FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	38	234

TRUE NORTH
SCALE: 1"= 50'

BOUGAINVILLE R.D.
℄ STA. 3+38
℄ ᵒ/₈ = 49.0'
BOX CULVERT STA. 4+63.60
INV. = 20.0
FOR DETAIL SEE SHT. 52

BOX CULVERT
STA. = 3+82
PIPE INV. = 24.5

APPROX. LIMIT OF RUBBISH TO BE DISCARDED, SEE CROSS SECTION

TYPE "B" CATCH BASIN "C&C" BOUGAINVILLE R.D.
℄ STA. 11+00
INV. = 50.1

STORM DRAIN SHALLOW MH FOR PAVEMENT AREA "C&C" BOUGAINVILLE RD.
℄ STA. 12+10
℄ ᵒ/₈ = 5.0'
INV. = 60.4'

TYPE "A" CATCH BASIN "C&C" PLANTATION DRIVE REALIGN.
℄ STA. 13+45
INV. 63.0

EXISTING BENCH MARK "559-25E" TO REMAIN

PAVEMENT REMOVAL AND GRASSING (INCIDENTAL TO CONTRACT ITEM ROADWAY EXCAVATION)

24" RCP CL. III

TYPE "B" CATCH BASIN "C4C" BOUGAINVILLE RD.
℄ STA. 4+00
INV. 30.5

24" RCP CL III

TYPE "B" CATCH BASIN "C&C" WITH DEFLECTOR GUTTER BOUGAINVILLE RD.
℄ STA. 6+00
INV. = 35.0

TYPE "B" CATCH BASIN "C&C" WITH DEFLECTOR GUTTER BOUGAINVILLE RD.
℄ STA. 8+50
INV. = 50.0

CURB & GUTTER TYPE 2 DG

Δ = 67°31'48"
R = 170.00
T = 113.65
Lc = 200.37

BOUGAINVILLE ROAD

18" RCP CL. III

6' HT. CHAIN LINK FENCE

TYPE "A" CATCH BASIN "C4C" BOUGAINVILLE RD.
℄ STA. 4+00
INV. = 130.0

DROP INTAKE G1214
H-1 ℄ STA. 59+50
INV. = 29.5

TOP OF CUT

DROP INTAKE TYPE G1214
R-NW STA. 11+50
INV. = 24.0

G1214 GUTTER

DROP INTAKE TYPE "X"
R-NW STA. 5+50
INV. = 20.4

SEE SHT. D-2

48" RCP CL. III EXTENSION & CONNECTION TO EXISTING DRAIN LINE FOR DETAIL SEE SHEET C.O. 50
INV. = 22.7 ±

BOX CULVERT STA. 2+88
PIPE INV. = 21.0

24" RCP CL. III

BOX CULVERT STA. 4+07.25
R.C. STA.

BOX CULVERT STA. 4+06.88
INV. = 20.0
R.C. STA.

G1218 GUTTER

10' SHOULDER

8' SHOULDER
R-NW

DROP INTAKE TYPE "C" W/AD FRAME & COVER
H-1 ℄ STA. 57+10
℄ ᵒ/₈ = 120.0'
INV. = 31.0

BOX CULVERT FOR DETAIL SEE SHT. 42 & 53

BY OTHERS

OUTBOUND LANES

24" RCP CL. III
24" ACP CL. III
24" CMP 0.070" THICK

36" RCP CL III
36" ACP CL III
42" CMP 0.100" THICK

DROP INTAKE TYPE "X"
R-NW STA. 6+50
INV. = 21.4

66" RCP CL IV

INBOUND LANES

66" RCP CL III

42" RCP CL III

STRUCTURE NO. 1

G1214 GUTTER

TOE OF FILL

6' HT. CHAIN LINK FENCE

DROP INTAKE TYPE "W"
H-1 ℄ STA. 58+00
INV. = 29.0 (24")
INV. = 15.2 (66")

INV. = 14.9

H-1 ℄ STA. 58+52
℄ ᵒ/₈ = 117.0'
BOX CULVERT STA. 0+00
INV. = 14.5
FOR DETAIL SEE SHT. 52

TOP OF CUT

PLANTATION DRIVE REALIGNMENT

MIDWAY DRIVE

60" RCP CL III

RIGHT OF WAY
6' HT. CHAIN LINK FENCE

DROP INTAKE
TYPE "X"
H-1 ℄ STA. 68+50
INV. = 18.1

C.C.O. # 23 10-14-75
To Construct a 2'x2'± Deep (Below Subgrade) Rock Drain. Interstate H-1, Baseline Sta. 68+00 Lt. to Sta. 68+50 Rt. See sht. # 55 S-1

66" RCP CL. IV

30" RCP CL. III EXTENTION & CONNECTION TO EXISTING DRAIN LINE FOR DETAIL SEE SHT. C.O. 50
INV. = 44.61

STD. OUTLET STRUCTURE (FULL HEADWALL)
℄ STA. 7+62
℄ ᵒ/₈ = 50.0
INV. = 41.1

DROP INTAKE TYPE "X"
H-1 ℄ STA. 64+00
INV. = 23.4 (24")
INV. = 16.6 (66")

NOTES:

1. REMOVAL OF EXISTING DRAIN BOX & HEADWALL AT BOUGAINVILLE DRIVE STA. 2+80 SEE SECTION 202 OF THE "STANDARD SPECIFICATION".
2. TYPE "A"-"B" CATCH BASIN "C&C" AND STORM DRAIN MH FOR PAVEMENT AREA "C&C" FOR DETAILS SEE SHEETS 54 AND 55.
3. CONTRACTOR SHALL REFER TO SHEETS 67 THRU 70, UTILITY RELOCATION PLANS, FOR LOCATION OF EXISTING UTILITIES TO REMAIN. (NOTE EXISTING 30" WATER LINE)

PLAN
SCALE: 1"= 50'

LEGEND:
PAVEMENT REMOVAL AND GRASSING (INCIDENTAL TO CONTRACT ITEM ROADWAY EXCAVATION).

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Wilbert T. Takamiya
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING & DRAINAGE PLAN

PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(III):14

SCALE: AS SHOWN DATE: DEC. 14, 1973

SHEET NO. D-1 OF 3 SHEETS

ORIGINAL PLAN
NOTE BOOK
No.

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	39	234

TRUE NORTH
SCALE : 1"=50'

N 68,000

N 67,000

522,000 E

521,500 E

(25) TYPE "B" CATCH BASIN "C&C"
BOUGAINVILLE ROAD
℄ STA. 13+25
INV. = 58.4

(2) PRECAST MH
BOUGAINVILLE ROAD
℄ STA. 16+05 ±
& 9% = 27.5' ±
INV. = 53.0
INV. = 52.6 ± EXIST.
INV. = 45.9

BUILDING TO REMAIN

Construct 40'x1.5' Rock Drain along Ramp NW from Sta. 6+50 to Sta. 11+10 Lt.
See sht. # 55 5-1

C.C.O. #23 2nd Supplement 8-6-76

(15) DROP INTAKE TYPE G1214
R-NW STA. 11+10
INV. = 24.0

C.C.O. #23 10-14-75

To Construct a 2'x3'± Deep (Below Subgrade) Rock Drain. Ramp NW Sta. 11+10 Lt. to Sta. 13+50 Lt.
See sht. # 55 5-1

Extended the 2'x3' Deep Rock Drain along Ramp NW from Sta. 13+50 to Sta. 15+00 Lt.
See sht. # 55 5-1

C.C.O. #23 1st Supplement 1-7-76

BUILDING TO REMAIN

(21) DROP INTAKE TYPE G1214
R-NW ℄ STA. 16+50
INV. = 28.5

(19) DROP INTAKE TYPE G1214
H-1 ℄ STA. 80+00
INV. = 28.3

24" DRAIN TO REMAIN

(20) 24" RCP CL. III
24" ACP CL. III
24" CMP 0.070" THICK

DROP INTAKE TYPE "B" (BY OTHERS)

CHANNEL (BY OTHERS)

BY OTHERS

(3) 18" RCP CL. III

G1614 GUTTER

RIGHT-OF-WAY

BIKEWAY & UTILITY CORRIDOR

RETAINING WALL NO. 9

RAMP NW

G1218 GUTTER

8' SHOULDER

(1) 24" RCP CL. V
24" ACP CL. V
24" CMP 0.138" THICK

(18) SEE SHT. D-1

(14) 30" RCP CL. III
30" ACP CL. III
30" CMP 0.070" THICK

OUTBOUND LANES

(7) (9) (11) 48" RCP CL. III
54" CMP 0.100" THICK

(18) 30" RCP CL. III
30" ACP CL. III

(13) 42" RCP CL. III
42" CMP 0.109" THICK

A.C. Berm

BY OTHERS

END DRAIN LINE INV. = 30.5

(10) SEE SHT. D-1

Field Revision for the conflict between the 60-Inch CMP Drainline and Sign E-6 footing at WN Sta. 2+50 9% Rt.
See sht. # 83

Field Directive 6-14-76

INBOUND LANES

A.C. Berms

(16) 24" RCP CL. III
24" ACP CL. III
24" CMP 0.079" THICK

(22) 30" RCP CL. III
30" ACP CL. III
36" CMP 0.109" THICK

RAMP WN

G1218 GUTTER

(24) 30" RCP CL. III
30" ACP CL. III
36" CMP 0.109 THICK

BY OTHERS

END DRAIN LINE INV. = 28.7

UTILITY CORRIDOR

6' HT CHAIN LINK FENCE

RIGHT-OF-WAY

TOP OF CUT

PAVEMENT REMOVAL AND GRADING AND GRASSING (INCIDENTAL CONTRACT ITEM ROADWAY EXCAVATION).

6' HT. CHAIN LINK FENCE

(4) DROP INTAKE TYPE G1214
H-1 ℄ STA. 60+50
INV. = 18.6

(5) 54" RCP CL. III
60" CMP 0.138" THICK

(6) DROP INTAKE TYPE G1214
R-WN STA. 4+00
INV. = 20.5

(BY OTHERS)

(17) DROP INTAKE TYPE G1214
R-WN STA. 5+00
INV. = 20.5

(12) DROP INTAKE TYPE "Z"
H-1 ℄ STA. 80+00
INV. = 20.0

(23) PRECAST DMH
R-WN STA. 11+75
& 9% 40 (LT.)
INV. = 28.6

C.C.O. #24 10-14-75

Install 6-feet Chain Link Fence along the Right-of-Way of Mauka Frontage Road. See Sht. # C.O. 40

SEE SHEET NO. C.O.40 FOR CONTINUATION

(10) DROP INTAKE TYPE "Z"
H-1 ℄ STA. 78+00
INV. = 25.6

RIGHT-OF-WAY

(8) DROP INTAKE TYPE "Z"
H-1 ℄ STA. 77+00
INV. = 24.2

MAUKA FRONTAGE RD.

To Build A.C. Drainage Berms to provide proper Drainage on the incomplete portion of the H-1 Freeway

C.C.O. #54 1-24-77

See sht. # 90

Berm (Length 17'±)

2' Min. (or match to Median Shoulder)

12"

A.C. DRAINAGE BERM
Not to Scale

PLAN
SCALE : 1"=50'

DATE	REVISION
8/20/75	REVISED CHAIN LINK FENCE ON MAUKA FRONTAGE ROAD.
2/20/75	ADDED CHAIN LINK ON MAUKA FRONTAGE ROAD.

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

GARY T. YAMAMOTO
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I HEREBY CERTIFY THAT THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

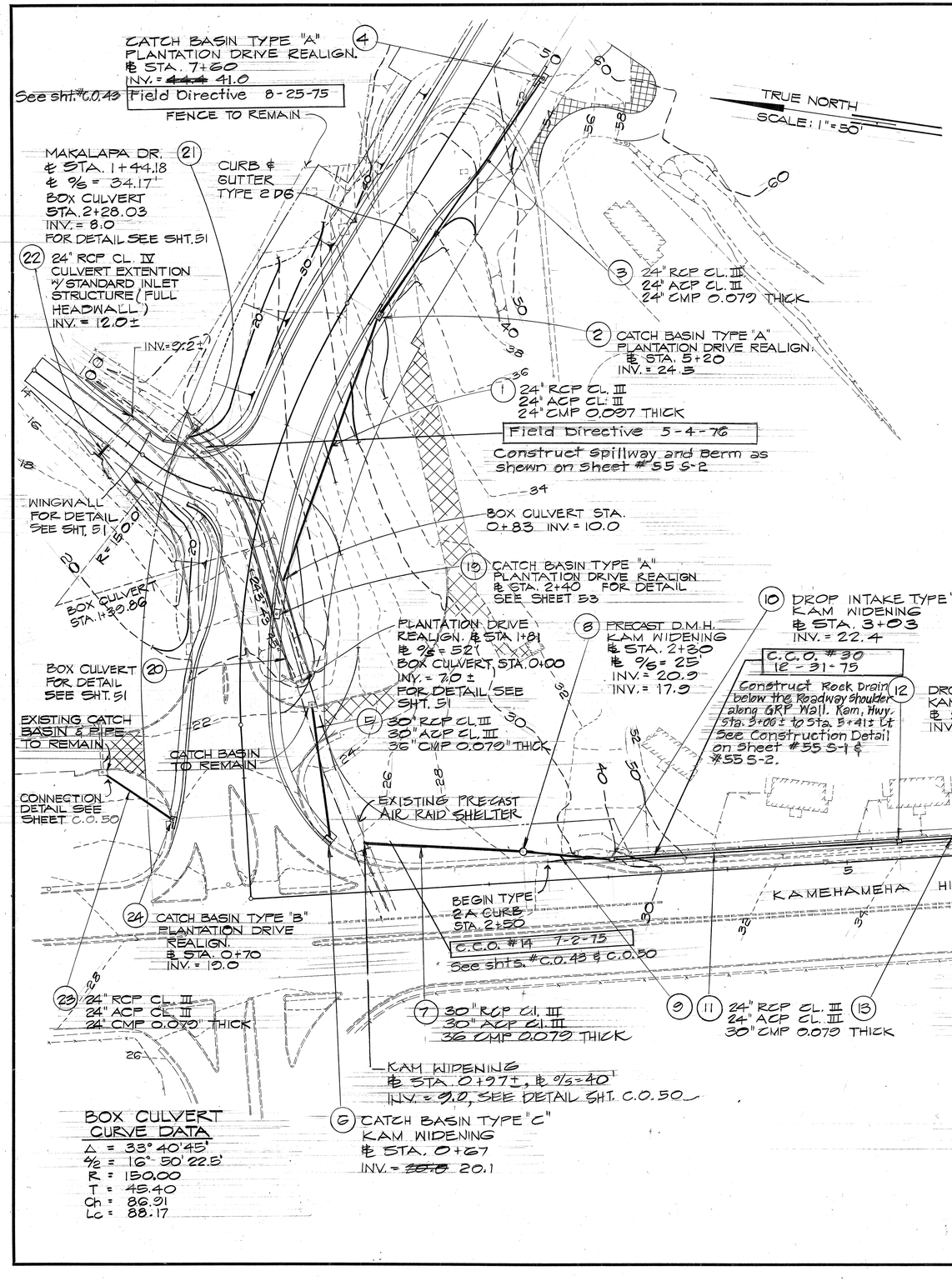
GRADING & DRAINAGE PLAN

PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(III):14

SCALE: AS SHOWN — DATE: DEC. 14, 1973

SHEET No. D-2 OF 3 SHEETS

C.O. 39R



BOX CULVERT CURVE DATA

Δ = 33° 40' 45"
℄ = 16° 50' 22.5"
R = 150.00
T = 45.40
Ch = 86.91
Lc = 88.17

PLAN

SCALE: 1" = 50'

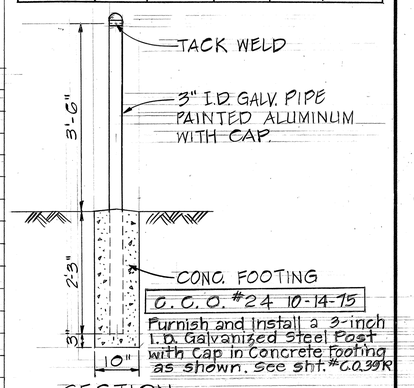
NOTE:
CATCH BASIN TYPE "A" & "C"
FOR DETAIL SEE SHEET 58

LEGEND:
PAVEMENT REMOVAL AND GRASSING (INCIDENTAL TO CONTRACT ITEM ROADWAY EXCAVATION).

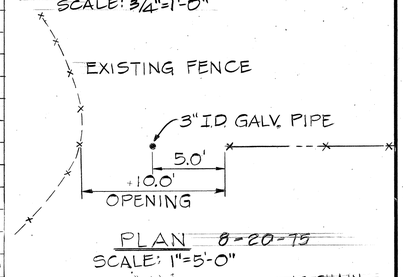
SCHEDULE OF CURBS AND GUTTERS

LOCATION	ITEM NO. 600.180 2x4 REDWOOD HEADERS LF	600.190 G1G14 GUTTER LF	600.195 G1218 GUTTER LF	600.1220 CURB TYPE 2A LF	600.230 GUTTER TYPE 2G LF	600.246 CURB & GUTTER TYPE 2D6 LF
H-1 INBOUND 55+00 TO 61+50 RT.	650	650				
H-1 INBOUND 61+50 TO 62+00 RT.	50	50 TRANSITION				
H-1 INBOUND 62+00 TO 70+00 RT.	800		800			
H-1 OUTBOUND 55+00 TO 55+50 LT.	50		50			
H-1 OUTBOUND 55+50 TO 56+00 LT.	50	50 TRANSITION				
H-1 OUTBOUND 56+00 TO 58+00 LT.	200	200				
H-1 OUTBOUND 58+00 TO 60+40. LT.	50	50 TRANSITION				
H-1 OUTBOUND 60+40 TO 63+00 LT.	360		360			
H-1 OUTBOUND 80+00 TO 83+00 LT.	300		300			
R-NW 0+00 TO 20+70.75 LT.	2071		2071			
R-WN 0+00 TO 12+00 RT.	1200		1200			
R-WN 0+00 TO 12+00 LT.	300		300			
BOUGAINVILLE RD 0+00 TO 12+17 LT.						1222
BOUGAINVILLE RD 0+00 RT TO PLANTATION DR REALIGN 11+20 LT						1241
PLANTATION DR REALIGN 11+32 RT TO BOUGAINVILLE RD 16+60 RT						465
PLANTATION DR REALIGN 14+80 RT TO BOUGAINVILLE RD 16+25 LT						470
PLANTATION DR REALIGN 0+40 LT TO MAKALAPA DR 1+68 RT						312
PLANTATION DR REALIGN 0+40 TO 8+03 RT						775
PLANTATION DR REALIGN 8+03 TO 8+47 RT					44	
PLANTATION DR REALIGN 8+47 TO 8+94 RT						47
MAKALAPA DR 1+58 LT TO PLANTATION DR REALIGN 8+80 LT						548
PLANTATION DR- BOUGAINVILLE INTERSECTION ISLANDS				375		
RETAINING WALL #2 0+04 TO 11+64	1160	1160				
KAM HIGHWAY WIDENING 2+50 TO 8+98				648		
KAM HIGHWAY WIDENING 9+00 TO 12+33 LT	333	333				
TRANSITION (G1G14 TO G1218) = 150		75	75			
TOTAL	7664	2508	5156	1023	44	5080

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	40	234



SECTION
SCALE: 3/4"=1'-0"



PLAN 8-20-75
SCALE: 1"=5'-0"

6' HT. CHAIN LINK FENCE 8-20-75

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

ORIGINAL PLAN
NOTE BOOK
No.

DATE	
3/19/76	DELETE MIDWAY DRIVE CUL-DE-SAC
8/20/75	ADDED CHAIN LINK FENCE ON MAUKA FRONTAGE ROAD
6/17/75	REVISED INV. ITEM 6 & CONNECT TO EXISTING AIR RAID SHELTER ITEM 7

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING & DRAINAGE PLAN

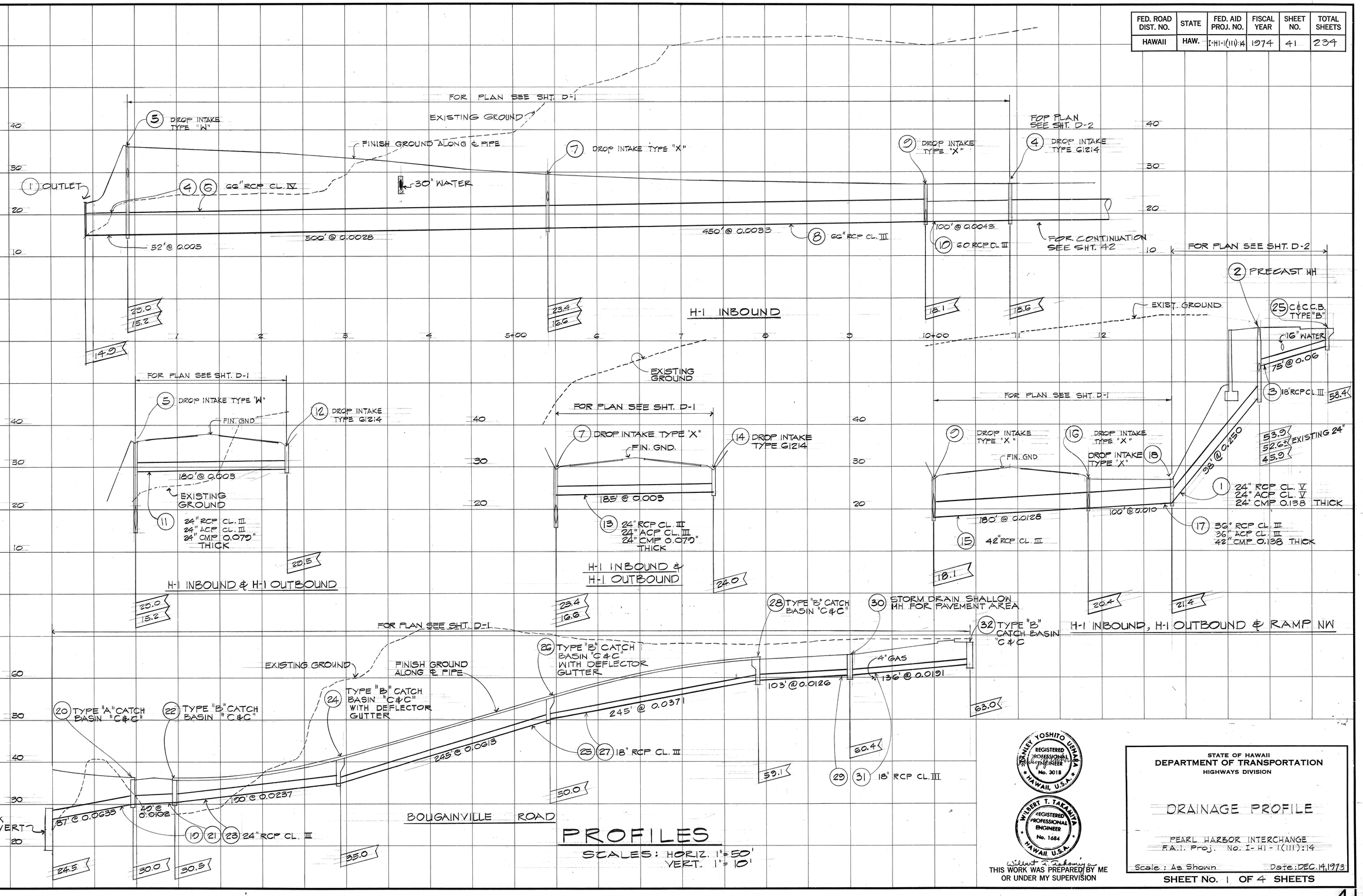
PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(III):14

SCALE: AS SHOW DATE: DEC. 14, 1973

SHEET No. D-3 OF 3 SHEETS

C.0.40

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	41	234



PROFILES

SCALES: HORIZ. 1"=50'
VERT. 1"= 10'

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

STANLEY YOSHITO USHIJIMA
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DRAINAGE PROFILE

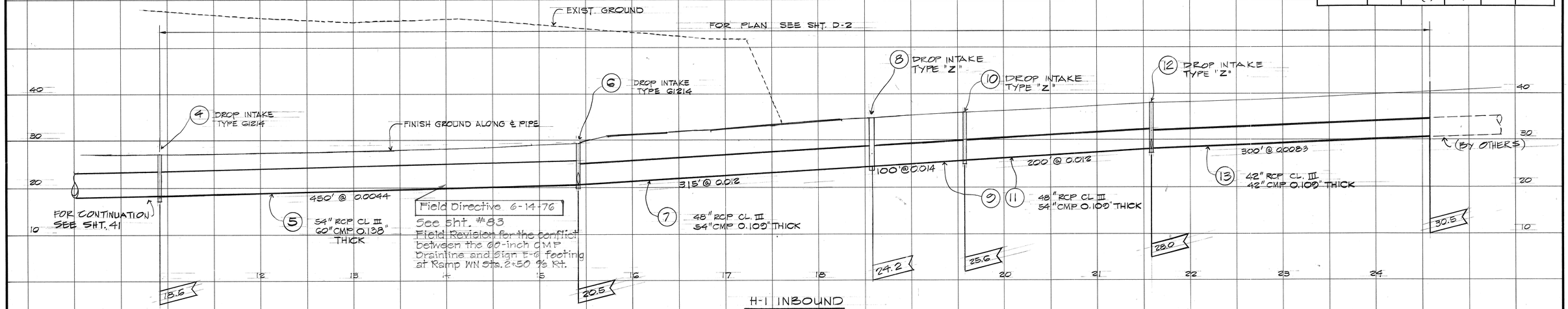
PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

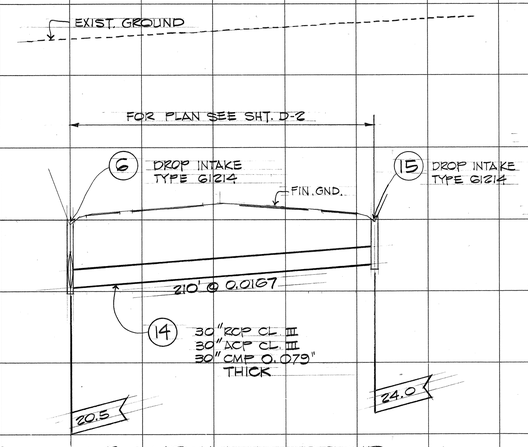
Scale : As Shown Date: DEC. 14, 1973

SHEET No. 1 OF 4 SHEETS

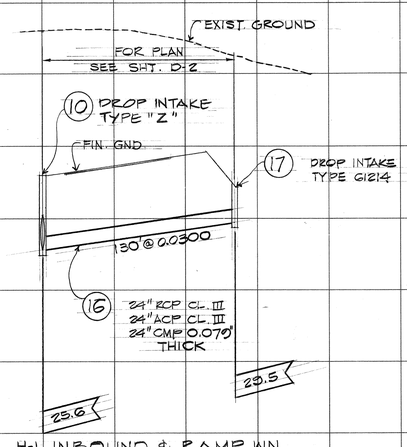
DKC 2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111)14	1974	42	234

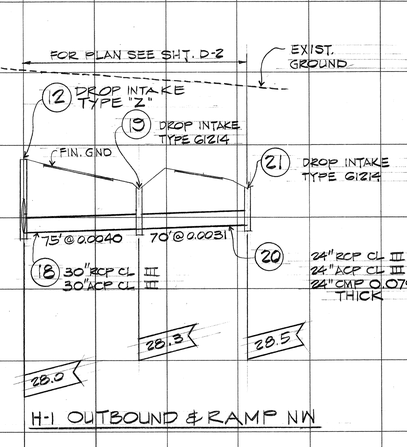




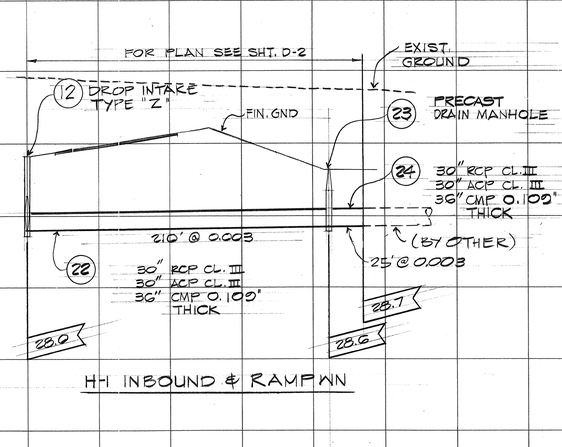
RAMP NW, H-1 INBOUND
H-1 OUTBOUND RAMP WN



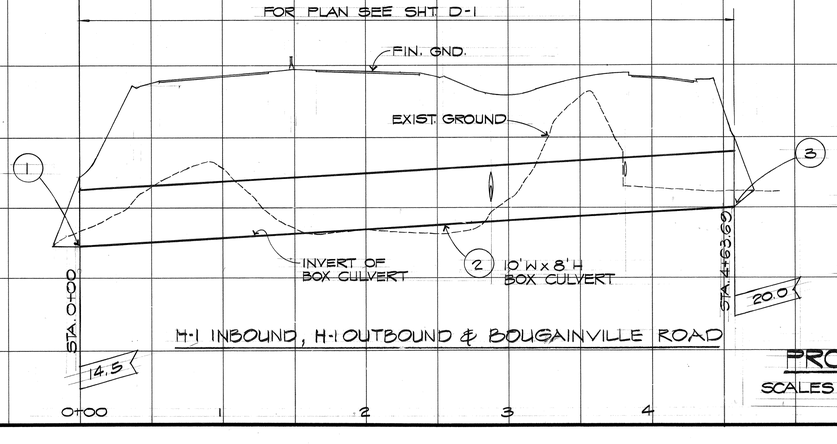
H-1 INBOUND & RAMP WN



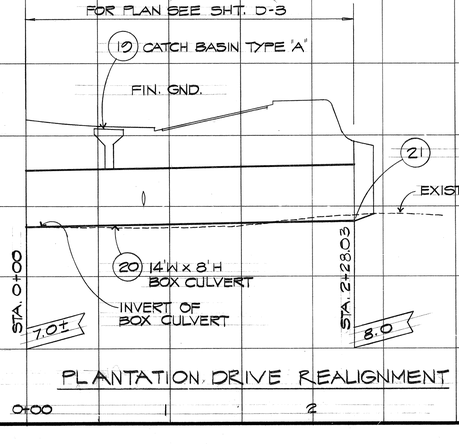
H-1 OUTBOUND & RAMP NW



H-1 INBOUND & RAMP WN



H-1 INBOUND, H-1 OUTBOUND & BOUGAINVILLE ROAD



PLANTATION DRIVE REALIGNMENT

PROFILES

SCALES: HORIZ. 1"=50'
VERT. 1"= 10'

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

STANLEY YOSHITO UEMURA
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILE

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

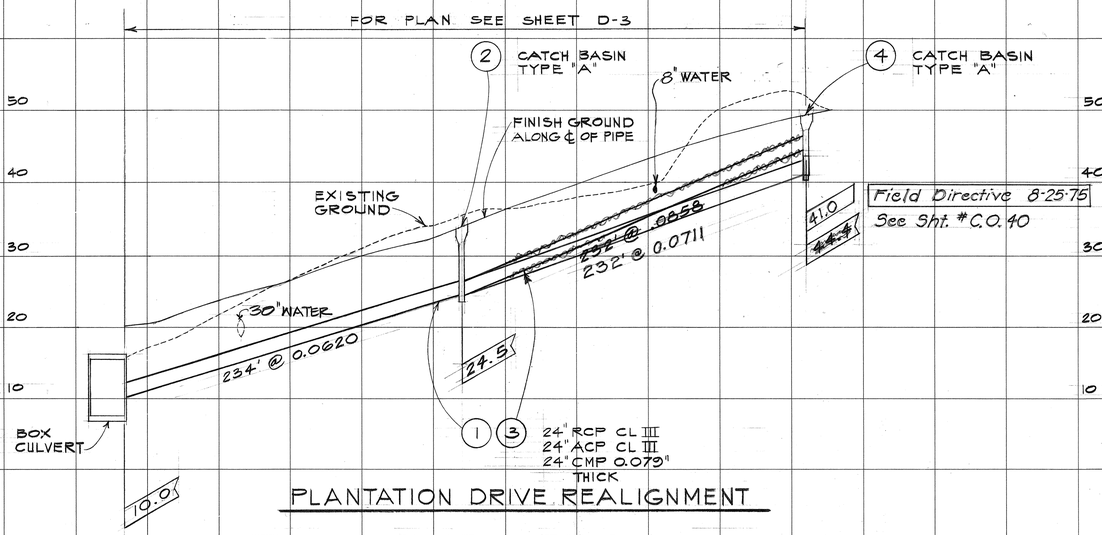
Scale : As Shown Date: DEC. 14, 1973

SHEET No. 2 OF 4 SHEETS

42

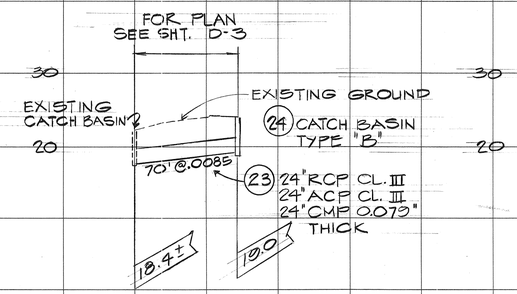
PKC - 2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):4	1974	43	234

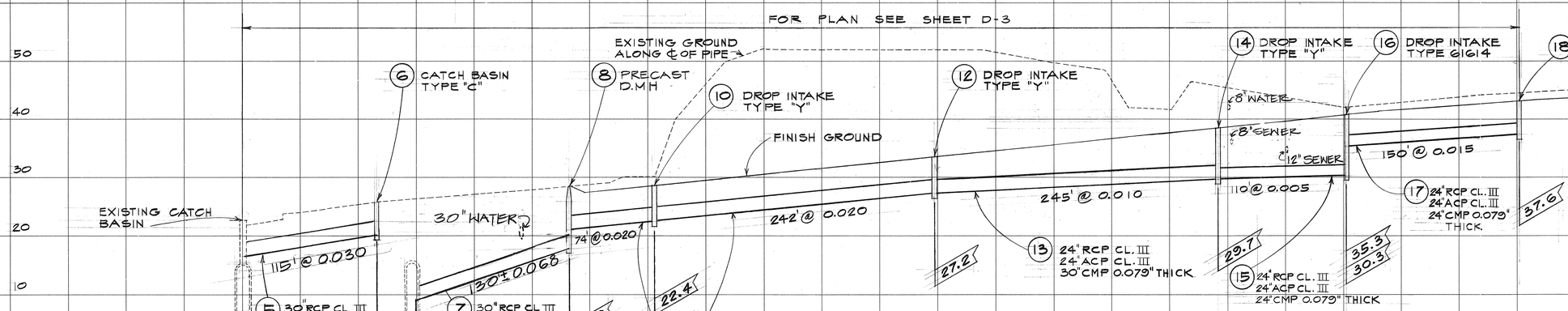


Field Directive 8-25-75
See Sht. #C.O.40

PLANTATION DRIVE REALIGNMENT

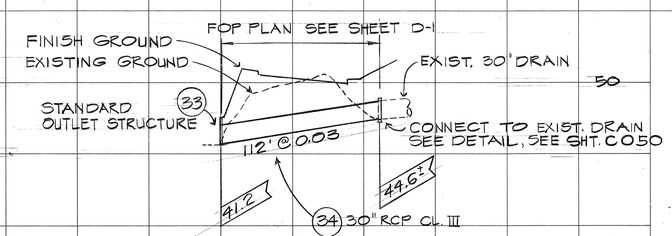


PLANTATION DR. REALIGN.



C.C.O. #14
See Sht. #C.O.40 & C.O.50

PLANTATION DRIVE REALIGNMENT & KAMEHAMEHA HIGHWAY WIDENING



PLANTATION DRIVE REALIGNMENT

PROFILES

SCALES: HORIZ. = 1" = 50'
VERT. = 1" = 10'

C.C.O. #14 7-2-75

6/17/75 REVISED INV. ITEM 6 & CONNECT TO EXISTING AIR RAID SHELTER ITEM 7

STANLEY YOSHITO UCHIDA REGISTERED PROFESSIONAL ENGINEER No. 3018 HAWAII, U.S.A.

WILBERT T. TAKAMIYA REGISTERED PROFESSIONAL ENGINEER No. 1684 HAWAII, U.S.A.

Wilbert T. Takamiya

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILE

PEARL HARBOR INTERCHANGE
F.A.I. Proj No. I-HI-1(III):14

Scale: As Shown Date: DEC. 14, 1973

SHEET No. 3 OF 4 SHEETS

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

C.O.43

DRAINAGE SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III)-4	1974	44	234

| DRAINAGE SHEET | ITEM NUMBER | STRUCTURES | ESTIMATED QUANTITIES | | |

DRAINAGE SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	45	234

STRUCTURES — ESTIMATED QUANTITIES

DRAINAGE SHEET ITEM NUMBER		ITEM NO.	206 .02	206 .20		206 .80	503 .002	503 .201	602 .103	603 .1006	603 .1010	603 .1012	603 .1016	603 .1018	603 .1022	603 .1024	603 .1062	603 .5050	603 .6002	603 .6180	603 .6300	603 .7200	603 .7243	603 .7260	603 .7320	603 .7379	603 .7380	603 .7500	603 .90	604 .036	604 .216	604 .218	604 .2190	604 .2191	604 .231	604 .232	604 .236	604 .237	612 .01	ITEM NUMBER	DRAINAGE SHEET
		TYPE	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	STRUCTURE EXCAVATION FOR BOX CULVERTS		FILTER MATERIAL	CONCRETE FOR DRAINAGE SYSTEM	CLASS B CONCRETE OTHER THAN IN BRIDGES	REINFORCING STEEL FOR DRAINAGE SYSTEM	18-INCH RCP, CLASS III	24-INCH RCP, CLASS III	30-INCH RCP, CLASS III	42-INCH RCP, CLASS III	48-INCH RCP, CLASS III	60-INCH RCP, CLASS III	66-INCH RCP, CLASS III	66-INCH RCP, CLASS IV	30-INCH ACP CLASS III OR 30-INCH RCP CLASS III	42-INCH CMP SHEET THICKNESS 0.109 INCH OR 42-INCH RCP, CLASS III	54-INCH CMP SHEET THICKNESS 0.109 INCH OR 48 INCH RCP, CLASS III	60-INCH CMP SHEET THICKNESS 0.138 INCH OR 54-INCH RCP, CLASS III	24-INCH CMP SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP CLASS III OR 24-INCH ACP CLASS III	24-INCH CMP SHEET THICKNESS, 0.138 INCH OR 24-INCH RCP, CLASS V OR 24-INCH ACP, CLASS V	30-INCH CMP SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP CLASS III OR 24-INCH ACP CLASS III	30-INCH CMP SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP CLASS III OR 30-INCH ACP CLASS III	36-INCH CMP SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP CLASS III OR 30-INCH ACP CLASS III	36-INCH CMP SHEET THICKNESS, 0.109 INCH OR 30-INCH RCP CLASS III OR 30-INCH ACP CLASS III	42-INCH CMP SHEET THICKNESS, 0.109 INCH OR 36-INCH RCP CLASS III OR 36-INCH ACP CLASS III	BED COURSE MATERIAL FOR CULVERT	CONCRETE WALL FOR PRECAST STORM DRAIN MANHOLE	TYPE B CAST IRON FRAME AND COVER FOR CATCH BASIN	TYPE P CAST IRON FRAME AND COVER FOR PRECAST STORM DRAIN MANHOLE	TYPE P FRAME AND COVER FOR CATCH BASIN	TYPE DB (CITY AND COUNTY) FRAME AND COVER FOR CATCH BASIN	TYPE A-9 STEEL FRAME AND GRATE	TYPE A-12 STEEL FRAME AND GRATE	TYPE 612 14 STEEL FRAME AND GRATE	TYPE 616 14 STEEL FRAME AND GRATE	GROUTED RUBBLE PAVING		
		UNIT	CU YD	CU YD		CU YD	CU YD	CU YD	LB	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	CU YD	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CU YD		
D-1	21	DRAIN LINE	29								49																	9										21	D-1
	22	C & C CB TYPE "B"					5.9		387																						1							22	
	23	DRAIN LINE	133								190																	36										23	
	24	C & C CB TYPE "B"	16				5.6		369																						1							24	
	25	DRAIN LINE	202							245																		37										25	
	26	C & C CB TYPE "B"	16				5.7		378																						1							26	
	27	DRAIN LINE	219							245																		37										27	
	28	C & C CB TYPE "B"	15				5.5		366																						1							28	
	29	DRAIN LINE	79							103																		16										29	
	30	C & C SHALLOW MH	10				2.5		442																						1							30	
	31	DRAIN LINE	114							136																		20										31	
	32	C & C CB TYPE "A"	13				3.6		320																							1						32	
	33	STANDARD OUTLET STRUCT	3				1.5		115																													33	
	34	DRAIN LINE	113									113																27										34	
	35	DRAIN LINE	108											55														22										35	
	36	DRAIN LINE	5								10																	2										36	
D-1	37	DI TYPE "C"	8				2.2		184																													37	D-1
D-2	1	DRAIN LINE	209																				98					19										1	D-2
	2	PRECAST DMH	30					1.7	133																				15		1		1					2	
D-2	3	DRAIN LINE	76							75																		11										3	D-2
		SUBTOTAL 2	1398				32.5	1.7	2694	804	249	113		55									98					236	15		1	5	1	1				SUBTOTAL 2	





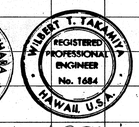
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

DRAINAGE SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111)14	1974	46	234

STRUCTURES DRAINAGE SHEET ITEM NUMBER		ESTIMATED QUANTITIES																																						ITEM NUMBER DRAINAGE SHEET
		ITEM NO.	206 .02	206 .20		206 .80	503 .002	503 .201	602 .103	603 .1006	603 .1010	603 .1012	603 .1016	603 .1018	603 .1022	603 .1024	603 .1062	603 .5050	603 .6002	603 .6180	603 .6300	603 .7200	603 .7243	603 .7260	603 .7320	603 .7379	603 .7380	603 .7500		603 .90	604 .036		604 .216	604 .218	604 .2190	604 .2191	604 .231	604 .232	604 .236	604 .237	612 .01		
		TYPE	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	STRUCTURE EXCAVATION FOR BOX CULVERTS		FILTER MATERIAL	CONCRETE FOR DRAINAGE SYSTEM	CLASS B CONCRETE OTHER THAN IN BRIDGES	REINFORCING STEEL FOR DRAINAGE SYSTEM	18-INCH RCP, CLASS III	24-INCH RCP, CLASS III	30-INCH RCP, CLASS III	42-INCH RCP, CLASS III	48-INCH RCP, CLASS III	60-INCH RCP, CLASS III	66-INCH RCP, CLASS III	66-INCH RCP, CLASS IV	30-INCH ACP, CLASS III OR 30-INCH RCP, CLASS III	42-INCH CMP, SHEET THICKNESS, 0.109 INCH OR 42-INCH RCP, CLASS III	54-INCH CMP, SHEET THICKNESS, 0.109 INCH OR 48-INCH RCP, CLASS III	60-INCH CMP, SHEET THICKNESS, 0.138 INCH OR 54-INCH RCP, CLASS III	24-INCH CMP, SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP, CLASS III OR 24-INCH ACP, CLASS III	24-INCH CMP, SHEET THICKNESS, 0.138 INCH OR 24-INCH RCP, CLASS V OR 24-INCH ACP, CLASS V	30-INCH CMP, SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP, CLASS III OR 24-INCH ACP, CLASS III	30-INCH CMP, SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	36-INCH CMP, SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	36-INCH CMP, SHEET THICKNESS, 0.109 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	42-INCH CMP, SHEET THICKNESS, 0.109 INCH OR 36-INCH RCP, CLASS III OR 36-INCH ACP, CLASS III		BED COURSE MATERIAL FOR CULVERT	CONCRETE WALL FOR PRECAST STORM DRAIN MANHOLE		TYPE B CAST IRON FRAME AND COVER FOR CATCH BASIN	TYPE P CAST IRON FRAME AND COVER FOR PRECAST STORM DRAIN MANHOLE	TYPE P FRAME AND COVER FOR CATCH BASIN	TYPE DB (CITY AND COUNTY) FRAME AND COVER FOR CATCH BASIN	TYPE A-9 STEEL FRAME AND GRATE	TYPE A-12 STEEL FRAME AND GRATE	TYPE G1214 STEEL FRAME AND GRATE	TYPE G1614 STEEL FRAME AND GRATE	GROUTED RUBBLE PAVING		
		UNIT	CU YD	CU YD		CU YD	CU YD	CU YD	LB	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT		CU YD	LIN FT		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CU YD		
D-2	4	D.I. TYPE G1214	21				4.3		612												450																	1				4	D-2
	5	DRAIN LINE	1135																										207												5	
	6	D.I. TYPE G1214	20				3.8		589																													1				6	
	7	DRAIN LINE	367																	365									142												7	
	8	D.I. TYPE "Z"	21				4.4		600																														1			8	
	9	DRAIN LINE	137																	50									20												9	
	10	D.I. TYPE "Z"	22				4.2		617																														1			10	
	11	DRAIN LINE	536																	200									78												11	
	12	D.I. TYPE "Z"	30				6.4		946																														2			12	
	13	DRAIN LINE	730																300										108												13	
	14	DRAIN LINE	384																						210				30												14	
	15	D.I. TYPE G1214	12				3.0		357																														1			15	
	16	DRAIN LINE	220																			130							25												16	
	17	D.I. TYPE G1214	10				2.6		311																														1			17	
	18	DRAIN LINE	123															75											18												18	
	19	D.I. TYPE G1214	11				2.7		322																														1			19	
	20	DRAIN LINE	84																			70							13												20	
	21	D.I. TYPE G1214	10				2.6		311																														1			21	
	22	DRAIN LINE	536																								210		50												22	
	23	PRECAST DMH	14					1.7	145																					5			1								23	
	24	DRAIN LINE	45																								25		6												24	
D-2	25	C&C CB TYPE "B"	16				5.6		369																											1						25	D-2
D-3	1	DRAIN LINE	344																			234							45												1	D-3
	2	C.B TYPE "A"	36				9.6		928																								1								2	
	3	DRAIN LINE	267																			232							44												3	
	4	C.B TYPE "A"	23				6.9		696																								1								4	
D-3	5	DRAIN LINE	162																						115				28												5	D-3
		SUBTOTAL 3	5916				56.1	17	6803									75	300	615	450	666			210	115	235		834	5		2	1	1			4	6		SUBTOTAL 3	





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DRAINAGE SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(111)14	1974	47	234

STRUCTURES — ESTIMATED QUANTITIES

DRAINAGE SHEET	ITEM NUMBER	ITEM NO.	206 .02	206 .20		206 .80	503 .002	503 .201	602 .103	603 .1006	603 .1010	603 .1012	603 .1016	603 .1018	603 .1022	603 .1024	603 .1062	603 .5050	603 .6002	603 .6180	603 .6300	603 .7200	603 .7243	603 .7260	603 .7320	603 .7379	603 .7380	603 .7500		603 .90	604 .036		604 .216	604 .218	604 .2190	604 .2191	604 .231	604 .232	604 .236	604 .237	612 .01		ITEM NUMBER	DRAINAGE SHEET
		TYPE	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	STRUCTURE EXCAVATION FOR BOX CULVERTS		FILTER MATERIAL	CONCRETE FOR DRAINAGE SYSTEM	CLASS B CONCRETE OTHER THAN IN BRIDGES	REINFORCING STEEL FOR DRAINAGE SYSTEM	18-INCH RCP, CLASS III	24-INCH RCP, CLASS III	30-INCH RCP, CLASS III	42-INCH RCP, CLASS III	48-INCH RCP, CLASS III	60-INCH RCP, CLASS III	66-INCH RCP, CLASS III	66-INCH RCP, CLASS IV	30-INCH ACP, CLASS III OR 30-INCH RCP, CLASS III	42-INCH CMP SHEET THICKNESS 0.109 INCH OR 42-INCH RCP, CLASS III	54-INCH CMP SHEET THICKNESS 0.109 INCH OR 48-INCH RCP, CLASS III	60-INCH CMP SHEET THICKNESS 0.138 INCH OR 54-INCH RCP, CLASS III	24-INCH CMP SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP, CLASS III OR 24-INCH ACP, CLASS III	24-INCH CMP SHEET THICKNESS, 0.138 INCH OR 24-INCH RCP, CLASS V OR 24-INCH ACP, CLASS V	30-INCH CMP SHEET THICKNESS, 0.079 INCH OR 24-INCH RCP, CLASS III OR 24-INCH ACP, CLASS III	30-INCH CMP SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	36-INCH CMP SHEET THICKNESS, 0.079 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	36-INCH CMP SHEET THICKNESS, 0.109 INCH OR 30-INCH RCP, CLASS III OR 30-INCH ACP, CLASS III	42-INCH CMP SHEET THICKNESS, 0.109 INCH OR 36-INCH RCP, CLASS III OR 36-INCH ACP, CLASS III		BED COURSE MATERIAL FOR CULVERT	CONCRETE WALL FOR PRECAST STORM DRAIN MANHOLE		TYPE B CAST IRON FRAME AND COVER FOR CATCH BASIN	TYPE P CAST IRON FRAME AND COVER FOR PRECAST STORM DRAIN MANHOLE	TYPE P FRAME AND COVER FOR CATCH BASIN	TYPE DB (CITY AND COUNTY) FRAME AND COVER FOR CATCH BASIN	TYPE A-9 STEEL FRAME AND GRATE	TYPE A-12 STEEL FRAME AND GRATE	TYPE G1214 STEEL FRAME AND GRATE	TYPE G1614 STEEL FRAME AND GRATE	GROUTED RUBBLE PAVING			
		UNIT	CU YD	CU YD		CU YD	CU YD	CU YD	LB	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT		CU YD	LIN FT		EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	CU YD			
D3	6	CB TYPE "C"	32				7.9		907																							1										6	D-3
	7	DRAIN LINE	307																						164				39												7	
	8	PRECAST DMH	18					2.0	174																					7		1									8	
	9	DRAIN LINE	80																					74					14												9	
	10	D.I. TYPE "Y"	14				3.7		640																												1				10	
	11	DRAIN LINE	266																					242					46												11	
	12	D.I. TYPE "Y"	14				3.8		640																												1				12	
	13	DRAIN LINE	331																					245					47												13	
	14	D.I. TYPE "Y"	19				4.9		740																												1				14	
	15	DRAIN LINE	180																										21												15	
	16	D.I. TYPE G1614	17				3.8		472																														1			16	
	17	DRAIN LINE	147																										29												17	
	18	D.I. TYPE G1614	8				1.8		257																														1			18	
	19	C.B. TYPE "A"	23				6.9		696																							1										19	
	20-21	BOX CULVERT		360		18	568		67,420																				78											14		20-21	
	22	STANDARD INLET STRUCT.	2				0.9		65		20																																22	
	23	DRAIN LINE	64																										13												23	
D3	24	CB TYPE "B"	23				6.3		730																							1										24	D-3
SUBTOTAL 4			1545	360		18	608	2.0	72,741		20											330		561		164			287	7		3	1				3		2	14	SUBTOTAL 4	
SUBTOTAL 3			5916				56.1	1.7	6803									75	300	615	450	666			210	115	235		834	5		2	1	1			4	6			SUBTOTAL 3	
SUBTOTAL 2			1308				32.5	1.7	2604	804	240	113		55									98						236	15				5	1	1					SUBTOTAL 2	
SUBTOTAL 1			5197	1633			808.4		110,107		87		180		100	450	550					365						100	939				1		1			6	1	11	SUBTOTAL 1	
TOTAL			14,056	2093		18	2099.9	5.4	192,345	804	356	113	180	55	100	450	550	75	300	615	450	1361	98	561	210	270	235	100	2296	27		5	3	6	2	1	7	12	3	25	TOTAL	

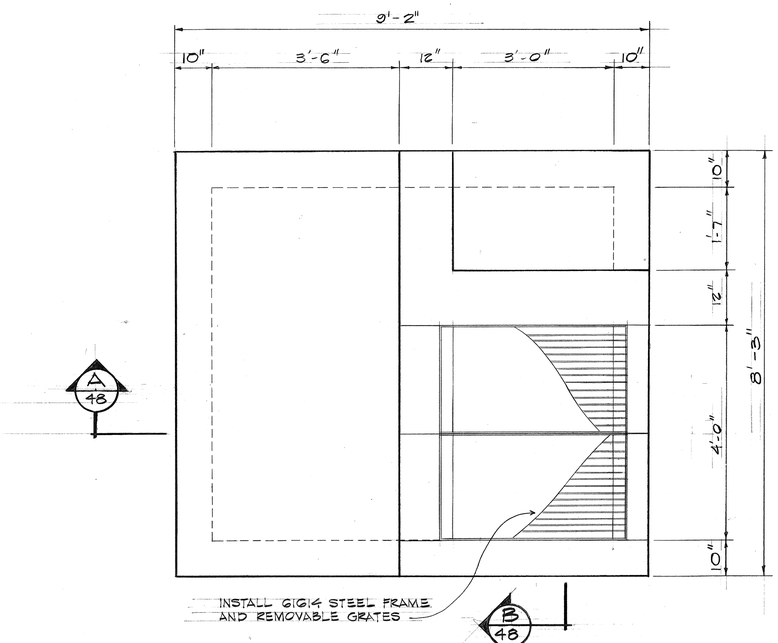
STANLEY YOSHITO UCHIDA — REGISTERED PROFESSIONAL ENGINEER — No. 3018 — HAWAII, U.S.A.

WILBERT T. TAKAMIYA — REGISTERED PROFESSIONAL ENGINEER — No. 1684 — HAWAII, U.S.A.

Wilbert T. Takamiya

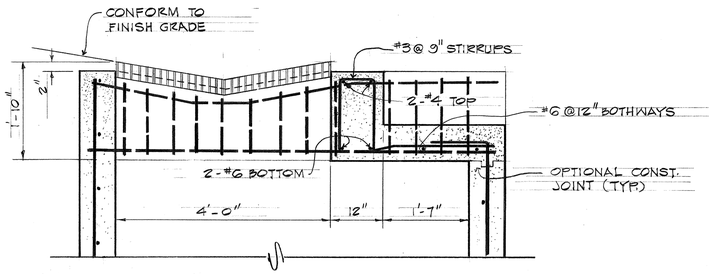
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(11):14	1974	48	234



PLAN

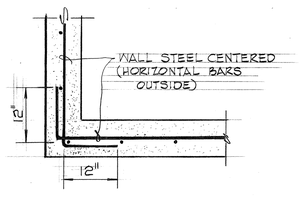
SCALE : 3/4" = 1'-0"



SECTION

SCALE : 3/4" = 1'-0"

B
48

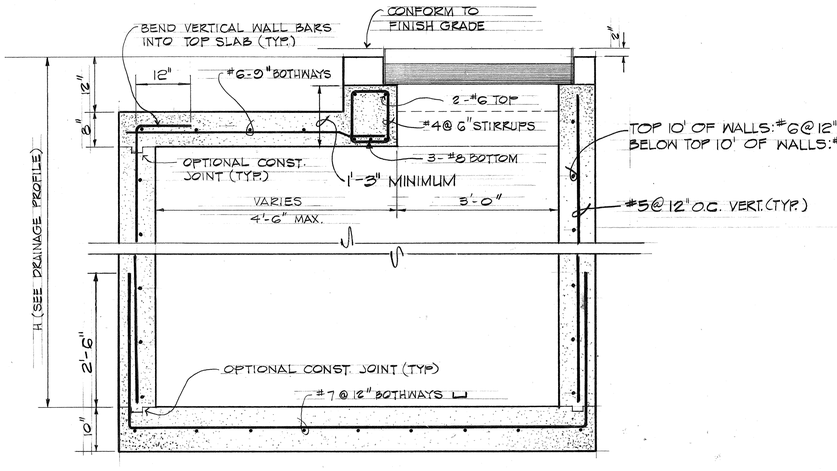


PLAN OF TYPICAL WALL CORNER REINFORCEMENT

SCALE : 3/4" = 1'-0"

GENERAL NOTES:

1. GENERAL NOTES AND APPLICABLE DETAILS FOR STANDARD DETAILS OF TYPES GI614 AND GI214 DROP INTAKES WILL APPLY, UNLESS OTHERWISE NOTED.
2. REINFORCED CONCRETE DESIGN DATA : f'c = 3000 psi (28 DAYS)
   fs = 20,000 psi
   DEFORMED BARS
3. FOR SPLICES NOT DETAILED, OVERLAP BARS 24 BAR DIAMETER OR 12" MINIMUM ; STAGGER ALL SPLICES AS APPROVED BY THE ENGINEER.
4. REINFORCING STEEL FOR BEAMS ARE TO BE 1½" CLEAR FROM FORMS.
5. UNLESS SHOWN OTHERWISE WALL REINFORCING BARS WILL BE #5 @ 12" O.C. MINIMUM BOTH DIRECTIONS CENTERED IN SLAB AND BENT INTO TOP SLAB WHERE APPLICABLE.
6. ALL VERTICAL WALL REINFORCING BARS TO BE BENT INTO TOP SLAB A MINIMUM OF 12".
7. SHORT BARS IN TOP SLAB TO BE OUTSIDE AND BELOW LONG BARS, RESPECTIVELY. SHORT BARS IN BOTTOM SLAB TO BE BELOW LONG BARS.
8. BEND WALL REINFORCEMENT AROUND PIPE CULVERT WHERE NECESSARY.
9. SLAB REINFORCEMENT TO BE CENTERED.
10. UNLESS OTHERWISE SPECIFIED MINIMUM INSIDE WIDTH OF BOX 3'-0"
11. INSIDE WALL WIDTH WHEN GREATER THAN MINIMUM TO BE THE PROJECTION OF THE EQUIVALENT CMP INSIDE DIAMETER OR RCP OUTSIDE DIAMETER.
12. ALL CONCRETE SHALL BE CLASS "A", UNLESS OTHERWISE NOTED.
13. TOP OF INTAKE TO CONFORM TO FINISH GRADE.

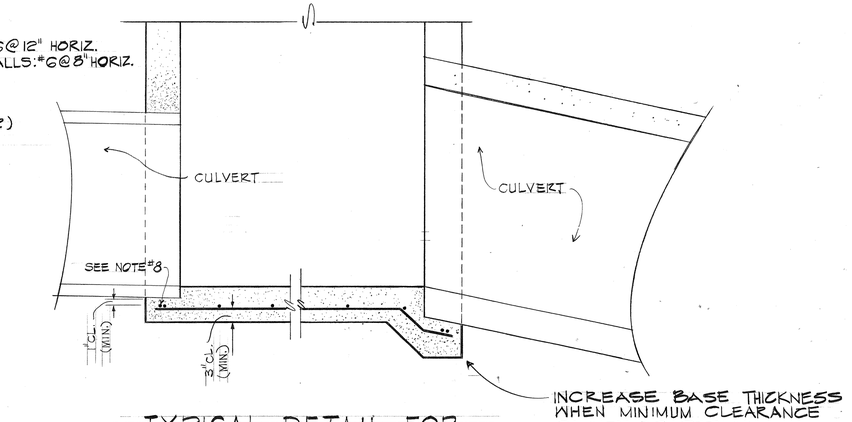


SECTION

SCALE : 3/4" = 1'-0"

A
48

DETAILS OF INTAKE "W"



TYPICAL DETAIL FOR MINIMUM INLET BASE THICKNESS

SCALE : 3/4" = 1'-0"

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

STANLEY YOSHITO UEHARA
REGISTERED PROFESSIONAL ENGINEER
No. 3018
HAWAII, U.S.A.

ROY A. SHIMABUKURO
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No. 3150
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

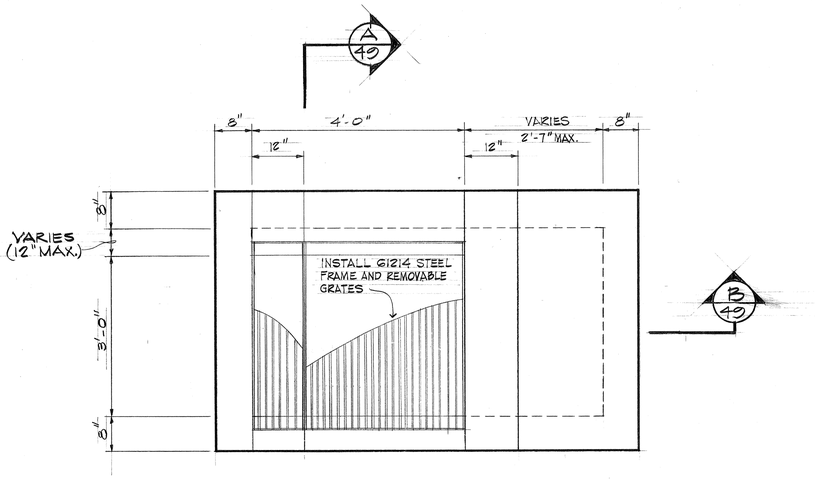
PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

Scale : As Shown Date: DEC. 14, 1973

SHEET No. 1 OF 10 SHEETS

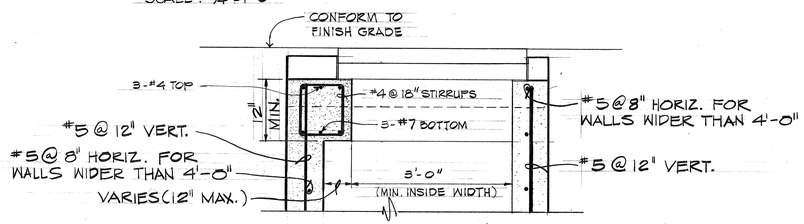
PICC - 2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	49	234



PLAN

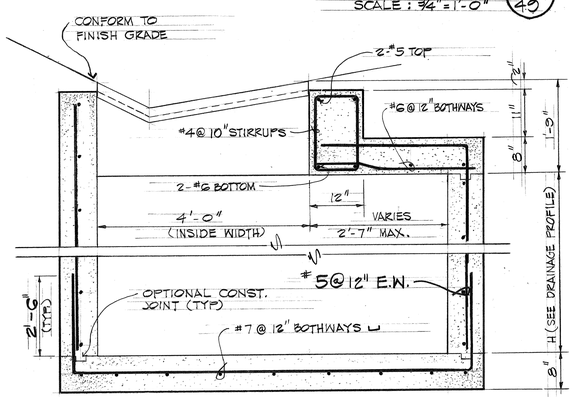
SCALE : 3/4" = 1'-0"



NOTE : OMIT BEAM STEEL WHEN MINIMUM 3' BOX USED

SECTION A 49

SCALE : 3/4" = 1'-0"

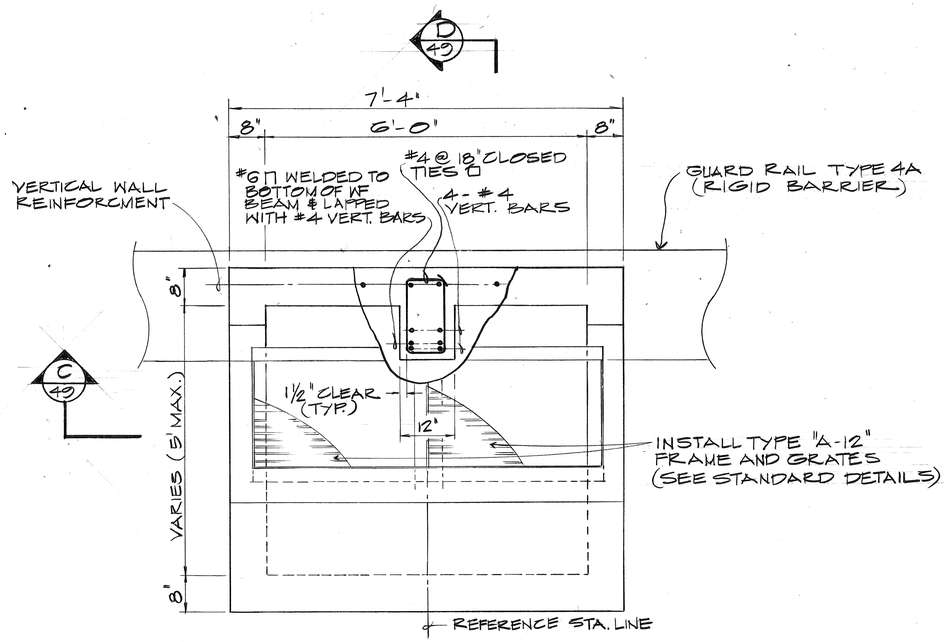


NOTE : OMIT BEAM AND TOP SLAB STEEL WHEN MINIMUM 4' BOX USED

SECTION B 49

SCALE : 3/4" = 1'-0"

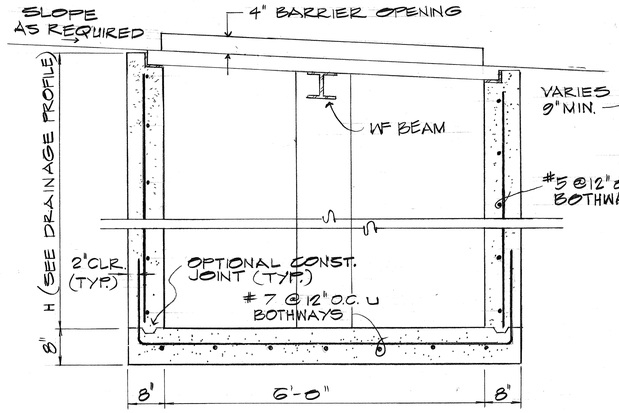
DETAILS OF INTAKE "X"



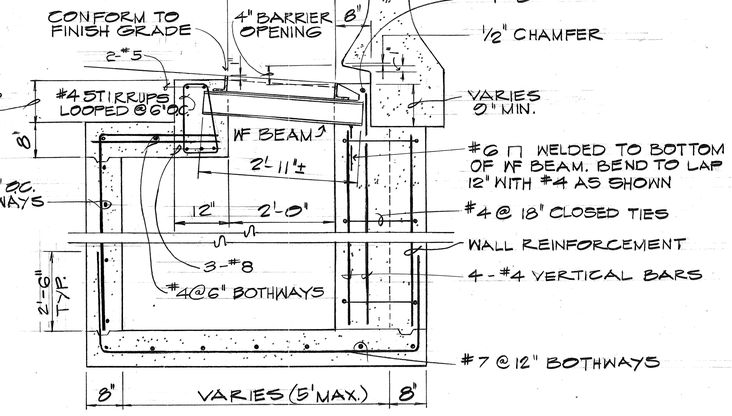
PLAN

GENERAL NOTE :

1. SEE SHEET 48 FOR GENERAL CONCRETE NOTES.



SECTION C 49



SECTION D 49

DROP INTAKE TYPE "Z"

SCALE: 3/4" = 1'-0"

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

STANLEY YOSHITO UEHARA
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DRAINAGE DETAILS

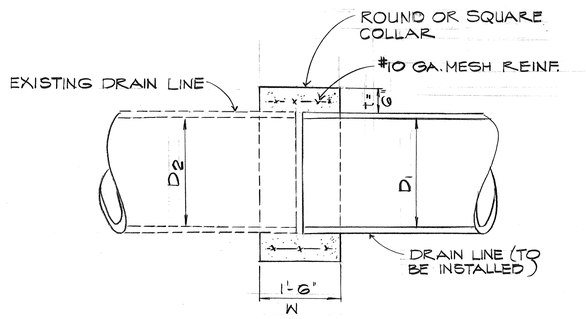
PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

Scale : As Shown Date: DEC. 14, 1973

SHEET No. 2 OF 12 SHEETS

PKG-X2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	50	234

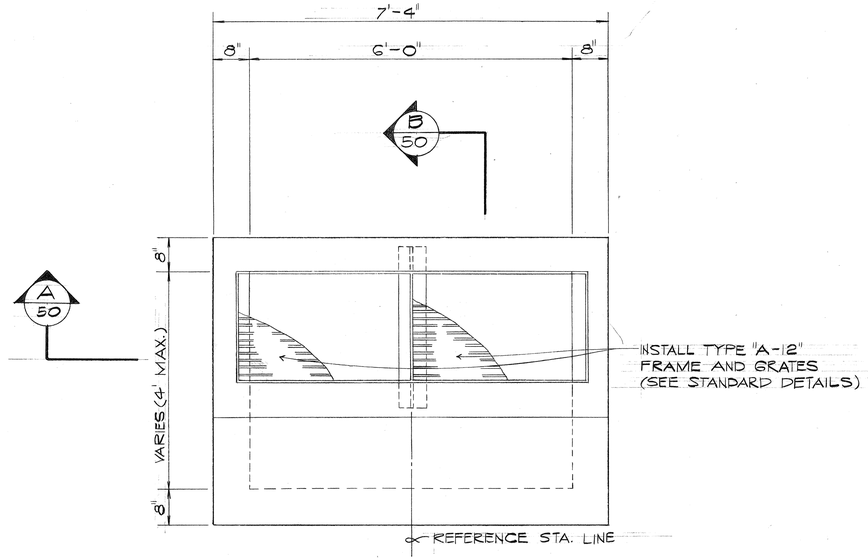


CONCRETE COLLAR CONNECTION

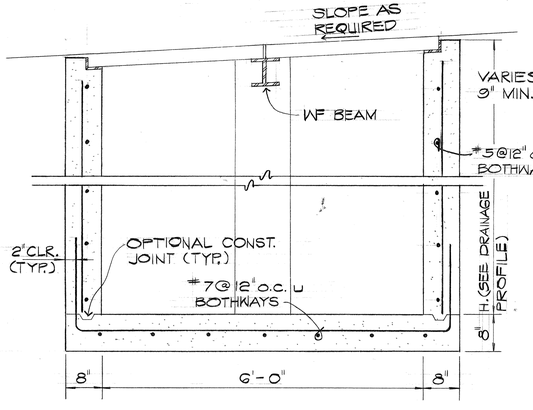
SCALE: 3/4" = 1'-0"

NOTES:

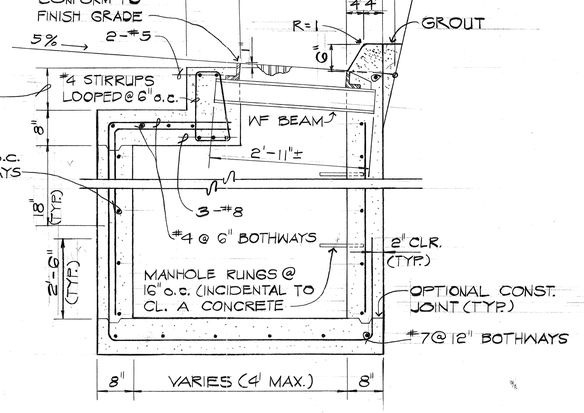
1. DRAIN LINE D_1 AND D_2 MAY BE OF DIFFERENT SIZE AND TYPE.
2. COLLAR INSTALLATION TO BE INCIDENTAL TO PIPE COST.
3. FOR DRAIN LINE CONNECTION TO EXISTING DRAIN BOX, MAKE CONCRETE COLLAR t = 6", W = 6' WITH MESH REINFORCING.
4. WHERE REMOVAL OF HEADWALL, PORTION OF PIPE TO REMAIN SHALL BE FREE OF SHATTERING OR SPALLING.



PLAN



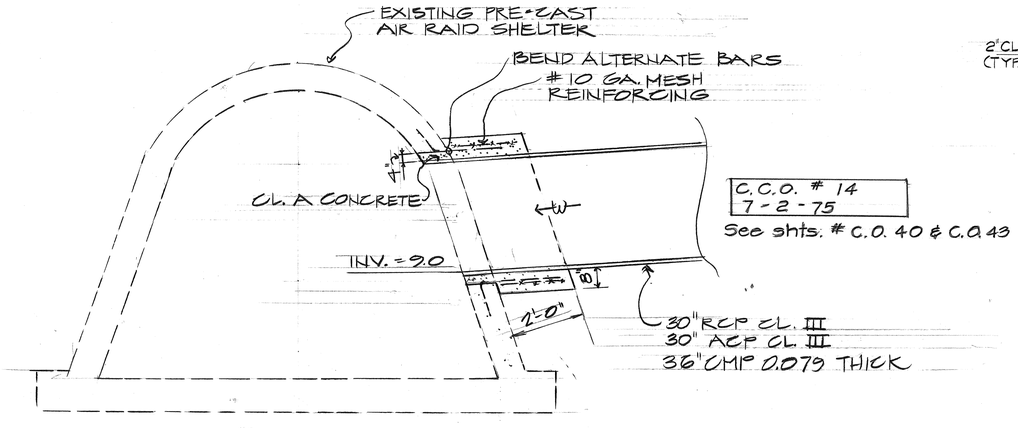
SECTION A 50



SECTION B 50

DROP INTAKE TYPE "Y"

SCALE: 3/4" = 1'-0"



C.C.O. # 14
7 - 2 - 75
See shts. # C.O. 40 & C.O. 43

CONNECTION TO PRE-CAST AIR RAID SHELTER

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

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

C.C.O. # 14
7 - 2 - 75
6/17/75 ADDED AIR RAID SHELTER CONNECTION DETAIL

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

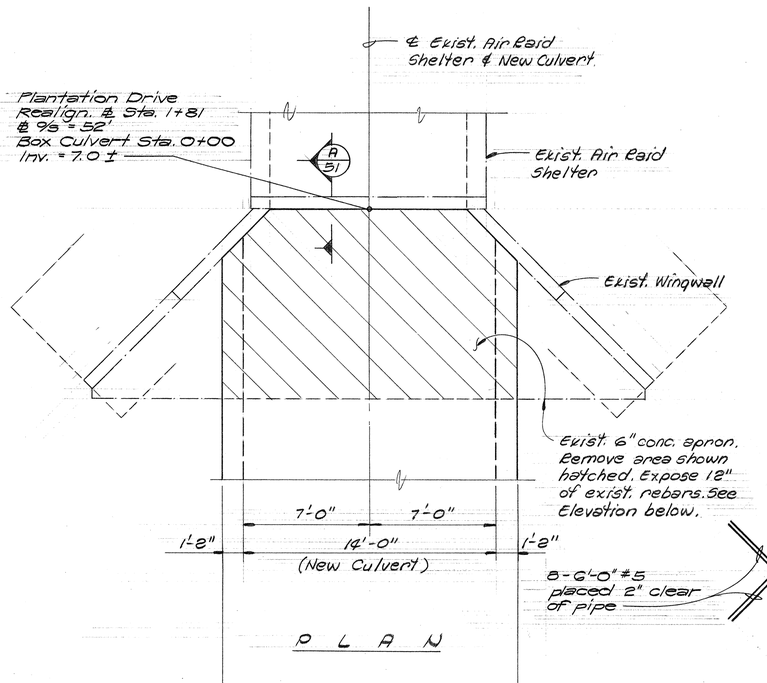
PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

Scale: As Shown Date: DEC. 14, 1973

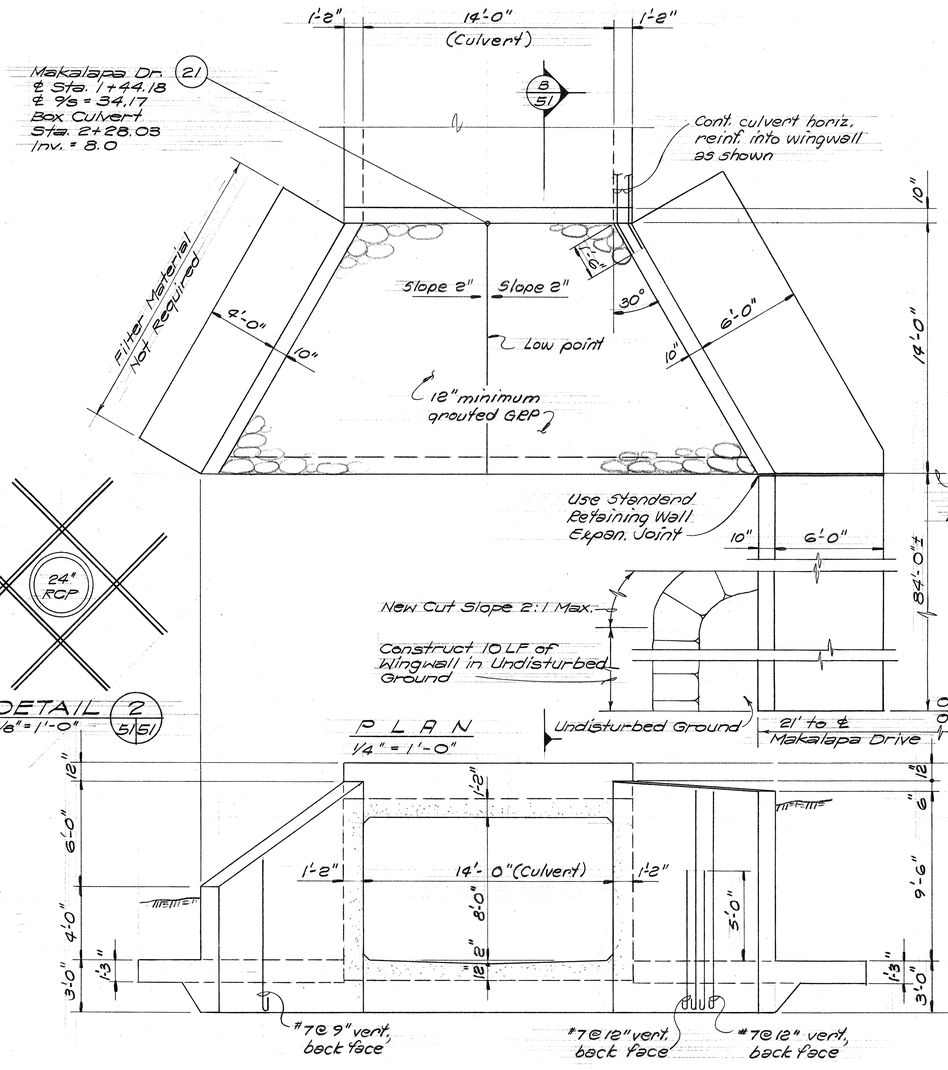
SHEET No. 3 OF 19 SHEETS

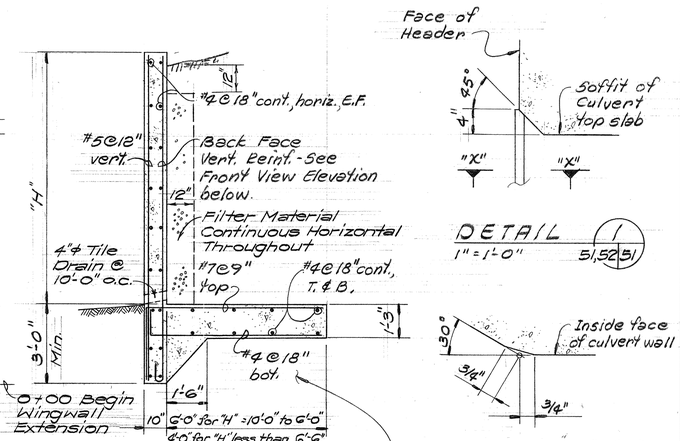
C.O. 50

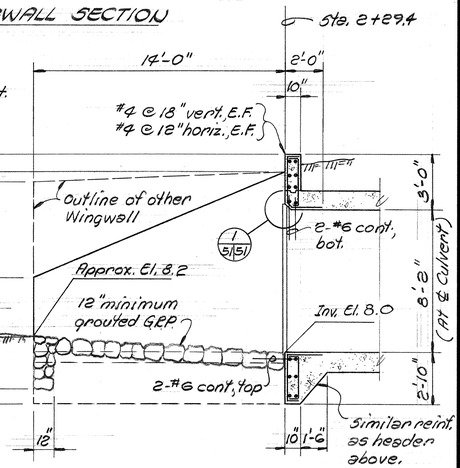
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	51	234



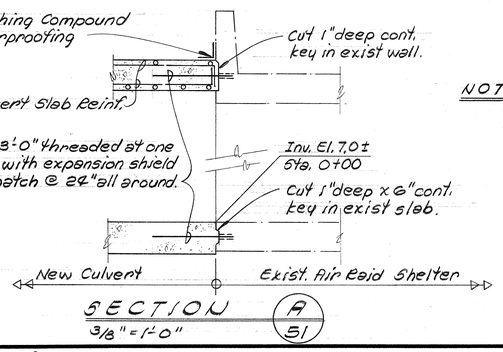
DETAIL 2 — 3/8" = 1'-0" — 5/51





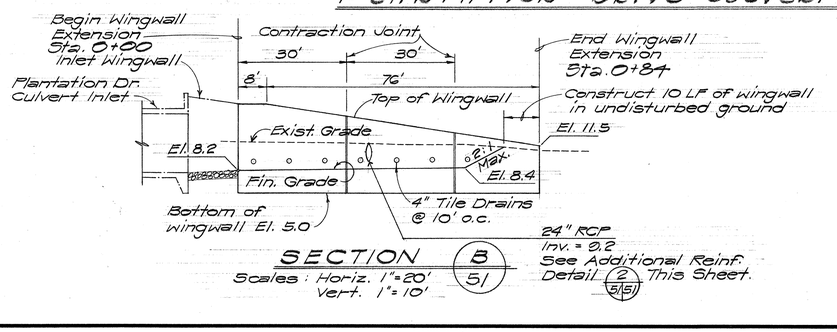


PLANTATION DRIVE CULVERT AT EXIST. AIR RAID SHELTER
1/4" = 1'-0"



NOTE: Joints for side walls shall have similar details as Section A/51

PLANTATION DRIVE CULVERT INLET DETAILS



SEE SH. 53 FOR CULVERT DETAILS & REINF. NOT SHOWN.

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ROY S. SHIMABUKURO — REGISTERED PROFESSIONAL ENGINEER — No. 1150 — HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

PLANTATION DRIVE CULVERT DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(III):14

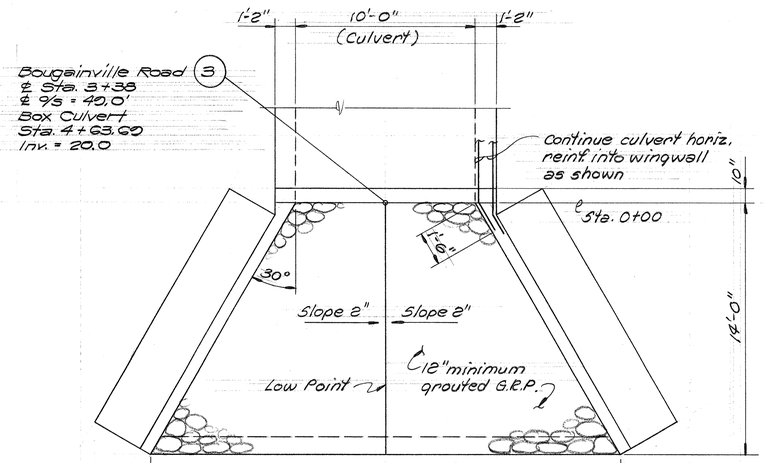
Scale: As Shown Date: DEC. 14, 1973

SHEET No. 4 OF 19 SHEETS

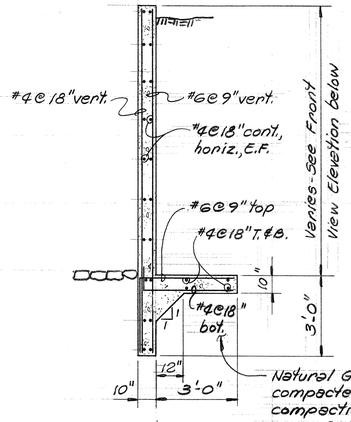
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

K&E CRYSTALENE TRACING PAPER

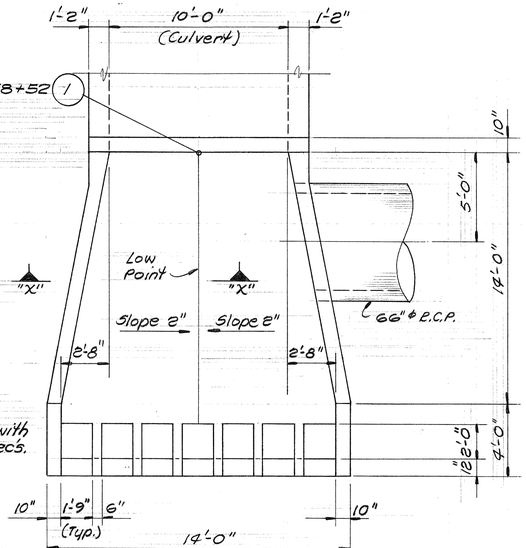
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	52	234

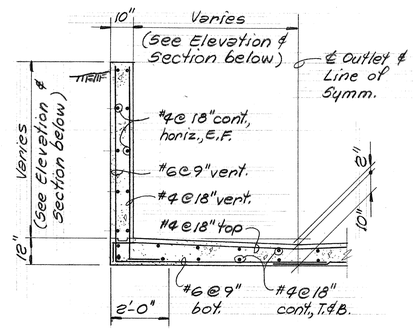


PLAN
1/4" = 1'-0"

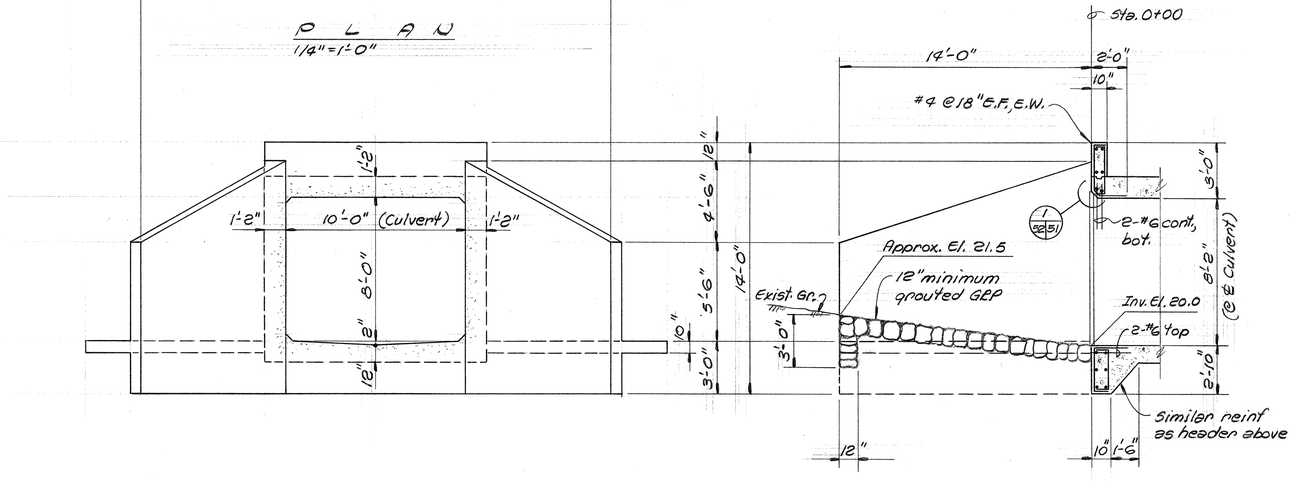


TYPICAL WINGWALL SECTION
3/8" = 1'-0"





SECTION "X" - "X"
3/8" = 1'-0"

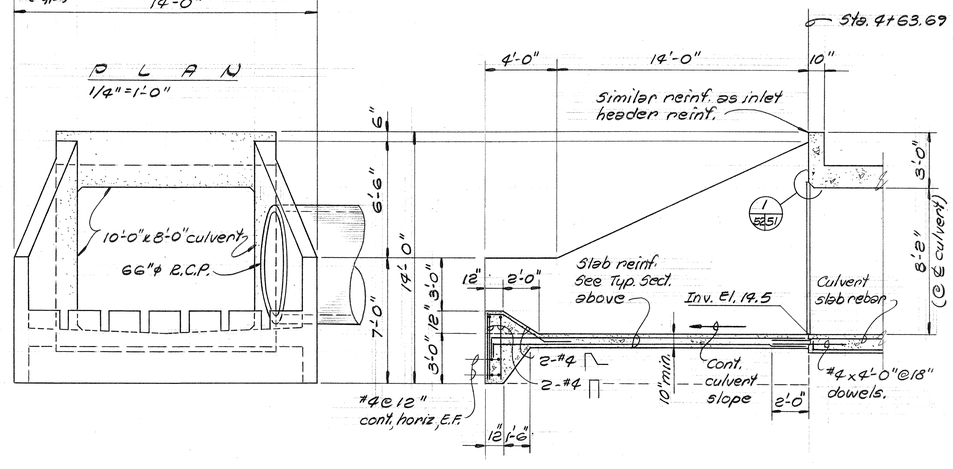


FRONT VIEW ELEVATION
1/4" = 1'-0"

TYPICAL SECTION OF INLET
1/4" = 1'-0"

BOUGAINVILLE ROAD CULVERT INLET DETAILS

PLAN
1/4" = 1'-0"



FRONT VIEW ELEVATION
1/4" = 1'-0"

TYPICAL SECTION OF OUTLET
1/4" = 1'-0"

BOUGAINVILLE ROAD CULVERT OUTLET DETAILS

SEE SH. 51 FOR CULVERT DETAILS & REINF. NOT SHOWN.

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

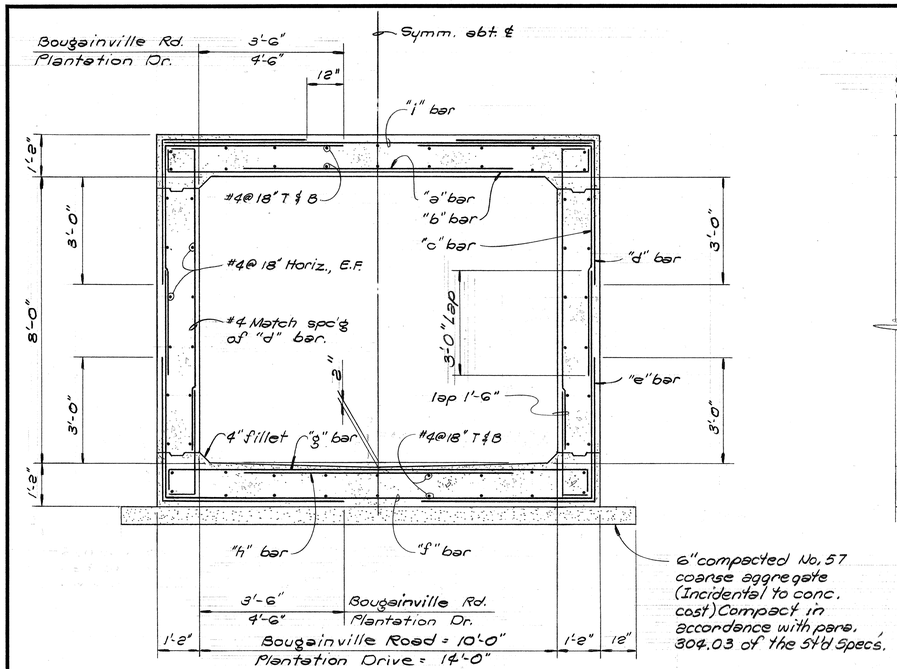
DRAINAGE DETAILS
BOUGAINVILLE ROAD
CULVERT DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

Scale: As Shown Date: DEC. 14, 1973

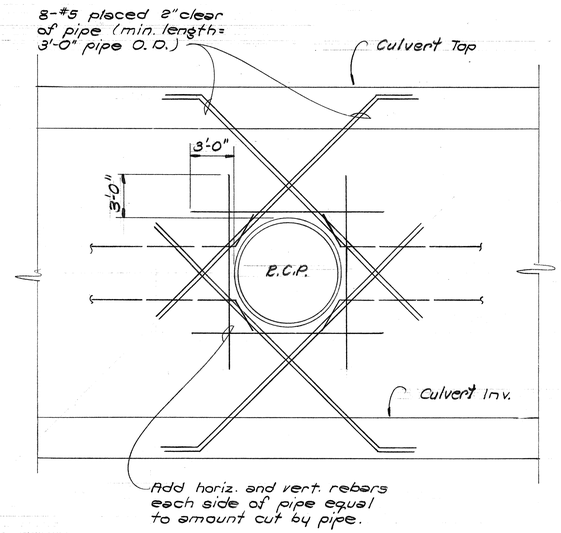
SHEET No. 5 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-I(III):14	1974	53	234



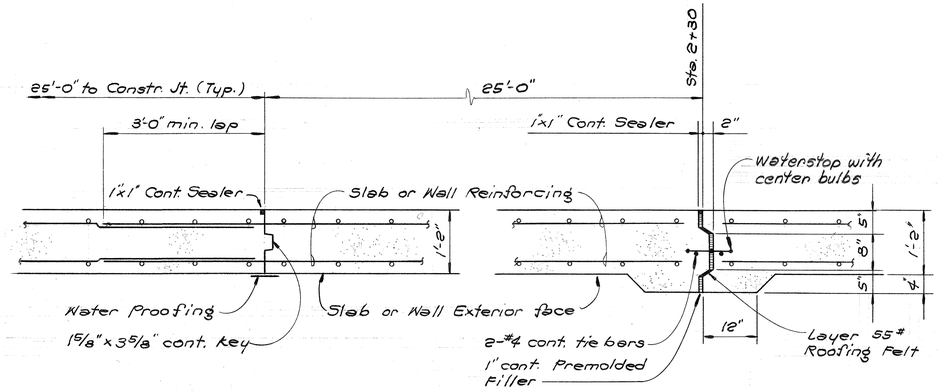
TYPICAL SECTION

1/8" = 1'-0"



TYPICAL JUNCTION DETAIL

1/2" = 1'-0"



TYPICAL CONSTRUCTION JOINT

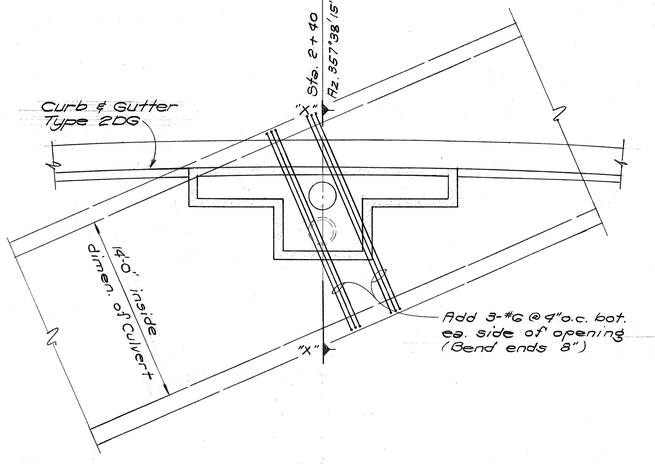
3/4" = 1'-0"

TYPICAL EXPANSION JOINT

3/4" = 1'-0"

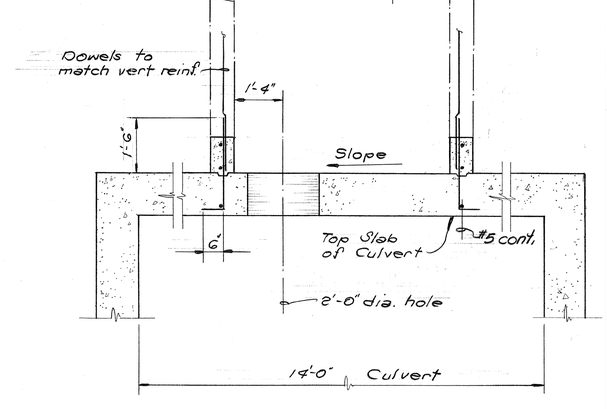
CULVERT SCHEDULE

BOUGAINVILLE RD.	"a" bar	"b" bar	"c" bar	"d" bar	"e" bar	"f" bar	"g" bar	"h" bar	"i" bar
Sta. 0+00 → 3+60	#6 x 7'-6" @ 12"	#6@12"	#5@12"	#5@12"	#6@12"	#6@12"	#6@12"	#6 x 7'-6" @ 12"	#5@24"
Sta. 3+60 → 4+63.69	#6 x 7'-6" @ 14"	#5@14"	#5@14"	#5@14"	#6@14"	#5@14"	#6@14"	#6 x 7'-6" @14	#5@28"
PLANTATION DR.	"a" bar	"b" bar	"c" bar	"d" bar	"e" bar	"f" bar	"g" bar	"h" bar	"i" bar
Sta. 0+00 → 0+50	#6 x 10'-6" @ 18"	#6@18"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#6 x 10'-6" @ 12"	#5@24"
Sta. 0+50 → 2+23.4	#6 x 10'-6" @ 18"	#5@18"	#5@12"	#5@12	#6@12"	#5@12"	#6@12"	#6 x 10'-6" @ 12"	#5@24"



PARTIAL PLAN - PLANTATION DRIVE CULVERT AT CATCH BASIN

3/16" = 1'-0"



SECTION "X"-"X"

1/2" = 1'-0"

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGN BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | No.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

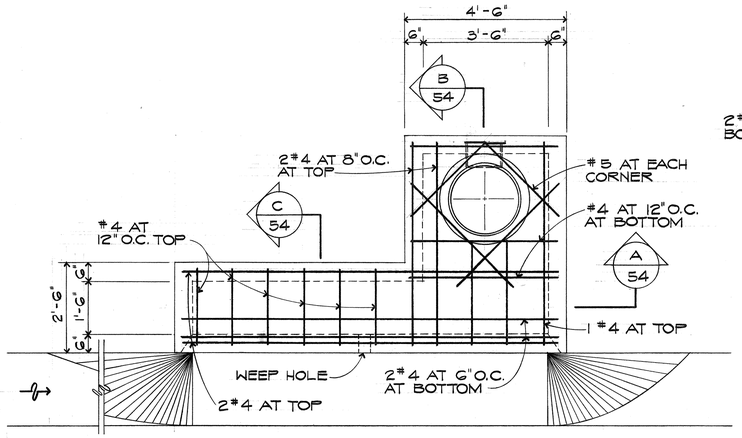
CULVERT DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

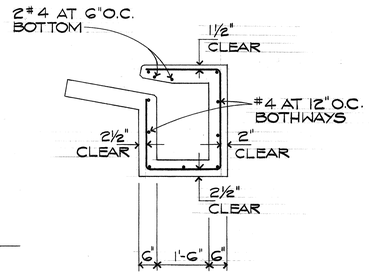
Scale: As Shown — Date: DEC. 14, 1973

SHEET No. 6 OF 10 SHEETS

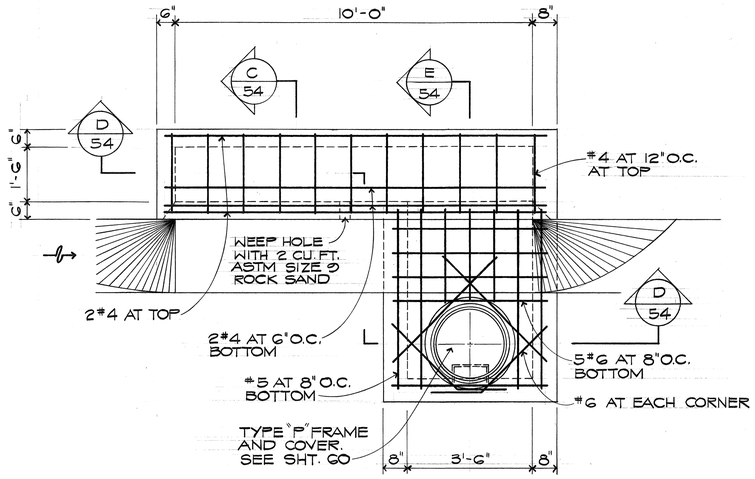
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	54	234



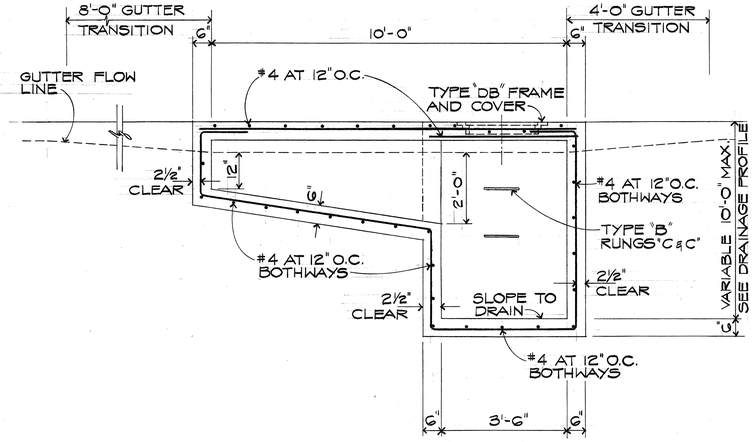
PLAN



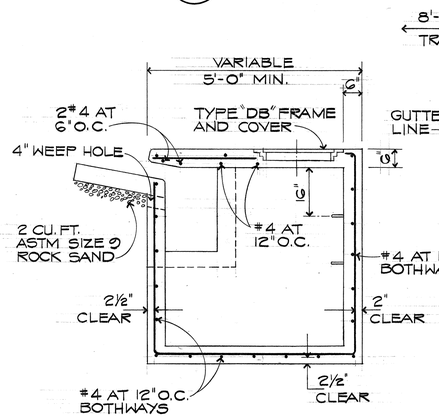
SECTION C 54



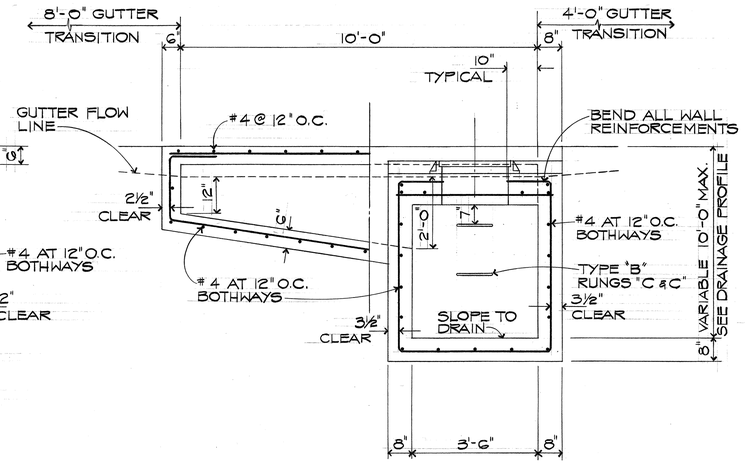
PLAN



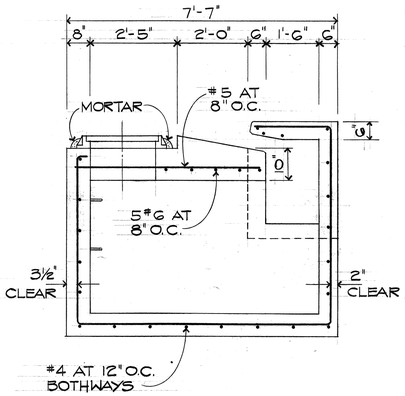
SECTION A 54



SECTION B 54



SECTION D 54



SECTION E 54

TYPE "A" CATCH BASIN "C & C"

SCALE: ½"= 1'-0"

TYPE "B" CATCH BASIN "C & C"

SCALE: ½"= 1'-0"

NOTES:

1. PAYMENT FOR MISCELLANEOUS ITEMS SUCH AS WEEP HOLES, ROCK SAND, RUNGS ETC. IS TO BE INCIDENTAL TO CONCRETE FOR DRAINAGE SYSTEM.
2. RUNGS SHALL NOT BE INSTALLED OVER PIPE CONNECTIONS AND THE LOWEST RUNG SHALL NOT BE MORE THAN 24" ABOVE THE INVERT.
3. ROUND OPENINGS OF OUTLET PIPE. MINIMUM RADIUS = 0.15 PIPE DIAMETER.
4. SPLICED REINFORCING BARS SHALL BE LAPPED AT LEAST 30 DIAMETERS.
5. FOR ADDITIONAL DETAILS, SEE SHEET 55.

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

STANLEY YOSHITO UBUKATA — REGISTERED PROFESSIONAL ENGINEER — No. 3018 — HAWAII, U.S.A.

WILBERT T. TAKAMIYA — REGISTERED PROFESSIONAL ENGINEER — No. 1484 — HAWAII, U.S.A.

Wilbert T. Takamiya

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

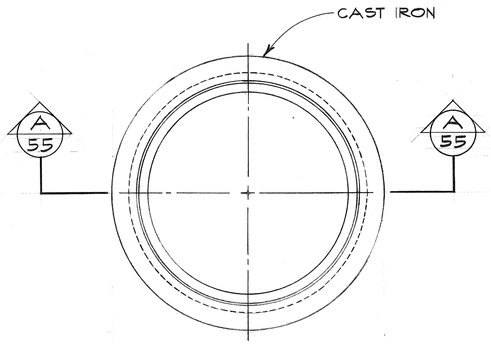
DRAINAGE DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(111):14

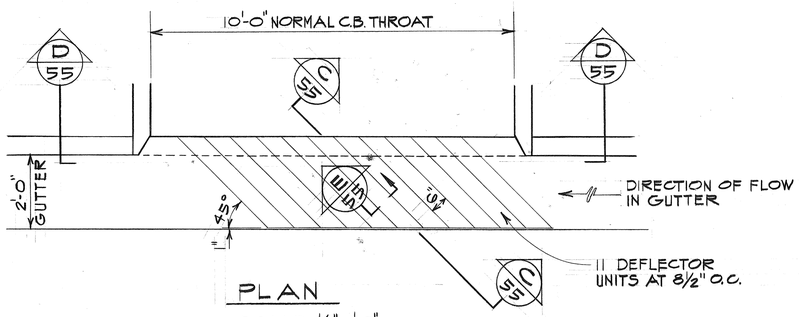
SCALE: AS SHOWN DATE: DEC. 14, 1973

SHEET No. 7 OF 19 SHEETS

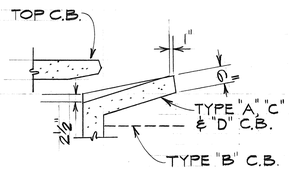
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111)14	1974	55	234



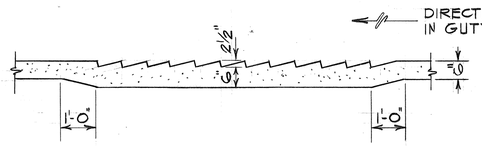
PLAN



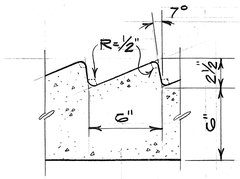
PLAN
SCALE: ½"=1'-0"



SECTION C 55
SCALE: ½"=1'-0"

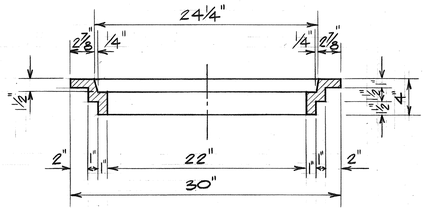


SECTION D 55
SCALE: ½"=1'-0"



SECTION E 55
SCALE: 2"=1'-0"

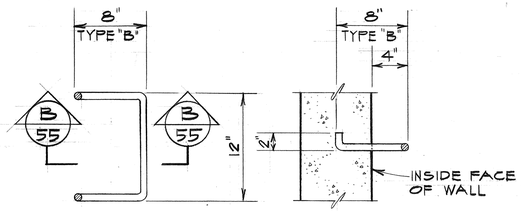
DEFLECTOR INLET FOR CATCH BASIN "C & C"



SECTION A 55

TYPE "DB" FRAME "C & C"

SCALE: 1½"=1'-0"

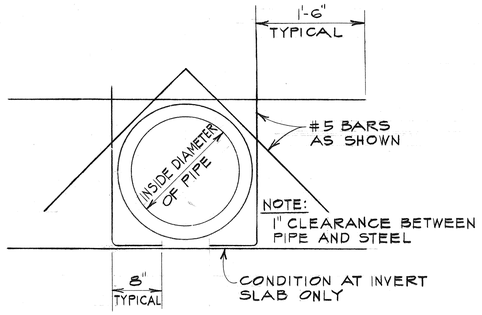


PLAN SECTION B 55

NOTE:
RUNGS SHALL BE ¾" GENUINE WROUGHT IRON AND SHALL BE HOT-DIPPED GALVANIZED OR CADMIUM PLATED AFTER BENDING

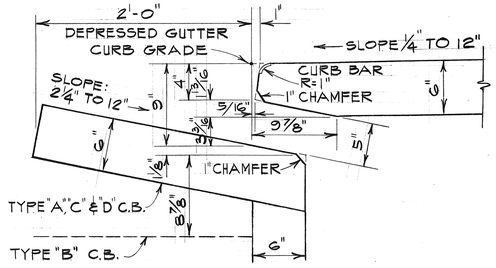
TYPE "B" RUNGS "C & C"

SCALE: 1½"=1'-0"



TYPICAL REINFORCEMENT AT PIPES "C & C"

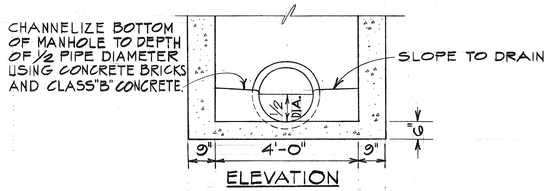
SCALE: 1"=1'-0"



ELEVATION

CURB OPENING DETAIL "C & C"

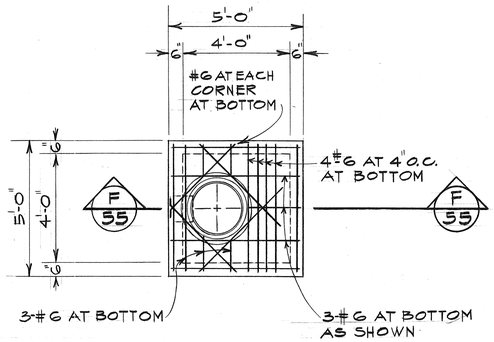
SCALE: 1½" = 1'-0"



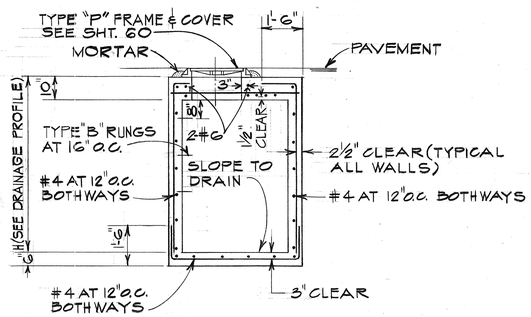
ELEVATION

CHANNELIZING DETAILS FOR STORM DRAIN MANHOLE "C & C"

SCALE: ½" = 1'-0"



PLAN



SECTION F 55

STORM DRAIN SHALLOW MANHOLE FOR PAVEMENT AREA "C & C"

SCALE: ⅜" = 1'-0"

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

ERNEST YOSHITO SHIRAI
REGISTERED PROFESSIONAL ENGINEER
No. 3018
HAWAII, U.S.A.

WILBERT T. TAKAMIYA
REGISTERED PROFESSIONAL ENGINEER
No. 1484
HAWAII U.S.A.

Wilbert T. Takamiya
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

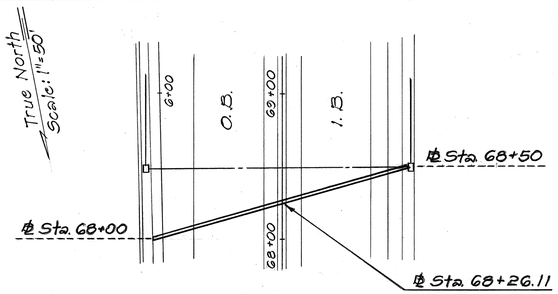
DRAINAGE DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. PROJ. NO. I - HI - 1(111) : 14

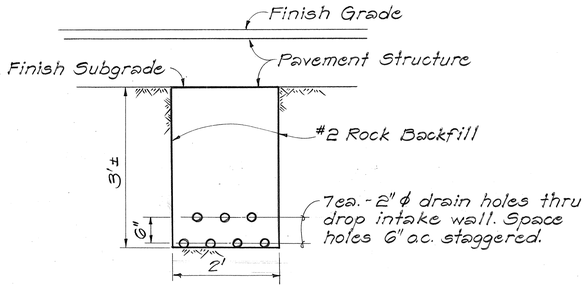
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SHEET No. 8 OF 10 SHEETS

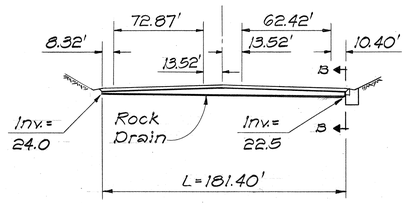
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1978	55 S-1	234



PLAN

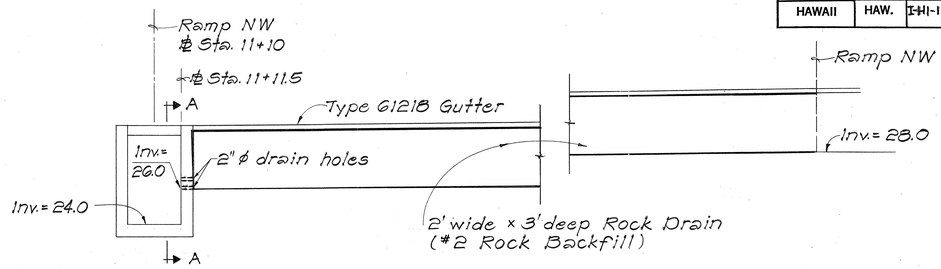


SECTION B-B
Scale: 3/4"=1'-0"

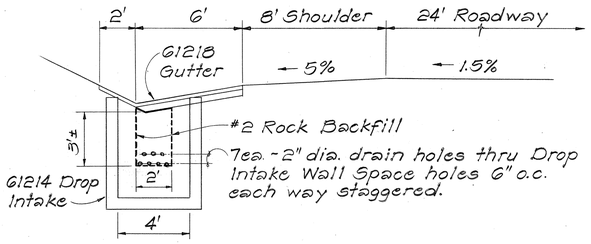


PROFILE ALONG ROCK DRAIN
℄ STA. 68+00 LT. TO 68+50 RT.
Scale: 1"=50'

C.C.O. #23
See Sht. 38



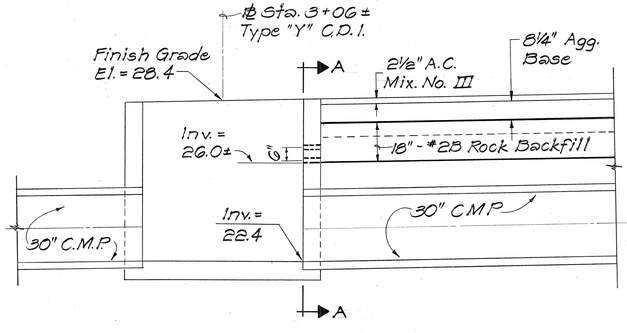
PROFILE - 2' x 3'± ROCK DRAIN
RAMP NW STA. 11+10 TO 13+50
Scale: 1/4"=1'-0"

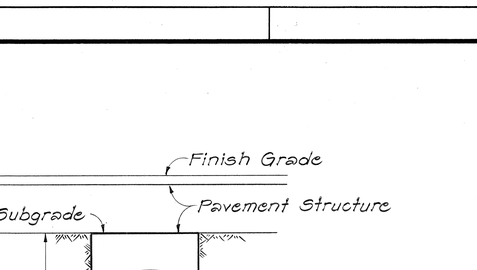


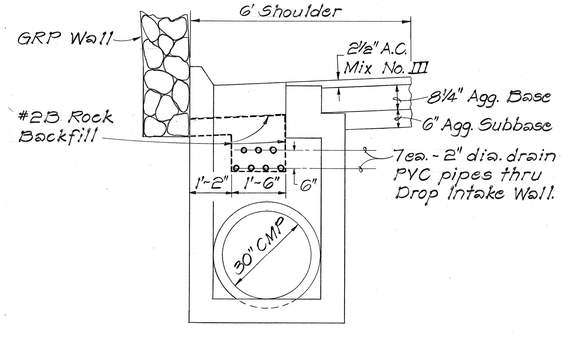
SECTION A-A
Scale: 1/4"=1'-0"

NOTES:
1. Cost of 2" ϕ drain holes incidental to Rock Drain.
2. Backfill with #2B Rock for Rock Drain.
3. Nominal size of #2B Rock shall be 2½"-1½".

C.C.O. #23
See Sht. C.O 39R





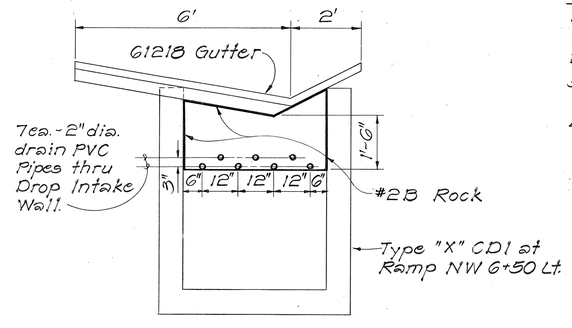


PROFILE ALONG ROCK DRAIN
KAM. HWY. STAS. 3+06± TO 5+41± Rt. LT.
Scale: 3/8"=1'-0"

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

NOTES:
1. Material cost of 2" ϕ PVC drain pipes incidental to Rock Drain.
2. Backfill with #2B Rock for Rock Drain.
3. Nominal Size of #2B Rock shall be 2½" - 1½".

C.C.O #30
See Sht. 15 & C.O.40



1.5' x 4.0' ROCK DRAIN - RAMP NW STA. 6+50 TO 11+10 LT.
Scale: 1/2"=1'-0"

NOTES:
1. Material cost of 2" diam. PVC drain pipes incidental to rock drain.
2. Backfill with #2B Rock for rock drain.
3. Nominal size of #2B rock shall be 2½" - 1½".
4. Grouting is required around the PVC drain pipes.

C.C.O. #23
See Sht. C.O 39R

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(III):14

Scale as Shown Date: Dec. 1977

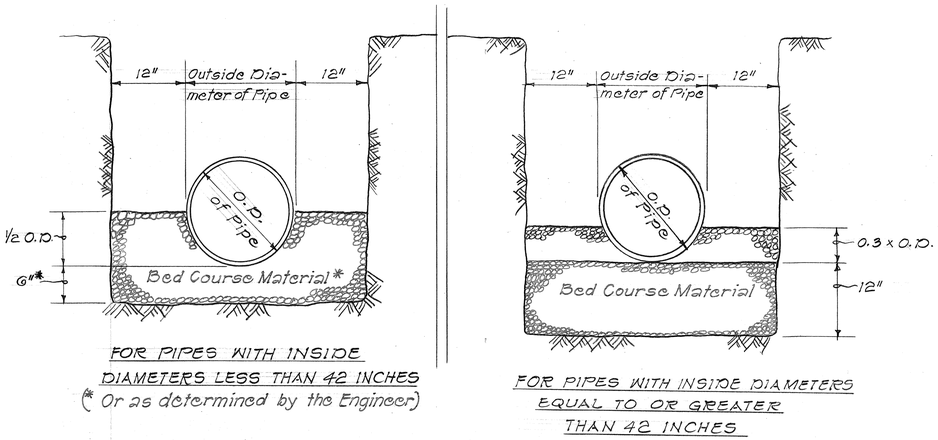
SHEET No. OF SHEETS

THIS TRACING PREPARED DURING "AS-BUILT" POSTING

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

55 S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1978	55S-2	234

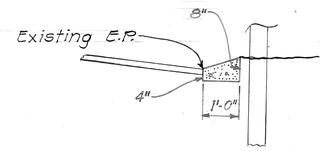


FOR PIPES WITH INSIDE DIAMETERS LESS THAN 42 INCHES
(* Or as determined by the Engineer)

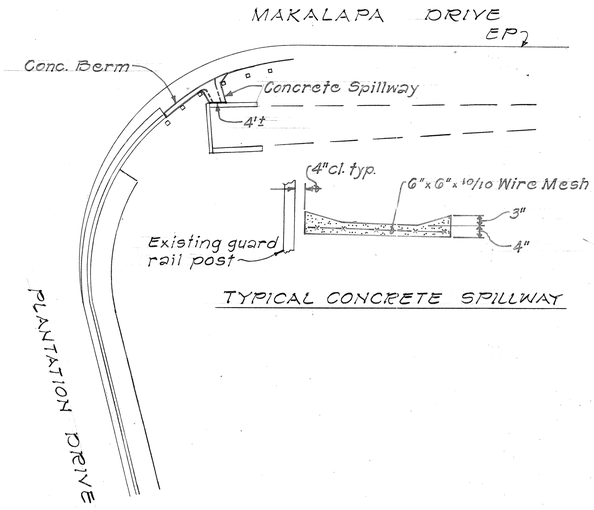
FOR PIPES WITH INSIDE DIAMETERS EQUAL TO OR GREATER THAN 42 INCHES

TYPICAL BEDDING DETAIL

FIELD DIRECTIVE
OCT. 8, 1974



TYPICAL CONCRETE BERM



TYPICAL CONCRETE SPILLWAY

FIELD DIRECTIVE
MAY 4, 1976

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

THIS TRACING PREPARED DURING "AS-BUILT" POSTING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

PEARL HARBOR INTERCHANGE
F.A.I. Proj. No. I-HI-1(111):14

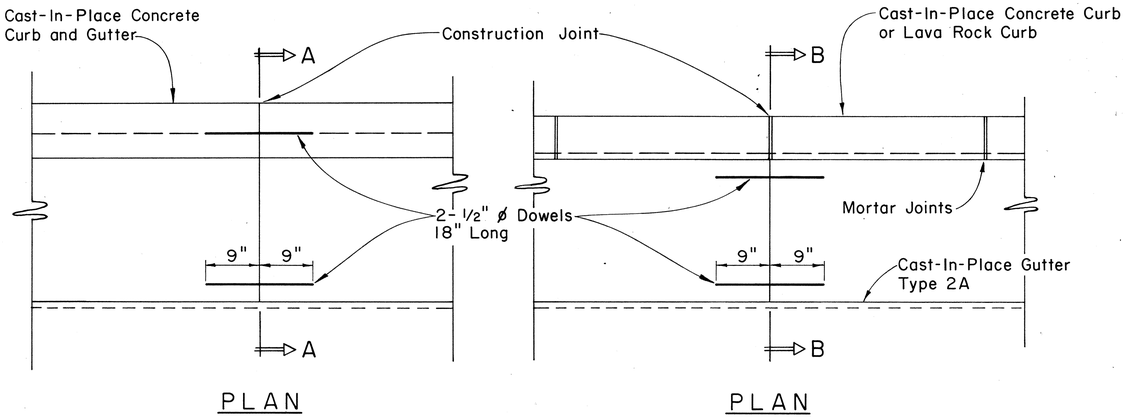
Not to Scale Date: DEC 1977

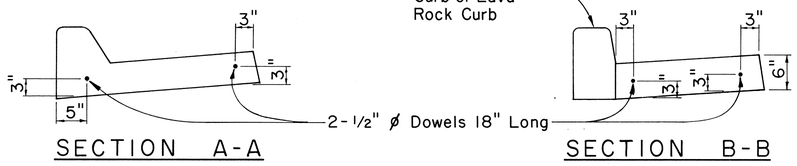
SHEET NO. OF SHEETS

55 S-2

DD-B-2-4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(11)14	1974	56	234



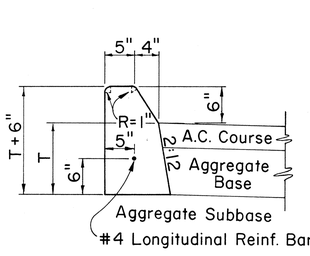


CAST-IN-PLACE CURB & GUTTER

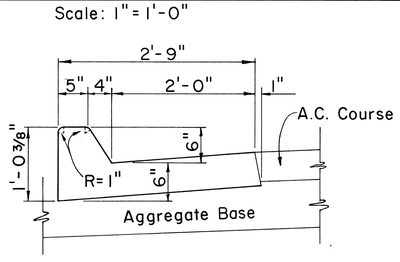
CAST-IN-PLACE GUTTER

CONSTRUCTION JOINT DETAIL

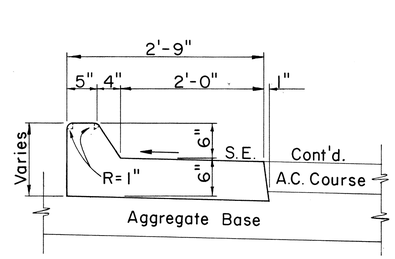
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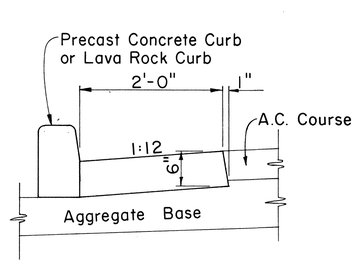
CURB, TYPE 2A



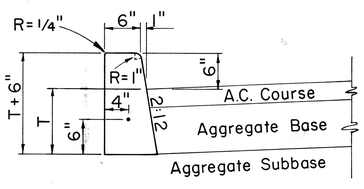
CURB & GUTTER, TYPE 2AG



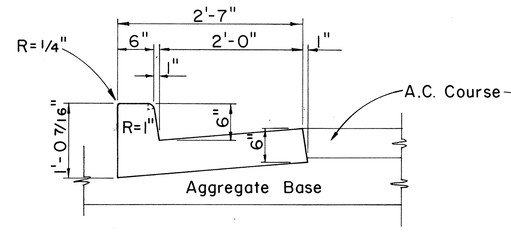
CURB & GUTTER, TYPE 2AGM



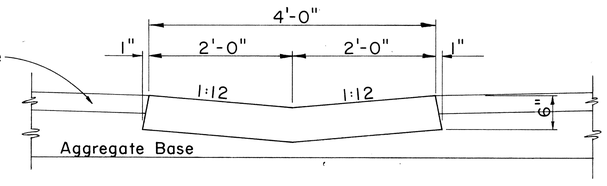
GUTTER, TYPE 2A



CURB, TYPE 2D



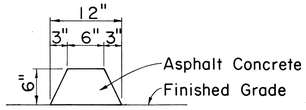
CURB & GUTTER, TYPE 2DG



GUTTER, TYPE 2G

CAST-IN-PLACE CONCRETE CURBS AND/OR GUTTERS

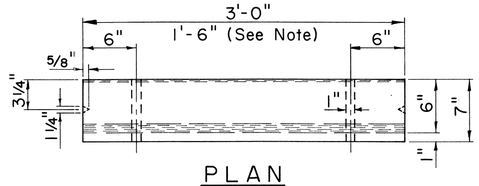
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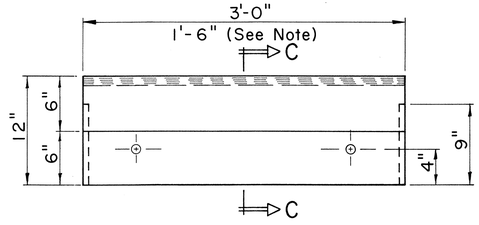


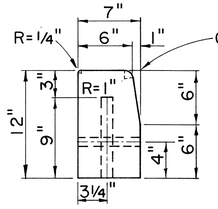
CURB, TYPE 6

BITUMINOUS CURB

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







NOTE:
For curb returns use 1'-6" pre-cast concrete curbs.

SECTION C-C

CURB, TYPE 3D

PRE-CAST CONC. CURB

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

APPROVAL RECOMMENDED:

M. Hirozawa — HIGHWAY DESIGN ENGINEER — 12-4-69 DATE

APPROVED:

[signature] — ASSISTANT CHIEF, ENGINEERING — 12-10-69 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

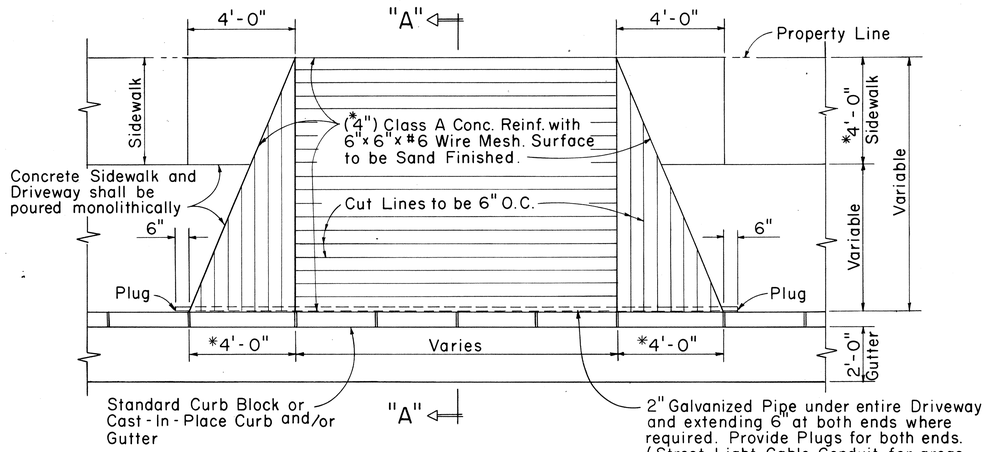
TYPICAL DETAILS OF CURB AND/OR GUTTERS

Scale: As Shown

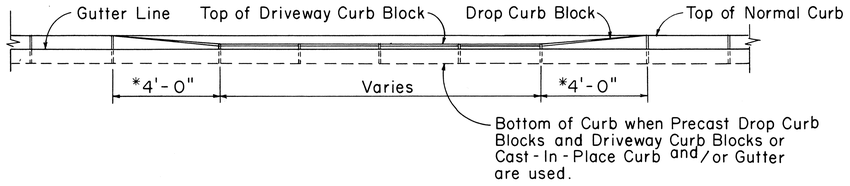
SHEET No. 9 OF 19 SHEETS | DD 609.1

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(11)14	1974	57	234

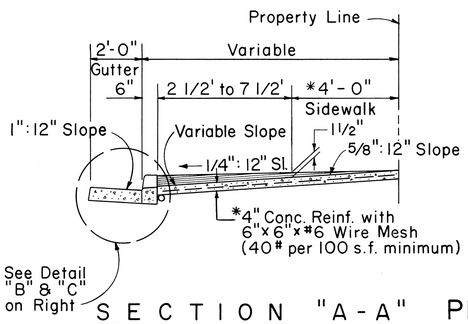


P L A N
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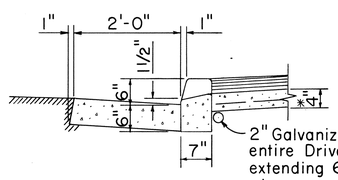


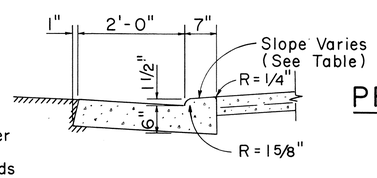
E L E V A T I O N
Scale: 3/8"=1'-0"

Dist. Curb Line to ℄	Slope
12'	5/8" to 12"
10'	3/4" to 12"
8'	1" to 12"
7'	7/8" to 12"
6'	1" to 12"
3'	13/4" to 12"



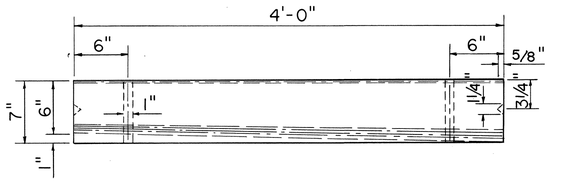
S E C T I O N "A-A"
Scale: 3/8"=1'-0"



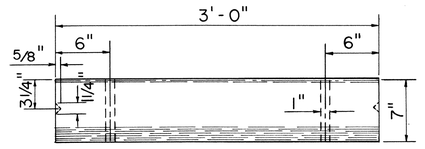


PRE-CAST DRIVEWAY CURB AND CAST-IN-PLACE GUTTER
D E T A I L "B"
Scale: 3/4"=1'-0"

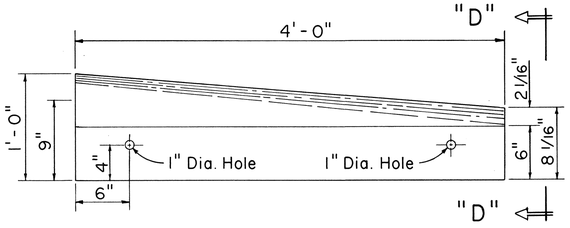
CAST-IN-PLACE INTEGRAL DRIVEWAY CURB AND GUTTER
D E T A I L "C"
Scale: 3/4"=1'-0"



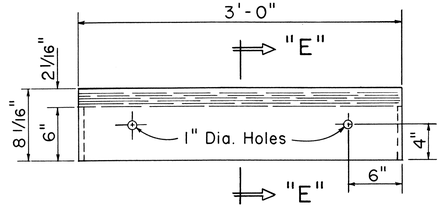
P L A N
Scale: 1 1/2"=1'-0"



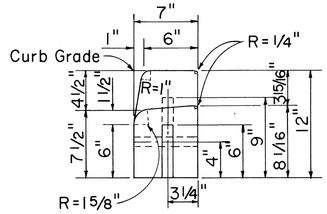
P L A N
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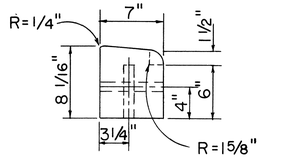
E L E V A T I O N
Scale: 1 1/2"=1'-0"



E L E V A T I O N
Scale: 1 1/2"=1'-0"



S E C T I O N "D-D"
Scale: 1 1/2"=1'-0"



S E C T I O N "E-E"
Scale: 1 1/2"=1'-0"

PRE-CAST CONC. DROP CURB BLOCK

PRE-CAST CONC. DRIVEWAY CURB

NOTE:

1. *Use dimension shown unless otherwise noted on the plans.

TYPICAL DETAILS OF REINF. CONC. DROP DRIVEWAY

Scale: As Noted

APPROVAL RECOMMENDED:
HIGHWAY DESIGN ENGINEER — DATE 12-4-69

APPROVED:
ASSISTANT CHIEF, ENGINEERING — DATE 12-10-69

NO.	REVISION	APPROVED BY	DATE

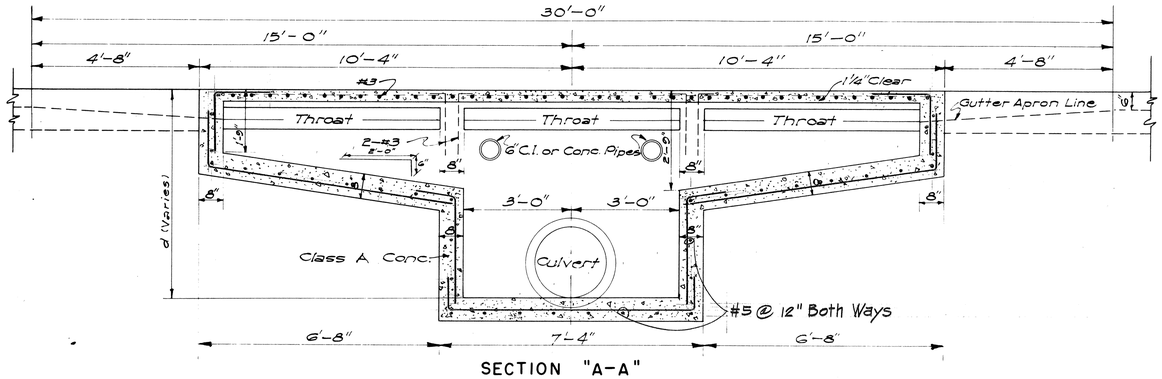
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
TYPICAL DETAILS OF
REINF. CONC. DROP DRIVEWAY
Scale: As Shown

SHEET No. 10 OF 10 SHEETS | DD 610.1

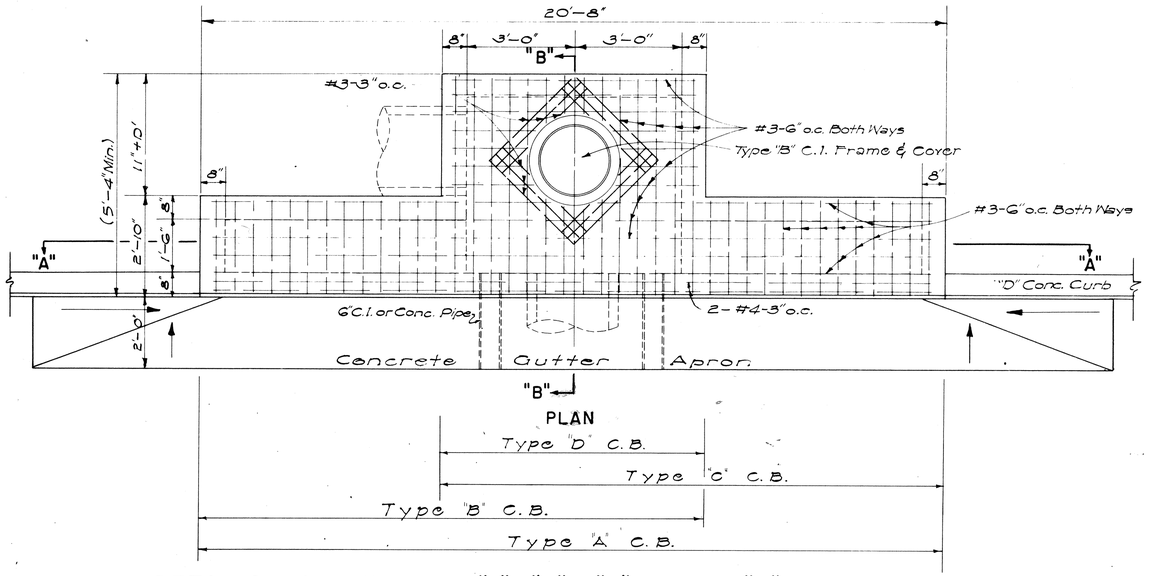
ORIGINAL PLAN
NOTE BOOK
No.
DATE
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

2/17/59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	58	234



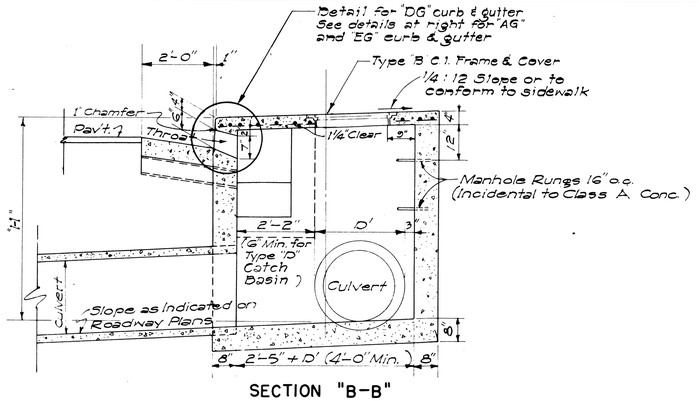
SECTION "A-A"



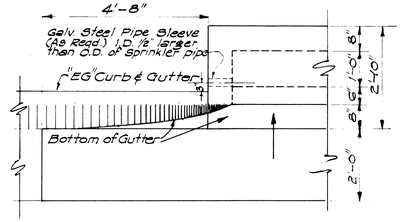
PLAN

DETAILS OF TYPES "A", "B", "C" AND "D" CATCH BASINS

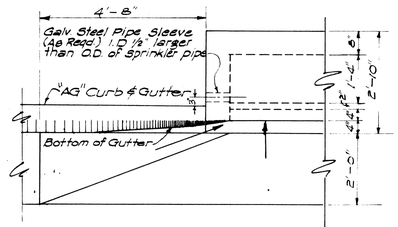
SCALE: 1/2" = 1'-0"



SECTION "B-B"

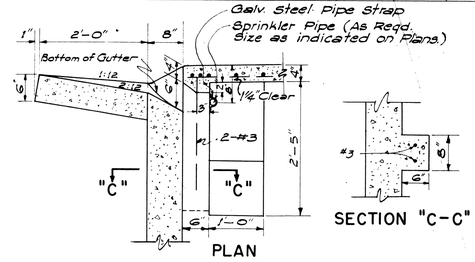


DETAIL OF CATCH BASIN
WITH "EG" CURB & GUTTER



DETAIL OF CATCH BASIN
WITH "AG" CURB & GUTTER

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

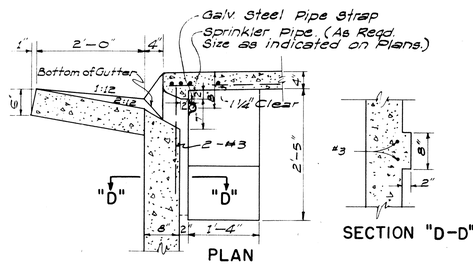


PLAN

SECTION "C-C"

THROAT DETAIL FOR
"EG" CURB & GUTTER

SCALE: 3/4" = 1'-0"



PLAN

SECTION "D-D"

THROAT DETAIL FOR
"AG" CURB & GUTTER

SCALE: 3/4" = 1'-0"

ESTIMATED QUANTITIES

Type	Class A Conc	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D"	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

GENERAL NOTES

1. Quantities based on d = 5.75' and D' = 30".
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A Concrete for Construction Drainage. The Engineer shall determine the exact location in the field.
4. Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.
6. The type of curb and/or gutter (Type 1, 2, 3, etc.) shall conform to the type specified on the roadway plans.
7. Manhole Rungs (16" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Type "B" Cast Iron Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.
8. See sheet 48 General Concrete Notes and Details.

NO.	REVISION	APPROVED BY	DATE

STANLEY YOSHITO UYEHARA
REGISTERED PROFESSIONAL ENGINEER
No. 3018
HAWAII, U.S.A.

WILBERT T. TAKAMIYA
REGISTERED PROFESSIONAL ENGINEER
No. 1684
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CATCH BASINS

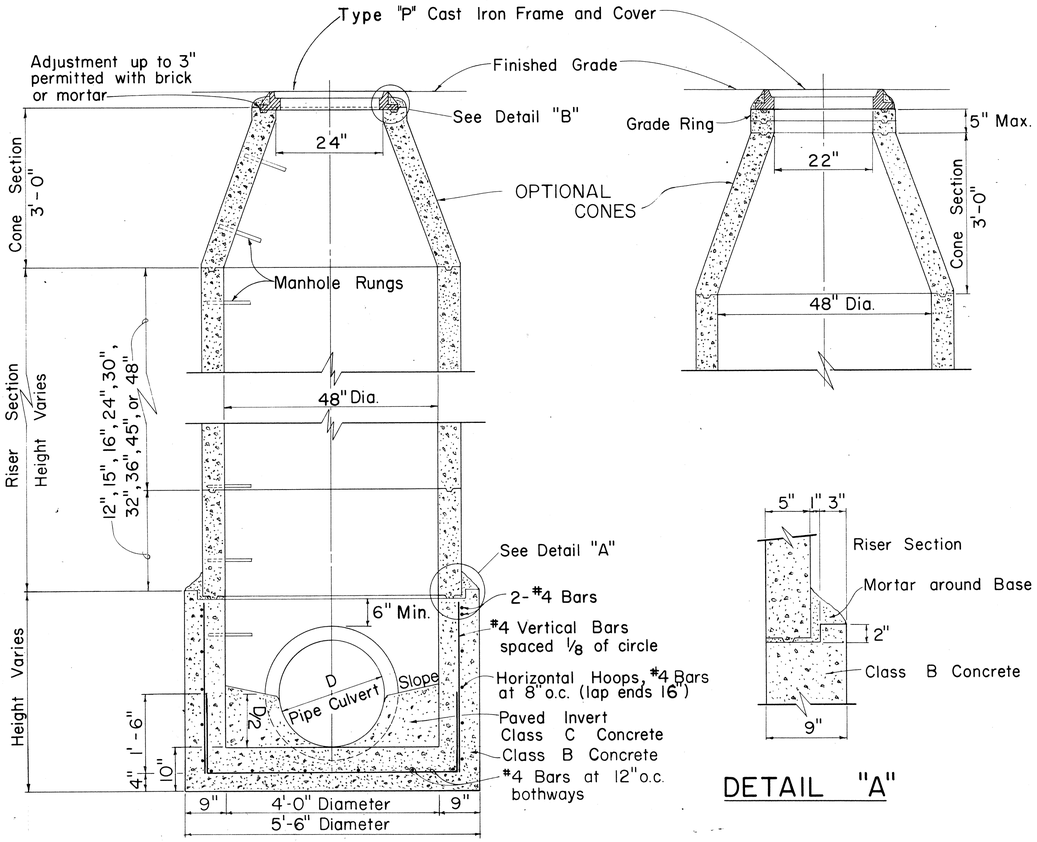
Scale: As Noted Date: July, 1969

SHEET No 11 OF 19 SHEETS DH 1

58

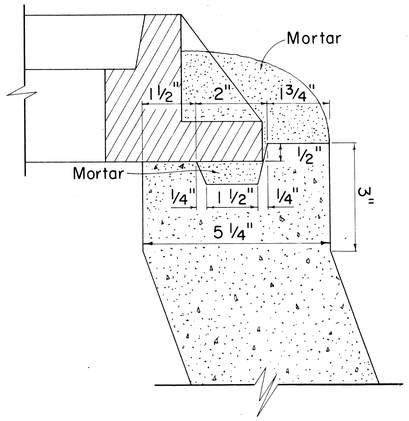
ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY | DESIGNED BY C.M. | DRAWN BY C.K. | TRACED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	~~I-HI-1(III):14~~	~~1974~~	~~59~~	~~234~~



TYPICAL SECTIONS PRECAST CONCRETE MANHOLE
Not to Scale

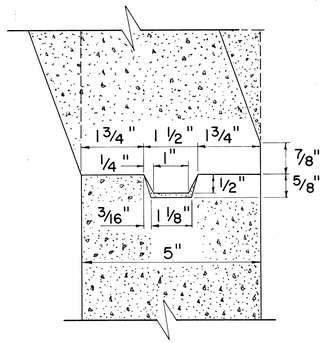
DETAIL "A"



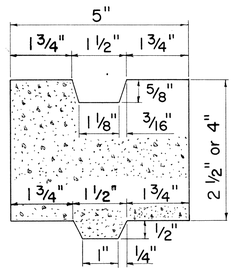
DETAIL "B"
Not to Scale

GENERAL NOTES

1. Manhole Rungs to be placed at 15" or 16" o.c. (Manhole Rungs incidental to Class B Concrete.) For detail of M.H. rungs see sheet DH-6
2. Select appropriate combination of risers and grade rings for required height.
3. All joints to be grouted as set.
4. The precast sections shall be constructed in accordance with the details shown on the plans and to the requirements of ASTM C 478
5. Manufacturers may submit to the Engineer for approval, prior to manufacturing, designs other than those shown on this sheet.
6. Reinforcing steel for precast sections shall be placed in accordance with the requirements of ASTM C 478
7. All Class C Concrete to be incidental to Class B Concrete.



DETAIL FOR RISER JOINTS
Not to Scale



GRADE RING DETAIL
Not to Scale

APPROVAL RECOMMENDED:
G. Takano
HYDRAULIC DESIGN ENGINEER — DATE 2-2-71

APPROVED:
[signature]
ASSISTANT CHIEF, ENGINEERING — DATE 2-25-71

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

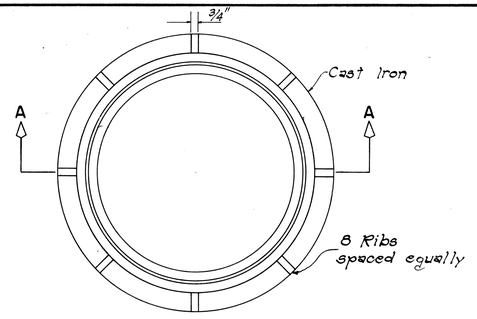
PRECAST CONCRETE STORM DRAIN MANHOLES

Not to Scale — Date: Nov. ,1970

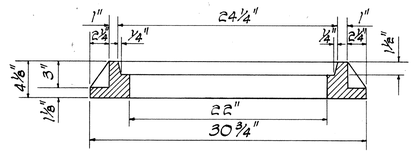
SHEET No. 12 OF 19 SHEETS DH 5A

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

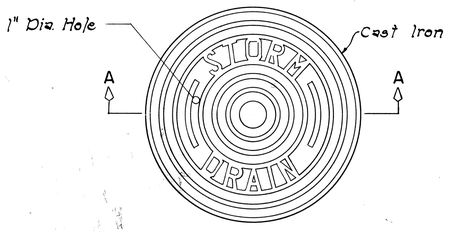
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-I(III):14	1974	60	234



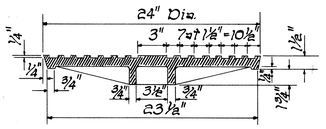
PLAN



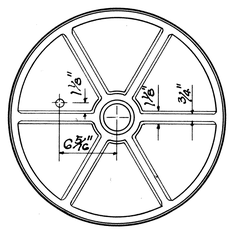
SECTION A-A



PLAN



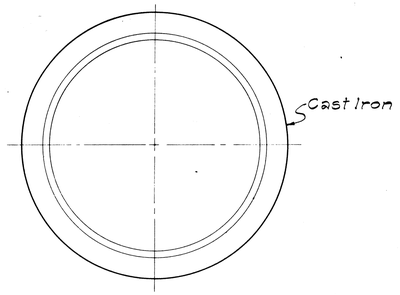
SECTION A-A



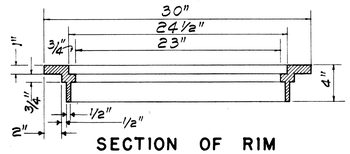
BOTTOM VIEW OF COVER

DETAILS OF TYPE "P" CAST IRON FRAME AND COVER

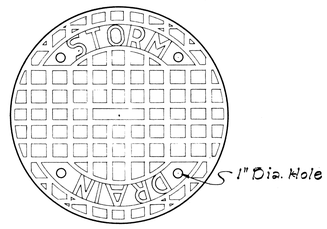
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PLAN OF RIM

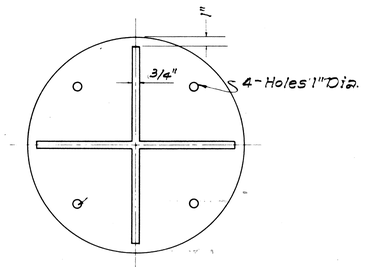


SECTION OF RIM



TOP VIEW OF COVER

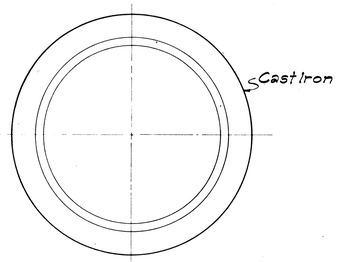
SECTION



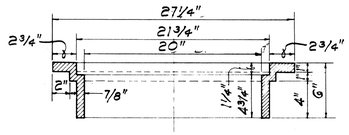
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B" CAST IRON FRAME AND COVER

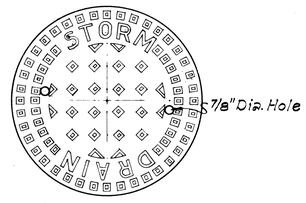
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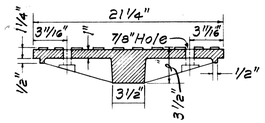
PLAN OF RIM



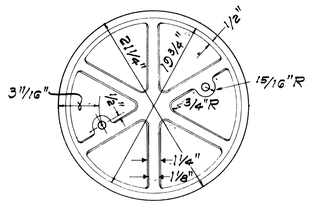
SECTION OF RIM



TOP VIEW OF COVER



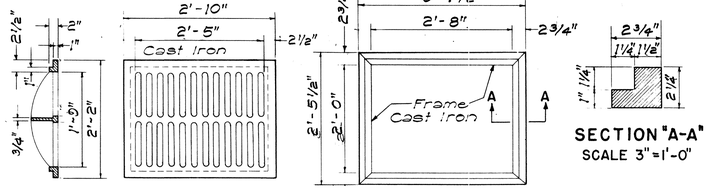
SECTION



BOTTOM VIEW OF COVER

DETAILS OF TYPE "A" CAST IRON FRAME AND COVER

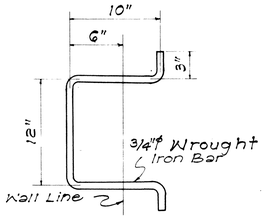
SCALE: 1-1/2" = 1'-0"



SECTION — TOP VIEW — TOP VIEW — SECTION "A-A" SCALE 3" = 1'-0"

TYPE C C.I. FRAME AND GRATE

SCALE: 3/4" = 1'-0"



MANHOLE RUNG

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

APPROVAL RECOMMENDED:

G. Takano — HYDRAULIC DESIGN ENGINEER — 12-17-69 DATE

APPROVED:

Walter B. Schick — ASSISTANT CHIEF, ENGINEERING — 12-17-69 DATE

NO.	REVISION	APPROVED BY	DATE
1.	Detail of Type "P" Cast Iron Frame and Cover	HT	1-6-71

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

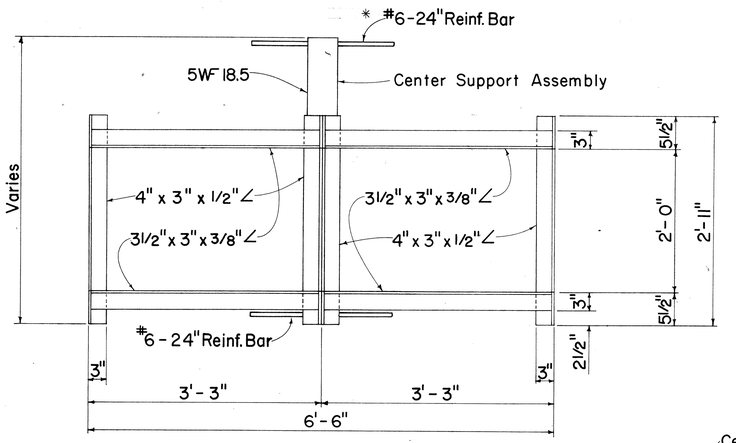
CATCH BASIN AND MANHOLE CASTINGS

Scale: As Noted — Date: July, 1969

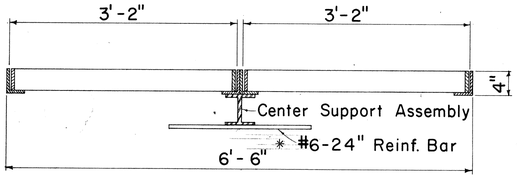
SHEET NO 13 OF 10 SHEETS DH 6

ORIGINAL PLAN	SURVEY PLOTTED BY:	DATE:
	DESIGNED BY:	"
	DRAWN BY:	"
NOTE BOOK	TRACED BY: J. Castro	"
	QUANTITIES BY:	"
No.	CHECKED BY:	"

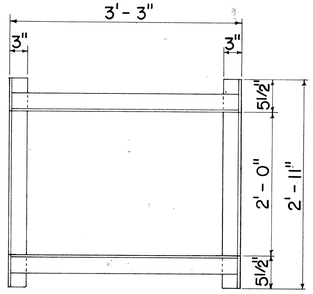
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(111):14	1974	61	234



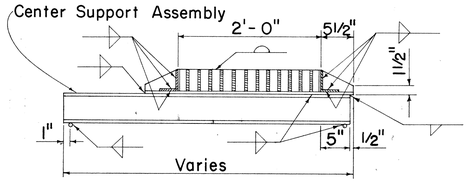
PLAN
(Two or More Grates)



LONGITUDINAL SECTION
(Thru Frame & Grate)



PLAN
(Single Grate)

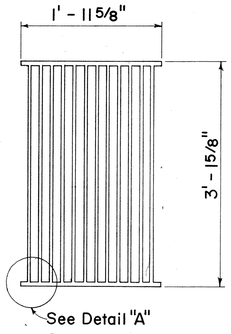


CROSS SECTION
(Thru Frame & Grate)

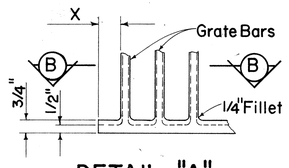
NOTE:

* Bend #6 reinf. bar See detail sheet 48

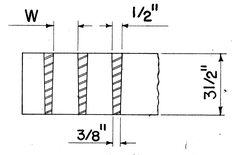
FRAME DETAILS
Scale: 1"= 1'-0"



PLAN
Scale: 1"= 1'-0"

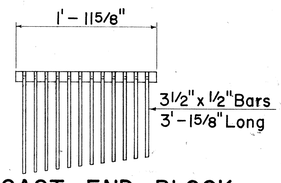


DETAIL "A"
Scale: 3"= 1'-0"

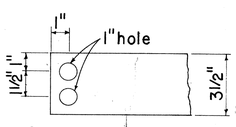


SECTION "B-B"
Scale: 3"= 1'-0"

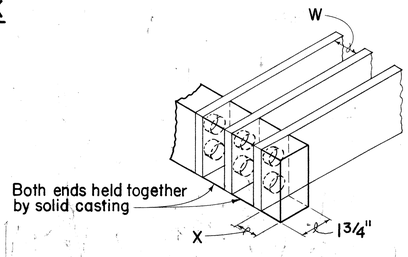
ALTERNATIVE CAST MALLEABLE IRON OR CAST STEEL GRATE



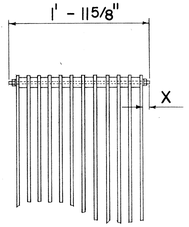
CAST END BLOCK
Scale: 1"= 1'-0"



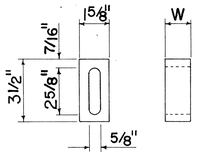
END OF BAR
Scale: 3"= 1'-0"



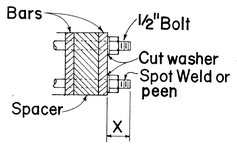
ALTERNATIVE CAST MALLEABLE IRON OR CAST STEEL END BLOCK GRATE



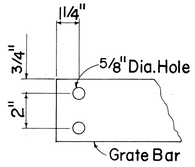
BOLTED END BLOCK
Scale: 1"= 1'-0"



BAR SPACER
Scale: 3"= 1'-0"

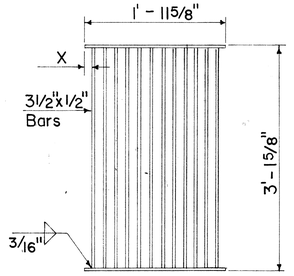


BOLTING DETAIL
Scale: 3"= 1'-0"

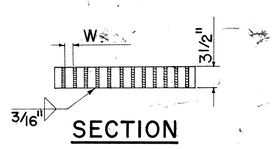


END OF BAR
Scale: 3"= 1'-0"

ALTERNATIVE BOLTED GRATE



PLAN



SECTION

ALTERNATIVE WELDED GRATE
Scale: 1"= 1'-0"

GENERAL NOTES

1. Contractor has the option of using cast malleable iron, cast steel, welded, bolted, cast malleable iron end block or cast steel end block grate.
2. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
3. All welds 3/8" unless otherwise noted.
4. Center support assembly shall be used when two or more grates are specified. Incidental to Types A-9 or A-12 Frame and Grates.
5. Refer to "Grate Bar Spacing Table" for Types A-9 and A-12 Grate dimensions.
6. The various materials shall conform to the specifications of ASTM as listed in the following tabulation and the Std. Specifications.

Material	ASTM Designation
Structural Steel	A283, Grade D
Cast Steel	A27, Grade 65-35
Malleable Iron Casting	A47, Gr. No. 35018

GRATE BAR SPACING TABLE			
TYPE	NO. BARS	CLEAR BAR SPACING - W	X
A-9	9	2"	1 9/16"
A-12	12	1 3/8"	1 1/4"

NOTE:

1. Type A-9 – Use in locations off the roadbed on all types of highways.
2. Type A-12 – Use within the roadbed on all types of highways.

STANLEY YOSHITO UMEMURA REGISTERED PROFESSIONAL ENGINEER No. 3018 HAWAII, U.S.A.

ALBERT T. TAKAMIYA REGISTERED PROFESSIONAL ENGINEER No. 1684 HAWAII, U.S.A.

Albert T. Takamiya

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

NO.	REVISION	APPROVED BY	DATE

Scale: 1"= 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

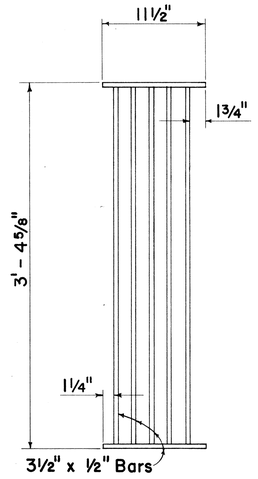
TYPE A-9 AND A-12 FRAMES AND GRATES

Scales: As Noted Date: Aug. 1968

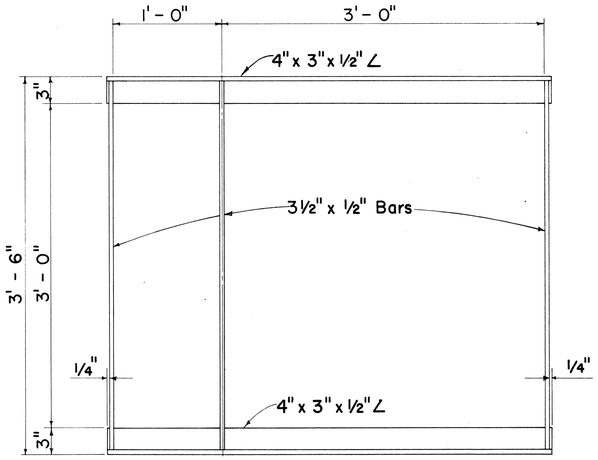
SHEET No. 14 OF 10 SHEETS DH 7

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY L.C.A.M.	7.68
	TRACED BY L.C.A.M.	8.68
	DESIGNED BY H.K.M.	7.68
NOTE BOOK	QUANTITIES BY	
No.	CHECKED BY H.K.M.	8.68

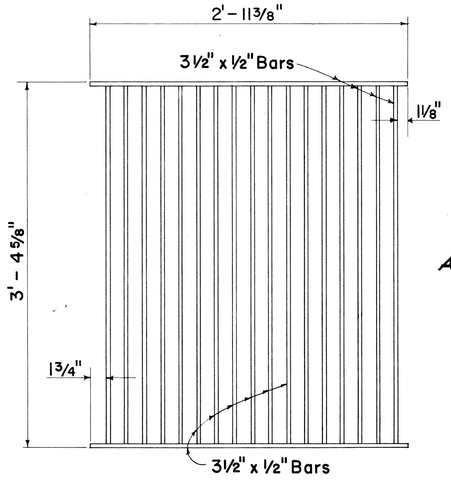
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-H(III):14	1974	62	234



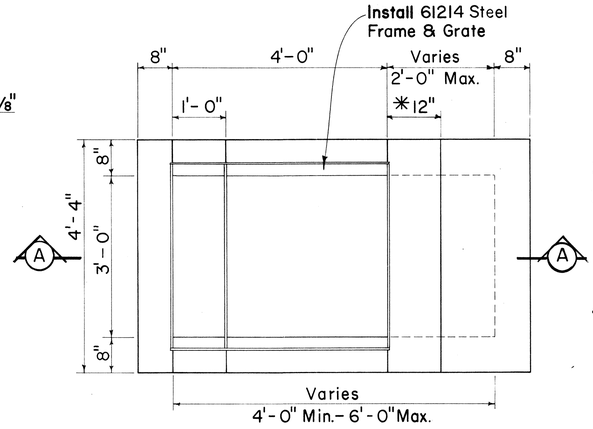
PLAN
Scale: 1½" = 1' - 0"



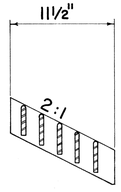
PLAN
Scale: 1½" = 1' - 0"



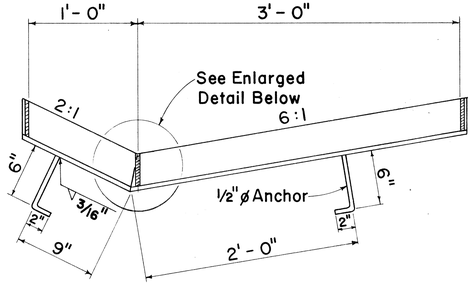
PLAN
Scale: 1½" = 1' - 0"



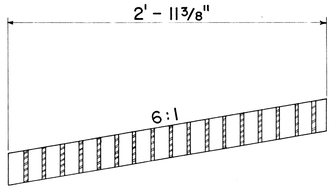
PLAN



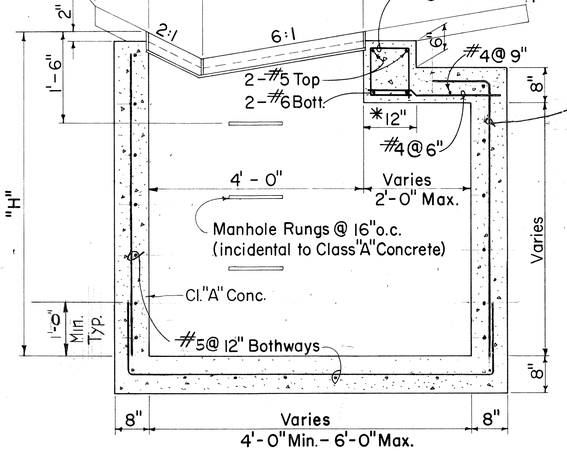
SECTION
Scale: 1½" = 1' - 0"



SECTION
Scale: 1½" = 1' - 0"



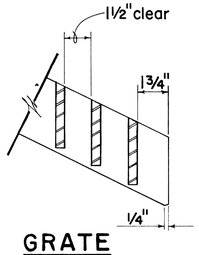
SECTION
Scale: 1½" = 1' - 0"



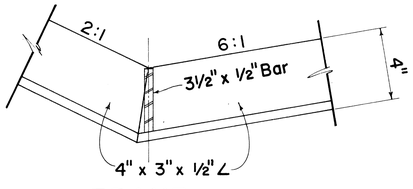
SECTION A - A

DETAIL OF 61214 DROP INTAKE
Scale: ¾" = 1' - 0"

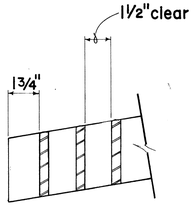
*For Minimum size box of 4'-0" only, use 8" and eliminate reinforcing steel shown in top portion.



GRATE
Scale: 3" = 1' - 0"



FRAME
Scale: 3" = 1' - 0"



GRATE
Scale: 3" = 1' - 0"

GENERAL NOTES

1. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
2. All welds ⅜" unless otherwise noted.
3. The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
4. Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
5. Manhole Rungs (16"o.c.) are required when "H" is greater than 4 feet 6inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. The Manhole Rungs may be placed at any location as ordered by the Engineer.
6. See sheet 48 for General Concrete Notes and Details.

NO.	REVISION	APPROVED BY	DATE

STANLEY YOSHITO UEHARA — REGISTERED PROFESSIONAL ENGINEER — No. 3018 — HAWAII, U.S.A.

WILBERT T. TAKAHASHI — REGISTERED PROFESSIONAL ENGINEER — No. 1684 — HAWAII, U.S.A.

Wilbert T. Takahashi
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE 61214
GRATED DROP INTAKE

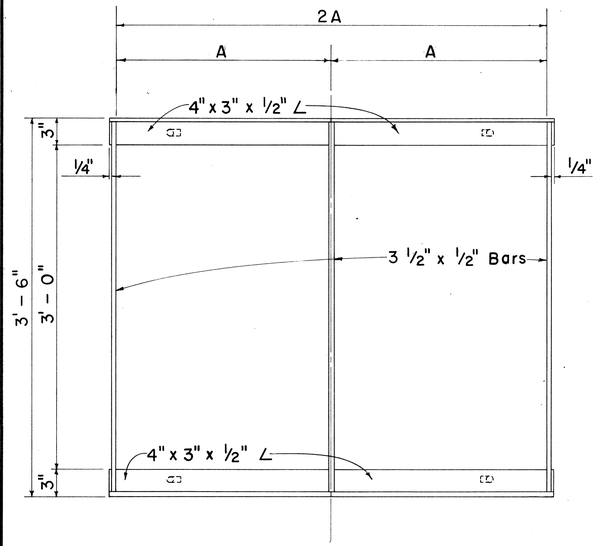
Scales: As Noted — Date: July 1969

SHEET No. 15 OF 19 SHEETS DH 9

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

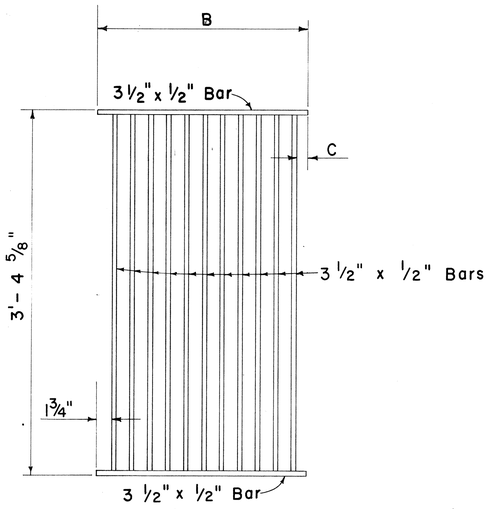
DETAILS OF TYPE 61214 STEEL FRAME AND GRATES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(11)14	1974	63	234



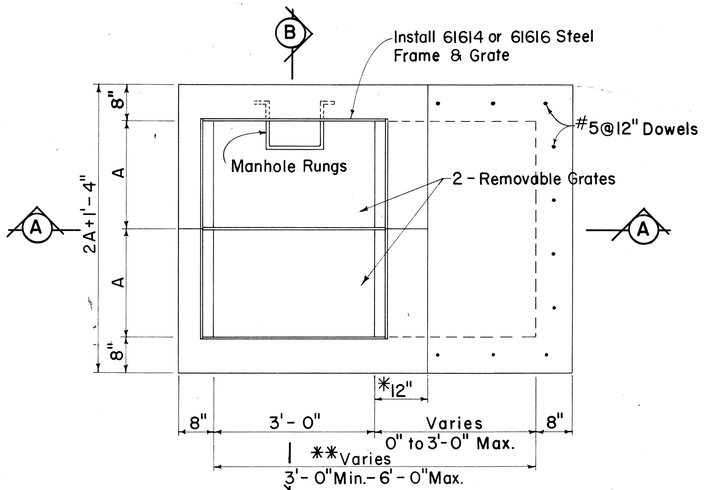
PLAN

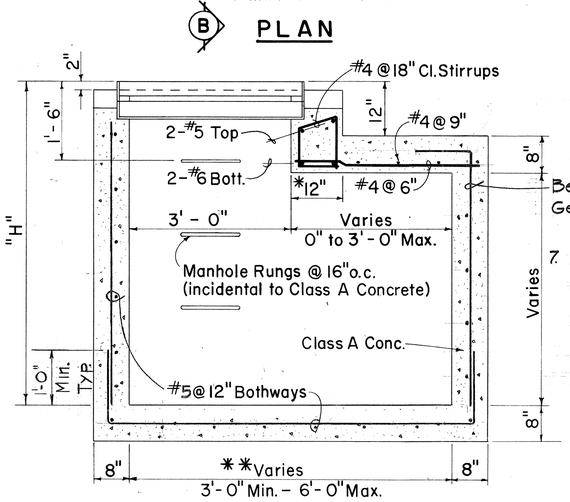
Scale: 1 1/2" = 1'-0"



PLAN

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





SECTION A - A

7. See sheet 48 for General Concrete Notes and Details.

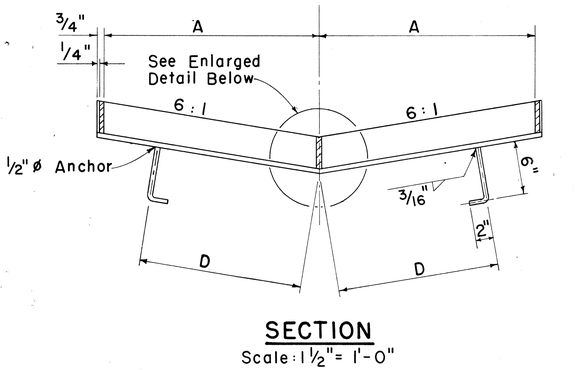
GENERAL NOTES

1. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
2. All welds 3/8" unless otherwise noted.
3. Refer to "Spacing Table" for Types 6I6I4 & 6I6I6 Drop Intake and Frame & Grates dimensions.
4. The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
5. Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
6. Manhole Rungs (16"o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Manhole Rungs may be placed at any location as ordered by the Engineer.

SPACING TABLE

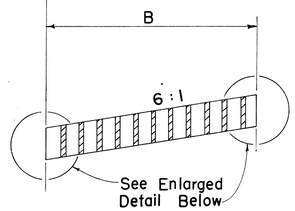
TYPE	NO. BARS	A	B	C	D
6I6I4	11	2'- 0"	1'- 11 1/2"	1 1/4"	1'- 6"
6I6I6	17	3'- 0"	2'- 11 3/8"	1 1/8"	2'- 0"

NO.	REVISION	APPROVED BY	DATE
1	Curb for Top of Fill Gutters	HH.	6-5-11



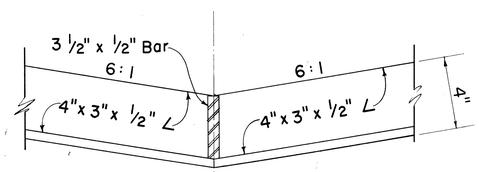
SECTION

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



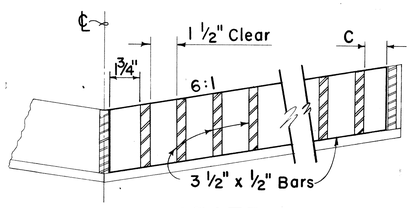
SECTION

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



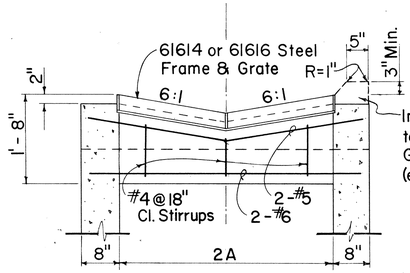
FRAME

Scale: 3"= 1'- 0"



GRATE

Scale: 3"= 1'- 0"



SECTION B - B

DETAILS OF 6I6I4 OR 6I6I6 DROP INTAKE

Scale: 3/4" = 1'- 0"

*For Minimum size box of 3'-0", use 8" and eliminate reinforcing steel shown in the top portion.

**For Culverts larger than 30", the minimum dimension shall be D'.

DETAILS OF TYPE 6I6I4 OR 6I6I6 STEEL FRAME AND GRATE

STANLEY YOSHITO UCHIDA REGISTERED PROFESSIONAL ENGINEER No. 3018 HAWAII, U.S.A.

WILBERT T. TAKAHATA REGISTERED PROFESSIONAL ENGINEER No. 1684 HAWAII, U.S.A.

Wilbert T. Takahata

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

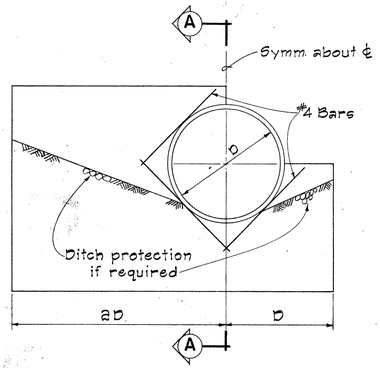
TYPE 6I6I4 & 6I6I6
GRATED DROP INTAKES

Scales: As Noted — Date: Feb. 1969

SHEET No. 16 OF 19 SHEETS DH 8

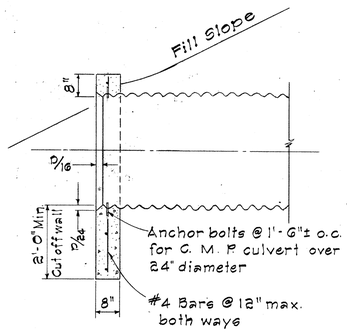
ORIGINAL PLAN | NOTE BOOK | No. | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI(III)14	1974	64	234

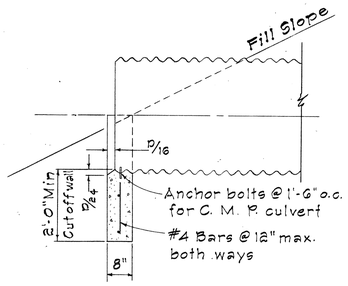


FULL HEADWALL HALF HEADWALL

HALF ELEVATION



FULL HEADWALL



HALF HEADWALL

SECTION A-A

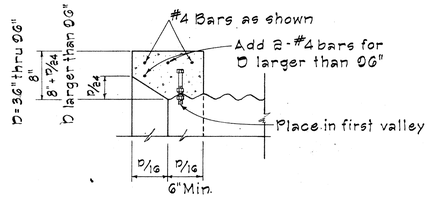
SUMMARY OF QUANTITIES				
Culvert Dia.	Full Headwall		Half Headwall	
	Concrete	Reinf. Steel	Concrete	Reinf. Steel
(inches)	(Cu. Yd.)	(Lbs.)	(Cu. Yd.)	(Lbs.)
18	0.57	45	0.18	15
24	0.85	65	0.26	20
30	1.15	85	0.34	25
36	1.50	115	0.43	35

Note: Quantities shown are for C.M.P. culvert.

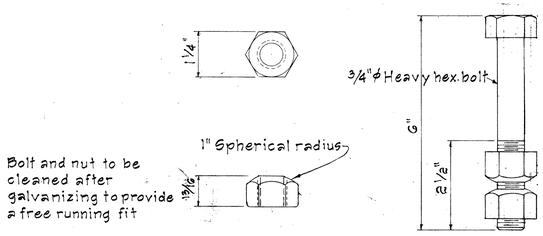
GENERAL NOTES

1. Concrete: All concrete shall be Class A.
2. Cutoff Wall: The depth of wall shown on the plan may be reduced if rock is encountered at a higher elevation.
3. Multiple Pipe Installations: To permit careful placing and tamping of back fill material, clear spacing for multiple pipe installations shall be not less than one-half the diameter of the larger pipe between sides of adjacent pipes, but not required to exceed three feet, and in no case less than one foot.
4. Anchor Bolts: Anchor bolts are not required for concrete pipe.

INLET STRUCTURES FOR CULVERT SIZES 18 IN. TO 36 IN. DIAMETER



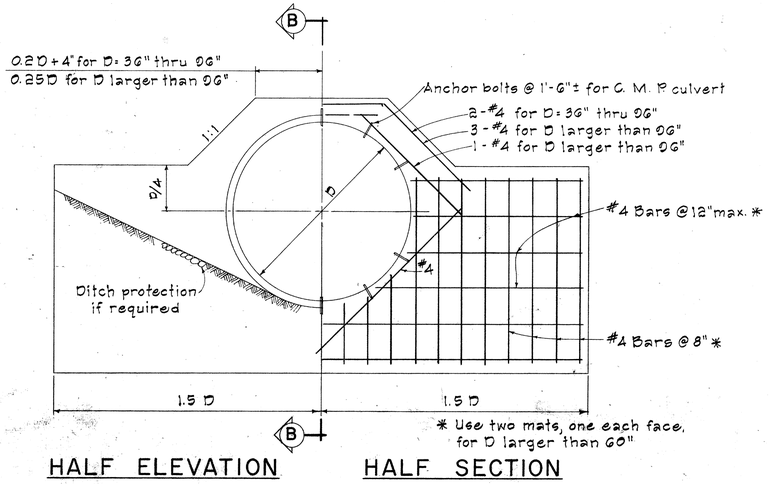
DETAIL C



ANCHOR BOLT DETAIL

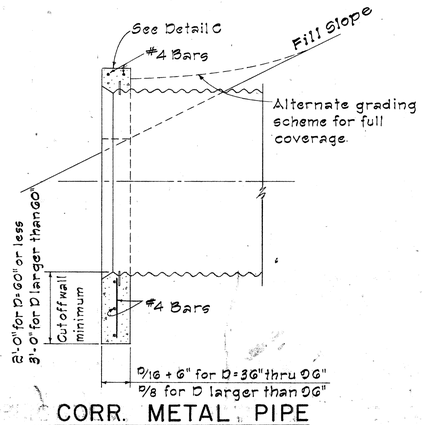
SUMMARY OF QUANTITIES		
Culvert Dia.	Concrete	Reinf. Steel
(inches)	(Cu. Yd.)	(Lbs.)
36	1.0	75
42	1.3	90
48	1.5	105
54	2.0	125
60	2.4	145
72	4.1	435
84	5.6	535
96	6.8	640
108	9.8	795
120	12.4	955
144	20.1	1255
180	37.6	1820

Note: Quantities shown are for C.M.P. culvert.

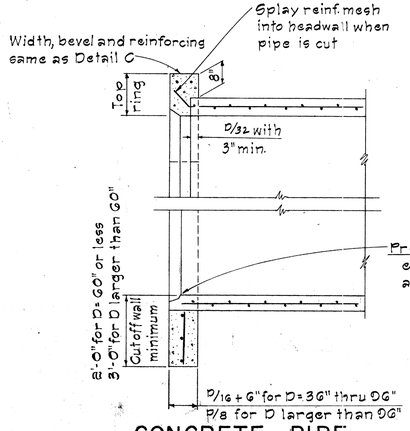


HALF ELEVATION HALF SECTION

SECTION B-B



CORR. METAL PIPE



CONCRETE PIPE

INLET STRUCTURE FOR CULVERT SIZES 36 IN. TO 180 IN. DIAMETER

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:

HYDRAULIC DESIGN ENGINEER — DATE 12-17-69

APPROVED:

ASSISTANT CHIEF, ENGINEERING — DATE 12-17-69

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

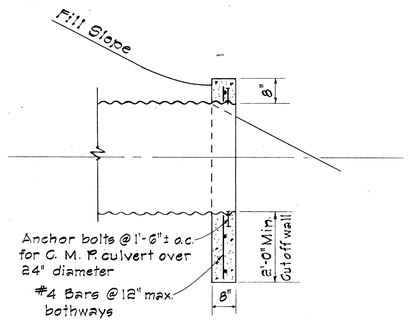
INLET STRUCTURES

Not To Scale — Date: July, 1969

SHEET No. 17 OF 19 SHEETS DH-11

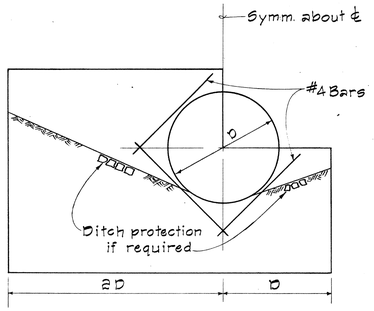
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(11):14	1974	65	234

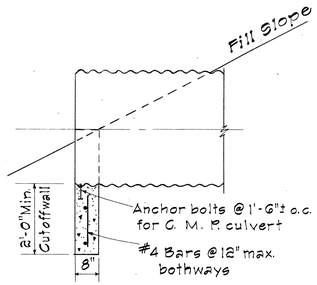


SECTION

FULL HEADWALL



HALF ELEVATION



HALF ELEVATION

HALF HEADWALL

SECTION

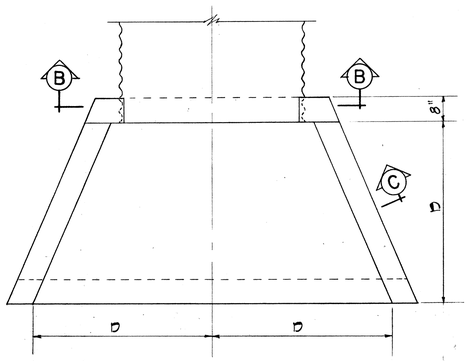
SUMMARY OF QUANTITIES				
Culvert Dia. (inches)	Full Headwall Concrete (Cu. Yd)	Full Headwall Reinf. Steel (Lbs)	Half Headwall Concrete (Cu. Yd)	Half Headwall Reinf. Steel (Lbs)
18	0.57	45	0.18	15
24	0.85	65	0.26	20
30	1.15	85	0.34	25
36	1.50	115	0.43	35

Note: Quantities shown are for C.M.P. culvert.

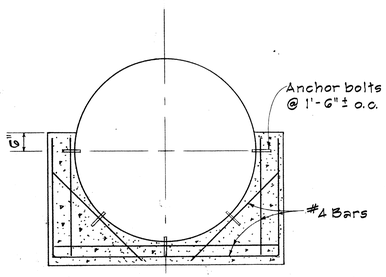
GENERAL NOTES

1. Concrete: All concrete shall be Class A.
2. Cutoff Wall: The depth of wall shown on the plan may be reduced if rock is encountered at a higher elevation.
3. Multiple Pipe Installations: To permit careful placing and tamping of back fill material, clear spacing for multiple pipe installations shall be not less than one-half the diameter of the larger pipe between sides of adjacent pipes, but not required to exceed three feet, and in no case less than one foot.
4. Anchor Bolts: Anchor Bolts are not required for concrete pipe.

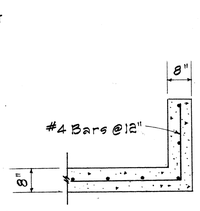
OUTLET STRUCTURE FOR CULVERT SIZES 18 IN. TO 36 IN. DIAMETER



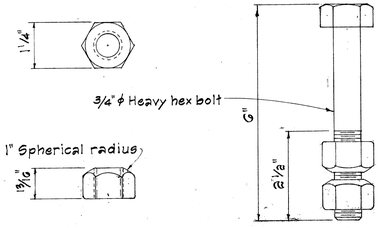
PLAN



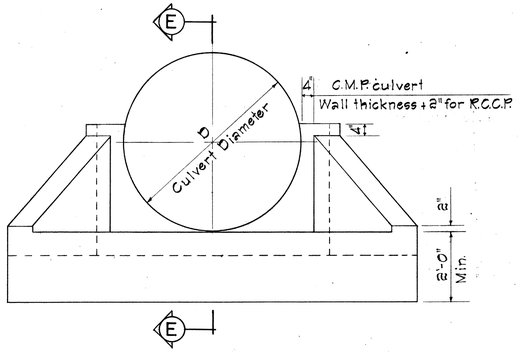
SECTION B-B



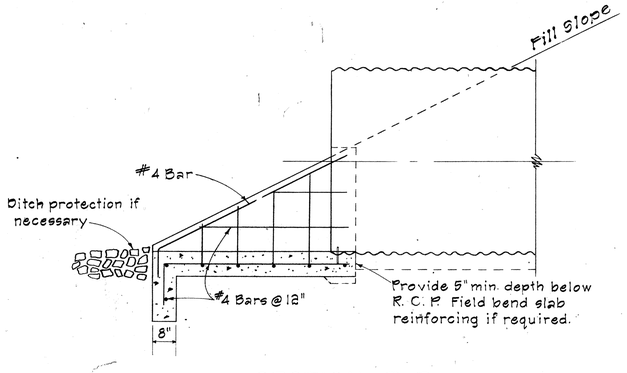
PARTIAL SECTION C



ANCHOR BOLT DETAIL



ELEVATION



SECTION E-E

OUTLET STRUCTURE FOR CULVERT SIZES 36 IN. TO 60 IN. DIAMETER

SUMMARY OF QUANTITIES		
Culvert Dia. (inches)	Concrete (Cu. Yd)	Reinf. Steel (Lbs)
36	1.0	70
42	1.2	90
48	1.5	100
54	1.7	125
60	2.1	140

Note: Quantities shown are for C.M.P. culvert.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:

H. Takano — 12-17-69

HYDRAULIC DESIGN ENGINEER — DATE

APPROVED:

Harlan G. Bolan — 12-17-69

ASSISTANT CHIEF, ENGINEERING — DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS

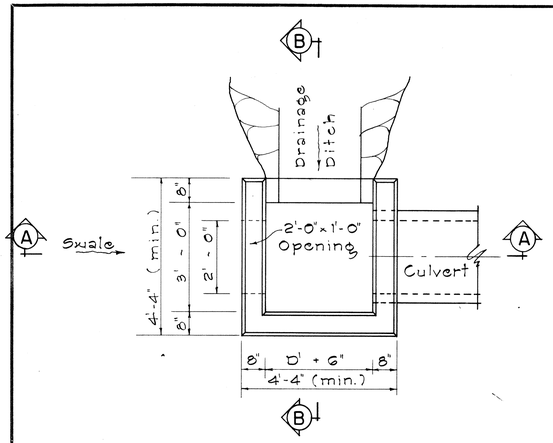
OUTLET STRUCTURES

Not To Scale — Date: July, 1969

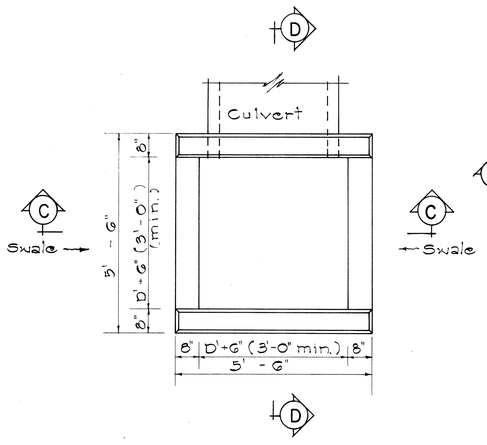
SHEET No. 18 OF 17 SHEETS DH 14

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

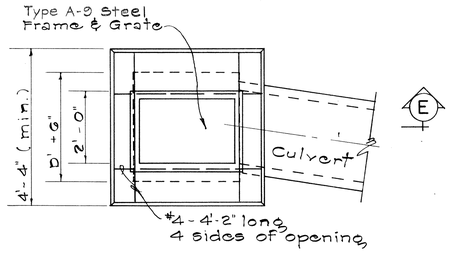
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(III):14	1974	66	234



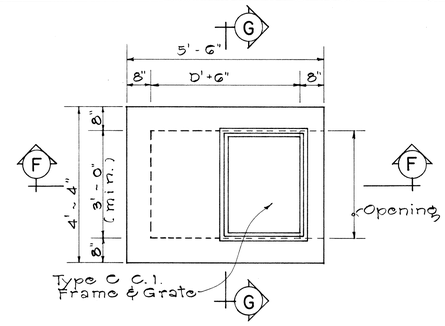
PLAN



PLAN



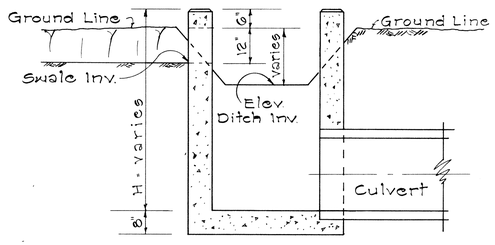
PLAN



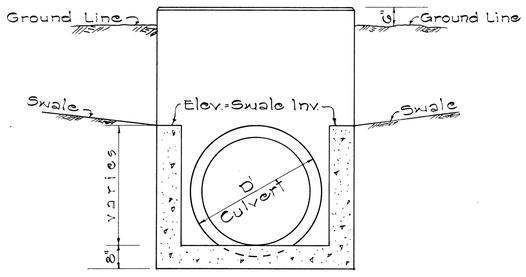
PLAN

GENERAL NOTES

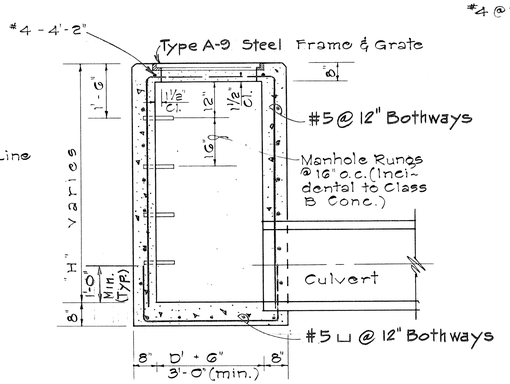
1. All concrete shall be Class "B" unless otherwise noted.
2. Exposed edges of all drainage structures shall be chamfered one inch.
3. Culvert shall enter and leave Drop Intake from any position and in the direction indicated by the plans or ordered by the Engineer.
4. Manhole Rungs (16"o.c.) are req'd. when "H" is greater than 4'-6". Only one rung (12 inches from the bottom) is required if "H" is 4'-6" or less. Manhole Rungs maybe placed at any location as ordered by the Engineer.
5. See Sheet 48 for General Concrete Notes and Details.



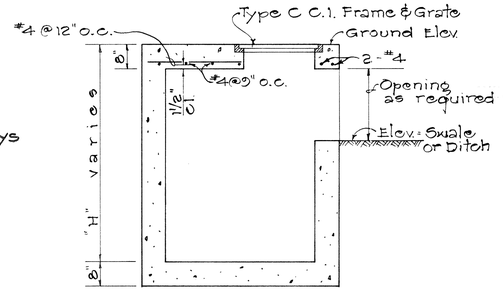
SECTION "A-A"



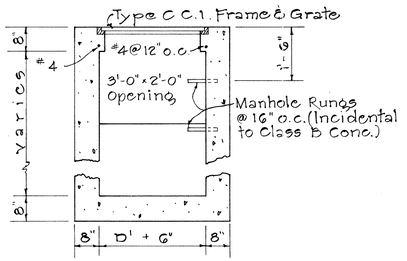
SECTION "C-C"



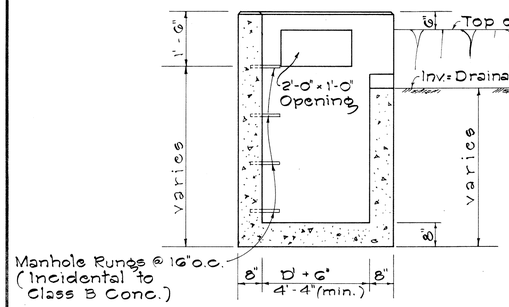
SECTION "E-E"



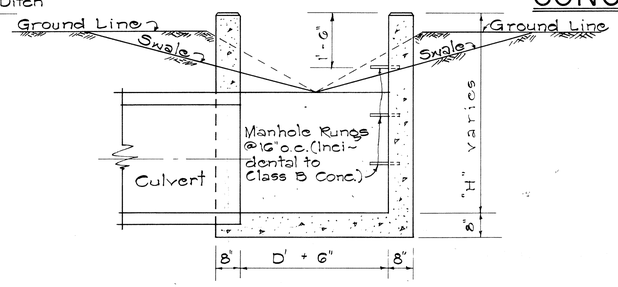
SECTION "F-F"



SECTION "G-G"



SECTION "B-B"



SECTION "D-D"

TYPE "A" CONCRETE DROP INTAKE

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

TYPE "B" CONCRETE DROP INTAKE

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

TYPE "C" GRATED CONCRETE DROP INTAKE

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

TYPE "D" GRATED CONCRETE DROP INTAKE

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

STANLEY YOSHITO UEHARA REGISTERED PROFESSIONAL ENGINEER No. 3018 HAWAII, U.S.A.

WILBERT T. TAKAMIYA REGISTERED PROFESSIONAL ENGINEER No. 1684 HAWAII, U.S.A.

Wilbert T. Takamiya

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A", "B", "C", AND "D" CONCRETE DROP INTAKE

Scale: As Noted Date: July, 1969

SHEET No. 19 OF 19 SHEETS DH19

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