DATE	REVISION
X	X X

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-H1-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(219)	1998	140	378

ITEM NO.		202. 0510	202. 0520	202. 0530	206. 2020	603. 0010	603. 1006	603. 1010	603. 1012	603. 1014	604. 5101	604. 5102	604. 5103	604. 5104	604. 5111	604. 5112	604. 5202	604. 5203	604. 5220	604. 5310	604. 5311	604. 5312	604. 5313	604. 5320	604. 5321	604. 5322		
UNIT USED		L.S.	L.S.	L.S.	C.Y.	C.Y.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
BASELINE STATION (From)	BASELINE STATION (To)	Removal of Existing Culverts (588 L.F.)	Removal of Existing Drainage Structures (18 EA.)	Removal of Existing Drainage Ditch (1725 L.F.)	Structure Excavation for Drainage Systems	Bed Course Material for Culvert	18-Inch RCP, Cl III or 18-Inch ASRP, t=0.105" or 18-Inch HDPP, Type S	24-Inch RCP, Cl III or 24-Inch ASRP, t=0.105" or 24-Inch HDPP, Type S	30-Inch RCP, Cl III or 30-Inch ASRP, t=0.105" or 30-Inch HDPP, Type S	36-Inch RCP, Cl III or 36-Inch ASRP, t=0.105" or 36-Inch HDPP, Type S	Type "A" SDMH, 4.00 ft. to 4.99 ft.	Type "A" SDMH, 5.00 ft. to 5.99 ft.	Type "A" SDMH, 6.00 ft. to 6.99 ft.	Type "A" SDMH, 7.00 ft. to 7.99 ft.	Modified Type "1" SDMH, 3.00 ft. to 3.99 ft.	Modified Type "2" SDMH, 2.00 ft. to 2.99 ft.	Type "D" Catch Basin, 6.00 ft. to 6.99 ft.	Type "D" Catch Basin, 8.00 ft. to 8.99 ft.	Modified Type "" Catch Basin, 2.00 ft. to 2.99 ft.	Type 61614 GDI, 4.00 ft. to 4.99 ft.	Type 61614 GDI, 5.00 ft. to 5.99 ft.	Type 61614 GDI, 6.00 ft. to 6.99 ft.	Type 61614 GDI, 7.00 ft. to 7.99 ft.	Type 61614P GDI, 2.00 ft. to 2.99 ft.	Type 61614P GDI, 4.00 ft. to 4.99 ft.	Type 61614P GDI, 8.00 ft. to 8.99 ft.		
Ramp EW 3+40± Lt.	Ramp EW 3+49 o/s 40' Lt.		1(EA.)		24	5				24																		
Ramp EW 3+40± Lt.	Ramp EW 6+20 Lt.				329	55		277																				
Ramp EW 6+20 Lt.	Ramp EW 9+00 Lt.				329	55		277																				
Ramp EW 13+00 Lt.	H-1 307+42± Lt.				69	10		52													1							
H-1 307+42± Lt.	H-1 310+00 Lt.				438	49		246																				
H-1 310+00 Lt.	H-1 312+80 Lt.				440	55		278																				
H-1 310+00 Lt.	H-1 310+30 o/s 115' Lt.				71	11		54																				
Ramp EW 17+53 o/s 80' Rt.	Ramp EW 17+78 o/s 35' Lt.				126	25			114																			
Ramp EW 17+78 o/s 35' Lt.	C.H. Rd. 2+29 Lt.				206	26		132																				
Ramp HE 23+75 o/s 88' Rt.	Ramp HE 24+30 Lt.				99	13				56												1						
Ramp HE 24+30 Lt.	Ramp HE 24+80 o/s 48' Lt.				184	28				116																		
Ramp HE 24+30 Lt.	Ramp HE 22+00 Lt.				362	43		216														1						
Ramp HE 24+30 Lt.	Ramp HE 25+69.78 Lt.				200	26		132													1							
Ramp HE 25+69.78 Lt.	Ramp HE 28+00 Lt.				296	44		222																				
Ramp HE 28+00 Lt.	Ramp HE 30+25 Lt.				312	45		226																				
Ramp HE 30+25 Lt.	Ramp HE 32+50 Lt.				283	44		221																				
Ramp HE 25+70± Lt.	Ramp HE 26+00± Rt.	60(L.F.)	2(EA.)																									
Ramp WE 15+53 o/s 18' Rt.	Ramp WE 15+10 Rt.				38	9			39											1								
Ramp WE 15+10 Rt.	Ramp WE 12+74 Rt.				253	46		233												1								
Ramp WE 12+74 Rt.	Ramp WE 10+75 Rt.				210	39		194																				
Ramp WE 15+10 Rt.	Ramp WE 14+80 o/s 28' Lt.	25(L.F.)	1(EA.)		48	10			47				1															
Ramp WE 14+80 o/s 28' Lt.	Ft. Weaver Rd. 58+58± Rt.				33	6			26				1															
Ramp WE 14+50	Ramp WE 19+66			525 (L.F.)																								

ORIGINAL PLAN		DATE 9/23/96
	SURVEY PLOTTED BY	
	DRAWN BY A. Nomura	
	TRACED BY	
	DESIGNED BY C. Matsuda	
NOTE BOOK dh,ar,ms,dp,ds	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
7/20/98	Added Item No. 604.6510; revised Item Description for 604.6512; deleted Quantity for Item No. 604.6511

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	141	378

BASELINE STATION (From)	BASELINE STATION (To)	604. 5330 Modified Type "I" 6'6'14" GDI, 1.00 ft. to 1.99 ft. EA.	604. 5401 Type 6'6'6 GDI, 4.00 ft. to 4.99 ft. EA.	604. 5402 Type 6'6'6 GDI, 5.00 ft. to 5.99 ft. EA.	604. 5403 Type 6'6'6 GDI, 6.00 ft. to 6.99 ft. EA.	604. 5404 Type 6'6'6 GDI, 9.00 ft. to 9.99 ft. EA.	604. 5510 Type "A-9" GDI, 3.00 ft. to 3.99 ft. EA.	604. 5512 Type "A-9P" GDI, 4.00 ft. to 4.99 ft. EA.	604. 5513 Modified Type "A-9" GDI, 3.00 ft. to 3.99 ft. EA.	604. 5520 Type "2-A-9" GDI, 4.00 ft. to 4.99 ft. EA.	604. 6511 Type "1a" Inlet Structure, 5.00 ft. to 5.99 ft. EA.	604. 6512 Type "1b" Inlet Structure, 5.00 ft. to 5.99 ft. EA.	604. 6520 Type "2" Inlet Structure, 7.00 ft. to 7.99 ft. EA.	604. 6530 Type "3" Inlet Structure, 2.00 ft. to 2.99 ft. EA.	604. 6540 Type "4" Inlet Structure, 7.00 ft. to 7.99 ft. EA.	604. 7510 Type "1" Outlet Structure, 2.00 ft. to 2.99 ft. EA.	604. 7520 Type "2" Outlet Structure, 3.00 ft. to 3.99 ft. EA.	604. 7530 Type "3" Outlet Structure, 3.00 ft. to 3.99 ft. EA.	604. 7540 Type "4" Outlet Structure, 3.00 ft. to 3.99 ft. EA.	604. 7550 Type "5" Outlet Structure, 3.00 ft. to 3.99 ft. EA.	604. 7610 Type "1" Conc. Headwall, 5.00 ft. to 5.99 ft. EA.	653. 1000 Dumped Riprap CY.		604. 6510 Type "1a" Inlet Structure, 7.00 ft. to 7.99 ft. EA.				
Ramp EW 3+40± Lt.	Ramp EW 3+49 o/s 40' Lt.		1																							1			
Ramp EW 3+40± Lt.	Ramp EW 6+20 Lt.			1																									
Ramp EW 6+20 Lt.	Ramp EW 9+00 Lt.			1																									
Ramp EW 13+00 Lt.	H-1 307+42± Lt.				1																								
H-1 307+42± Lt.	H-1 310+00 Lt.					1																							
H-1 310+00 Lt.	H-1 312+80 Lt.			1																									
H-1 310+00 Lt.	H-1 310+30 o/s 115' Lt.																	1					18						
Ramp EW 17+53 o/s 80' Rt.	Ramp EW 17+78 o/s 35' Lt.											1								1			22						
Ramp EW 17+78 o/s 35' Lt.	C.H. Rd. 2+29 Lt.												1																
Ramp HE 23+75 o/s 88' Rt.	Ramp HE 24+30 Lt.																1			1			62						
Ramp HE 24+30 Lt.	Ramp HE 24+80 o/s 48' Lt.																					1							
Ramp HE 24+30 Lt.	Ramp HE 22+00 Lt.																												
Ramp HE 24+30 Lt.	Ramp HE 25+69.78 Lt.																												
Ramp HE 25+69.78 Lt.	Ramp HE 28+00 Lt.			1																									
Ramp HE 28+00 Lt.	Ramp HE 30+25 Lt.			1																									
Ramp HE 30+25 Lt.	Ramp HE 32+50 Lt.		1																										
Ramp HE 25+70± Lt.	Ramp HE 26+00± Rt.																												
Ramp WE 15+53 o/s 18' Rt.	Ramp WE 15+10 Rt.																		1										
Ramp WE 15+10 Rt.	Ramp WE 12+74 Rt.																												
Ramp WE 12+74 Rt.	Ramp WE 10+75 Rt.									1																			
Ramp WE 15+10 Rt.	Ramp WE 14+80 o/s 28' Lt.																												
Ramp WE 14+80 o/s 28' Lt.	Ft. Weaver Rd. 58+58± Rt.																												
Ramp WE 14+50	Ramp WE 19+66																												

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 9/2/98
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY
NOTE BOOK
dn:\curfiles\fhwa\kunia\ir2.dgn

C.O. 141

DATE	REVISION
6/16/99	Revised Quantities at Ramp HE @ Sta. 3+39 o/s 28' Lt.

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	142	378

ITEM NO.		202. 0510	202. 0520	202. 0530	206. 2020	603. 0010	603. 1006	603. 1010	603. 1012	603. 1014	604. 5101	604. 5102	604. 5103	604. 5104	604. 5111	604. 5112	604. 5202	604. 5203	604. 5220	604. 5310	604. 5311	604. 5312	604. 5313	604. 5320	604. 5321	604. 5322		
UNIT USED		L.S.	L.S.	L.S.	C.Y.	C.Y.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
BASELINE STATION (From)	BASELINE STATION (To)	Removal of Existing Culverts (588 L.F.)	Removal of Existing Drainage Structures (18 EA.)	Removal of Existing Drainage Ditch (1725 L.F.)	Structure Excavation for Drainage Systems	Bed Course Material for Culvert	18-Inch RCP, Cl III or 18-Inch ASRP, t=0.105" or 18-Inch HDPP, Type S	24-Inch RCP, Cl III or 24-Inch ASRP, t=0.105" or 24-Inch HDPP, Type S	30-Inch RCP, Cl III or 30-Inch ASRP, t=0.105" or 30-Inch HDPP, Type S	36-Inch RCP, Cl III or 36-Inch ASRP, t=0.105" or 36-Inch HDPP, Type S	Type "A" SDMH, 4.00 ft. to 4.99 ft.	Type "A" SDMH, 5.00 ft. to 5.99 ft.	Type "A" SDMH, 6.00 ft. to 6.99 ft.	Type "A" SDMH, 7.00 ft. to 7.99 ft.	Modified Type "I" SDMH, 3.00 ft. to 3.99 ft.	Modified Type "2" SDMH, 2.00 ft. to 2.99 ft.	Type "D" Catch Basin, 6.00 ft. to 6.99 ft.	Type "D" Catch Basin, 8.00 ft. to 8.99 ft.	Modified Type "I" Catch Basin, 2.00 ft. to 2.99 ft.	Type 61614 GDI, 4.00 ft. to 4.99 ft.	Type 61614 GDI, 5.00 ft. to 5.99 ft.	Type 61614 GDI, 6.00 ft. to 6.99 ft.	Type 61614 GDI, 7.00 ft. to 7.99 ft.	Type 61614P GDI, 2.00 ft. to 2.99 ft.	Type 61614P GDI, 4.00 ft. to 4.99 ft.	Type 61614P GDI, 8.00 ft. to 8.99 ft.		
Ramp HE 2+76± Rt.	Ramp HE 3+24 Lt.				74	9		47						1												1		
Ramp HE 3+24 Lt.	Ramp HE 3+39 o/s 28' Lt.				37	5		25																				
Ramp HE 3+10±	Ramp HE 2+76± Rt.	35(L.F.)	2(EA.)																									
Kunia Rd. 105+74± o/s 88'± Lt.																			1									
H-1 339+54 o/s 80'± Lt.			1(EA.)																	1								
Ramp HE 12+45 o/s 114' Lt.	Ramp HE 12+20 o/s 4' Lt.				137	25			112					1														
Ramp HE 12+20 o/s 4' Lt.	Ramp EW 29+16 Rt.				98	15			68				1															
Ramp EW 29+16 Rt.	Ramp EW 29+24 Lt.				47	7			31												1							
Ramp EW 29+24 Lt.	C.H. Rd. 16+90 o/s 35' Lt.				282	43			194																			
C.H. Rd. 19+38± Lt.	C.H. Rd. 19+38± Rt.	60(L.F.)	2(EA.)																									
C.H. Rd. 21+20± Rt.	C.H. Rd. 20+93.78 Rt.				28	5		24												1								
C.H. Rd. 20+93.78 Rt.	C.H. Rd. 20+93.78 Lt.				23	5		24												1								
Ramp HE 6+12 o/s 55' Lt.	Ramp HE 6+62 o/s 4' Lt.				74	14		70					1															
Ramp HE 6+62 o/s 4' Lt.	Ramp HE 6+92 o/s 52' Rt.				89	12		62														1						
Ramp HE 6+92 o/s 52' Rt.	Ramp EW 34+20 Rt.				48	7		33						1														
Ramp EW 34+20 Rt.	Ramp KW 33+82 Lt.				100	15		74													1							
Ramp KW 33+82 Lt.	Ramp EW 33+00 Lt.				83	14		71													1							
Ramp EW 33+00 Lt.	Ramp EW 31+75 Lt.				143	24		122													1							
Ramp HE 6+92 o/s 52' Rt.	Ramp EW 35+20± Rt.				85	13		66																				
Ramp KW 33+82± Lt.	Ramp EW 34+97± Lt.	140(L.F.)	2(EA.)																									
Ramp EW 34+97± Lt.	Ramp HE 6+12± o/s 40'± Rt.	84(L.F.)	1(EA.)																									
Ramp HE 6+12± o/s 40'± Rt.	Ramp HE 6+12± o/s 4' Lt.	40(L.F.)	1(EA.)																									

ORIGINAL PLAN
NOTE BOOK dh 2or 11 sdh
SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 9/23/96
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

C.O. 142

DATE	REVISION
7/20/98	Added Item No. 604.6510; revised Item Description for 604.6512
6/16/99	Added Item No. 604.5205

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-H1-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(219)	1998	143	378

ITEM NO.		604. 5330	604. 5401	604. 5402	604. 5403	604. 5404	604. 5510	604. 5512	604. 5513	604. 5520	604. 6511	604. 6512	604. 6520	604. 6530	604. 6540	604. 7510	604. 7520	604. 7530	604. 7540	604. 7550	604. 7610	653. 1000		604. 6510	604. 5205			
UNIT USED		EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	CY.		EA.	EA.			
BASELINE STATION (From)	BASELINE STATION (To)	Modified Type "I" 6I6I4P GDI, 1.00 ft. to 1.99 ft.	Type 6I6I6 GDI, 4.00 ft. to 4.99 ft.	Type 6I6I6 GDI, 5.00 ft. to 5.99 ft.	Type 6I6I6 GDI, 6.00 ft. to 6.99 ft.	Type 6I6I6 GDI, 9.00 ft. to 9.99 ft.	Type "A-9" GDI, 3.00 ft. to 3.99 ft.	Type "A-9P" GDI, 4.00 ft. to 4.99 ft.	Modified Type "A-9" GDI, 3.00 ft. to 3.99 ft.	Type "2-A-9" GDI, 4.00 ft. to 4.99 ft.	Type "1a" Inlet Structure, 5.00 ft. to 5.99 ft.	Type "1b" Inlet Structure, 5.00 ft. to 5.99 ft.	Type "2" Inlet Structure, 7.00 ft. to 7.99 ft.	Type "3" Inlet Structure, 2.00 ft. to 2.99 ft.	Type "4" Inlet Structure, 7.00 ft. to 7.99 ft.	Type "1" Outlet Structure, 2.00 ft. to 2.99 ft.	Type "2" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "3" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "4" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "5" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "1" Conc. Headwall, 5.00 ft. to 5.99 ft.	Dumped Riprap		Type "1a" Inlet Structure, 7.00 ft. to 7.99 ft.	Modified Type "B" Catch Basin, 4.00 ft. to 4.99 ft.			
Ramp HE 2+76± Rt.	Ramp HE 3+24 Lt.																											
Ramp HE 3+24 Lt.	Ramp HE 3+31 o/s 20' Lt.													1														
Ramp HE 3+10±	Ramp HE 2+76± Rt.																											
Kunia Rd. 105+74± o/s 88'± Lt.																												
H-1 339+54 o/s 80'± Lt.																												
Ramp HE 12+45 o/s 114' Lt.	Ramp HE 12+20 o/s 4' Lt.																			1		22						
Ramp HE 12+20 o/s 4' Lt.	Ramp EW 29+16 Rt.																											
Ramp EW 29+16 Rt.	Ramp EW 29+24 Lt.																											
Ramp EW 29+24 Lt.	C.H. Rd. 16+90 o/s 35' Lt.										1																	
C.H. Rd. 19+38± Lt.	C.H. Rd. 19+38± Rt.																											
C.H. Rd. 21+20± Rt.	C.H. Rd. 20+93.78 Rt.																								1			
C.H. Rd. 20+93.78 Rt.	C.H. Rd. 20+93.78 Lt.																											
Ramp HE 6+12 o/s 55' Lt.	Ramp HE 6+62 o/s 4' Lt.															1						23						
Ramp HE 6+62 o/s 4' Lt.	Ramp HE 6+92 o/s 52' Rt.																											
Ramp HE 6+92 o/s 52' Rt.	Ramp EW 34+20 Rt.																											
Ramp EW 34+20 Rt.	Ramp KW 33+82 Lt.																											
Ramp KW 33+82 Lt.	Ramp EW 33+00 Lt.																											
Ramp EW 33+00 Lt.	Ramp EW 31+75 Lt.																											
Ramp HE 6+92 o/s 52' Rt.	Ramp EW 35+20± Rt.							1																				
Ramp KW 33+82± Lt.	Ramp EW 34+97± Lt.																											
Ramp EW 34+97± Lt.	Ramp HE 6+12± o/s 40'± Rt.																											
Ramp HE 6+12± o/s 40'± Rt.	Ramp HE 6+12± o/s 4' Lt.																											

ORIGINAL PLAN
NOTE BOOK dn3curtis/dn
SURVEY PLOTTED BY
DRAWN BY A. Nomura
TRACED BY
DESIGNED BY S. Matsuda
QUANTITIES BY dn3curtis/dn
CHECKED BY dn3matsuda/dn
DATE 9/24/98

DATE	REVISION
6/16/99	Revised Drainage Summary
7/1/99	Added SDMH at FW sta 80+39

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	144	378

ITEM NO.		202. 0510	202. 0520	202. 0530	206. 2020	603. 0010	603. 1006	603. 1010	603. 1012	603. 1014	604. 5101	604. 5102	604. 5103	604. 5104	604. 5111	604. 5112	604. 5202	604. 5203	604. 5220	604. 5310	604. 5311	604. 5312	604. 5313	604. 5320	604. 5321	604. 5322		
UNIT USED		L.S.	L.S.	L.S.	C.Y.	C.Y.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
BASELINE STATION (From)	BASELINE STATION (To)	Removal of Existing Culverts (588 L.F.)	Removal of Existing Drainage Structures (18 EA.)	Removal of Existing Drainage Ditch (1725 L.F.)	Structure Excavation for Drainage Systems	Bed Course Material for Culvert	18-Inch RCP, Cl III or 18-Inch ASRP, t=0.105" or 18-Inch HDPP, Type S	24-Inch RCP, Cl III or 24-Inch ASRP, t=0.105" or 24-Inch HDPP, Type S	30-Inch RCP, Cl III or 30-Inch ASRP, t=0.105" or 30-Inch HDPP, Type S	36-Inch RCP, Cl III or 36-Inch ASRP, t=0.105" or 36-Inch HDPP, Type S	Type "A" SDMH, 4.00 ft. to 4.99 ft.	Type "A" SDMH, 5.00 ft. to 5.99 ft.	Type "A" SDMH, 6.00 ft. to 6.99 ft.	Type "A" SDMH, 7.00 ft. to 7.99 ft.	Modified Type "T" SDMH, 3.00 ft. to 3.99 ft.	Modified Type "2" SDMH, 2.00 ft. to 2.99 ft.	Type "D" Catch Basin, 6.00 ft. to 6.99 ft.	Type "D" Catch Basin, 8.00 ft. to 8.99 ft.	Modified Type "T" Catch Basin, 2.00 ft. to 2.99 ft.	Type 6I6I4 GDI, 4.00 ft. to 4.99 ft.	Type 6I6I4 GDI, 5.00 ft. to 5.99 ft.	Type 6I6I4 GDI, 6.00 ft. to 6.99 ft.	Type 6I6I4 GDI, 7.00 ft. to 7.99 ft.	Type 6I6I4P GDI, 2.00 ft. to 2.99 ft.	Type 6I6I4P GDI, 4.00 ft. to 4.99 ft.	Type 6I6I4P GDI, 8.00 ft. to 8.99 ft.		
Ramp EH 4+48± Rt.	Ramp EH 4+48 o/s 22' Rt.				7	2		8				1																
Ramp EH 4+48 o/s 22' Rt.	Ramp EH 5+40± Rt.				108	17		86																	1			
Ramp EH 5+40± Rt.	Ramp EH 6+36 o/s 3' Rt.				91	16		82			1																	
Ramp EH 6+36 o/s 3' Rt.	Ramp EH 6+36 o/s 24' Rt.				24	3		18																				
Ramp EH 6+36 o/s 3' Rt.	Ramp EH 7+00 Rt.				68	13		65											1									
Ramp EH 7+00 Rt.	Ramp EH 7+75 o/s 3' Rt.				77	14		73			1																	
Ramp EH 7+75 o/s 3' Rt.	Ramp EH 8+42 Rt.				66	13		63											1									
Ramp EH 19+80 Rt.	Ramp EH 21+80 Rt.				196	35		177											1									
Ramp EH 21+80 Rt.	Ramp EH 21+64 o/s 31.5' Rt.				25	5		24											1									
Ft. Weaver Rd. 63+79 Lt.			1(EA.)																									
Ft. Weaver Rd. 64+10± Lt.																												
Ramp KE-1 6+75± Rt.			1(EA.)																									
Ft. Weaver Rd. 59+11 Lt.																	1											
Ft. Weaver Rd. 59+65± Lt.															1													
Kunia Rd. 108+58± Rt.																1												
Kunia Rd. 108+57± Rt.																	1											
Ramp KA-1 14+10± Lt.	Ramp KA-1 14+07 Lt.				5	2	8																					
Ft. Weaver Rd. 73+58 Lt.	Ft. W. Rd. 73+32 o/s 70'± Lt.				20	6	32																		1			
Ft. W. Rd. 80+39± o/s 9'±Lt.	Ft. Weaver Rd. 80+69± Lt.				34	6		26				1								1								
Ft. Weaver Rd. 79+94± Lt.	Ft. W. Rd. 80+39± o/s 9'±Lt.	72(L.F.)	1(EA.)		53	8		40													1							
Ft. Weaver Rd. 79+94± Lt.	Ft. Weaver Rd. 79+20± Lt.	72(L.F.)	2(EA.)		82	14		71												1								
Ft. Weaver Rd. 69+50 Rt.	Ramp D 15+66 Rt.			1200 (L.F.)																								
	TOTAL	588 (L.F.)	18 (EA.)	1725 (L.F.)	6530	1009	40	4101	631	196	2	2	4	3	1	1	1	1	1	9	8	3	1	1	1	1		

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 9/23/96
	DRAWN BY A. Nomura	
NOTE BOOK dh3jun15dh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

C.O. 144

DATE	REVISION
7/20/98	Added Item No. 604.6510; revised Item Description for 604.6512 and Total Quantity for Item No. 604.6511
6/16/99	Added Item 604.7560 and 604.5205; revised Item 653.1000 quantity

DRAINAGE SUMMARY OF REMOVAL AND INSTALLATION OF CULVERTS AND DRAINAGE STRUCTURES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	145	378

ITEM NO.		604. 5330	604. 5401	604. 5402	604. 5403	604. 5404	604. 5510	604. 5512	604. 5513	604. 5520	604. 6511	604. 6512	604. 6520	604. 6530	604. 6540	604. 7510	604. 7520	604. 7530	604. 7540	604. 7550	604. 7560	604. 7610	653. 1000		604. 6510	604. 5205		
UNIT USED		EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	CY.		EA.	EA.		
BASELINE STATION (From)	BASELINE STATION (To)	Modified Type "I" 61614P GDI, 1.00 ft. to 1.99 ft.	Type 61616 GDI, 4.00 ft. to 4.99 ft.	Type 61616 GDI, 5.00 ft. to 5.99 ft.	Type 61616 GDI, 6.00 ft. to 6.99 ft.	Type 61616 GDI, 9.00 ft. to 9.99 ft.	Type "A-9" GDI, 3.00 ft. to 3.99 ft.	Type "A-9P" GDI, 4.00 ft. to 4.99 ft.	Modified Type "A-9" GDI, 3.00 ft. to 3.99 ft.	Type "2-A-9" GDI, 4.00 ft. to 4.99 ft.	Type "1a" Inlet Structure, 5.00 ft. to 5.99 ft.	Type "1b" Inlet Structure, 5.00 ft. to 5.99 ft.	Type "2" Inlet Structure, 7.00 ft. to 7.99 ft.	Type "3" Inlet Structure, 2.00 ft. to 2.99 ft.	Type "4" Inlet Structure, 7.00 ft. to 7.99 ft.	Type "I" Outlet Structure, 2.00 ft. to 2.99 ft.	Type "2" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "3" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "4" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "5" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "6" Outlet Structure, 3.00 ft. to 3.99 ft.	Type "I" Conc. Headwall, 5.00 ft. to 5.99 ft.	Dumped Riprap		Type "1a" Inlet Structure, 7.00 ft. to 7.99 ft.	Modified Type "B" Catch Basin, 4.00 ft. to 4.99 ft.		
Ramp EH 4+48± Rt.	Ramp EH 4+48 o/s 22' Rt.	1																										
Ramp EH 4+48 o/s 22' Rt.	Ramp EH 5+40± Rt.																											
Ramp EH 5+40± Rt.	Ramp EH 6+36 o/s 3' Rt.																											
Ramp EH 6+36 o/s 3' Rt.	Ramp EH 6+36 o/s 24' Rt.														1													
Ramp EH 6+36 o/s 3' Rt.	Ramp EH 7+00 Rt.																											
Ramp EH 7+00 Rt.	Ramp EH 7+75 o/s 3' Rt.																											
Ramp EH 7+75 o/s 3' Rt.	Ramp EH 8+42 Rt.																											
Ramp EH 19+80 Rt.	Ramp EH 21+80 Rt.																											
Ramp EH 21+80 Rt.	Ramp EH 21+64 o/s 31.5' Rt.																				1		11					
Ft. Weaver Rd. 63+79 Lt.																												
Ft. Weaver Rd. 64+10± Lt.		1																										
Ramp KE-1 6+75± Rt.									1																			
Ft. Weaver Rd. 59+11 Lt.																												
Ft. Weaver Rd. 59+65± Lt.																												
Kunia Rd. 108+58± Rt.																												
Kunia Rd. 108+57± Rt.																												
Ramp KA-1 14+10± Lt.	Ramp KA-1 14+07 Lt.						1																					
Ft. Weaver Rd. 73+58 Lt.	Ft. W. Rd. 73+32 o/s 70'± Lt.																											
Ft. Weaver Rd. 79+94± Lt.	Ft. Weaver Rd. 80+69± Lt.																											
Ft. Weaver Rd. 79+94± Lt.	Ft. Weaver Rd. 79+20± Lt.																											
Ft. Weaver Rd. 69+50 Rt.	Ramp D 15+66 Rt.																											
	TOTAL	2	2	5	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	158		1	1		

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 9.2.98
TRACED BY
DESIGNED BY C. Matsuda
NOTE BOOK dn3.curtis.dh
QUANTITIES BY
CHECKED BY dh3.mahesdh

C.O. 145

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	146	378

DRAINAGE SUMMARY OF LINED TRAPEZOIDAL DRAINAGE DITCH AND CONCRETE SPILLWAY

ITEM NO.		207. 0100	640. 0101	640. 0102	640. 0103	640. 0201
UNIT USED		C.Y.	L.F.	L.F.	L.F.	L.F.
BASELINE STATION (From)	BASELINE STATION (To)	Ditch and Channel Excavation	Type "1" Lined Trapezoidal Drainage Ditch	Type "2" Lined Trapezoidal Drainage Ditch	Type "3" Lined Trapezoidal Drainage Ditch	Concrete Spillway
Ramp EW 3+49 Lt.	Ramp EW 17+78 o/s 35' Lt.	336	1353			
C.H. Rd. 16+00 o/s 28'± Lt.	C.H. Rd. 20+50 o/s 52' Lt.	155	432			
C.H. Rd. 1+00 Lt.	C.H. Rd. 8+75 Lt.	242		752		
Ramp WE 15+53 o/s 18' Rt.	Ramp D 15+66 Rt.	707	1968			
H-1 333+20 Lt.	H-1 334+20± o/s 95'± Lt.	26				102
Ramp EH 12+00 Rt.	Ramp EH 6+36± Rt.	72			546	
	TOTAL	1538	3753	752	546	102

DRAINAGE SUMMARY OF 6'-WIDE AND 8'-WIDE GRASS SWALES

ITEM NO.		618. 1000	618. 2000		
UNIT USED		L.F.	L.F.		
BASELINE STATION (From)	BASELINE STATION (To)	6-Foot Wide Grass Swale	8-Foot Wide Grass Swale		
Ramp HE 6+00± Lt.	Ramp HE 15+50 Lt.		950		
C.H. Rd. 16+75 Lt.	C.H. Rd. 20+93.78 Lt.	419			
C.H. Rd. 16+75 Rt.	C.H. Rd. 20+93.78 Rt.	419			
	TOTAL	838	950		

DRAINAGE SUMMARY OF GUTTER, TYPE 2(61614) AND GUTTER, TYPE 2(61616)

ITEM NO.		609. 2214	609. 2216	
UNIT USED		L.F.	L.F.	
BASELINE STATION (From)	BASELINE STATION (To)	Gutter, Type 2(61614)	Gutter, Type 2(61616)	
Ramp EW 13+00 Lt.	Ramp EW 18+60 Lt.	558		
Ramp EW 24+75 Lt.	Ramp KW 34+60± Lt.	972		
Ramp HE 15+50 Lt.	Ramp HE 28+00 Lt.	1234		
Ramp HE 3+24 Lt.	Ramp HE 6+00 Lt.	276		
Ramp WE 10+75 Rt.	Ramp WE 15+10 Rt.	420		
Ramp EH 5+40± Rt.	Ramp EH 19+80 Rt.	1440		
Ramp EH 19+80 Rt.	Ramp EH 21+80± Rt.	200		
Ft. Weaver Rd. 64+10± Lt.	Ramp EH 5+22± Lt.	462		
Ft. Weaver Rd. 76+75 Lt.	Ft. Weaver Rd. 86+09 Lt.	936		
C.H. Rd. 20+55.7 Lt.	C.H. Rd. 21+08± Lt.	409		
C.H. Rd. 20+55.7 Rt.	C.H. Rd. 21+08± Rt.	409		
H-1 293+80 Lt.	Ramp EW 13+00 Lt.		1308	
H-1 307+40± Lt.	H-1 317+60± Lt.		1020	
H-1 326+00 Lt.	H-1 333+20 Lt.		720	
Ramp HE 28+00 Lt.	H-1 324+02± Lt.		652	
	TOTAL	7316	3700	

DATE	REVISION
6/16/99	Revised Drainage Summary of Gutter, Type 2(61614)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Date: Oct 1997

SHEET No. H7 OF 56 SHEETS

C.O. 146

ORIGINAL PLAN

NOTE BOOK dh3;urtis/dh
dh3;whisman/dgn

SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 9/2/98
TRACED BY
DESIGNED BY S. Matsuda
QUANTITIES BY
CHECKED BY

BASELINE STATION LOCATIONS OF UNDERDRAIN SYSTEMS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	147	378

6" LONGITUDINAL UNDERDRAIN PIPE	INLET CONNECTIONS	CLEANOUT
RAMP EW - STA. TO STA.		
3+40± Lt. - 6+20 Lt.	3+40 Lt.	
	6+20 Lt.	
6+20 Lt. - 9+00 Lt.	6+20 Lt.	
	9+00 Lt.	
9+00 Lt. - 13+00 Lt.	9+00 Lt.	
	13+00 Lt.	
13+00 Lt. - 17+68 Lt.	13+00 Lt.	17+68 o/s 35' Lt.
17+78 o/s 35' Lt. - 20+00 Lt.	17+78 o/s 35' Lt.	19+75 Lt.
		20+00 Rt.
20+00 Rt. - 24+90 Rt.		24+90 Rt.
25+10 Rt. - 29+16 Rt.	29+16 Rt.	25+10 Rt.
28+00 Lt, - 29+24 Lt.	29+24 Lt.	28+00 Lt.
29+16 Rt. - 34+20 Rt.	29+16 Rt.	31+00 Rt.
	34+20 Rt.	
34+20 Rt. - 35+20± Rt.	34+20 Rt.	
	35+20± Rt.	
RAMP KW - STA. TO STA.		
29+24 Lt. - 31+75 Lt.	29+24 Lt.	
	31+75 Lt.	
31+75 Lt. - 33+00 Lt.	31+75 Lt.	
	33+00 Lt.	
33+00 Lt. - 33+82 Lt.	33+00 Lt.	
	33+82 Lt.	
33+82 Lt. - 35+20 Lt.	33+82 Lt.	35+20 Lt.

6" LONGITUDINAL UNDERDRAIN PIPE	INLET CONNECTIONS	CLEANOUT
RAMP HE - STA. TO STA.		
3+24 Lt. - 6+62 Lt.	3+24 Lt.	
	6+62 Lt.	
6+62 Lt. - 12+20 Lt.	6+62 Lt.	8+00 Lt.
	12+20 Lt.	10+00 Lt.
12+20 Lt. - 22+00 Lt.	12+20 Lt.	14+00 Lt.
	22+00 Lt.	15+50 Lt.
		19+50 Lt.
22+00 Lt. - 24+30 Lt.	22+00 Lt.	
	24+30 Lt.	
24+30 Lt. - 25+89.78 Lt.	24+30 Lt.	
	25+89.78 Lt.	
25+89.78 Lt. - 28+00 Lt.	25+89.78 Lt.	
	28+00 Lt.	
28+00 Lt. - 30+25 Lt.	28+00 Lt.	
	30+25 Lt.	
30+25 Lt. - 32+50 Lt.	30+25 Lt.	
	32+50 Lt.	
32+50 Lt. - 34+50 Lt.	32+50 Lt.	34+50 Lt.
INTERSTATE H-1 ℄ STA. TO ℄ STA.		
307+42 Lt. - 310+00 Lt.	307+42 Lt.	
	310+00 Lt.	
310+00 Lt. - 312+80 Lt.	312+80 Lt.	
312+80 Lt. - 317+60 Lt.		317+60 Lt.
328+50 Lt. - 339+54± Lt.	339+54± Lt.	328+50 Lt.
		332+50 Lt.
		336+00 Lt.

6" LONGITUDINAL UNDERDRAIN PIPE	INLET CONNECTIONS	CLEANOUT
RAMP EH - STA. TO STA.		
Ft. Weaver Rd. ℄ Sta. 64+10± - 4+48 o/s 22' Rt.	64+10± Rt.	
	4+48 Rt.	
4+48 o/s 22' Rt. - 5+40± Rt.	4+48 Rt.	
	5+40± Rt.	
8+42 Rt. - 19+80 Rt.	8+42 Rt.	
		12+25 Rt.
		16+00 Rt.
19+80 Rt. - 21+80± Rt.	19+80 Rt.	
	19+80 Rt.	
	21+80 Rt.	
	21+80 Rt.	21+80± Rt.
RAMP WE - STA. TO STA.		
10+75 Rt. - 12+74 Rt.	10+75 Rt.	
	12+74 Rt.	
12+74 Rt. - 15+10 Rt.	12+74 Rt.	
	15+10 Rt.	

6" TRANSVERSE UNDERDRAIN PIPE	INLET CONNECTIONS
Ramp EH ℄ Sta. 5+40± Rt.	Ramp EH ℄ Sta. 5+40± Rt.
Ramp EH ℄ Sta. 7+00 Rt.	Ramp EH ℄ Sta. 7+00 Rt.
Ramp EH ℄ Sta. 8+42 Rt.	Ramp EH ℄ Sta. 8+42 Rt.
Ramp WE ℄ Sta. 15+10 Rt.	Ramp WE ℄ Sta. 15+10 Rt.
Ramp EW ℄ Sta. 17+80	Ramp EW ℄ Sta. 17+78 Lt.

ESTIMATED QUANTITIES

6" Perforated Underdrain Pipe	11,208 L.F.
6" Nonperforated Underdrain Pipe	293 L.F.
Cleanout	21 EA.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 8/17/96
	DRAWN BY A. Nomura	
NOTE BOOK dh33 pp15-dh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Deleted cleanouts at Ramp EH Sta. 10+17 ℄ 14+14. Added cleanout at Ramp EH Sta. 16+00. Added quantities in the vicinity of 6amp EH 19+80 Rt. to 21+80± Rt.
11/12/98	Revised quantities at Ramp EW ℄ Sta. 17+68 Lt. to 29+24 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Date: Oct 1997

SHEET No. H8 OF 56 SHEETS

C.O. 147

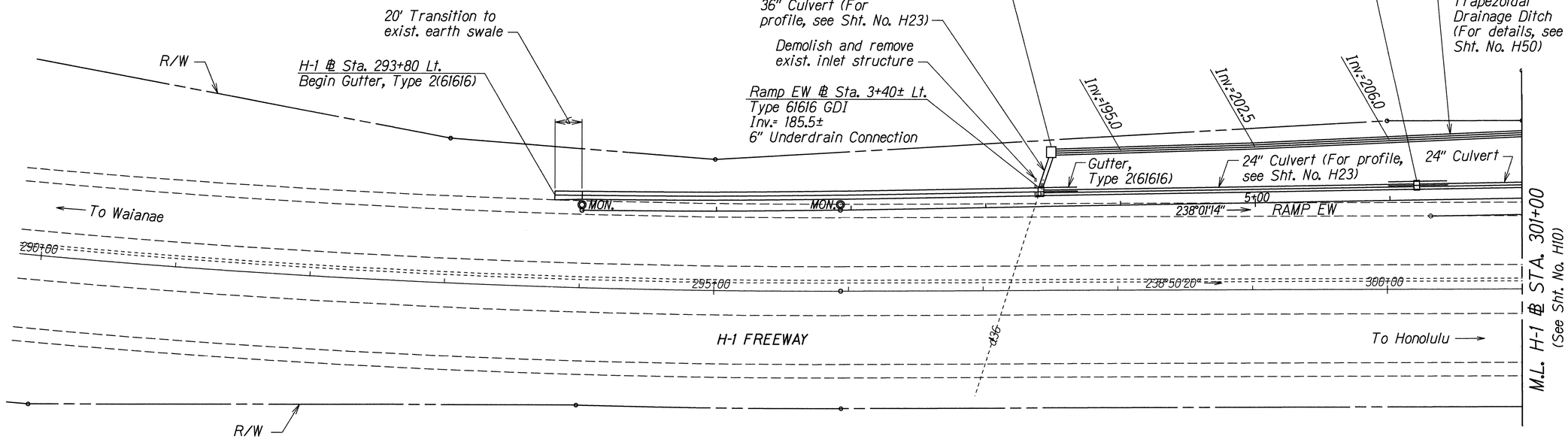
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	148	378

DRAINAGE NOTES

1. Existing drainage systems will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be included in the various contract items.
2. The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at his own expense.
3. Only non-pneumatic type of drill as approved by the Engineer will be permitted for drilling holes in concrete.
4. Contractor shall clean existing 24-inch culverts at the following locations:
   a. Ramp KE-1 ℄ Sta. 6+75± Lt. to Ramp KE-1 ℄ Sta. 6+75± Rt.
   b. Kunia Rd. ℄ Sta. 108+58 Rt. to Ramp KA-1 ℄ Sta. 14+10 Lt.

   The Engineer will pay for cleaning of existing culverts on a force account basis under Item No. 603.5001, "Clean Existing 24-Inch Culvert".
5. Type 2(61614) and Type 2(61616) gutter transitions shall be paid for under Item 609.2214 and Item 609.2216 respectively. For Typical Details see Sht. No. H51.
6. For Typical Details of Gutter, Type 2(61614) and Type 2(61616), see Sht. No. H50.
7. For Typical Culvert Trench Detail, see Sht. No. H51.
8. Transition of Type "I" Line Trapezoidal Drainage Ditch to existing concrete ditch at Ramp D ℄ Sta. 15+66 Rt shall be paid for under Item 640.0101.
9. Culvert connections to existing drainage structures shall not be paid for separately but shall be considered incidental to the various Contract Items.
10. For Details of Cleanouts and 6" Underdrain Connections to GDI, see Sht. No. H53.

TRUE NORTH
SCALE : 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/29/98
	DRAWN BY A. Nomura, R. Sato	
	TRACED BY	
	DESIGNED BY C. Matsuda	
NOTE BOOK dh3ourh5.dih, dh3ourh5.dih	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
7/17/98	Revised alignment of Type "I" Lined Trapezoidal Drainage Ditch

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

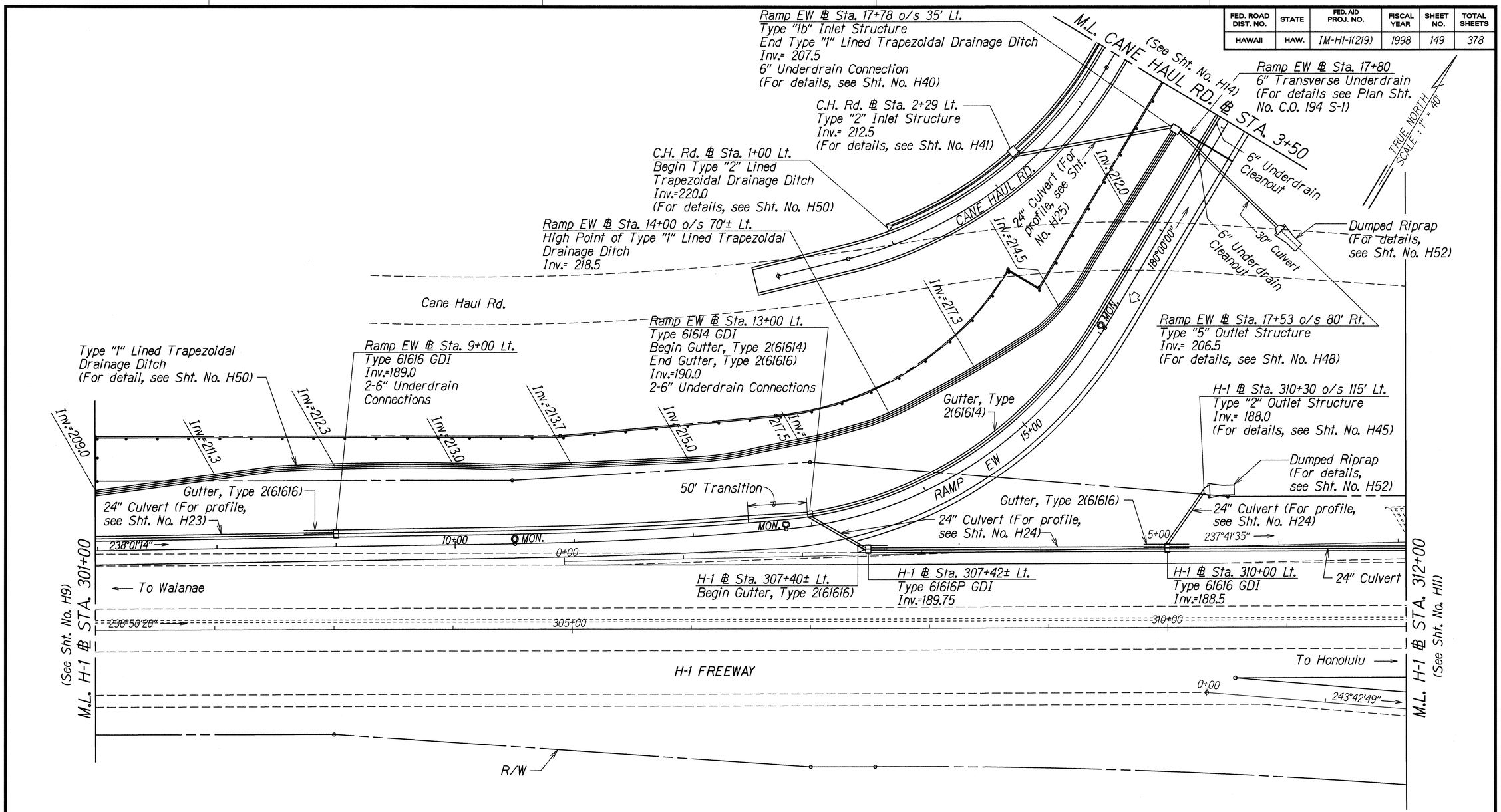
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. H9 OF 56 SHEETS

C.O. 148

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	149	378



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/24/96
	DRAWN BY A. Nimura, R. Sato	
NOTE BOOK dh.3or115.dh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
10/23/98	Added Transverse Drain at Ramp EW ℄ Sta. 17+80
7/17/98	Revised alignment of Type "1" Lined Trapezoidal Drainage Ditch

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. H10 OF 56 SHEETS

C.O. 149

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	150	378

(See Sht. No. H14)
M.L. RAMP HE ℄ P.O.C. STA. 21+00

Gutter, Type 2(61614)

Ramp HE ℄ Sta. 22+00 Lt.
Type 61614 GDI
Inv.=203.5
2-6" Underdrain Connections

Ramp HE ℄ Sta. 24+30 Lt.
Type 61614 GDI
Inv.=193.3
2-6" Underdrain Connections

Ramp HE ℄ Sta. 24+80 o/s 48' Lt.
End Earth Ditch at Type "I" Concrete Headwall
Inv.=195.0
(For detail, see Sht. No. H49)

Ramp HE ℄ Sta. 25+69.78 Lt.
Type 61614 GDI
Inv.=194.0
2-6" Underdrain Connections

M.L. RAMP KC ℄ STA. 14+40
(See Sht. No. H14)

(See Sht. No. H15)
M.L. RAMP KB ℄ P.O.C. STA. 7+50

TRUE NORTH
SCALE: 1" = 40'

Ramp HE ℄ Sta. 30+30 o/s 62' Lt.
Begin Earth Ditch
Inv.= 200.0
(For details, see Sht. No. H49)

Cane Haul Rd.

24" Culvert (For profile, see Sht. No. H26)

36" Culvert (For profile, see Sht. No. H26)

Ramp HE ℄ Sta. 23+75 o/s 88' Rt.
Type "4" Outlet Structure
Inv.=192.1
(For details, see Sht. No. H47)

RAMP HE

193°50'20"

Ramp KC

Ramp HE ℄ Sta. 28+00 Lt.
Type 61616 GDI
End Gutter, Type 2(61614)
Begin Gutter, Type 2(61616)
Inv.=195.2
2-6" Underdrain Connections

Ramp HE ℄ Sta. 30+25 Lt.
Type 61616 GDI
Inv.=196.3
2-6" Underdrain Connections

Ramp HE ℄ Sta. 32+50 Lt.
Type 61616 GDI
Inv.=197.5
2-6" Underdrain Connections

24" Culvert (For profile, see Sht. No. H26)

Demolish and remove existing GDI, 24" culvert and headwall

Earth Ditch

36" Culvert

25+00

10+00

Dumped Riprap (For details, see Sht. No. H52)

MON.

241°50'20.00"

Ramp KB

30+00

H-1 ℄ Sta. 312+80 Lt.
Type 61616 GDI
Inv.=194.0

24" Culvert

Gutter, Type 2(61616)

24" Culvert

24" Culvert

Gutter, Type 2(61616)

24" Culvert (For profile, see Sht. No. H24)
To Waianae

H-1 ℄ Sta. 317+60± Lt.
End Gutter, Type 2(61616)

6' Transition

(See Sht. No. H10)
M.L. H-1 ℄ STA. 312+00

238°50'20"

315+00

320+00

M.L. H-1 ℄ STA. 323+00
(See Sht. No. H12)

H-1 FREEWAY

To Honolulu

243°42'49"

5+00

248°13'20"

24" Culvert (For profile, see Sht. No. H27)

RAMP WE

10+00

10+00

Exist. Curb, Type 6

4' Transition

R/W

M.L. RAMP WE ℄ STA. 11+00
(See Sht. No. H16)

Ramp WE ℄ Sta. 10+75 Rt.
Type "2-A-9" GDI
Begin Gutter, Type 2(61614)
Inv.=170.4
(For details, see Sht. No. H34)
6" Underdrain Connection

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/24/96
	DRAWN BY A. Nomura, R. Sato	
NOTE BOOK dh3courtls.dfn Alignd03.dgn	TRACED BY C. Matsuda	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

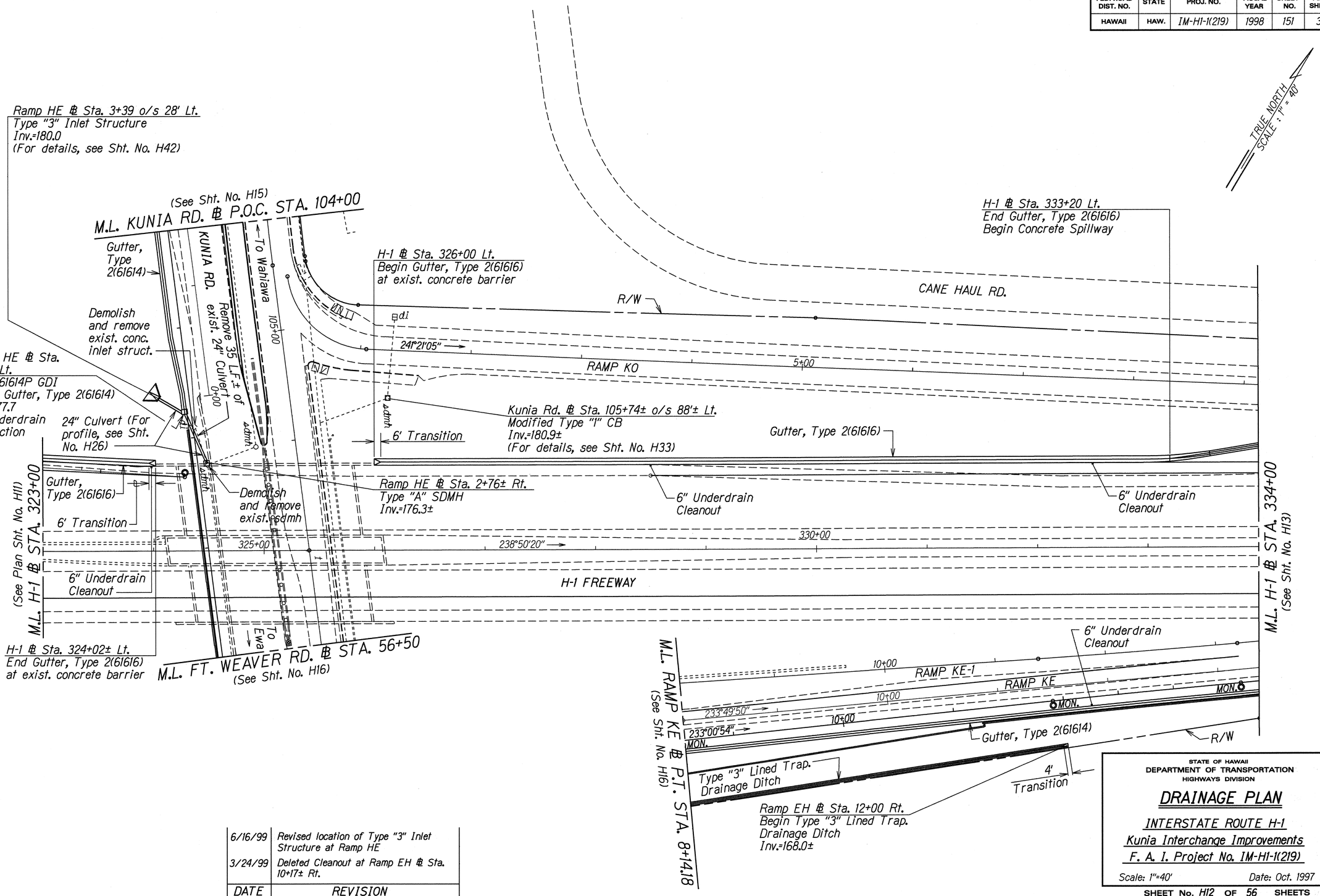
DRAINAGE PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. HII OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	151	378



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/29/98
	DRAWN BY A. Nomura, R. Saito	
NOTE BOOK	TRACED BY	
dn3\curlis\dfn	DESIGNED BY C. Matsuda	
All\hpl04.dgn	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Revised location of Type "3" Inlet Structure at Ramp HE
3/24/99	Deleted Cleanout at Ramp EH ℄ Sta. 10+17± Rt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

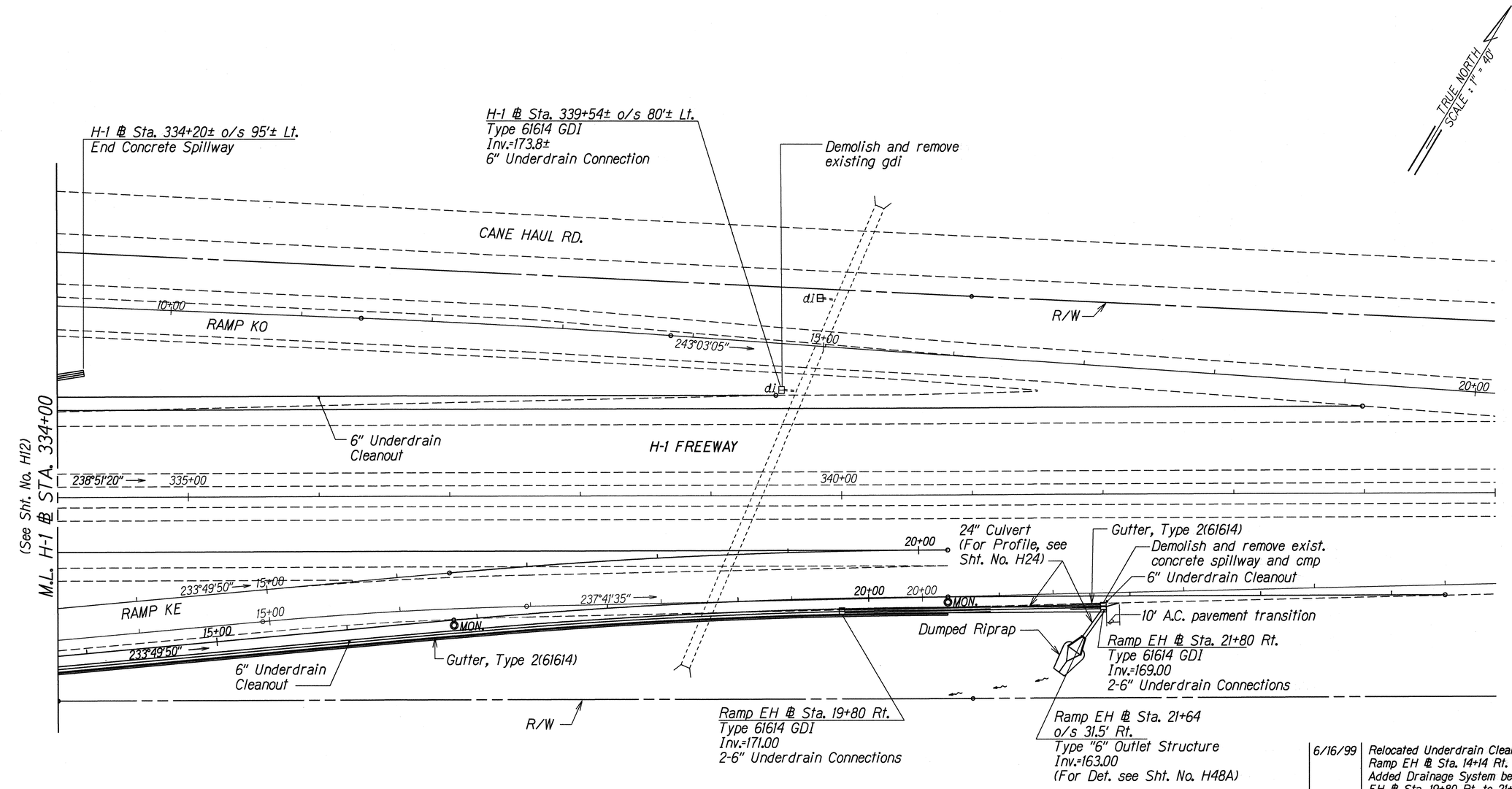
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. H12 OF 56 SHEETS

C.O. 151

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	152	378



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 5/29/96
	DRAWN BY A. Nomura, R. Sato	
NOTE BOOK	TRACED BY	
dh3curtis.dh	DESIGNED BY C. Matsuda	
dh3curtis.dh	QUANTITIES BY	
dh3plot5.dgn	CHECKED BY	

DATE	REVISION
6/16/99	Relocated Underdrain Cleanout from Ramp EH ℄ Sta. 14+14 Rt. to 16+00 Rt. Added Drainage System between Ramp EH ℄ Sta. 19+80 Rt. to 21+64 Rt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. HI3 OF 56 SHEETS

C.O. 152

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	153	378

TRUE NORTH
SCALE : 1" = 40'

C.H. Rd. ℄ Sta. 16+90 o/s 35' Lt.
Type "1a" Inlet Structure
Inv. (Ditch)=237.0
Inv.=235.0
(For details, see Sht. No. H39)

Ramp EW ℄ Sta. 24+75 Lt.
Begin Gutter, Type 2(61614)

C.H. Rd. ℄ Sta. 16+75 Lt.
Begin 6' Wide Grass Swale

15+00

251°15'12.53"

R/W

10+00

C.H. Rd. ℄ Sta. 16+00 o/s 28'± Lt.
Begin Type "1" Lined
Trapezoidal Drainage Ditch
Inv.=238.5

Gutter, Type 2(61614)

4' Transition

C.H. Rd. ℄ Sta. 8+75 Lt.
End Type "2" Lined Trapezoidal
Drainage Ditch
Inv.=237.7

Ramp EW ℄ Sta. 29+24 Lt.
Type 61614 GDI
Inv.=223.5
6" Underdrain Connection

C.H. Rd. ℄
Sta. 16+75 Rt.
Begin 6' Wide
Grass Swale
(For typ. det. see
Sht. No. H51)

25+00

MON.

6" Underdrain
Cleanout

6" Underdrain
Cleanout

30" Culvert
(For profile,
see Sht. No.
H25)

15+00

RAMP HE

30+00

4'
Transition

Ramp HE ℄ Sta. 15+50 Lt.
Begin Gutter, Type 2(61614)
Begin 8' Wide Grass Swale
(For det. see Sht. No. H51)

℄ 8' Wide
Grass Swale

30" Culvert

M.L. RAMP HE ℄ STA. 11+00

(See Sht. No. H15)

Type "2" Lined
Trapezoidal
Drainage Ditch
(For detail, see
Sht. No. H50)

Ramp EW ℄ Sta. 29+16 Rt.
Type "A" SDMH
Inv.=221.9
2-6" Underdrain Connections

Gutter, Type 2(61614)

30" Culvert

Ramp HE ℄ Sta. 12+20 o/s 4' Lt.
Type "A" SDMH
Inv.=219.1
2-6" Underdrain Connections

M.L. EXIST. RAMP KC
P.O.C. ℄ STA. 17+00

Dumped Riprap
(For details,
see Sht. No. H52)

Ramp HE ℄ Sta. 12+45 o/s 114' Lt.
Type "5" Outlet Structure
Inv.=218.0
(For details, see Sht. No. H48)

CANE HAUL RD.

5+00

180°00'00" Δ

MON.

RAMP EW

20+00

6" Underdrain
Cleanout

20+00

Cane Haul Rd.

RAMP KC

15+00

4'
Transition

M.L. CANE HAUL RD. ℄ STA. 3+50
(See Sht. No. H10)

M.L. RAMP HE ℄ P.O.C. STA. 21+00
(See Sht. No. H11)

M.L. RAMP KW ℄ STA. 14+40
(See Sht. No. H11)

Ramp EW ℄ Sta. 18+60 Lt.
End Gutter, Type 2(61614)

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/24/96
	DRAWN BY A. Nomura, R. Sato	
	TRACED BY	
NOTE BOOK dh3jun15dh, dh10oct96dh	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
7/22/98	Added inv. elevation of ditch at C.H. Rd. ℄ Sta. 16+90 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

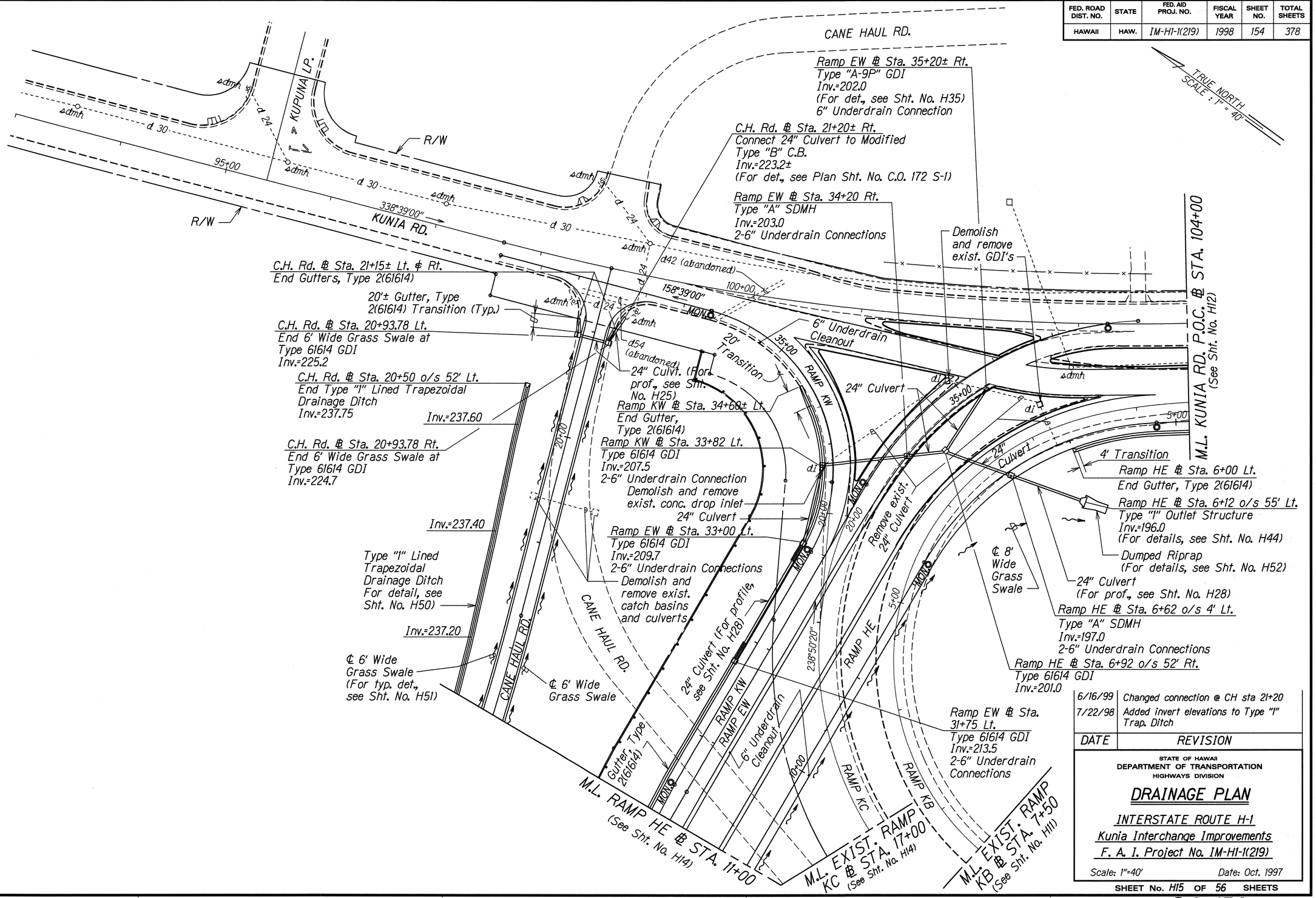
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. H14 OF 56 SHEETS

C.O. 153

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	154	378



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/29/98
	DRAWN BY A. Nomura, R. Sato	
NOTE BOOK dn Sort Hsdfn Alhfdfdsdfgh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Changed connection @ CH sta 21+20
7/22/98	Added invert elevations to Type "I" Trap. Ditch

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

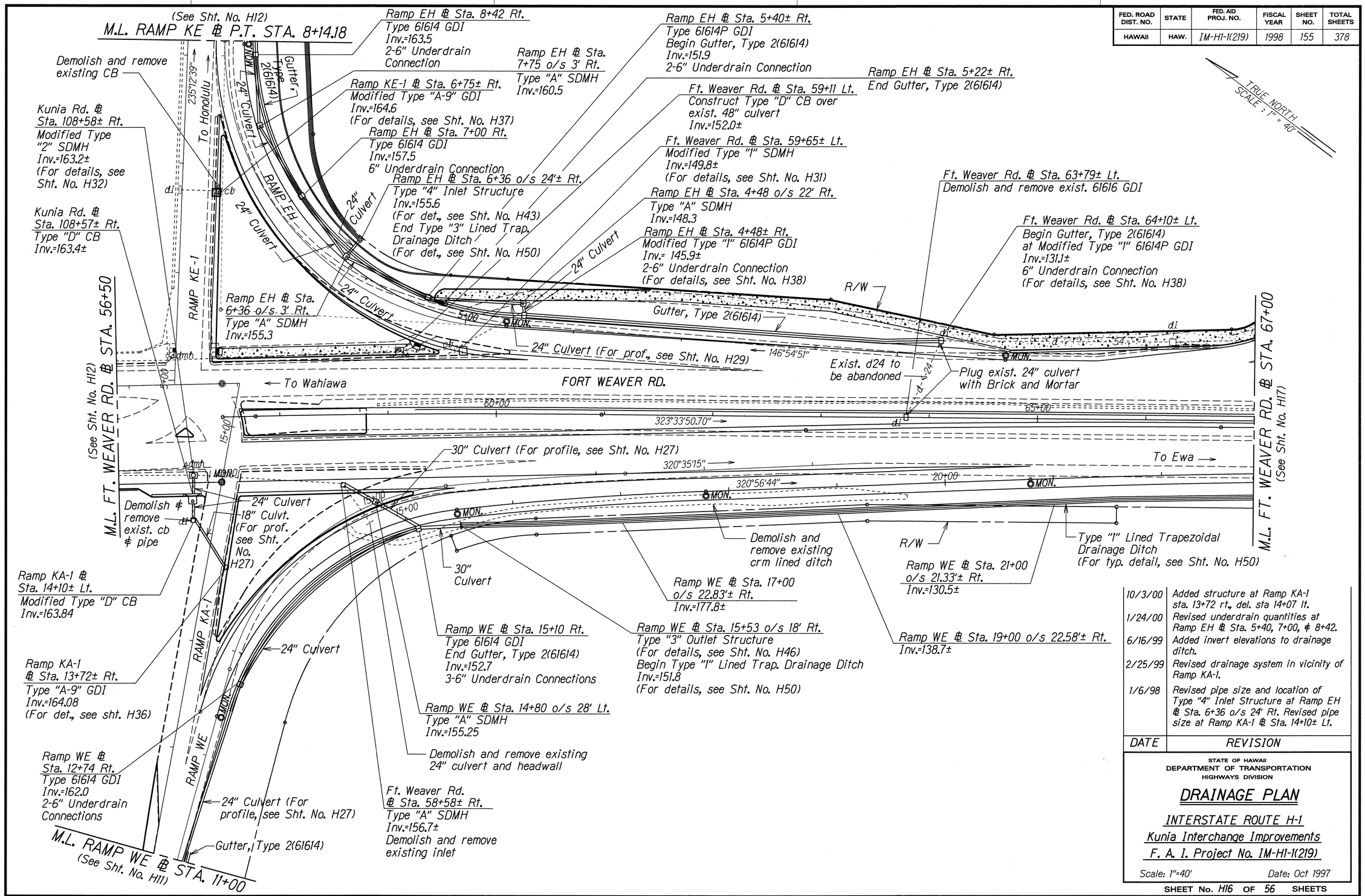
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. HI15 OF 56 SHEETS

C.O. 154

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	155	378



DATE	REVISION
10/3/00	Added structure at Ramp KA-1 sta. 13+72 rt., del. sta 14+07 lt.
1/24/00	Revised underdrain quantities at Ramp EH ℄ Sta. 5+40, 7+00, ℄ 8+42.
6/16/99	Added invert elevations to drainage ditch.
2/25/99	Revised drainage system in vicinity of Ramp KA-1.
1/6/98	Revised pipe size and location of Type "4" Inlet Structure at Ramp EH ℄ Sta. 6+36 o/s 24' Rt. Revised pipe size at Ramp KA-1 ℄ Sta. 14+10± Lt.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/29/96
	DRAWN BY A. Yamada, R. Sato	
	TRACED BY	
NOTE BOOK dn3,un116,dn	DESIGNED BY G. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

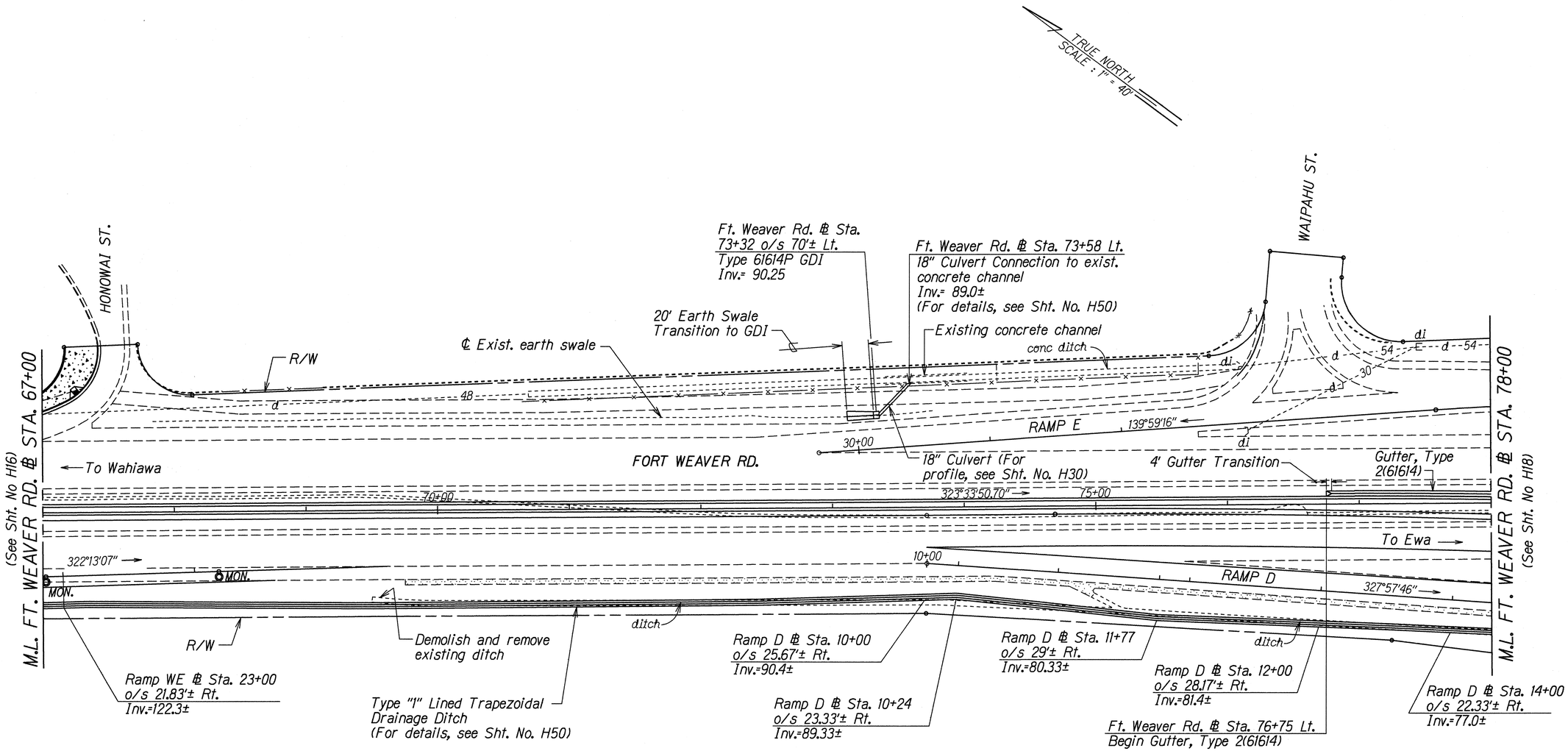
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct 1997

SHEET No. H16 OF 56 SHEETS

C.O. ADD. 155

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	156	378



ORIGINAL PLAN		
NOTE BOOK dh3,ourlsdlh	SURVEY PLOTTED BY	DATE 6/29/96
	DRAWN BY A. Nomura, R. Sato	
	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Added invert elevations to drainage ditch

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

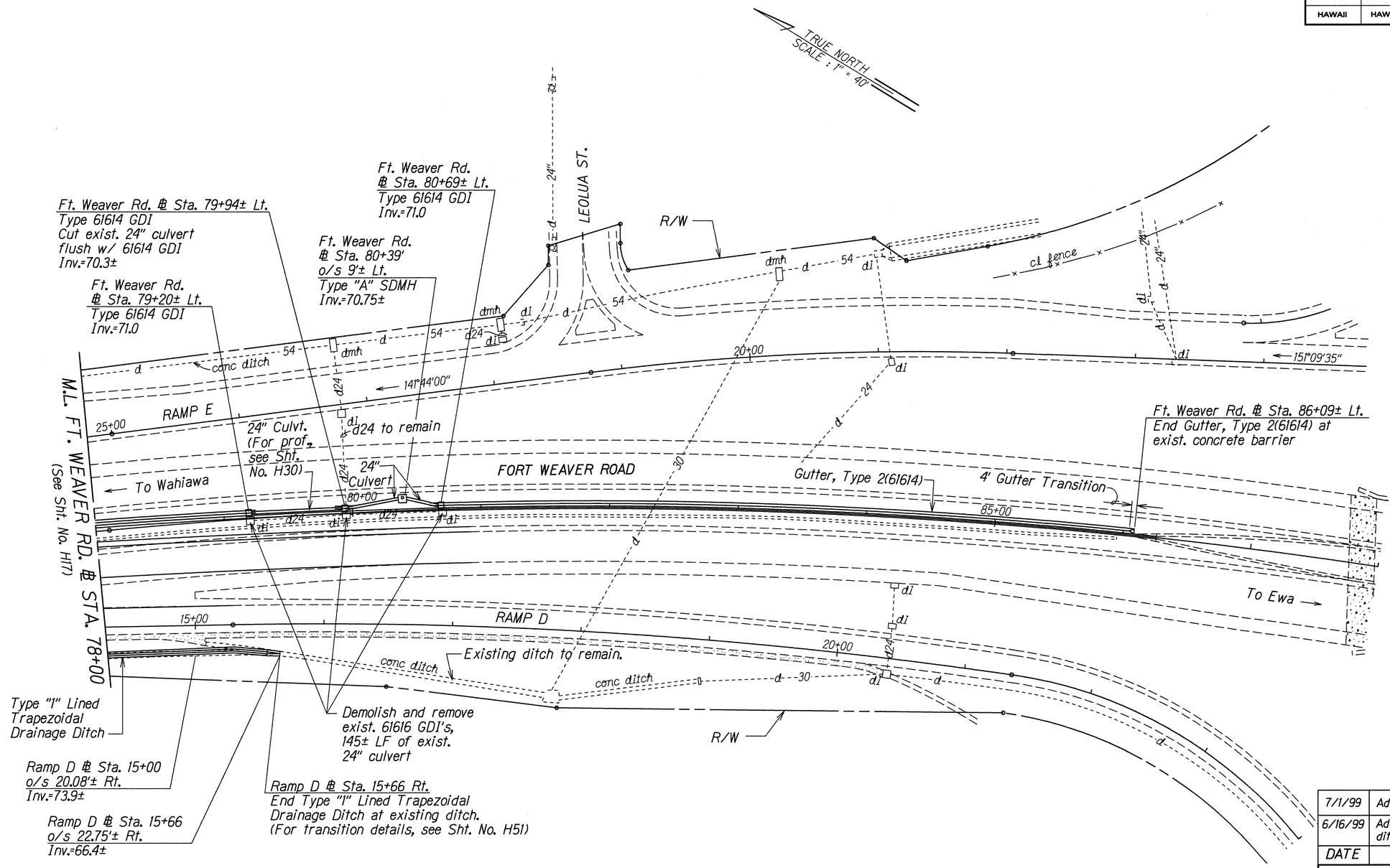
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. HI7 OF 56 SHEETS

C.O. 156

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	157	378



7/1/99	Added sdmh at FW sta 80+39 os 9'± lt
6/16/99	Added invert elevations to drainage ditch
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

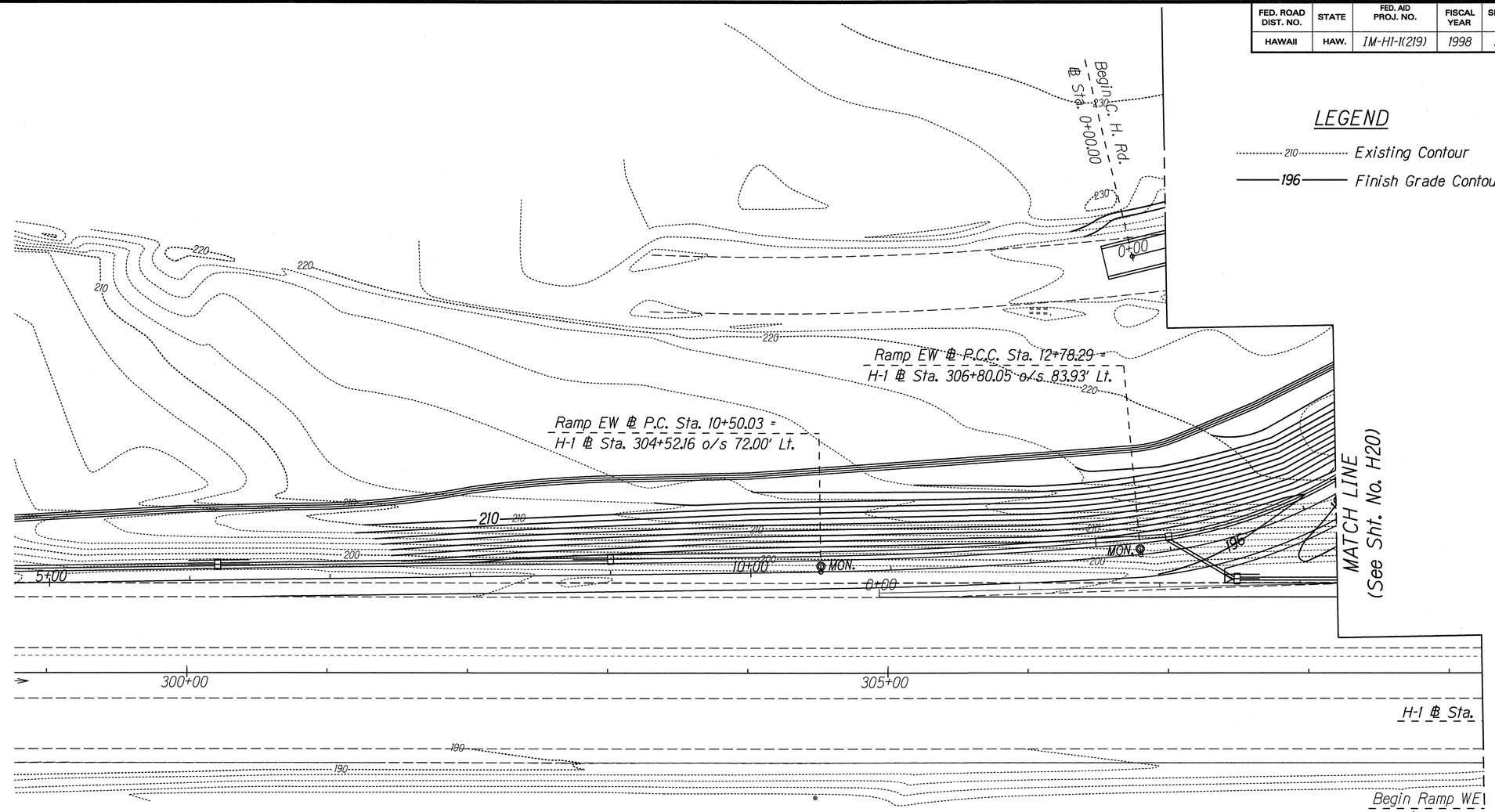
Scale: 1"=40' Date: Oct. 1997

SHEET No. H18 OF 56 SHEETS

C.O. 157

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 6/25/96
	DRAWN BY A. Nomura, R. Saito	
NOTE BOOK dh3,curfis,dh	TRACED BY C. Matsuda	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

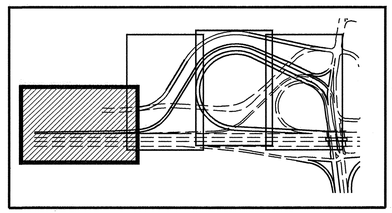
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	158	378



NOTES

1. The bidder's attention is directed to Plan Sheet Nos. 376-378 for existing boring logs used in the construction of the H-1 Freeway. This information is provided for information only.
2. The following documents are also available for the prospective bidder's information:
   Structural Foundation Report, dated December. 1964 for Interstate Route H-1, Barbers Point to Kunia Road, F.A.I. Project No. I-HI-1(7) and
   Soils Engineering Report, dated January, 1966 for Interstate Highways, East of Kunia Interchange to West of Waiawa Interchange.
3. Bidders may make arrangements for examination of the above reports by contacting Clarence Miyashiro of the State Materials and Testing Research Branch at 832-3410.
4. Existing Trees. 31-to be removed, 27-to remain are shown by typical symbols on Sht. Nos. H21 and H22.
5. Existing trees that remain shall be protected and cared for as specified on Sht. No. L03. Existing Tree Disposition Summary.
6. 13-Existing Monkeypod trees to be removed from Fort Weaver Road, southbound roadside, approximate location, ℄ Sta. 61+60 to ℄ Sta. 66+45. See Planning Plans, Sht. Nos. L44 and L45.

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY A. Nimura	10/96
	TRACED BY	
NOTE BOOK dh3\curt\sdfn	DESIGNED BY C. Matsuda	
4\hlgr04.dgn	QUANTITIES BY	
	CHECKED BY	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

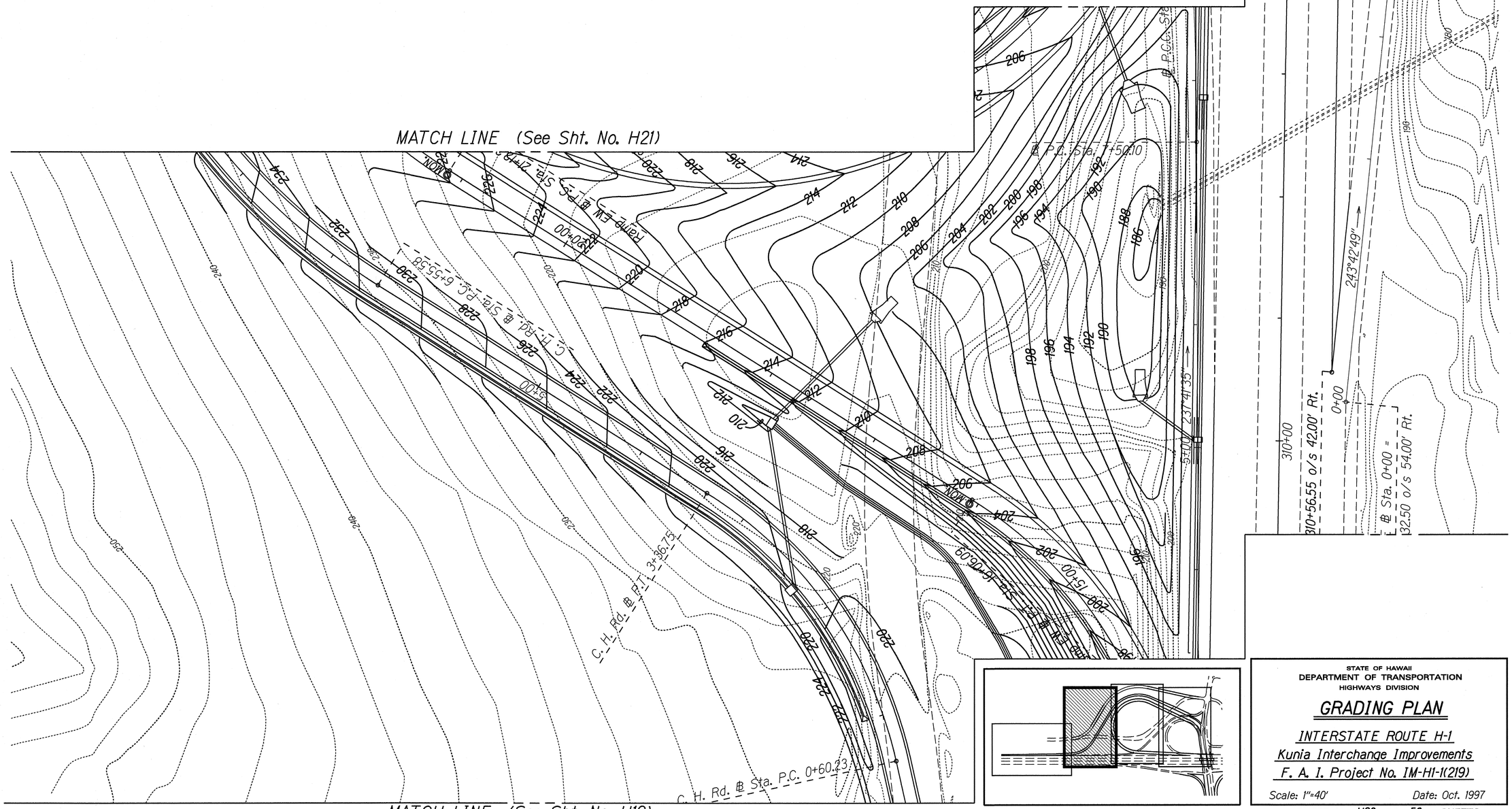
SHEET No. H19 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	159	378

LEGEND

210 Existing Contour

196 Finish Grade Contour



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/8/96
	DRAWN BY J. Nomura	
	TRACED BY	
NOTE BOOK	DESIGNED BY C. Matsuda	
dh3/ur16dfh	QUANTITIES BY	
klh/gr23dfh	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct. 1997

SHEET No. H20 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	160	378

LEGEND

210 Existing Contour

196 Finish Grade Contour

MATCH LINE (See Sht. No. H22)

℄ H-1 Rd. @ P.I. Sta. 13+69.89

℄ Ramp HE

℄ Ramp HW

℄ Ditch

LOOP UNGRADED AREA NO. 2

GRADING LIMITS

Inv.=200.0

7-Exist. trees to be removed (Typ. Symbol)

℄ P.I. Sta. 11+89.06

Ramp HE @ P.I. Sta. 26+07.71

Inv.=195.0

240°13'20"

MATCH LINE (See Sht. No. H20)

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/7/96
	DRAWN BY A. Nakata	
	TRACED BY	
	DESIGNED BY S. Matsuda	
NOTE BOOK dh3cur16.dft w1hgn12.dgn	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1"=40' Date: Oct 1997

SHEET No. H21 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	161	378

Kunia Rd. ℄ P.O.C. Sta.

158°39'00"

321°44'00"

End Ramp KC-1 ℄ Sta. 24+38.93 = End Ramp KW ℄ Sta. 37+74.99 = Kunia Rd. ℄ Sta. 97+64.61 o/s 12.0' Rt.

C. H. Rd. ℄ P.I. Sta. 21+08.00

℄ P.T. Sta. 22+38.76

Ramp KW ℄ P.T. Sta. 35+14.07

℄ P.C. Sta. 20+28.83

Ramp KW ℄ P.C. Sta. 32+97.03

35+00 RAMP KW

100+00

105+00

0+00

5+00

Begin F.W.R. ℄ Sta. 57+47.21 dm

325°00'

Ramp HE ℄ Sta. 4+17.70 Begin Lane Taper o/s 24' Rt.

End Ramp HE ℄ Sta. 3+76.15 H-1 ℄ Sta. 324+38.47 O/S 166.00' Lt.

℄ P.T. Sta. 18+31.11

Ramp EW ℄ Sta. 33+75.79 ℄ HE ℄ P.T. Sta. 1+77.51

Ramp EW ℄ Sta. 36+51.65 End Ramp KC-1 ℄ P.T. Sta. 5+17.70 Kunia Rd. ℄ P.O.C. Sta. 103+26.63

℄ P.T. Sta. 23+39.01

HE ℄ P.C. Sta. 5+17.70 End Lane Taper o/s 26' Rt.

264°28'21"

27-Existing trees to remain (Typical Symbol)

℄ P.T. Sta. 12+89.53

Ramp EW ℄ Sta. 30+49.13 Begin Ramp KW o/s 13' Lt. ℄ End Lane Taper o/s 13 Rt. ℄

GRADING LIMITS

24-Existing trees to be removed (Typical Symbol)

LOOP UNGRADED AREA NO. 1

RAMP KC ℄ P.C. Sta. 6+55.91

C. H. Rd. ℄ P.C. Sta. 17+11.51

Ramp EW ℄ P.T. Sta. 27+49.13 Lane Taper o/s 16 Rt. ℄

Sta. 13+30.86

15+00

10+00

30+00

MATCH LINE (See Sht. No. H21)

LEGEND

210 Existing Contour

196 Finish Grade Contour

DATE	REVISION
6/16/99	Regraded area in vicinity of Ramp HE ℄ Sta. 3+39 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

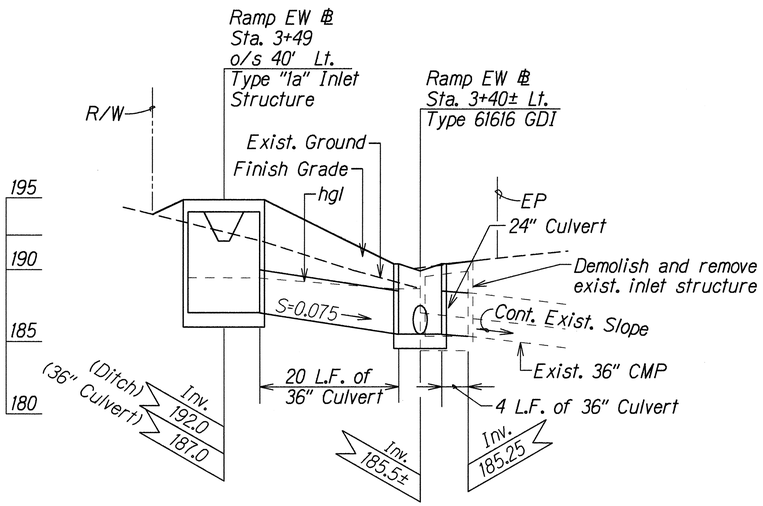
Scale: 1"=40' Date: Oct. 1997

SHEET No. H22 OF 56 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/17/96
	DRAWN BY A. Nomura	
NOTE BOOK	TRACED BY C. Matsuda	
dh3jun15.dgn	QUANTITIES BY	
Hilligr0.dgn	CHECKED BY	

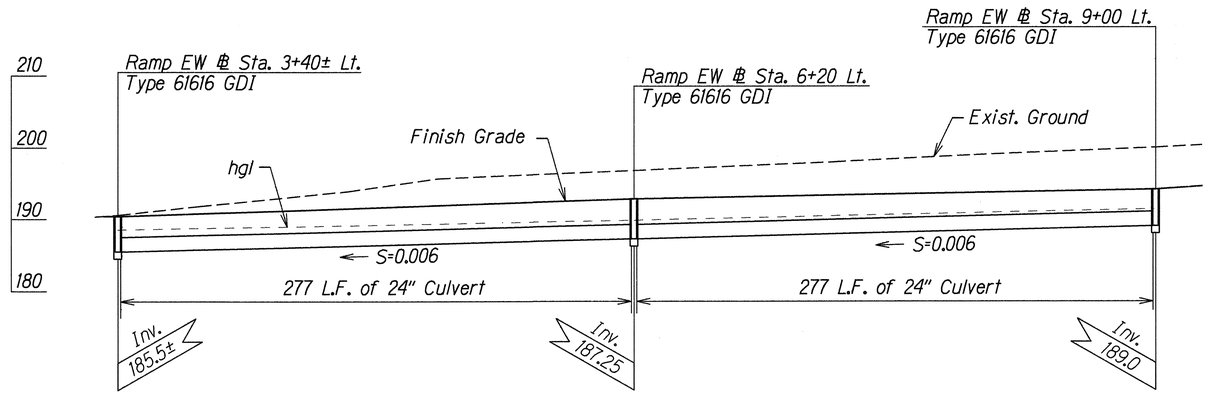
C.O. 161

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	162	378



PROFILE-RAMP EW ℄ STA. 3+40± LT. TO RAMP EW ℄ STA. 3+49 LT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-RAMP EW ℄ STA. 3+40± LT. TO RAMP EW ℄ STA. 9+00 LT.

Scale: Horiz. 1"=40'
Vert. 1"=10'

DATE	REVISION
7/20/98	Revised invert of ditch at Ramp EW ℄ Sta. 3+49

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

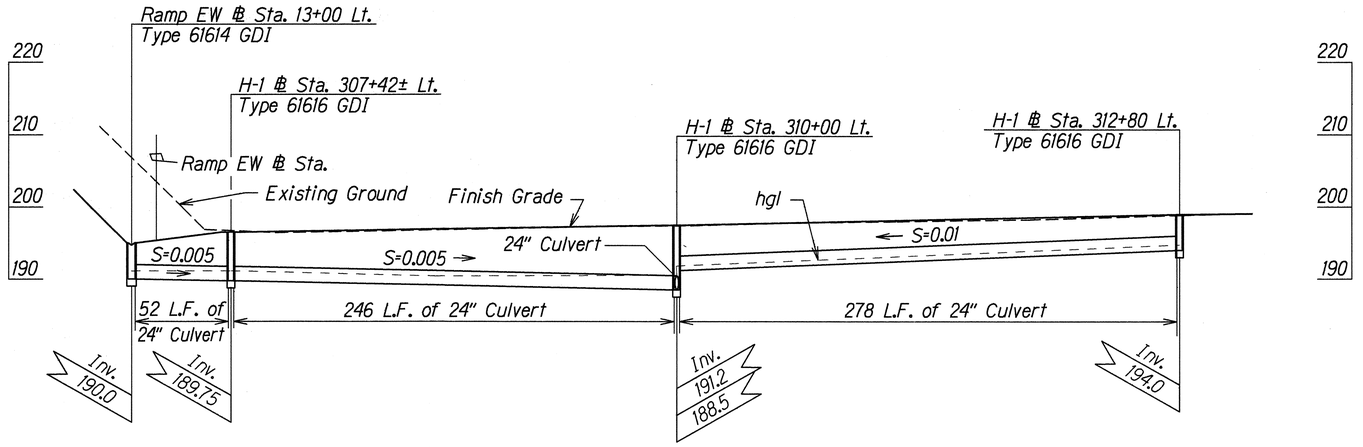
SHEET No. H23 OF 56 SHEETS

C.O. 162

ORIGINAL PLAN
NOTE BOOK dh3curv15.dfm 12-01-96 dwchun

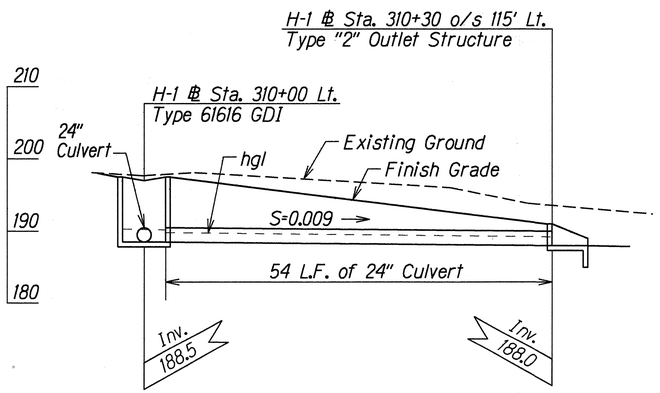
SURVEY PLOTTED BY DATE 8/26/96
DRAWN BY A. Saito, A. Nomura
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	163	378



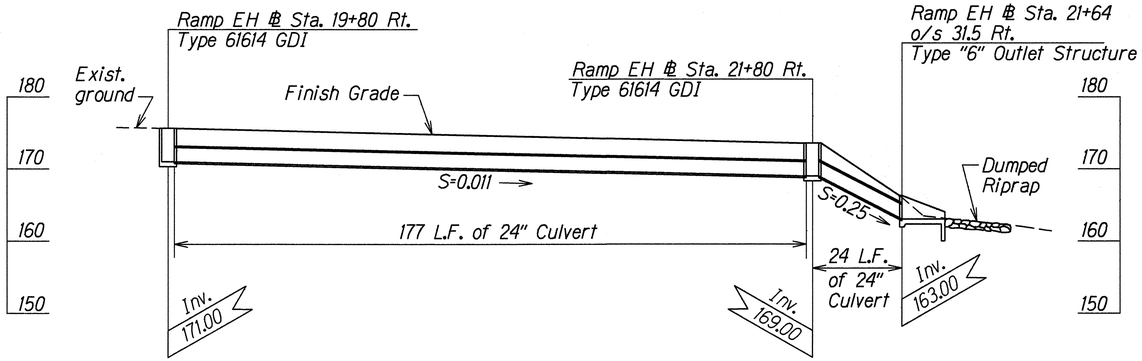
PROFILE-RAMP EW ℄ STA. 13+00 LT. TO H-1 ℄ STA. 312+80 LT.

Scale: Horiz. 1"=40'
Vert. 1"=10'



PROFILE-H-1 ℄ STA. 310+00 LT. TO H-1 ℄ STA. 310+30 o/s 115' LT.

Scale: Horiz. 1"=10'
Vert. 1"=10'



PROFILE-RAMP EH ℄ STA. 19+80 RT. TO ℄ STA. 21+80 RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'

ORIGINAL PLAN

SURVEY PLOTTED BY	DATE 11/23/96
DRAWN BY A. Nomura	
TRACED BY	
DESIGNED BY C. Matsuda	
NOTE BOOK dh3curl5.dlh	QUANTITIES BY
Ng'ai Indgn	CHECKED BY

DATE	REVISION
6/16/99	Added Drainage Profile

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

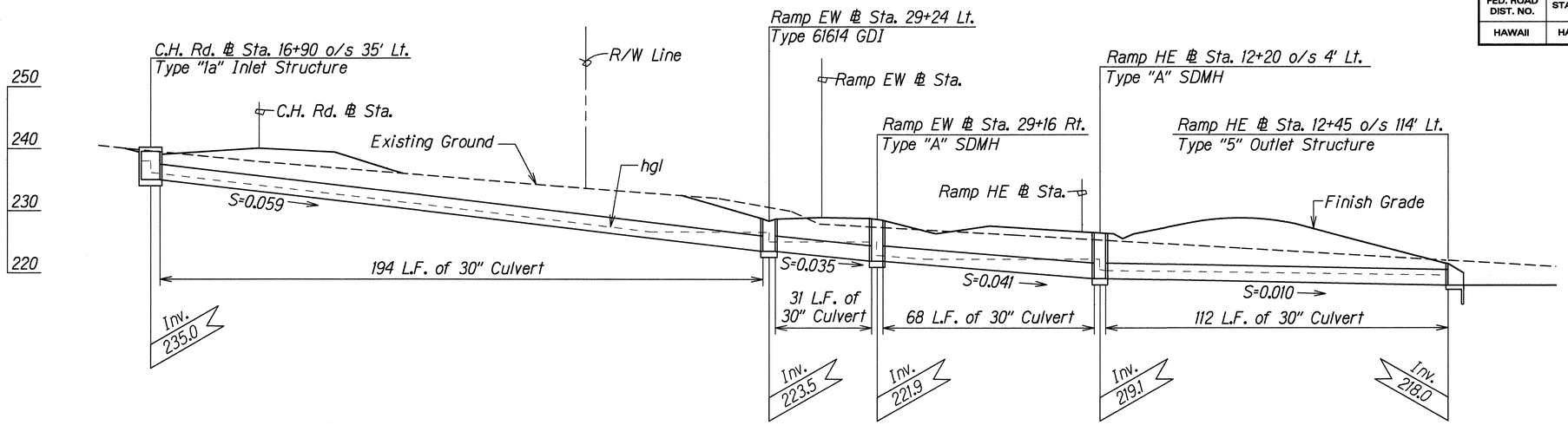
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

SHEET No. H24 OF 56 SHEETS

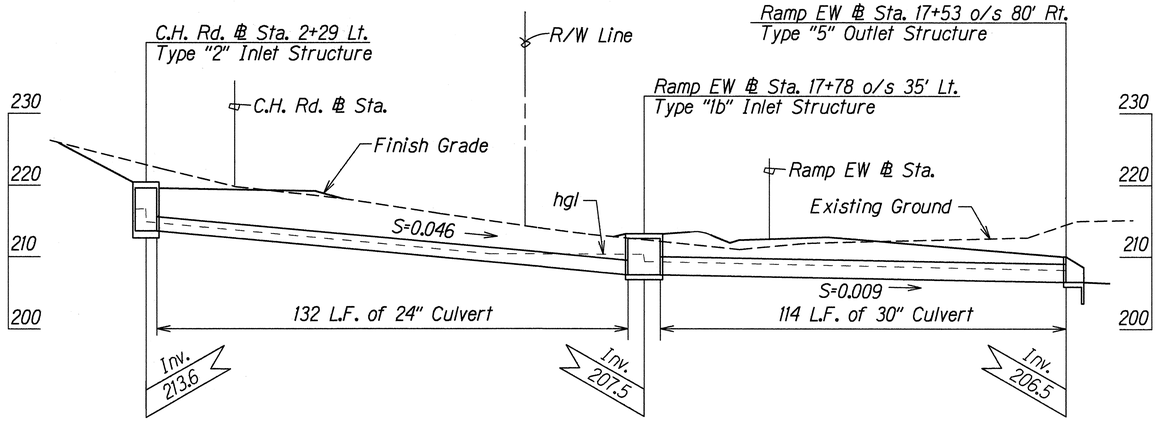
C.O. 163

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	164	378



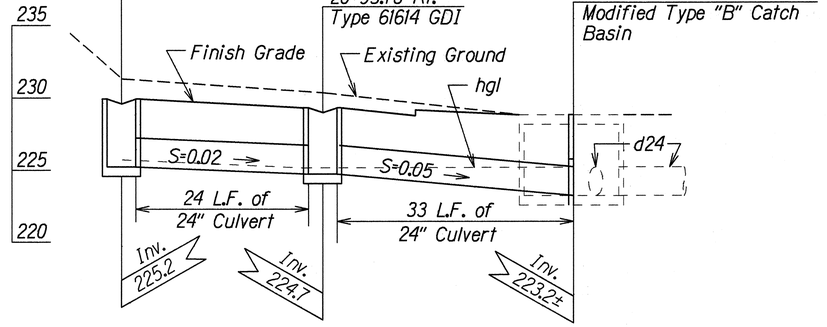
PROFILE-C.H. RD. ℄ STA. 16+90 o/s 35' LT. TO RAMP HE ℄ STA. 12+45 o/s 114' LT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-C.H. RD. ℄ STA. 2+29 LT. TO RAMP EW ℄ STA. 17+53 o/s 80' RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-C.H. RD. ℄ STA. 20+93.78 LT. TO C.H. RD. ℄ STA. 21+20± RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 8/20/96
	DRAWN BY A. Nomura	
NOTE BOOK dh3,ur11,dh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Revised profile at C.H. Rd. ℄ Sta. 21+20± Rt.
7/20/98	Revised height of Type "1b" Inlet Structure at Ramp EW ℄ Sta. 17+78 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

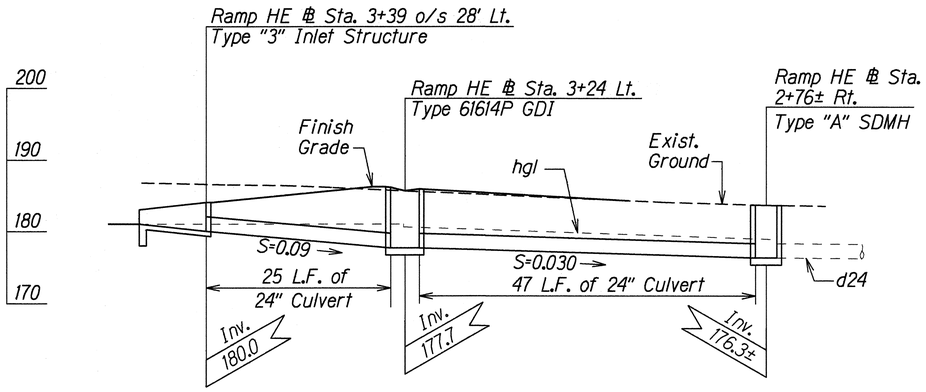
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

SHEET No. H25 OF 56 SHEETS

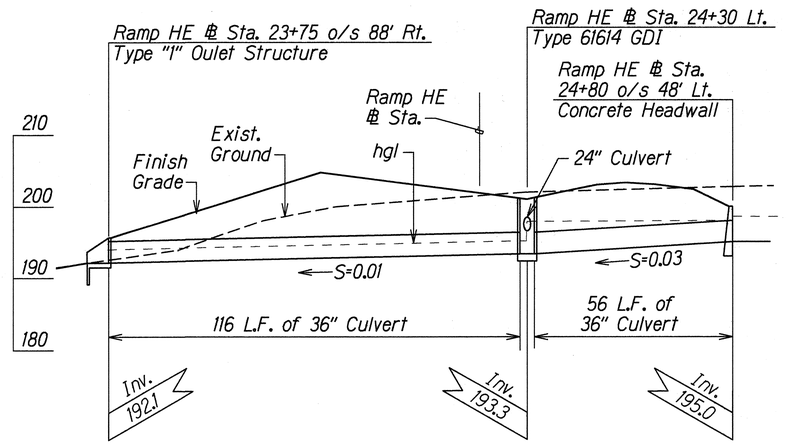
C.O. 164

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	165	378



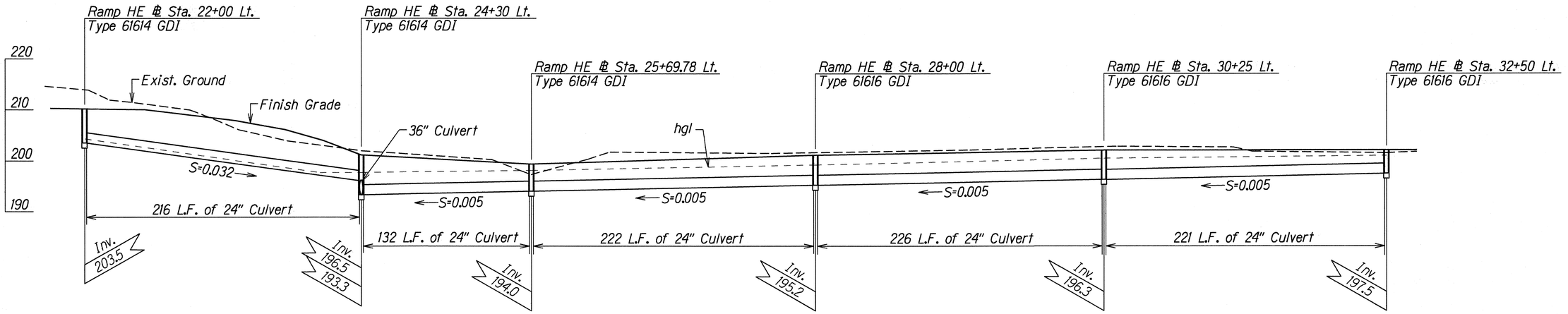
PROFILE-RAMP HE ℄ STA. 3+39 o/s 28' LT. TO RAMP HE ℄ STA. 2+76± RT.

Scale: Horiz. 1"=10'
Vert. 1"=10'



PROFILE-RAMP HE ℄ STA. 23+75 o/s 88' RT. TO RAMP HE ℄ STA. 24+80 O/S 40' LT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-RAMP HE ℄ STA. 22+00 LT. TO RAMP HE ℄ STA. 32+50 LT.

Scale: Horiz. 1"=40'
Vert. 1"=10'

ORIGINAL PLAN

NOTE BOOK dh3curlsdlh
SURVEY PLOTTED BY
DRAWN BY R. Saito & Nomura DATE 11/21/96
TRACED BY
DESIGNED BY G. Matsuda
QUANTITIES BY
CHECKED BY N. of Design

DATE	REVISION
6/16/99	Revised profile at Ramp HE ℄ Sta. 3+31 Lt. to 2+76 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

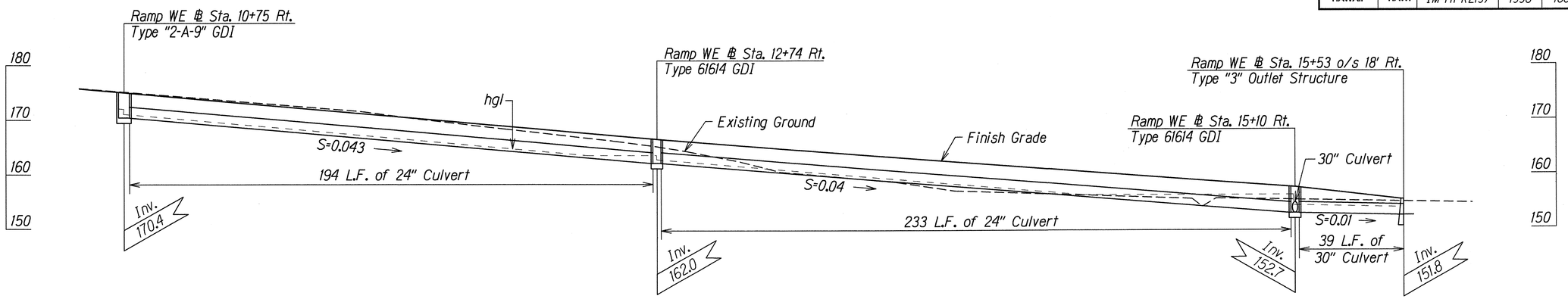
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

SHEET No. H26 OF 56 SHEETS

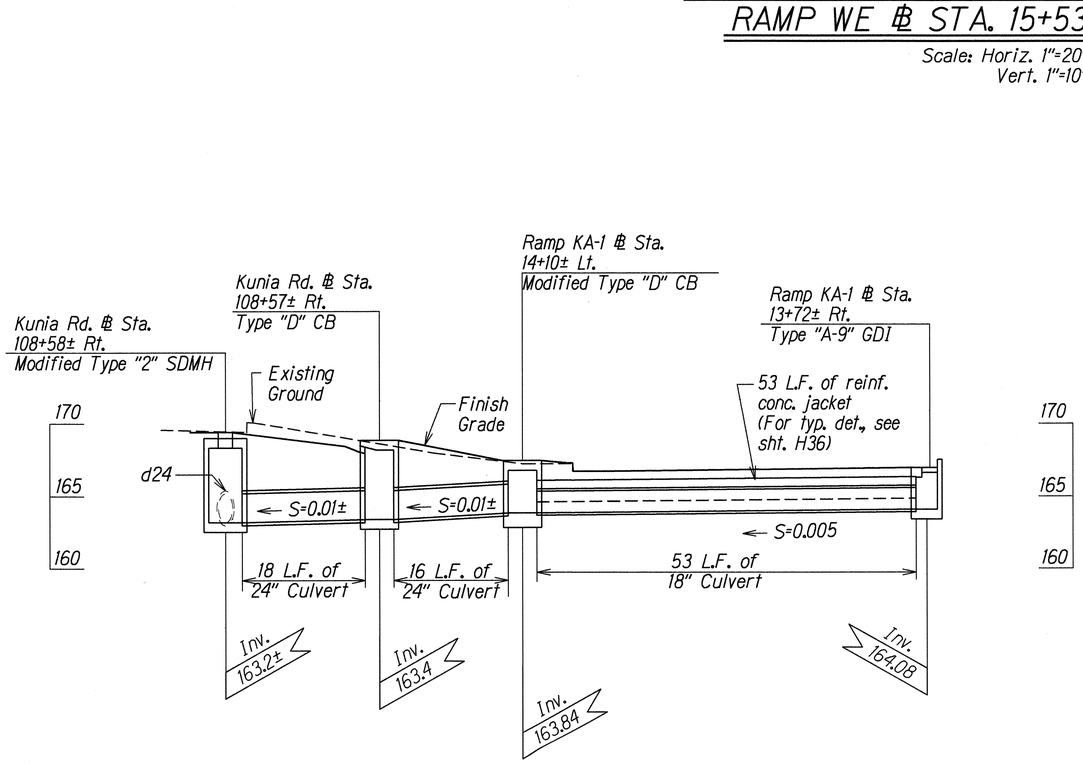
C.O. 165

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	166	378



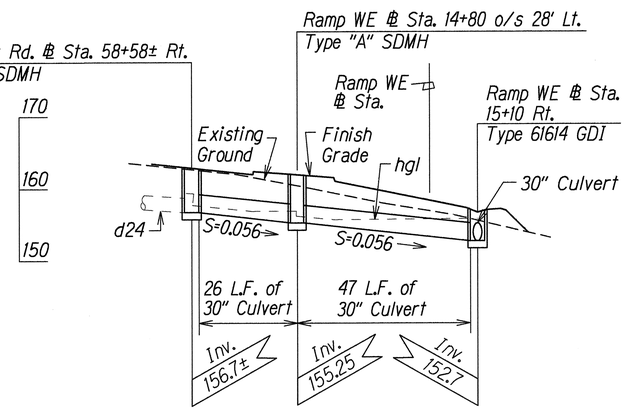
PROFILE-RAMP WE ℄ STA. 10+75 RT. TO RAMP WE ℄ STA. 15+53 o/s 18' RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-RAMP KA-1 ℄ STA. 13+72± RT. TO KUNIA RD. ℄ STA. 108+58± RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-FT. WEAVER RD. ℄ STA. 58+58± RT. TO RAMP WE ℄ STA. 15+10 RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'

DATE	REVISION
10/3/00	added struct. ramp ka-1 sta 13+72 rt.
2/25/99	Revise profile in vicinity of Ramp KA-1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

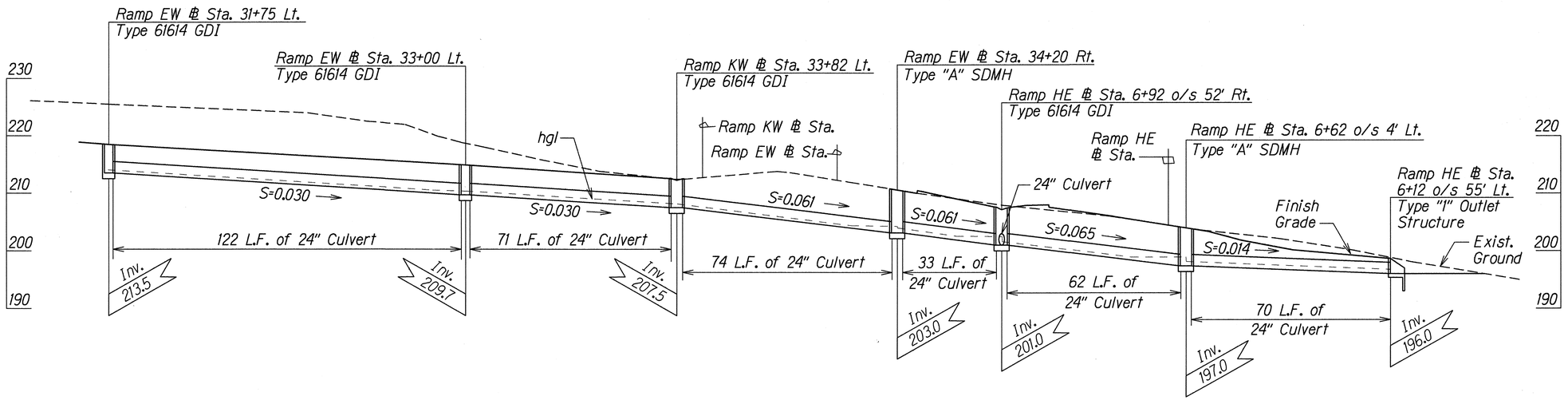
Scale: As Shown Date: Oct. 1997

SHEET No. H27 OF 56 SHEETS

C.O. 166

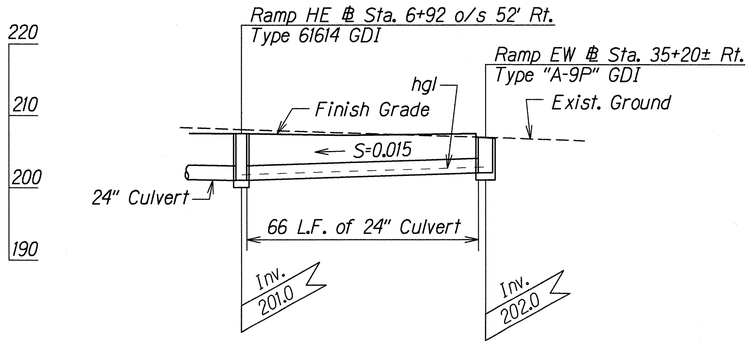
ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY A. Nomura	12/20/96
	TRACED BY	
	DESIGNED BY C. Matsuda	
NOTE BOOK dh3,curtis,dh	QUANTITIES BY	
NO. of _ weigh	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	167	378



PROFILE-RAMP EW ℄ STA. 31+75 LT. TO RAMP HE ℄ STA. 6+12 o/s 55' LT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-RAMP HE ℄ STA. 6+92 o/s 52' RT. TO RAMP EW ℄ STA. 35+20± RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 8/19/96
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK dh3,cur11,dh	DESIGNED BY S. Matsuda	
	QUANTITIES BY	
NO. of Awdgn	CHECKED BY	

DATE	REVISION
1/6/98	Revised title of profile at Ramp HE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

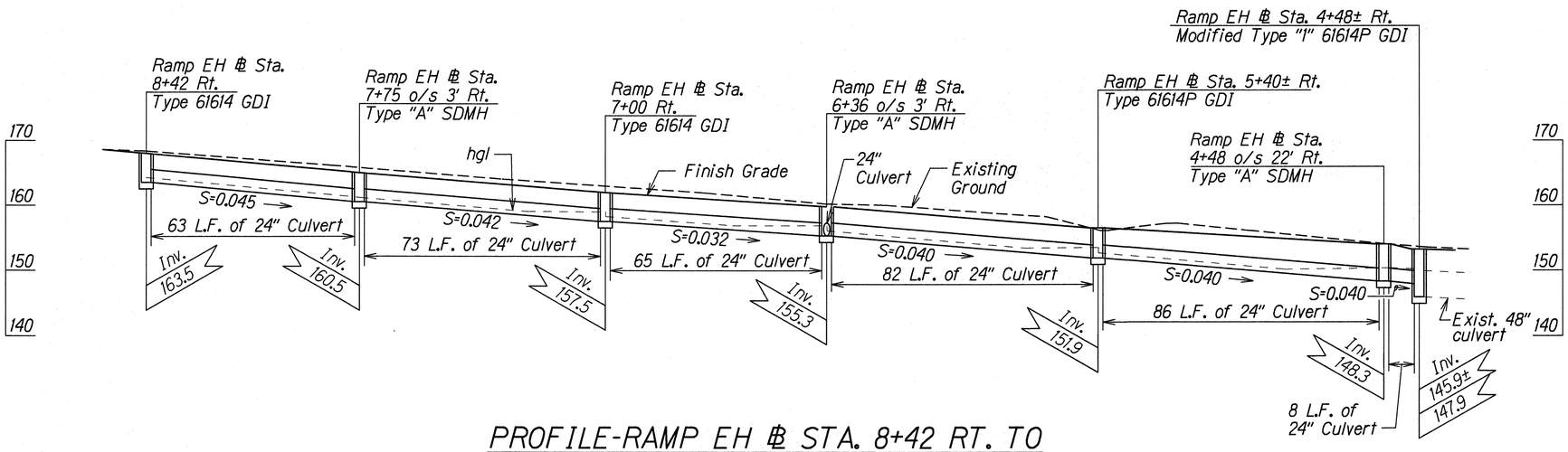
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

SHEET No. H28 OF 56 SHEETS

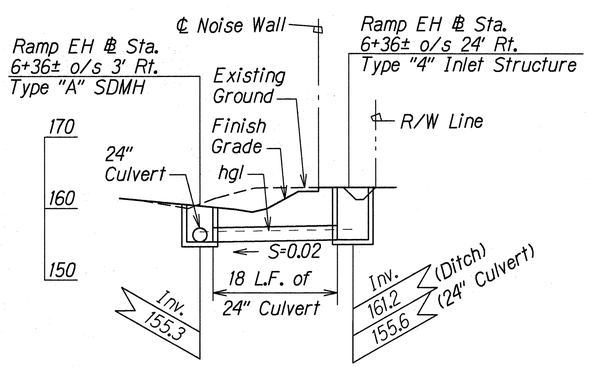
ADD. 167

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	168	378



PROFILE-RAMP EH ℄ STA. 8+42 RT. TO RAMP EH ℄ STA. 4+48± RT.

Scale: Horiz. 1"=20'
Vert. 1"=10'



PROFILE-RAMP EH ℄ STA. 6+36± o/s 3' RT. TO RAMP EH ℄ STA. 6+36± o/s 24' RT.

Scale: Horiz. 1"=10'
Vert. 1"=10'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 9/20/96
	DRAFT BY A. Nomura	
NOTE BOOK dh3jun18dh 1st of shdgn	TRACED BY C. Matsuda	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

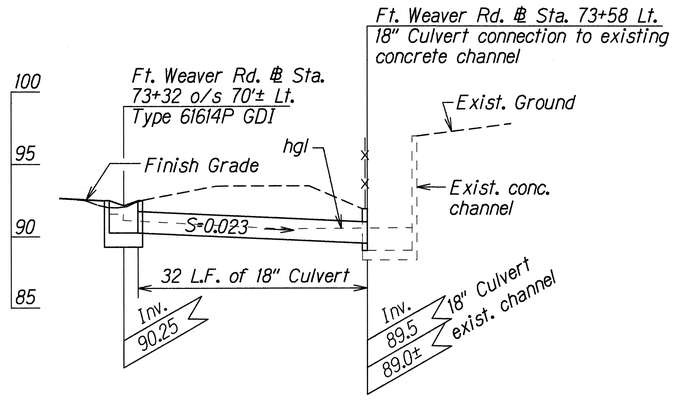
DRAINAGE PROFILES

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

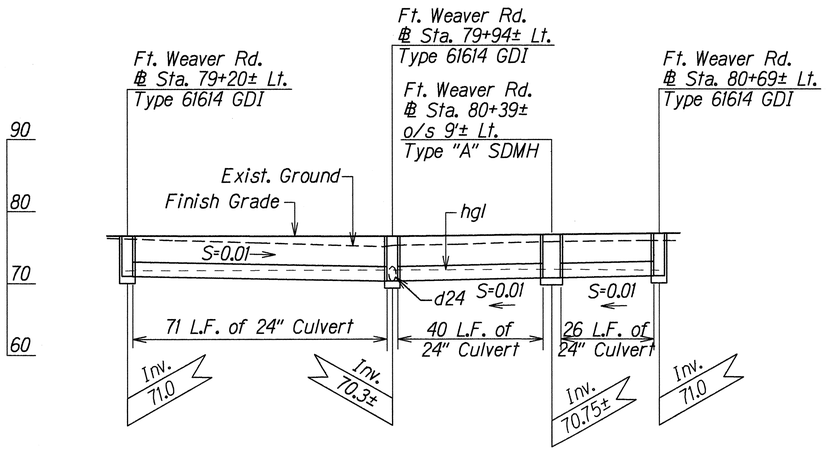
SHEET No. H29 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	169	378



PROFILE-FT. WEAVER RD. ℄ STA. 73+32 o/s 70'± LT. TO FT. WEAVER RD. ℄ STA. 73+58 LT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-FT. WEAVER RD. ℄ STA. 79+20± LT. TO FT. WEAVER RD. ℄ STA. 80+69± LT.

Scale: Horiz. 1"=20'
Vert. 1"=10'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 9/27/96
	DRAWN BY D. Saito, A. Nomura	
NOTE BOOK dh33curtis/dh	TRACED BY C. Matsuda	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY Jeff Twedt	

DATE	REVISION
7/1/99	Added SDMH at F.W. sta 80+39

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

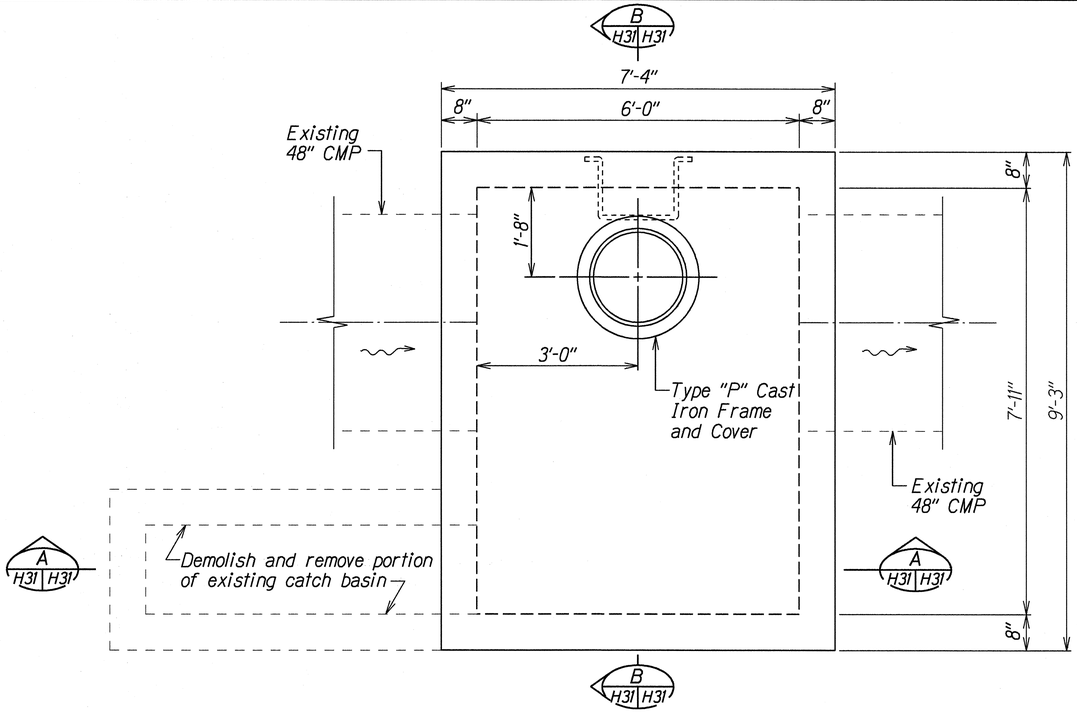
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: As Shown Date: Oct. 1997

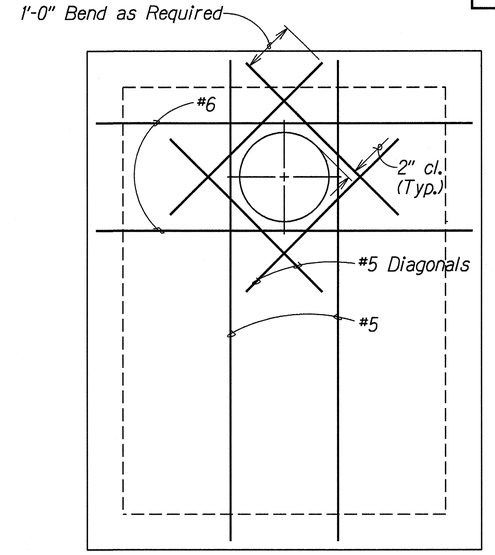
SHEET No. H30 OF 56 SHEETS

C.O. 169

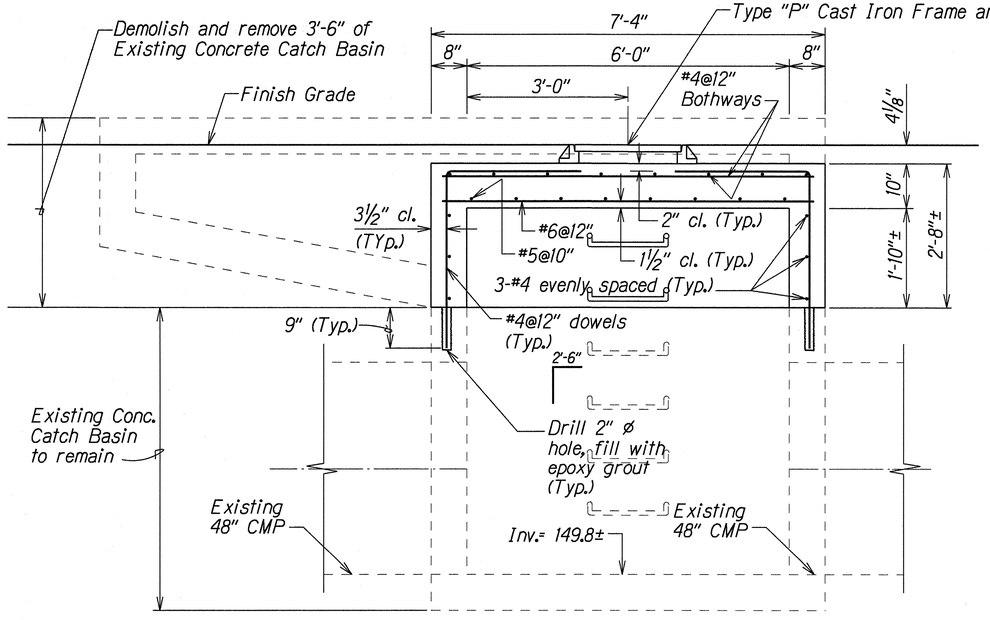
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	170	378



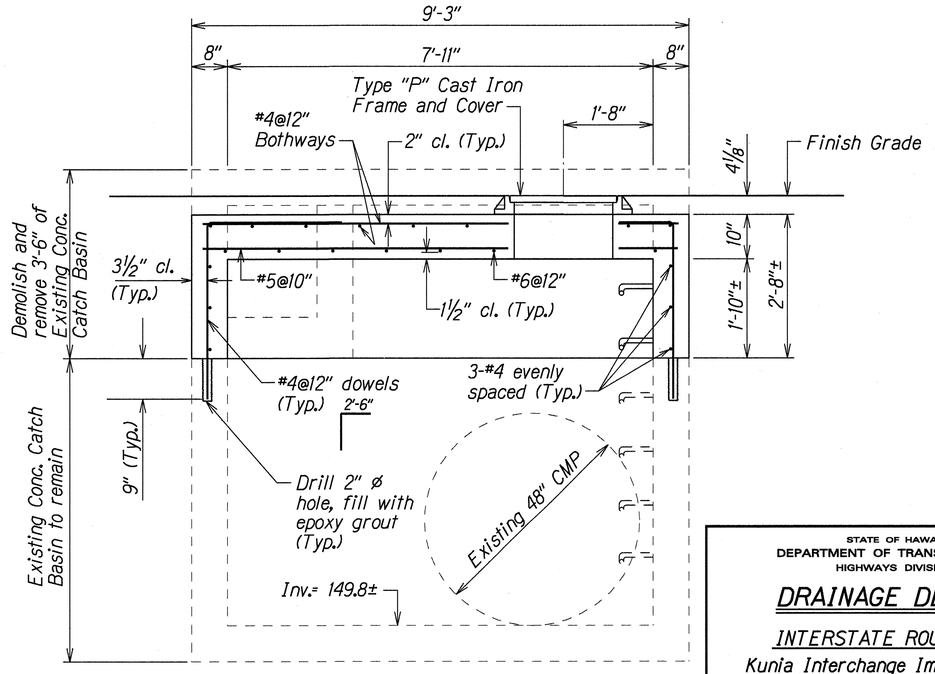
PLAN



ADDED REINFORCING STEEL AT TOP SLAB



SECTION A H31 H31



SECTION B H31 H31

DETAILS OF MODIFIED TYPE "1" STORM DRAIN MANHOLE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: ¾"=1'-0" Date: Oct. 1997

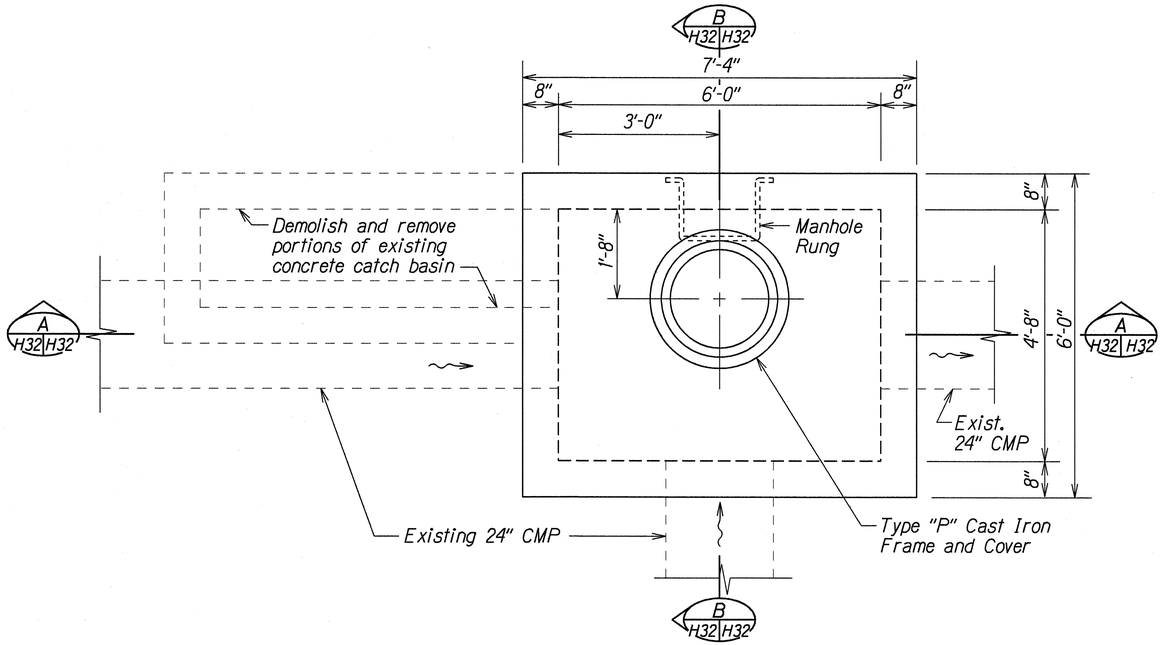
SHEET No. H31 OF 56 SHEETS

ORIGINAL PLAN

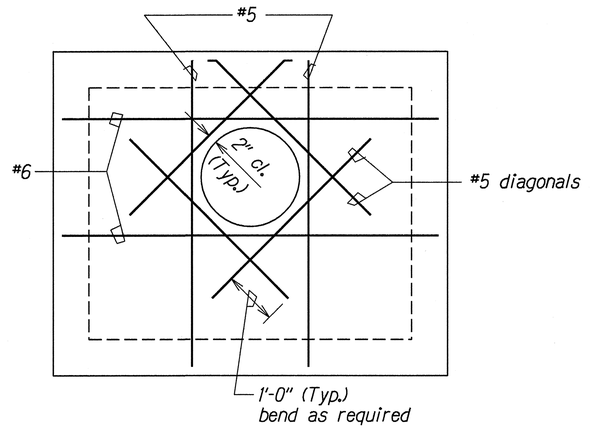
SURVEY PLOTTED BY
DRAWN BY Curtis Watada/Russell Saito DATE X
TRACED BY
DESIGNED BY Curtis Watada
QUANTITIES BY
CHECKED BY

NOTE BOOK
PATH: S:\HIGHWAYS\Kunia Interchange\Plan Sheets\Drainage\Drainage Details.dgn

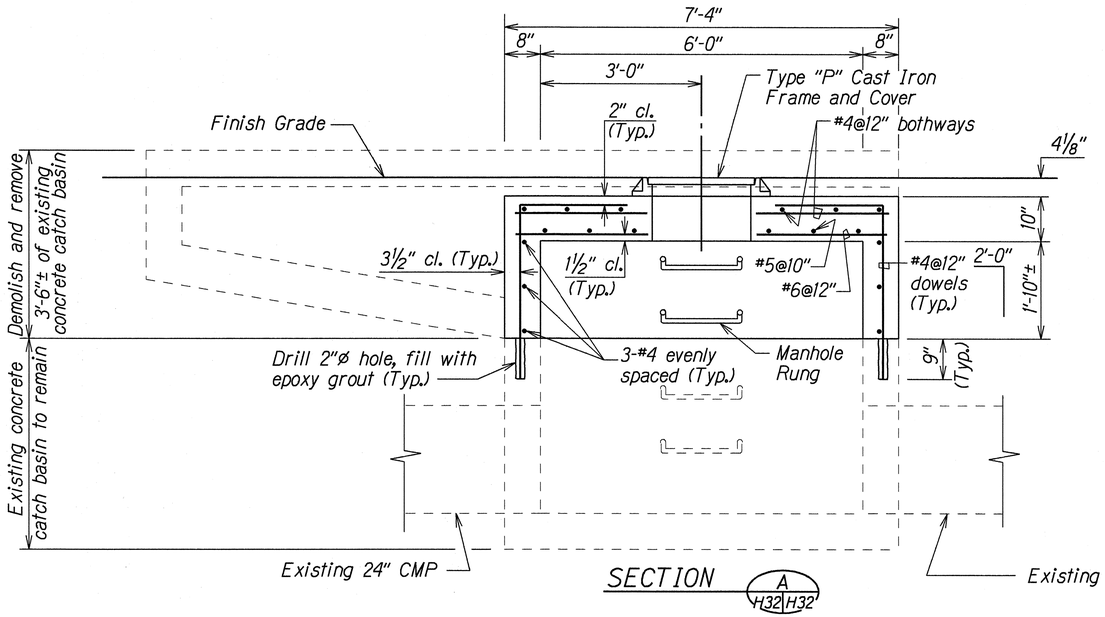
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	171	378

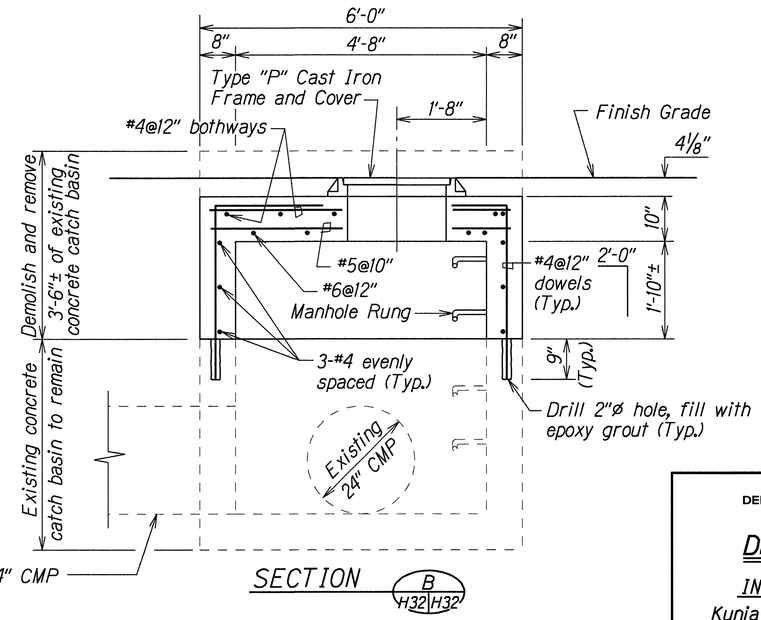


PLAN



ADDED REINFORCING STEEL AT TOP SLAB





DETAILS OF MODIFIED TYPE "2" STORM DRAIN MANHOLE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 9/10/96
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK	DESIGNED BY C. Matsuda	
dn3curt5d1n	QUANTITIES BY	
qc2cam2d2g	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

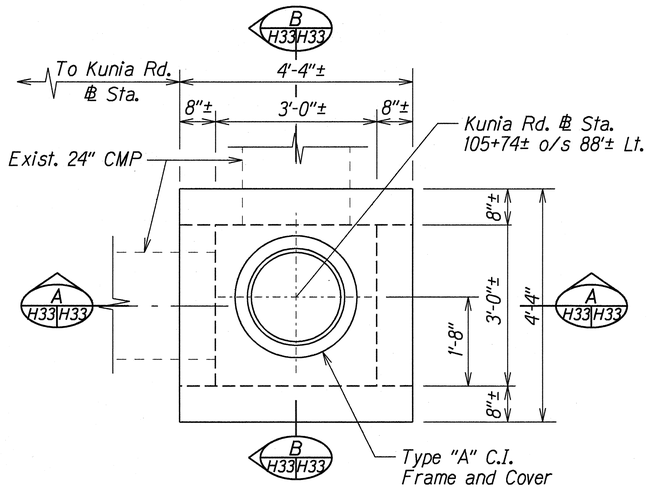
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

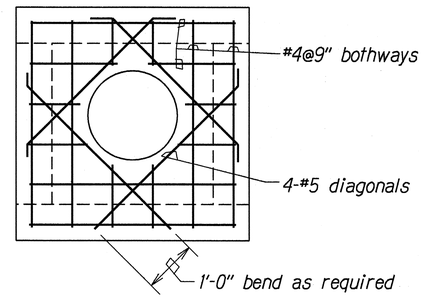
Scale: ¾"=1'-0" Date: Oct. 1997

SHEET No. H32 OF 56 SHEETS

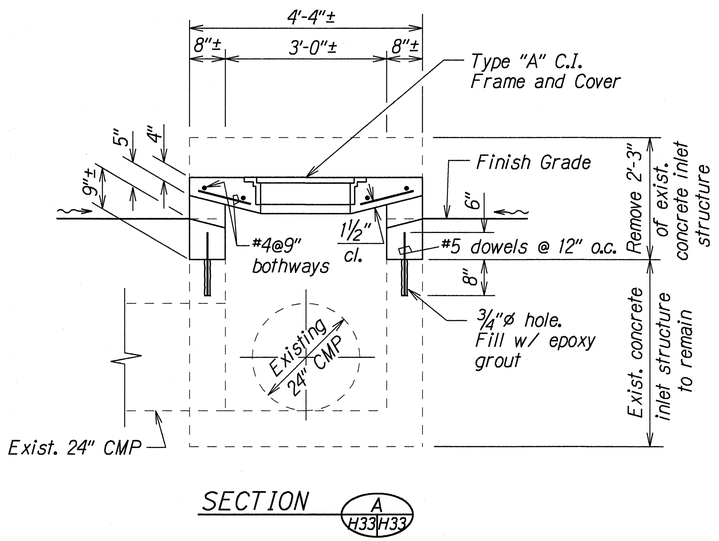
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	172	378



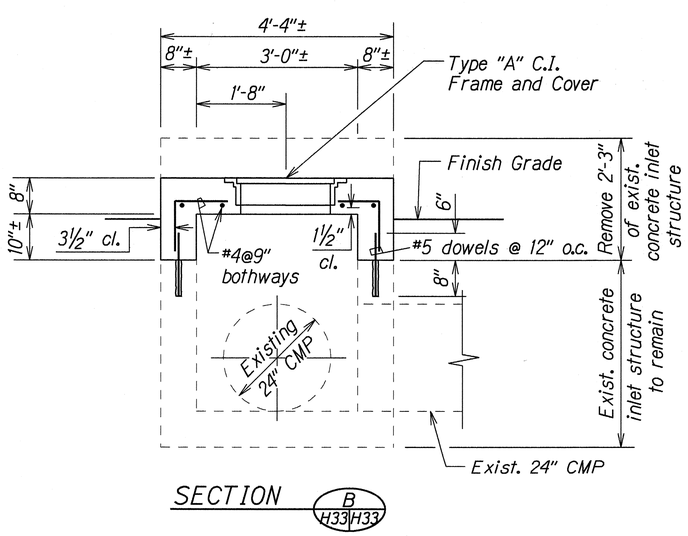
PLAN



PLAN VIEW OF
TOP SLAB REINFORCING



SECTION A
H33 H33



SECTION B
H33 H33

DETAILS OF MODIFIED TYPE "1" CATCH BASIN

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 2/28/96
TRACED BY
DESIGNED BY Curtis Matsuda
QUANTITIES BY
CHECKED BY

NOTE: HOOF
Hdf15.dgn
Sht_ds24.dgn

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

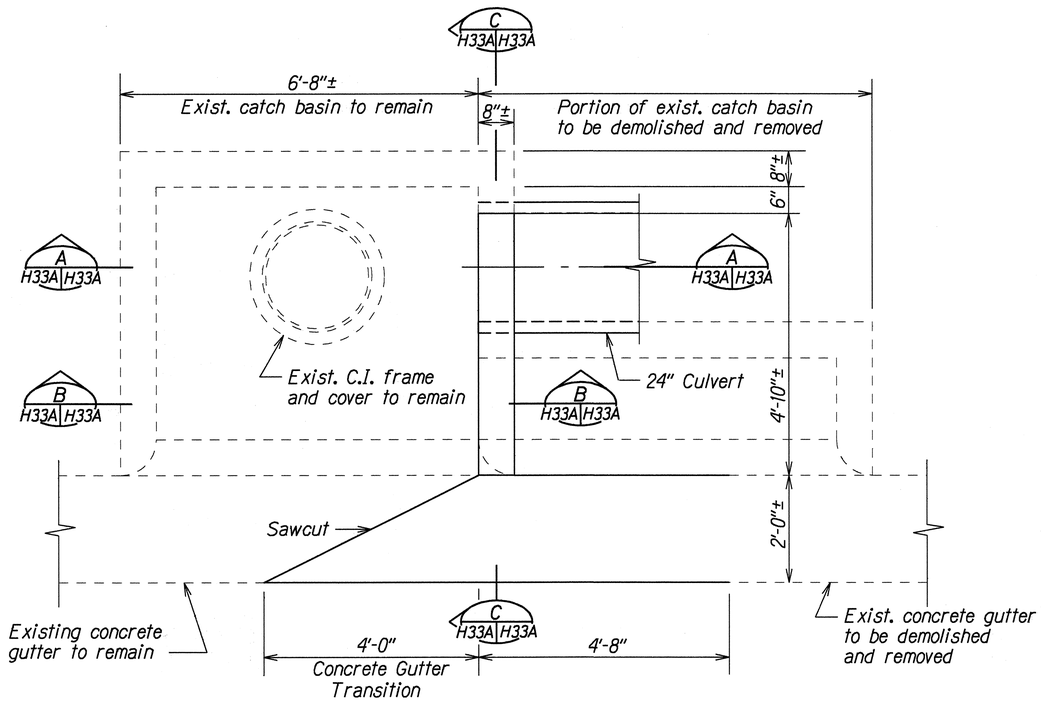
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

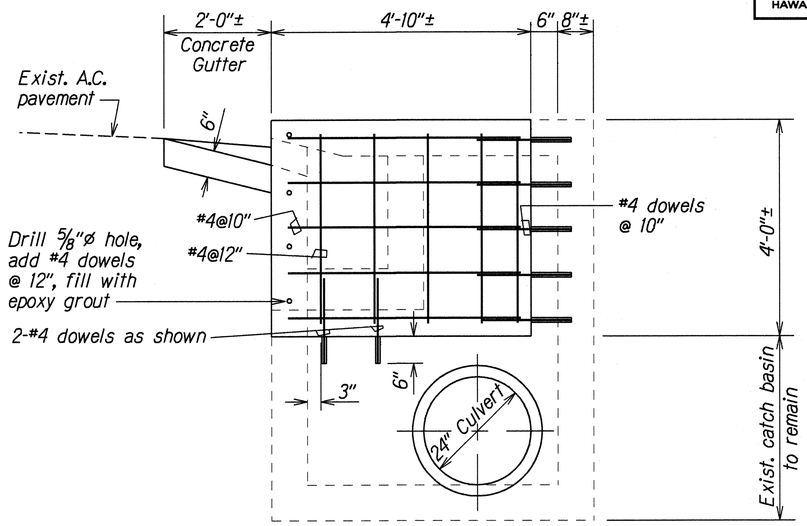
Scale: ¾"=1'-0" Date: Oct. 1997

SHEET No. H33 OF 56 SHEETS

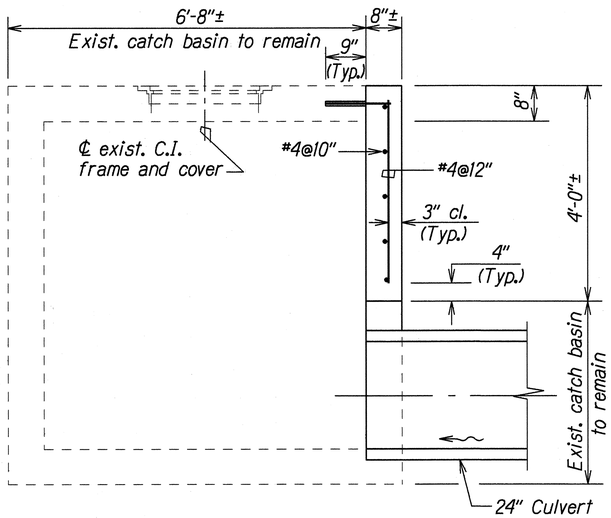
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1999	C0172S-1	378



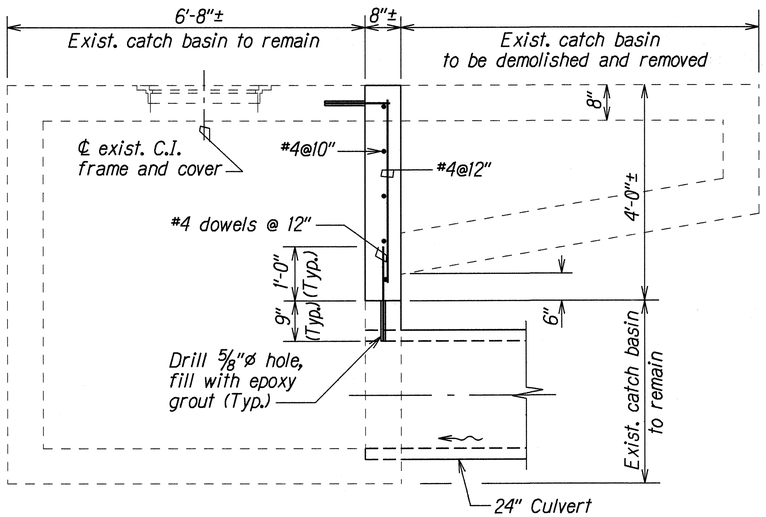
PLAN



SECTION C H33A H33A



SECTION A H33A H33A



SECTION B H33A H33A

MODIFIED TYPE "B" CATCH BASIN

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 1/27/99
	DRAFT BY A. Nomura	
NOTE BOOK	TRACED BY C. Matsuda	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Added Drainage Detail Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

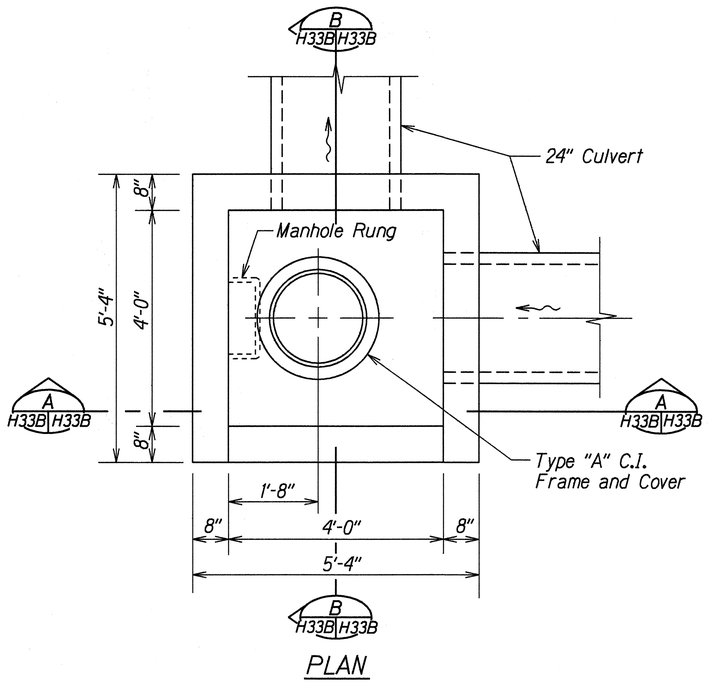
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Jan. 1999

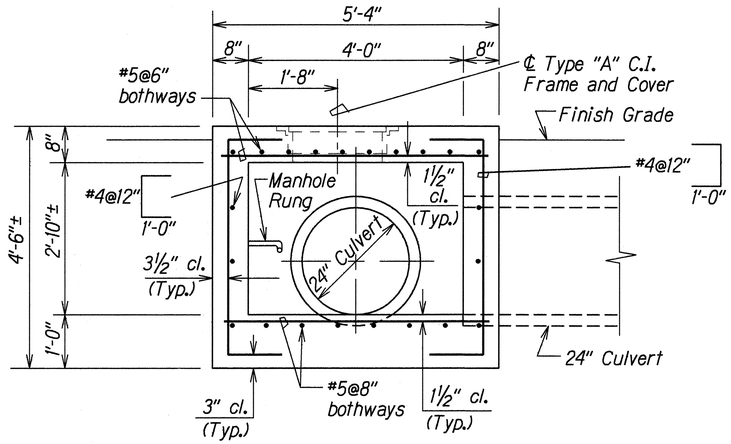
SHEET No. H33A OF 56 SHEETS

C.O. 172 S-1

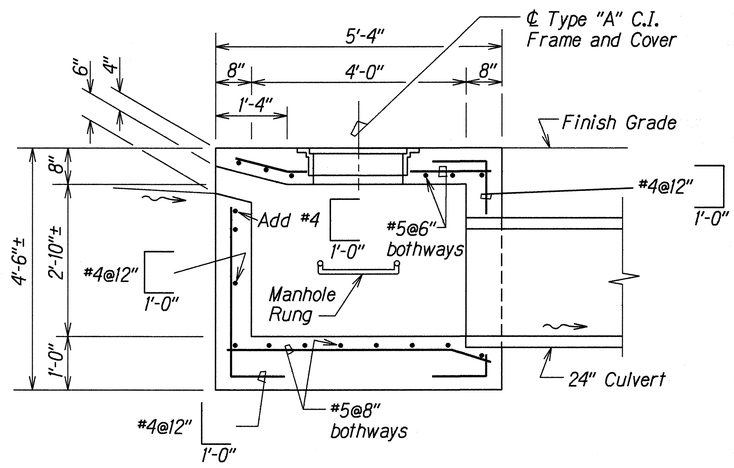
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1999	C0172S-2	378



PLAN



SECTION A H33B H33B



SECTION B H33B H33B

DETAILS OF MODIFIED TYPE "D" CATCH BASIN

ORIGINAL PLAN	
NOTE BOOK	dh3curtis.dfn 4/14/99 10:50:09
SURVEY PLOTTED BY	
DRAWN BY	A. Nomura
TRACED BY	
DESIGNED BY	C. Matsuda
QUANTITIES BY	
CHECKED BY	
DATE	2/25/99

DATE	REVISION
6/16/99	Added Drainage Detail Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

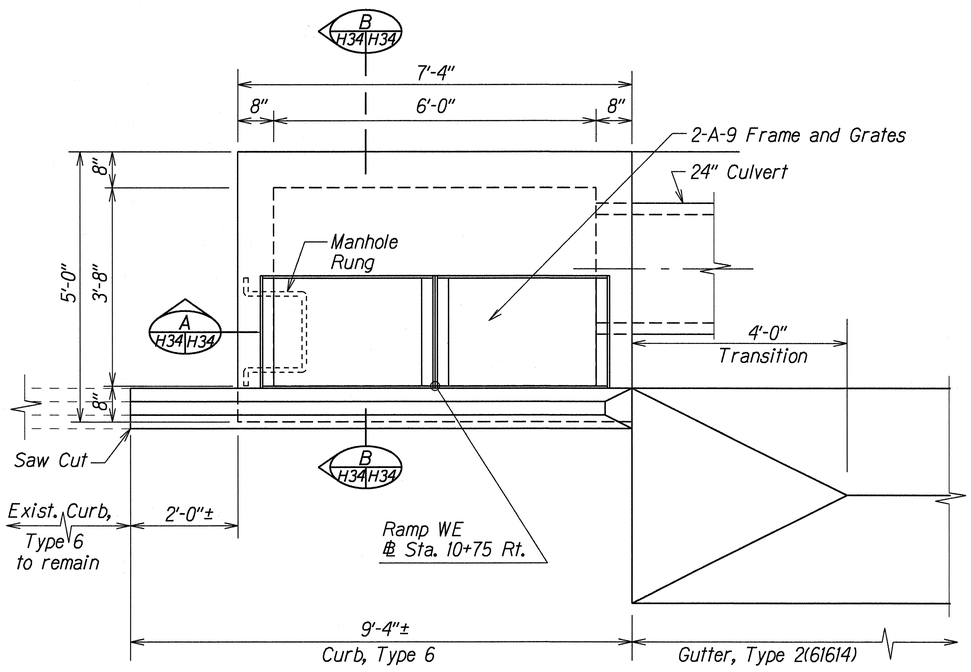
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Feb. 1999

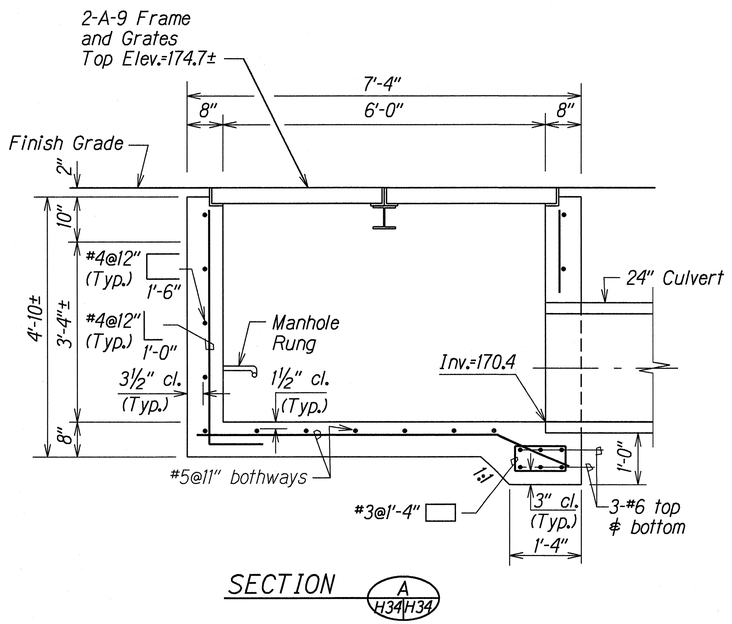
SHEET No. H33B OF 56 SHEETS

C.O. 172 S-2

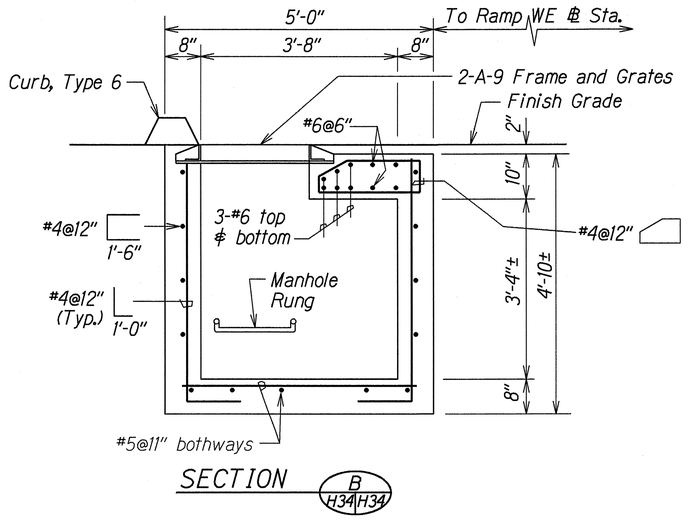
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	173	378



PLAN



SECTION A H34 H34



SECTION B H34 H34

DETAILS OF TYPE "2-A-9" GRATED DROP INLET

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 7/27/95
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK	DESIGNED BY C. Matsuda	
dn3,curb1&dtl's	QUANTITIES BY	
&Curve_data'dgn	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

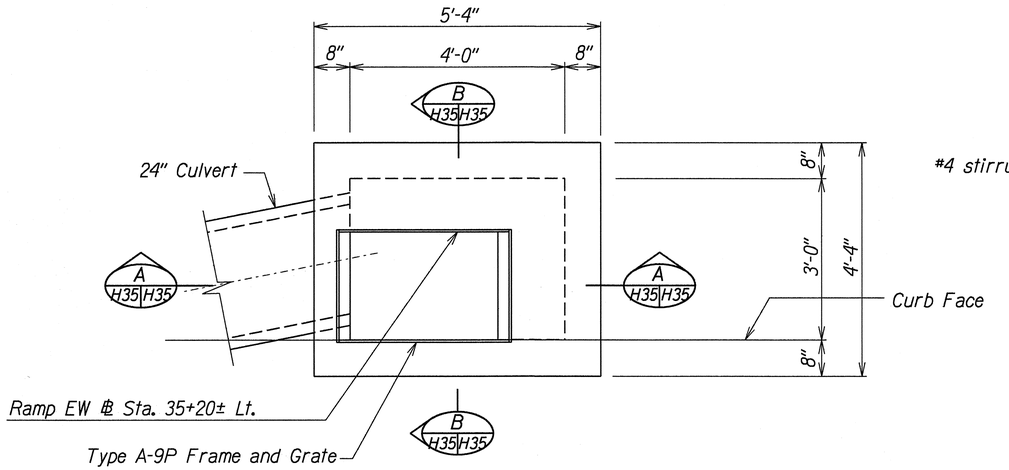
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

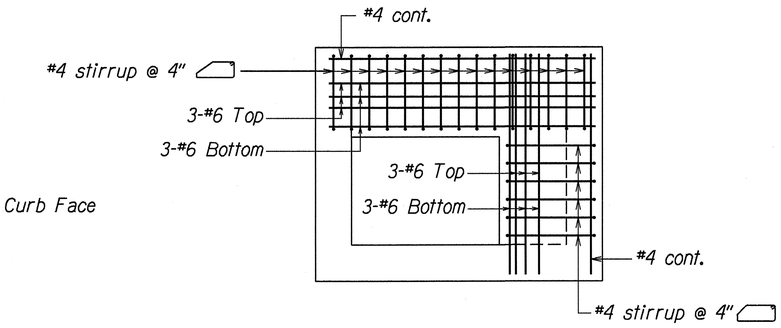
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SHEET No. H34 OF 56 SHEETS

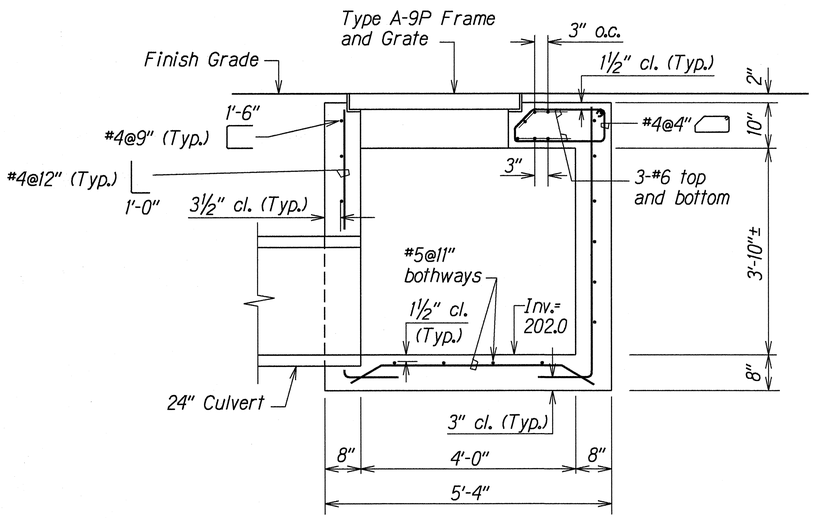
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	174	378



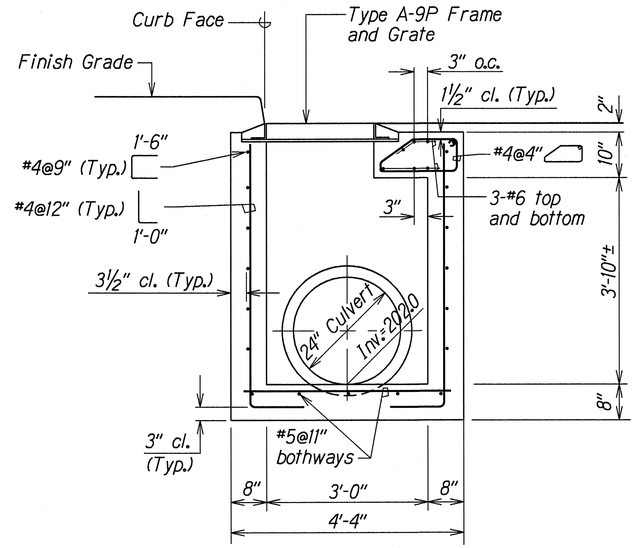
PLAN



PLAN VIEW OF TOP SLAB REINFORCING



SECTION A H35 H35



SECTION B H35 H35

DETAILS OF TYPE "A-9P" GDI @ RAMP EW ℄ STA. 35+20± RT

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 2/11/98
	DRAWN BY K. Nomura	
	TRACED BY	
NOTE BOOK Hilo Hwy Div. Maui Hwy Div. No.	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

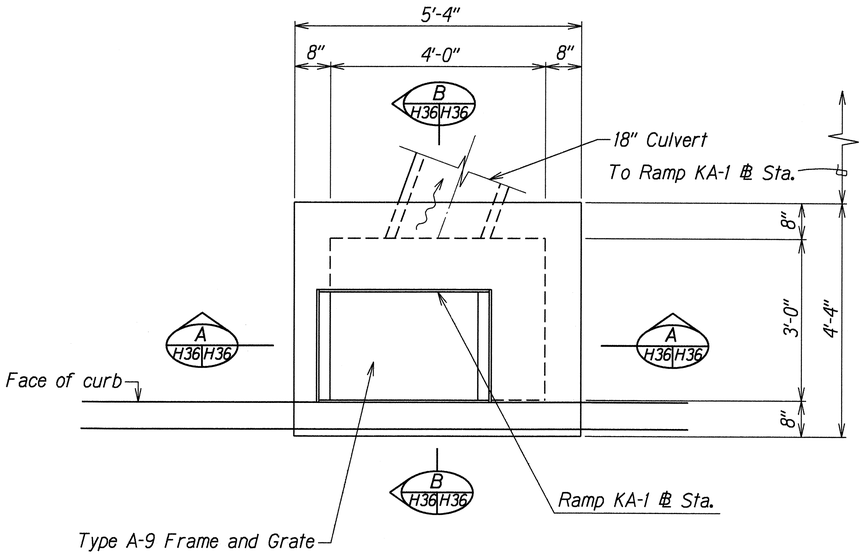
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

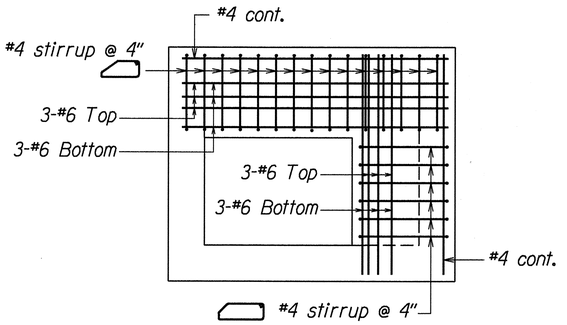
Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H35 OF 56 SHEETS

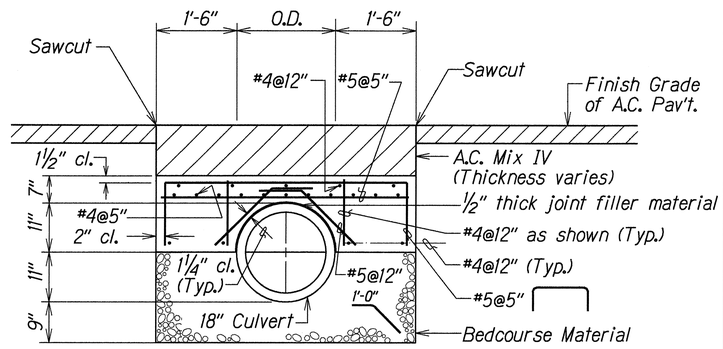
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	175	378



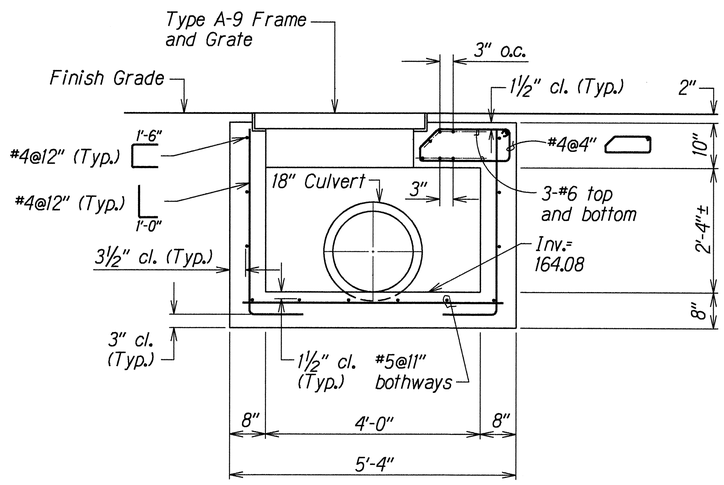
PLAN



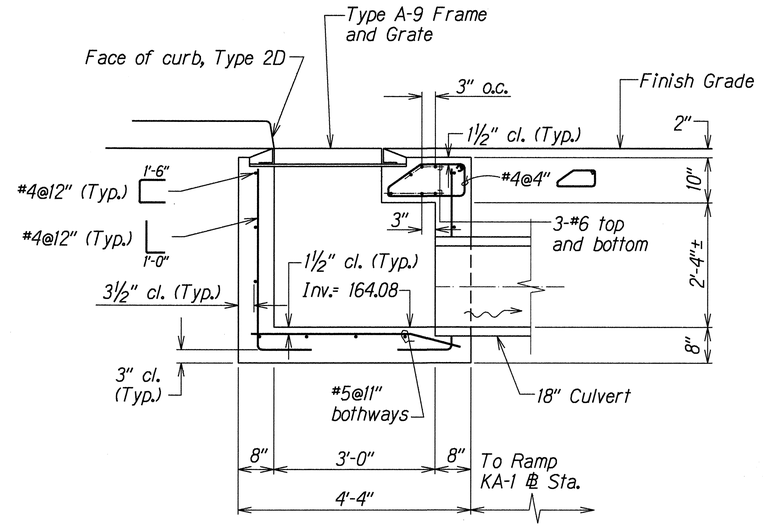
PLAN VIEW OF TOP SLAB REINFORCING



DETAIL OF CULVERT TRENCH AND REINFORCED CONCRETE JACKET



SECTION A H29 H29



SECTION B H29 H29

DETAILS OF TYPE "A-9" GDI AT RAMP KA-1 ℄ STA. 13+72± RT.

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY Curtis Matsuda/Russell Sato DATE
TRACED BY
DESIGNED BY Curtis Matsuda
QUANTITIES BY
CHECKED BY
NOTE BOOK
PATH

DATE	REVISION
10/3/00	revised detail, added reinf. conc. jacket

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

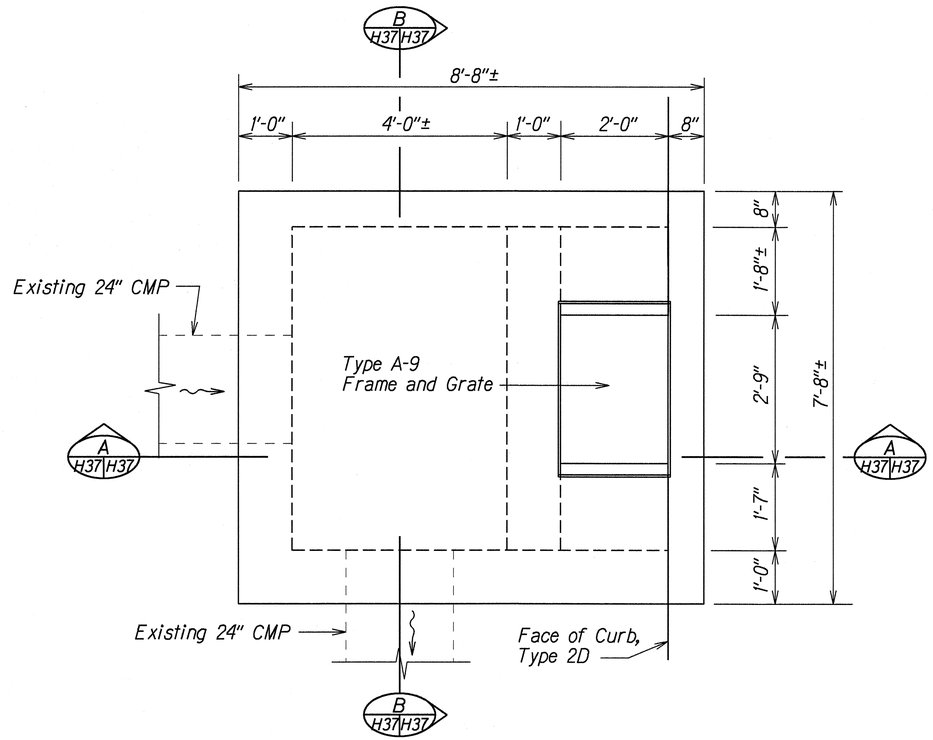
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

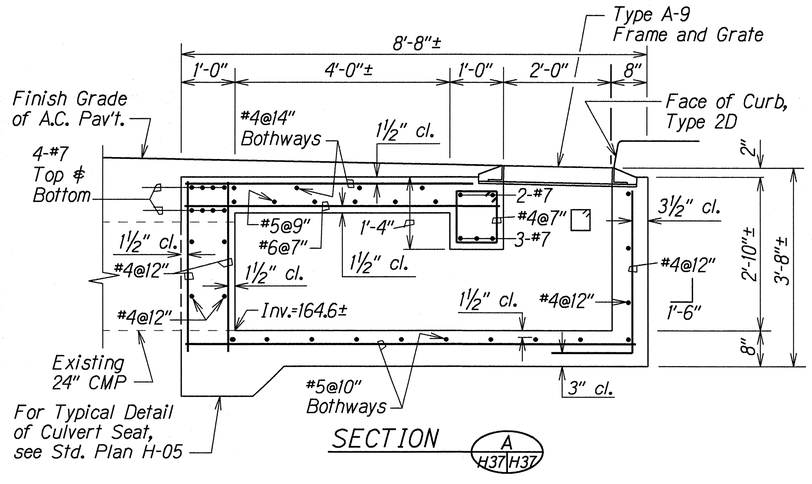
SHEET No. H36 OF 56 SHEETS

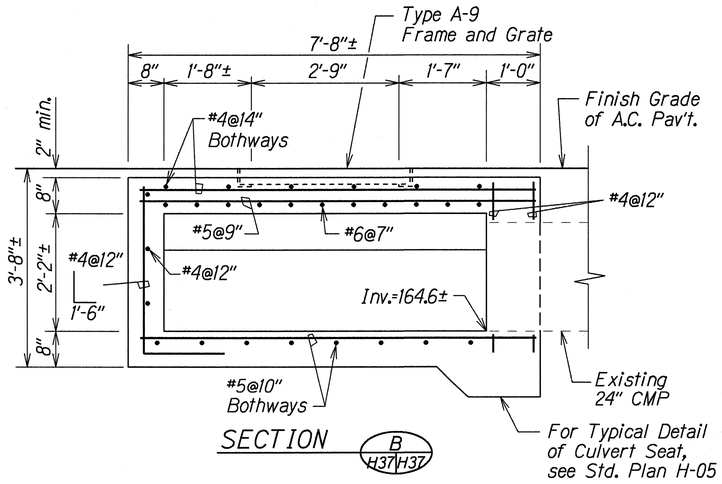
C.O. 175

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	176	378



PLAN





DETAILS OF MODIFIED TYPE "A-9" GDI

ORIGINAL PLAN

NOTE BOOK dh3curb5.dh

SURVEY PLOTTED BY DATE 9/26/96
DRAWN BY A. Nomura
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

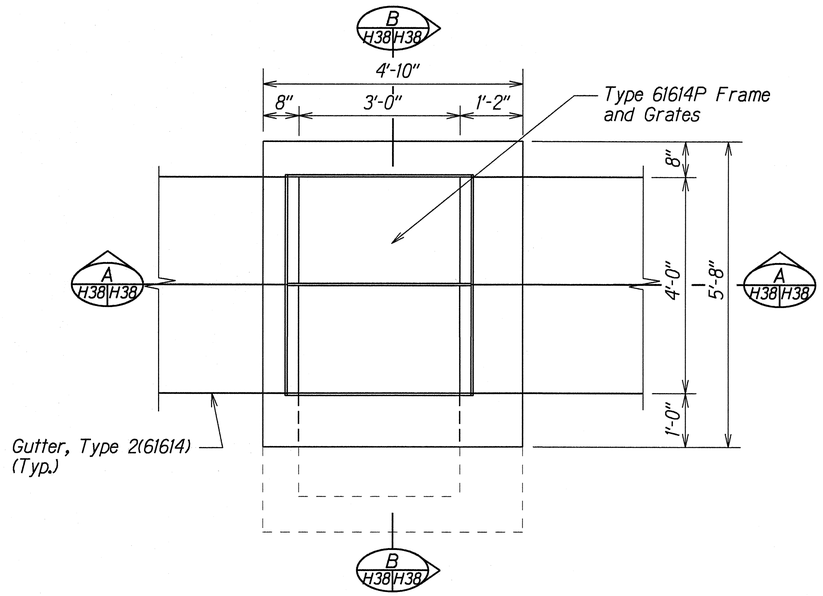
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

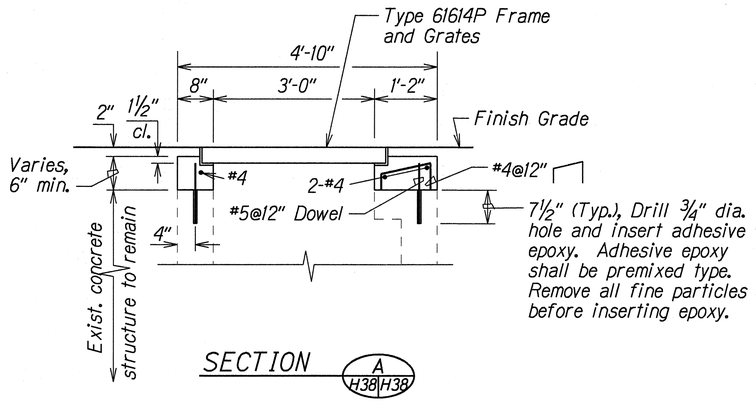
Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H37 OF 56 SHEETS

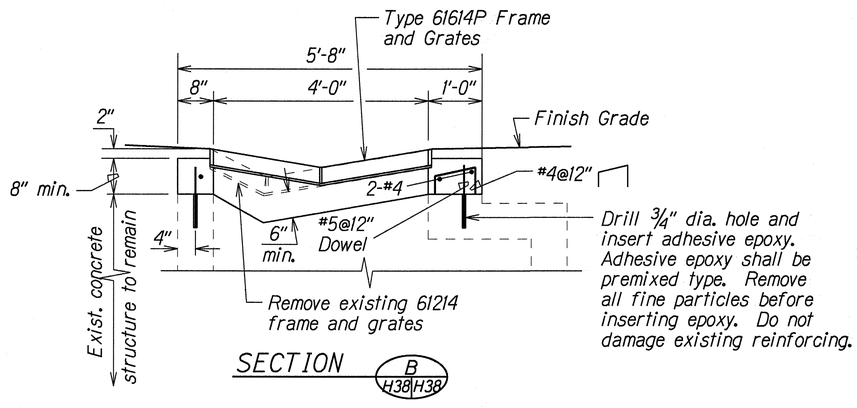
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	177	378



PLAN



SECTION A H38 H38



SECTION B H38 H38

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/17/96
	DRAWN BY A. Nomura	
NOTE BOOK dh3,arl18,dh	TRACED BY	
dh2,arl19,dh	DESIGNED BY S. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

TYPICAL DETAILS OF MODIFIED TYPE "1" 61614P GRATED DROP INLET

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

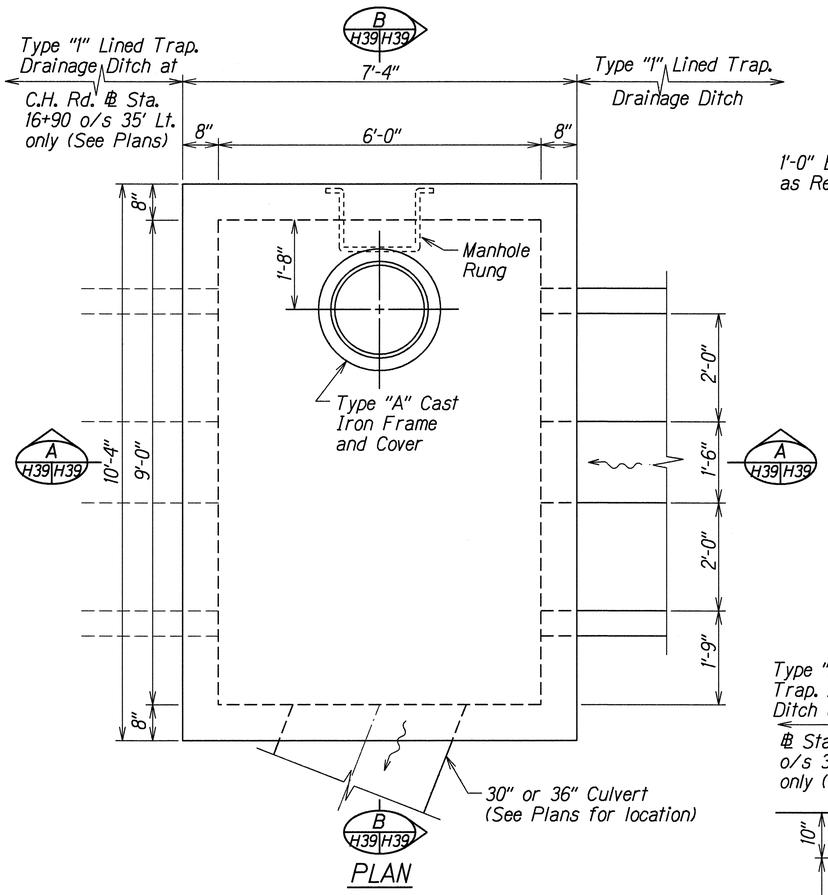
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

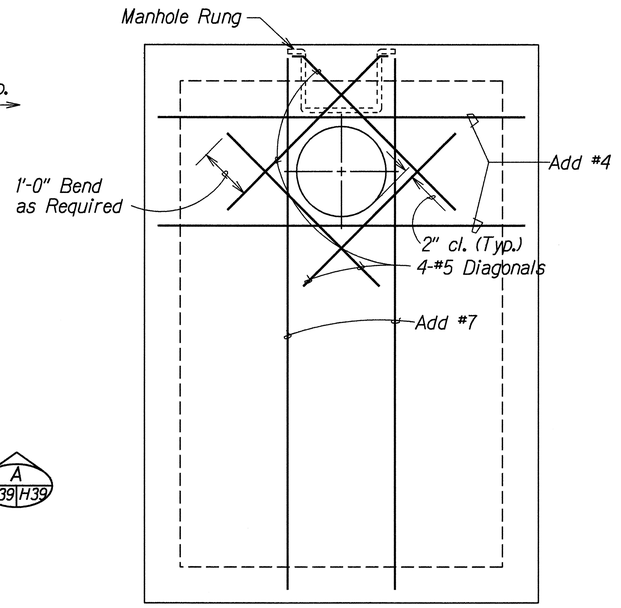
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SHEET No. H38 OF 56 SHEETS

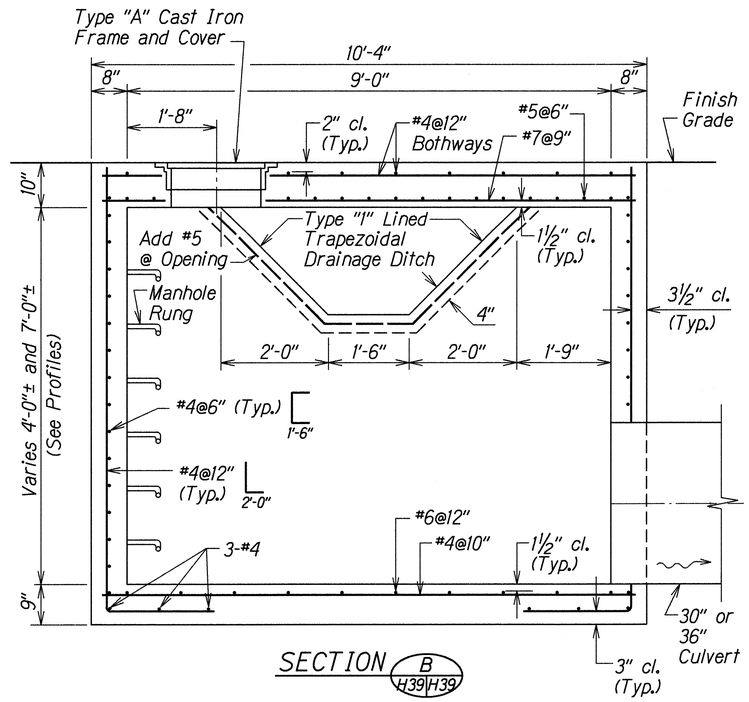
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	178	378



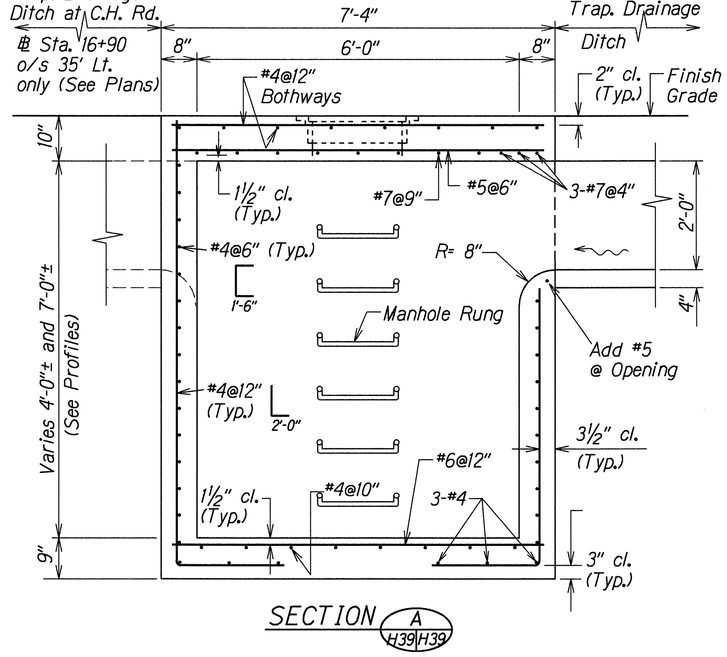
PLAN



ADDED REINFORCING STEEL AT TOP SLAB



SECTION B H39|H39



SECTION A H39|H39

Note: Debris Racks shall be constructed where the Type "I" Lined Trapezoidal Ditches connect to the Inlet Structure. Typical Details of the Debris Racks are shown on Sheet No. H55. Construction and the installation of the Debris Racks shall not be paid for separately, but shall be considered incidental to Type "1a" Inlet Structure.

LOCATION	INVERT (STRUCTURE)	INVERT (DITCH)
Ramp EW ℄ Sta. 3+49 o/s 40' Lt.	187.00	192.00
C.H. Rd. ℄ Sta. 16+90 o/s 35' Lt.	235.00	237.00

DATE	REVISION
7/20/98	Revised depth of Type "1a" Inlet Structure; added table

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H39 OF 56 SHEETS

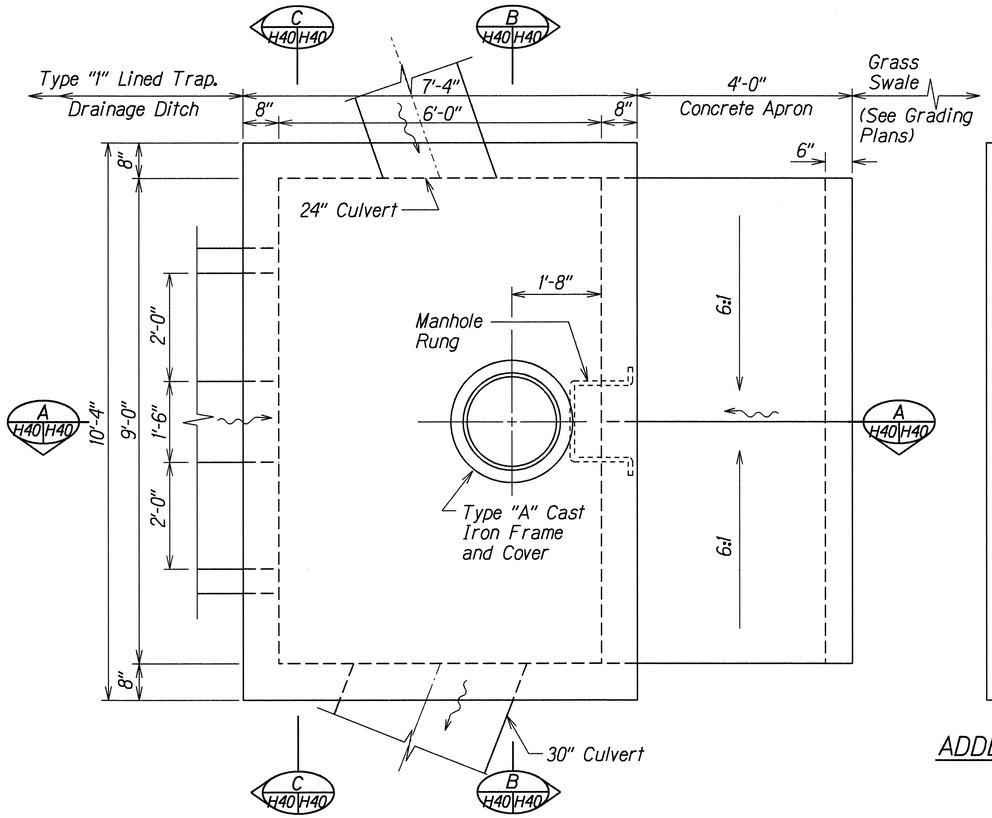
ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY Curtis Watada/Russell Sato DATE X
TRACED BY
DESIGNED BY Curtis Watada
QUANTITIES BY
CHECKED BY

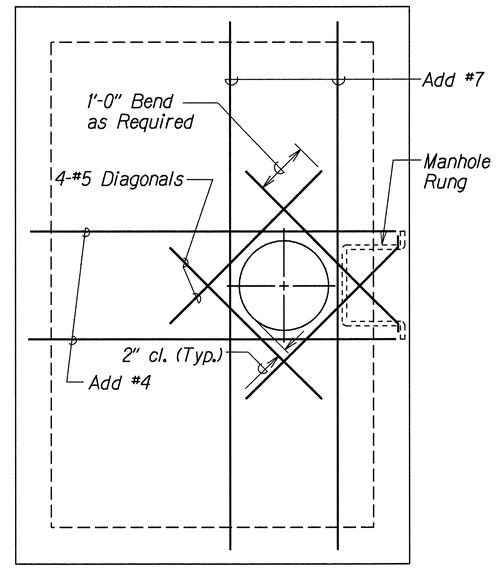
NOTE BOOK dm32/smith dm-hi/smith

C.O. 178

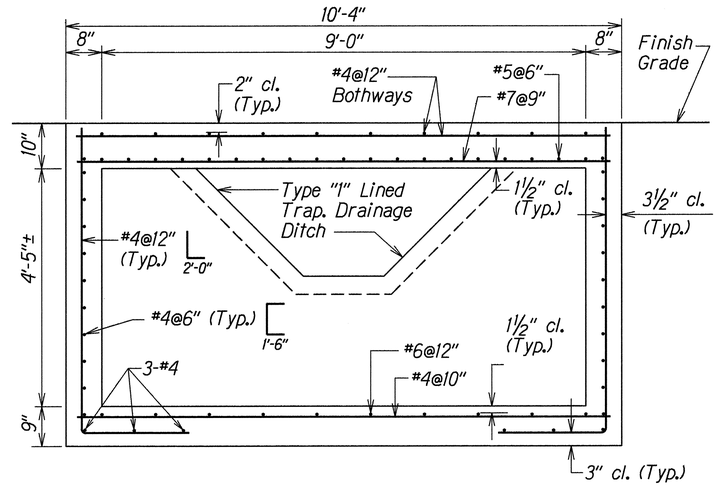
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	179	378



PLAN

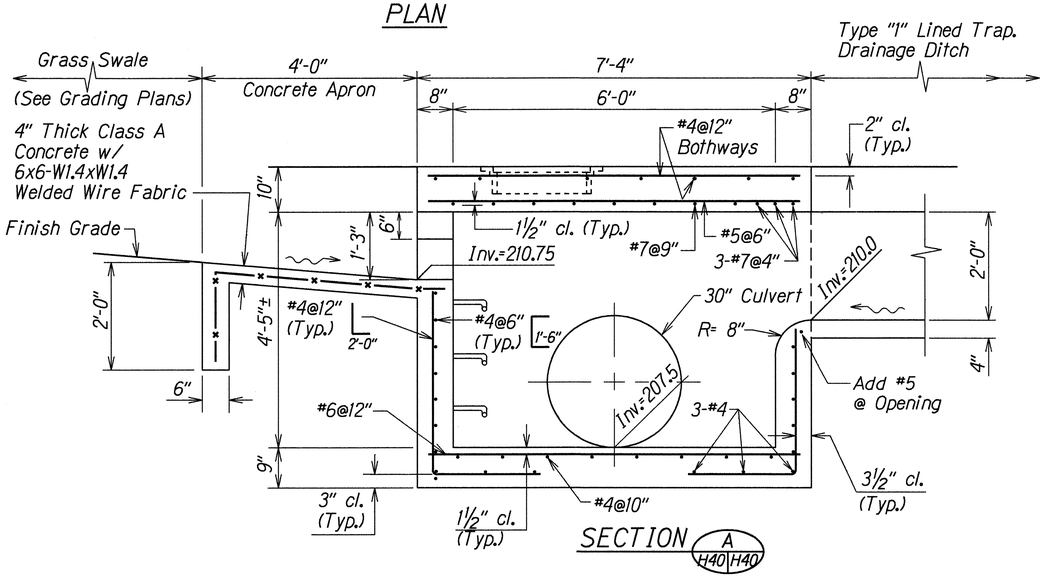


ADDED REINFORCING STEEL AT TOP SLAB

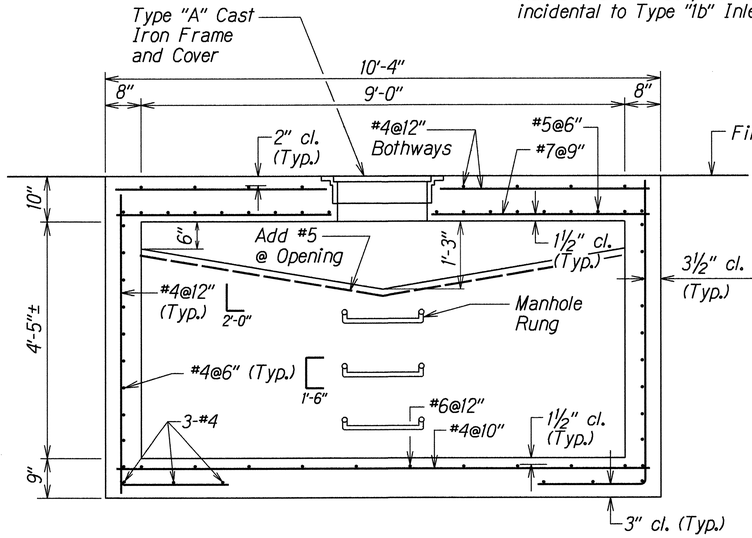


SECTION C H40 H40

Note: Debris Racks shall be constructed where the Type "I" Lined Trapezoidal Ditch and Concrete Apron connect to the Inlet Structure. Typical Details of the Debris Racks are shown on Sheet No. H55. Construction and the installation of the Debris Racks shall not be paid for separately, but shall be considered incidental to Type "Ib" Inlet Structure.



SECTION A H40 H40



SECTION B H40 H40

DETAILS OF TYPE "1b" INLET STRUCTURE

DATE	REVISION
7/20/98	Revised depth of Type "Ib" Inlet Structure

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

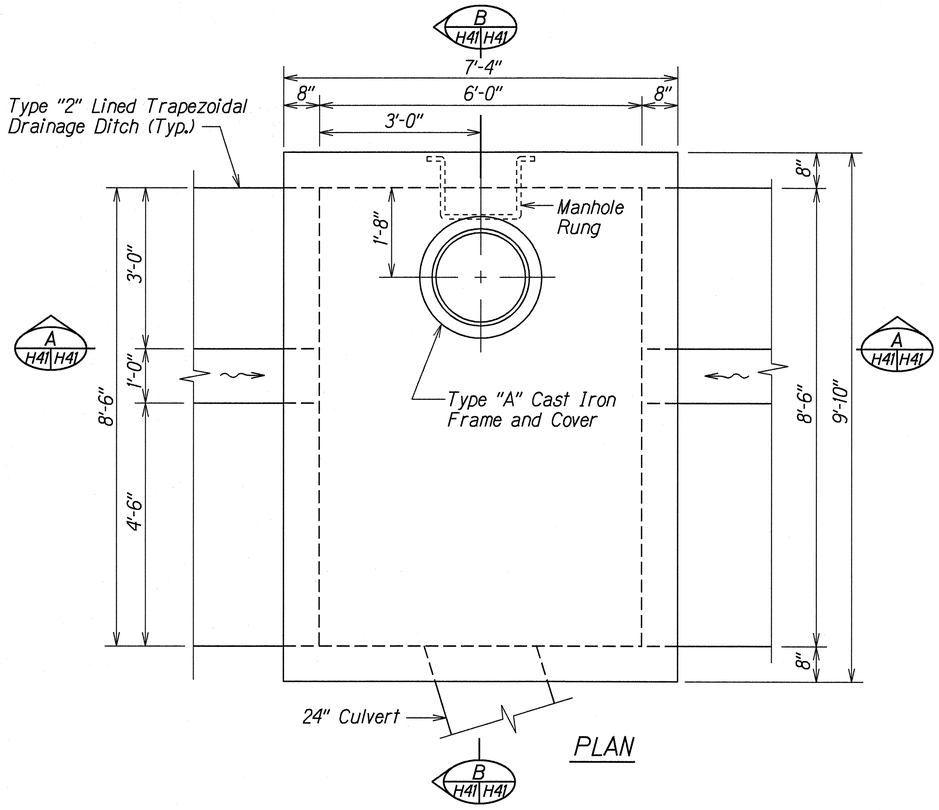
SHEET No. H40 OF 56 SHEETS

SURVEY PLOTTED BY
DRAWN BY Curtis Watada/Russell Sato
TRACED BY
DESIGNED BY Curtis Watada
QUANTITIES BY
CHECKED BY
DATE

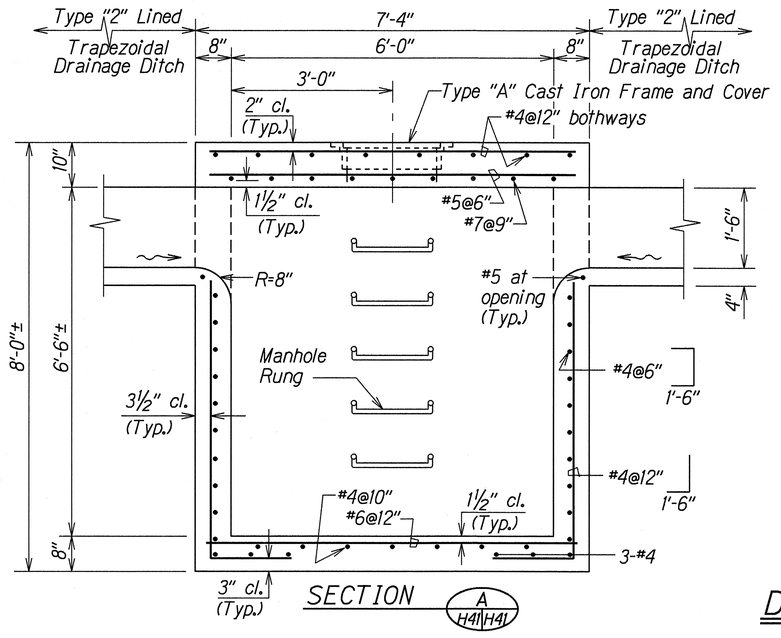
ORIGINAL PLAN
NOTE BOOK dn:\Curt\sdfm dn:\Curt\sdfm

C.O. 179

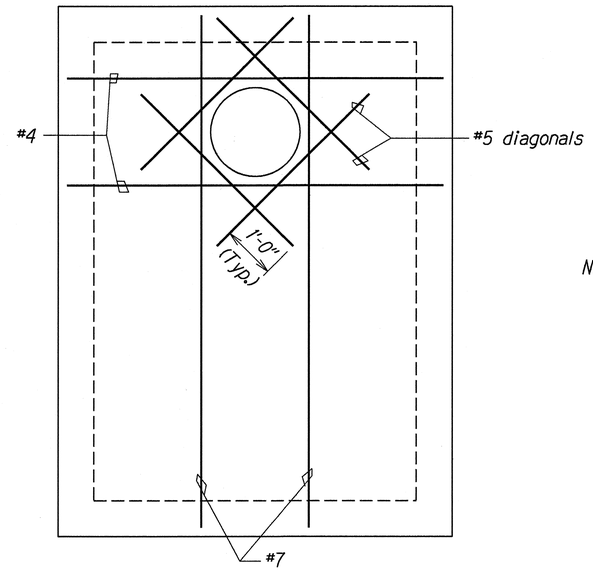
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	180	378



PLAN

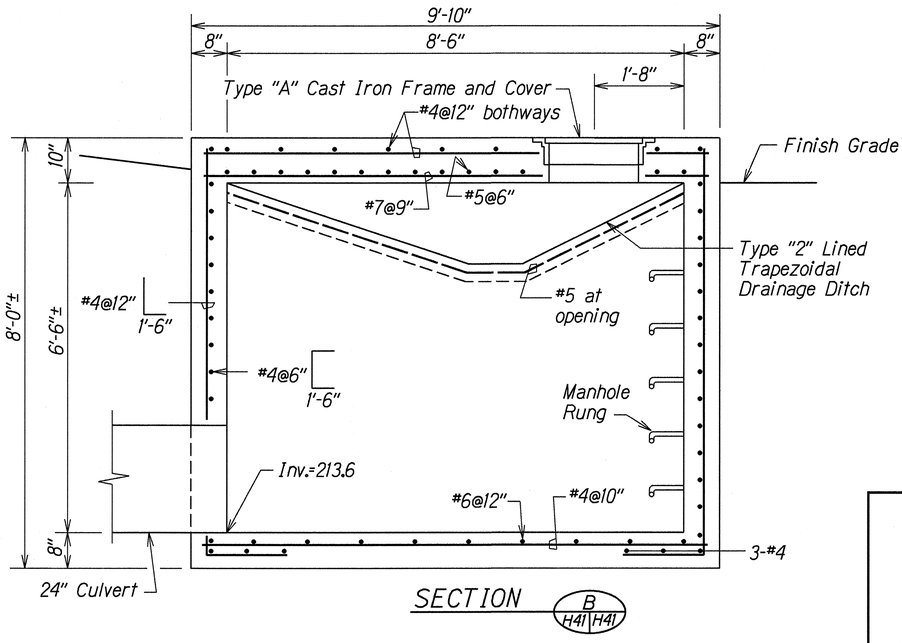


SECTION A H41 H41



ADDED REINFORCING STEEL AT TOP SLAB

Note: Debris Racks shall be constructed where the Type "2" Lined Trapezoidal Drainage Ditches connect to the Inlet Structure. Typical Details of the Debris Racks are shown on Sheet No. H55. Construction and the installation of the Debris Racks shall not be paid for separately, but shall be considered incidental to Type "2" Inlet Structure.



SECTION B H41 H41

DETAILS OF TYPE "2" INLET STRUCTURE

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY A. Nimura DATE 9/10/96
TRACED BY
NOTE BOOK
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

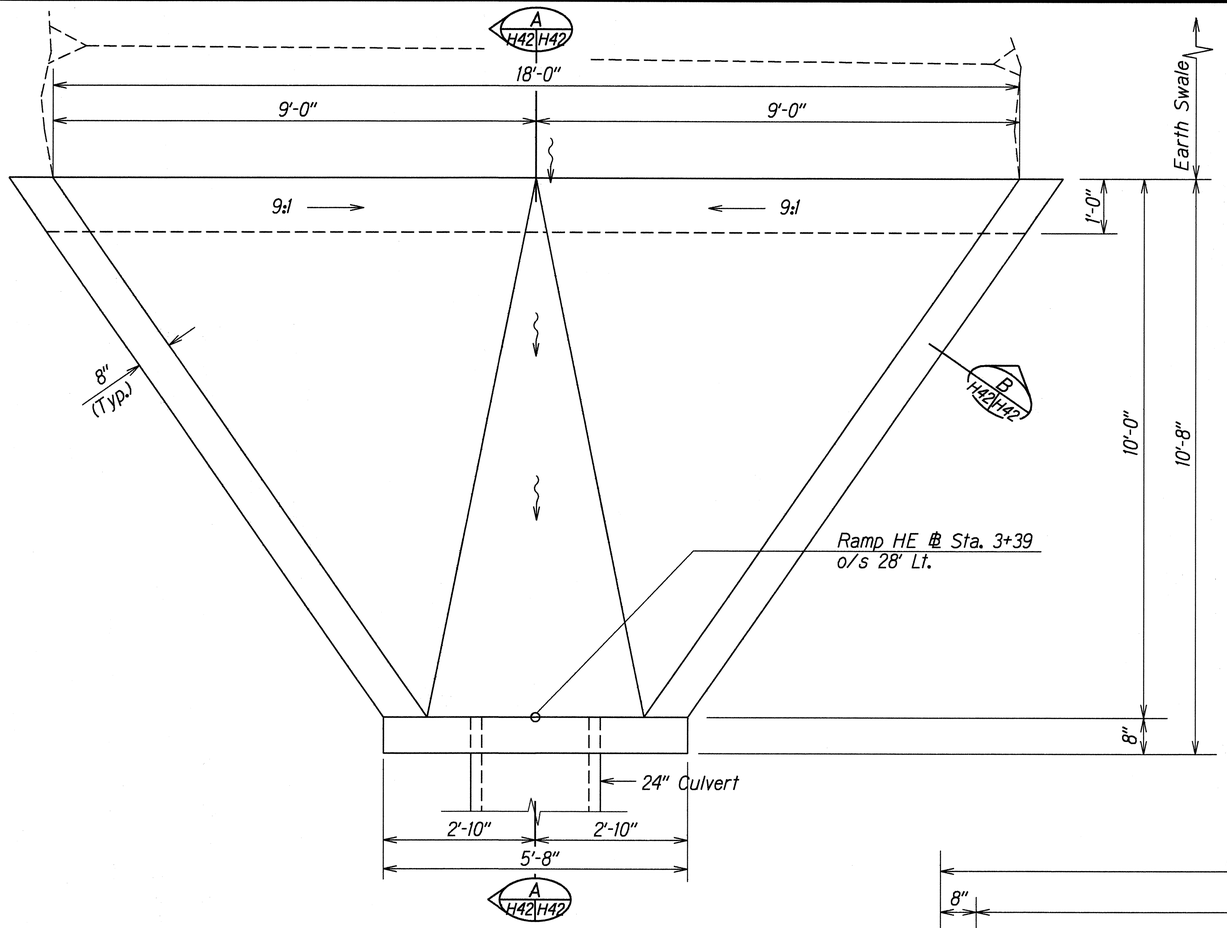
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

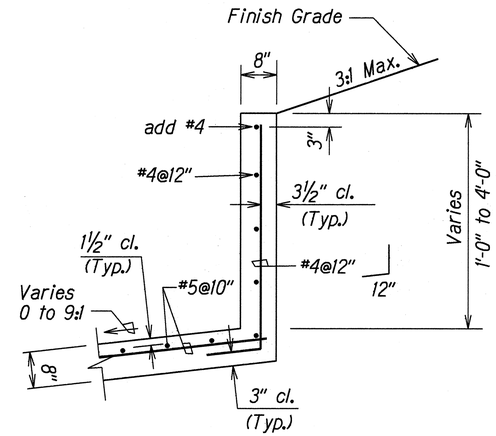
Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H41 OF 56 SHEETS

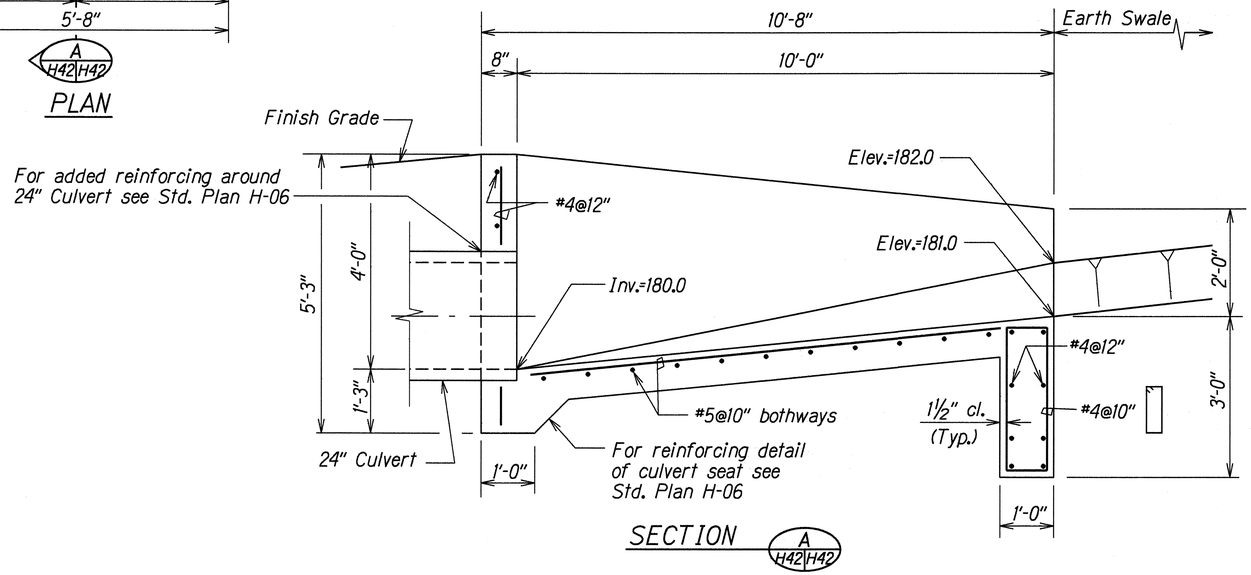
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	181	378



PLAN



SECTION B H42 H42



SECTION A H42 H42

DETAILS OF TYPE "3" INLET STRUCTURE

ORIGINAL PLAN		
NOTE BOOK dh3\curlisdtn Nam_Shalon	SURVEY PLOTTED BY	DATE 9/27/96
	DRAWN BY A. Nomura	
	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Revised detail of inlet structure

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

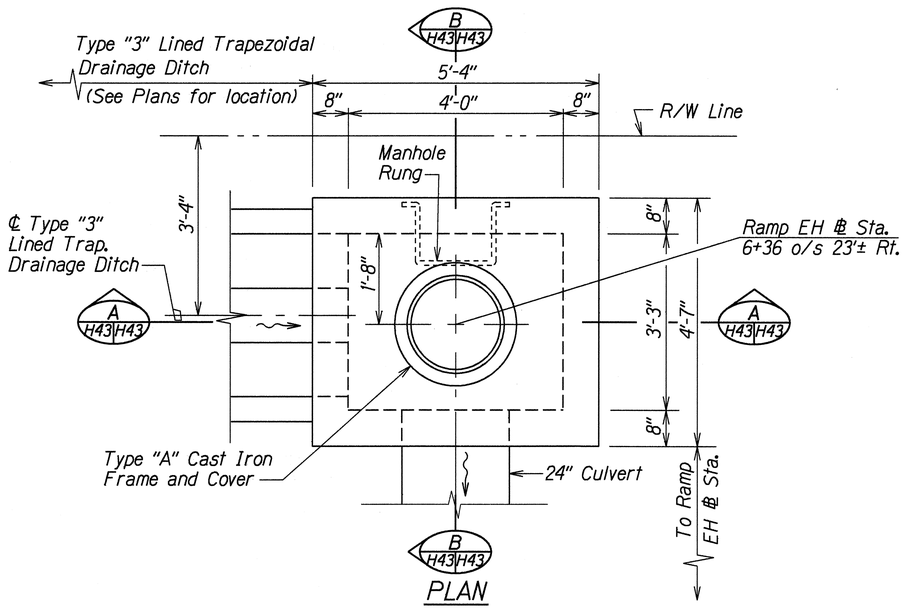
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: ¾"=1'-0" Date: Oct. 1997

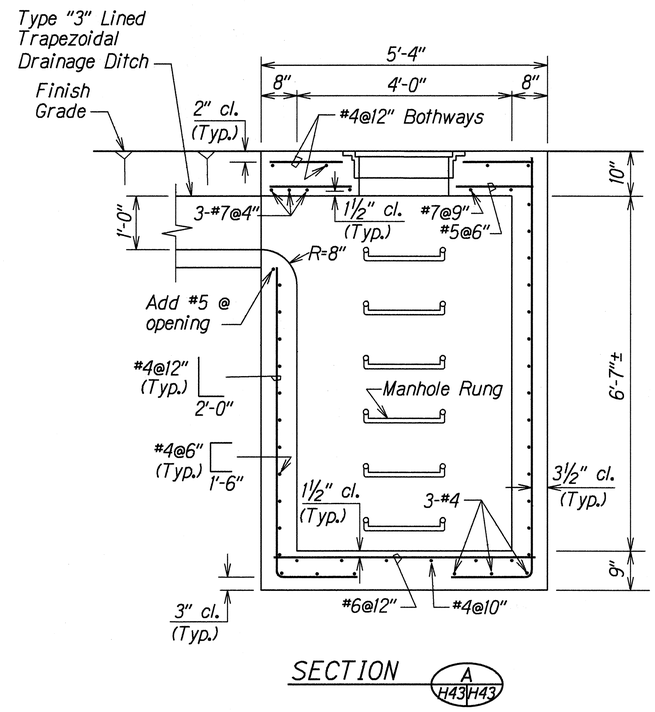
SHEET No. H42 OF 56 SHEETS

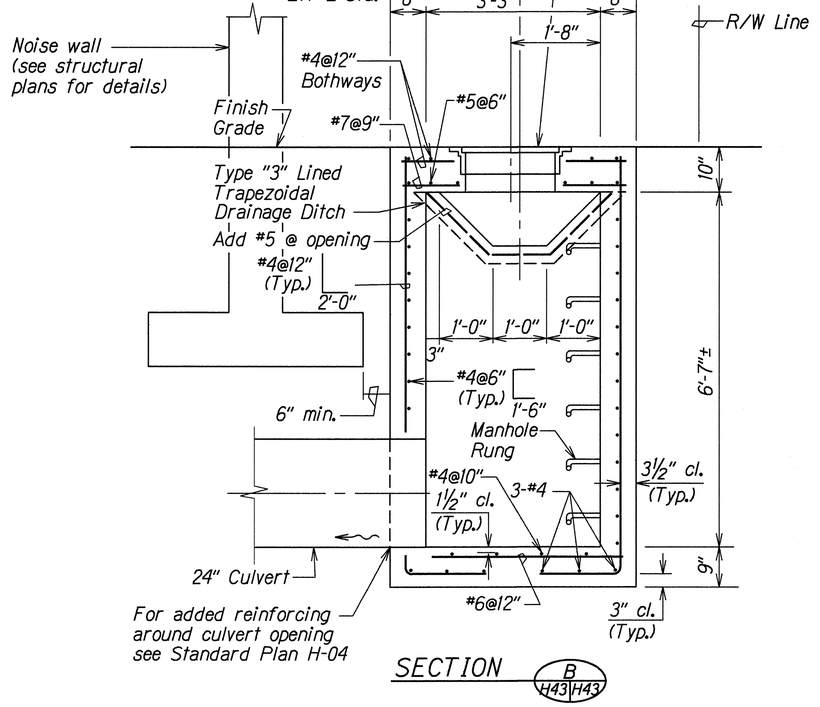
C.O. 181

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	182	378



Note: A Debris Rack shall be constructed where the Type "3" Lined Trapezoidal Drainage Ditch connects to the Inlet Structure. Typical Details of the Debris Rack are shown on Sheet No. H55. Construction and the installation of the Debris Rack shall not be paid for separately, but shall be considered incidental to Type "4" Inlet Structure.





DATE	REVISION
6/16/99	Revised structure to avoid noisewall

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
Fed. Aid Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

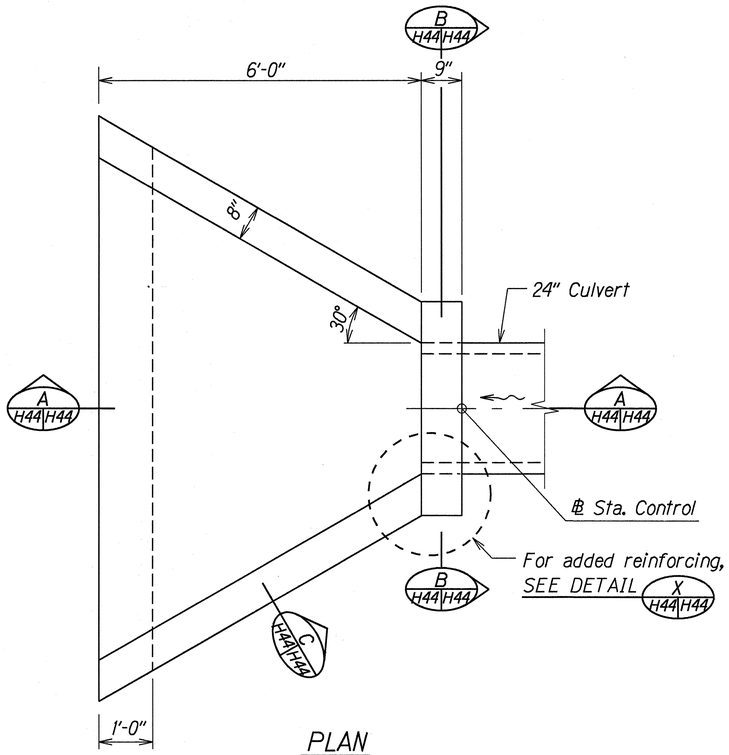
SHEET No. H43 OF 56 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 2/18/97
TRACED BY
DESIGNED BY C. Melisida
QUANTITIES BY
CHECKED BY
NOTE BOOK dn3\curtis\dfn\ref\m_hhsdgn

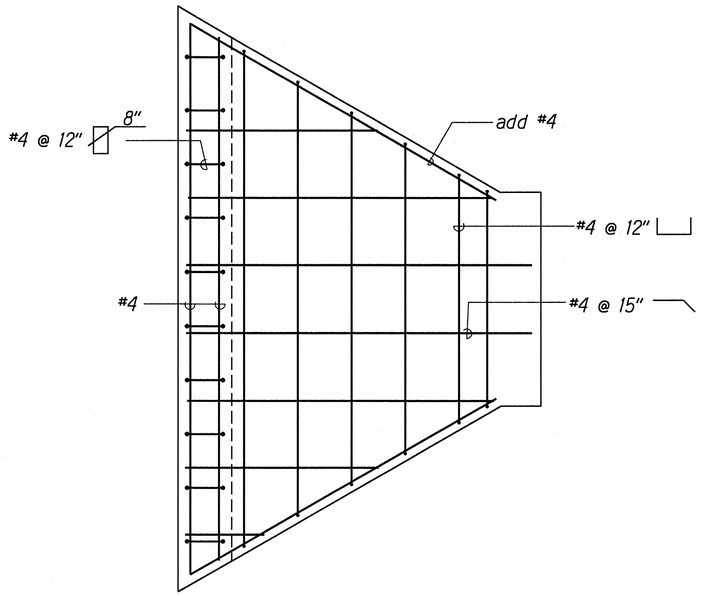
DETAILS OF TYPE "4" INLET STRUCTURE AT RAMP EH ℄ STA. 6+36 o/s 23'± RT.

C.O. 182

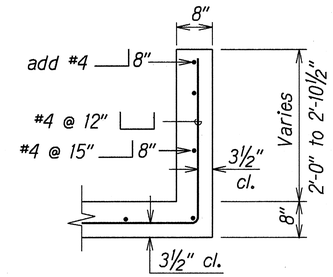
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	183	378



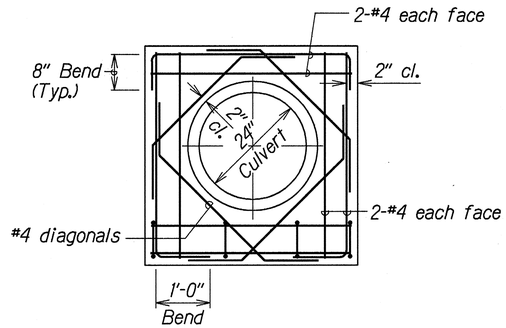
PLAN



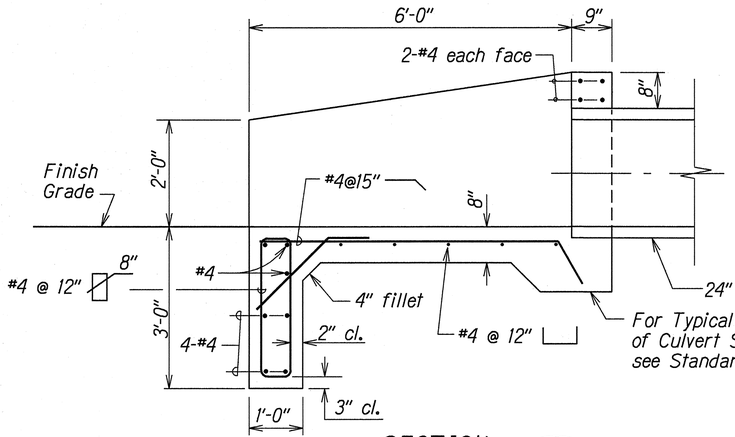
PLAN VIEW OF REINFORCING STEEL AT BOTTOM SLAB



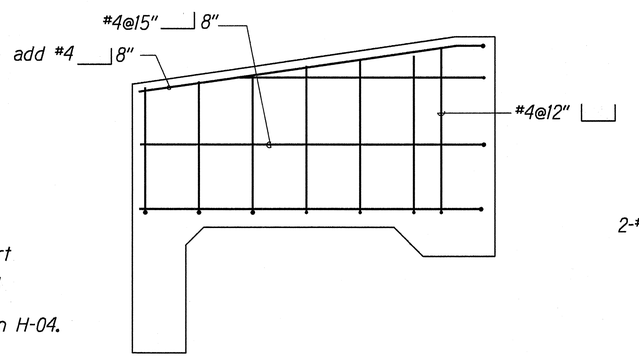
SECTION C H44 H44



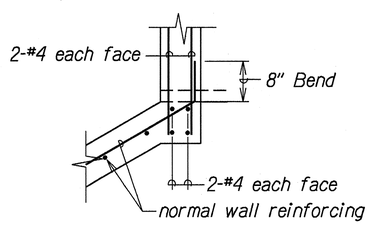
SECTION B H44 H44



SECTION A H44 H44



PLAN VIEW OF REINFORCING STEEL THROUGH WALL SECTION



DETAIL X H44 H44

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY J. Nomura DATE 7/27/96
TRACED BY
NOTE BOOK
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

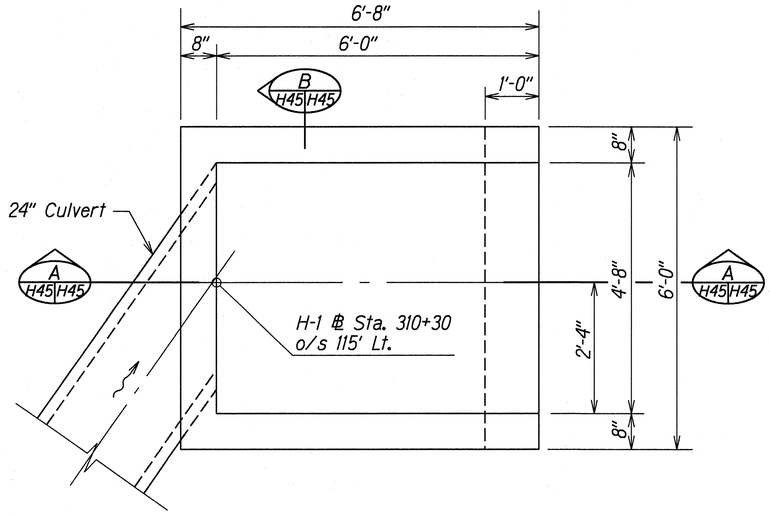
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

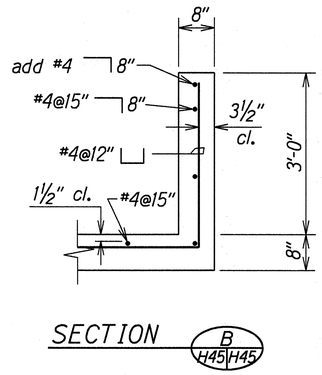
SHEET No. H44 OF 56 SHEETS

TYPICAL DETAILS OF TYPE "1" OUTLET STRUCTURE

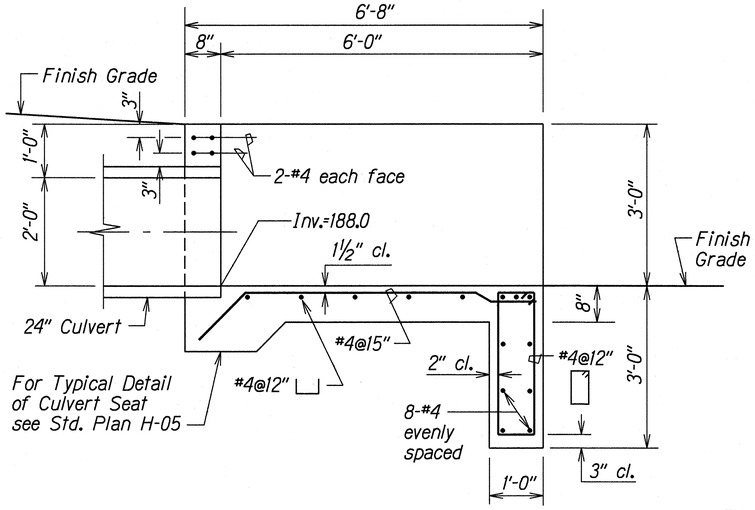
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	184	378



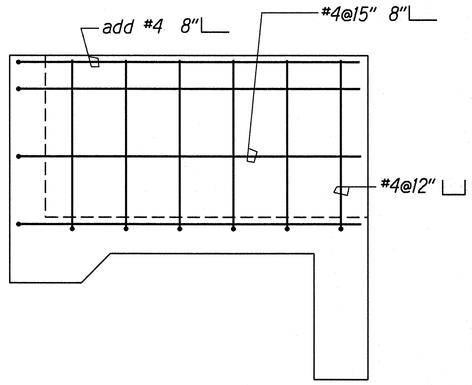
PLAN



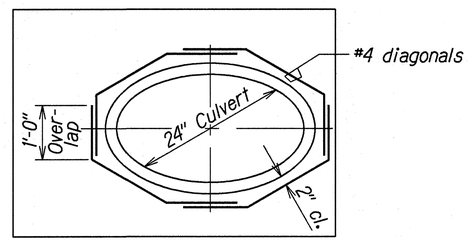
SECTION B H45 H45



SECTION A H45 H45



ELEVATION VIEW OF REINFORCING STEEL
THROUGH WALL SECTION



ADDED REINFORCING STEEL
AT CULVERT OPENING

DETAILS OF TYPE "2" OUTLET STRUCTURE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 9/26/96
	DRAWN BY A. Nomura	
NOTE BOOK	TRACED BY	
dh 3 part 5 dh	DESIGNED BY C. Matsuda	
m 2 pt 1 dgn	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

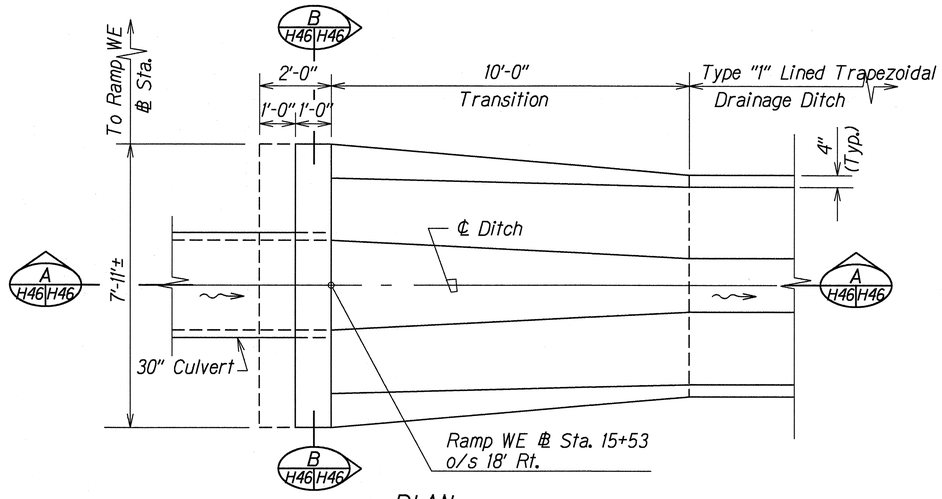
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

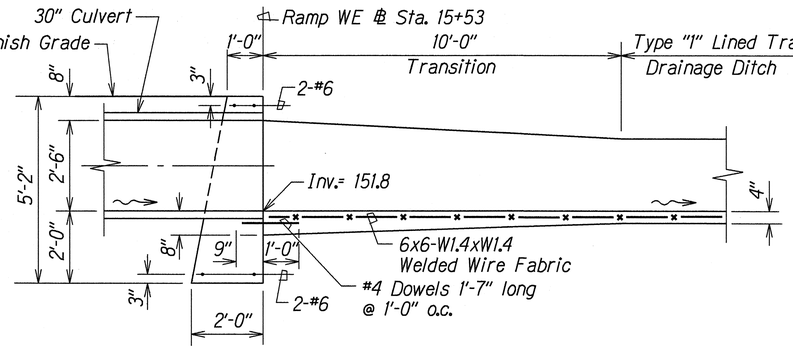
Scale: ¾"=1'-0" Date: Oct. 1997

SHEET No. H45 OF 56 SHEETS

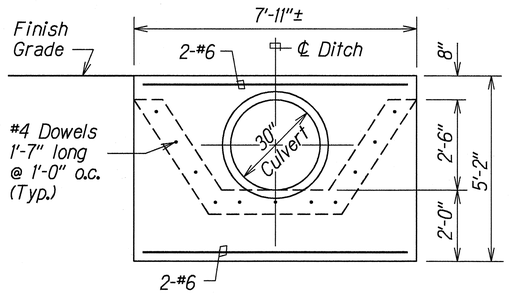
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(219)	1998	185	378



PLAN



SECTION A H46 H46



SECTION B H46 H46

DETAILS OF TYPE "3" CONCRETE OUTLET STRUCTURE

Scale: ½"=1'-0"

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE 12/26/96
	DRAWN BY A. Nomura	
	TRACED BY	
	DESIGNED BY C. Matsuda	
NOTE BOOK dn 3curt&dn K/unia03.dgn	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

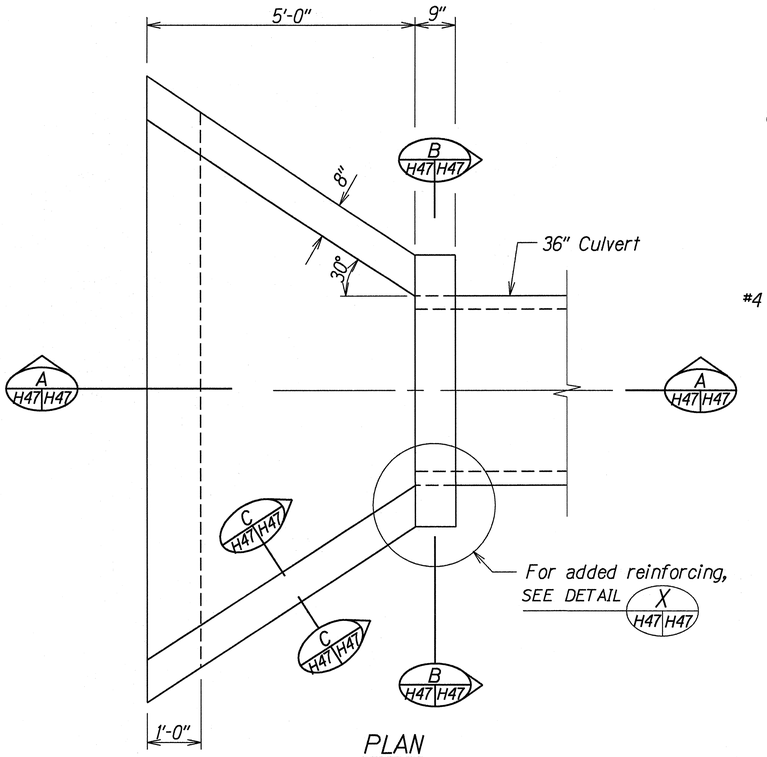
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-H1-1(219)

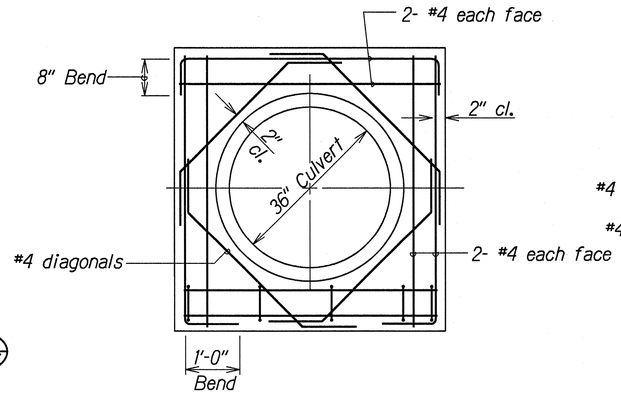
Scale: ½"=1'-0" Date: Oct. 1997

SHEET No. H46 OF 56 SHEETS

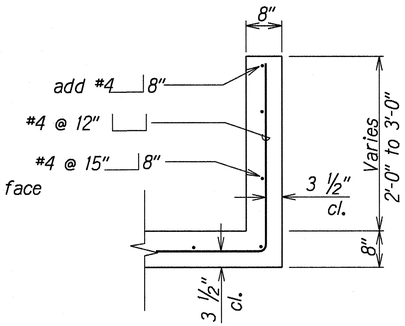
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	186	378



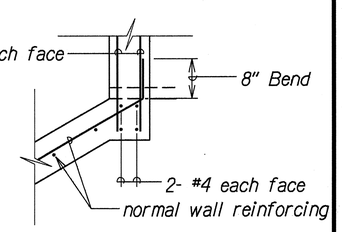
PLAN



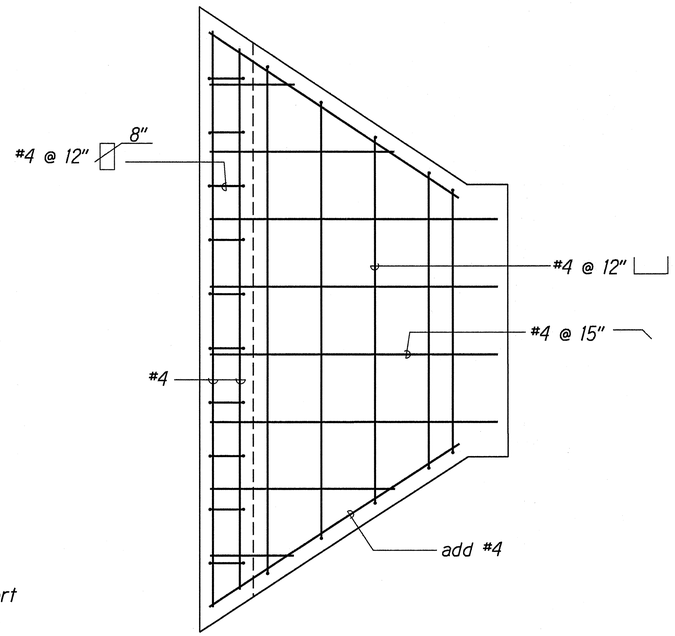
SECTION B H47 H47



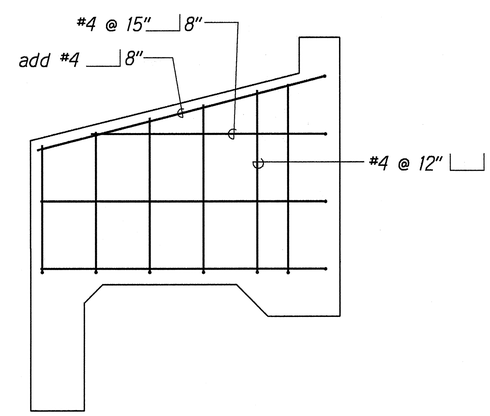
SECTION C H47 H47



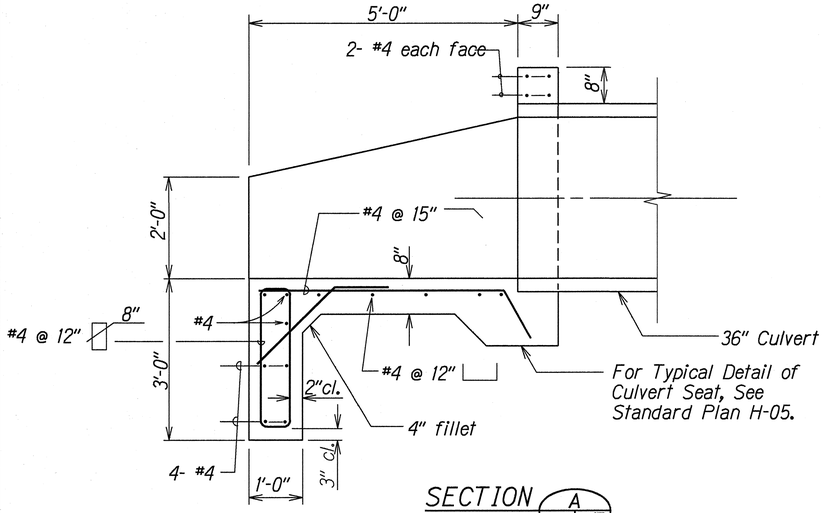
DETAIL X H47 H47



PLAN VIEW OF REINFORCING STEEL AT BOTTOM SLAB



PLAN VIEW OF REINFORCING STEEL THROUGH WALL SECTION



SECTION A H47 H47

DETAILS OF TYPE "4" OUTLET STRUCTURE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE X
	DRAWN BY Lenora Cockett	
	TRACED BY	
NOTE BOOK dn3,urhs,dn	DESIGNED BY Curtis Nakaida	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

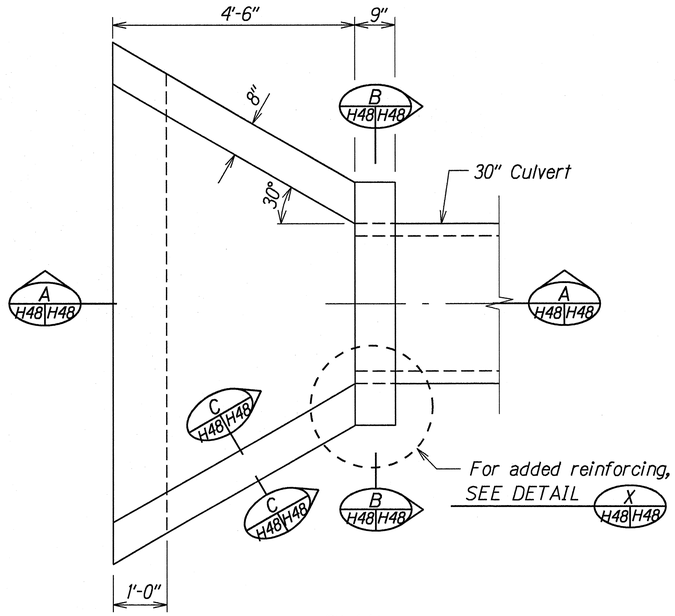
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

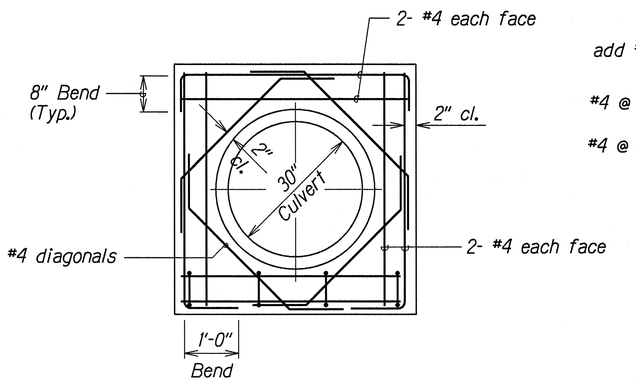
Scale: ¾" = 1'-0" Date: Oct. 1997

SHEET No. H47 OF 56 SHEETS

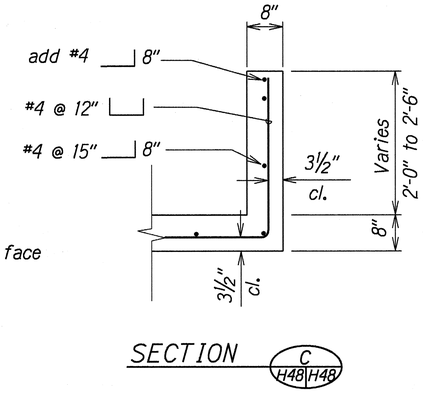
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	187	378



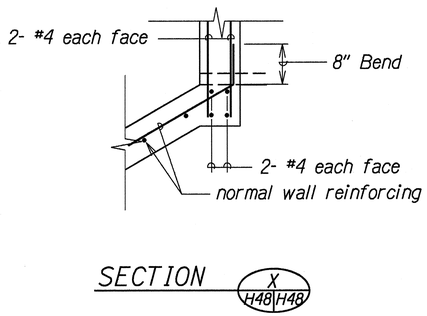
PLAN



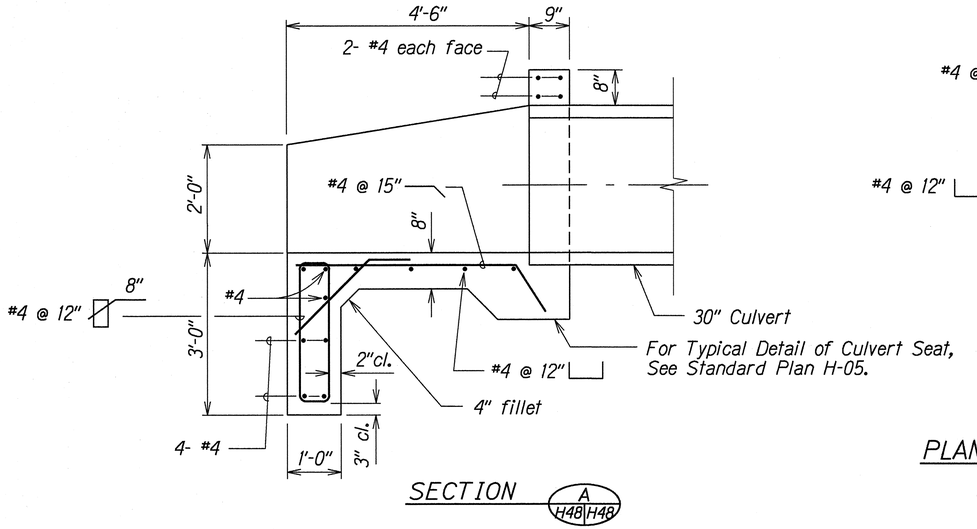
SECTION B H48|H48



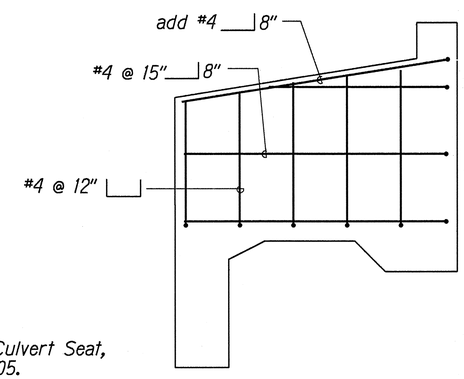
SECTION C H48|H48



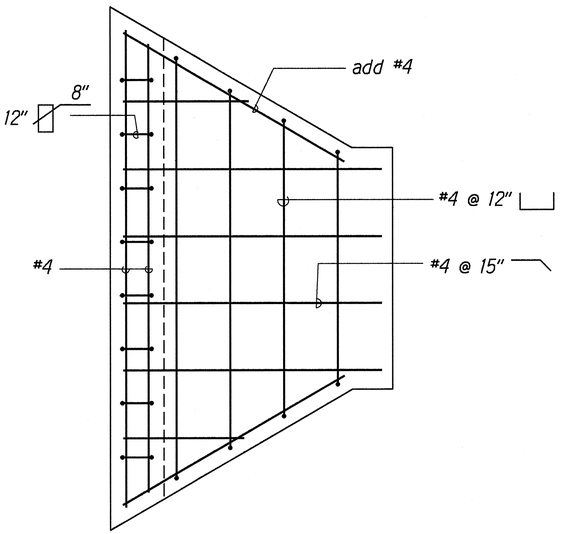
SECTION X H48|H48



SECTION A H48|H48



PLAN VIEW OF REINFORCING STEEL THROUGH WALL SECTION



PLAN VIEW OF REINFORCING STEEL AT BOTTOM SLAB

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 4/22/97
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK	DESIGNED BY G. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

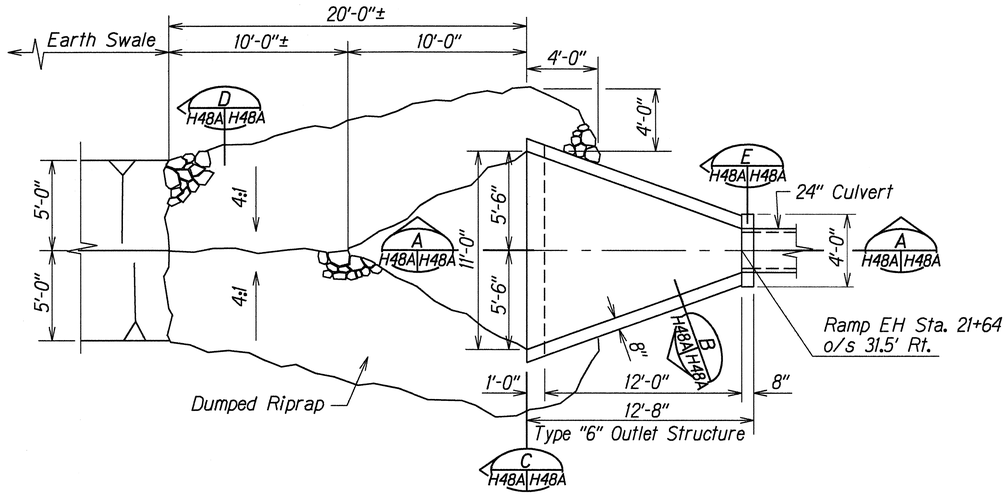
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
Fed. Aid Project No. IM-HI-1(219)

Not to Scale Date: Oct. 1997

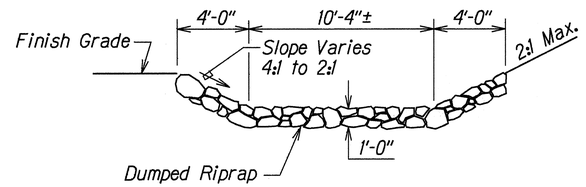
SHEET No. H48 OF 56 SHEETS

DETAILS OF TYPE "5" OUTLET STRUCTURE

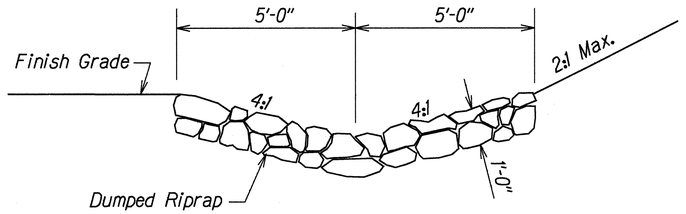
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1999	C0187S-1	378



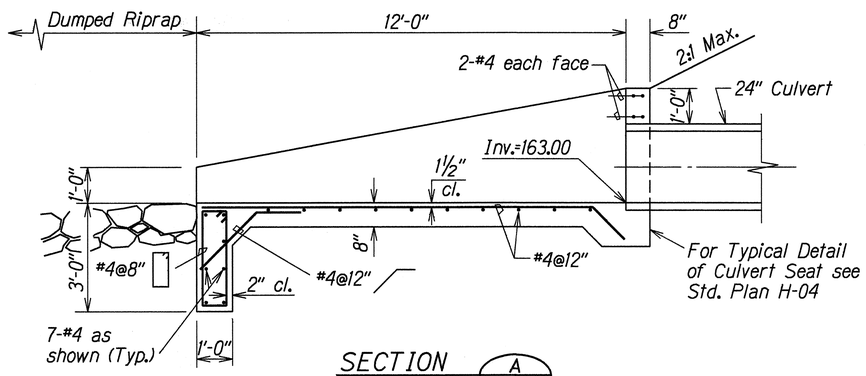
PLAN
Scale: 1/4"=1'-0"



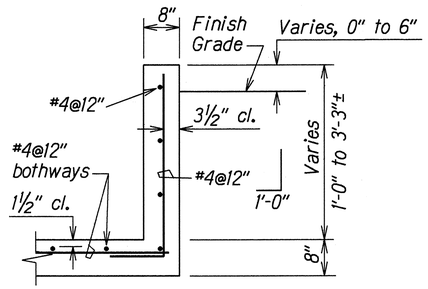
SECTION C H48A H48A
Scale: 1/4"=1'-0"



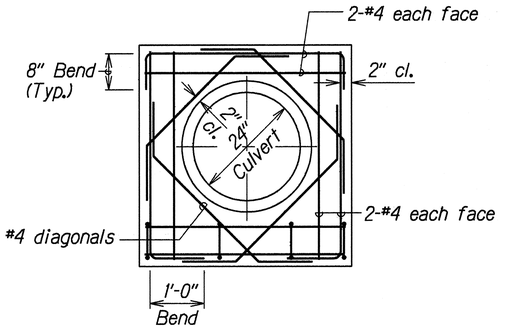
SECTION D H48A H48A
Scale: 1/2"=1'-0"



SECTION A H48A H48A
Scale: 1/2"=1'-0"



SECTION B H48A H48A
Scale: 3/4"=1'-0"



SECTION E H48A H48A
Scale: 1/2"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 1/7/99
	DRAWN BY A. Nomura	
NOTE BOOK dn33curts.dih dn31hi06.dgn	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
6/16/99	Added Drainage Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

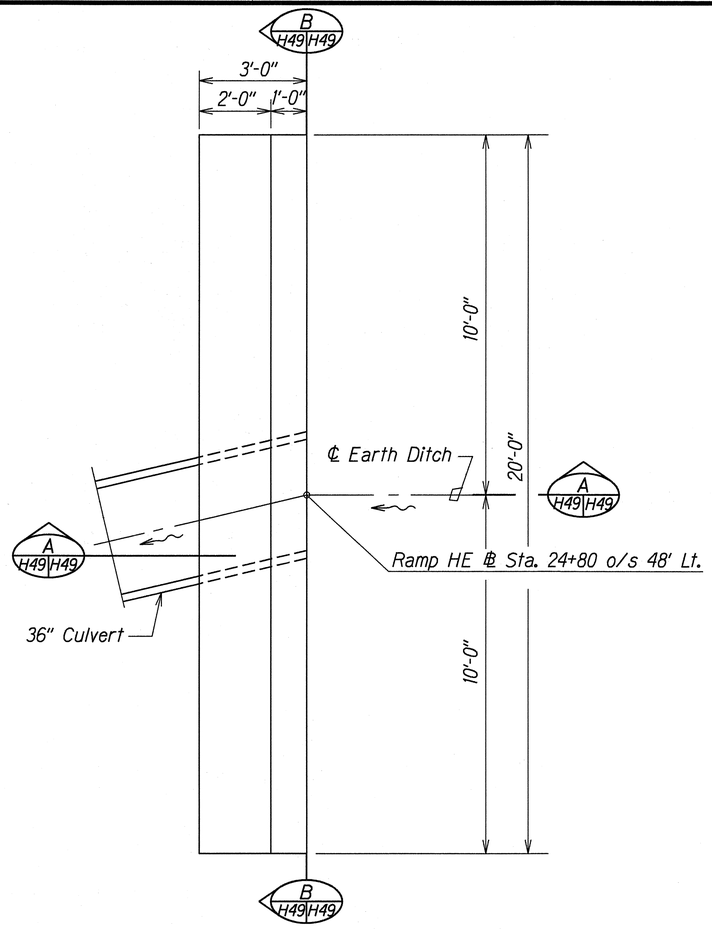
Scale: As Shown Date: Jan. 1999

SHEET No. H48A OF 56 SHEETS

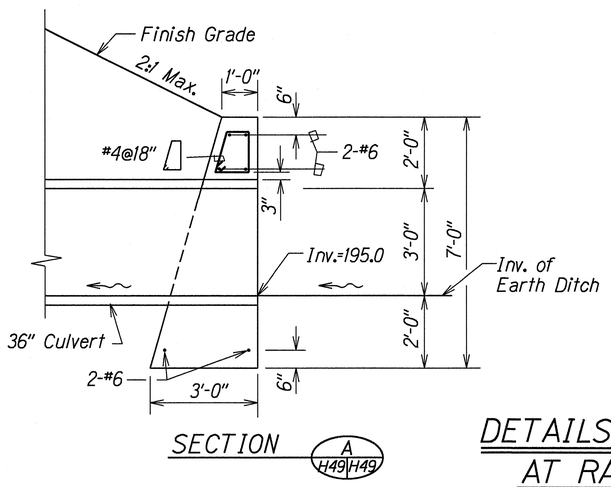
TYPE "6" OUTLET STRUCTURE AT RAMP EH ℄ STA. 21+64 O/S 31.5' RT.

C.O. 187 S-1

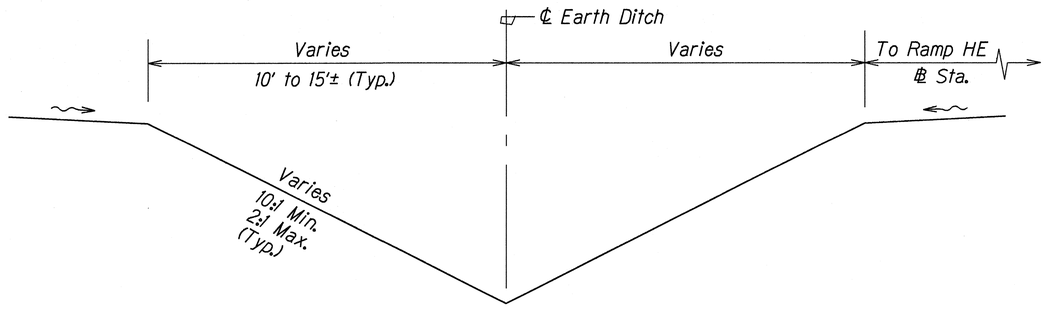
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	188	378



PLAN

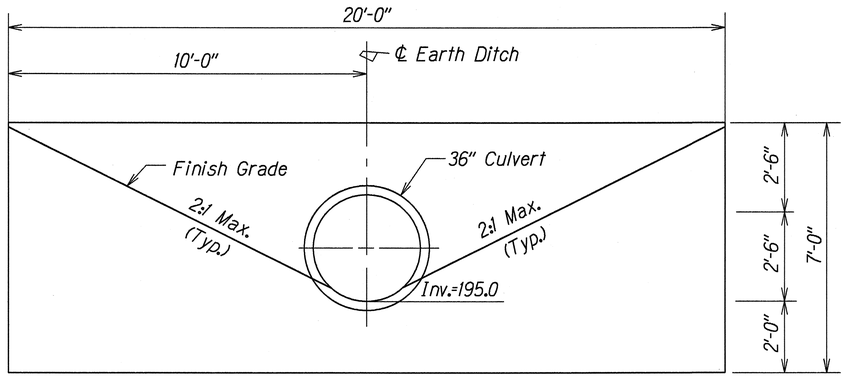


SECTION A H49 H49



TYPICAL SECTION OF EARTH DITCH

Scale: ½"=1'-0"



SECTION B H49 H49

DETAILS OF TYPE "1" CONCRETE HEADWALL AT RAMP HE ℄ STA. 24+80 o/s 48' LT.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 7/27/98
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK dh Courtesy dh/mb/sm	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

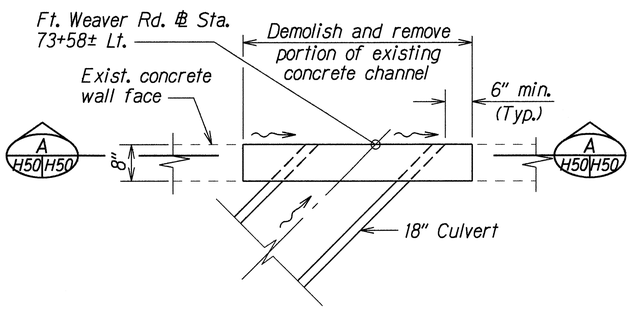
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

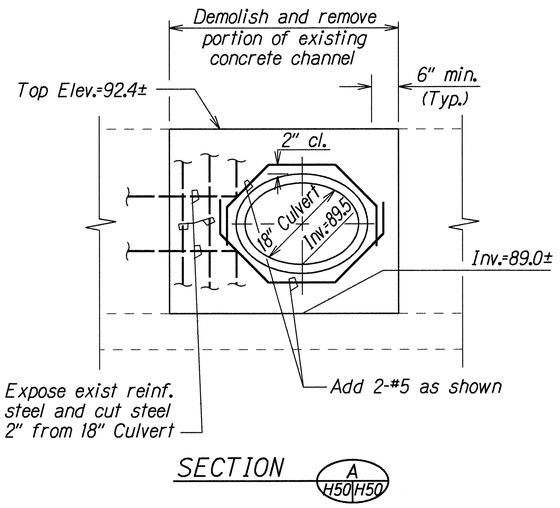
Scale: ½"=1'-0" Date: Oct. 1997

SHEET No. H49 OF 56 SHEETS

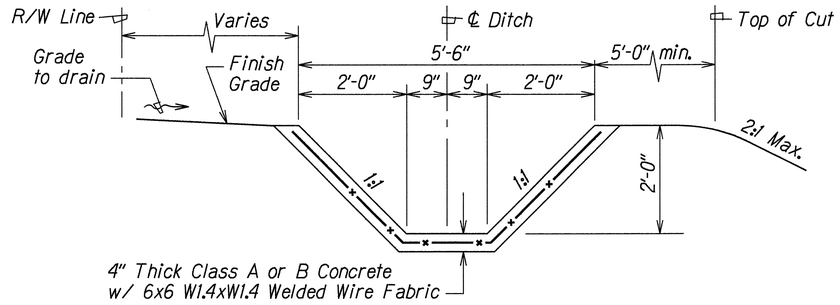
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	189	378



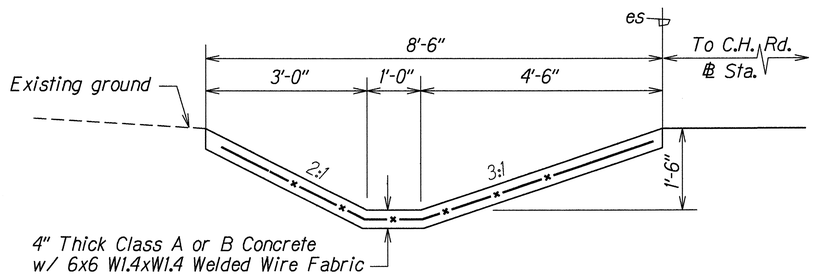
PLAN



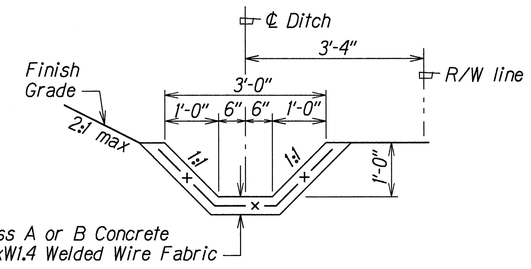
DETAILS OF 18" CULVERT CONNECTION TO EXISTING CONCRETE CHANNEL



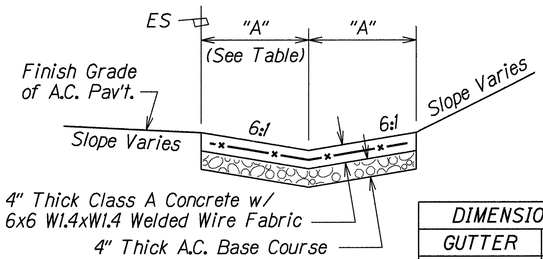
TYPICAL SECTION OF TYPE "1" LINED TRAPEZOIDAL DRAINAGE DITCH



TYPICAL SECTION OF TYPE "2" LINED TRAPEZOIDAL DRAINAGE DITCH



TYPICAL SECTION OF TYPE "3" LINED TRAPEZOIDAL DRAINAGE DITCH



DIMENSIONS	
GUTTER	"A"
Type 2(61614)	2'-0"
Type 2(61616)	3'-0"

TYPICAL DETAILS OF GUTTER, TYPE 2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 7/25/96
	DRAWN BY A. Nomura	
NOTE BOOK	TRACED BY	
d13curtis.dfn	DESIGNED BY C. Matsuda	
44mar05.dgn	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
7/17/98	Revised Detail of Type "1" Lined Trapezoidal Drainage Ditch

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

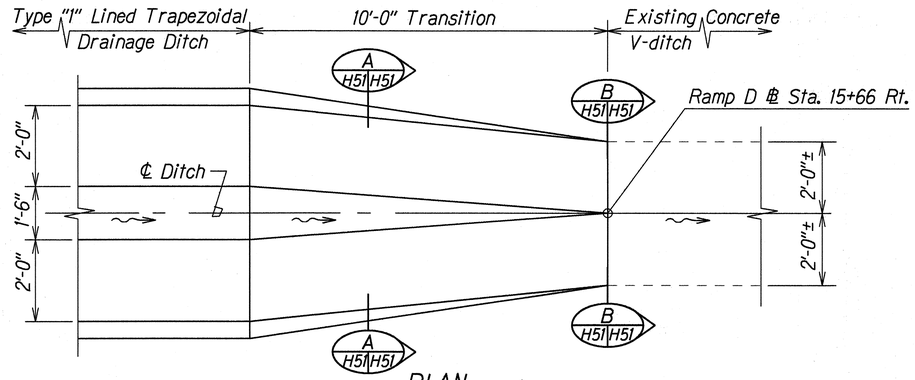
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

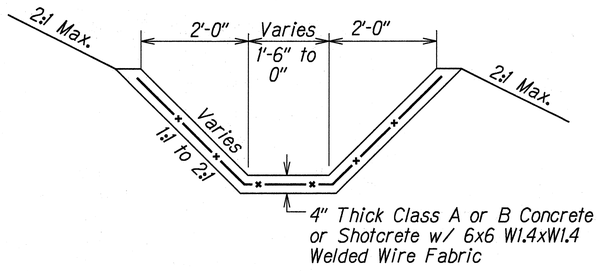
SHEET No. H50 OF 56 SHEETS

C.O. 189

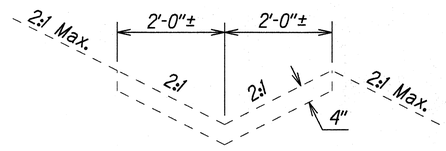
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	190	378



PLAN
Scale: ½"=1'-0"

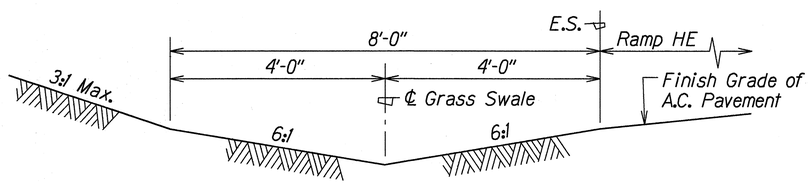


SECTION A H51 H51
Scale: ¾"=1'-0"



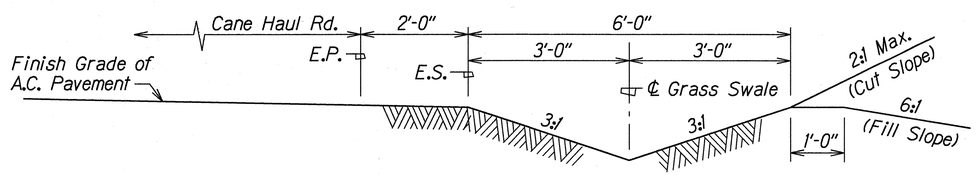
SECTION B H51 H51
Scale: ¾"=1'-0"

TRANSITION DETAILS OF TYPE "1" LINED TRAPEZOIDAL DRAINAGE DITCH



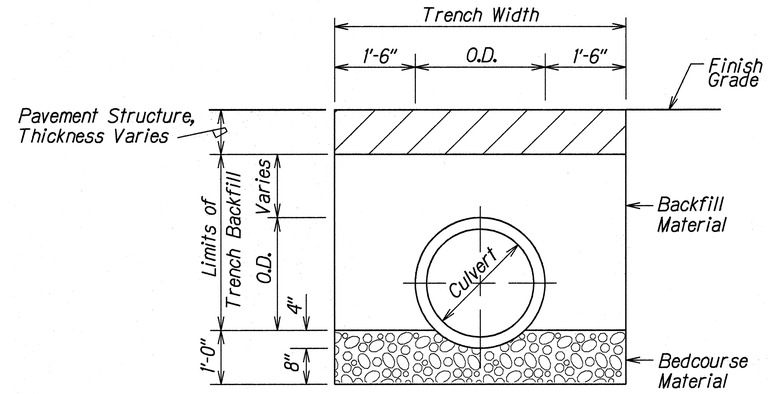
TYPICAL DETAILS OF 8' WIDE GRASS SWALE AT RAMP HE

Scale: ¾"=1'-0"



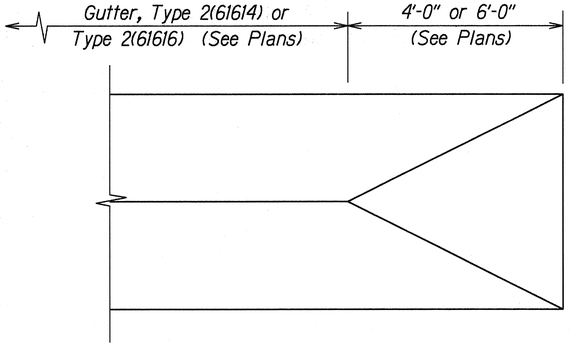
TYPICAL DETAILS OF 6' WIDE GRASS SWALE AT CANE HAUL ROAD

Scale: ¾"=1'-0"



TYPICAL DETAIL OF CULVERT TRENCH RESTORATION

Scale: ¾"=1'-0"



TYPICAL DETAIL OF 4' AND 6' CONCRETE GUTTER TRANSITION

Scale: ¾"=1'-0"

ORIGINAL PLAN	NOTE BOOK	SURVEY PLOTTED BY	DRAWN BY A. Nomura	TRACED BY C. Hatsuda	DESIGNED BY	QUANTITIES BY	CHECKED BY	DATE 12/29/96
	dh3cur11sd1n 4thm102dgn							

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

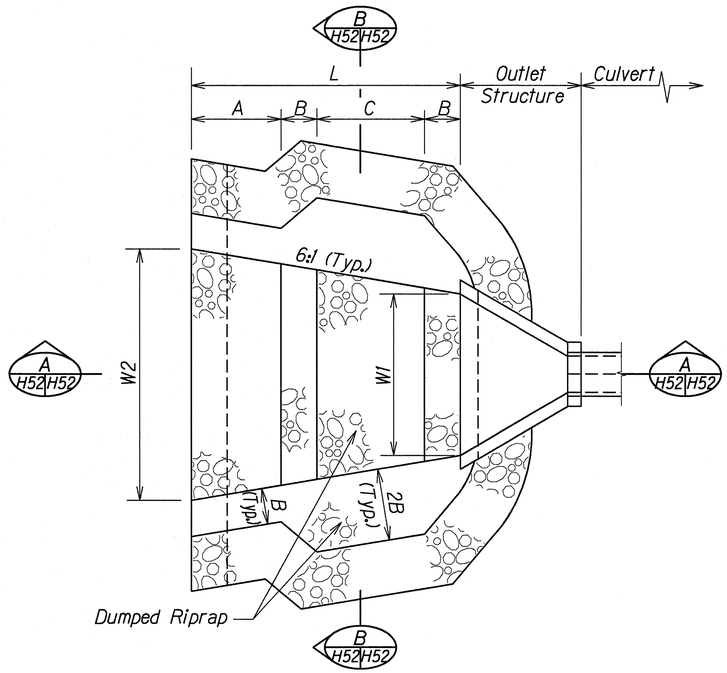
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

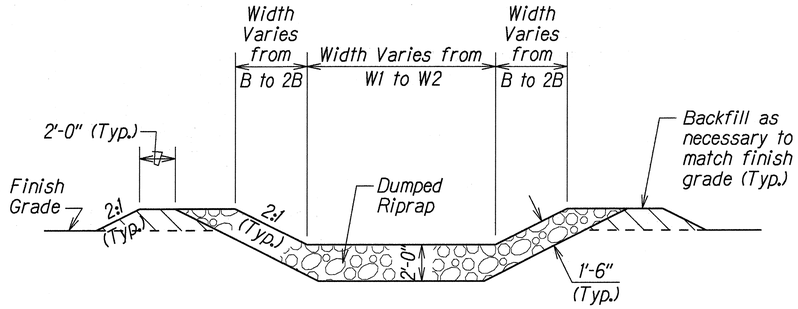
Scale: As Shown Date: Oct. 1997

SHEET No. H51 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	191	378

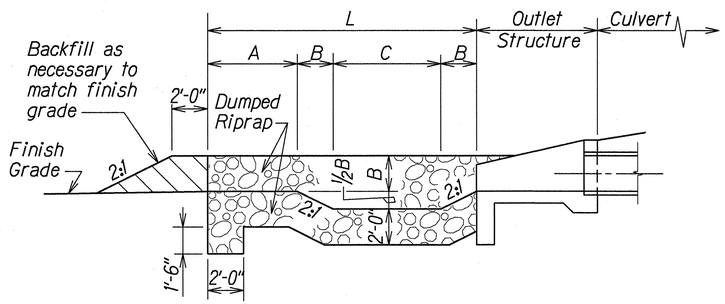


PLAN



SECTION B H52 H52

TABLE						
OUTLET STRUCTURE LOCATION	L (ft)	A (ft)	B (ft)	C (ft)	W1 (ft-in)	W2 (ft-in)
Ramp EW ℄ Sta. 17+53	15	5	2	6	8'-3"±	13'-3"
H-1 ℄ Sta. 310+30	15	5	2	6	4'-8"±	9'-8"±
Ramp HE ℄ Sta. 23+75	30	8	4	14	10'-0"±	20'-0"±
Ramp HE ℄ Sta. 12+45	15	5	2	6	8'-3"±	13'-3"±
Ramp HE ℄ Sta. 6+12	15	5	2	6	9'-3"±	14'-3"±



SECTION A H52 H52

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY Curtis Matsuda/Lenox Cockett
TRACED BY
DESIGNED BY Curtis Matsuda
QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK
dn.jur.Hdth
N4.pr.dn.sgn

TYPICAL DETAILS OF DUMPED RIPRAP AT OUTLET STRUCTURES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

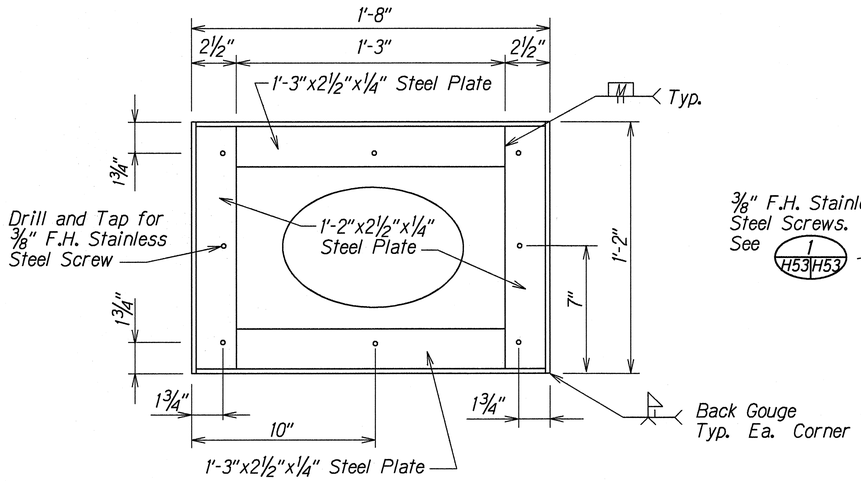
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

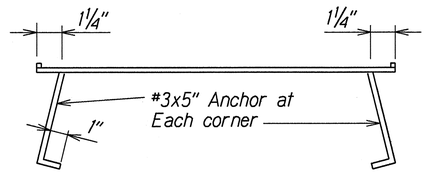
Scale: 1/4"=1'-0" Date: Oct. 1997

SHEET No. H52 OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	192	378

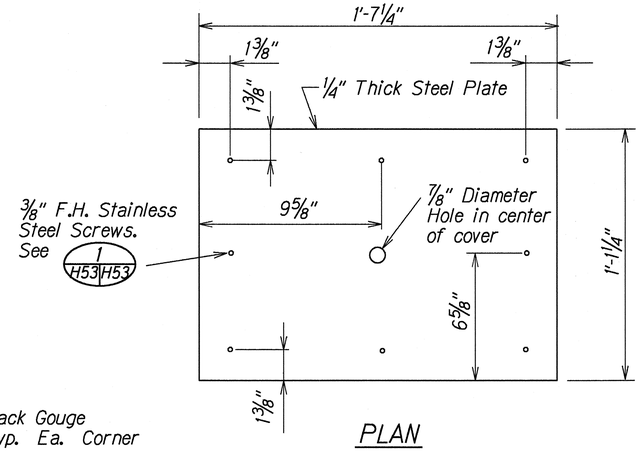


PLAN



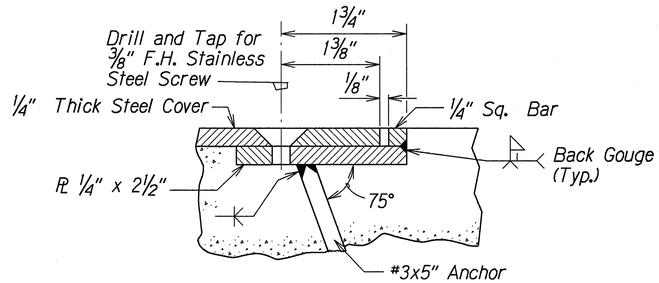
SECTION

DETAILS OF STEEL FRAME



PLAN

DETAIL OF STEEL COVER

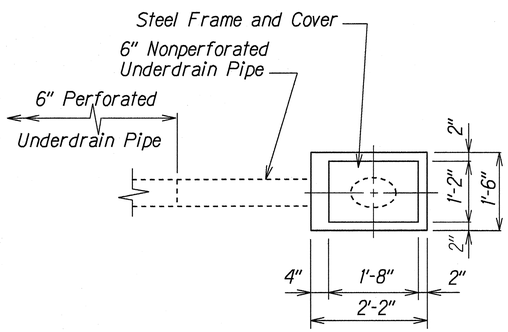


DETAIL 1 H53 H53 Full Size

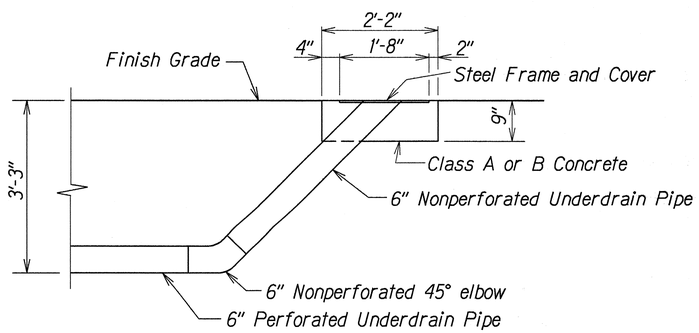
NOTE: All Steel Parts shall be galvanized in accordance with the requirements of ASTM A123.

DETAILS OF STEEL FRAME AND COVER FOR CLEANOUT

Scale: 3"=1'-0"



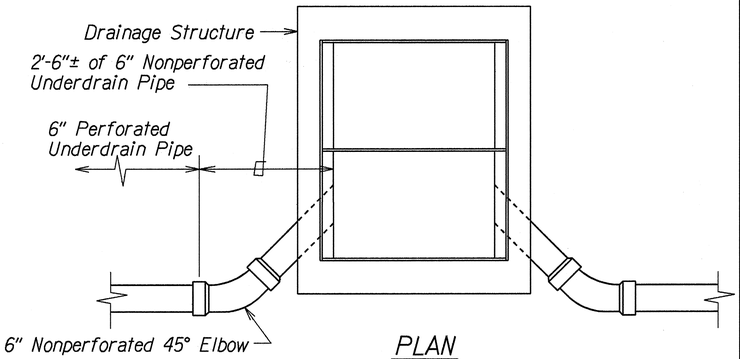
PLAN



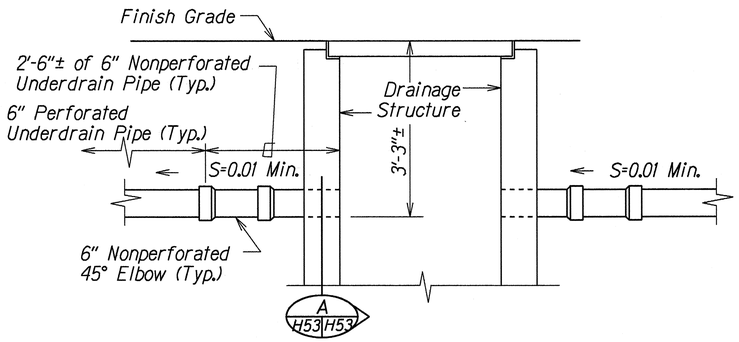
ELEVATION

TYPICAL DETAILS OF CLEANOUT

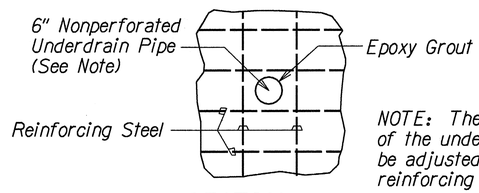
Scale: ¾"=1'-0"



PLAN



ELEVATION



SECTION A H53 H53

NOTE: The exact invert location of the underdrain connection shall be adjusted to pass between the reinforcing steel.

TYPICAL DETAILS OF 6" UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURES

Scale: ¾"=1'-0"

ORIGINAL PLAN

NOTE BOOK dh13curtis.dh
dgn dhstds99

SURVEY PLOTTED BY
DRAWN BY A. Nomura DATE 12/9/96
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

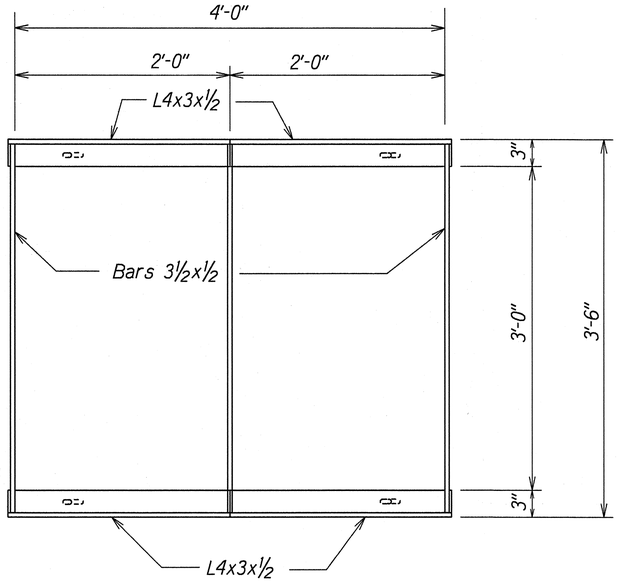
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

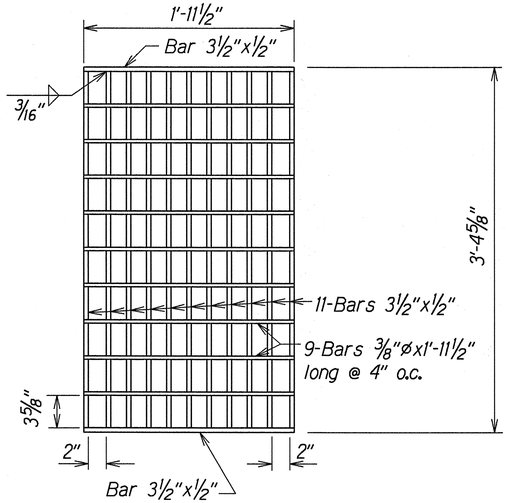
Scale: As Shown Date: Oct. 1997

SHEET No. H53 OF 56 SHEETS

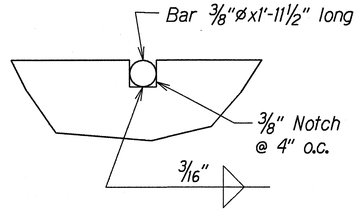
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(219)	1998	193	378



PLAN

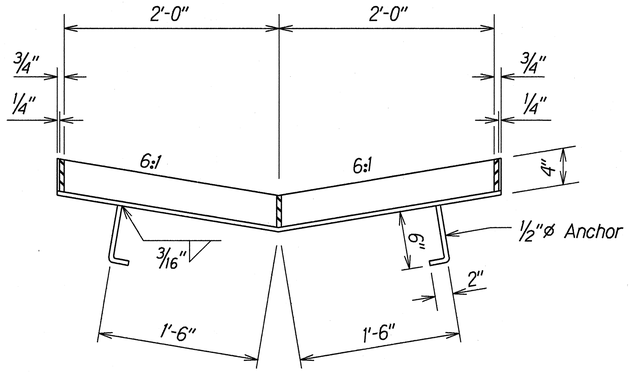


PLAN



NOTCH DETAIL

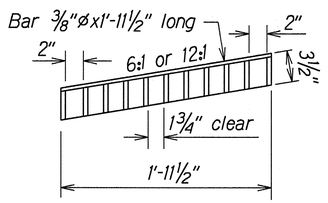
Full Size



SECTION

FRAME

Scale: 1½"=1'-0"



SECTION

GRATE

Scale: 1½"=1'-0"

NOTE:
All welds ⅜" unless otherwise noted.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 7/27/96
	DRAWN BY A. Nomura	
	TRACED BY	
NOTE BOOK dh3/curbs.dfn	DESIGNED BY C. Matsuda	
dh3/curbs.dfn	QUANTITIES BY	
	CHECKED BY	

TYPICAL DETAILS OF TYPE 61614P STEEL FRAME AND GRATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

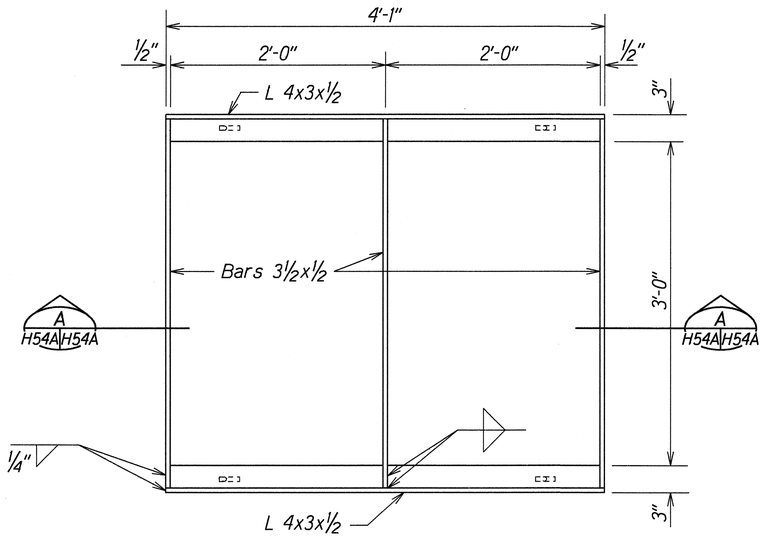
DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-H1-1(219)

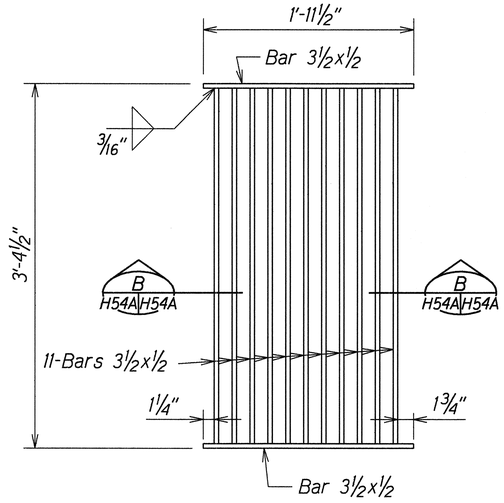
Scale: As Shown Date: Oct. 1997

SHEET No. H54 OF 56 SHEETS

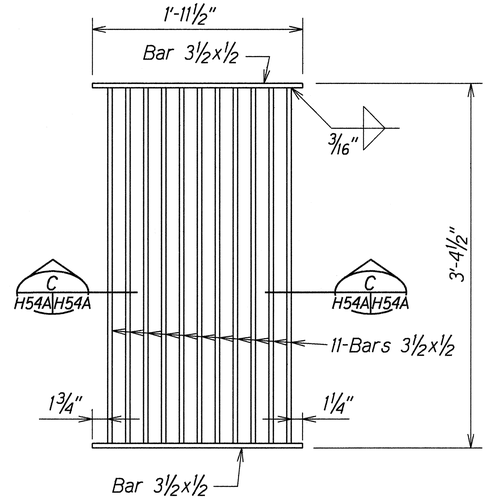
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	193	378



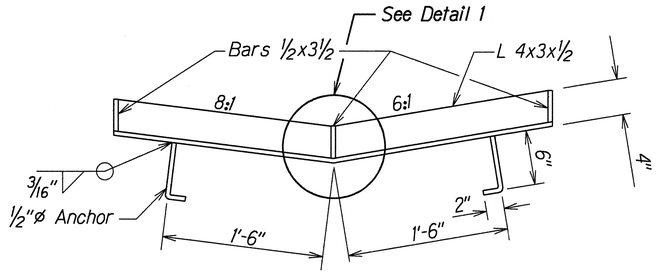
PLAN



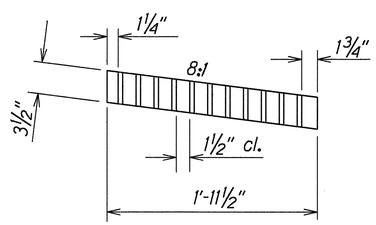
PLAN



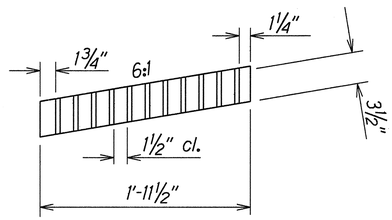
PLAN



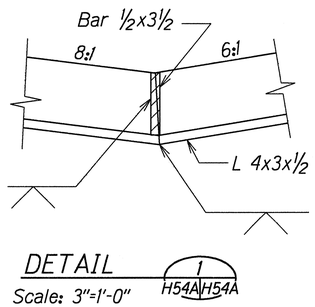
SECTION A H54A H54A



SECTION B H54A H54A



SECTION C H54A H54A



DETAIL 1 H54A H54A

Scale: 3"=1'-0"

FRAME

GRATES

NOTES

1. All welds 3/8" unless otherwise shown.
2. Frame and grates shall be hot dip galvanized after fabrication.
3. All steel shall be Structural Grade, ASTM A615 Grade 60.
4. Steel bars shall conform with ASTM A36.

TYPE 81614 STEEL FRAME AND GRATES

ORIGINAL PLAN		
	SURVEY PLOTTED BY	DATE 3/30/00
	DRAWN BY J. Deckert	
	TRACED BY	
NOTE BOOK	DESIGNED BY Jo. Matsuda	
dh,ar,ls,dh	QUANTITIES BY	
dh,ar,ls,dh	CHECKED BY	

DATE	REVISION
3/31/00	Sheet added to show details of Type 81614 Steel Frame & Grates.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

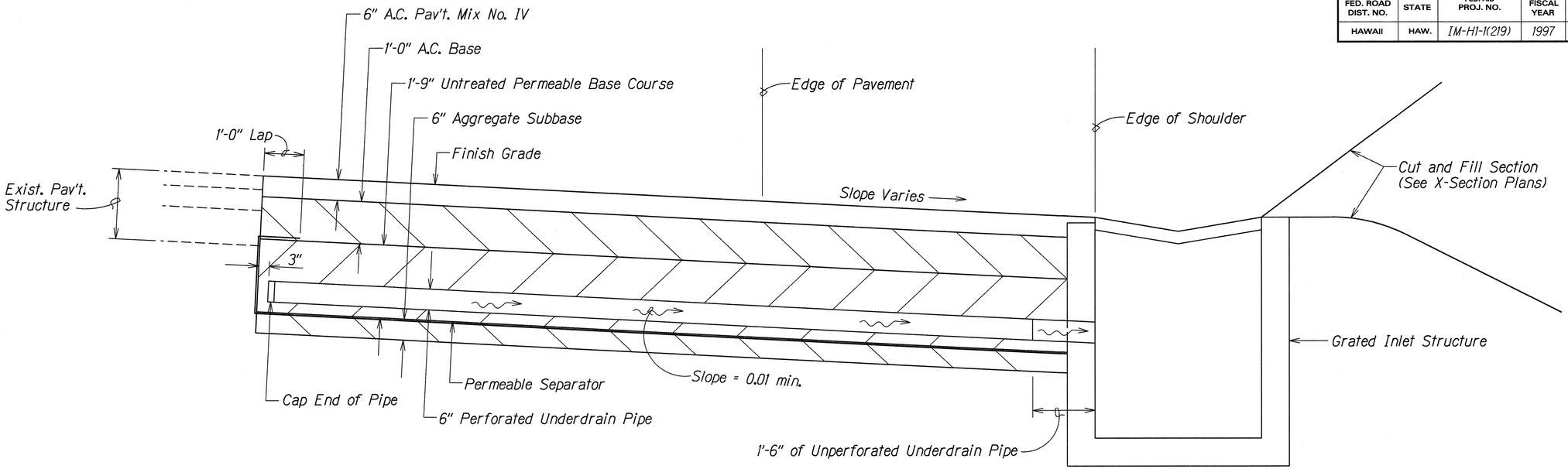
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 1½"=1'-0" Date: Mar. 2000

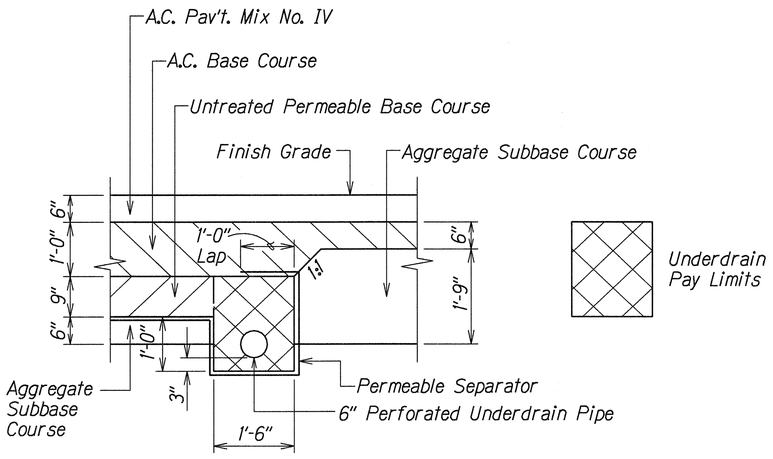
SHEET No. H54A OF 56 SHEETS

C.O. 193 S-1

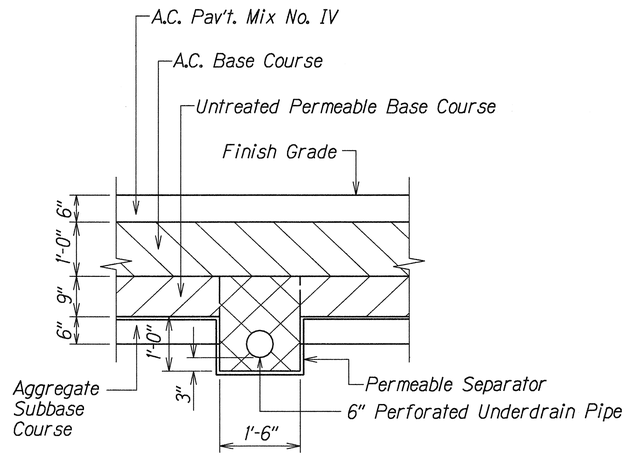
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1997	194	378



PROFILE



SECTION VIEW
(Ramp WE ℄ Sta. 15+10)



SECTION VIEW
(Ramp EH ℄ Sta. 5+40±)
(Ramp EH ℄ Sta. 7+00)
(Ramp EH ℄ Sta. 8+42)

TYPICAL DETAILS OF 6" TRANSVERSE UNDERDRAIN PIPE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY Jo Matsida & R. Sato	
NOTE BOOK	TRACED BY	
	DESIGNED BY Jo Matsida	
	QUANTITIES BY	
No. Initials	CHECKED BY	

DATE	REVISION
1/24/00	Revised Section View at Ramp EH ℄ Sta. 5+40± ≠ 8+42.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

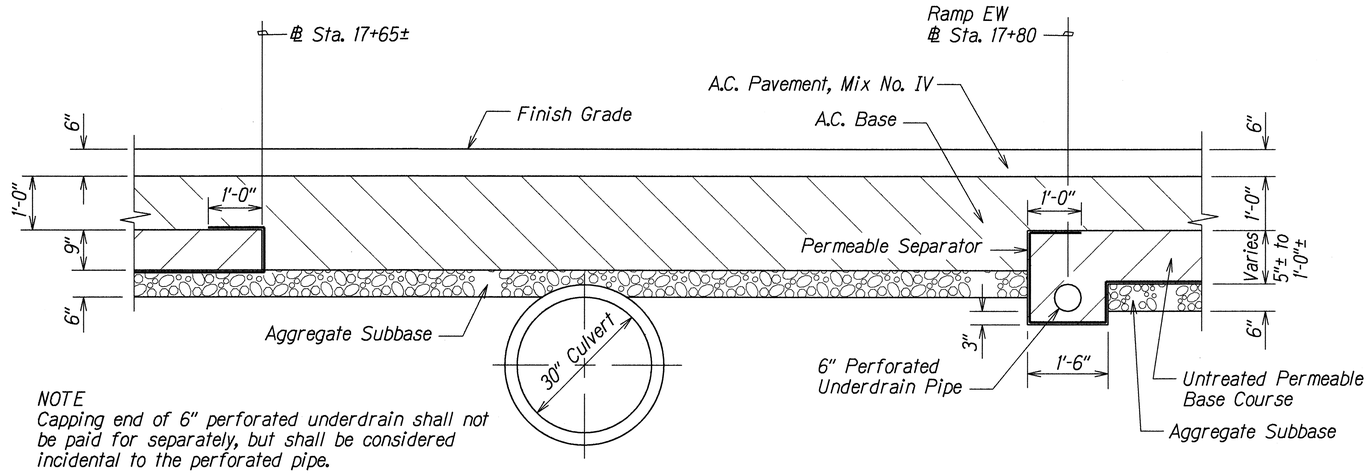
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
Fed. Aid Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H55 OF 56 SHEETS

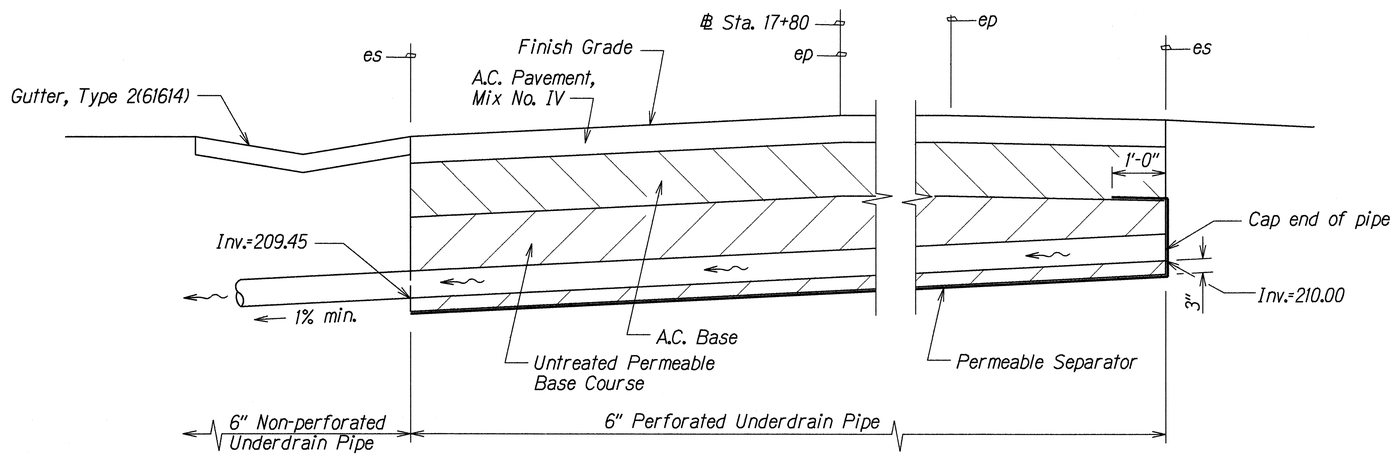
C.O. 194

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1999	C0194S-1	378



NOTE
Capping end of 6" perforated underdrain shall not be paid for separately, but shall be considered incidental to the perforated pipe.

SECTION VIEW ALONG RAMP EW ℄ STA. 17+80



PROFILE

DETAILS OF 6" TRANSVERSE UNDERDRAIN PIPE AT RAMP EW ℄ STA. 17+80

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 10/21/98
	DRAWN BY A. Nakata	
NOTE BOOK dh13of18dh dh16of18dh	TRACED BY	
	DESIGNED BY C. Matsuda	
	QUANTITIES BY	
	CHECKED BY	

DATE	REVISION
10/23/98	Added Drainage Plan Sheet

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

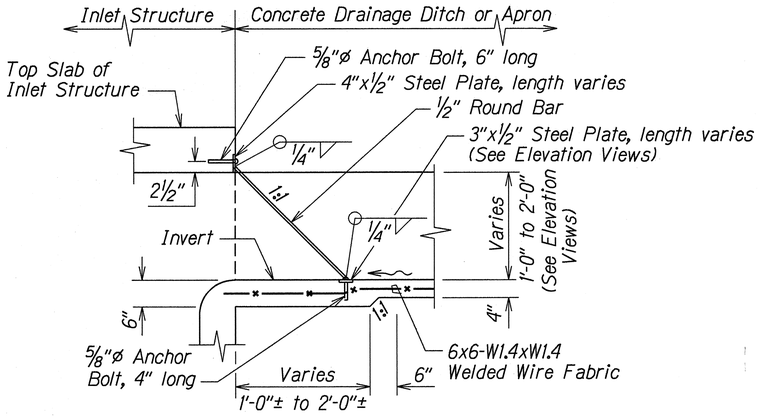
INTERSTATE ROUTE H-1
Kunia Interchange Improvements
F. A. I. Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1998

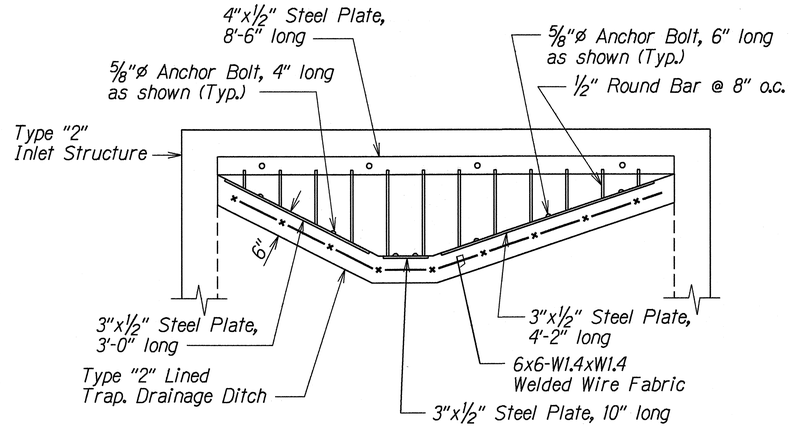
SHEET No. HX OF 56 SHEETS

C.O. 194 S-1

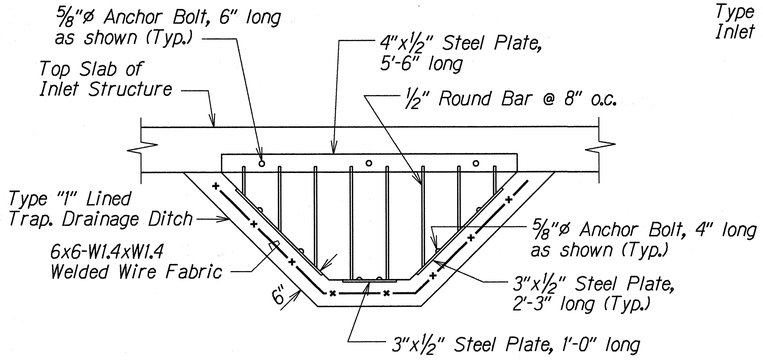
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(219)	1998	195	378



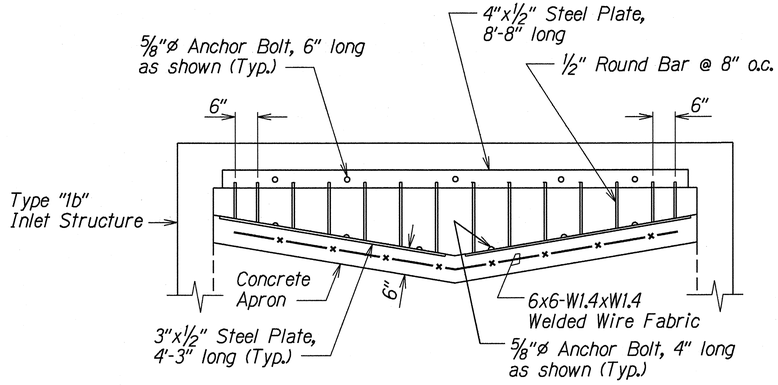
TYPICAL SECTION OF DEBRIS RACK



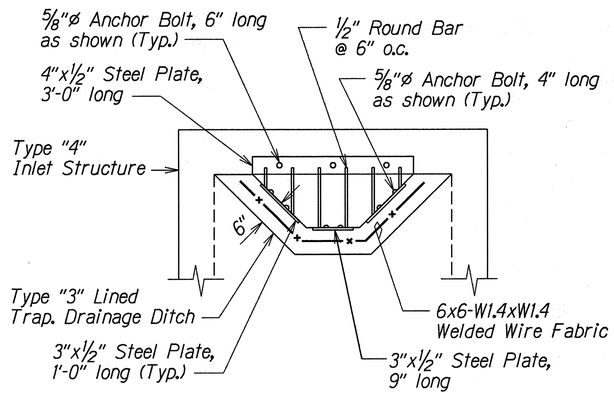
ELEVATION VIEW
(TYPE "2" INLET STRUCTURE)



ELEVATION VIEW
(TYPE "1a" AND "1b" INLET STRUCTURE)



ELEVATION VIEW
(TYPE "1b" INLET STRUCTURE)



ELEVATION VIEW
(TYPE "4" INLET STRUCTURE)

NOTE: All Steel bars, anchor bolts and plates shall be hot dipped galvanized after fabrication.

DETAILS OF DEBRIS RACK

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY L. Uemura
TRACED BY
DESIGNED BY C. Matsuda
QUANTITIES BY
CHECKED BY
DATE 3/1/97
NOTE TO USER: When printing this drawing, set your printer to print to the actual size of the drawing.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

INTERSTATE ROUTE H-1
Kunia Interchange Improvements
Fed. Aid Project No. IM-HI-1(219)

Scale: 3/4"=1'-0" Date: Oct. 1997

SHEET No. H56 OF 56 SHEETS