Lot 418 81/L

CONSTRUCTION PLANS FOR

MAKUU FARM AND AGRICULTURAL LOTS

PHASE 1

Contractor: M. Sonomura Contracting, Inc.
Final Inspection Date: June 13, 1997

AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII

TAX MAP KEY: 3RD DIVISION 1-5-10: 4 AND 1-5-8: 3

SUBDIVISION APPLICATION NUMBER: 95-39 AND 94-125
DEPARTMENT OF PUBLIC WORKS FOLDER NUMBER: 15147-A AND 15148

Pahoa Reg. 0.30 MG. OF ELEV = 844.00
Keonepoko Nui 0.50 MG " " = 629.00
" Iki 0.30 MG " " = 757.33

Pipe 12" D.I. - U.S. Pipe
8" D.I. " "
12" D.I. - American Valves at end of Rd. K-1

Gate Valves - American Flow Control
Butterfly - Pratt 250

ATTACHMENT C
JUNE 2, 1995

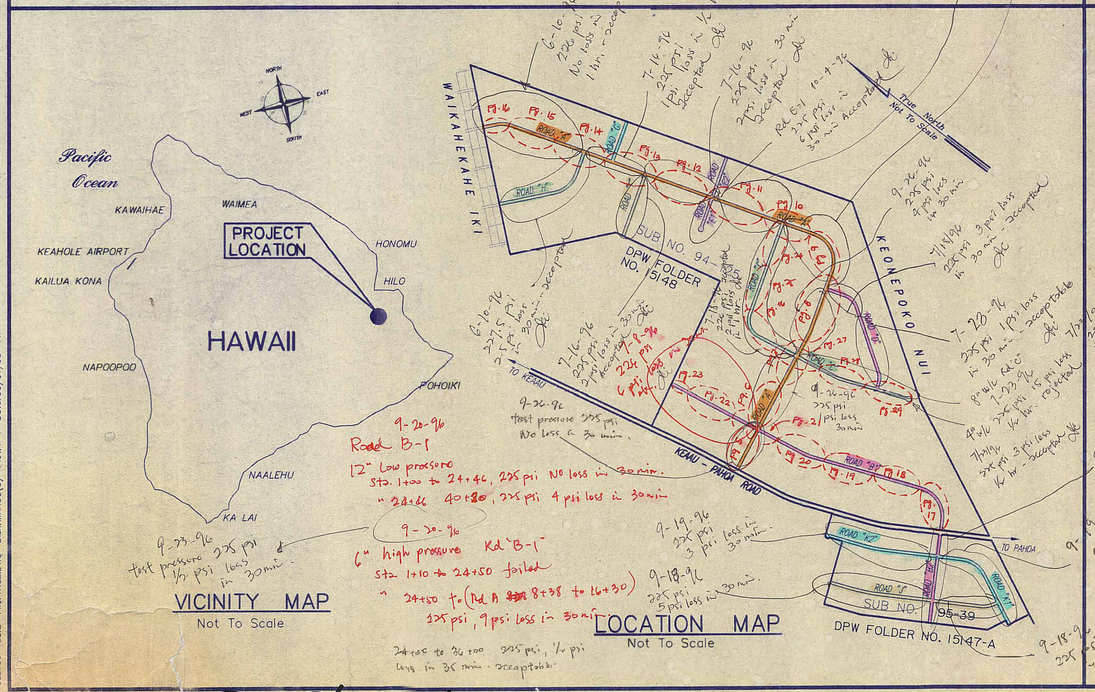
OWNER: DEPT. OF HAWAIIAN HOME LANDS
ADDRESS: 335 MERCHANT STREET
HONOLULU, HAWAII 96813

PREPARED BY:

ESH

ENGINEERS SURVEYORS HAWAII, INC.
ENGINEERS
SURVEYORS
PLANNERS
BUILDING 6 RM 1
1020 AUAHI STREET
HONOLULU, HAWAII 96814

LOCATION MAP



SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	NOTES
3	GENERAL PLAN AND TYPICAL ROADWAY SECTION
4	DRAINAGE PLAN
	PLAN & PROFILE
5-16	ROAD A
17-23	ROAD B1
24-29	ROAD C
30-32	ROAD D
33	ROAD E1
34	ROAD E2
35-36	ROAD F
37	ROAD G
38-39	ROAD H
40-41	ROAD B2
42-45	ROAD J
46-47	ROAD K1
48-50	ROAD K2
51-52	MISCELLANEOUS DETAILS
53	PRESSURE REDUCING VALVE UNIT DETAIL
54	TRAFFIC CONTROL PLAN
55-59	SIGN & STRIPING PLAN
60-109	ROADWAY CROSS SECTIONS
110-122	ELECTRICAL

APPROVED

DIRECTOR, PLANNING DEPARTMENT — DATE

CHIEF ENGINEER, DEPT. OF PUBLIC WORKS-COUNTY OF HAWAII — DATE

FOR MANAGER, DEPARTMENT OF WATER SUPPLY (KY1, GGA) — 5/31/95 DATE

DIRECTOR, DEPT. OF HAWAIIAN HOME LANDS
STATE OF HAWAII — 5-25-95 DATE

CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION
DEPARTMENT OF HEALTH
STATE OF HAWAII — 4-10-95 DATE

FOR CHIEF, HIGHWAYS DIVISION
DEPARTMENT OF TRANSPORTATION — 5/31/95 DATE
(APPROVAL GRANTED FOR WORK WITHIN STATE RIGHT-OF-WAY ONLY.
I.D. NO. , LETTER OF APPROVAL NO. HWY-H 95-2.0392
DATED APRIL 20, 1995.)

INSPECTOR COPY

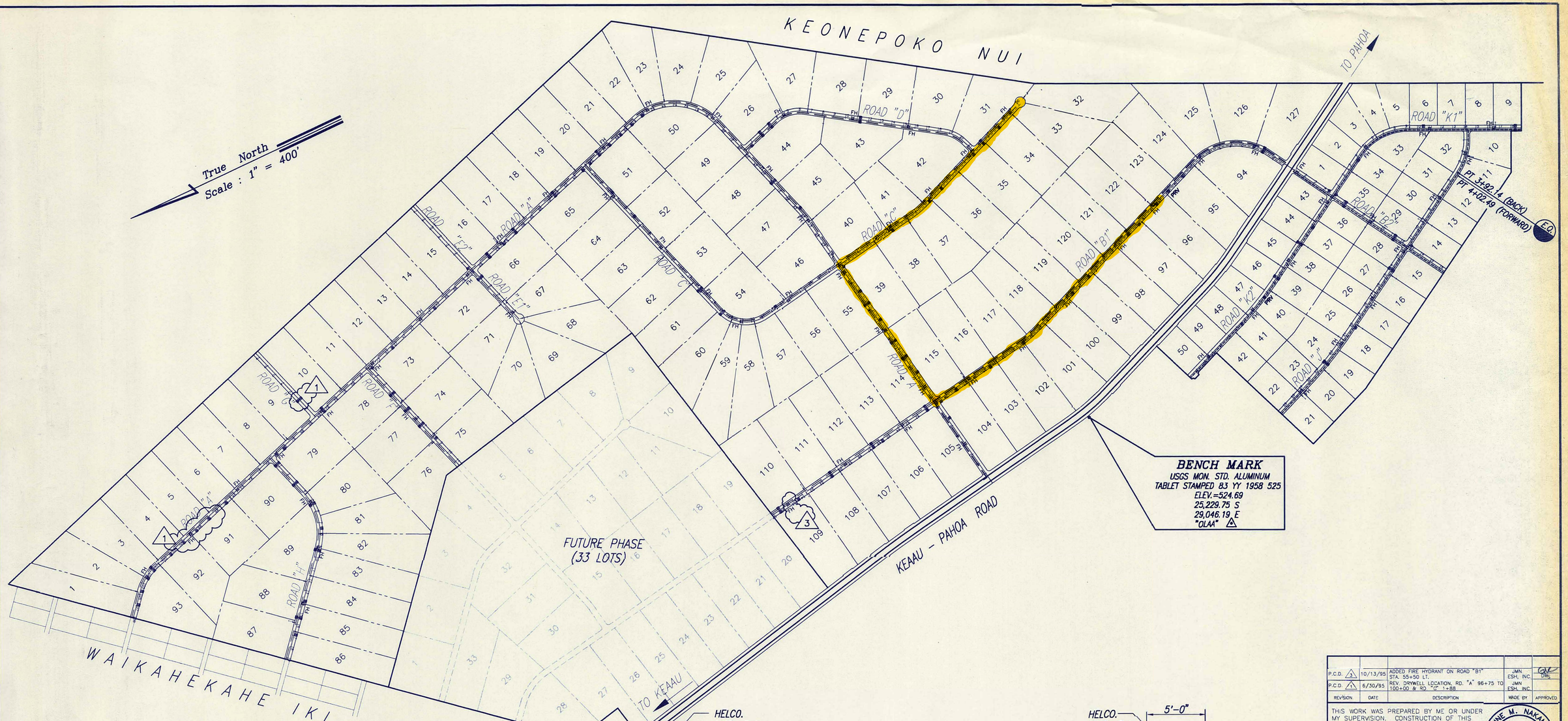
"AS BUILT"
Date 10/8/98 By

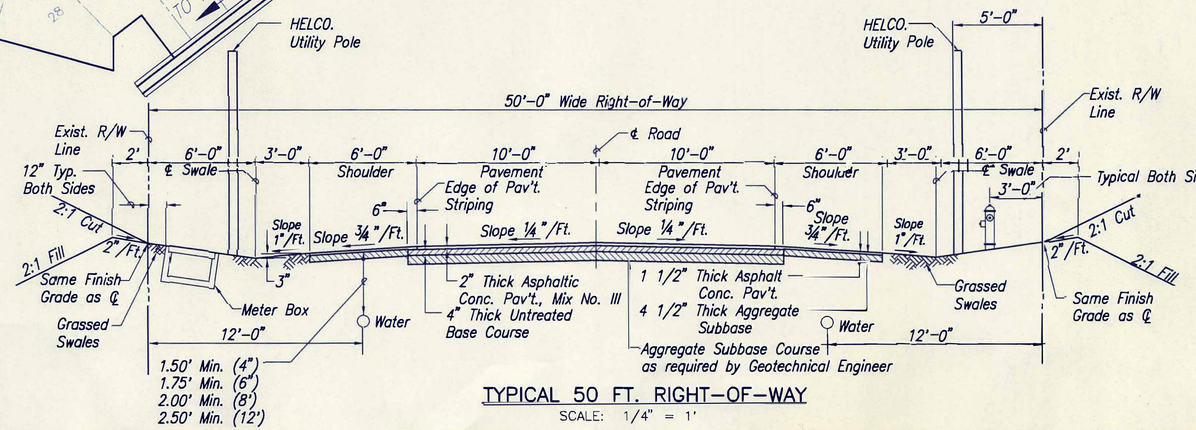
Job:85-180.2 File:TITLE.DWG Disk:MAKUU(0) Plot:1=1 Date:03/31/95 FR

Bin H81 7/18

SHEET 1 OF 122 SHEETS

FILE	POCKET	FOLDER	NO.





TYPICAL 50 FT. RIGHT-OF-WAY
SCALE: 1/4" = 1'

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
P.C.D. 3	10/13/95	ADDED FIRE HYDRANT ON ROAD "B1" STA. 55+50 LT.	JMN ESH, INC.	DWS
P.C.D. 1	6/30/95	REV. DRYWELL LOCATION, RD. "A" 96+75 TO 100+00 & RD "C" 1+88	JMN ESH, INC.	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

10/13/95
DATE

JOANNE M. NAKAMURA
LICENSED PROFESSIONAL ENGINEER
No. 5798-C
HAWAII, U.S.A.

ESH
ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS

MAKUU FARM AND AGRICULTURAL LOTS

PHASE 1

AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

GENERAL PLAN AND TYPICAL ROADWAY SECTION

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:GENERAL.DWG Disk:MAKUU(0) Plot:1=400 Date:10/13/95 jky

True North
Scale : 1" = 40'

Provide Smooth Riding Connection to Existing Pavement & Shoulder

℄ Sta. 0+68
1–12" 1/4 Bend
1–12" B.F.V., 250#
1–Valve Box
1–1" Air Relief Valve
1–Air Valve Box
1–12" Cap Tapped 2" IPT
1–2" Cleanout Unit & Box
2–Conc. Blocks

REFER TO ATTACHED SHEET

℄ Sta. 1+00 to ℄ Sta. 1+50
Provide Smooth Transition to New Channelized Intersection.
See "Notes for Construction Within State Right-of-Way", #18, Sht. 2.

Provide Smooth Riding Connection to Existing Pavement & Shoulder

℄ Sta. 4+10 Lt. FH Conn.
1–12"X6" Tee
1–6" G.V., 200#
1–6" 1/4 Bend
1–Valve Box
1–Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3–Conc. Blocks

℄ Sta. 8+64
=Sta. 40+20.23 Road "B1"
1–12"X12" Cross
1–12"X8" Reducer
1–12"X6" Reducer
2–12" Mega-Lug Retainer Glands (To go Between 12"x12" Cross and 12"x6" Reducer)
2–12" B.F.V., 250#
1–8" G.V., 200#
1–6" G.V., 200#
4–Valve Boxes
Necessary Nipples (12")

6+70 (o/s 19' Rt.)
Install Dry Well (Min. 20' Deep), Dry Well Cover and RM-3 Reflector Marker. See Details, Shts. 51 & 52.

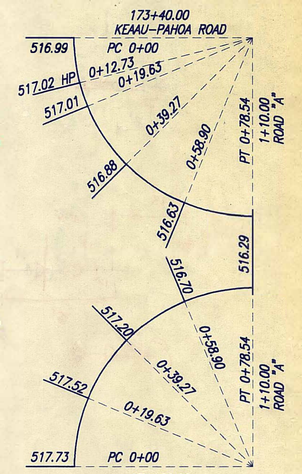
8+51.00 Road "A" = 40+07.23 Road "B1"
Install ℄ St. Mon.
See Std. Det. R-14

℄ Sta. 8+38
=Sta. 39+94.23 Road "B1"
1–4" 1/4 Bend
1–Conc. Block

10 LF RC Jacket
See DWS Std. Det. 104

For Pav't Return Grades, See Sheet 21

EDGE PAV'T RET. DATA	
△	90°00'
△/2	45°00'
R	50.00
T	50.00
C	70.71
L	78.54



PAV'T RETURN GRADES
SCALE: 1" = 20'

BENCH MARK

USGS MON. STD. ALUMINUM TABLET
STAMPED 83 YY 1958 525
ELEV.=524.69
25,229.75 S
29,046.19 E
"OLAA" △

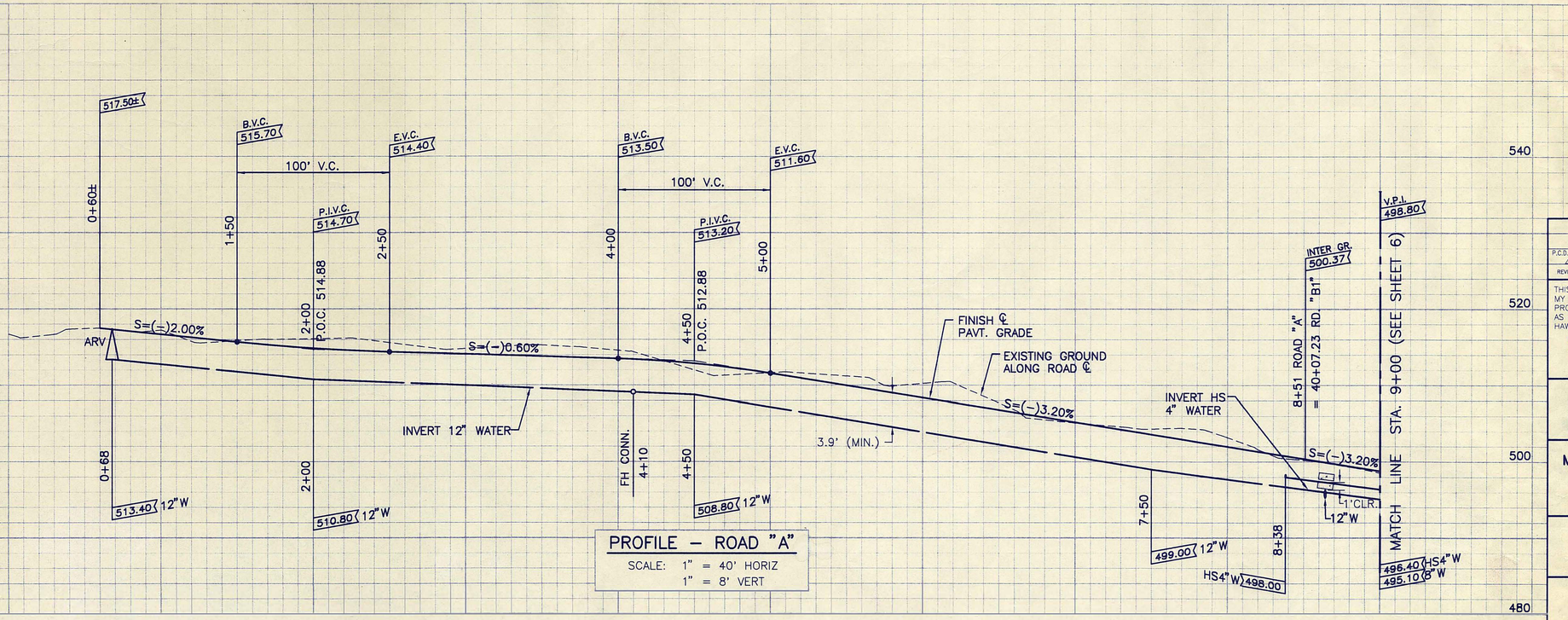
See General Plan for approximate location

KA OHUWALU DRIVE

PLAN – ROAD "A"
SCALE: 1" = 40'

KALUAHINE STREET

LEGEND
(6) Farm Lot No. (Unit 1)



PROFILE – ROAD "A"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

P.C.D.	DATE	DESCRIPTION	MADE BY	APPROVED
2	9/6/95	DELETED 12" BFV AT ROAD "B1" STA.39+50 RT.	JMN ESH, INC.	DWS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.
9/6/95 DATE

JOANNE M. NAKAMURA
LICENSED PROFESSIONAL ENGINEER
No. 5798-C
HAWAII, U.S.A.

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1–5–10: 4 & 1–5–8: 3

PLAN & PROFILE
ROAD "A"
STA. 0+00 TO STA. 9+00

SEP 2 2 1995

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-A1.DWG Disk:MAKUU(1) Plot:1=40 Date:09/06/95 jky

MATCH LINE STA. 9+00 (SEE SHEET 5)

MATCH LINE STA. 18+00 (SEE SHEET 7)

30000 E 25200 S

30400 E 24800 S

30800 E 24800 S

12' | 10+00 | 11+00 | 12+00 | 13+00 | 14+00 | 15+00 | 16+00 | 17+00 | 12'

W8 | W8

HSW4 | HSW4 | HSW4

260' 24' | 699.00 (Mon. to Mon.) | 260' 24' | 737.00 (Mon. to Mon.)

50' Right of Way

Edge Pav't

Edge Shoulder

FH | FH

℄ Sta. 10+10 Lt. FH Conn.
1–8"X6" Tee
1–6" G.V., 200#
1–6" 1/4 Bend
1–Valve Box
1–Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3–Conc. Blocks

℄ Sta. 13+03 Rt.
1–4" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

℄ Sta. 13+05 Rt.
1–4" 1/8 Bend, (BV)
1–Conc. Block

10 LF RC Jacket

℄ Sta. 13+25 Rt.
1–4" 1/8 Bend, (BV)
1–Conc. Block

11+50
(o/s 19' Rt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM–3 Reflector
Marker. See Details,
Shts. 51 & 52.

℄ Sta. 13+25 Lt.
1–8" 1/8 Bend, (BV)
1–Conc. Block

10 LF RC Jacket

13+16.67
(o/s 19' Lt. & Rt.)
Install Dry Well
with Pipe Connection
(Min. 20' Deep),
Dry Well Cover
and RM–3 Reflector
Marker. See Details,
Shts. 51 & 52.
(114)

℄ Sta. 13+05 Lt.
1–8" 1/8 Bend, (BV)
1–Conc. Block

℄ Sta. 13+03 Lt.
1–8" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

℄ Sta. 13+27 Rt.
1–4" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

℄ Sta. 14+60 Lt. & Rt.
1–1" Air Relief Valve
1–Air Valve Box
(115)

℄ Sta. 14+68 Rt.
1–4" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

14+80
(o/s 19' Lt. & Rt.)
Install Dry Well
with Pipe Connection
(Min. 20' Deep),
Dry Well Cover
and RM–3 Reflector
Marker. See Details,
Shts. 51 & 52.

℄ Sta. 14+70 Lt.
1–8" 1/8 Bend, (BV)
1–Conc. Block

℄ Sta. 14+68 Lt.
1–8" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

℄ Sta. 13+27 Lt.
1–8" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

38 LF 18" RCP @ 0.50%

10 LF RC Jacket

℄ Sta. 14+90 Lt.
1–8" 1/8 Bend, (BV)
1–Conc. Block

℄ Sta. 14+92 Lt.
1–8" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

38 LF 18" RCP @ 0.50%

℄ Sta. 15+00 Lt.
1–8" G.V.
1–Valve Box
Deleted

℄ Sta. 14+92 Rt.
1–4" 1/8 Bend, (TV)
1–Vert. Thrust Block
Per DWS Std. Det. 106–108

℄ Sta. 14+90 Rt.
1–4" 1/8 Bend, (BV)
1–Conc. Block

10 LF RC Jacket

℄ Sta. 14+70 Rt.
1–4" 1/8 Bend, (BV)
1–Conc. Block

℄ Sta. 15+50
Install ℄ St. Mon.
See Std. Det. R–14
(55)

℄ Sta. 16+00 Lt. FH Conn.
1–8 X6 Tee
1–6" G.V., 200#
1–6" 1/4 Bend
1–Valve Box
1–Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3–Conc. Blocks

℄ Sta. 16+30 Rt.
1–4" G.V.
1–Valve Box
(39)

℄ Sta. 15+50 Lt. & Rt.
1–1" Air Relief Valve
1–Air Valve Box

17+00
(o/s 19' Rt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM–3 Reflector
Marker. See Details,
Shts. 51 & 52.

True North
Scale : 1" = 40'

6' 9' 10' 20' 32' 50' 10' 6' 9'

LEGEND

(6) Farm Lot No. (Unit 1)

PLAN – ROAD "A"

SCALE: 1" = 40'

KA OHUWALU DRIVE

PROFILE – ROAD "A"

SCALE: 1" = 40' HORIZ
1" = 8' VERT

V.P.I. 498.80

B.V.C. 491.65 | E.V.C. 491.05 | 150' V.C.

P.I.V.C. 490.00 | LOW PT. 490.64

P.O.C. 490.68 | 13+00 | 13+16.67 | 12+25 | 13+75

B.V.C. 492.80 | E.V.C. 492.90 | 100' V.C.

P.I.V.C. 493.50 | HIGH PT. 493.18

P.O.C. 493.17 | 15+53.85 | 15+00 | 15+50 | 16+00

V.P.I. 491.10 | B.V.C. 490.22 | 220' V.C.

17+50 | 17+90

FINISH ℄ PAVT. GRADE

EXISTING GROUND ALONG ROAD ℄

S=(–)2.20% | S=1.40% | S=(–)1.20% | S=(–)2.20%

2.3' (MIN.) | 3.1' (MIN.)

INVERT 8" WATER

FH CONN. 10+10

INVERT HS 4" WATER

FH CONN. 16+00

INVERT 8" WATER

18" RCP | ARV | 18" RCP | ARV

496.40 HS4"W
495.10 8"W

13+03 HS4"W(TV) 1–4" 1/8 BEND 486.60; 1–8" 1/8 BEND 486.20

13+05 13+16.67 13+25 HS4"W(BV) 1–4" 1/8 BEND 484.59; 1–8" 1/8 BEND 484.24

13+27 1–4" 1/8 BEND 486.60 (HS4"W(TV)); 1–8" 1/8 BEND 486.20 (8"W(TV))

13+27 1–4" 1/8 BEND 484.59 (HS4"W(BV)); 1–8" 1/8 BEND 484.24 (8"W(BV))

486.14 18" RCP

14+68 HS4"W(TV) 1–4" 1/8 BEND 488.40; 8"W(TV) 1–8" 1/8 BEND 488.00

14+70 14+80 HS4"W(BV) 1–4" 1/8 BEND 486.47; 8"W(BV) 1–8" 1/8 BEND 486.12

18" RCP 488.02

14+92 1–4" 1/8 BEND 488.40 (HS4"W(TV)); 1–8" 1/8 BEND 488.00 (8"W(TV))

14+92 1–4" 1/8 BEND 486.47 (HS4"W(BV)); 1–8" 1/8 BEND 486.12 (8"W(BV))

15+50 490.70 HS4"W
489.90 8"W

17+50 17+90 488.70 HS4"W
487.90 8"W

17+90 487.40 HS4"W
486.60 8"W

MATCH LINE STA. 9+00 (SEE SHEET 5)

MATCH LINE STA. 18+00 (SEE SHEET 7)

520 | 500 | 480 | 460

9+00 | 10+00 | 11+00 | 12+00 | 13+00 | 14+00 | 15+00 | 16+00 | 17+00 | 18+00

GRAPHIC SCALES:

1"=40' 40 0 40 80

1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION: CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

DATE 6/2/95

JOANNE M. NAKAMURA
LICENSED PROFESSIONAL ENGINEER
No. 5796–C
HAWAII, U.S.A.

ESH

ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531–3116 HON. 885–4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS

MAKUU FARM AND AGRICULTURAL LOTS

PHASE 1

AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII

TMK: 3RD DIV. 1–5–10: 4 & 1–5–8: 3

PLAN & PROFILE
ROAD "A"
STA. 9+00 TO STA. 18+00

FILE	POCKET	FOLDER	NO.

Job:85–180.2 File:PP–A2.DWG Disk:MAKUU(1) Plot:1=40 Date:06/02/95 bl

True North
Scale : 1" = 40'

MATCH LINE STA. 18+00 (SEE SHEET 6)

MATCH LINE STA. 27+00 (SEE SHEET 8)

30800 E
24800 S

31200 E
24800 S

31600 E
25000 S

18+76.43
(o/s 19' Lt. & Rt.)
Install Dry Well
with Pipe Connection
(Min. 20' Deep),
Dry Well Cover
and RM-3 Reflector
Marker. See Details,
Shts. 51 & 52.

55

@ Sta. 22+10 Lt. FH Conn.
1-8"X6" Tee
1-6" G.V., 200#
1-6" 1/4 Bend
1-Valve Box
1-Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3-Conc. Blocks

10 LF RC
Jacket

38 LF
18" RCP
@ 0.50%

@ Sta. 21+50 Lt. & Rt.
1-1" Air Relief Valve
1-Air Valve Box

10 LF RC
Jacket

20+00
(o/s 19' Rt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM-3 Reflector
Marker. See Details,
Shts. 51 & 52.

39

22+54
(o/s 22' Rt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM-3 Reflector
Marker. See Details,
Shts. 51 & 52.

@ Sta. 22+74
=Sta. 29+18.23 Road "C"
1-4" 1/4 Bend
1-Conc. Block

22+87.00 Road "A"
= 29+05.23 Road "C"
Install ¢ St. Mon.
See Std. Det. R-14

46

@ Sta. 23+74
1-8" 1/8 Bend
1-Conc. Block

@ Sta. 24+00
1-8" 1/8 Bend
1-Conc. Block

@ Sta. 23+00
=Sta. 28+92.23 Road "C"
1-8"X8" Cross
4-8" G.V., 200#
4-Valve Boxes

40

Road "C"

Road "A"

Edge Pav't

50' Right of Way

Edge Shoulder

12' 12' 10' 20' 10' 32' 50' 6' 9'

260° 24' 737.00 (Mon. to Mon.)

260° 24' 442.47 (Mon. to Mon.)

Sta. "Victor-4"
xx
Elev.~492.68

Sta. "Victor-5"
xx
Elev.~494.97

Sta. "Victor-6"
Elev.~491.61

Sta. Ray-1
xx
Elev.~499.89

FH

W8 HSW4

EDGE PAV'T RET. DATA	
Δ	90°00'
Δ/2	45°00'
R	35.00
T	35.00
C	49.50
L	54.98

28+60.23 ROAD "C" PC 0+00 493.09 493.09 PC 0+00 28+60.23 ROAD "C"
0+13.74 493.45 493.37 0+13.74
0+27.49 494.00 493.56 0+27.49
0+41.24 494.50 493.64 0+40.49 HP
0+41.24
22+42.00 ROAD "A" PT 0+54.98 494.80 493.64 0+54.98 PT 23+32.00 ROAD "A"
494.80 494.66 LP 493.54
494.65 LP 0+37.54
494.70 493.90
494.93 494.40
0+13.74 494.90 0+13.74
0+27.49
0+41.24
22+42.00 ROAD "A" PT 0+54.98 494.80 0+54.98 PT 23+32.00 ROAD "A"
PC 0+00 495.26 495.26 PC 0+00
29+50.23 ROAD "C" 29+50.23 ROAD "C"

PAV'T RETURN GRADES
SCALE: 1" = 20'

LEGEND

(6) Farm Lot No. (Unit 1)

PLAN – ROAD "A"
SCALE: 1" = 40'

KA OHUWALU DRIVE

520
500
480
460

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00

B.V.C. 493.75
E.V.C. 491.54
E.V.C. 495.25
V.P.I. 491.40
INTER GR. 494.38
P.I.V.C. 496.30
HIGH PT. 495.56
LOW PT. 489.27
P.I.V.C. 487.80
P.O.C. 489.34
P.O.C. 495.40

220' V.C.
150' V.C.

20+10 20+75 21+50 21+81.25 22+25 22+87 ROAD "A" =29+05.23 RD "C"

490.01 489.36 18+76.43 19+00 489.96 491.21 20+10

FINISH ℄ PAVT. GRADE
EXISTING GROUND ALONG ROAD ℄

S=(−)2.20% S=3.40% S=(−)1.40% S=(−)0.80%

ARV

18" RCP

INVERT 8" WATER
INVERT HS 4" WATER

2.3' (MIN.) 3.1' (MIN.)

FH CONN. 22+10 22+74

487.30 HS4"W 8"W 486.50
488.70 HS4"W 8"W 487.90
483.22 HS4"W 8"W 482.87
484.77 18" RCP
483.22 HS4"W 8"W 482.87
493.00 HS4"W 8"W 492.20
491.58 HS4"W
488.20 8"W
HS4"W 8"W 487.24 486.44

18+70 18+76.43 18+85 19+40 20+10 21+50 22+10 22+74 25+00

PROFILE – ROAD "A"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.
6/7/95
DATE

JOANNE M. NAKAMURA
LICENSED PROFESSIONAL ENGINEER
No. 5796-C
HAWAII, U.S.A.

ESH
ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE
ROAD "A"
STA. 18+00 TO STA. 27+00

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-A3.DWG Disk:MAKUU(1) Plot:1=40 Date:05/31/95 FR

℄ CURVE DATA	
	(4)
Δ	80°41'
Δ/2	40°20'30"
R	500.00
T	424.66
C	647.34
L	704.09

EDGE PAV'T RET.'s DATA	
Δ	90°00'
Δ/2	45°00'
R	50.00
T	50.00
C	70.71
L	78.54

KEAAU - PAHOA ROAD

℄ Sta. 1+10 (o/s 13' Lt.)
=Sta. 211+37 Keaau-Pahoa Rd.
1-Air Relief Valve
1-Air Valve Box
~~For testing~~
1-6" Cap Tapped 2" IPT
1-2" Cleanout Unit + Box
1-Conc. Block

Deflect Pipe
R = 487.00 (HSW6)
R = 513.00 (W12)

PC 2+59.08
Install ℄ St. Mon.
See Std. Det. R-14

38 LF 18" RCP
@ 0.50%

10 LF RC Jacket

10 LF RC Jacket

198° 55' 30" → 647.34 (Mon. to Mon.)

℄ Sta. 1+00
Install ℄ St. Mon.
See Std. Det. R-14

℄ Sta. 4+50 Lt. & Rt.
1-1" Air Relief Valve
1-Air Valve Box

~~℄ Sta. 5+00 Rt.~~
~~1-12" B.F.V.~~
~~1-Valve Box~~

Provide Smooth Riding Connection to Existing Pavement & Shoulder Refer to "Notes for Construction Within State Right-of-Way," #18, Sht. 2.

℄ Sta. 1+00 (o/s 13' Rt.)
=Sta. 211+63 Keaau-Pahoa Rd.
Remove 12" cap & connect to exist. 12" water
1-12" Sleeve
8 LF 12" D.I. Pipe
~~Temporary for testing~~
~~1-12" Cap Tapped 2" IPT~~
~~1-2" Cleanout Unit + Box~~
~~1-Conc. Block~~

3+14.71
(o/s 19' Lt. & Rt.)
Install Dry Well
with Dry Well Cover
(Modified Std. Det. R-40)
Min. 20' Deep
Install RM-3
Road Marker (Typ.)
See Det., Sht. 52

1 1/2" Type "C"
Service Lateral

℄ Sta. 4+10 Lt. FH Conn.
1-6"X6" Tee
1-6" G.V., 200#
1-6" 1/4 Bend
1-Valve Box
1-Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3-Conc. Blocks

KALUAHINE STREET

PLAN - ROAD "B1"
SCALE: 1" = 40'

Install ℄ St. Mon.
PT 9+63.17
See Std. Det. R-14

1 1/2" Type "C"
Service Lateral

MATCH LINE - STA. 10+00 (SEE SHEET 18)

158° 35' → 1136.83 (Mon. to Mon.)

℄ Sta. 9+10 Lt. FH Conn.
1-6"X6" Tee
1-6" G.V., 200#
1-6" 1/4 Bend
1-Valve Box
1-Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3-Conc. Blocks

1 1/2" Type "C"
Service Lateral

True North
Scale : 1" = 40'

LEGEND
(6) Farm Lot No. (Unit 1)
(1) Agricultural Lot No. (Unit 1)

210+90.00
KEAAU-PAHOA ROAD
PC 0+00
566.31
0+17.71
0+19.63
566.41 HP
566.40
0+39.27
0+58.90
566.28
PT 0+78.54
1+10.00
ROAD "B1"
565.69
566.03
566.10
565.69
566.60
0+58.90
0+39.27
567.10
0+19.63
PT 0+78.54
1+10.00
ROAD "B1"
567.45
PC 0+00
212+10.00
KEAAU-PAHOA ROAD

PAV'T RETURN GRADES
SCALE: 1" = 20'

PROFILE - ROAD "B1"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

566.90±
0+60±
V.P.I. 564.10
B.V.C. 563.55
100' V.C.
E.V.C. 563.30
P.I.V.C. 563.00
LOW PT. 563.19
P.O.C. 563.21
B.V.C. 563.45
150' V.C.
E.V.C. 560.75
HIGH PT. 563.51
P.I.V.C. 563.90
P.O.C. 563.00
B.V.C. 558.65
150' V.C.
E.V.C. 555.05
P.I.V.C. 555.50
P.O.C. 556.18
STA. 5+75
STA. 7+25
STA. 6+50
S=(-)2.00%
S=(-)1.10%
S=0.60%
S=(-)4.20%
S=(-)0.60%
ARV
18" RCP
FH CONN. 4+10
FINISH ℄ PAVT. GRADE
EXISTING GROUND ALONG ROAD ℄
INVERT 12" WATER
INVERT HS 6" WATER
2.7' (MIN.)
3.9' (MIN.)
FH CONN. 9+10
562.40 HS6"W
561.70 12"W
561.40 HS6"W
560.90 HS6"W 12"W
560.00
559.30 HS6"W 558.40 12"W
556.94 HS6"W 556.44 12"W
558.69 18" RCP
556.94 HS6"W 556.44 12"W
560.35 HS6"W 559.45 12"W
559.80 HS6"W 558.90 12"W
552.50 HS6"W 551.60 12"W
550.00 HS6"W 549.10 12"W
HS6"W For Continuation, See Sht. 40.
MATCH LINE STA. 10+00 (SEE SHEET 18)
580
560
540
520
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

P.C.D.	9/6/95	RELOCATED 12" BFV FROM STA.5+00 RT. TO STA. 12+00 RT.	JNN ESH, INC.	
REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.
DATE 9/6/95

JOANNE M. NAKAMURA
LICENCED PROFESSIONAL ENGINEER
No. 5798-C
HAWAII, U.S.A.

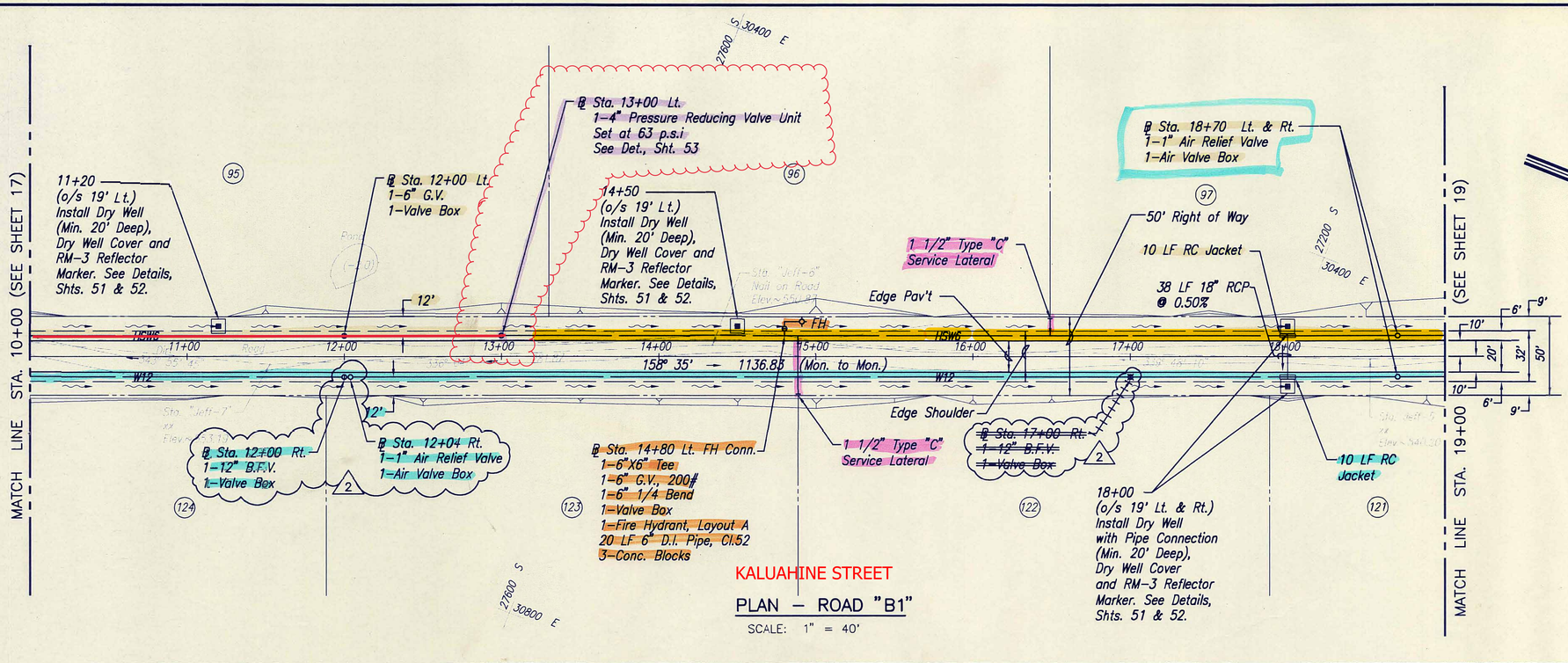
ESH
ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE
ROAD "B1"
STA. 0+00 TO STA. 10+00

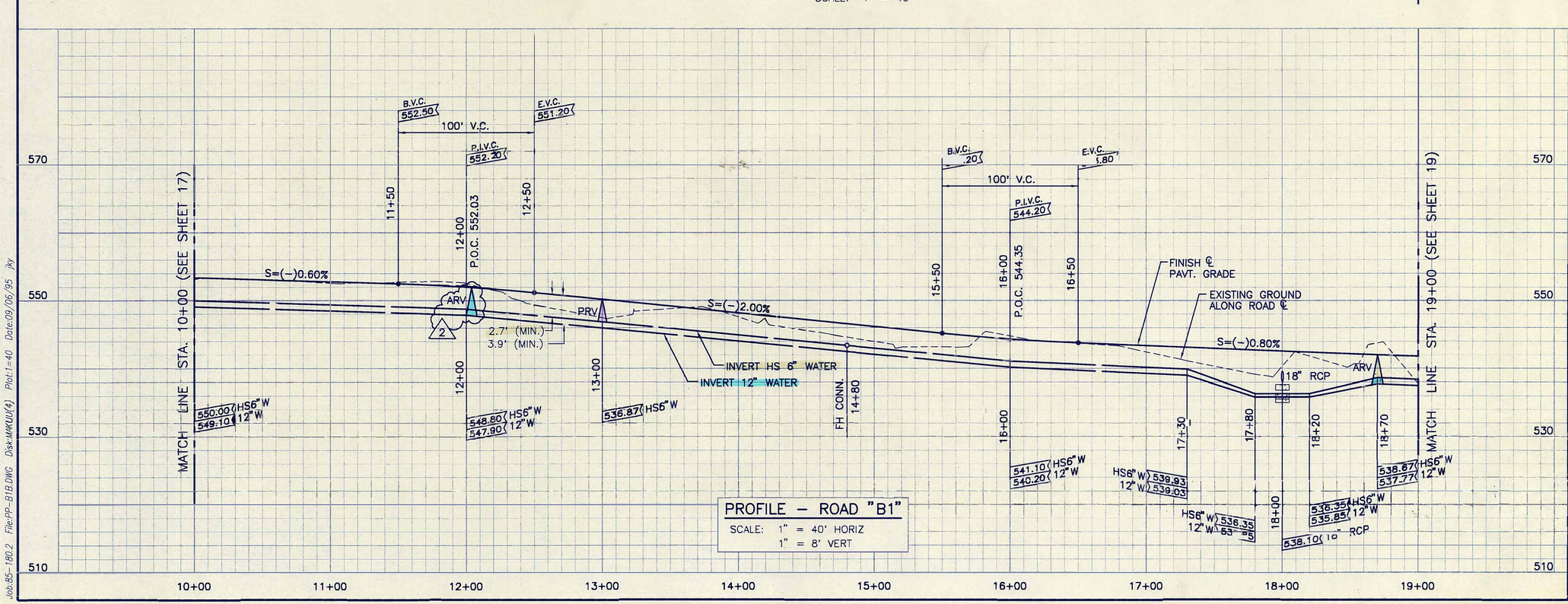
FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-B1A.DWG Disk:MAKUU(4) Plot:1=40 Date:09/06/95 jky



PLAN — ROAD "B1"

SCALE: 1" = 40'



PROFILE — ROAD "B1"

SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:
1" = 40' 40 0 40 80
1" = 8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
P.C.D. 2	9/6/95	RELOCATED 12" BFV FROM 5+00 RT. TO 12+00 RT., 17+00 RT. TO 24+46 RT. & ADDED 1" ARV UNIT AT 12+04 RT.	JMN ESH, INC.	ESH DMS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

JOANNE M. NAKAMURA — LICENSED PROFESSIONAL ENGINEER — No. 5796-C — HAWAII, U.S.A.

DATE 9/6/95

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

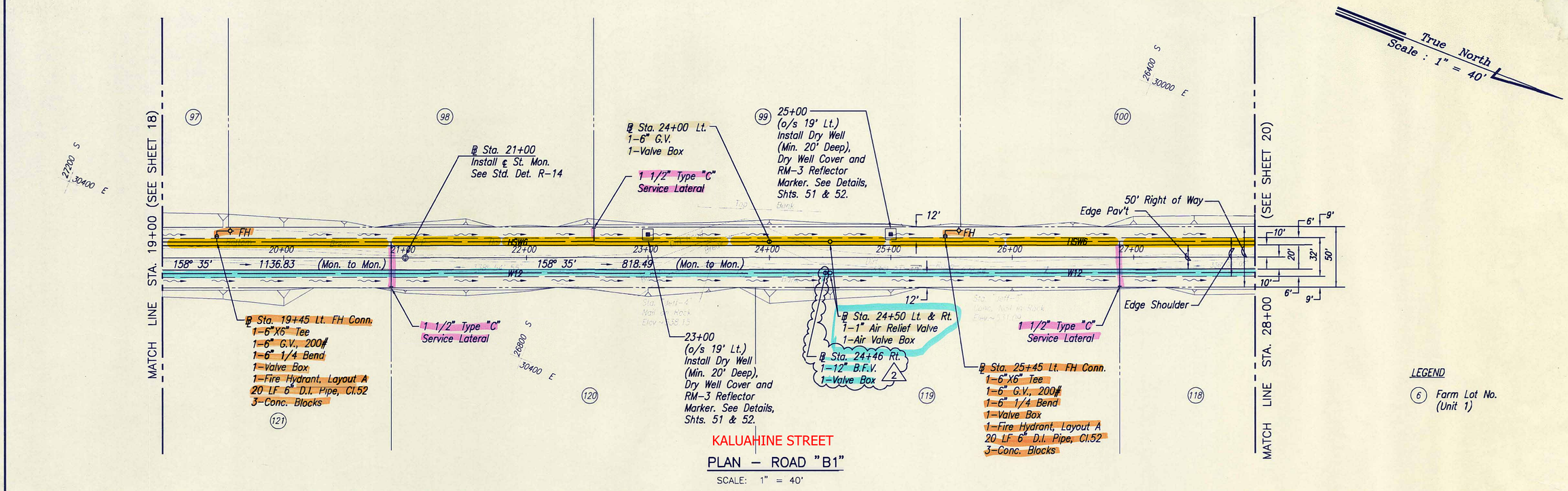
DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE
ROAD "B1"
STA. 10+00 TO STA. 19+00

FILE | POCKET | FOLDER | NO.

SHEET 18 OF 122 SHEETS

Job:85-180.2 File:PP-B1B.DWG Disk:MAKUU(4) Plot:1=40 Date:09/06/95 jky

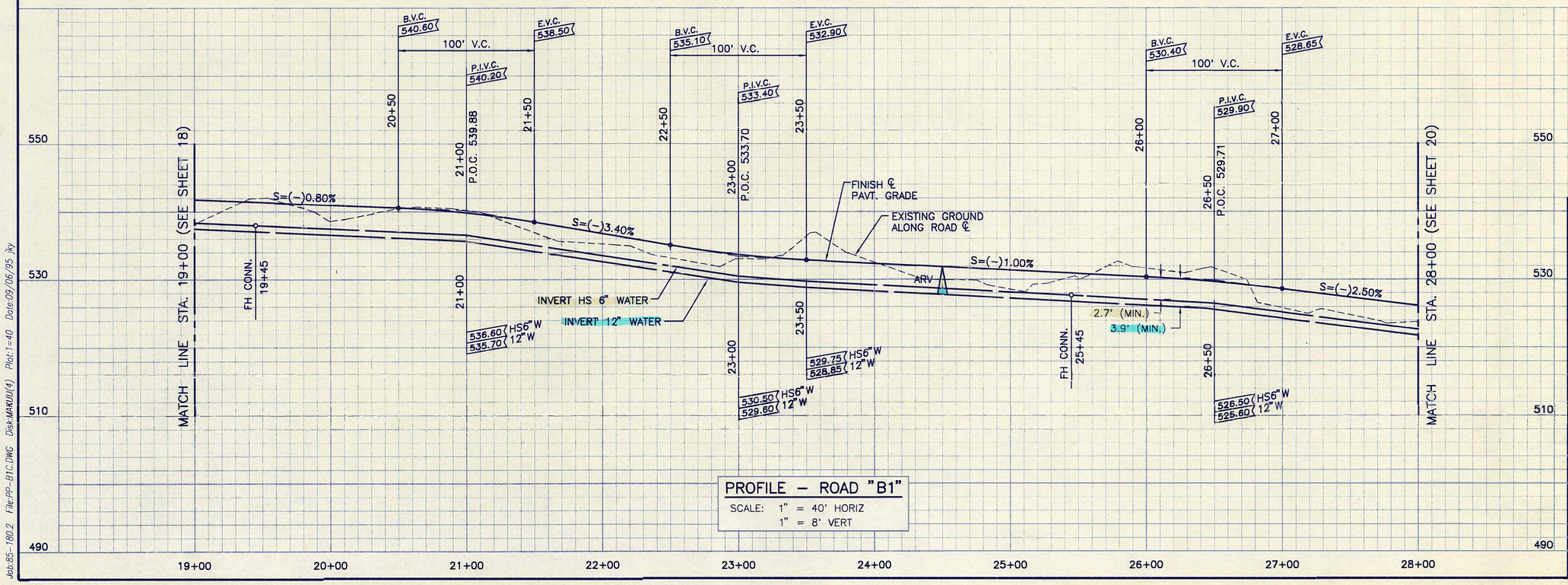


PLAN – ROAD "B1"

SCALE: 1" = 40'

LEGEND

(6) Farm Lot No. (Unit 1)



PROFILE – ROAD "B1"

SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:

1"=40' 40 0 40 80

1"=8' 8 0 8 16

P.C.D.	DATE	DESCRIPTION	MADE BY	APPROVED
2	9/6/95	RELOCATED 12" BFV FROM STA.17+00 RT. TO STA. 24+46 RT.	JMN ESH, INC.	GSC DWS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

9/6/95 DATE

JOANNE M. NAKAMURA LICENSED PROFESSIONAL ENGINEER No. 5796-C HAWAII, U.S.A.

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS

MAKUU FARM AND AGRICULTURAL LOTS

PHASE 1

AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII

TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE ROAD "B1" STA. 19+00 TO STA. 28+00

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-B1C.DWG Disk:MAKUU(4) Plot:1=40 Date:09/06/95 jky

True North
Scale : 1" = 40'

MATCH LINE STA. 28+00 (SEE SHEET 19)

MATCH LINE STA. 37+00 (SEE SHEET 21)

1 1/2" Type "C" Service Lateral

Ⓑ Sta. 30+80 Lt. FH Conn.
1-6"X6" Tee
1-6" G.V., 200#
1-6" 1/4 Bend
1-Valve Box
1-Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3-Conc. Blocks

31+00
(o/s 19' Lt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM-3 Reflector
Marker. See Details,
Shts. 51 & 52.

1 1/2" Type "C" Service Lateral

Ⓑ Sta. 36+00 Lt.
1-6" G.V.
1-Valve Box

1 1/4" Type "A" Service Lateral

Edge Pav't

50' Right of Way

Edge Shoulder

158° 35' (Mon. to Mon.)
818.49
29+00
164° 29' 30"
30+00
228.29 (Mon. to Mon.)
W12
HSW6
31+00
32+00
33+00
34+00
35+00
36+00
170° 24'
860.04 (Mon. to Mon.)
W12
HSW6

12'

6' 9' 10' 20' 32' 50' 10' 6' 9'

Ⓑ Sta. 28+50 Rt.
1-12" B.F.V.
1-Valve Box

Install ℄ St. Mon.
PC 29+18.49
See Std. Det. R-14

Deflect Pipe
R = 1121.86 (HSW6)
R = 1095.86 (W12)

PT 31+47.19
Install ℄ St. Mon.
See Std. Det. R-14

Ⓑ Sta. 32+29 Rt.
1-1" Air Relief Valve
1-Air Valve Box
Ⓑ Sta. 32+25 Rt.
1-12" B.F.V.
1-Valve Box

1 1/2" Type "C" Service Lateral

34+50
(o/s 19' Lt.)
Install Dry Well
(Min. 20' Deep),
Dry Well Cover and
RM-3 Reflector
Marker. See Details,
Shts. 51 & 52.

Ⓑ Sta. 36+60 Lt. FH Conn.
1-6"X6" Tee
1-6" G.V., 200#
1-6" 1/4 Bend
1-Valve Box
1-Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3-Conc. Blocks
1-6"X4" Reducer

1 1/4" Type "A" Service Lateral

26000 S 29800 E
26200 S 30200 E
25600 S 30000 E

KALUAHINE STREET

PLAN – ROAD "B1"
SCALE: 1" = 40'

LEGEND
(6) Farm Lot No. (Unit 1)

℄ CURVE DATA	
	(5)
△	11°49'
△/2	5°54'30"
R	1108.86
T	114.75
C	228.29
L	228.69

B.V.C. 523.65 — 100' V.C. — E.V.C. 519.90
P.I.V.C. 522.40
P.O.C. 522.09
B.V.C. 516.15 — 150' V.C. — E.V.C. 510.60
P.I.V.C. 512.40
P.O.C. 512.89
V.P.I. 506.40
V.P.I. 504.30

S=(-)2.50%
S=(-)5.00%
S=(-)2.40%
S=(-)1.40%
S=(-)0.86%

FINISH ℄ PAVT. GRADE
EXISTING GROUND ALONG ROAD ℄

ARV
2.7' (MIN.)
3.9' (MIN.)

518.80 HS6"W
517.90 12"W
509.60 HS6"W
508.70 12"W
503.00 HS6"W
502.10 12"W
501.10 HS6"W
500.20 12"W
500.71 HS4"W
500.63 HS6"W

INVERT HS 6" WATER
INVERT 12" WATER

FH CONN. 30+80
FH CONN. 36+60

530 510 490 470

28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00

PROFILE – ROAD "B1"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
P.C.O. 2	9/6/95	RELOCATED 12" BFV FROM STA.28+50 RT. TO STA. 32+25 RT. AND ADDED ARV UNIT AT STA.32+29 RT.	JNN ESH, INC.	DMS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.
ENGINEERS SURVEYORS HAWAII, INC.
9/6/95 DATE

JOANNE M. NAKAMURA LICENSED PROFESSIONAL ENGINEER No. 5798-C HAWAII, U.S.A.

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE
ROAD "B1"
STA. 28+00 TO STA. 37+00

FILE	POCKET	FOLDER	NO.

SHEET 20 OF 122 SHEETS

Job:85-180.2 File:PP-B1D.DWG Disk:MAKUU(4) Plot:1=40 Date:09/06/95 jkv

MATCH LINE STA. 37+00 (SEE SHEET 20)

MATCH LINE STA. 45+00 (SEE SHEET 22)

25400 S 29800 E

30000 E 25200 S

24800 S 30000 E

104

105

106

113

114

115

40+07.23 Road "B1" =8+51.00 Road "A" Install ℄ St. Mon. See Std. Det. R-14

38 LF 18" RCP @ 0.50%

41+07.04 (o/s 19' Lt. & Rt.) Install Dry Well with Pipe Connection (Min. 20' Deep), Dry Well Cover and RM-3 Reflector Marker. See Details, Shts. 51 & 52.

℄ Sta. 43+55 Lt. FH Conn.
1-6"X6" Tee
1-6" G.V., 200#
1-Valve Box
1-Fire Hydrant, Layout B
35 LF 6" D.I. Pipe, Cl.52
2-Conc. Blocks

10 LF RC Jacket

1 1/2" Type "C" Service Lateral

12' Edge Pav't

HSW4

W12

170° 24' 860.04 (Mon. to Mon.)

38+00 39+00 40+00 41+00 42+00 43+00 44+00

170° 24' 792.77 (Mon. to Mon.)

W6

12' Edge Shoulder 50' Right of Way

38+00 (o/s 19' Lt.) Install Dry Well (Min. 20' Deep), Dry Well Cover and RM-3 Reflector Marker. See Details, Shts. 51 & 52.

~~℄ Sta. 39+50 Rt. 1-12" B.F.V. 1-Valve Box~~

39+68 (o/s 19' Lt.) Install Dry Well (Min. 20' Deep), Dry Well Cover and RM-3 Reflector Marker. See Details, Shts. 51 & 52.

8+06.00 8+96.00 9+00 10+00 Road "A" W12 W6 HSW4

39+62.23 40+52.23

℄ Sta. 41+23.50 Rt.
1-6" 1/8 Bend, (TV)
1-vert. Thrust Block
Per DWS Std. Det. 106-108

℄ Sta. 41+20 Rt.
1-6" 1/8 Bend, (BV)
1-Conc. Block

℄ Sta. 40+95 Rt.
1-6" 1/8 Bend, (BV)
1-Conc. Block

℄ Sta. 40+91.50 Rt.
1-6" 1/8 Bend, (TV)
1-Vert. Thrust Block
Per DWS Std. Det. 106-108

℄ Sta. 40+80 Rt.
1-1" Air Relief Valve
1-Air Valve Box

℄ Sta. 43+00 Rt.
1-1" Air Relief Valve
1-Air Valve Box

KA OHUWALU DRIVE

KALUAHINE STREET

6' 9' 10' 20' 32' 50'

95.21
93.46
1.75

LEGEND

(6) Farm Lot No. (Unit 1)

True North
Scale : 1" = 40'

EDGE PAV'T RET. DATA	
△	90°00'
△/2	45°00'
R	35.00
T	35.00
C	49.50
L	54.98

8+06.00 ROAD "A" PC 0+00 0+13.74 0+27.49 0+41.24 0+54.98 PT 39+62.23 ROAD "B1" 40+52.23 ROAD "B1"

501.60 501.15 500.74 500.53 500.51 LP 500.55 500.55 500.25 499.80 499.20 498.72 PC 0+00

8+96.00 ROAD "A"

501.60 501.10 500.45 499.90 499.77 498.77 498.73 FH 0+48.73 499.69 499.45 499.12 498.72 PC 0+00

PAV'T RETURN GRADES
SCALE: 1" = 20'

PLAN - ROAD "B1"
SCALE: 1" = 40'

PROFILE - ROAD "B1"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

INTER GR. 500.37

B.V.C. 499.97 140' V.C. LOW PT. 499.77 P.I.V.C. 499.31 P.O.C. 499.76

P.R.V.C. 500.50 200' V.C. HIGH PT. 500.97 P.I.V.C. 502.20 P.O.C. 500.67

P.R.V.C. 497.80 100' V.C. P.I.V.C. 495.60 P.O.C. 495.88 E.V.C. 494.50

40+07.23 ROAD "B1" =8+51 RD. "A"

40+60 41+07.04 41+30 42+00 42+55.74 43+00 44+00 44+50

FINISH ℄ PAVT. GRADE

EXISTING GROUND ALONG ROAD ℄

S=(-)0.86% S=1.70% S=(-)4.40% S=(-)2.20%

4" W ARV 18" RCP ARV INVERT 6" WATER

2.3' (MIN.) 3.9' (MIN.) 2' CLR. 2.7' (MIN.)

37+50 39+00 39+94.23 40+20.23 40+91.50 41+07.04 41+20 41+23.50 43+00 43+55

499.90 HS4" W 498.20 12" W

INVERT HS 4" WATER
INVERT 12" WATER

HS4" W 498.70 12" W 497.00

HS4" W 498.00 12" W 495.30

1-6" 1/8 BEND 6" W(TV) 497.00

1-6" 1/8 BEND 6" W(BV) 497.00

1-6" 1/8 BEND 6" W(BV) 493.46

1-6" 1/8 BEND 6" W(BV) 493.48

495.21 18" RCP

497.80 6" W

FH CONN. 491.30 6" W

12" W 6" W 496.04 12" W

520 500 480 460

37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
P.C.D. 2	9/6/95	DELETED 12" BFV AT STA.39+50 RT.	JMN ESH, INC.	DWS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

9/6/95 DATE

JOANNE M. NAKAMURA LICENSED PROFESSIONAL ENGINEER No. 5798-C HAWAII, U.S.A.

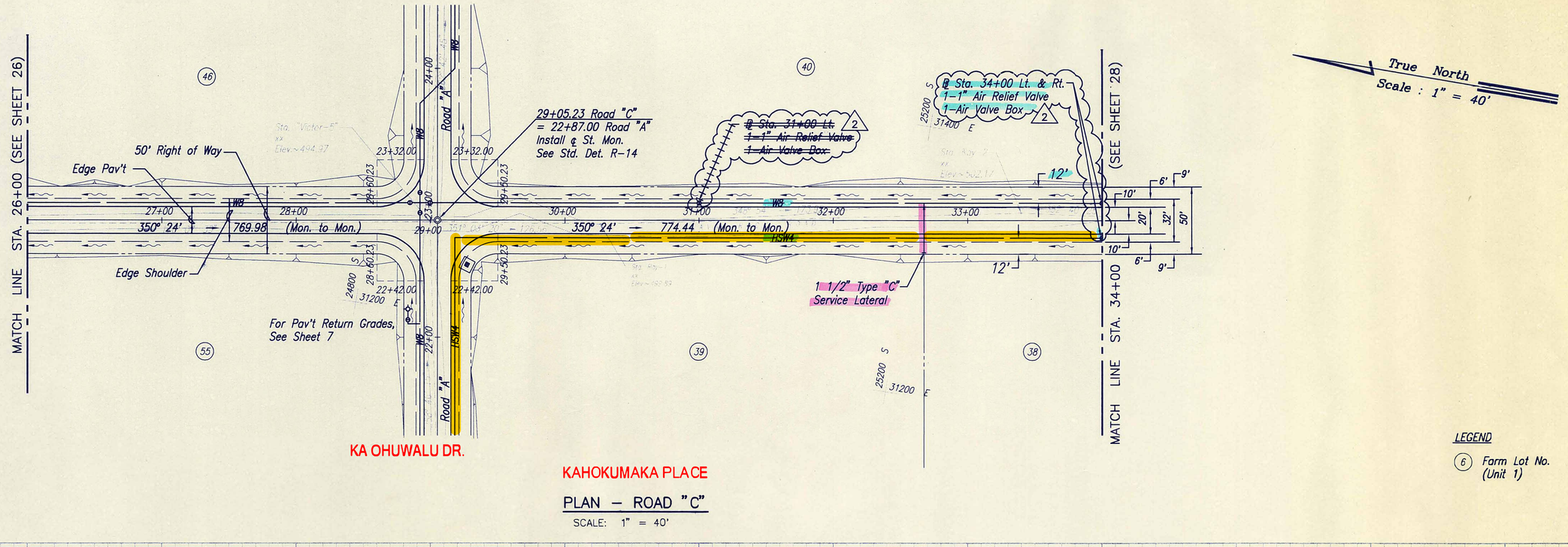
ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE
ROAD "B1"
STA. 37+00 TO STA. 45+00

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-B1E.DWG Disk:MAKUU(4) Plot:1=40 Date:09/06/95 jky

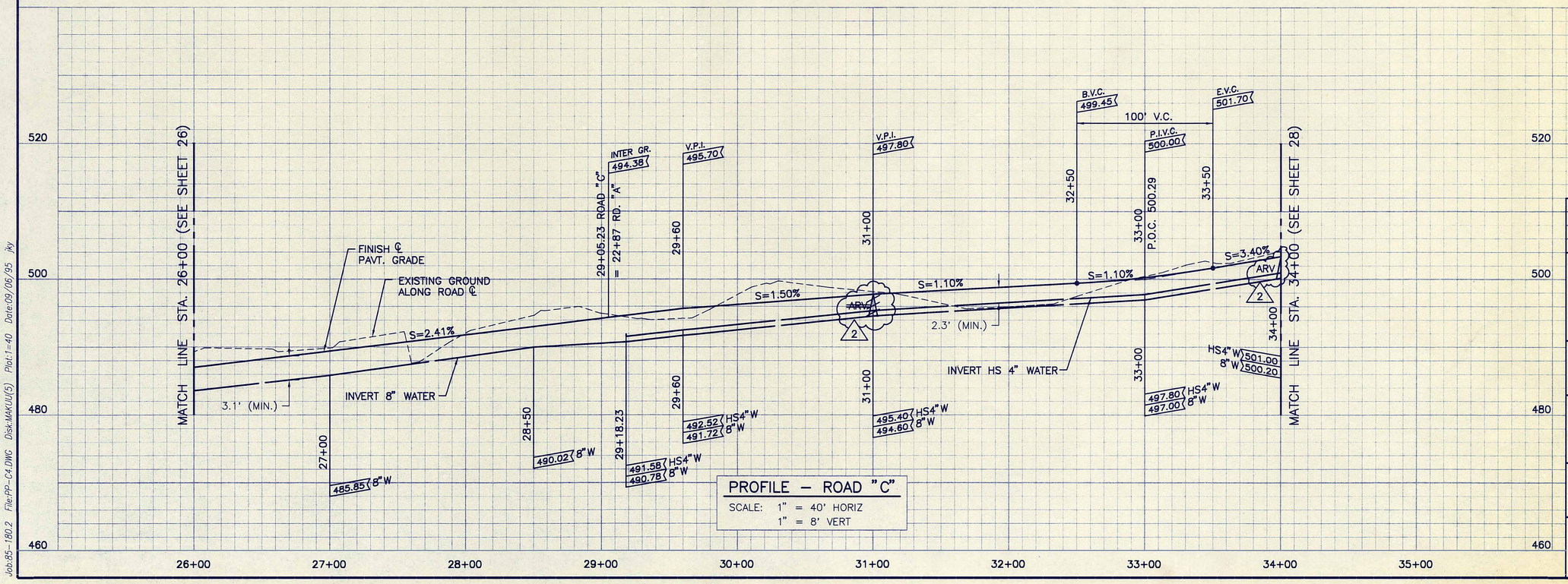


PLAN — ROAD "C"

SCALE: 1" = 40'

LEGEND

(6) Farm Lot No. (Unit 1)



PROFILE — ROAD "C"

SCALE: 1" = 40' HORIZ
1" = 8' VERT

GRAPHIC SCALES:

1"=40' 40 0 40 80

1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
P.C.D. 2	9/6/95	RELOCATED ARV UNIT FROM STA.31+00 LT. TO STA. 34+00 LT. AND ADDED ARV UNIT AT STA.34+00 RT.	JNN, ESH, INC.	DWS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

9/6/95 DATE

JOANNE M. NAKAMURA LICENSED PROFESSIONAL ENGINEER No. 5796-C HAWAII, U.S.A.

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531-3116 HON. 885-4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS

MAKUU FARM AND AGRICULTURAL LOTS

PHASE 1

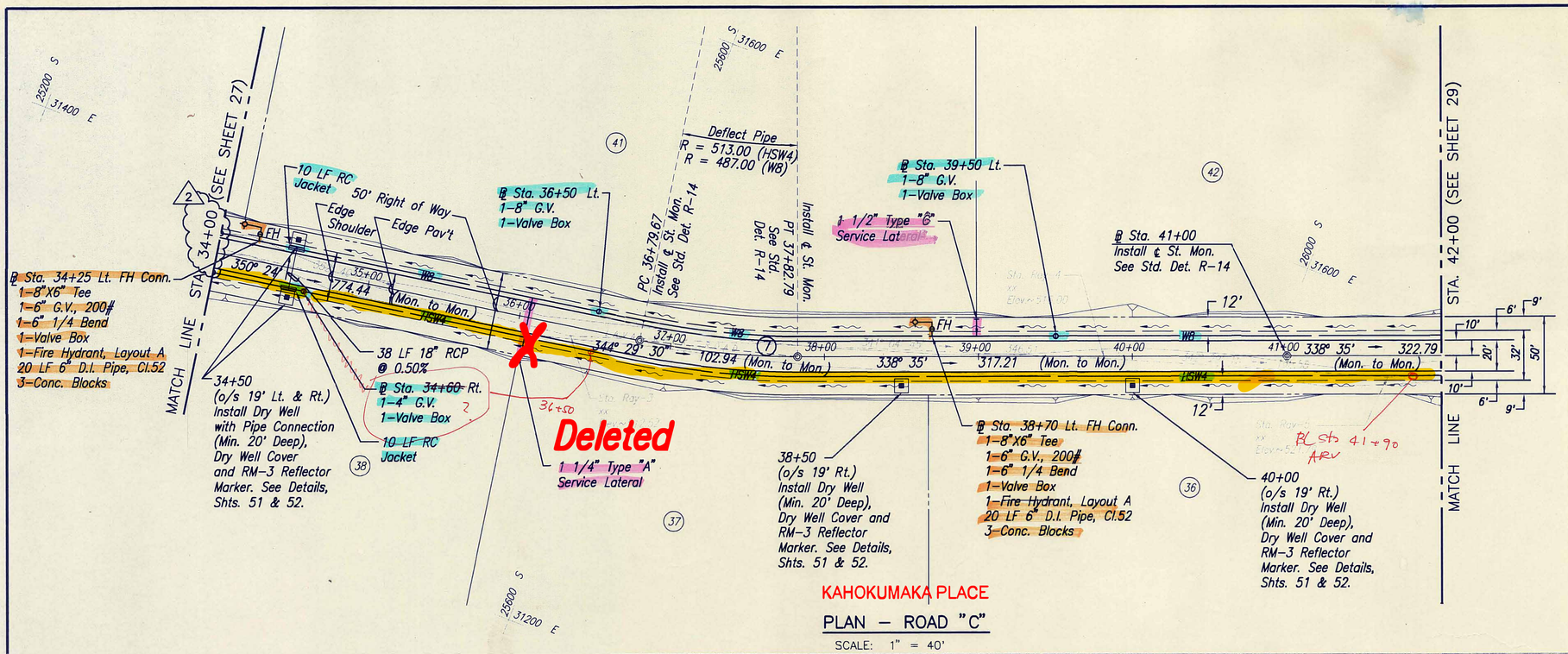
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII

TMK: 3RD DIV. 1-5-10: 4 & 1-5-8: 3

PLAN & PROFILE ROAD "C" STA. 26+00 TO STA. 34+00

FILE	POCKET	FOLDER	NO.

Job:85-180.2 File:PP-C4.DWG Disk:MAKUU(5) Plot:1=40 Date:09/06/95 jky



Job:85-180.2 File:PP-C5.DWG Disk:MAKUU(5) Plot:1=40 Date:09/06/95 jky

(42) PT = 20+38.20 Road "D"

℄ Sta. 43+55 Lt. FH Conn.
1–8"X6" Tee
1–6" G.V., 200#
1–6" 1/4 Bend
1–Valve Box
1–Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3–Conc. Blocks

26000 S 31600 E

(SEE SHEET 28)

MATCH LINE STA. 42+00

9' 6' 10' 20' 32' 50' 10' 6' 9'

WB

43+00

338° 35' 322.79' (Mon. to Mon.)

HSW4

21+18.78 ROAD "D" PC 0+00

0+13.74 519.01 519.40

0+27.49 519.85

0+41.24 520.21

0+54.98 PT 43+77.79 ROAD "C" 520.45

21+18.78 ROAD "D" PC 0+00

519.01 519.33 0+13.74

0+27.49 519.59

0+41.24 519.80

0+43.30 HP

0+54.98 PT 44+67.79 ROAD "C" 519.82 519.84

PAV'T RETURN GRADES
SCALE: 1" = 20'

℄ Sta. 42+50 Lt. & Rt.
1–1" Air Relief Valve
1–Air Valve Box
(35)

1 1/2" Type "C" Service Lateral

44+00 (o/s 19' Rt.) Install Dry Well (Min. 20' Deep), Dry Well Cover and RM–3 Reflector Marker. See Details, Shts. 51 & 52.

FH

21+18.78

21+77.79

21+00 Road "D"

WB

44+00

Sta. "Ray–1" Elev.= 518.16

26400 S 31600 E

℄ Sta. 44+09.79 Road "C" =Sta. 21+50.78 Road "D"
1–8"X8" Tee
3–8" G.V., 200#
3–Valve Boxes
1–Conc. Block

44+22.79 Road "C" = 21+63.78 Road "D"
Install ℄ St. Mon.
See Std. Det. R–14

10 LF RC Jacket

38 LF 18" RCP @ 0.50%

44+67.79

45+00

45+28.57 (o/s 19' Lt. & Rt.) Install Dry Well with Pipe Connection (Min. 20' Deep), Dry Well Cover and RM–3 Reflector Marker. See Details, Shts. 51 & 52.

10 LF RC Jacket

℄ Sta. 46+50 Rt.
1–4" G.V.
1–Valve Box

338° 35' 580.00' (Mon. to Mon.)

HSW4

46+00

47+20 (o/s 19' Rt.) Install Dry Well (Min. 20' Deep), Dry Well Cover and RM–3 Reflector Marker. See Details, Shts. 51 & 52.
(34)

12'

℄ Sta. 48+66 Lt. FH Conn.
1–8"X6" Tee
1–6" G.V., 200#
2–6" 1/4 Bend
1–Valve Box
1–Fire Hydrant, Layout A
20 LF 6" D.I. Pipe, Cl.52
3–Conc. Blocks
(31)

50' Right of Way

Edge Pav't

Sta. "I" Elev.= 533.51

47+00 48+00 49+00

12'

Edge Shoulder

1 1/2" Type "C" Service Lateral

26800 S 31600 E

℄ Sta. 48+75 Lt.
1–8" Cap Tapped 2" IPT
1–2" Cleanout Unit & Box
1–1" Air Relief Valve
1–Air Valve Box
1–Conc. Block
(33)

49+48.02

R=40.00

R=45.00

50+02.79
End Road "C"
Install ℄ St. Mon.
See Std. Det. R–14

1 1/2" Type "C" Service Lateral

℄ Sta. 50+15 Rt.
1–4" Cap Tapped 2" IPT
1–2" Cleanout Unit & Box
1–1" Air Relief Valve
1–Air Valve Box
1–Conc. Block
(32)

26800 S 32000 E

True North
Scale : 1" = 40'

EDGE PAV'T RET. DATA		
	1	2
△	40°07'09"	260°14'18"
△/2	20°03'35"	130°07'09"
R	55.00	30.00
T	20.08	35.60
C	37.73	45.88
L	38.51	136.26

0+38.51 532.45 532.85 0+19.26 532.05 0+61.22 0+83.93 1+06.64 533.05 HP 1+29.35 1+52.06 532.05 532.85 1+74.77 1+94.03 532.45 531.36 531.70 531.70 531.36

49+48.02 ROAD "C" 0+00

49+48.02 ROAD "C" 2+13.29

PAV'T RETURN GRADES
SCALE: 1" = 20'

EDGE PAV'T RET. DATA	
△	90°00'
△/2	45°00'
R	35.00
T	35.00
C	49.50
L	54.98

KAHOKUMAKA PLACE

PLAN – ROAD "C"
SCALE: 1" = 40'

LEGEND

(6) Farm Lot No. (Unit 1)

PROFILE – ROAD "C"
SCALE: 1" = 40' HORIZ
1" = 8' VERT

B.V.C. 520.90 100' V.C. E.V.C. 520.85 HIGH PT. 521.04 P.I.V.C. 521.20 P.O.C. 521.04 42+96.15 42+50 43+00 43+50

INVERT 8" WATER ARV S=0.60% FH CONN. 43+55

518.60 HS4"W 8"W 517.80

INTER GR. 520.34 44+22.79 ROAD "C" =21+63.78 RD. "D"

B.V.C. 519.80 200' V.C. E.V.C. 523.30 P.I.V.C. 519.10 LOW PT. 519.70 P.O.C. 520.33 519.76 521.51 45+00 45+28.57 46+00 47+00

S=(–)0.70% S=4.20% 18" RCP

517.90 HS4"W 8"W 517.10 513.65 HS4"W 8"W 513.30 515.20 18" RCP

HS4"W 8"W 517.63 516.83 HS4"W 8"W 513.65 513.30 44+70 45+20 45+40

B.V.C. 527.50 100' V.C. E.V.C. 530.60 P.I.V.C. 529.60 P.O.C. 529.33 48+50 48+00 49+00 50+02.79 END 532.66

EXISTING GROUND ALONG ROAD ℄ FINISH ℄ PAVT. GRADE S=2.00% ARV 2.3' (MIN.) 3.1' (MIN.) 50+15 530.30 HS4"W

FH CONN. 48+66 48+75 INVERT HS 4" WATER 527.00 8"W 527.45 HS4"W 8"W 526.65

540 520 500 480

42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00

GRAPHIC SCALES:
1"=40' 40 0 40 80
1"=8' 8 0 8 16

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS STIPULATED IN CHAPTER 464 OF THE HAWAII REVISED STATUTES.

ENGINEERS SURVEYORS HAWAII, INC.

DATE 6/2/95

JOANNE M. NAKAMURA LICENSED PROFESSIONAL ENGINEER No. 5796–C HAWAII, U.S.A.

ESH ENGINEERS SURVEYORS HAWAII, INC.
1020 AUAHI ST., BLDG. 6, RM. 1
HONOLULU, HAWAII 96814
531–3116 HON. 885–4590 KAMUELA

DEPARTMENT OF HAWAIIAN HOME LANDS
MAKUU FARM AND AGRICULTURAL LOTS
PHASE 1
AT MAKUU, POPOKI AND HALONA, PUNA, ISLAND OF HAWAII, HAWAII
TMK: 3RD DIV. 1–5–10: 4 & 1–5–8: 3

PLAN & PROFILE
ROAD "C"
STA. 42+00 TO STA. 50+02.79

FILE POCKET FOLDER NO.

Job:85–180.2 File:PP–06.DWG Disk:MAKUU(5) Plot:1=40 Date:05/31/95 Jky