FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(7)	1962	4	127

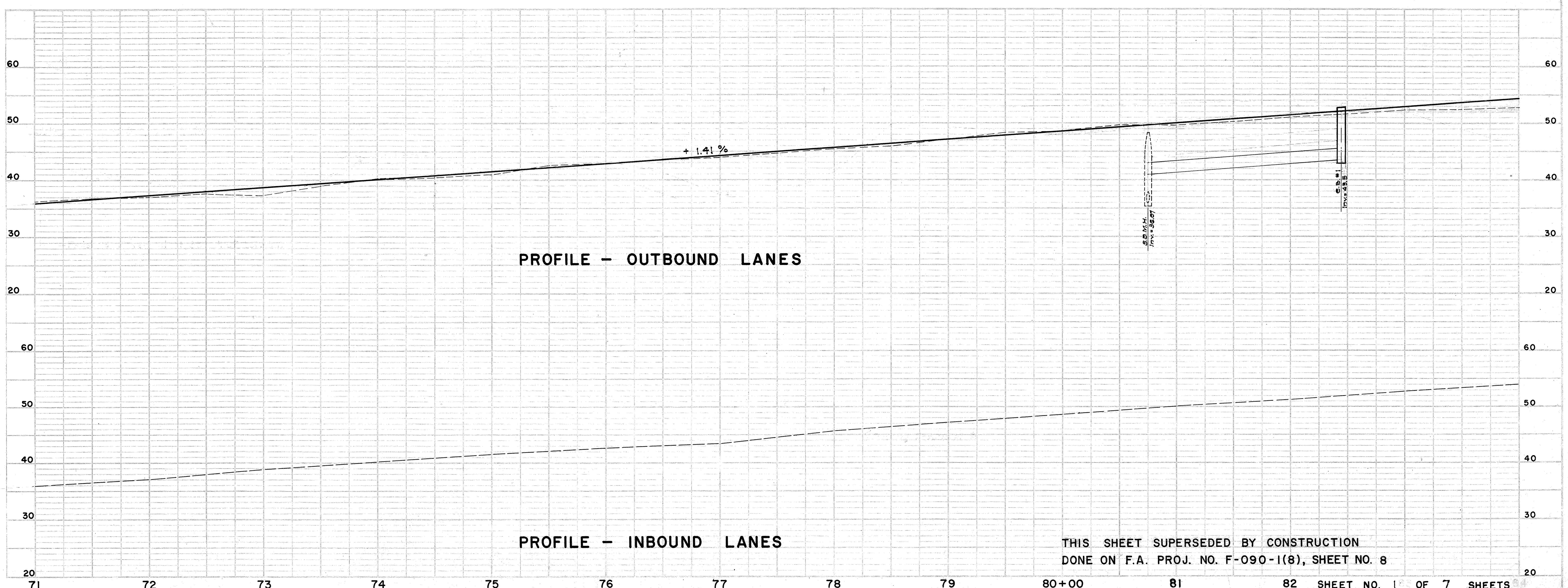
①
Δ = 17° 30' 00"
Δ/2 = 8° 45' 00"
R = 6,875.50
T = 1,058.24
Ch = 2,091.85
Lc = 2,100.00

GENERAL NOTES:

1. Transition from one type curb to another type curb, or from curb to curb and gutter, or from curb and gutter to curb shall be made in a distance of 20 ft.
2. Transition Sections of curbs at Bridges will be paid for as Cast-in-Place concrete curb or Curb and Gutter of the type adjacent to the Transition.
3. Curbs specified as Type "A" shall be of Standard Type "A" Curb, but without recesses.
4. Unless otherwise shown, speed change lanes shall be 12 ft. wide and of standard taper.
5. Transition from Bridge curb to Highway curbs shall be made over a distance of 20 ft. at the locations shown on the plans.
6. See sheet 32 for detail of new CRM wall.

POINTS OF ACCESS		
STATIONS	WIDTH OF ACCESS	
℄ STA.	LEFT	RIGHT
STA. 86+95		75.00
STA. 87+35	97.00	
STA. 88+15		40.00
STA. 89+55	111.58	
STA. 93+60	44.00	
STA. 94+00	20.00	170 ±
STA. 94+55		53.53
STA. 95+85		50.01
STA. 96+10 to 102+50	640.00	
STA. 99+80		37.37
STA. 105+10	24.46	
STA. 106+80 to 137+60		30,80.00
STA. 107+80	31.00	
STA. 112+20	40.00	
STA. 113+50	40.00	
STA. 114+50	44.00	
STA. 116+28	20.00	
STA. 116+60	40.00	
STA. 118+20	50.00	
STA. 119+65	40.00	
STA. 121+00	20.00	
STA. 123+80	40.00	
STA. 130+60	60.00	
₵ STA.		
STA. 137+46	44.00	
STA. 139+60		116.37
STA. 144+15	39.99	
STA. 149+60	60.00	
STA. 149+60		116.46
STA. 154+60	47.71	
STA. 156+20		50.00 *

* Temporary Access



THIS SHEET SUPERSEDED BY CONSTRUCTION
DONE ON F.A. PROJ. NO. F-090-1(8), SHEET NO. 8

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(7)	1962	5	127

CURVE DATA

	①	②	③	④
Δ =	17° 30' 00"	3° 21' 10"	4° 34' 00"	2° 46' 00"
Δ/2 =	8° 45' 00"	1° 40' 35"	2° 17' 00"	1° 23' 00"
R =	6,875.50	1,156.60	3,000.00	5,000.00
T =	1,058.24	33.85	119.62	120.74
Ch =	2,091.85	67.67	239.05	241.41
Lc =	2,100.00	67.68	239.11	241.44

	⑤	⑥	⑦
Δ =	20° 36' 00"	10° 56' 00"	9° 16' 30"
Δ/2 =	10° 18' 00"	5° 28' 00"	4° 38' 15"
R =	350.00	4,194.48	2,394.45
T =	63.61	401.42	194.23
Ch =	125.16	799.19	387.19
Lc =	125.84	800.40	387.61

5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(17)	1962	G	127

STA. 99+25 to STA. 99+50
MH # 2 to C.B. # 4

Install 24" 14 Gage CMP or Cl. III RCCP 48 Lin. Ft.
Const. 1 Type "DG" C.B.
Est. Quant.

Struc. Exc.	~~30~~ c.y.	31.9
Cl. A-1 conc.	~~2.0~~ c.y.	0.7
Reinf. Steel	~~27~~ lb.	28.1

STA. 99+50 to Sta. 102+50
CB # 4 to CB # 5

Install 24" 14 Gage CMP or Cl. III RCCP, 295 Lin. Ft. (Pipe to be parallel with Lt. CB. EP.)
Const. 1 Type "DG" C.B.
Est. Quant.

Struc. Exc.	~~180~~ c.y.	
Cl. A-1" conc.	~~4.0~~ c.y.	
Reinf. Steel	~~27~~ lb.	

STA. 102 + 50 CB # 5 to DRAINAGE CANAL

Install 24" 14 Gage CMP or Cl III RCCP, 26 Lin. Ft.
Est. Quant.

Struc. Exc.	10 c.y.	

STA. 106+25 to STA. 107+40 Lt.
STA. 108+00 to STA. 110+50 Lt.

Excavate drainage ditch. See sht. 33 for Typical Section.
Est. Quant.

Ditch Exc.	30 c.y.	

Construct 72" Standard chain link fence, 35 Lin. Ft. (See sht. 103 for exact location.)

STA. 107 + 40 CD1 # 2 to CB # 6

Install 24" 14 Gage CMP or Cl. III RCCP, 62 Lin. Ft.
Construct 1 Grated conc. Drop Intake. See sht. 33 for Details.
Est. Quant.

Struc. Exc.	40 c.y.	
Cl. B-1" conc.	1.7 c.y.	

STA. 107+~~55~~ 65 to STA. 109+45 CB # 6 to CB # 7

Install 24" 14 Gage CMP or Cl. III RCCP, 195 Lin. Ft.
Construct 1 Type "C" C.B.
Est. Quant.

Struc. Exc.	165 c.y.	
Cl. A-1" conc.	6.0 c.y.	
Reinf. Steel	108 lb.	

~~STA. 108+45 CB # 7 to MH # 3~~
~~Install 24" 14 Gage CMP or Cl. III RCCP, 40 Lin. Ft.~~
~~Construct 1 Type "D" C.B.~~
~~Est. Quant.~~

~~Struc. Exc.~~	~~48 c.y.~~	
~~Cl. A-1" conc.~~	~~5.4 c.y.~~	
~~Reinf. Steel~~	~~77 c.y.~~	

STA. 109+~~75~~ 85 CD1 # 3 to CB # 7

Install 24" 14 Gage CMP or Cl. III RCCP, 10 Lin. Ft.
Construct 1 Grated concrete Drop Intake. See sht. 33 for Details.
Est. Quant.

Struc. Exc.	10 c.y.	
Cl. B-1" conc.	1.7 c.y.	

STA. 109+70 to STA. 109+90
CB # 8 to MH # 3

Install 24" 14 Gage CMP or Cl. III RCCP, 50 Lin. Ft.
Construct 1 Type "D" CB.
Est. Quant.

~~Struc. Exc.~~	~~48 c.y.~~	
~~Cl. A-1" conc.~~	~~5.4 c.y.~~	
~~Reinf. Steel~~	~~77 lb.~~	

STA. 111+65 to 111 + 90

Install 24" 14 Gage CMP or Cl. III RCCP, 50 Lin. Ft.
Construct 1 Type "D" C.B.
Est. Quant.

Struc. Exc.	48 c.y.	
Cl. A-1' conc.	5.4 c.y.	
Reinf. Steel	77 lb.	

STA. 111+90 to STA. 113+70 MH # 4 to MH # 5

Install 24" 14 Gage CMP or Cl. III RCCP 176 Lin. Ft.
Construct 1 Type "E" SDMH, 8 Lin. Ft.
Est. Quant.

Struc. Exc.	172 c.y.	
Cl. B-1" conc.	12 c.y.	
Reinf. Steel	92 lb.	

STA. 99+75 Lt.
Construct 10' wide driveway
Conc. Drop D/W 140 sq. ft.
Conc. D/W 140 sq. ft.

STA. 100 + 15 Lt.
Construct 20' wide driveway
Conc. Drop D/W 280 sq. ft.
Conc. D/W 200 sq. ft.

STA. 100 + 90 Lt.
Construct 10' wide driveway
Conc. Drop D/W 112 sq. ft.
A.C. 250 sq. ft.
B. C. 275 sq. ft.

STA. 101 + 10 Lt.
Construct 10' wide driveway
Conc. Drop D/W 112 sq. ft.
A.C. 200 sq. ft.
B. C. 220 sq. ft.

STA. 101 + 45 Lt.
Construct 10' wide driveway
Conc. Drop D/W 140 sq. ft.
Grade driveway to meet exist. grade. (Incidental to Roadway.)

STA. 105 + 05 Lt.
Construct driveway
A.C. 720 sq. ft.
B.C. 745 sq. ft.

STA. 100+~~45~~ 55 to STA. 111+90
CB # 7 ~~MH # 3~~ to MH # 4

Install 24" 14 Gage C.M.P or Cl. III RCCP, ~~200~~ 195 Lin. Ft.
Const. 1 Type ~~E SDMH~~, 7.5 Lin. Ft. "D" CB
Est. Quant.

Struc. Exc.	~~195~~ c.y.	
Cl. B-1' conc.	~~10~~ c.y.	
Reinf. Steel	~~85~~ lb.	

CURVE DATA

	①	②	③
Δ =	17° 30' 00"	3° 48' 00"	4° 34' 00"
Δ/2 =	8° 45' 00"	1° 54' 00"	2° 17' 00"
R =	6,875.50	5,000.00	3,000.00
T =	1,056.24	166.74	119.62
Ch =	2,051.85	341.41	239.05
Le =	2,100.00	341.44	239.11

	④	⑤
Δ =	6° 15' 30"	3° 29' 30"
Δ/2 =	3° 07' 45"	1° 44' 45"
R =	3,810.71	3,810.71
T =	208.82	116.42
Ch =		
Le =	417.22	232.78

PROFILE - OUTBOUND LANES

PROFILE - INBOUND LANES

FED. ROAD DIST. No. | STATE | FED. AID PROJ. No. | FISCAL YEAR | SHEET No. | TOTAL SHEETS
HAWAII | HAW. | F090-1(7) | 1962 | 7 | 127
CURVE DATA
Δ = 3° 29' 30" | 4° 30' 00" | 0° 24' 00" | 4° 34' 00" | 93° 27' 00" | 84° 33' 00"
Δ/2 = 1° 44' 45" | 2° 15' 00" | 0° 12' 00" | 2° 27' 00" | 47° 43' 30" | 42° 12' 30"
R = 3,819.71 | 760.00 | 22,918.26 | 4,129.10 | 50.00 | 50.00
T = 116.42 | 29.86 | 80.00 | 176.07 | 50.00 | 45.46
Ch = | 59.67 | 160.00 | 353.08 | 73.99 | 67.27
Lc = 232.78 | 59.69 | 160.00 | 353.13 | 81.64 | 73.78
STA. 116+32 Lt. Const. 9' wide Driveway Conc. Drop = 130 sq. ft.
STA. 123+80 RECONSTRUCT Install 24" 12 Ga. C.M.P. Half Section, 14 L.F. Construct 1 Box Syphon See sht. 33 for Details. Est. Quant. Struc. Exc. 20 c.y. Class 'A-1' Conc. 6 c.y. Reinf. Steel 36 lb.
STA. 121+50 to STA. 124+10 C.B.#12 to Intake Box Construct 1 Type 'D' C.B. Install 24" 12 Gage C.M.P. half section with concrete bed, 254 Lin. ft. See sht. 33 for Details. Est. Quant. Struc. Exc. 20 c.y. Class 'A-1' Conc. 5.0 c.y. Reinf. Steel 77 lb.
STA. 124+10 to STA. 124+50 Intake Box to C.B.#13 Construct 1 Type 'D' C.B. Install 24" 12 Ga. C.M.P. half section with conc. bed, 34 Lin. ft. See sht. 33 for Details. Est. Quant. Struc. Exc. 7 c.y. Class 'A-1' Conc. 7.5 c.y. Reinf. Steel 145 lb.
STA. 124+50 to STA. 127+50 C.B.#13 to C.B.#14 RECONSTRUCT Construct 1 Type 'D' C.B. Install 24" 12 Ga. C.M.P. half section with conc. bed, 294 Lin. ft. See sht. 33 for Details. Est. Quant. Struc. Exc. 30 c.y. Class 'A-1' Conc. 5.0 c.y. Reinf. Steel 77 lb.
STA. 124+10 ENLARGE Construct 7x1 Conc. Box Culvert Intake Box Lt. side of C.B. Drop Intake Box, median & outlet See sht. 34 for Details. Est. Quant. Struc. Exc. 150 c.y. Class 'A-1' Conc. 65 c.y. Reinf. Steel 13,000 lb. C.D.I. Median 2' Imported Borrow
STA. 123+02 Lt. Const. 15' wide driveway, 8' deep Conc. Drop D/N 152 sq. ft. A.C. 165 sq. ft. B.C. 176 sq. ft.
TRUE NORTH Scale: 1"=50'
HANAWAI CIRCLE
KAPAKAHI STREAM
WAIPAHU DEPOT ROAD
PAHU STREET
Aloha Shopping Center
Bank of Hawaii
Paved Parking Area
STA. 116+35± 24" STEEL DRAINAGE CULVERT-PARTIALLY CORRODED
Type 'DG' Curb & Gutter
Type 'AG' Curb & Gutter
Type 'A' Curb
R/W and Control of Access Line
Half Section 24" Culvert
Grade Control Line
STA. 113+70 to STA. 113+95 MH#5 to CB#10 Install 24", 14 Gage CMP or Cl. III RCCP, 50 Lin. Ft. Construct 1 Type 'E' SDMH, 8 Lin Ft. Est. Quant. Struc. Exc. 54 c.y. Cl. 'B-1' conc. 1.4 c.y. Reinf. Steel 100 lb.
STA. 113+95 to STA. 117+30 C.B.#10 to C.B.#11 Construct 1 Type 'DG' C.B. Install 24" 14 Gage C.M.P. or Cl. III R.C.C.P., 330 Lin. ft. Est. Quant. Struc. Exc. 260 c.y. Class 'A-1' Conc. 4.4 c.y. Reinf. Steel 27 lb.
STA. 117+30 to STA. 117+50 C.B.#11 to Kapakahi Stream Construct 1 Type 'DG' C.B. Install 24" 14 Ga. C.M.P. or Cl. III R.C.C.P., 24 Lin. ft. Est. Quant. Struc. Exc. 35 c.y. Class 'A-1' Conc. 4.4 c.y. Reinf. Steel 27 lb.
B.M. "S" ON CORNER OF CONC. WALKWAY. ELEV. = 8.77
STA. 121+00 Lt. Const. 12' wide driveway Conc. Drop D/N 144 sq. ft. Grade driveway to meet exist. grade. (Incidental to Roadway Exc.)
STA. 124+10 Rt. MH#6 Install 24" 14 Gage CMP or Cl. III RCCP, 10 Lin. Ft. Construct 1 Type 'D' SDMH, 4.5 Lin. Ft. Est. Quant. Struc. Exc. 2 c.y. Cl. 'B-1' conc. 0.7 c.y. Reinf. Steel 30 lb.
NOTE: Imported borrow working table Sta. 120+50 to 131+50 and 138+50 to 147+75
300' V.C.
-0.50%
REVISED GRADE
-0.40%
B.V.C. Sta. 120+50
E.V.C. Sta. 123+50
B.V.C. Sta. 123+00
E.V.C. Sta. 126+00
C.G. Sta. 126+00
PROFILE - OUTBOUND LANES
C.G. Sta. 122+00
B.V.C. Sta. 124+50
E.V.C. Sta. 127+50
PROFILE - INBOUND LANES
112 113 114 115 116 117 118 119 120+00 121 122 123 124 125 126
SHEET NO. 4 OF 7 SHEETS

	(1)	(2)
Δ	= 30° 56' 00"	28° 20' 00"
Δ/2	= 15° 28' 00"	14° 10' 00"
R	= 2,864.79	2,806.63
T	= 792.68	708.45
Ch	= 1,527.93	1,375.81
Lc	= 1,542.67	1,387.91

FED. ROAD DIST. No.	STATE	PROJ. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F090-1(17)	1962	8	127

℄ STA. 127+50 to ℄ STA. 129+85 CB#14 to CB#15
Construct 1 Type "D" C.B.
Install 24" 12 Ga. C.M.P. half section with conc. bed, 232 Lin. ft.
See sht. 33 for Details
Est. Quant.
Struc. Exc. 20 c.y.
Class "A-1" Conc. 5.0 c.y.
Reinf. Steel 77 lb.

℄ STA. 130+85 CB#16 to CB#17
Construct 1 Type "D" C.B.
Install 24" 14 Ga. C.M.P. or Cl. III R.C.C.P., 46 Lin. ft.
Est. Quant.
Struc. Exc. 23 c.y.
Class "A-1" Conc. 4.9 c.y.
Reinf. Steel 77 lb.

℄ STA. 137+10 to ℄ STA. 139+90 CB#17 to Drainage Canal
Construct 1 Type "DG" C.B.
Install 24" 14 Ga. C.M.P. or Cl. III R.C.C.P., 80 Lin. ft.
Est. Quant.
Struc. Exc. 45 c.y.
Class "A-1" Conc. 5 c.y.
Reinf. Steel 77 lb.

℄ STA. 138+25 to STA. 139+35 Lt.
Construct 5'x4' Box Culvert
See sht. 30 for Details.
Est. Quant.
Struc. Exc. 243 c.y.
Class "A-1" Conc. 64 c.y.
Reinf. Steel 8,300 lb.

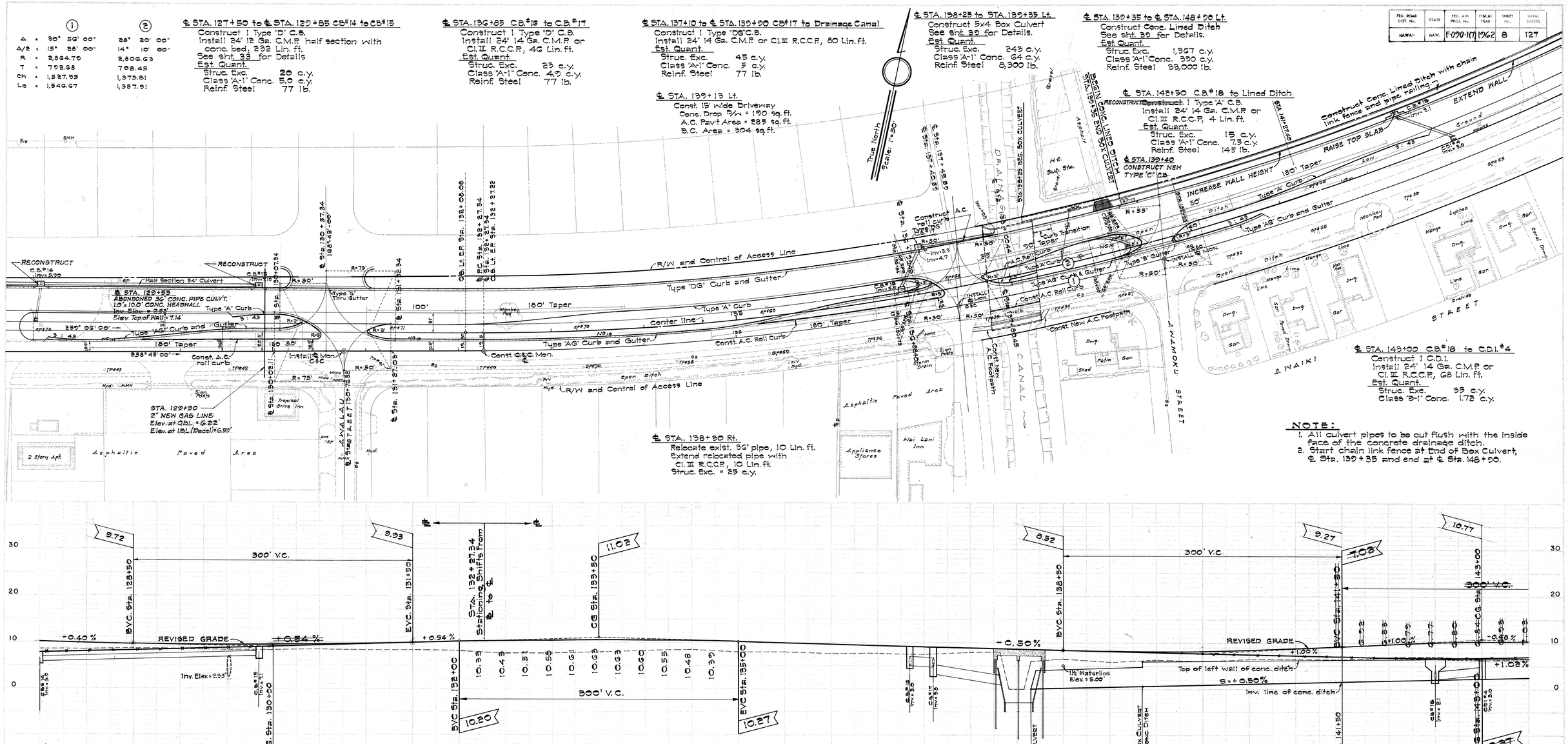
℄ STA. 139+35 to ℄ STA. 148+90 Lt.
Construct Conc. Lined Ditch
See sht. 30 for Details.
Est. Quant.
Struc. Exc. 1,367 c.y.
Class "A-1" Conc. 330 c.y.
Reinf. Steel 33,000 lb.

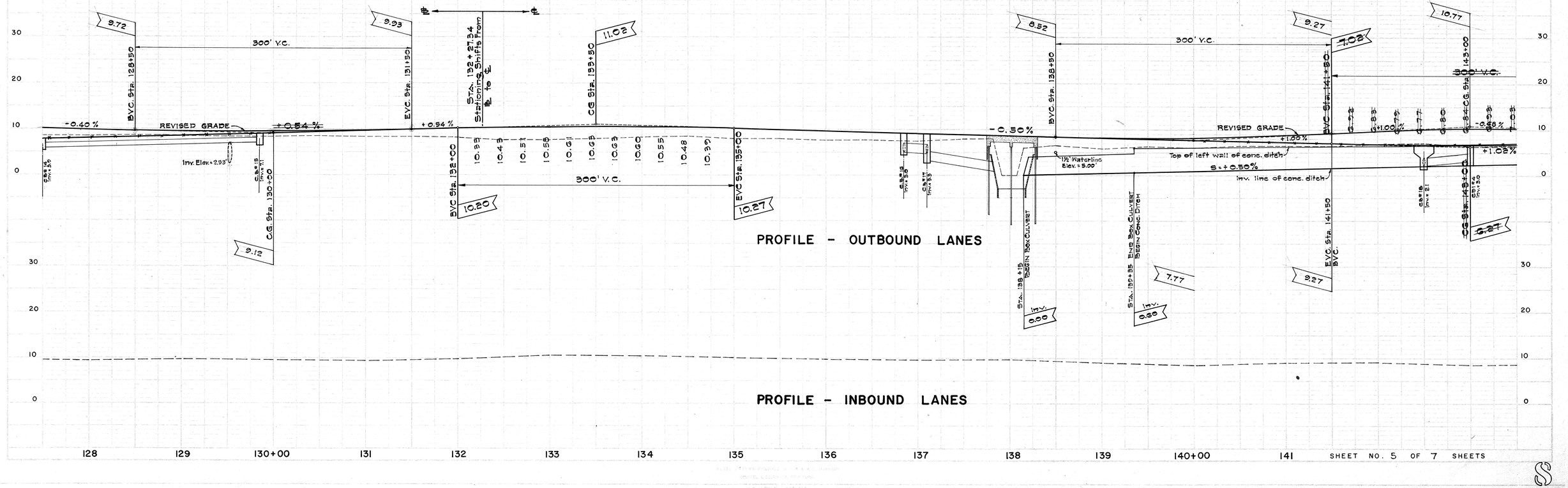
℄ STA. 139+13 Lt.
Const. 15' wide Driveway
Conc. Drop P/N = 190 sq. ft.
A.C. Pavt Area = 285 sq. ft.
B.C. Area = 304 sq. ft.

℄ STA. 142+90 C.B.#18 to Lined Ditch
(RECONSTRUCT) ~~Construct~~ 1 Type "A" C.B.
Install 24" 14 Ga. C.M.P. or Cl. III R.C.C.P., 4 Lin. ft.
Est. Quant.
Struc. Exc. 15 c.y.
Class "A-1" Conc. 7.5 c.y.
Reinf. Steel 145 lb.

℄ STA. 143+00 C.B.#18 to C.D.I. #4
Construct 1 C.D.I.
Install 24" 14 Ga. C.M.P. or Cl. III R.C.C.P., 68 Lin. ft.
Est. Quant.
Struc. Exc. 33 c.y.
Class "B-1" Conc. 1.72 c.y.

NOTE:
1. All culvert pipes to be cut flush with the inside face of the concrete drainage ditch.
2. Start chain link fence at End of Box Culvert, ℄ Sta. 139+35 and end at ℄ Sta. 148+90.





FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(7)	1962	9	127

CURVE DATA

	①	②	③	④	⑤
Δ =	30° 56' 00"	28° 20' 00"	3° 00' 00"	1° 13' 00"	1° 13' 00"
Δ/2 =	15° 28' 00"	14° 10' 00"	1° 30' 00"	0° 36' 30"	0° 36' 00"
R =	2,864.79	2,806.63	5,725.34	22,918.30	11,459.15
T =	792.68	708.45	149.92	243.34	121.67
Ch =	1,527.95	1,373.81	299.74	486.66	243.33
Lc =	1,546.67	1,387.91	299.78	486.67	243.33

℄ STA. 145+50 C.B.#19 to Lined Ditch

RECONSTR ~~Construct~~ 1 Type "D" C.B.
Install 24" 14 Ga. C.M.P. or
Cl. III R.C.C.P., 4 Lin. ft.
Est. Quant.
Struc. Exc. 5 c.y.
Class "A-1" Conc. 4.9 c.y.
Reinf. Steel 77 lb.

℄ STA. 153+40 to ℄ STA. 153+90 Rt.
Ditch to MH #6

Construct 1 Type "D" S.D.M.H
3.5 Lin. ft. (match shoulder grade)
Install 24" 14 Ga. C.M.P. or
Cl. III R.C.C.P., 104 Lin. ft., 1 C.H.W.
Est. Quant.
Struc. Exc. 53 c.y.
Class "B-1" Conc. 1.8 c.y.
Reinf. Steel 42 lb.

℄ STA. 153+90 to ℄ STA. 155+70
MH#6 to CDI#5

Install 24", 14 Gage CMP or Cl. III RCCP, 180 Lin. Ft.
1 Special C.D.I. See sheet 33, for Details.
Est. Quant.
Struc. Exc. 70 c.y.
Cl. "B-1" conc. 2.1 c.y.

℄ STA. 154+70 Lt.

Construct connection to access road with Untreated Base.
B.C. 1,875 Sq. Ft.

℄ STA. 155+70 to ℄ STA. 157+10

Construct 140 Lin. Ft. of Type "Y" conc. gutter. See sht. 33, for Details.

℄ STA. 155+70 C.D.I.#5 to C.D.I.#6

Install 24" 14 Ga. C.M.P. or
Cl. III R.C.C.P., 56 Lin. ft.
1 C.D.I. in the median.
Est. Quant.
Struc. Exc. 57 c.y.
Class "B-1" Conc. 2.2 c.y.

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW.	F-090-1(7)	1962	10	127

① Δ = 1° 19' 00"
Δ/2 = 0° 39' 30"
R = 11,490.15
T = 121.67
Ch = 249.99
Lc = 249.99

℄ O.B. P.T. Sta. 157+75.35
R = 11,490.15

R=180

R=180

℄ Sta. 157+75.35

℄ Sta. 160+18.68 = ℄ Sta. 160+18.57*
℄ Sta. 160+35.05

END OF PROJ. NO. F-090-1(7)
℄ STA. 160+30.14
PROJ. NO. FAP 4-C
STA. 43+1420

Cane Field

B.M.
"D" ON MEDIAN CURB NOSE
℄ STA. 162+80 LT.
ELEV. = 55.14

Cane Field

Conc. Ford Ditch

18" Culvert

Dirt Ditch

R/W and Control of Access Line

Type 'X' conc. Gutter

EP&SS

Standard Curb

Bayan

EP&SF

CRM Gutter

CRM Gutter

Remove Curb

3:45

160

21.0

Install 6" Wan.

Fire Hydrant

N&Ia

3:45

~~Reconst. Portion of Conc. Curb~~

Type 'X' Conc. Curb

160

21.0

N&Ia

193

TMH

84" conc.

TMH

TP

GP

GP

TP&18

TP&17

Conc. Ford. Ditch

R/W and Control of Access Line

Dirt Ditch

Dirt Ditch

Ohai

Ohai

Ohai

℄ STA. 157+10 to ℄ STA. 160+30
Construct 320 Lin. Ft. of Type 'X' conc. gutter. See sheet 33, for details.

NOTE:
40 ft. transition from Type 'X' to Type 'Y' gutter shall be paid for as Type 'X' conc. gutter.

True North
Scale: 1"=50'

42.84

℄ Sta. 158+00

+4.56%

+2.78%

40.26 41.23 42.17 43.07 43.99 44.76 45.55 46.30

300' V.C.

℄ Sta. 159+50

47.01

PROFILE - OUTBOUND LANES

PROFILE - INBOUND LANES

60 50 40 30 20 10

158 159 160+00 161 162 163 164 165 166

SHEET NO. 7 OF 7 SHEETS

PLATE 1—PLAN-PROFILE C. P. P. R. & G. STANDARD

K.E.Co. No. 346-IC

10