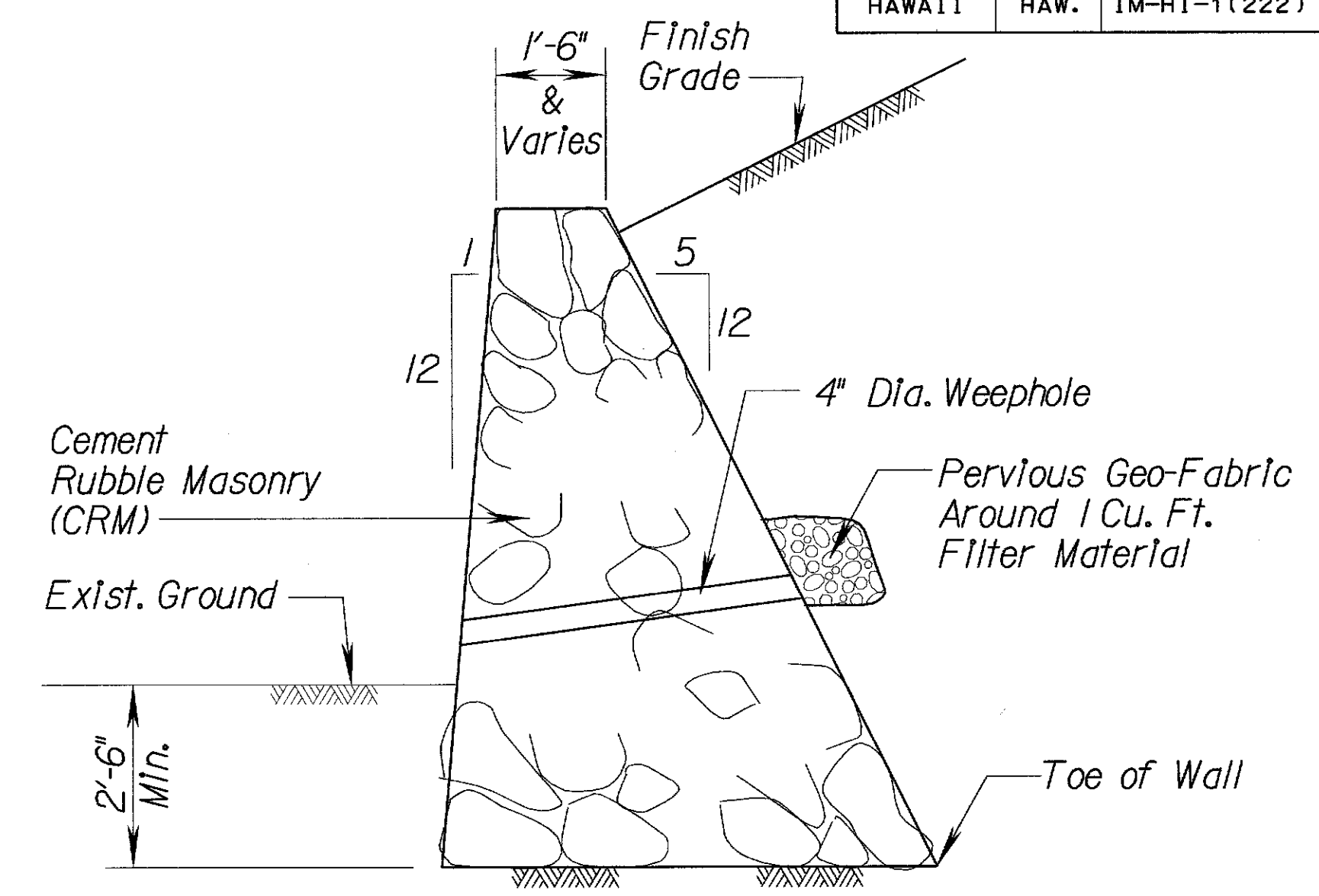
PLAN
Scale: 1" = 5'



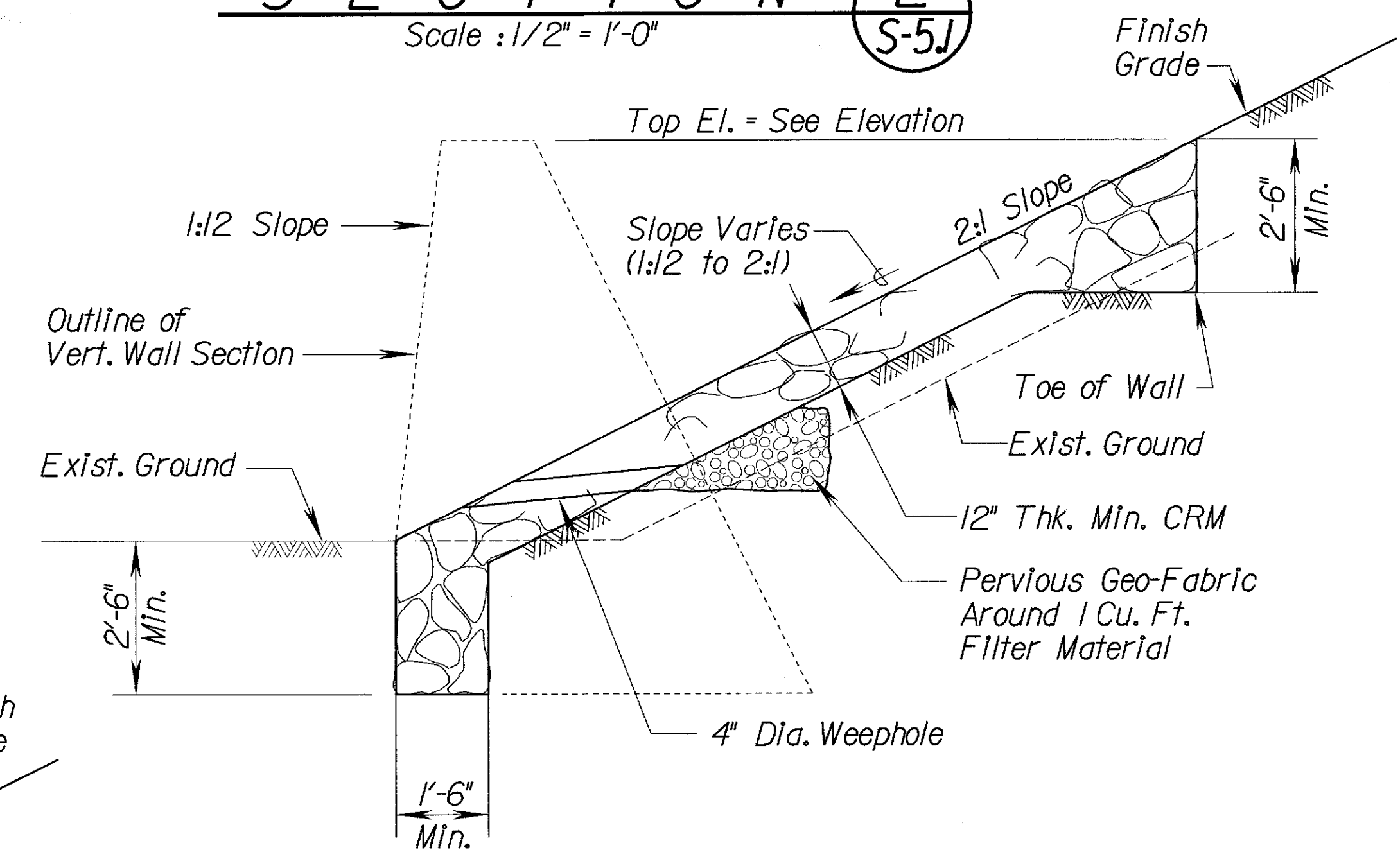
ELEVATION
Scale: 1" = 5'



**HEAD WALL / WING WALL
EXTENSION**
Scale: 3/4" = 1'-0"



SECTION 2
Scale: 1/2" = 1'-0"



SECTION 3
Scale: 1/2" = 1'-0"

2/24/98	Added Sheet
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
INLET MODIFICATION AT 130+17 HWY. STA.	
INTERSTATE ROUTE H-1 Makaliʻo Interchange Improvements to Westbound Off-Ramp and Eastbound On-Ramps	
Scale: As Shown	Date: May 9, 1997
SHEET No. S-5J OF 42 SHEETS	



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Ryohichi Higashiyama

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
N.	