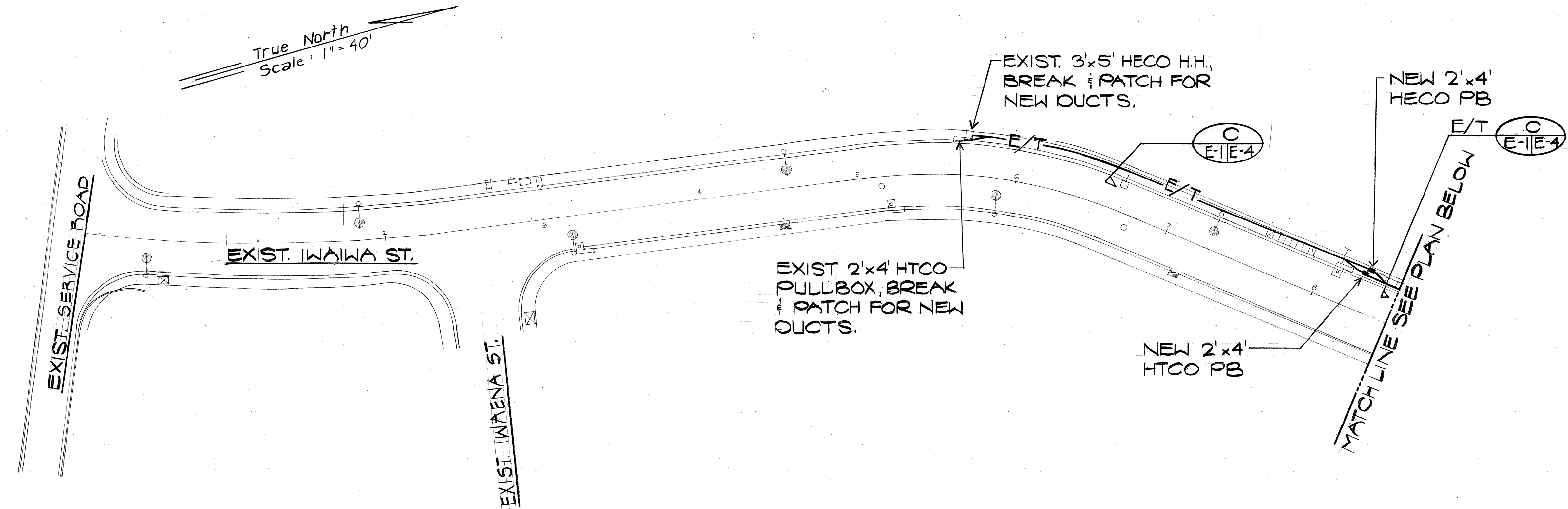
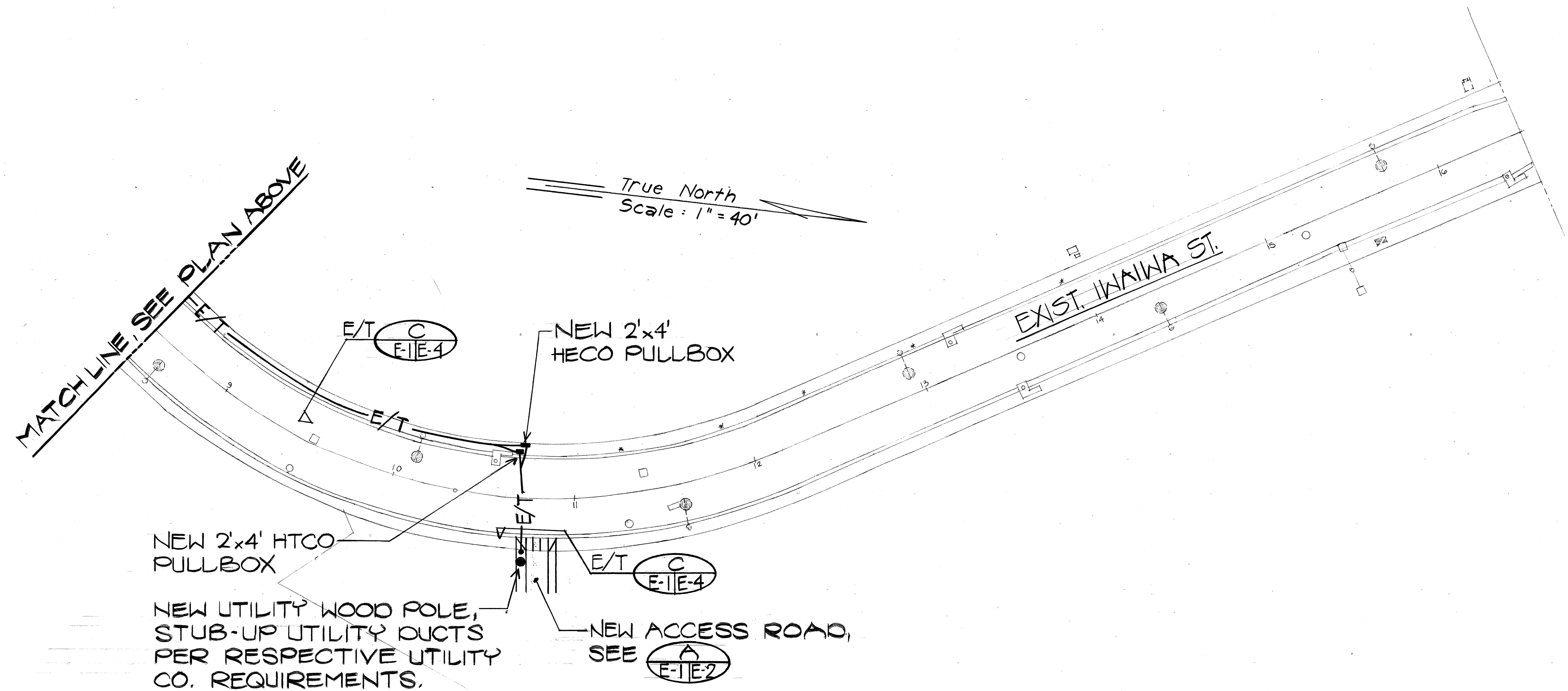


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(203)	1987	81	87



- NOTES: 1. ALL ELECTRICAL WORK WITH-
IN IWAIIWA STREET SHALL BE
PER CITY AND COUNTY RE-
QUIREMENTS. (WITHIN CITY
RIGHT-OF-WAY).
2. THE CONTRACTOR SHALL OBTAIN SERVICE DRA-
WINGS FROM THE HAWAIIAN ELECTRIC CO. AND
THE HAWAIIAN TELEPHONE CO. UTILITY COMPANY
DRAWINGS SHALL BECOME PART OF THE CON-
TRACT DOCUMENTS AND SHALL SUPERSEDE
REQUIREMENTS OF THESE DRAWINGS.
3. THE CONTRACTOR SHALL INCLUDE IN HIS BID
ALL UTILITY NONRECURRING COSTS FOR THE
SERVICE INCLUDING ANY EXTENSION WORK OF
THE EXISTING NETWORK SYSTEM.
4. THE CONTRACTOR SHALL COORDINATE ALL
WORK WITH THE HAWAIIAN ELECTRIC CO.
AND THE HAWAIIAN TELEPHONE CO.
5. PROVIDE POLYOLEFIN 200 LB. TEST OR
GALVANIZED STEEL PULLWIRE IN ALL
EMPTY CONDUITS.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

PARTIAL IWAIIWA STREET ELECTRICAL PLANS
SCALE: 1"=40'-0"

APPROVED: *[Signature]* DATE: 9/3/86
CHIEF, PLANNING & ENGINEERING DIV., BWSA

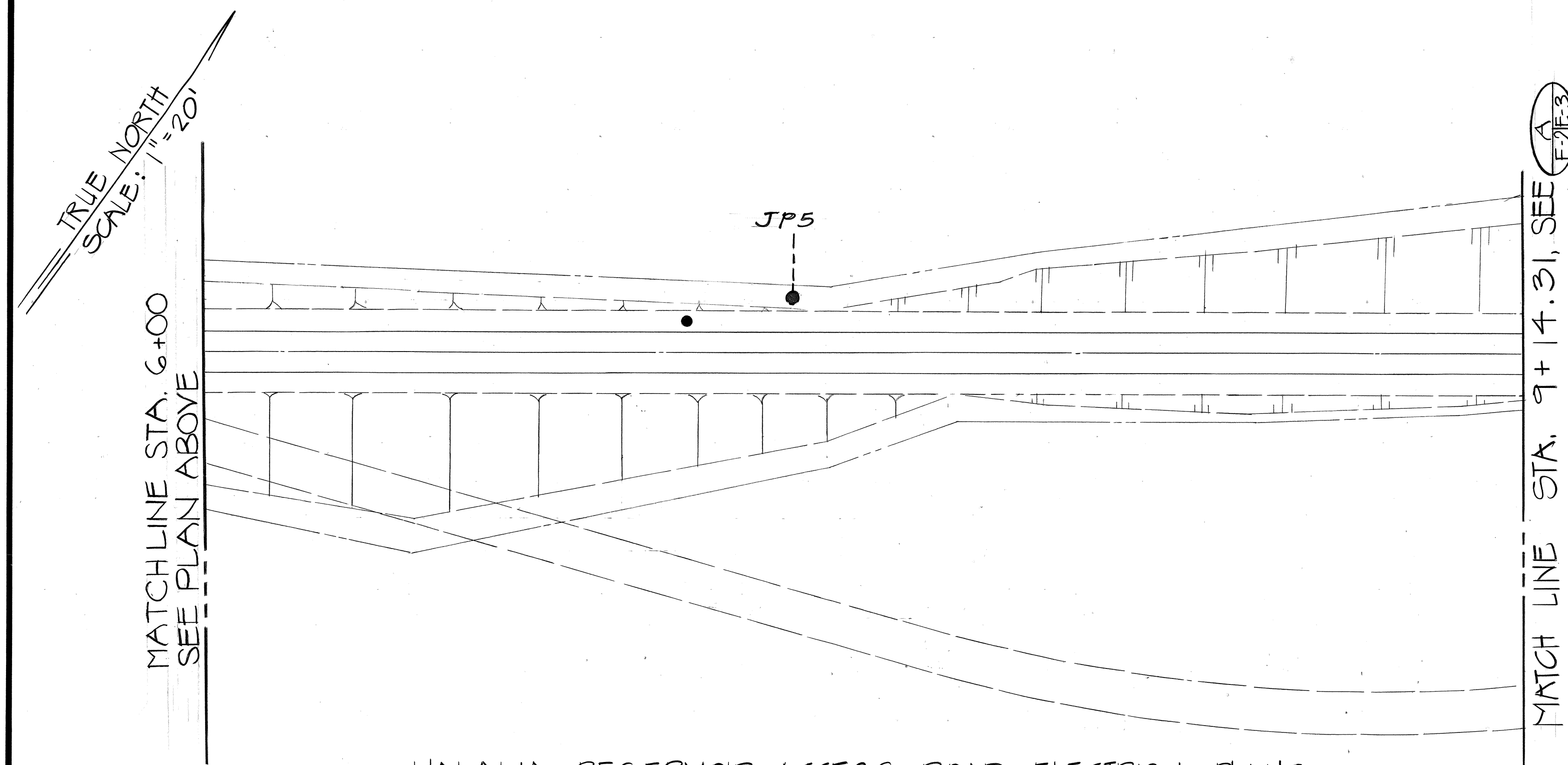
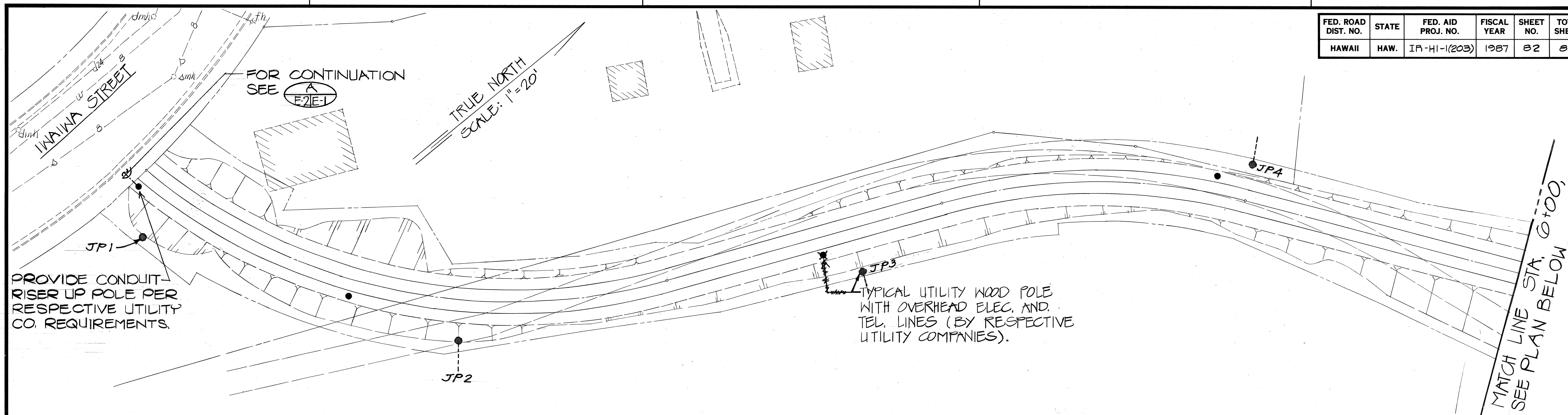
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**PARTIAL IWAIIWA ST.
ELECTRICAL PLAN**

H-I NON-POTABLE WATER SYSTEM
KALAUAO SPRINGS TO HALAWA RESERVOIR
F.A.I. PROJ. NO. IR-HI-1(203)

SCALE: AS NOTED DATE: 1/20/87
SHEET No. E-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(203)	1987	82	87

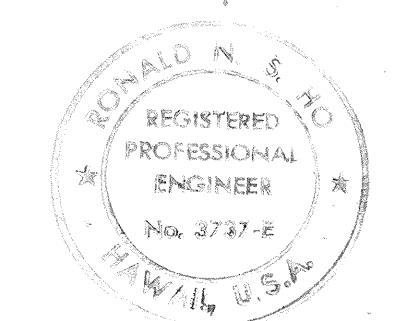


HALAWA RESERVOIR ACCESS ROAD ELECTRICAL PLANS **E2IE-2**
SCALE: 1"=20'

APPROVED:
[Signature]
CHIEF, PLANNING & ENGR. DIV., DWS DATE 9/3/86

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

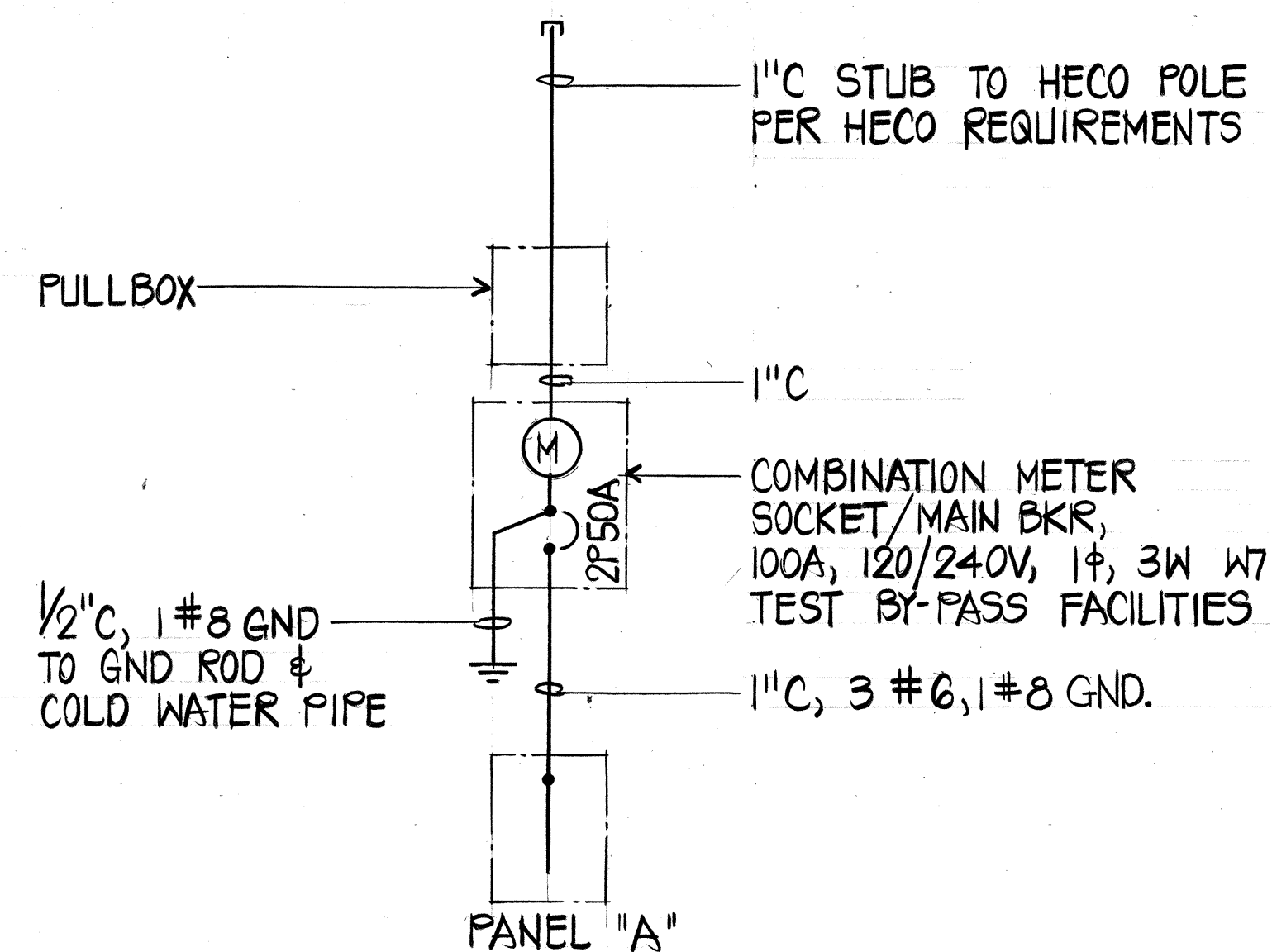
HALAWA RESERVOIR ACCESS
ROAD ELECTRICAL PLANS
H-1 NON-POTABLE WATER SYSTEM
KALAUAO SPRINGS TO HALAWA RESERVOIR
F.A.I. PROJ. NO. IR-HI-1(203)
SCALE: AS NOTED DATE: 1/20/87
SHEET No. E-2 OF 7 SHEETS



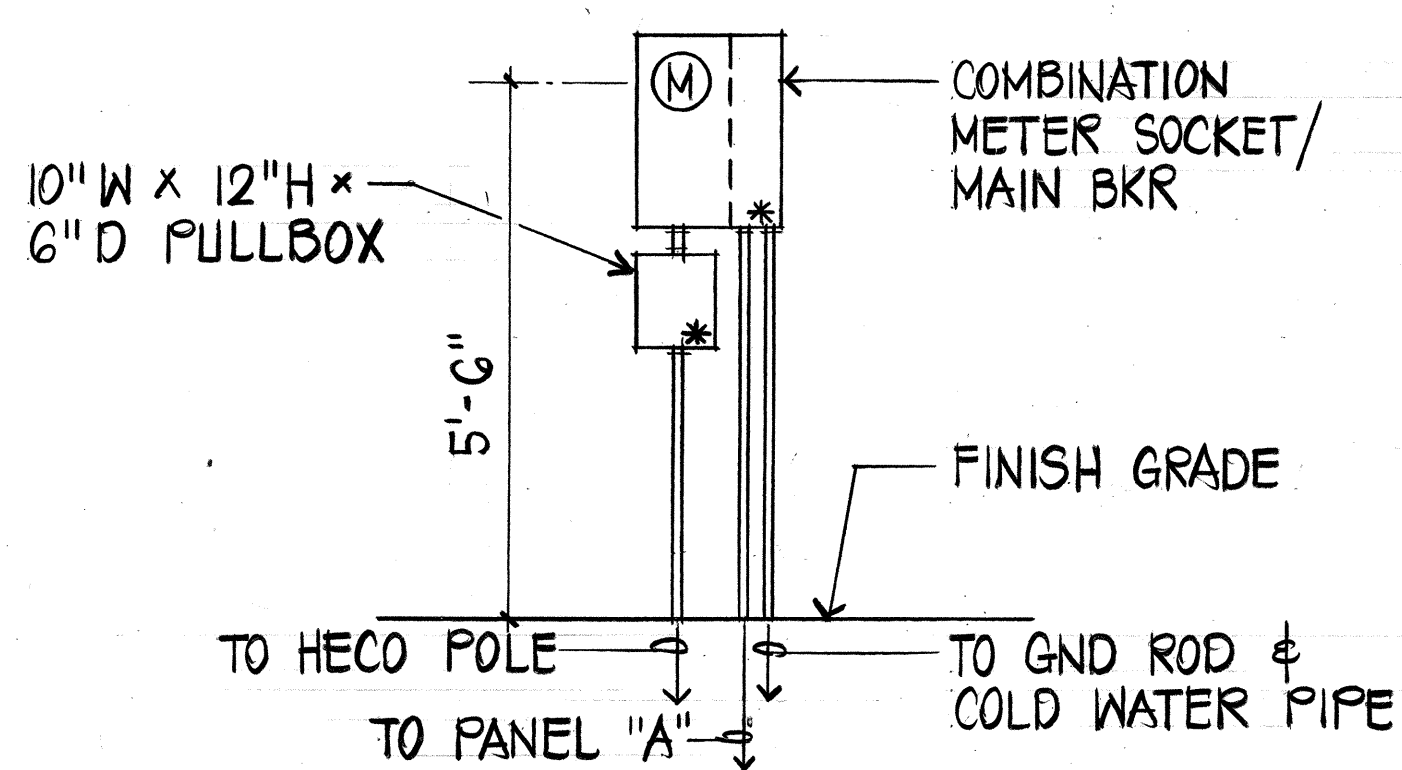
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
[Signature]
7/14/86

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(203)	1987	84	87



ONE-LINE DIAGRAM



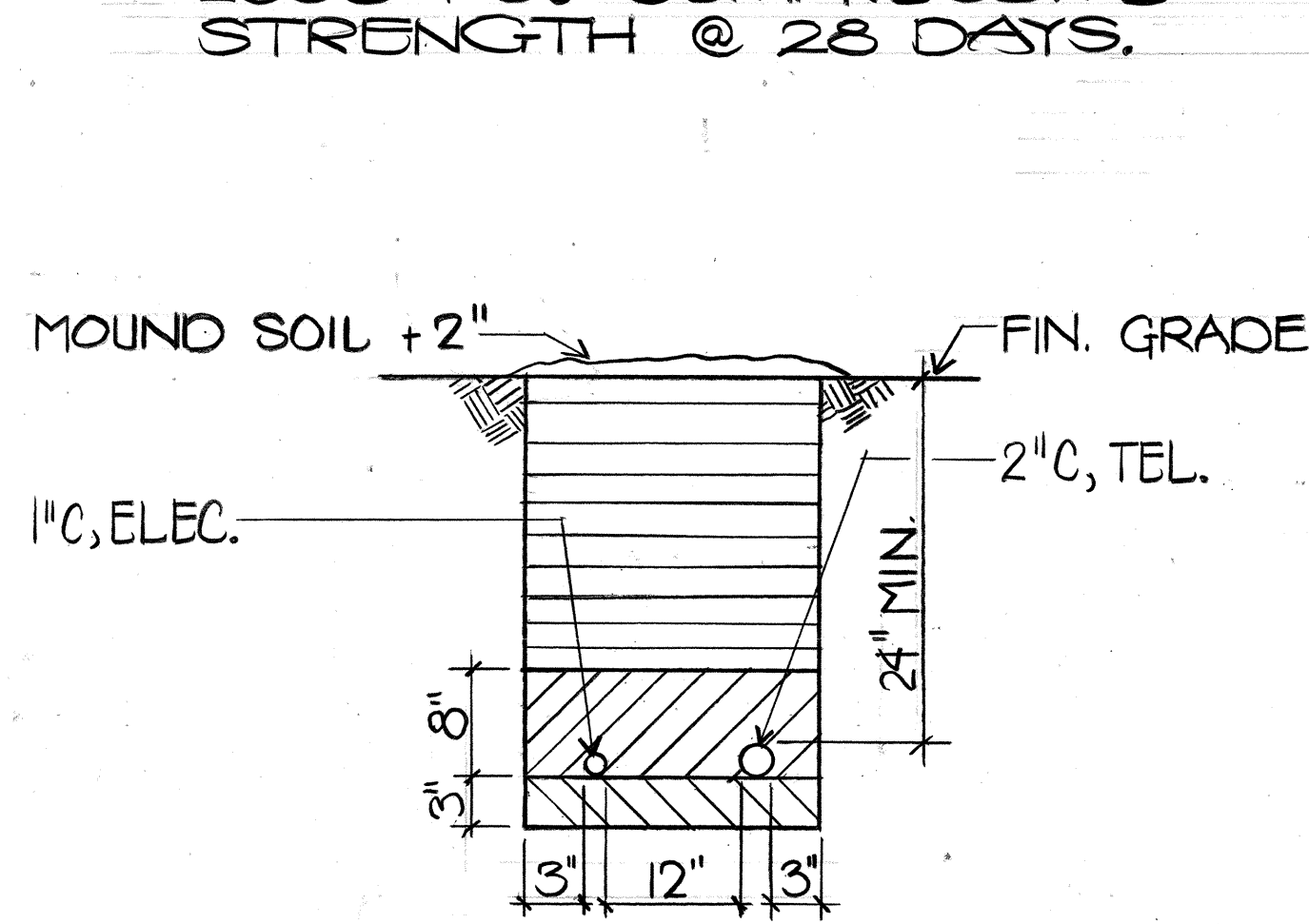
SERVICE EQUIPMENT ELEVATION
NOT TO SCALE

- NOTES: 1. * DENOTES PROVISIONS FOR HECO SEALS
2. ALL ENCLOSURES SHALL BE RATED NEMA 3R.

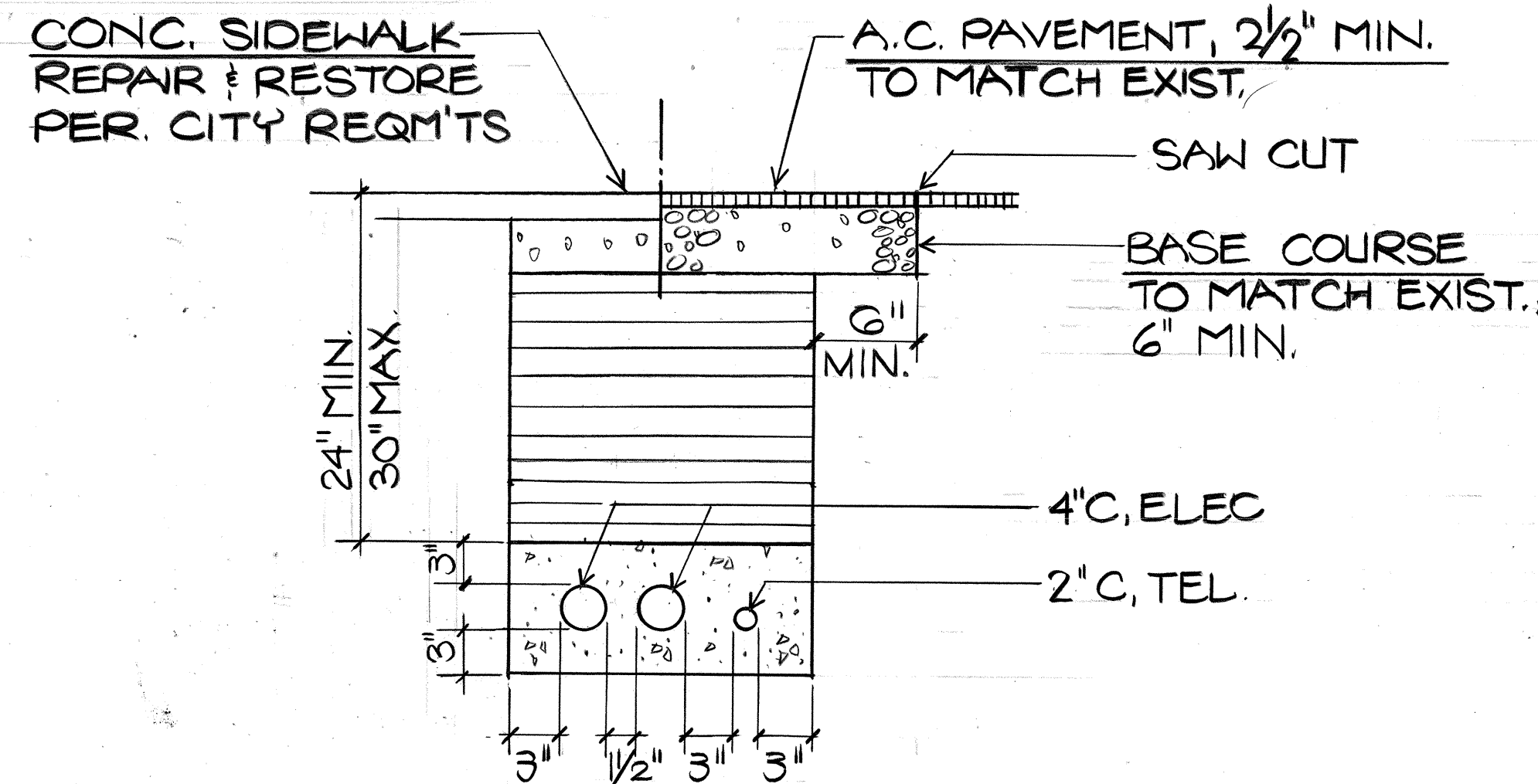
PANEL "A"						
120/240V, 1Ø, 3WSN 100A MAIN LUGS 10,000 A.I.C. BKRS						
INDUSTRIAL-BOLTED SURFACE MTD						
CKT. NO.	BKRS.	DESCRIPTION	KVA ON BUSSES		WIRE SIZE	
			L1	L2		
1	1	20 LIGHT & RECP.	1.0			12
2		LEVEL TRANSMITTER	1.0			
3		RECP. - TELEM. CAB.		1.0		
4		LOW VOLTAGE POWER SUPPLY		1.0		
5	1	20 TONE CAB	1.0			12
6,8	2	30 IRRIG. BOOSTER PUMP	2.1	2.1		10
7	1	20 RECP.		1.0		12
9	1	20 IRRIG. CONTROLLER	1.0			12
10		SPARE	1.0			
11		SPARE		1.0		
12	1	20 SPARE		1.0		
TOTAL			7.1	7.1		
ALLOWED KVA			14.2			
DEMAND FACTOR			0.5			
DEMAND KVA			7.1			

BACKFILL NOTES

- TYPE "A" BACKFILL - EARTH & GRAVEL. ROCK SIZE TO BE 1" MAX. & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
- TYPE "B" BACKFILL - EARTH & GRAVEL. MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
- NOTE - IF NORMAL MATERIAL AT BOTTOM OF TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED & TYPE "B" BACKFILL PROVIDED.
- CONCRETE - 3" ENCASEMENT, 2500 PSI COMPRESSIVE STRENGTH @ 28 DAYS.



DUCT SECTION
N.T.S.



DUCT SECTION
N.T.S.



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Ronald M. S. Ho
7/14/86

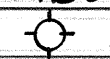
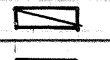
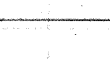
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

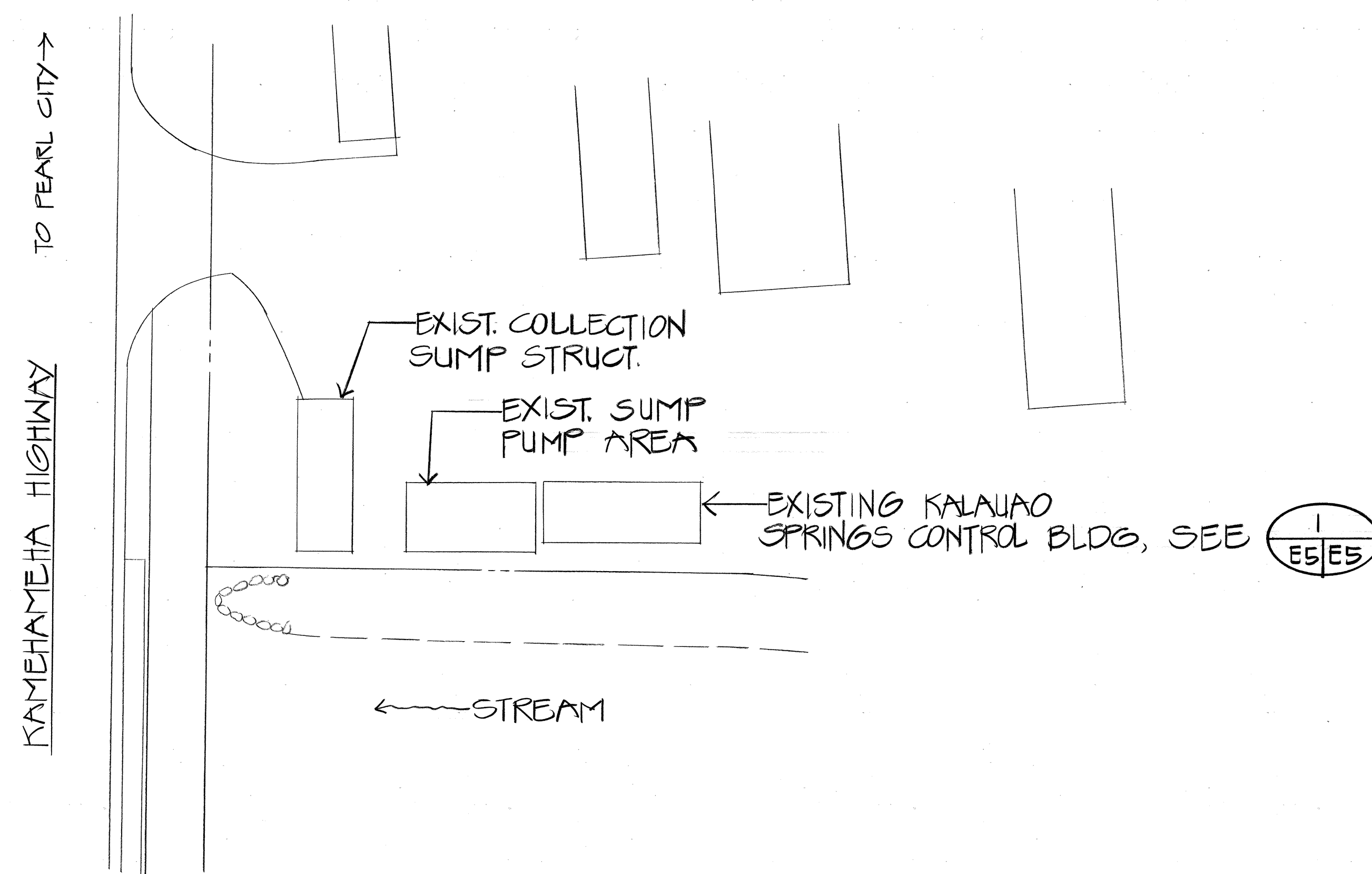
HALAWA RESERVOIR ELEC. DETAILS
ONE-LINE DIAGRAM & EQUIPMENT
ELEVATION
H-1 NON-POTABLE WATER SYSTEM
KALAUAO SPRINGS TO HALAWA RESERVOIR
F.A.I. PROJ. NO. IR-HI-1(203)
SCALE: AS NOTED DATE: 1/20/87
SHEET No. E-4 OF 7 SHEETS

APPROVED: *[Signature]* 9/3/86
CHIEF, PLANNING & ENGR. DIV., BWS DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(203)	1987	85	87

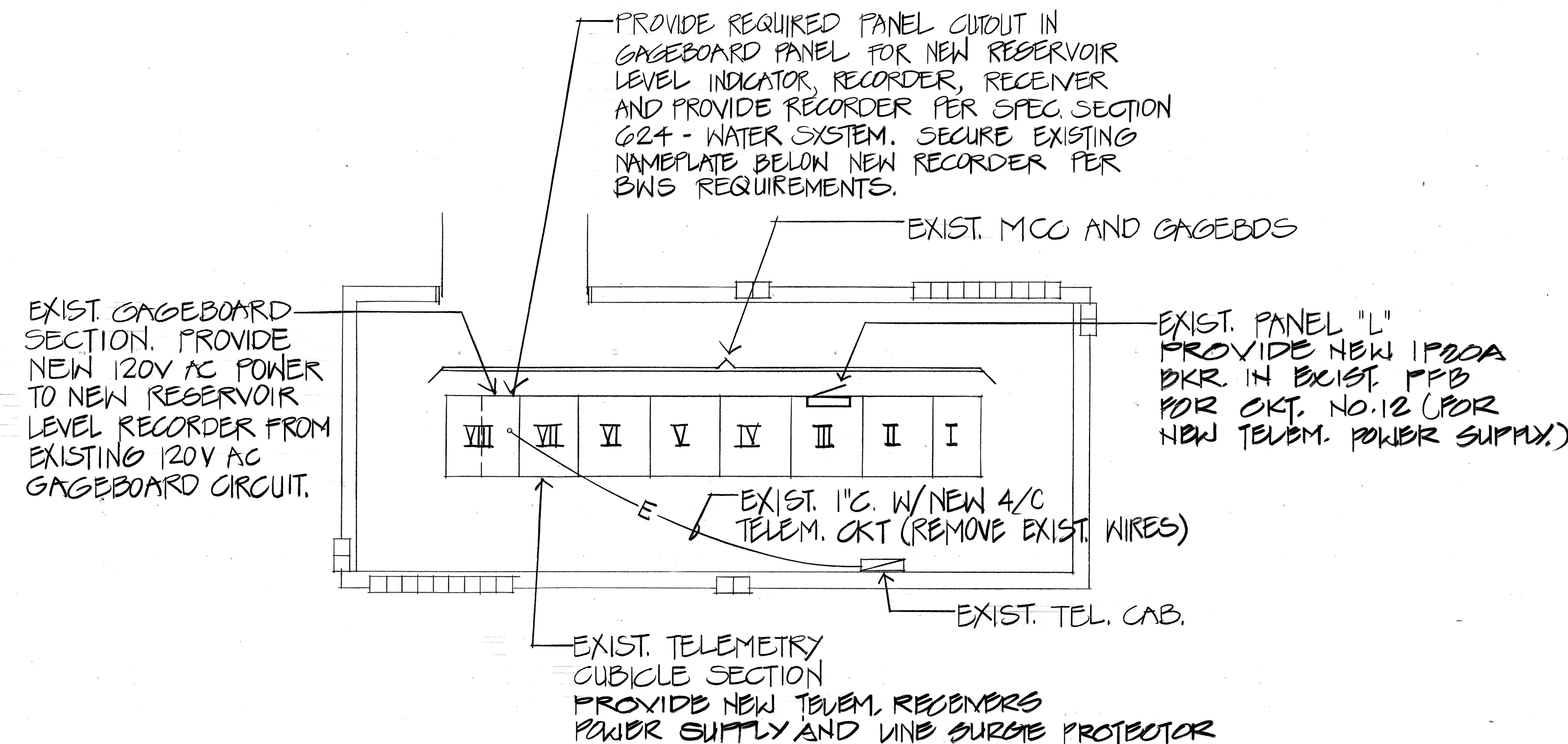
ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	CEILING LIGHT
	LIGHT SWITCH, 1P20A, +4'-0" MTG. HT.
	DUPLEX RECEPTACLE, NEMA TYPE 5-20R, +12" MTG. HT. UNLESS OTHERWISE NOTED
	JUNCTION BOX, CAST METAL, SURFACE MTD.
	DOOR ALARM SWITCH
	PANEL BOARD
	TELEPHONE CABINET
	DISCONNECT SWITCH, HORSE POWER RATED
	EQUIPMENT CONNECTION
	WOOD UTILITY POLE
	CONDUIT CONCEALED IN WALL OR ABOVE CLG., 2 WIRES UNLESS NOTED BY NUMBER OF HASH MARKS
	CONDUIT CONCEALED BELOW FLOOR OR GRADE
	CONDUIT EXPOSED ALONG WALL OR CEILING
	ELECTRIC AND TELEPHONE UNDERGROUND DUCTS
	WEATHERPROOF FLEXIBLE CONDUIT LIQUIDTITE TYPE IN WET OR DAMP LOCATIONS



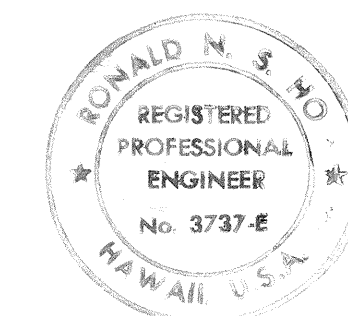
EXISTING KALAUAO SPRINGS ELECTRICAL SITE PLAN

SCALE: 1"=20'



EXISTING KALAUAO SPRINGS CONTROL BUILDING ELECTRICAL PLAN

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald M. S.
 7/14/86

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EXISTING KALAUAO SPRINGS SITE
ELECTRICAL PLANS
H-1 NON-POTABLE WATER SYSTEM
KALAUAO SPRINGS TO HALAWA RESERVOIR
F.A.I. PROJ. NO. IR-HI-1(203)
SCALE: AS NOTED DATE: 1/20/87
SHEET No.E-5 OF 7 SHEETS

APPROVED:
[Signature]
 CHIEF, PLANNING & ENGR. DIV., BWS 9/3/86 DATE

