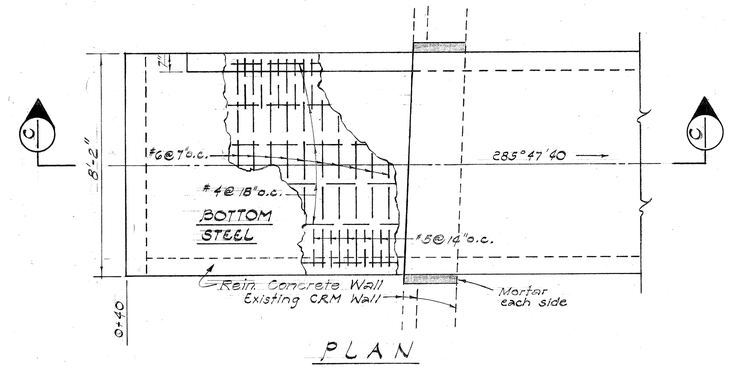
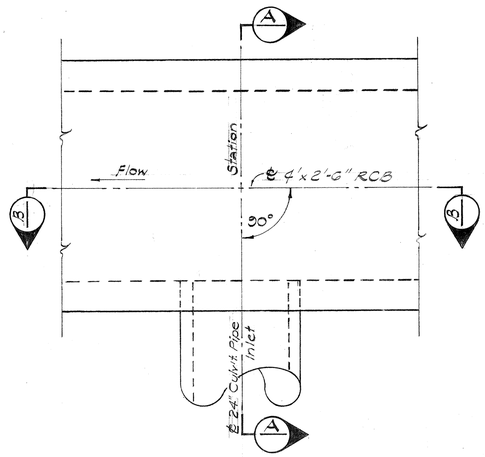
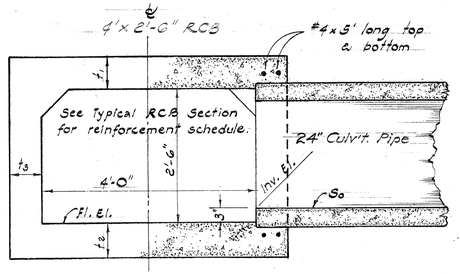
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(13)	1963	71	240
		U-038-1(4)	1963	26	88



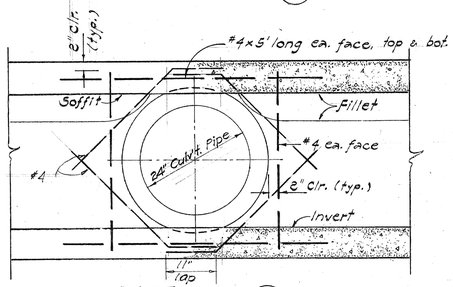
PLAN



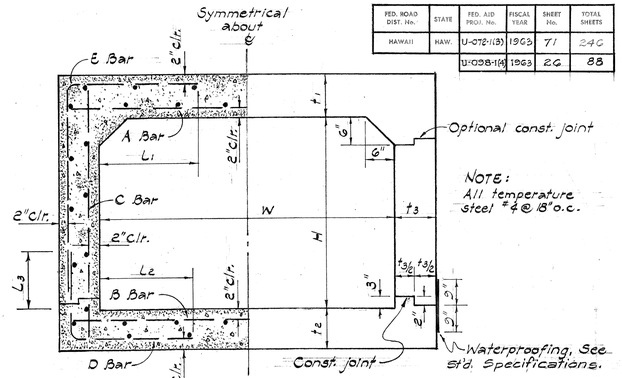
PLAN



SECTION (A)

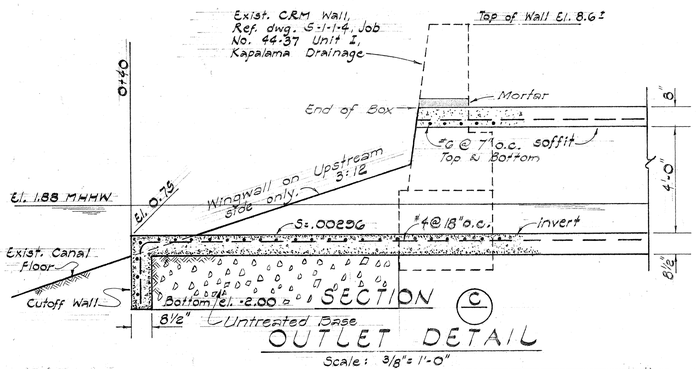


SECTION (B)



NOTE:
All temperature steel #4@18"o.c.

TYPICAL RCB SECTION
No Scale



OUTLET DETAIL
Scale: 3/8"=1'-0"

TYPICAL 24" CULVERT PIPE INLET DETAILS

JUNCTION NO.	BOX CULVERT STATION	Fl. El.	Inv. El.	So
4	1+89.19 Rt.	3.72	3.97	.0842
5	1+63.06 Lt.	4.00	4.25	.1047
6	2+27.78 Lt.	4.75	5.00	.1054
7	3+43.37 Lt.	6.09	6.34	.0833
8	8+26.04 Rt.	12.82	13.07	.0839

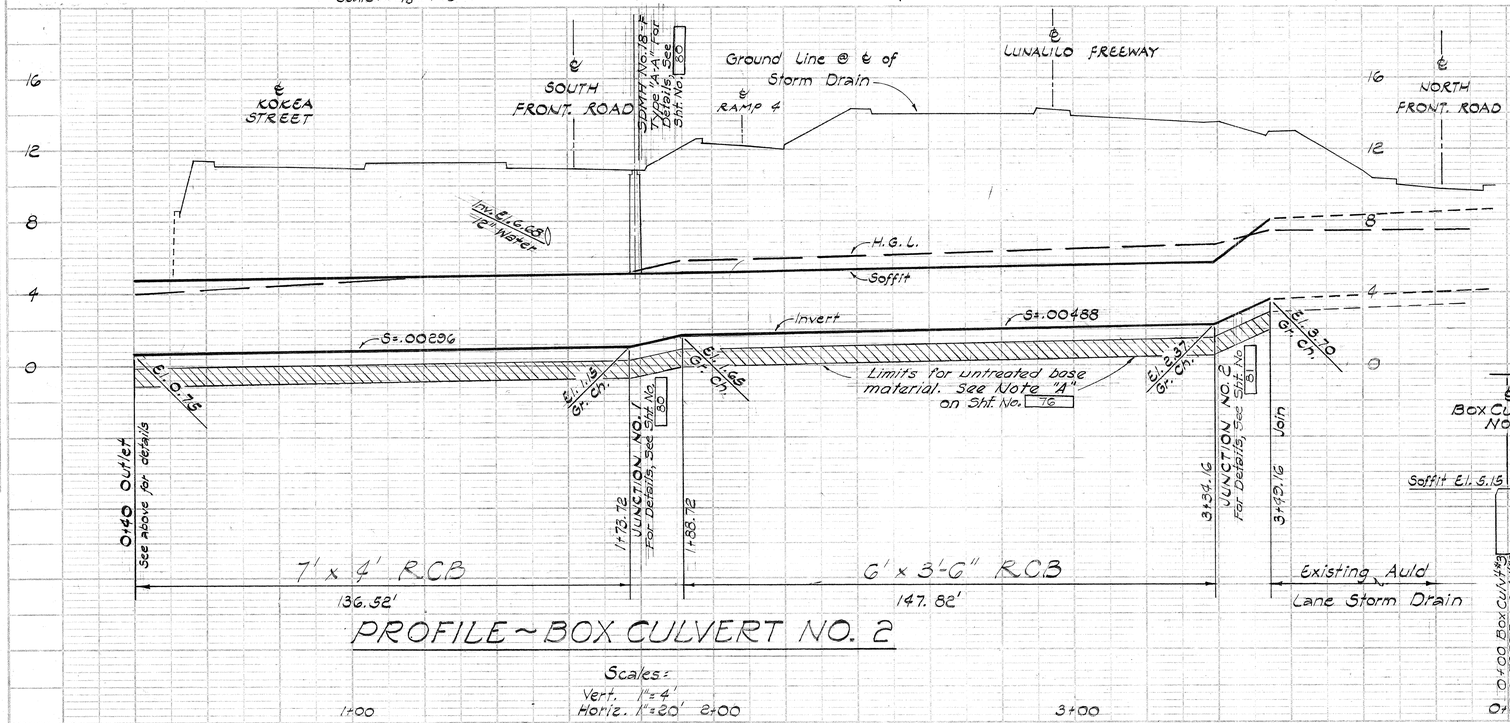
BOX CULVERT NO. 3
(Box Culvert No. 2 to Palama St.)

✳ For Estimated Quantity see sht #1 ✳✳ For Estimated Quantity see sht #5
✳✳✳ For Estimated Quantity see sht #5.

BOX CULVERT STATIONS	DIMENSIONS											
	W	H	t1	t2	t3	L1	Le	L3	A Bar	B Bar	C Bar	D Bar	E Bar
✳ BOX CULVERT NO. 1 (Houghtailing St. to Kapalama Canal)													
-0+07.50 to 4+15	6'-0"	4'-0"	8"	8½"	8"	18"	17"	15"	#6@7½o.c.	#6@7½o.c.	#4@7½o.c.	#5@15o.c.	#5@15o.c.
4+25 to 9+50	4'-2"	4'-0"	7"	7½"	7"	12"	12"	12"	#4@5o.c.	#4@5o.c.	#4@18o.c.	#4@15o.c.	#4@15o.c.
9+50 to 13+50	4'-2"	4'-0"	7"	7½"	7"	13"	13"	12"	#4@6o.c.	#4@6o.c.	#4@18o.c.	#4@18o.c.	#4@18o.c.
13+50 to 15+28	4'-2"	4'-0"	7"	7½"	7"	12"	12"	12"	#4@5o.c.	#4@5o.c.	#4@18o.c.	#4@15o.c.	#4@15o.c.
15+48.13 to 17+59.22	4'-2"	4'-0"	7"	7½"	7"	12	12"	12"	#4@5o.c.	#4@5o.c.	#4@18o.c.	#4@15o.c.	#4@15o.c.
✳ BOX CULVERT NO. 2 (Kapalama Canal to Auld Lane)													
-0+40 to 1+73.72	7'-0"	4'-0"	8"	8½"	7"	20"	18"	15"	#6@7o.c.	#6@7o.c.	#4@18o.c.	#5@14o.c.	#5@14o.c.
1+88.72 to 3+34.16	6'-0"	3'-6"	8"	8½"	7"	17"	16"	15"	#6@6½o.c.	#6@6½o.c.	#4@18o.c.	#5@17o.c.	#5@17o.c.
✳✳✳ BOX CULVERT NO. 3 (Box Culvert No. 2 to Palama St.)													
0+03.75 to 11+48.34	4'-0"	2'-6"	7"	8"	7"	16"	15"	12"	#4@6o.c.	#4@6o.c.	#4@18o.c.	#4@18o.c.	#4@18o.c.

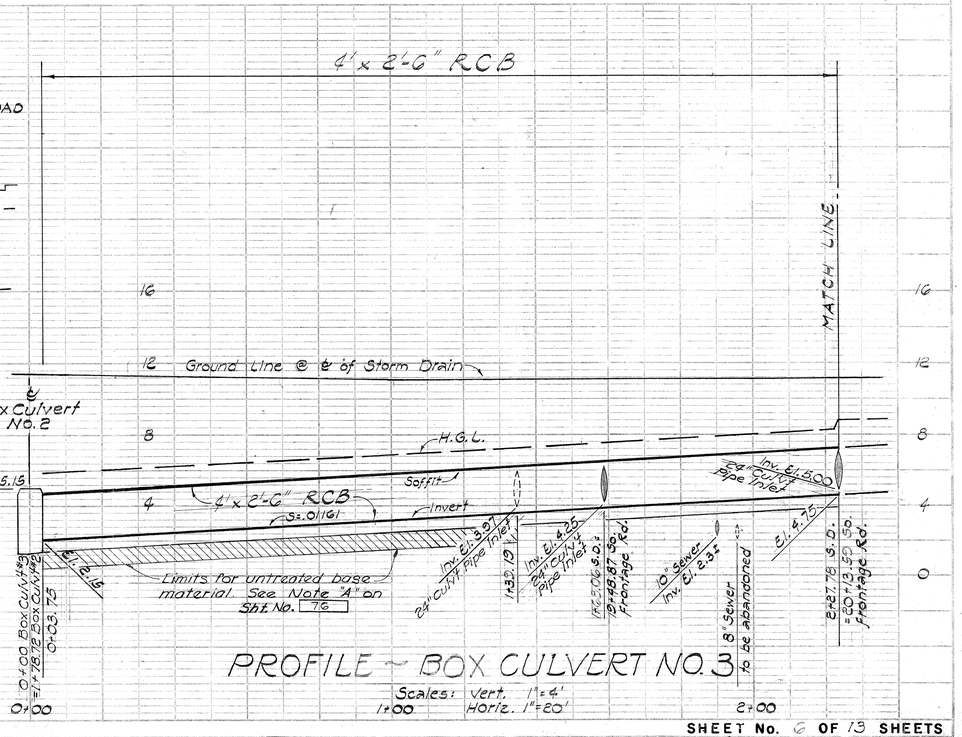
REINFORCEMENT SCHEDULE

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers



PROFILE ~ BOX CULVERT NO. 2

Scales: Vert. 1"=4'
Horiz. 1"=20'



PROFILE ~ BOX CULVERT NO. 3

Scales: Vert. 1"=4'
Horiz. 1"=20'

SHEET No. 6 OF 13 SHEETS

77

U 0 9 S 1 0 4 0 0 . 2 6

U 0 7 2 1 0 3 0 0 . 7 1

FOR CONTRACT PLANS ONLY.

34

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	72	246
		U-098-1(6)	1963	27	88

WEST BOUND
EAST BOUND
Freeway ℄
72" Chain Link Fence on Freeway ℄
Median
Rt. Edge
Guard Rail
Retaining Wall #37
RAMP "4"
324° 52' 00"
304° 52' 00"
Existing 8" Sewer to be abandoned
24" Culvt Pipe
Existing 6" Sewer to be abandoned
Existing 8" Sewer to be abandoned
VINEYARD BOULEVARD
EAST BOUND
Existing SMH
℄ 4' x 2'-6" RCB
2'-6" ARCH CULVERT
CRM Wall #2
4" Conc. Sidewalk
See WATER PLAN
Lt. Edge
"E-B" 26+20 SDMH #20-V Type "A-A"
8+26.04 JUNCTION No. 8 For Inlet Details See Sheet No. 77
MATCH LINE
E.C. 7+55.38
B.C. 3+35.82
TRUE NORTH Scale: 1" = 20'
END SOUTH FRONTAGE "S-F" STA. 20+38.60 BEG. VINEYARD BLVD. EAST BOUND LANES "E-B" STA. 20+38.60
2+27.78 S.D. = 20+13.59 So. Front. Rd.
IAO LANE
AULD LANE
PETERSON LANE
LAKIMELA LANE
℄ Storm Drain CURVE DATA
Δ = 20° 00' 00"
R = 1230.39'
T = 216.99'
L = 429.56'

ARCH ~~BOX~~ PLAN CULVERT NO. 3
(Box Culvert No. 2 to Palama St.)

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

4' x 2'-6" RCB
See Sht. No. 77 for Continuation MATCH LINE
END SOUTH FRONTAGE "S-F" STA. 20+38.60 BEG. VINEYARD BLVD. "E-B" STA. 20+38.60
SDMH No. 19-V Type "A-A"
Ground Line @ ℄ of Storm Drain
H.G.L.
soffit
invert
S = .01161
S = .01506
Inv. El. 5.00 24" Culvt Pipe Inlet
Inv. El. 6.34 24" Culvt Pipe Inlet
Inv. El. 13.07 24" Culvt Pipe Inlet
4' x 2'-6" ARCH CULVERT
El. 7.91 Gr. Ch.
El. 12.82
Limits for Untreated Base material See Note "A" on Sht. No. 76
8+26.04 S.D. = 26+20 "E-B" SDMH No. 20-V Type "A-A" For Details, See Sheet No. 77
MATCH LINE
0
4
8
12
16
20
2+20
3+00
4+00
5+00
6+00
7+00
8+00

ARCH
PROFILE ~ ~~BOX~~ CULVERT NO. 3

Scales
Vert. 1" = 4'
Horiz. 1" = 20'

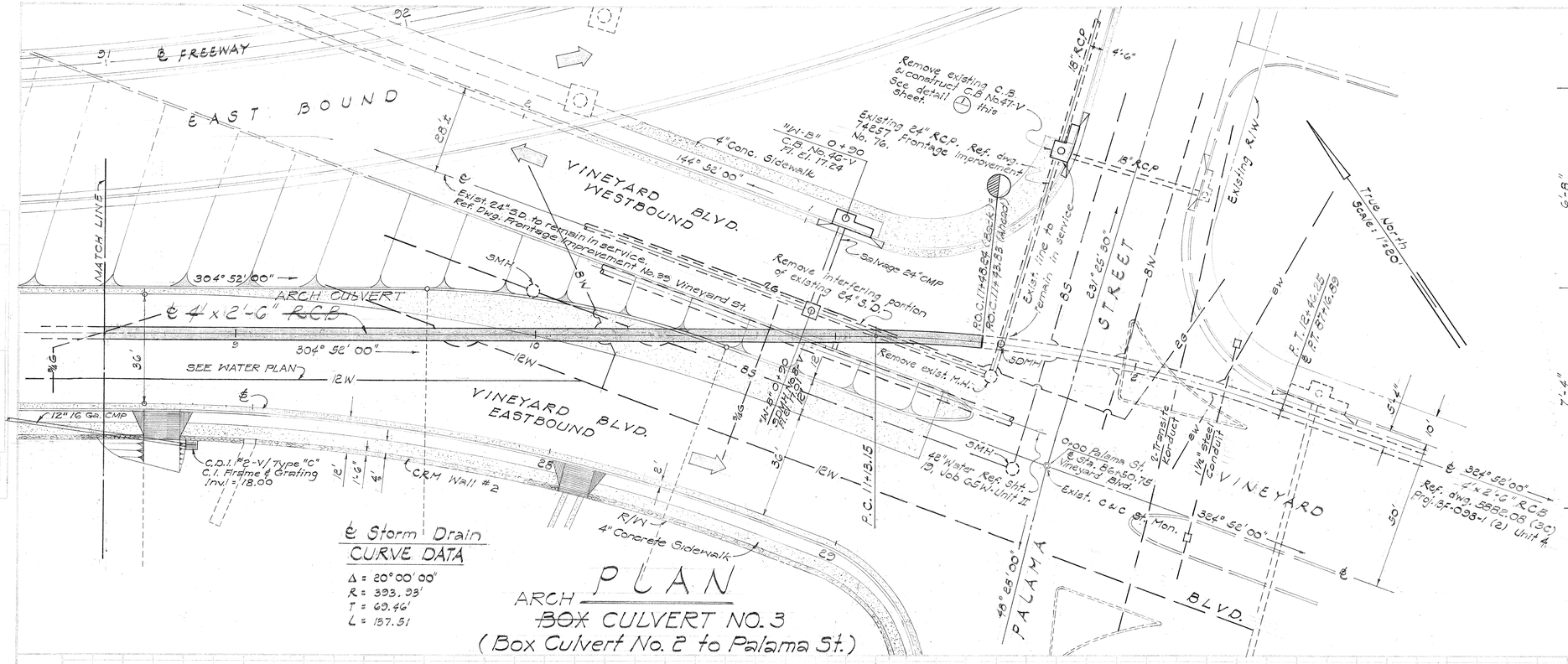
SHEET No. 7 OF 13 SHEETS

U09810400.27 U07210300.72

78

FOR CONTRACT PLANS ONLY

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	U-098-1(4)	1968	28	88



℄ Storm Drain CURVE DATA

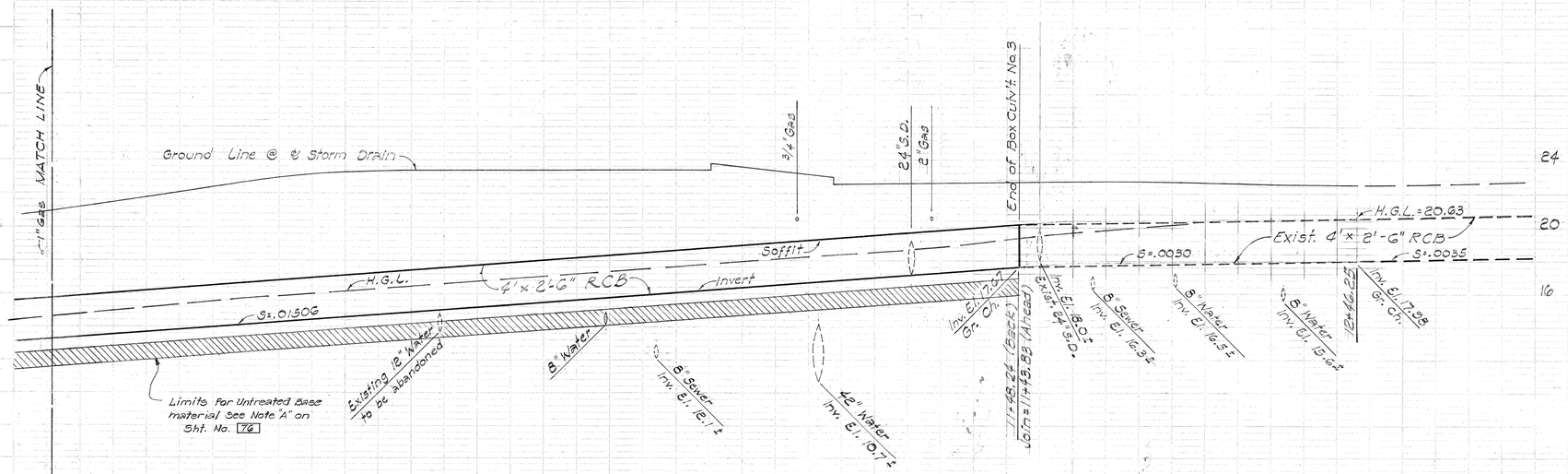
Δ = 20° 00' 00"
R = 393.38'
T = 69.46'
L = 137.51

ARCH ~~BOX~~ CULVERT NO. 3 (Box Culvert No. 2 to Palama St.)

DETAIL 1

CATCH BASIN No. 47-V
Scale: 1/8"=1'-0"

BELT, COLLINS & ASSOC. LTD.
Civil and Structural Engineers



ARCH PROFILE ~ ~~BOX~~ CULVERT NO. 3

Scales:
Vert. 1"=4'
Horiz. 1"=20'

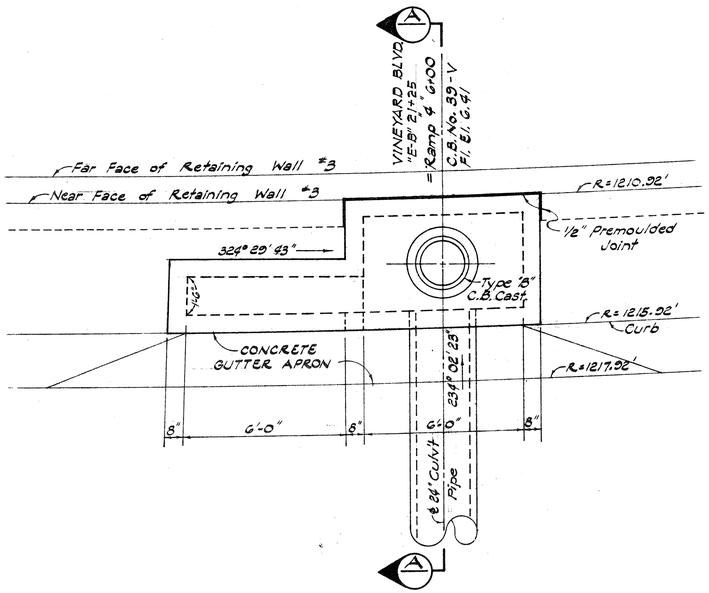
9+00 10+00 11+00 12+00 13+00

SHEET NO. 8 OF 13 SHEETS
79

U 09 S 10400.28

FOR CONTRACT PLANS ONLY.

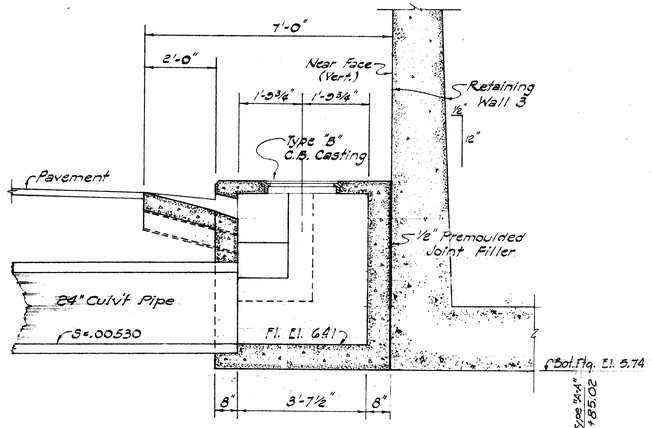
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(15)	1963	73	246
		U-098-1(8)	1963	29	88



PLAN

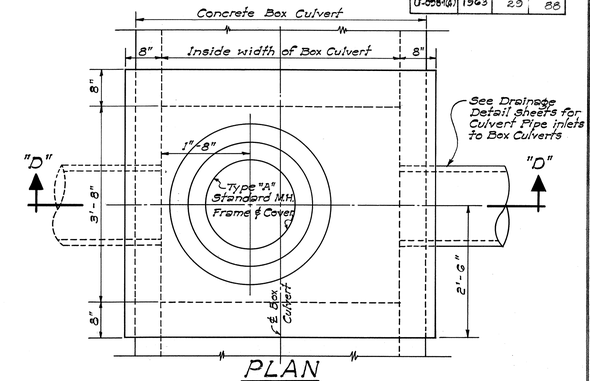
CATCH BASIN NO. 39-V

Scale: 3/8"=1'-0"



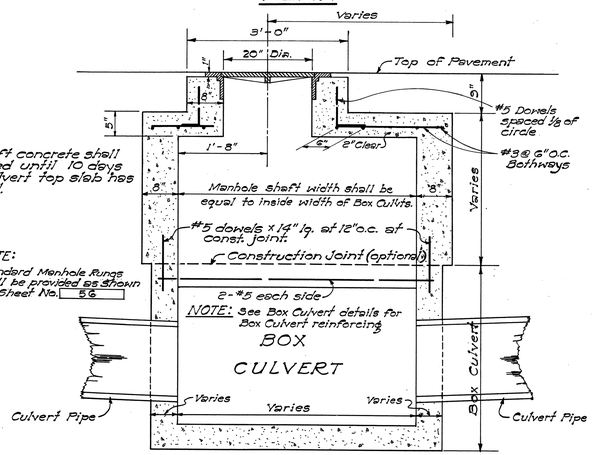
SECTION

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



PLAN

NOTE:
Manhole shaft concrete shall not be poured until 10 days after the culvert top slab has been poured.

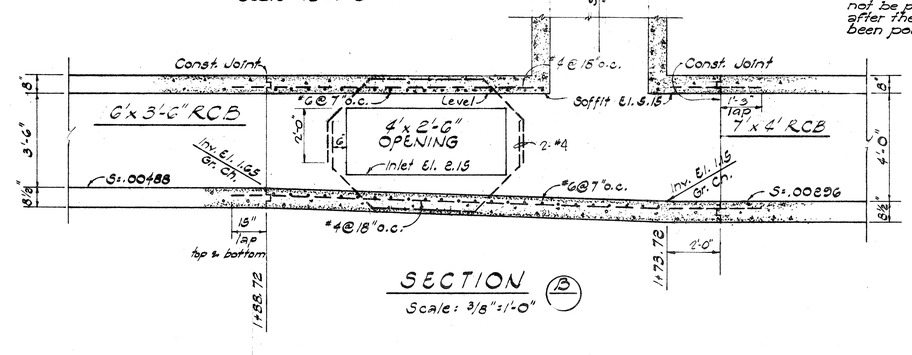


NOTE:
Standard Manhole Rungs shall be provided as shown on Sheet No. 56

SECTION "D-D"

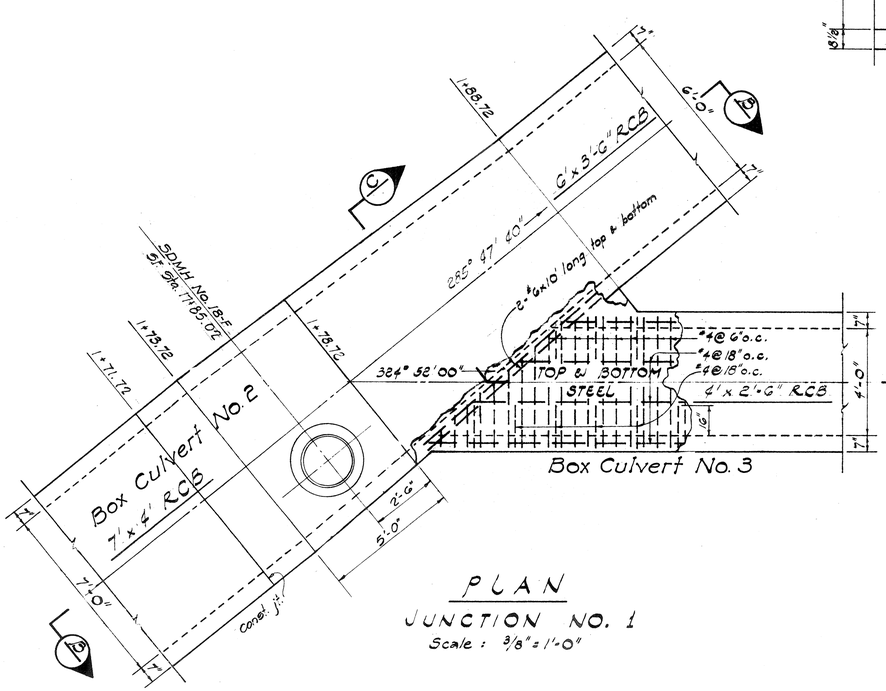
TYPICAL DETAIL OF TYPE "A-A" SDMH M.H. ON R.C. BOX CULVERT

Not to Scale



SECTION

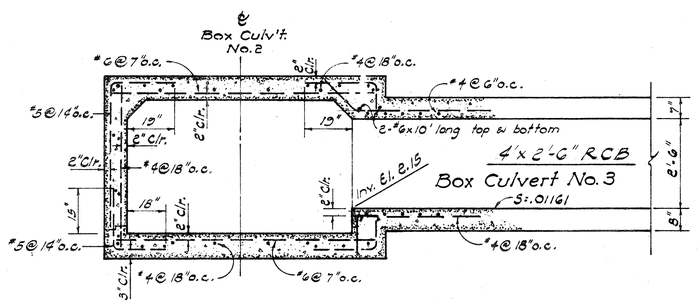
Scale: 3/8"=1'-0"



PLAN

JUNCTION NO. 1

Scale: 3/8"=1'-0"



SECTION

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

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

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISIONS
STATE OF HAWAII

DRAINAGE

BOX CULVERT NO. 3
SPECIAL CATCH BASINS DETAILS
AND DETAILS OF TYPE "A-A" S.D.M.H.

LUNALILO FREEWAY	U-072-1(3)
VINEYARD BOULEVARD	U-098-1(4)

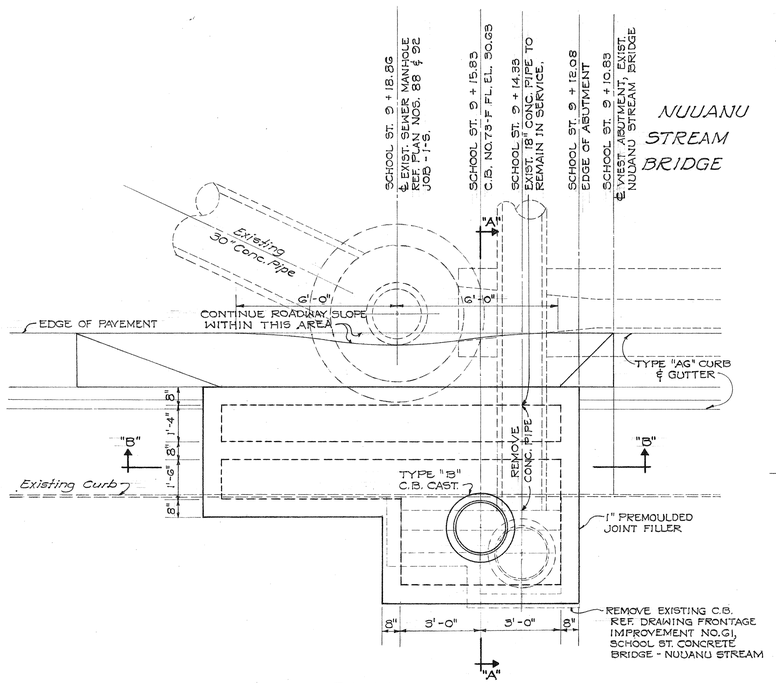
SHEET No. 9 OF 13 SHEETS

U09S10400.29 U072103300.73

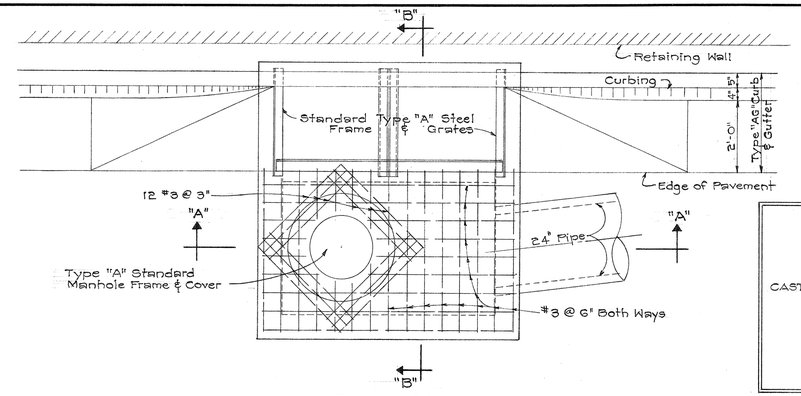
80

PRINTED ON DIEPO 1000H CLEARPRINT

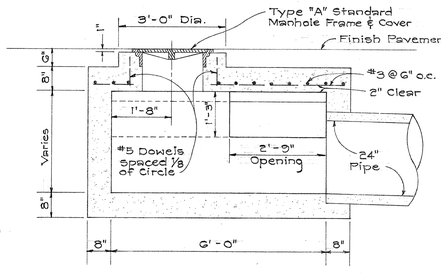
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	76	846
		U-098-1(4)	1963	30	88



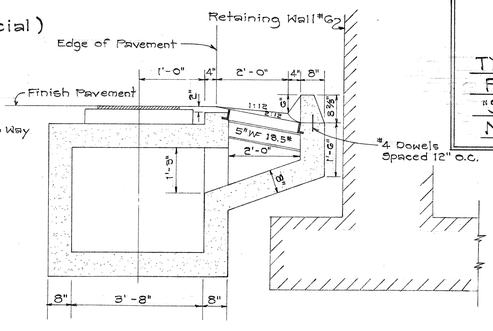
PLAN
CATCH BASIN NO. 73-F
SCALE: 3/8" = 1'-0"



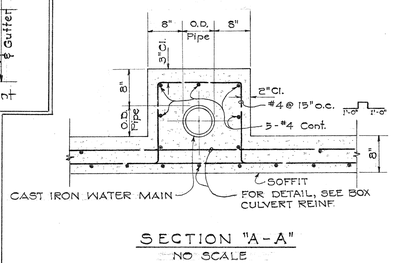
PLAN
C.B. NO. 48-F (Special)
SCALE: 1/2" = 1'-0"



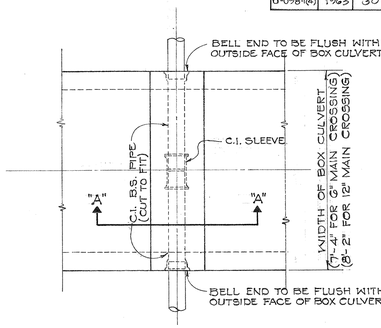
SECTION "A-A"
C.B. NO. 48-F (Special)
SCALE: 1/2" = 1'-0"



SECTION "B-B"
C.B. NO. 48-F (Special)
SCALE: 1/2" = 1'-0"

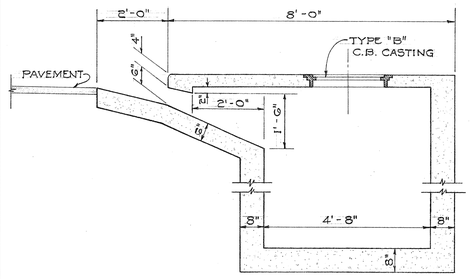


SECTION "A-A"
NO SCALE

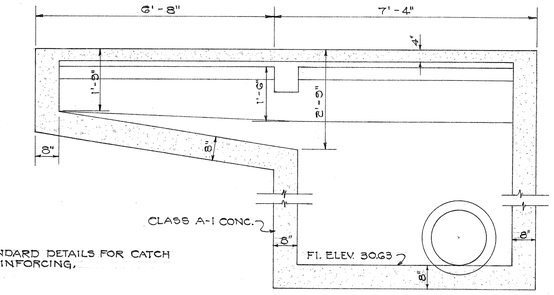


PLAN
NO SCALE

TYPICAL DETAILS OF CONCRETE JACKETS FOR 6" F.H. PIPE CROSSING NEW 6'x4' BOX CULVERT AT "5-F" STA. 14+31 AND FOR 12" MAIN CROSSING NEW 7'x4' BOX CULVERT AT KOKEA STREET

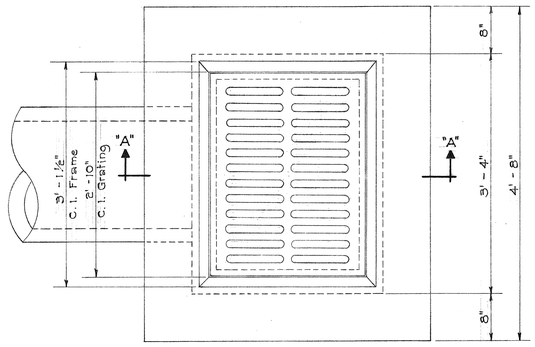


SECTION "A-A"
CATCH BASIN NO. 73-F
SCALE: 1/2" = 1'-0"

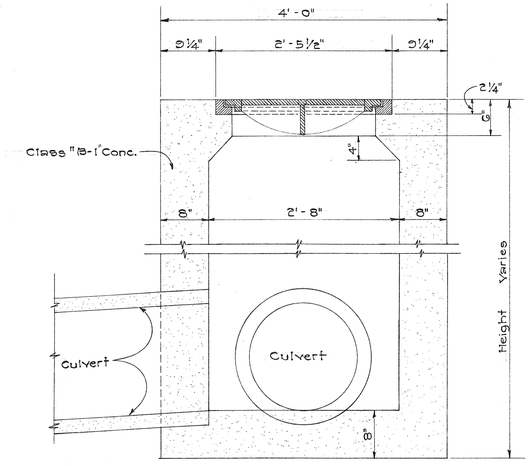


NOTE:
SEE STANDARD DETAILS FOR CATCH BASIN REINFORCING.

SECTION "B-B"
CATCH BASIN NO. 73-F
SCALE: 1/2" = 1'-0"

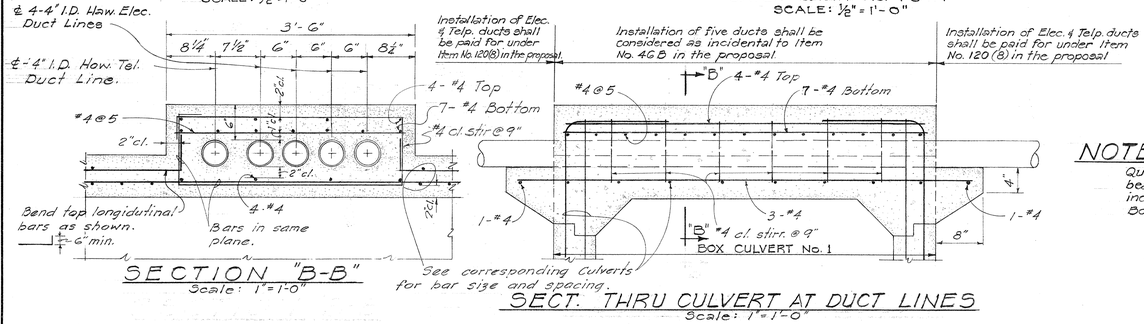


PLAN



SECTION "A-A"

TYPICAL DETAIL OF CONCRETE DROP INTAKE
SCALE: 1" = 1'-0"



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

SECT. THRU CULVERT AT DUCT LINES
Scale: 1" = 1'-0"

NOTE:
Quantities of concrete and reinf. bars for beam enveloping Elec. & Telp. ducts are included in the respective Quantities for Box Culvert No. 1.

DETAIL OF DUCT CROSSING (5 DUCTS) OVER BOX CULVERT No. 1 AT HOUGH. ST. LEFT OF STA. 9+06±

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

APPROVED:

ASST. CHIEF ENGINEER
BOARD OF WATER SUPPLY

4/16/63
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

LUNALILO FREEWAY
PROJ. NO. U-072-1(3)
VINEYARD BOULEVARD
PROJ. NO. U-098-1(4)

SCALES: AS NOTED 1963

SHEET No. 12 OF 13 SHEETS

PRINTED ON CLEARPRINT 1000-H

U 098 1 04 00 . 30 U 072 1 03 00 . 76

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	77	246
		U-098-1(4)	1963	31	88

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES

LUNALILO FREEWAY- U-072-1(3), NORTH FRONTAGE RD.- U-072-1(3), SOUTH FRONTAGE RD.- U-072-1(3), VINEYARD BLVD. W.B.- U-098-1(4) AND VINEYARD BLVD. E.B.- U-098-1(4)

RCB Reinforced Conc. Box
☆ Conc. Drop Intake
* Storm Drain Manhole

LUNALILO FREEWAY U-072-1(3)

C.B. No.	TO C.B. No.	TYPE	LOCATION	STRUC. EXC. CU. YD. C.B. CDI SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	GRP CU. YD.	CRM CU. YD.	TYPE "A" STEEL FR. & GRATES EACH	TYPE "C" CI FR. & GRATES EACH	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D TYPE "A" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	ALTERNATES CONC. CULVT. PIPE 24" LN. FT. CL. III	24" LN. FT. CL. IV	30" CL. III LN. FT.	36" LN. FT. CL. III	36" LN. FT. CL. IV	CMP 24" 14 GA. LN. FT.	30" 14 GA. LN. FT.	36" 10 GA. LN. FT.	36" 12 GA. LN. FT.	42" 12 GA. LN. FT.	48" 12 GA. LN. FT.
Frwy. 59+00	1-F				41.57 ~~58~~																				70 (~~73~~)		
1-F		C	Frwy. 59+75, Lt.	9.68 ~~16~~		105.25 ~~119~~	6.12 ~~7.2~~							1													
2-F	1-F				22.00 ~~26~~													~~61~~				62 ~~61~~					
2-F		C	Frwy. 59+75, Rt.	6.84 ~~7~~		105.25 ~~98~~	5.22 ~~5.2~~							1													
1-F	4-F				171.10 ~~231~~															226 ~~220~~						~~220~~	
4-F		C	Frwy. 62+00, Rt.	12.66 ~~16~~		150.05 ~~119~~	7.40 ~~7.2~~							1													
3-F	4-F				11.75 ~~24~~													~~56~~				58 ~~56~~					
3-F		C	Frwy. 62+00, Lt.	5.24 ~~7~~		105.25 ~~98~~	5.40 ~~5.3~~							1													
4-F	6-F				124.98 ~~166~~															168 ~~159~~						~~159~~	
6-F		C	Frwy. 63+75, Rt.	12.36 ~~18~~		130.93 ~~119~~	7.88 ~~7.9~~							1													
5-F	6-F				5.17 ~~24~~											58 ~~56~~											
5-F		C	Frwy. 63+75, Lt.	4.56 ~~6~~		105.25 ~~98~~	5.04 ~~5.1~~							1													
6-F	1-F*				40.43 ~~38~~				5.2 ~~7~~																50 (~~52~~)		
1-F*		A	Frwy. 64+00, Rt.	13.10 ~~10~~		145.30 ~~146~~	3.20 ~~2.8~~								1												
1-F*	7-F				65.32 ~~43~~															54 ~~55~~					~~55~~		
7-F		D	Hough. 6+93, Lt.	10.40 ~~16~~		88.12 ~~67~~	5.03 ~~4.1~~							1													
7-F	13-F*				38.03 ~~24~~			14.59													52 ~~55~~			~~55~~			
8-F		C	Hough. 9+25, Lt.	20.94 ~~23~~		122.40 ~~124~~	5.54 ~~6.3~~							1												DELETED	
Head Wall	8-F				~~78~~ DELETED CO #13					~~17~~																	~~(58)~~
Hough. 9+70	8-F				27.19 ~~24~~													~~81~~				80 ~~81~~				C.O. #13	
9-F		D	"S-F" 1+75, Rt.																								
9-F	RCB																										
10-F		C	Frwy. 67+25, Lt.	5.05 ~~7~~		92.28 ~~98~~	5.44 ~~5.1~~							1													
10-F	11-F				12.62 ~~24~~											56											
11-F		C	Frwy. 67+25, Rt.	6.54 ~~7~~		92.28 ~~98~~	5.17 ~~4.9~~							1													
11-F	14-F*				3.01 ~~10~~											32 ~~30~~											
12-F		A	"N-F" 26+25, Rt.																								
12-F	13-F																										
13-F		A	"N-F" 23+00, Rt.																								
13-F	19-F																										
19-F		B	"N-F" 20+00, Rt.																								
19-F	25-F																										
25-F		B	"N-F" 17+00, Rt.																								
25-F	Kapalama Canal																										
14-F		B	Frwy. 70+75, Lt.	5.57 ~~7~~		92.28 ~~98~~	5.55 ~~5.0~~							1													
14-F	15-F				37.88 ~~49~~													~~114~~				116 ~~114~~					
15-F		C	Frwy. 70+75, Rt.	7.02 ~~8~~		96.40 ~~98~~	5.05 ~~5.1~~							1													
15-F	15-F*				11.23 ~~9~~											26 ~~27~~											
16-F		C	"S-F" 8+35, Rt.																								
16-F	16-F*																										
1-F☆			"S-F" 8+50, Rt.																								
1-F☆	16-F																										
17-F		C	Frwy. 73+25, Rt.	6.59 ~~17~~		96.40 ~~98~~	5.11 ~~5.2~~							1													
17-F	16-F*				9.06 ~~10~~											28 ~~27~~											
18-F		B	"R-1" 2+10, Rt.	7.07 ~~17~~		105.25 ~~103~~	5.22 ~~5.3~~							1													
18-F	20-F				48.83 ~~56~~												~~161~~					160 ~~161~~					
20-F		D	"R-1" 0+45, Rt.	6.10 ~~7~~		57.10 ~~72~~	3.80 ~~4.0~~							1													
20-F	22-F				19.16 ~~21~~													~~65~~				66 ~~65~~					
SHEET TOTAL				139.72 ~~189~~	689.03 ~~915~~	1,689.29 ~~1,653~~	86.17 ~~85.7~~	14.59	5.2 ~~7.0~~	~~17~~				15	1	200 ~~196~~	~~161~~	~~377~~		448 ~~434~~	52 ~~55~~	542 ~~538~~		~~55~~	(120) ~~(125)~~ ~~55~~	~~379~~	~~(58)~~

NORTH FRONTAGE ROAD U-072-1(3) / SOUTH FRONTAGE ROAD U-072-1(3)

C.B. No.	TO C.B. No.	TYPE	LOCATION	N.F. STRUC. EXC. CU. YD. C.B. C.D.I. S.DMH	N.F. STRUC. EXC. PIPE	N.F. REINF. STEEL LBS.	N.F. CL. A-1 CONC. CU. YD.	N.F. CL. B-1 CONC. CU. YD.	N.F. TYPE "A" C.I. FR. & COV. EACH	N.F. TYPE "B" C.I. FR. & COV. EACH	N.F. SALV'D 24" CMP LN. FT.	N.F. ALTERNATES CONC. CULVT. PIPE 24" CL. III LN. FT.	N.F. 24" CL. IV LN. FT.	N.F. CMP 30" 14 GA. LN. FT.	S.F. STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	S.F. STRUC. EXC. PIPE	S.F. REINF. STEEL LBS.	S.F. CL. A-1 CONC. CU. YD.	S.F. CL. B-1 CONC. CU. YD.	S.F. TYPE "A" C.I. FR. & COV. EACH	S.F. TYPE "B" C.I. FR. & COV. EACH	S.F. TYPE "C" C.I. FR. & GRA. EACH	S.F. SALV'D 24" CMP LN. FT.
Frwy. 59+00	1-F																						
1-F		C	Frwy. 59+75, Lt.																				
2-F	1-F																						
2-F		C	Frwy. 59+75, Rt.																				
1-F	4-F																						
4-F		C	Frwy. 62+00, Rt.																				
3-F	4-F																						
3-F		C	Frwy. 62+00, Lt.																				
4-F	6-F																						
6-F		C	Frwy. 63+75, Rt.																				
5-F	6-F																						
5-F		C	Frwy. 63+75, Lt.																				
6-F	1-F*																						
1-F*		A	Frwy. 64+00, Rt.																				
1-F*	7-F																						
7-F		D	Hough. 6+93, Lt.																				
7-F	13-F*																						
8-F		C	Hough. 9+25, Lt.																	1 ~~1~~			
Head Wall	8-F																						
Hough. 9+70	8-F																						
9-F		D	"S-F" 1+75, Rt.												12.40 ~~14~~		69.44 ~~67~~	3.97 ~~3.9~~			1		
9-F	RCB															6.85 ~~8~~							20 ~~21~~
10-F		C	Frwy. 67+25, Lt.																				
10-F	11-F																						
11-F		C	Frwy. 67+25, Rt.																				
11-F	14-F*																			1			
12-F		A	"N-F" 26+25, Rt.	13.26 ~~18~~		147.59 ~~145~~	6.21 ~~6.2~~			1													
12-F	13-F				191.35 ~~178~~							~~320~~		320									
13-F		A	"N-F" 23+00, Rt.	12.12 ~~21~~		147.59 ~~145~~	6.08 ~~6.1~~			1													
13-F	19-F				157.37 ~~175~~							~~295~~		294 ~~295~~									
19-F		B	"N-F" 20+00, Rt.	11.23 ~~16~~		109.52 ~~108~~	4.90 ~~4.9~~			1													
19-F	25-F				177.41 ~~214~~							~~215~~		294 ~~215~~									
25-F		B	"N-F" 17+00, Rt.	13.61 ~~21~~		109.52 ~~108~~	5.22 ~~5.2~~			1													
25-F	Kapalama Canal				101.74 ~~111~~								~~142~~	138 ~~142~~									
14-F		B	Frwy. 70+75, Lt.																				
14-F	15-F																						
15-F		C	Frwy. 70+75, Rt.																				
15-F	15-F*																			1			
16-F		C	"S-F" 8+35, Rt.												11.21 ~~17~~		94.90 ~~98~~	5.14 ~~5.1~~			1		
16-F	16-F*															6.61 ~~7~~				1			20 ~~21~~
1-F☆			"S-F" 8+50, Rt.												9.51 ~~6~~				1.72 ~~1.5~~			1	
1-F☆	16-F															4.11 ~~7~~							12 ~~18~~
17-F		C	Frwy. 73+25, Rt.																				
17-F	16-F*																						
18-F		B	"R-1" 2+10, Rt.																				
18-F	20-F																						
20-F		D	"R-1" 0+45, Rt.																				
20-F	22-F																						
SHEET TOTAL				50.42 ~~76~~	627.89 ~~678~~	514.22 ~~506~~	22.41 ~~22.4~~			4		~~830~~	~~142~~	1,046 ~~972~~	28.12 ~~37~~	17.57 ~~22~~	164.34 ~~165~~	9.11 ~~9.0~~	1.72 ~~1.5~~	4	2	1	52 ~~60~~

VINEYARD BLVD. W.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	CMP 24" 14GA LN. FT.	CONC. CULV'T. PIPE 24" CL. IV LN. FT.

VINEYARD BLVD. E.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	TYPE "C" C.I. FR. & GRA. EACH	SALV'D 24" CMP LN. FT.	CMP 12" 16 GA. LN. FT.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES.

LUNALILO FREEWAY U-072-1(3)
VINEYARD BLVD. U-098-1(4)
DATE: 1963

SHEET No. 1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	78	246
		U-098-1(4)	1963	32	88

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES

LUNALILO FREEWAY- U-072-1(3), NORTH FRONTAGE RD.- U-072-1(3), SOUTH FRONTAGE RD.- U-072-1(3), VINEYARD BLVD. W.B.- U-098-1(4) AND VINEYARD BLVD. E.B.- U-098-1(4)

RCB Reinforced Conc. Box
* Conc. Drop Intake
* Storm Drain Manhole

LUNALILO FREEWAY U-072-1(3)

C.B. No. TO	C.B. No.	TYPE	LOCATION	STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	G.R.P. CU. YD	CRM TYPE 2 STEEL FR. & GRATES EACH	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D TYPE "A" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	ALTERNATES CONC. CULVT. PIPE 24" CL III LN. FT.	CL IV LN. FT.	30" CL III LN. FT.	36" CL III LN. FT.	CL IV LN. FT.	CMP 24" 14 GA. LN. FT.	30" 14 GA. LN. FT.	36" 10 GA. LN. FT.	36" 12 GA. LN. FT.	42" 12GA LN. FT.	48" 12GA LN. FT.
22-F	—	D	Frwy. 75+50, Rt.	8.05 ~~10~~	57.10 ~~77~~	9.28 ~~4.7~~						1									194 ~~185~~				
22-F	2G-F			79.93 ~~56~~										185											
26-F	—	D	Frwy. 77+50, Rt.	8.03 ~~10~~	57.10 ~~77~~	9.16 ~~4.7~~						1								74 ~~76~~					
24-F	2G-F			82.09 ~~22~~											76										
24-F	—	D	Frwy. 77+00, Lt.	6.16 ~~6~~	57.10 ~~67~~	3.84 ~~3.6~~						1									192 ~~170~~				
26-F	29-F			68.78 ~~72~~										170											
29-F	—	D	Frwy. 79+25, Rt.	8.03 ~~10~~	61.68 ~~77~~	9.33 ~~4.7~~						1								78 ~~74~~					
28-F	29-F			22											74										
28-F	—	D	Frwy. 78+80, Lt.	6.18 ~~7~~	61.68 ~~67~~	3.98 ~~3.9~~						1													
21-F	RCB			9.80 ~~5~~			3.93 ~~1.0~~							18 ~~16~~											
21-F	—	D	"R-2" 5+00, Rt.	6.73 ~~7~~	50.23 ~~67~~	4.06 ~~4.0~~						1													
23-F	17-F *																								
23-F	—	D	"S-F" 11+50, Rt.																						
27-F	RCB																								
27-F	—	D	"S-F" 13+00, Rt.																						
29-F	2-F *			59.72 ~~44~~											83						86 ~~83~~				
2-F *	—	A	Frwy. 79+76, Rt.	1.65 ~~11~~	100.88 ~~146~~	3.33 ~~3.3~~							1												
2-F *	KAPALAMA CANAL			1.80 ~~3~~										14							14				
32-F	—	A	Frwy. 81+75, Lt.	5.98 ~~7~~	187.21 ~~135~~	6.75 ~~6.2~~						1													
32-F	31-F			17.25 ~~15~~											57						58 ~~57~~				
31-F	—	A	Frwy. 81+75, Rt.	8.38 ~~9~~	137.21 ~~135~~	6.68 ~~6.7~~						1													
31-F	30-F			26.77 ~~25~~											61						62 ~~61~~				
30-F	—	D	"R-4" 1+50, Rt.	14.35 ~~17~~	74.23 ~~67~~	4.80 ~~4.5~~						1													
30-F	KAPALAMA CANAL			15.15 ~~17~~											49						50 ~~49~~				
33-F	—	B	"N-F" 11+40, Rt.																						
33-F	RCB																								
34-F	—	C	"N-F" 10+15, Rt.																						
34-F	3-F *																								
3-F *	—	A-1	"N-F" 10+15, Lt.																						
35-F	RCB																								
35-F	—	C	"S-F" 19+25, Rt.																						
36-F	RCB			6.86 ~~4~~										15											
36-F	—	D	"R-4" 4+20, Lt.	11.60 ~~14~~	69.89 ~~67~~	3.79 ~~5.1~~						1													
37-F	38-F			12.96 ~~18~~											44						46 ~~44~~				
37-F	—	C	Frwy. 85+00, Lt.	5.98 ~~17~~	92.28 ~~98~~	5.59 ~~5.2~~						1													
38-F	RCB			23.17 ~~36~~											81						85 ~~81~~				
38-F	—	C	Frwy. 85+00, Rt.	9.78 ~~9~~	113.00 ~~98~~	5.98 ~~5.6~~						1													
39-V	19-V *																								
39-V	—	B	"E-B" 21+25, Lt.																						
40-F	—	D	"R-3" 1+50, Lt.	11.62 ~~17~~	69.89 ~~98~~	3.88 ~~5.2~~						1													
40-F	4-F *			11.07 ~~11~~										23 ~~25~~											
4-F *	—	A-1	"N-F" 7+53, Rt.																						
38-F	41-F			268.17 ~~295~~										295							299 ~~295~~				
41-F	—	C	Frwy. 89+00, Rt.	7.7 ~~15~~	113.00 ~~108~~	7.26 ~~7.1~~						1													
42-F	41-F			17.87 ~~18~~											44						44				
42-F	—	C	Frwy. 89+00, Lt.	6.1 ~~7~~	97.80 ~~98~~	5.11 ~~5.1~~						1													
43-V	5-V *																								
SHEET TOTAL				122.61 ~~173~~	635.38 ~~667~~	1,379.74 1,482	77.21 ~~79.8~~	—	0.98 ~~1.0~~	—	—	—	15	1	60 ~~56~~	—	—	—	—	906 ~~485~~	942 ~~938~~	—	—	—	—
PREVIOUS TOTAL				134.72 ~~189~~	684.03 ~~815~~	1,689.89 1,653	86.17 ~~85.7~~	16.59 —	5.2 ~~7.0~~	17	—	—	15	1	200 ~~196~~	—	—	—	—	542 ~~530~~	—	—	55	(125) 55	—
SUB - TOTAL				256.33 ~~362~~	1,319.41 1,582	3,069.63 3,135	163.38 165.5	16.59 —	6.18 8.0	17	—	—	30	2	260 ~~252~~	—	—	—	—	948 ~~943~~	942 ~~938~~	—	55	(125) 55	—

NORTH FRONTAGE ROAD U-072-1(3)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	SALV'D TYPE "B" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	ALTERNATES CONC. CULVT. PIPE 24" CL III LN. FT.	24" CL IV LN. FT.	CMP 30" 14 GA. LN. FT.
11.41 ~~13~~		782.13 ~~98~~	4.55 ~~4.3~~			1				
				1.36 ~~4.5~~			8 (9)			
13.20 ~~16~~		974.90 ~~98~~	9.90 ~~5.0~~			1				
1.19 ~~2~~							8			
5.61 ~~6~~		157.01 ~~150~~	2.66 ~~2.6~~		1					

SOUTH FRONTAGE ROAD U-072-1(3)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	TYPE "C" C.I. FR. & GRA. EACH	SALV'D 24" CMP LN. FT.
	4.99 ~~6~~					1		16 ~~18~~
11.86 ~~14~~		69.99 ~~67~~	3.76 ~~4.0~~			1		
	2.72 ~~3~~							12 ~~13~~
8.37 ~~14~~		69.99 ~~67~~	3.96 ~~4.0~~			1		
								18" CMP
9.78	46.78	27.29		1.66		1		100
	10.08 ~~8~~				1			25
12.05 ~~14~~		84.90 ~~98~~	5.05 ~~5.2~~			1		

VINEYARD BLVD. W.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D 18" CMP 24" CMP LN. FT.	CONC. CULVT. PIPE 24" CL IV LN. FT.
11.38 ~~14~~	5.17 ~~6~~	74.90 ~~98~~	4.61 ~~4.7~~				26 ~~29~~	—

VINEYARD BLVD. E.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	TYPE "C" C.I. FR. & GRA. EACH	SALV'D 24" CMP LN. FT.	CMP 12" 16 GA. LN. FT.
8.58 ~~13~~	2.25 ~~3~~	74.90 ~~98~~	3.54 ~~4.7~~		1	1		13 ~~15~~	
8.58 ~~13~~	2.25 ~~3~~	74.90 ~~98~~	3.54 ~~4.7~~	—	1	1	—	14 ~~15~~	—
—	—	—	—	—	—	—	—	—	—
8.58 ~~13~~	2.25 ~~3~~	74.90 ~~98~~	3.54 ~~4.7~~	—	1	1	—	14 ~~15~~	—

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

ORIGINAL PLAN
NOTE BOOK
No.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES.

LUNALILO FREEWAY U-072-1(3)
VINEYARD BLVD. U-098-1(4)
DATE: 1963

SHEET No. 2 OF 4 SHEETS

PRINTED ON CLEARPRINT 1000- H

U 098 10400.32 U 072 10300.78

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	79	246
		U-098-1(4)	1963	33	88

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES

LUNALILO FREEWAY- U-072-1(3), NORTH FRONTAGE RD.- U-072-1(3), SOUTH FRONTAGE RD.- U-072-1(3), VINEYARD BLVD. W.B.- U-098-1(4) AND VINEYARD BLVD. E.B.- U-098-1(4)

RCB Reinforced Conc. Box
☆ Conc. Drop Intake
* Storm Drain Manhole

LUNALILO FREEWAY U-072-1(3)

C.B. No.	TO C.B. No.	TYPE	LOCATION	STRUC. EXC. CU. YD. C.B. CDI SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	GRP CU. YD.	CMP CU. YD.	TYPE "A" STEEL FR. & GRATES EACH	TYPE "C" C.I. FR. & GRATES EACH	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D TYPE "A" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	ALT. CONC. CULVT. PIPE 24" LN. FT. CL. III	24" LN. FT. CL. IV	30" CL. III LN. FT.	36" LN. FT. CL. III	36" LN. FT. CL. IV	ALT. CMP 24" 14 GA. LN. FT.	30" 14 GA. LN. FT.	36" 10 GA. LN. FT.	36" 12 GA LN. FT.	42" 12GA LN. FT.	48" 12GA LN. FT.
5-V*		A-1	"W-B" 4+75, Lt.																								
5-V*	EXIST. 24" PIPE																										
44-V	20-V*																										
44-V		B	"E-B" 26+20, Rt.																								
2-V☆			"E-B" 26+80, Rt.																								
2-V☆	44-V																										
45-V		C	"W-B" 2+99, Rt.																								
45-V	6-V*																										
5-V*	6-V*																										
6-V*	7-V*																										
6-V*		A-1	"W-B" 3+05, Lt.																								
7-V*		A-1	"W-B" 2+13, Lt.																								
8-V*		A-1	"W-B" 0+90, Lt.																								
46-V	8-V*																										
46-V		C	"W-B" 0+90, Rt.																								
47-F		C	Palama 1+00, Lt.	16.69 ~~17~~		118.20 ~~98~~	5.67 ~~5.1~~							1													
9-F*	10-F*				38.69 ~~33~~																	(70)					
9-F*		A-1	Palama 3+30, Lt.	9.55 ~~10~~		157 ~~159~~	2.66 ~~2.6~~								1												
10-F*	48-F				114.14 ~~87~~												~~213~~					212 ~~213~~					
10-F*		A	Frwy. 96+03, Lt.	7.26 ~~6~~		117.90 ~~146~~	2.47 ~~2.5~~						1														
48-F		Special	"R-5" 9+46, Lt.	3.12 ~~5~~		71.66 ~~75~~	4.04 ~~5.0~~				1		1														
3-F☆	48-F				12.96 ~~10~~													~~30~~				30					
3-F☆			Frwy. 98+40, Lt.	8.17 ~~8~~				1.97 ~~2.3~~				1															
49-F	50-F				18.78 ~~18~~													~~44~~				44					
50-F		C	Frwy. 101+00, Rt.	5.29 ~~16~~		98.01 ~~98~~	5.11 ~~5.1~~							1													
49-F	11-F*				157.1 ~~151~~												~~246~~					250 ~~246~~					
49-F		C	Frwy. 101+00, Lt.	13.58 ~~15~~		106.53 ~~108~~	6.92 ~~7.1~~							1													
11-F*	51-F				156.74 ~~158~~												~~246~~					244 ~~246~~					
11-F*		A	Frwy. 103+50	8.86 ~~9~~		122.41 ~~146~~	3.35 ~~4.0~~						1														
51-F		A	Frwy. 106+00, Lt.	14.34 ~~15~~		143.42 ~~145~~	8.40 ~~8.3~~							1													
52-F	51-F				18.87 ~~18~~													~~44~~				44					
52-F		C	Frwy. 106+00, Rt.	11.34 ~~16~~		98.01 ~~98~~	5.11 ~~5.1~~							1													
51-F	54-F				101.98 ~~111~~												~~295~~						294 ~~295~~				
54-F		C	Frwy. 109+00, Lt.	5.16 ~~7~~		107.24 ~~113~~	5.56 ~~6.0~~							1													
55-F	54-F				10.96 ~~11~~												~~85~~						84 ~~85~~				
55-F		C	Frwy. 108+25, Rt.	2.84 ~~4~~		99.9 ~~108~~	4.81 ~~5.5~~							1													
54-F	57-F				15.56 ~~12~~														114 ~~111~~						~~111~~		
57-F		D	Frwy. 110+05, Rt.	3.2 ~~2~~		81.84 ~~82~~	3.68 ~~3.9~~							1													
56-F	57-F				0												~~90~~					90					
56-F		B	Frwy. 110+00, Lt.	0		99.9 ~~98~~	4.01 ~~4.3~~							1													
57-F	61-F				9.71 ~~0~~														154 ~~160~~						~~160~~		
61-F		A	Frwy. 111+70, Lt.	1.36 ~~2~~		163.98 ~~150~~	6.66 ~~6.2~~							1													
53-F	58-F				83.65 ~~69~~												~~136~~					134 ~~136~~					
53-F		C	"L-F" 3+00, Lt.	14.41 ~~21~~		105.77 ~~103~~	6.45 ~~6.2~~							1													
58-F	61-F				90.15 ~~78~~				8.79 ~~8.0~~								~~90~~					88 ~~90~~					
58-F		D	"L-A" 4+25, Lt.	17.73 ~~20~~		75.24 ~~72~~	6.43 ~~5.3~~							1													
59-F	60-F				19.58 ~~23~~				4.55 ~~5.0~~								~~42~~					42					
59-F		D	"S-S" 23+52, Lt.	9.73 ~~10~~		69.94 ~~67~~	3.23 ~~3.2~~							1													
SHEET TOTAL				152.63 ~~183~~	843.92 ~~779~~	1,825.95 ~~1,866~~	84.56 ~~85.4~~	1.97 ~~2.3~~	13.34 ~~13.0~~	—	1	1	3	13	1	—	[illegible]	[illegible]	268 ~~271~~	—	—	(70) 1,178 ~~1,181~~	378 ~~380~~	—	~~271~~	—	—
PREVIOUS TOTAL				260.33 ~~362~~	1,324.41 ~~1,582~~	3,069.03 ~~3,135~~	163.38 ~~165.5~~	14.59 —	6.18 ~~8.0~~	[illegible]	—	—	—	30	2	260 ~~252~~	[illegible]	[illegible]	—	[illegible]	52 ~~55~~	948 ~~943~~	942 ~~938~~	~~55~~	(125) 120 ~~55~~	[illegible]	(58)
SUB-TOTAL				412.96 ~~545~~	2,168.33 ~~2,361~~	4,894.98 ~~5,001~~	247.94 ~~250.9~~	16.56 ~~2.3~~	19.52 ~~21.0~~	[illegible]	1	1	3	43	3	2.60 252	[illegible]	[illegible]	268 271	[illegible]	52 ~~55~~	(70) 2,126 ~~2,124~~	1,320 ~~1,318~~	~~55~~	(125) 120 ~~326~~	[illegible]	(58)

NORTH FRONTAGE ROAD U-072-1(3)

	STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	ALT. CONC. CULVT. PIPE 24" CL. III LN. FT.	24" CL. IV LN. FT.	ALT. CMP 30" 14 GA. LN. FT.
SHEET TOTAL	—	—	—	—	—	—	—	—	—	—	—
PREVIOUS TOTAL	90.12 ~~121~~	630.51 ~~682~~	1,021.57 ~~1,020~~	38.28 ~~37.9~~	1.34 ~~1.5~~	2	6	8	~~830~~	~~(9)~~ 8 ~~142~~	1,042 ~~972~~
SUB-TOTAL	90.12 ~~121~~	630.51 ~~682~~	1,021.57 ~~1,020~~	38.28 ~~37.9~~	1.34 ~~1.5~~	2	6	8	~~830~~	~~(9)~~ 8 ~~142~~	1,042 ~~972~~

SOUTH FRONTAGE ROAD U-072-1(3)

	STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	TYPE "C" C.I. FR. & GRA. EACH	SALV'D 24" CMP LN. FT.
SHEET TOTAL	—	—	—	—	—	—	—	—	—
PREVIOUS TOTAL	67.12 ~~79~~	82.09 ~~39~~	425.36 ~~379~~	22.08 ~~22.2~~	3.38 ~~1.5~~	6	6 ~~5~~	1	108 ~~116~~
SUB-TOTAL	67.12 ~~79~~	82.09 ~~39~~	425.36 ~~379~~	22.08 ~~22.2~~	3.38 ~~1.5~~	6	6 ~~5~~	1	108 ~~116~~

VINEYARD BLVD. W.B. U-098-1(4)

C.B. No.	TO C.B. No.	STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	SALV'D 24" CMP LN. FT.	CMP 24" 14GA LN. FT.	CONC. CULV'T. PIPE 24" CL. IV LN. FT.
5-V*		8.09 ~~5~~		157.01 ~~159~~	3.26 ~~2.5~~		1				
5-V*	EXIST. 24" PIPE		23.21 ~~26~~						42 ~~43~~		
45-V		10.02 ~~15~~		94.9 ~~108~~	4.28 ~~4.8~~			1			
45-V	6-V*		7.13 ~~5~~			5.48 ~~3.3~~					(24) ~~(28)~~
5-V*	6-V*		43.51 ~~79~~							170 ~~167~~	~~167~~
6-V*	7-V*		35.12 ~~27~~							102 ~~87~~	~~87~~
6-V*		2.78 ~~4~~		157.01 ~~159~~	2.51 ~~2.1~~		1				
7-V*		4.07 ~~5~~		157.01 ~~159~~	2.64 ~~2.5~~		1				
8-V*		6.02 ~~6~~		157.01 ~~159~~	2.83 ~~2.8~~		1				
46-V	8-V*		7.8 ~~9~~						27 ~~27~~		
46-V		13.42 ~~17~~		94.9 ~~98~~	5.06 ~~5.2~~			1			
SHEET TOTAL		44.40 ~~52~~	116.77 ~~146~~	817.84 ~~842~~	20.58 ~~19.9~~	5.38 ~~3.3~~	4	2	68 ~~70~~	[illegible]	(24) ~~(28)~~ ~~254~~
PREVIOUS TOTAL		11.38 ~~14~~	5.17 ~~6~~	9.49 ~~98~~	4.61 ~~4.7~~	—	—	1	26 ~~29~~	—	—
SUB-TOTAL		55.78 ~~66~~	121.94 ~~152~~	827.33 ~~940~~	25.19 ~~24.6~~	5.38 ~~3.3~~	4	3	94 ~~99~~	[illegible]	(24) ~~(28)~~ ~~254~~

VINEYARD BLVD. E.B. U-098-1(4)

C.B. No.	TO C.B. No.	STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR. & COV. EACH	TYPE "B" C.I. FR. & COV. EACH	TYPE "C" C.I. FR. & GRA. EACH	SALV'D 24" CMP LN. FT.	CMP 12" 16 GA. LN. FT.
44-V	20-V*		10.07 ~~10~~				1			24 ~~25~~	
44-V		14.59 ~~17~~		94.9 ~~98~~	5.07 ~~5.1~~			1			
2-V☆		5.98 ~~5~~				1.61 ~~1.4~~			1		
2-V☆	44-V		25.52 ~~24~~								64 ~~(58)~~
		20.07 ~~22~~	35.59 ~~34~~	94.9 ~~98~~	5.07 ~~5.1~~	1.61 ~~1.4~~	1	1	1	24 ~~25~~	(64) ~~(58)~~
		8.58 ~~13~~	2.45 ~~3~~	94.9 ~~93~~	3.54 ~~4.7~~	—	1	1	—	14 ~~15~~	—
		28.65 ~~35~~	38.04 ~~37~~	189.80 ~~191~~	8.61 ~~9.8~~	1.61 ~~1.4~~	2	2	1	38 ~~40~~	(64) ~~(58)~~

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES.

LUNALILO FREEWAY U-072-1(3)
VINEYARD BLVD. U-098-1(4)

DATE: 1963

SHEET No. 3 OF 4 SHEETS

PRINTED ON CLEARPRINT 1000-H

U09S10400.33 U0721030 0.79

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(3)	1963	80	246
		U-098-1(4)	1963	34	88
		F-090-1(2)	1963	23	93

QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES

LUNALILO FREEWAY- U-072-1(3), NORTH FRONTAGE RD.- U-072-1(3), SOUTH FRONTAGE RD.- U-072-1(3), VINEYARD BLVD. W.B.- U-098-1(4), VINEYARD BLVD. E.B.- U-098-1(4) AND LILIHA STREET OVERPASS AND WIDENING- F-090-1(2)

RCB Reinforced Conc. Box
* Conc. Drop Intake
* Storm Drain Manhole

LUNALILO FREEWAY U-072-1(3)

C.B. No.	TO C.B. No.	TYPE	LOCATION	STRUC. EXC CU. YD. C.B. C.D.I. SDMH	STRUC. EXC CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	GRP CEM CU. YD.	TYPE "A" C.I. FR.&COV. EACH	TYPE "B" C.I. FR.&COV. EACH	SALV'D TYPE "A" C.I. FR.&COV. EACH	SALV'D 24" CMP LN. FT.	ALTERNATES CONC. CULVT. PIPE 24" LN. FT. CL. III	CONC. CULVT. PIPE 24" LN. FT. CL. IV	CONC. CULVT. PIPE 30" CL. III LN. FT.	CONC. CULVT. PIPE 30" CL. IV LN. FT.	CMP 24" 14 GA. LN. FT.	CMP 30" 14 GA. LN. FT.	CMP 36" 10 GA. LN. FT.	CMP 36" 12 GA. LN. FT.	CMP 42" 12 GA. LN. FT.	CMP 48" 12 GA. LN. FT.
G0-F	G1-F				0									98				92					
G0-F		A	Frwy. 111+70, Lt.	0	1327.0 ~~135~~	5.66 ~~5.6~~					1												
G1-F	12-F*				81.65 ~~72~~											126					126		
12-F*		B	Frwy. 112+90	11.33 ~~12~~	157.84 ~~151~~	9.2 ~~3.8~~					1												
12-F*	G3-F				178.93 ~~175~~																		
G3-F		B	Frwy. 114+50, Rt.	23.39 ~~25~~	108.53 ~~113~~	6.66 ~~7.7~~					1					164					164		
G2-F	G3-F				362.7 ~~376~~									97				94 ~~97~~					
G2-F		C	"R-7" 9+90, Rt.	8.67 ~~13~~	98.86 ~~98~~	9.87 ~~5.1~~					1												
G3-F	GG-F				582.46 ~~525~~				7.93 ~~7.5~~							276					276		
GG-F		C	"R-G" 5+00, Rt.	38.81 ~~40~~	117.67 ~~113~~	14.67 ~~10.5~~					1												
G5-F	G4-F				11.98 ~~13~~				2.34 ~~2.4~~				22 ~~32~~										
G5-F		D	"S-S" 18+25, Lt.	22.91 ~~15~~	68.44 ~~67~~	6.95 ~~4.2~~					1												
G4-F	GG-F				58.76 ~~161~~									143				122 ~~143~~					
G4-F		C	"R-7" 7+50, Rt.	6.93 ~~14~~	99.84 ~~98~~	6.90 ~~5.0~~					1												
GG-F	G7-F				562.63 ~~513~~												222 ~~224~~					221	
G7-F		A	"R-G" 7+25, Rt.	37.79 ~~45~~	139.56 ~~155~~	10.35 ~~11.4~~					1												
G7-F	70-F				493.73 ~~392~~												196 ~~198~~					198	
70-F		C	"R-G" 9+25, Rt.	26.68 ~~32~~	105.88 ~~118~~	7.22 ~~8.2~~					1												
G8-F	G9-F				228.5 ~~222~~				1.06 ~~1.1~~					42				32 ~~42~~					
G8-F		D	"S-S" 14+25, Lt.	10.73 ~~11~~	68.76 ~~67~~	6.15 ~~5.3~~					1												
G9-F	70-F				67.52 ~~104~~									128				122 ~~120~~					
G9-F		B	Frwy. 121+00, Lt.	15.65 ~~16~~	103.36 ~~98~~	9.76 ~~5.0~~					1												
70-F	72-F				303.76 ~~275~~												218 ~~221~~					221	
72-F		C	"R-G" 11+50, Rt.	17.80 ~~19~~	118.73 ~~118~~	5.92 ~~5.4~~					1												
71-F	72-F				52.15 ~~60~~													(100) (99)					
71-F		B	Frwy. 123+75, Lt.	14.11 ~~15~~	103.36 ~~98~~	6.86 ~~4.8~~					1												
72-F	75-F				174.38 ~~165~~												168 ~~155~~					195	
75-F		C	Frwy. 125+75, Rt.	18.61 ~~20~~	116.22 ~~118~~	5.50 ~~5.7~~					1												
74-F	75-F				204.9 ~~29~~													98 ~~91~~					
74-F		B	Frwy. 125+75, Lt.	6.30 ~~16~~	99.86 ~~98~~	4.86 ~~5.1~~					1			91									
75-F	NIUANU STREAM				74.57 ~~62~~				4.63 ~~5.3~~									59 ~~59~~				59	
73-F		Special	"S-S" 9+16, Lt.	~~19~~	~~163~~	~~5.7~~	Delete CO #2					+											
SHEET TOTAL				2.562 ~~312~~	2.691.08 2,644	1.635.11 1,814	98.56 ~~96.6~~	—	13.93 ~~15~~	—	—	—	1	19 ~~15~~	—	24 ~~32~~	566	(183) (100) 580 ~~583~~	—	—	566	—	—
PREVIOUS TOTAL				412.96 ~~545~~	2,168.93 2,361	894.68 ~~850.3~~	247.94 ~~250.3~~	16.56 ~~2.3~~	15.20 ~~8.0~~	17	1	1	3	43	3	260 ~~252~~	268 ~~271~~	(70) 6.126 ~~5.124~~	1,320 ~~1,318~~	55	(125) 920	64	(58)
GRAND TOTAL				669.21 ~~857~~	4,858.61 5,005	2,530.09 ~~2,695.3~~	346.53 ~~347.5~~	16.56 ~~2.3~~	34.73 ~~23.2~~	17	1	1	4	57 ~~58~~	3	284	834 ~~837~~	(160) 2,107	1,320 ~~1,318~~	55	(125) 1,032	64	(58)

NORTH FRONTAGE ROAD U-072-1(3)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR.&COV. EACH	TYPE "B" C.I. FR.&COV. EACH	SALV'D 24" CMP LN. FT.	ALTERNATES CONC. CULVT. PIPE 24" CL. III LN. FT.	CONC. CULVT. PIPE 24" CL. IV LN. FT.	CMP 30" 14 GA. LN. FT.
90.12 ~~121~~	630.51 ~~682~~	1,021.97 1,020	38.28 ~~37.9~~	1.34 ~~1.5~~	2	6	8	830	(3)8 142	1,062 ~~972~~

SOUTH FRONTAGE ROAD U-072-1(3)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR.&COV. EACH	TYPE "B" C.I. FR.&COV. EACH	TYPE "C" C.I. FR.&GRA EACH	SALV'D 24" CMP LN. FT.	CONC. CULVT. PIPE 24"
67.12 ~~79~~	82.09 ~~39~~	425.86 ~~397~~	22.08 ~~22.2~~	3.38 ~~1.5~~	6	6 ~~5~~	1	108 ~~116~~	55.78 ~~66~~

VINEYARD BLVD. W.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR.&COV. EACH	TYPE "B" C.I. FR.&COV. EACH	SALV'D 24" CMP LN. FT.	SALV'D 24" CONC. CULVT. PIPE CL. III LN. FT.	CONC. CULVT. PIPE 24" CL. III LN. FT.
152.78 ~~152~~	121.94 ~~152~~	827.33 ~~940~~	25.10 ~~24.6~~	5.48 ~~3.3~~	4	3	96 ~~96~~	2 2	(22) (28) 254

VINEYARD BLVD. E.B. U-098-1(4)

STRUC. EXC. CU. YD. C.B. C.D.I. SDMH	STRUC. EXC. CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	CL. B-1 CONC. CU. YD.	TYPE "A" C.I. FR.&COV. EACH	TYPE "B" C.I. FR.&COV. EACH	TYPE "C" C.I. FR.&GRA EACH	SALV'D 24" CMP LN. FT.	CMP 12" IG GA. LN. FT.
28.65 ~~35~~	35.59 ~~37~~	189.90 ~~191~~	8.61 ~~9.8~~	1.61 ~~1.4~~	2	2	1	38 ~~40~~	(69) (58)

LILIHA ST. OVERPASS AND WIDENING F-090-1(2)

C.B. No.	TO C.B. No.	TYPE	LOCATION	STRUC. EXC CU. YD. C.B. C.D.I. SDMH	STRUC. EXC CU. YD. PIPE	REINF. STEEL LBS.	CL. A-1 CONC. CU. YD.	TYPE "B" C.I. FR.&COV. EACH	SALV. TYPE "B" C.I. FR.&COV. EACH	ALTERNATE CONC. CULV'T PIPE Type "A" Cl. Fr & Cov	ALTERNATE CONC. CULV'T PIPE 24" Cl. III LN. FT.	ALTERNATE CMP 24" 14 GA. LN. FT.	NO ALTERNATE CMP ARCH 25"x16" 14 GA. LN. FT.
Recon-structed C.B.		D	Liliha 0+05, Rt.	~~3~~		89	12.8 ~~1.8~~		1				
Recon-structed C.B.	1-L				163.56 ~~120~~						~~210~~	208 ~~210~~	
1-L		B	Liliha 3+09, Rt.	15.92 ~~16~~		101.68 ~~108~~	5.27 ~~5.5~~		1				
1-L	2-L				28.68 ~~32~~								70
2-L		C	Liliha 3+30, Lt.	10.94 ~~11~~		101.63 ~~108~~	9.93 ~~3.5~~	1					
1-L	3-L				228.26 ~~215~~						~~280~~	280	
3-L		B	Liliha 5+94, Rt.	19.83 ~~16~~		3.15.58 ~~108~~	6.62 ~~5.5~~	~~1~~		1			
3-L	4-L				57.17 ~~32~~								68 ~~70~~
4-L		C	Liliha 6+10, Lt.	12.33 ~~11~~		101.68 ~~108~~	4.01 ~~4.0~~	1					
					568.2 ~~409.7~~	708.86	27.60					980	138 ~~140~~
			TOTALS:	~~57~~	~~419~~	~~521~~	~~20.3~~	3	2	1	~~490~~	490	

NOTE: Quantity shown in parenthesis ( ) indicate no alternate bid is involved.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE
QUANTITIES ESTIMATE FOR CATCH BASIN AND STORM DRAIN MANHOLES.
LUNALILO FREEWAY U-072-1(3)
VINEYARD BLVD. U-098-1(4)
LILIHA STREET F-090-1(2)
DATE: 1963

SHEET No. 4 OF 4 SHEETS

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

PRINTED ON CLEARPRINT 1000-T

F090102000.23 U098104000.34 U072103000.80