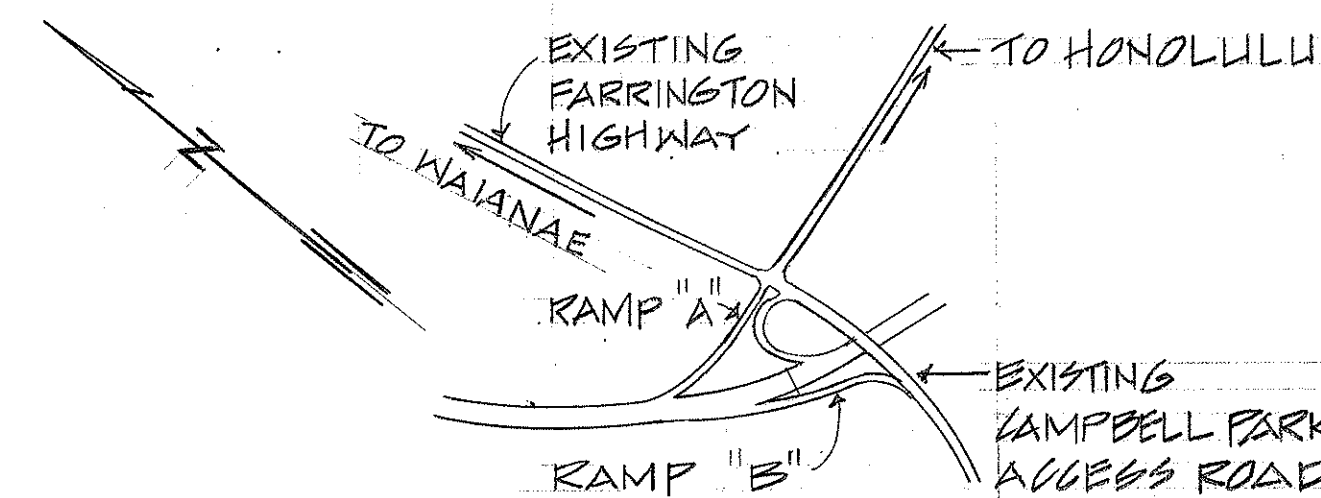
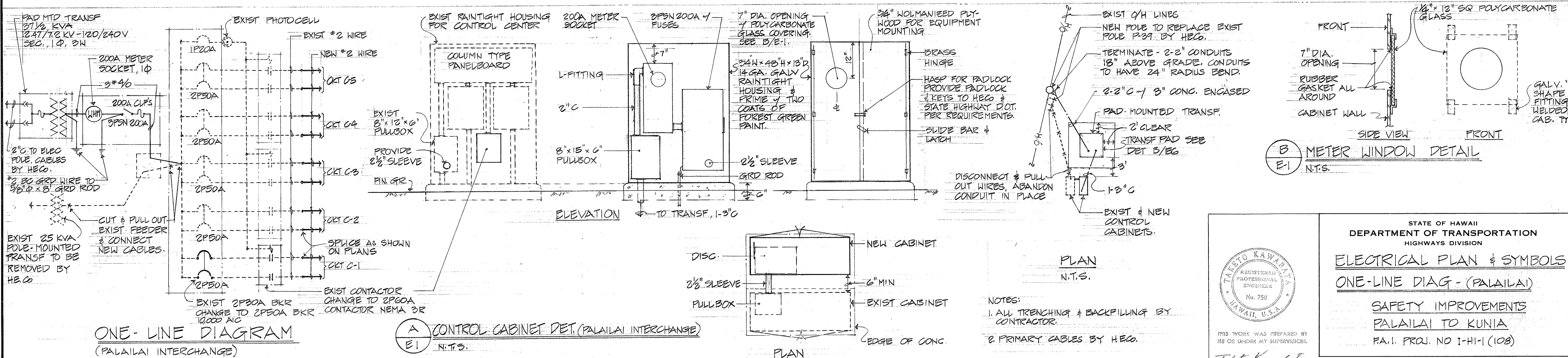
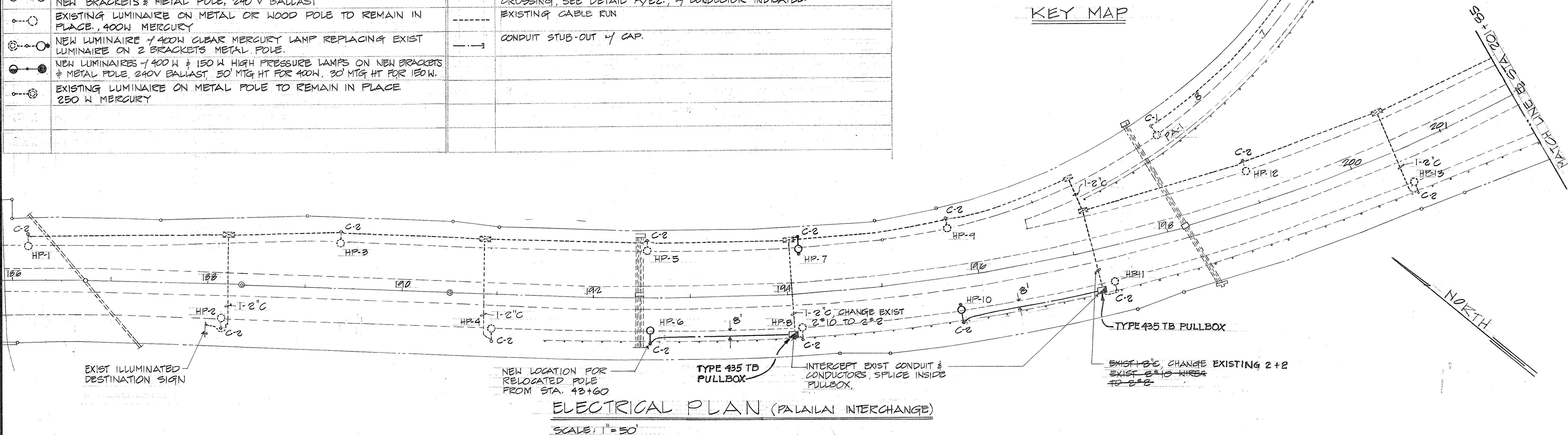


ELECTRICAL SYMBOLS

	NEW LUMINAIRE w/ 400 W HIGH PRESSURE SODIUM LAMP & BRACKET ON NEW METAL POLE, 50' MOUNTING HEIGHT, 240 V BALLAST		ELEC. PULLBOX, TYPE "C", SEE DETAIL SHEET E-10
	NEW LUMINAIRE w/ 150 W HIGH PRESSURE SODIUM LAMP & BRACKET ON NEW METAL POLE, 30' MOUNTING HEIGHT, 240 V BALLAST		EXISTING ELEC. PULLBOX
	NEW LUMINAIRE w/ 400 W CLEAR MERCURY LAMP & BRACKET ON NEW METAL POLE, 30' MOUNTING HEIGHT, 240 V BALLAST		ELEC. PULLBOX, TYPE "B", SEE DETAIL SHEET E-10
	NEW LUMINAIRE w/ 250 W CLEAR MERCURY LAMP & BRACKET ON NEW METAL POLE, 30' MOUNTING HEIGHT, 240 V BALLAST		
	NEW LUMINAIRE w/ 400 W CLEAR MERCURY LAMP REPLACING EXIST LUMINAIRE ON EXIST BRACKET & METAL POLE, 240 V BALLAST		PVC CONDUIT, SCHEDULE 40, DIRECT BURIED, SEE DETAIL A/E2, w/ CONDUCTOR INDICATED
	NEW LUMINAIRES w/ 250 W & 400 W CLEAR MERCURY LAMPS ON NEW BRACKETS & METAL POLE, 240 V BALLAST		CONCRETE ENCASED PVC CONDUIT, SCHEDULE 40, FOR ROAD CROSSING, SEE DETAIL A/E2, w/ CONDUCTOR INDICATED
	EXISTING LUMINAIRE ON METAL OR WOOD POLE TO REMAIN IN PLACE, 400 W MERCURY		EXISTING CABLE RUN
	NEW LUMINAIRE w/ 400 W CLEAR MERCURY LAMP REPLACING EXIST LUMINAIRE ON 2 BRACKETS METAL POLE		CONDUIT STUB-OUT w/ CAP
	NEW LUMINAIRES w/ 400 W & 150 W HIGH PRESSURE LAMPS ON NEW BRACKETS & METAL POLE, 240 V BALLAST, 50' MTG HT FOR 400 W, 30' MTG HT FOR 150 W		
	EXISTING LUMINAIRE ON METAL POLE TO REMAIN IN PLACE, 250 W MERCURY		



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(108)	1975	84	100



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN & SYMBOLS
ONE-LINE DIAG - (PALALAI)

SAFETY IMPROVEMENTS
PALALAI TO KUNIA
PA.1. PROJ. NO I-HI-1 (108)

SHEET NO. E1 OF 12 SHEETS

REGISTERED PROFESSIONAL ENGINEER
No. 750
HAWAII, U.S.A.

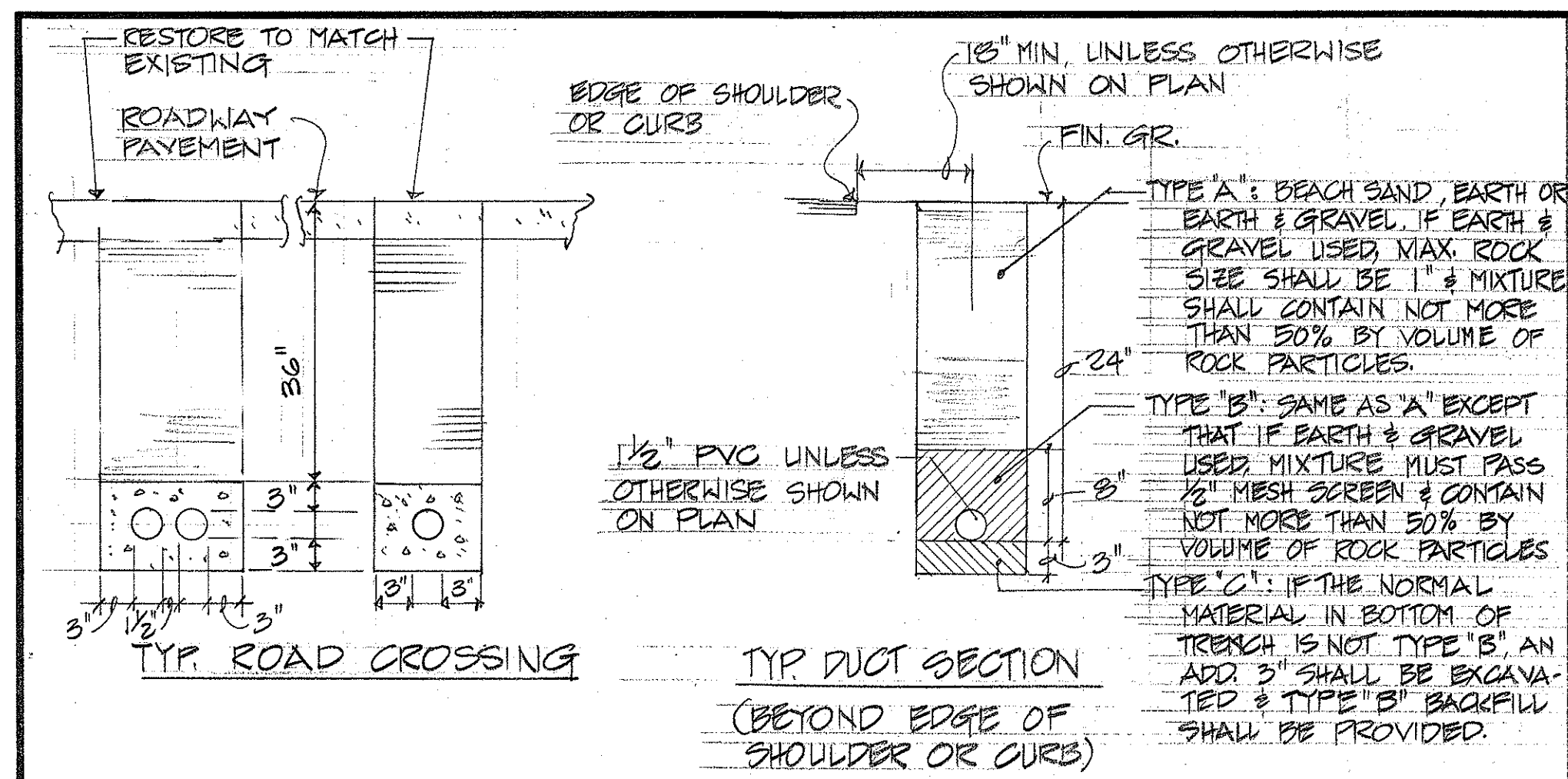
TAKESHI KAWABATA

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

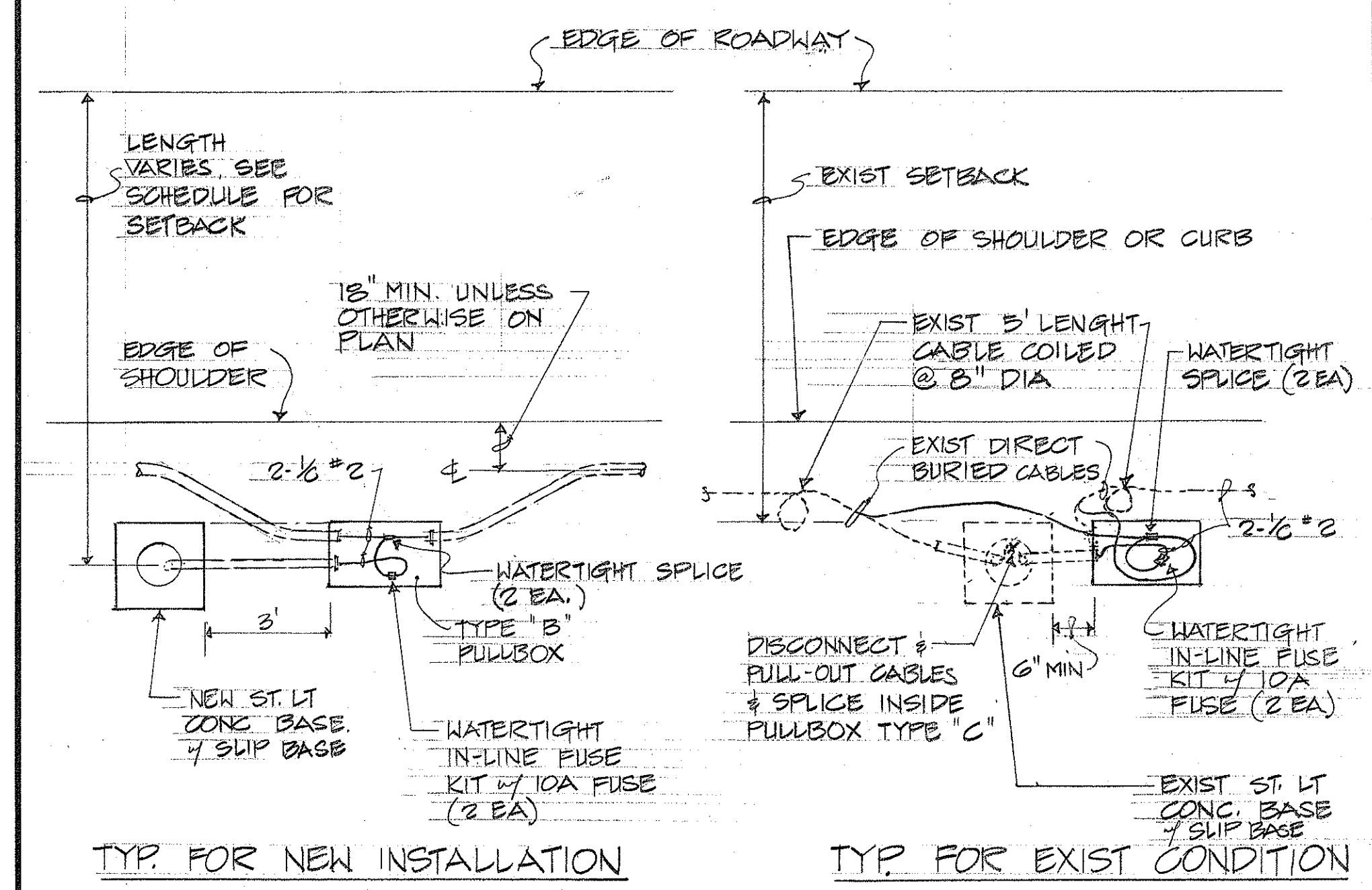
Takeshi Kawabata

SURVEY PLOTTED BY: _____
 ORIGINAL PLAN: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(108)	1975	85	100



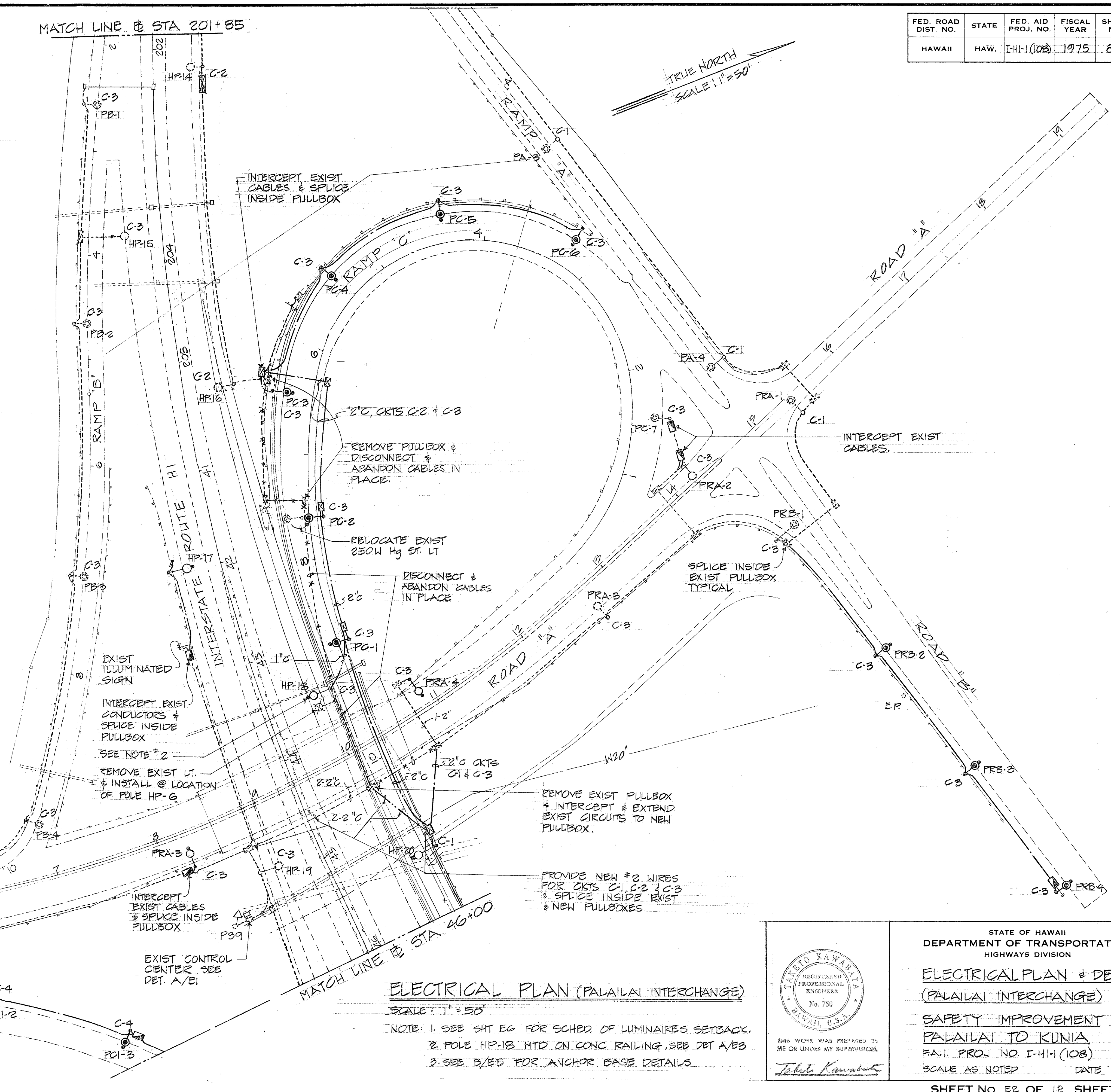
A TYPICAL DUCT SECTION
E-2 NOT TO SCALE



B STREET LIGHT CONC. BASE & PULLBOX PLAN
E-2 NOT TO SCALE

NOTE: SEE A/B5 FOR WIRING DIAGRAM.

MATCH LINE @ STA 201+85



ELECTRICAL PLAN (PALAILAI INTERCHANGE)
SCALE: 1"=50'

NOTE: 1. SEE SHT EG FOR SCHED OF LUMINAIRE SETBACK.
2. POLE HP-18 MTD ON CONC. RAILING, SEE DET A/B5
3. SEE B/E5 FOR ANCHOR BASE DETAILS

TAKETO KAWAKITA
REGISTERED PROFESSIONAL ENGINEER
No. 750
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Taketo Kawakita

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN & DETAILS
(PALAILAI INTERCHANGE)

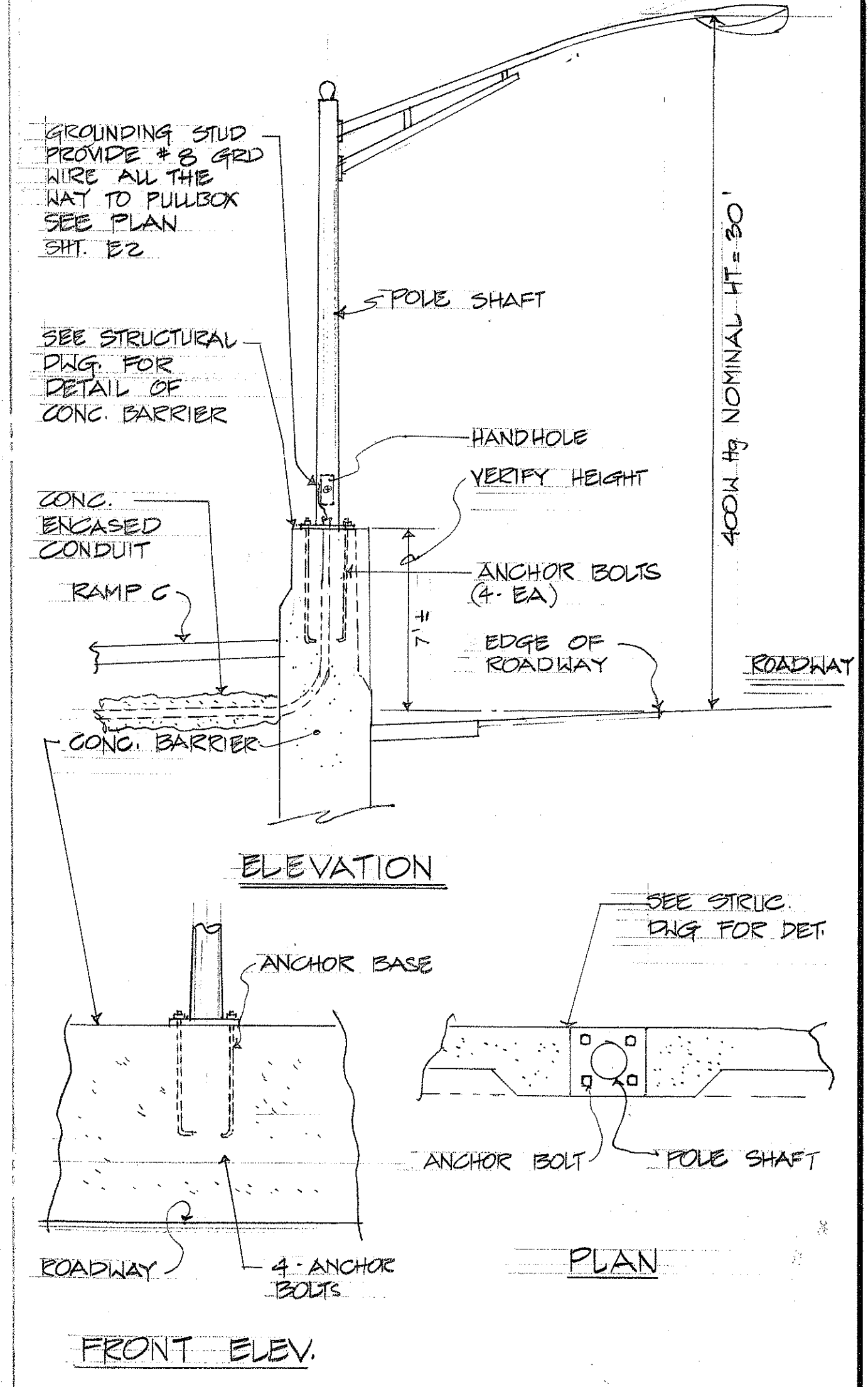
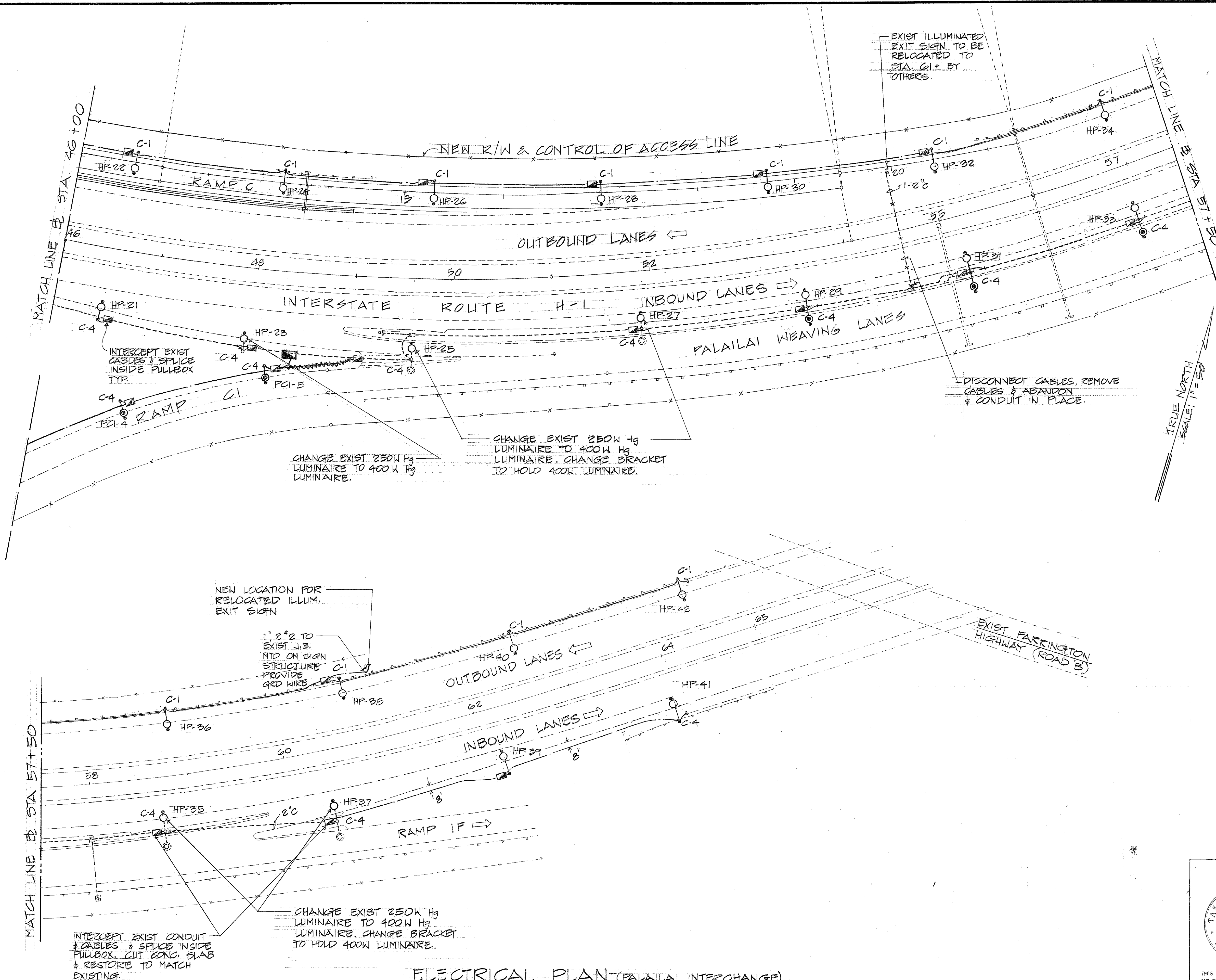
SAFETY IMPROVEMENT
PALAILAI TO KUNIA
P.A.1. PROJ. NO. I-H-1(108)
SCALE AS NOTED DATE

SHEET NO. 82 OF 12 SHEETS

SURVEY PLOTTED BY	DATE
ORIGINAL PLAN	
DESIGNED BY	
NOTED BY	
CHECKED BY	

DD-C-5-9

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(108)	1975	86	100



A POLE HP-18 DETAIL
E3 NOT TO SCALE

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

ELECTRICAL PLAN (PALAILAI INTERCHANGE)
SCALE: 1" = 50'
NOTE: SEE B/E2 FOR PLAN ON NEW ST. LT. CONC. BASE & PULLBOX

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Takuto Kawahara

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
(PALAILAI INTERCHANGE)

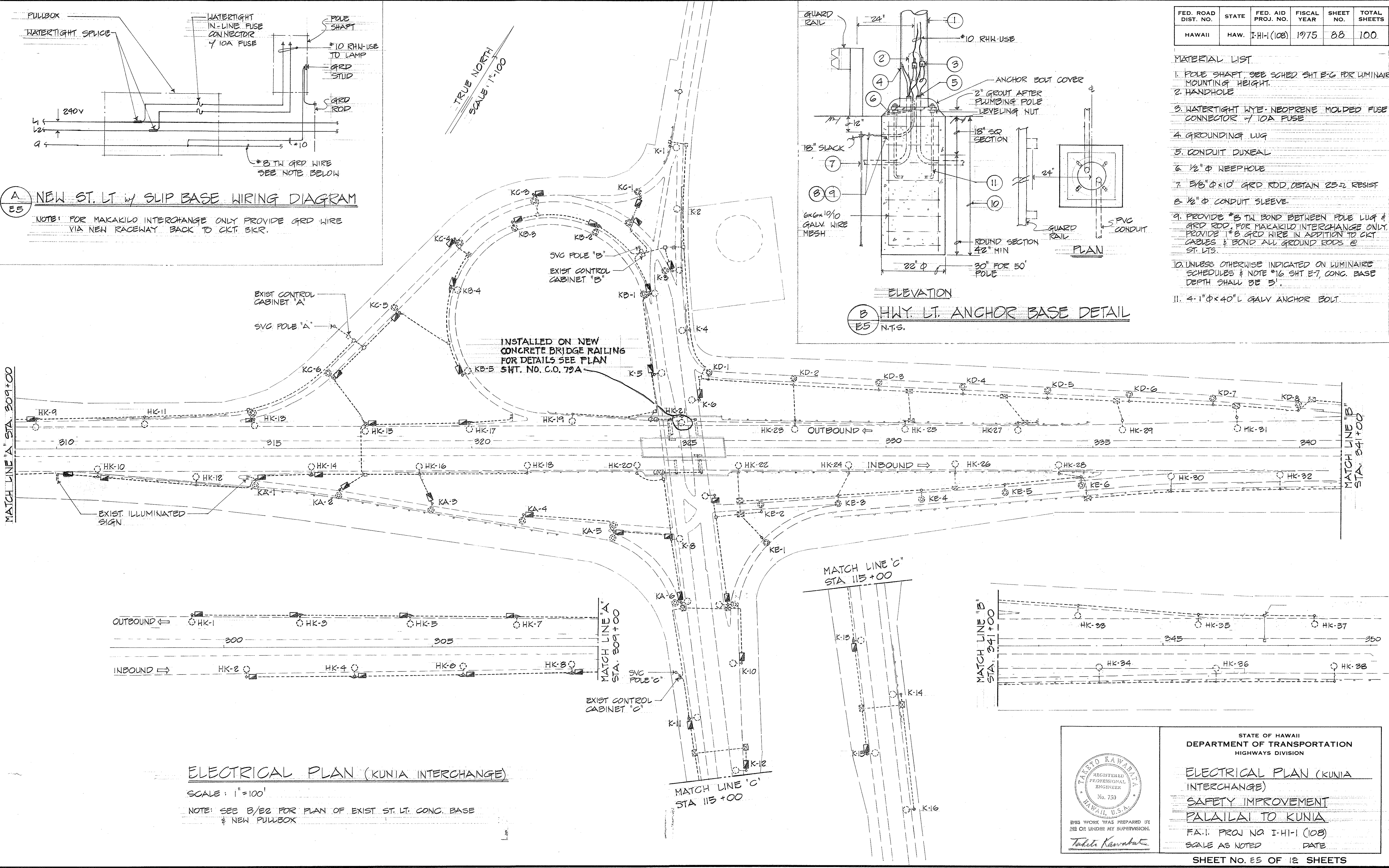
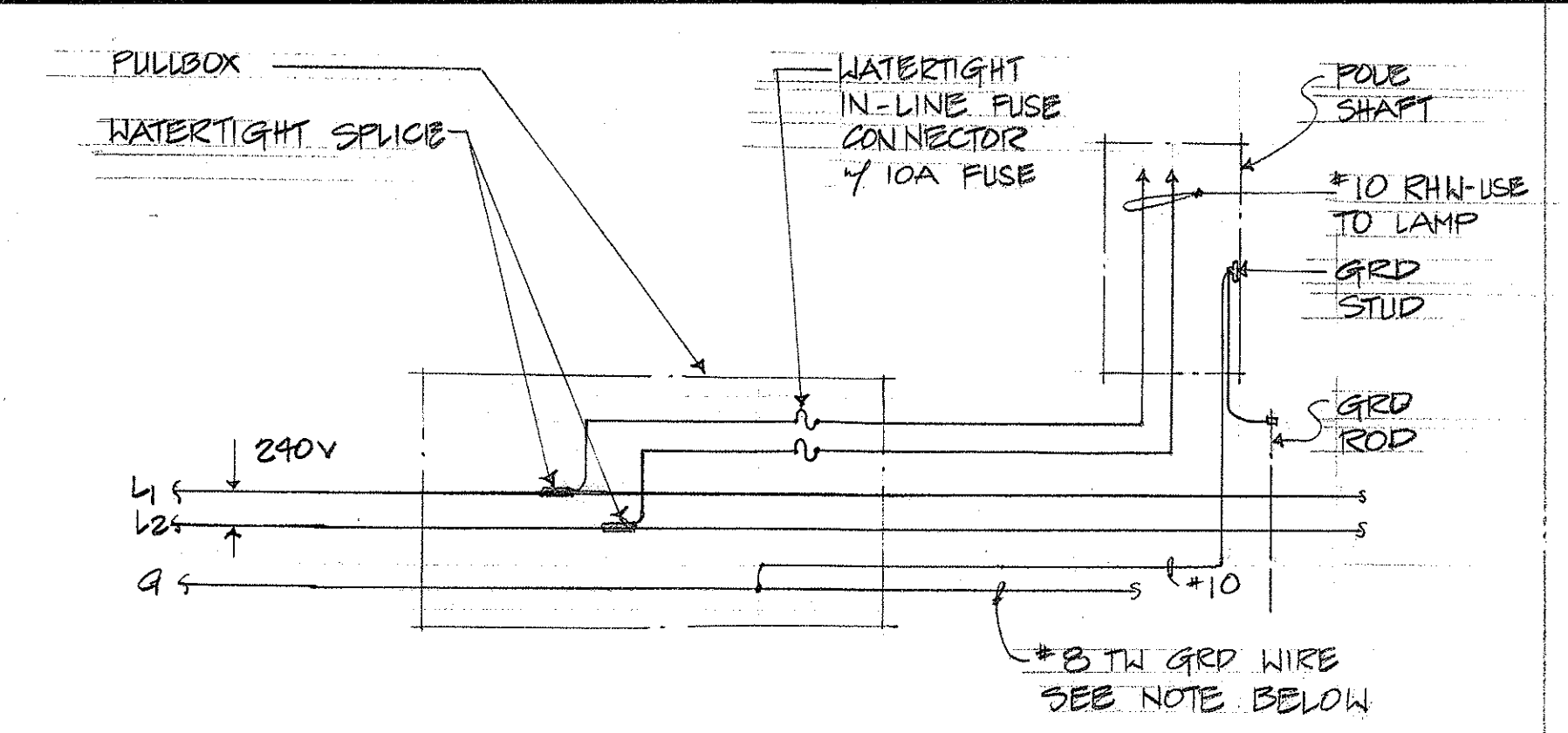
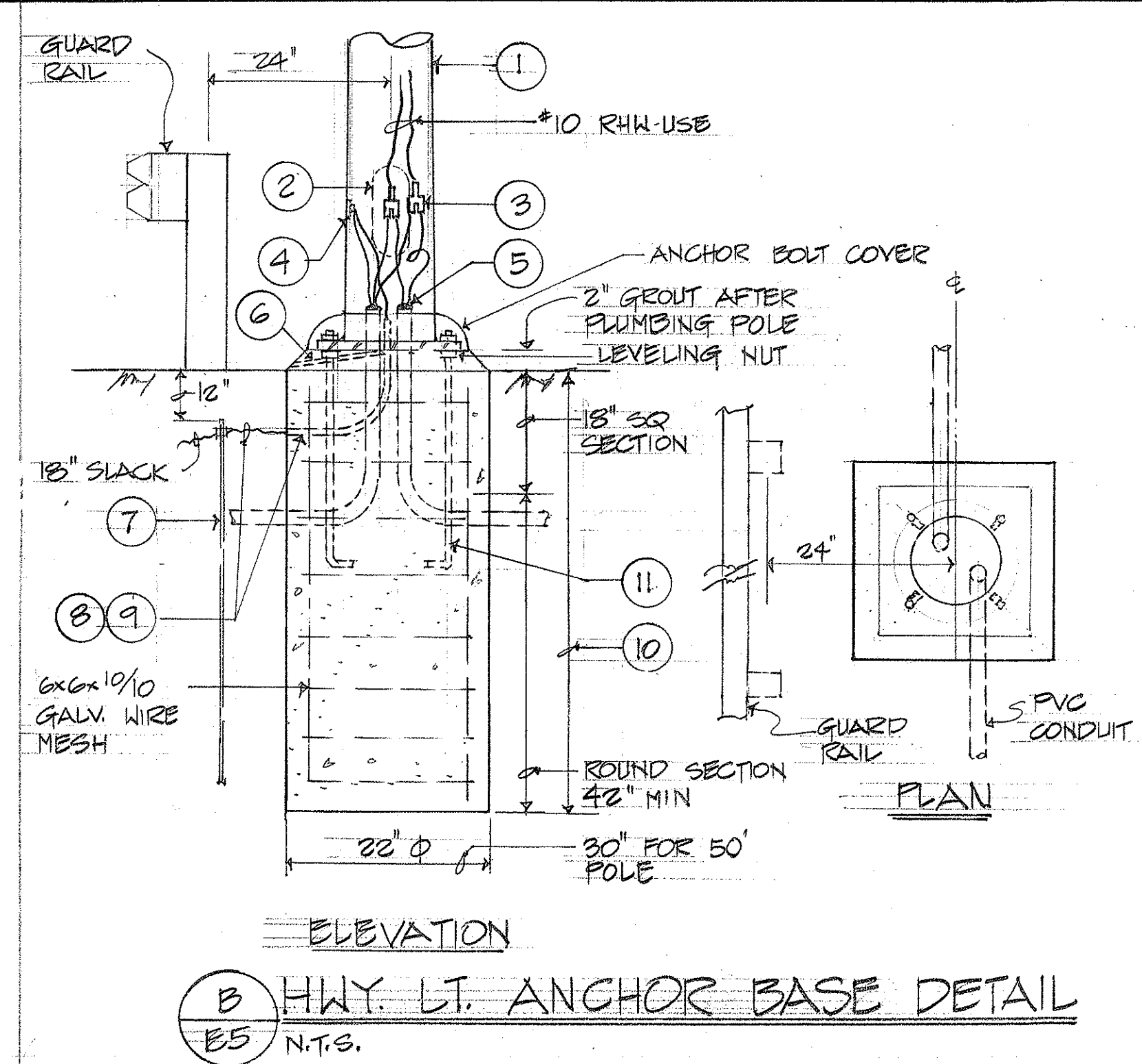
SAFETY IMPROVEMENT
PALAILAI TO KUNIA

F.A.I. PROJ. NO. I-HI-1 (108)
SCALE AS NOTED DATE _____

SHEET No. E3 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1 (108)	1975	88	100

- MATERIAL LIST**
- POLE SHAFT, SEE SCHED. SHT. E-6 FOR LUMINAIRE MOUNTING HEIGHT.
 - HANDHOLE
 - WATERTIGHT WYE-NEOPRENE MOLDED FUSE CONNECTOR 7/10A FUSE
 - GROUNDING LUG
 - CONDUIT DUXEAL
 - 1/2" Ø WEEPHOLE
 - 5/8" Ø x 10' GRD ROD, OBTAIN 25-2 RESIST
 - 1/2" Ø CONDUIT SLEEVE
 - PROVIDE #8 TH BOND BETWEEN POLE LUG & GRD ROD. FOR MAKAKILO INTERCHANGE ONLY, PROVIDE 1#8 GRD WIRE IN ADDITION TO CKT CABLES & BOND ALL GROUND RODS @ ST. LITS.
 - UNLESS OTHERWISE INDICATED ON LUMINAIRE SCHEDULES & NOTE #16 SHT. E7, CONC. BASE DEPTH SHALL BE 5'.
 - 4-1" Ø x 40" L GALV ANCHOR BOLT.



DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

T. Kawabata

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

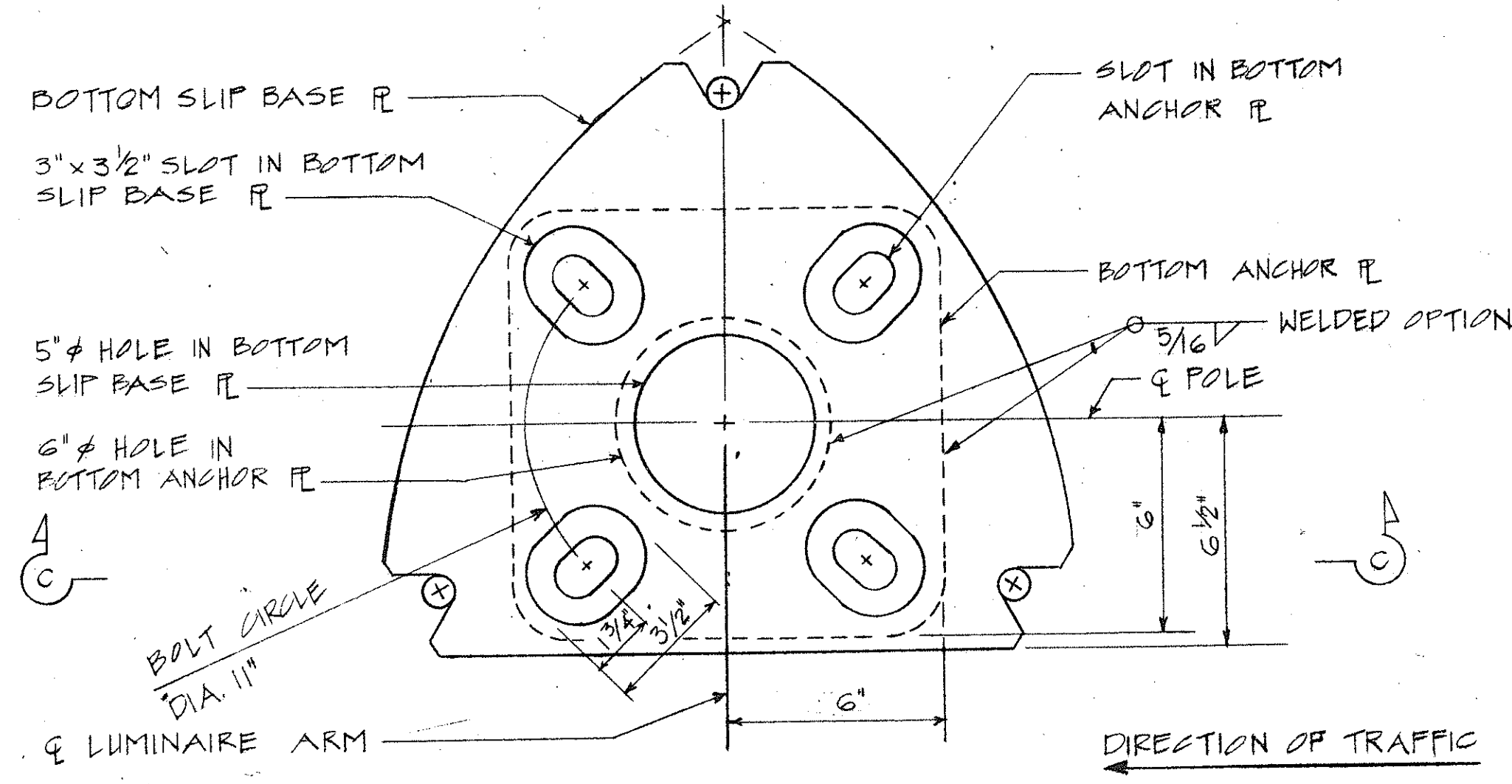
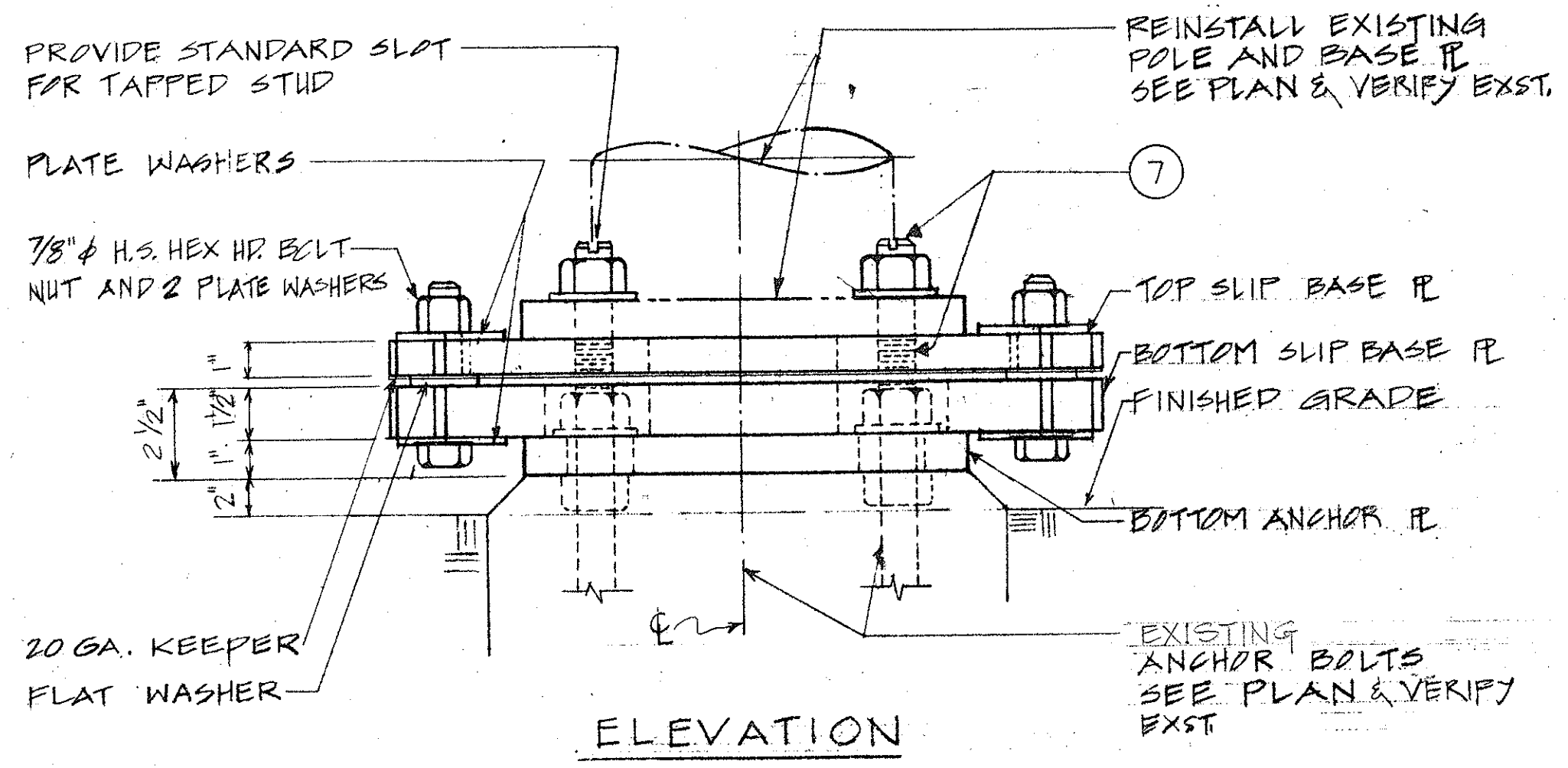
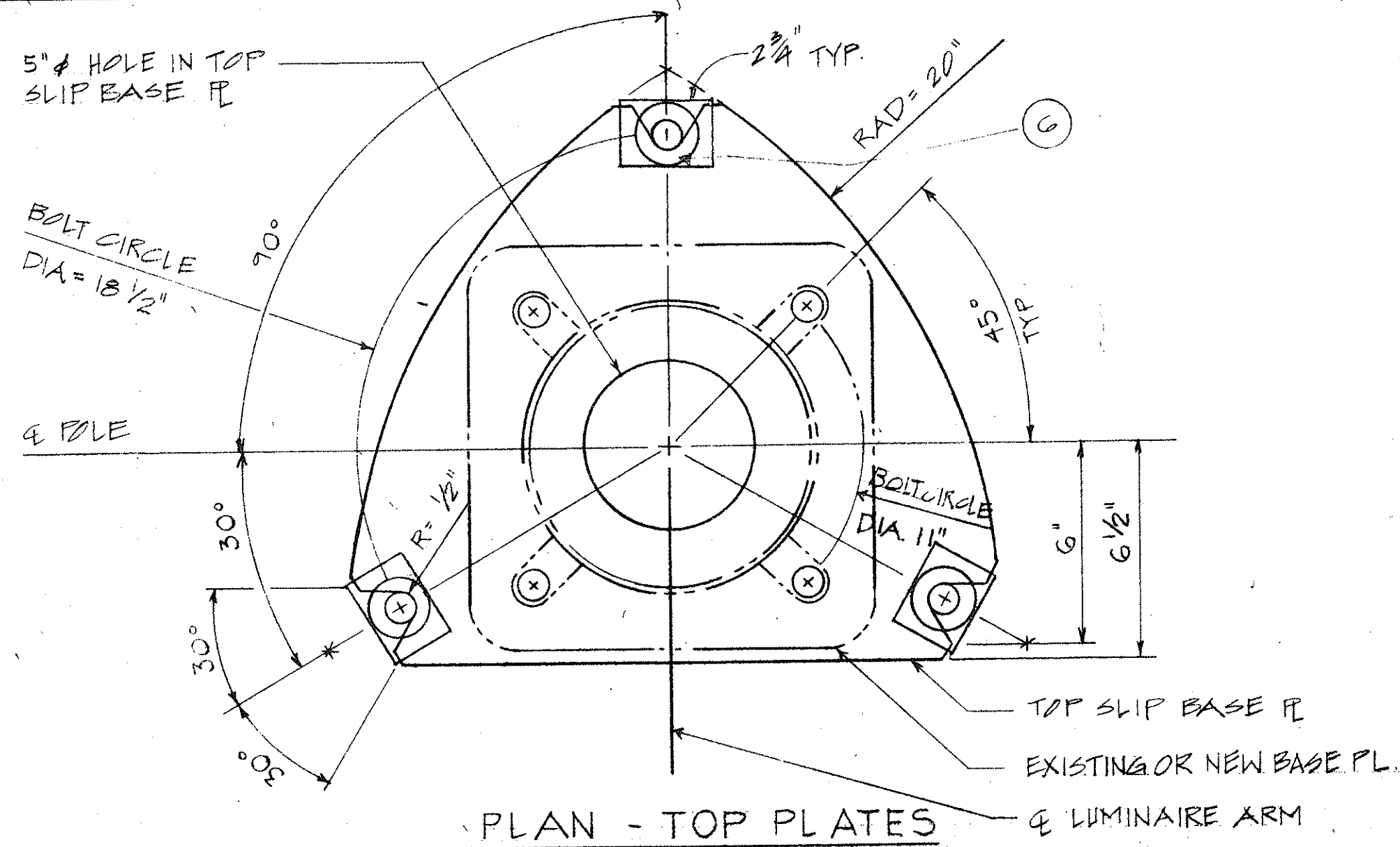
ELECTRICAL PLAN (KUNIA INTERCHANGE)
SAFETY IMPROVEMENT
PALAILAI TO KUNIA

FA.I. PROJ. NO. I-H-1 (108)
SCALE AS NOTED DATE

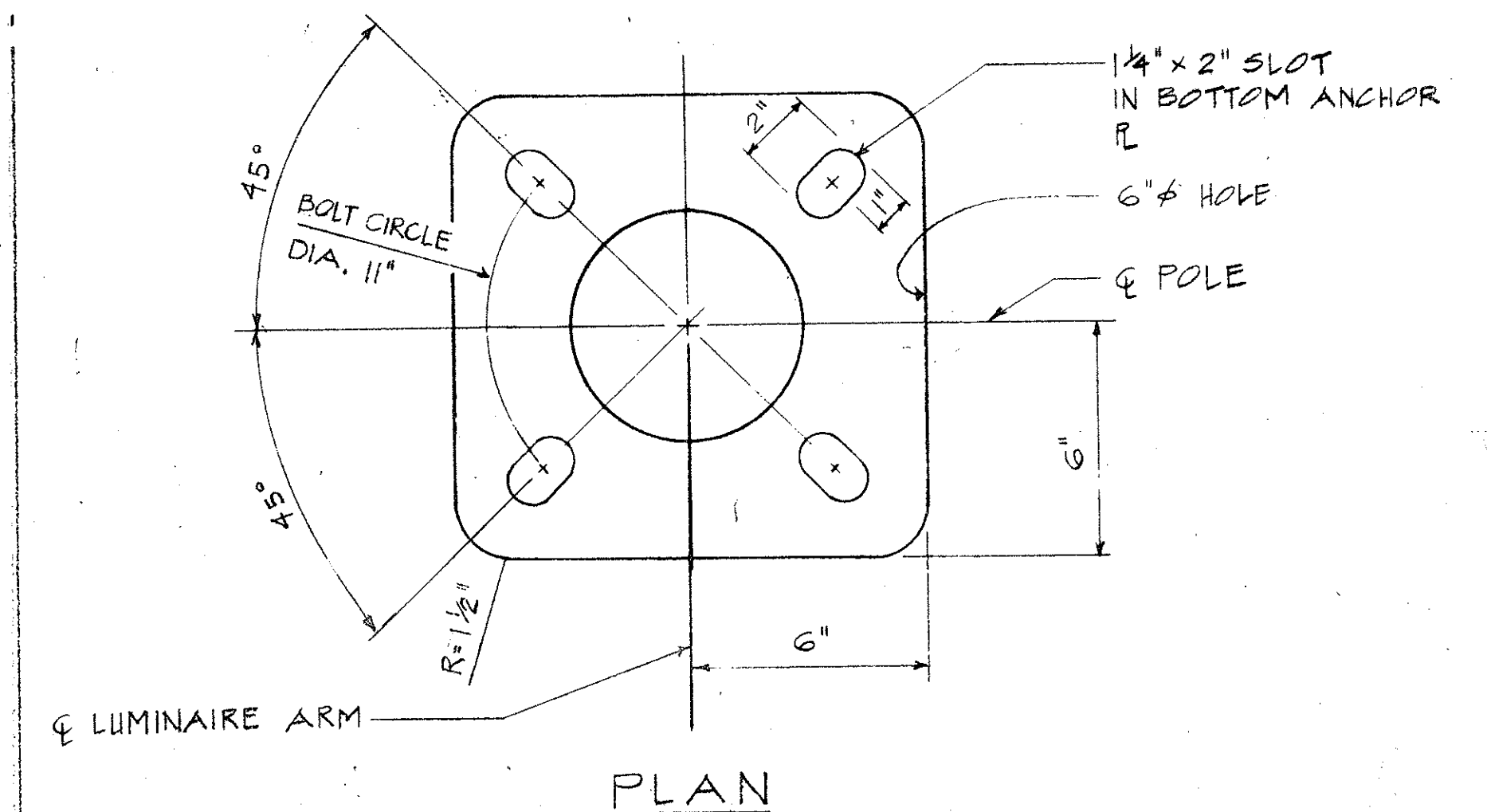
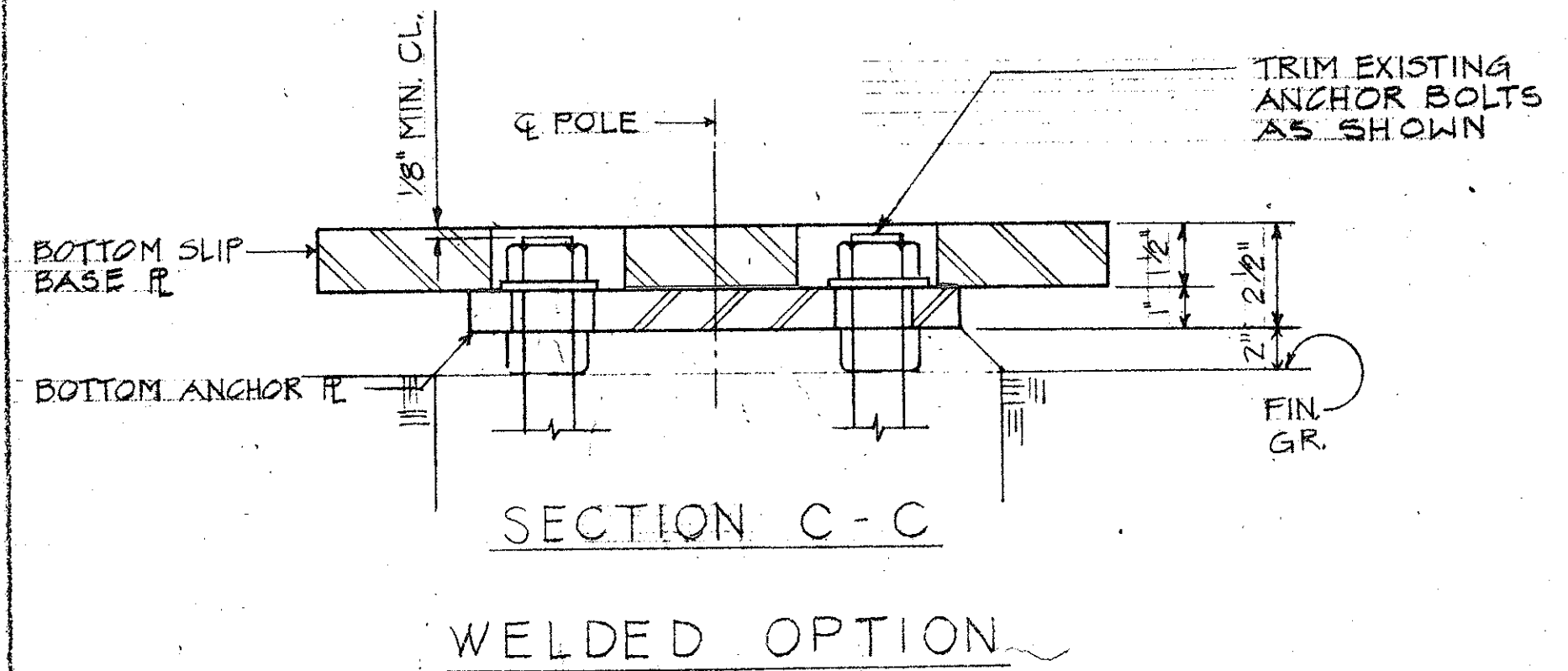
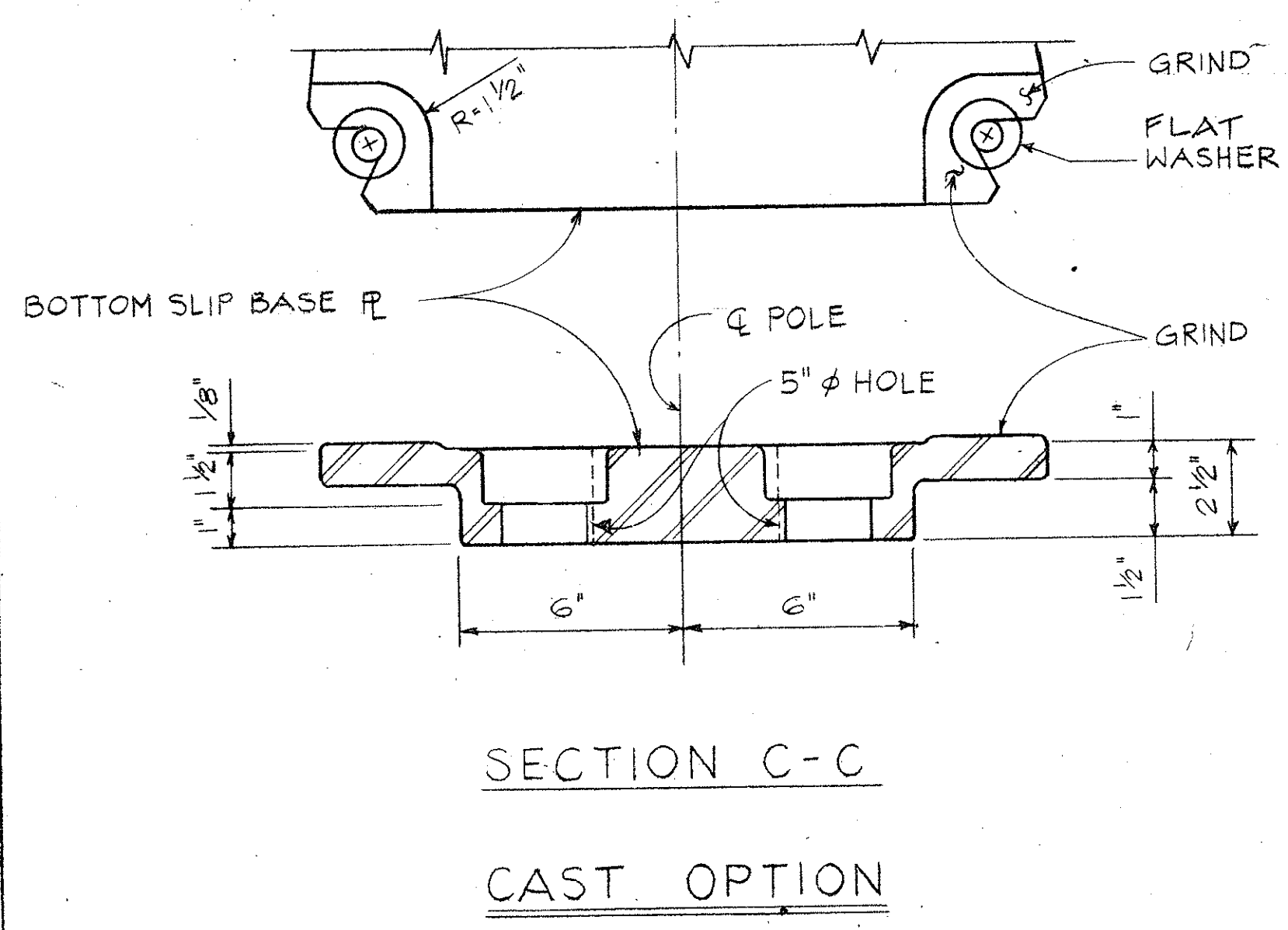
SHEET NO. E5 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHH-108	1975	91	100

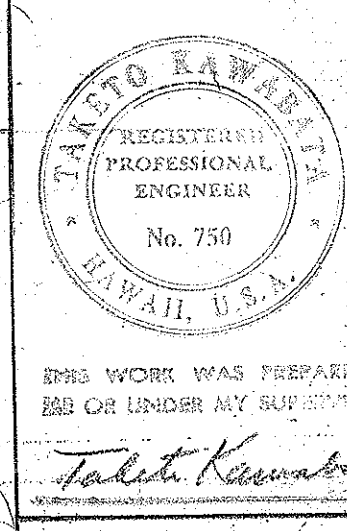
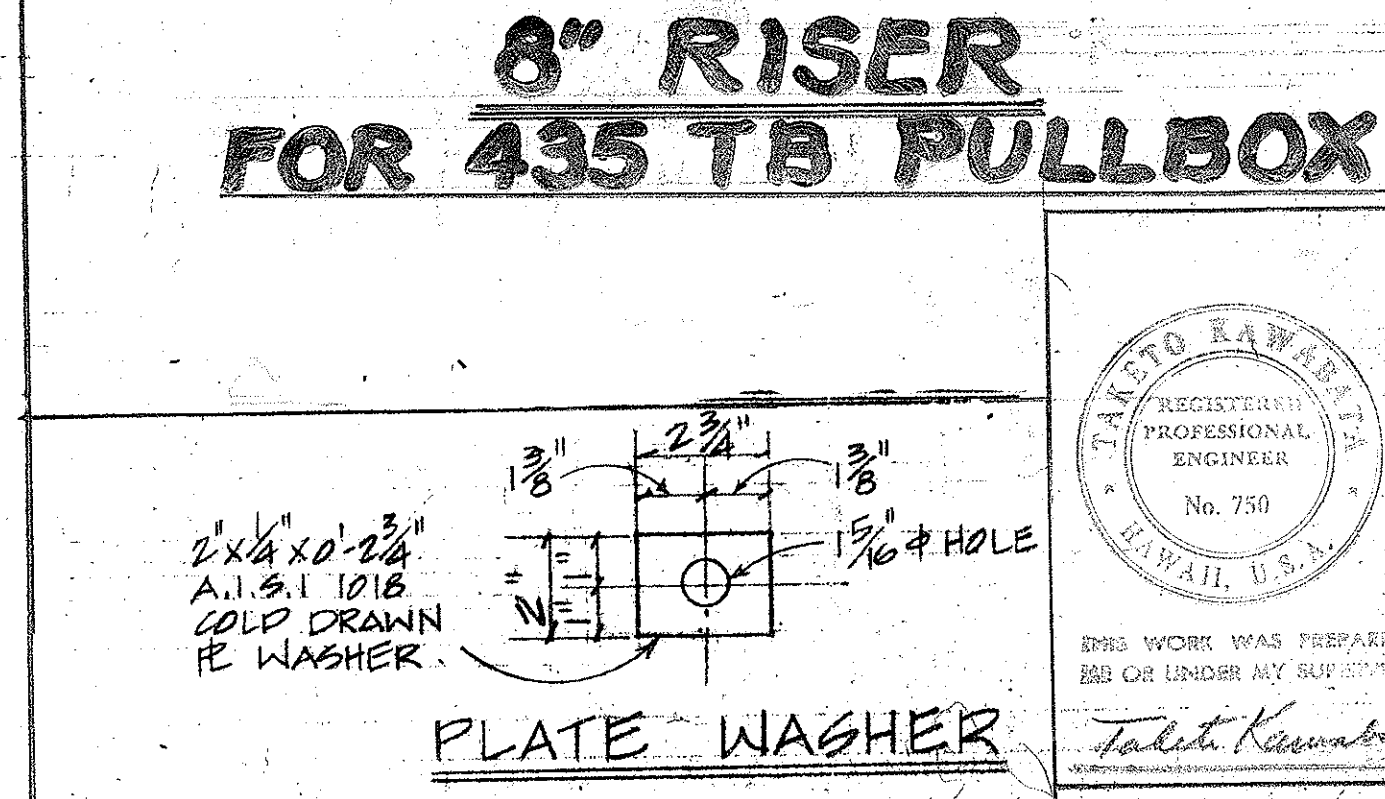
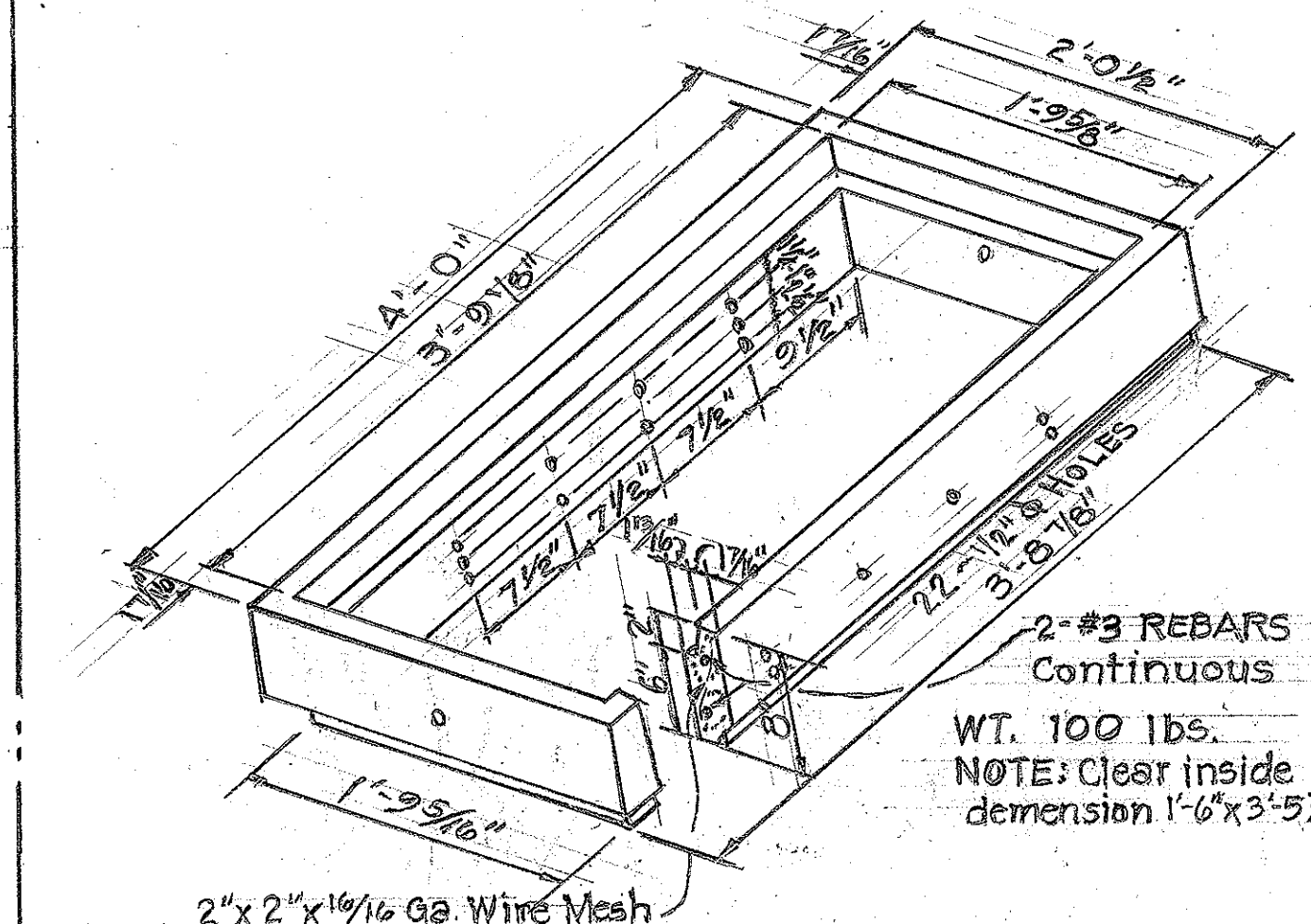
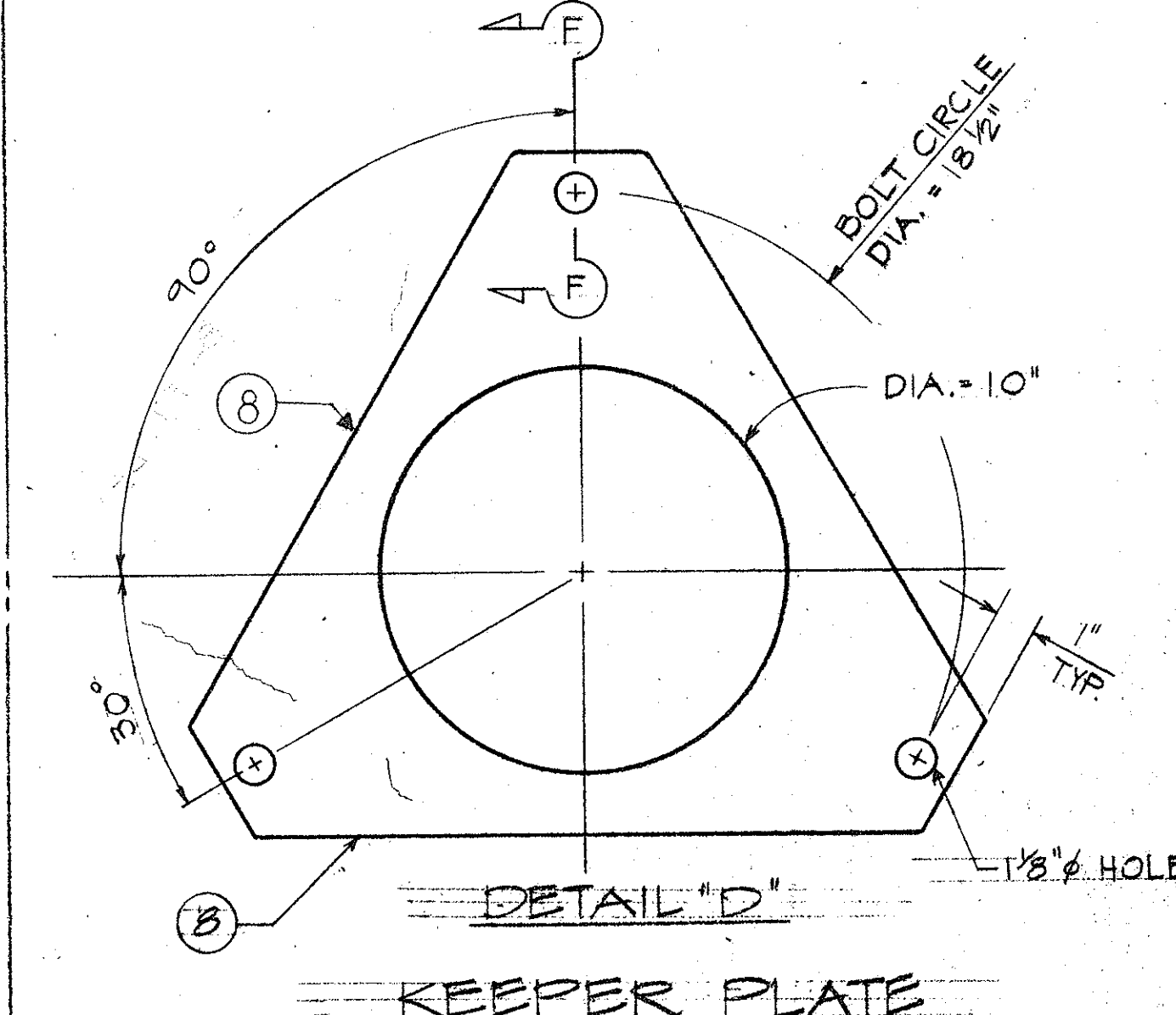
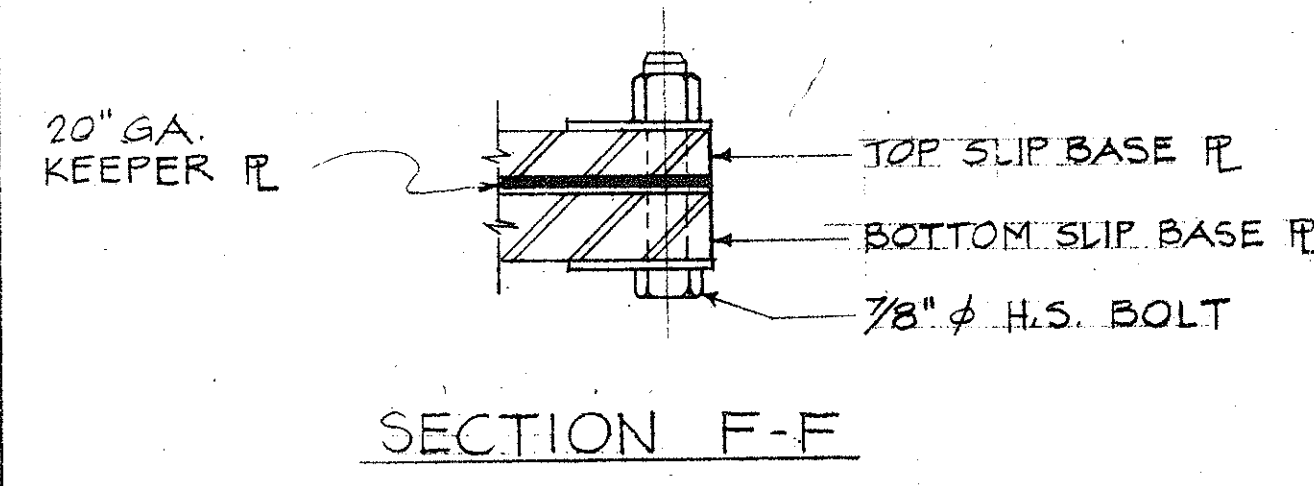
- NOTES:
- ALL NEW MATERIAL TO BE GALV. AFTER FABRICATION.
 - TORQUE 7/8" H.S. SLIP BASE PL BOLTS TO 84 FT. LBS.
 - ALL SLOTS TO BE FILLED W/ MASTIC
 - PL'S SHALL CONFORM TO A.S.T.M. A-36
 - CAST OPTION SHALL CONFORM TO A.S.T.M. A-486 CL. 90.
 - FLAT WASHER SHALL CONFORM TO A.S.T.M. A-325.
 - 1" DRILLED & TAPPED STUD IN TOP SLIP BASE PL. INSERT STUD & CENTER PUNCH @ BOTTOM PERIPHERY TO LOCK TAPPED BOLT IN PLACE PRIOR TO GALV. OR 1" THREADED STUDS CONN. W/ FULL PENETRATION BUTT WELD.
 - 20 GA. KEEPER PL. PLACE ON TOP OF MIDDLE FLAT WASHER A.S.T.M. A-325, 12.99 COMMERCIAL.



PLAN - BOTTOM PLATES
 NOTE: THIS DETAIL APPLICABLE TO EXISTING POLE REQUIRING SLIP BASE INSERT.
 SLIP BASE PL INSERT DETAILS



BOTTOM ANCHOR PL DETAILS

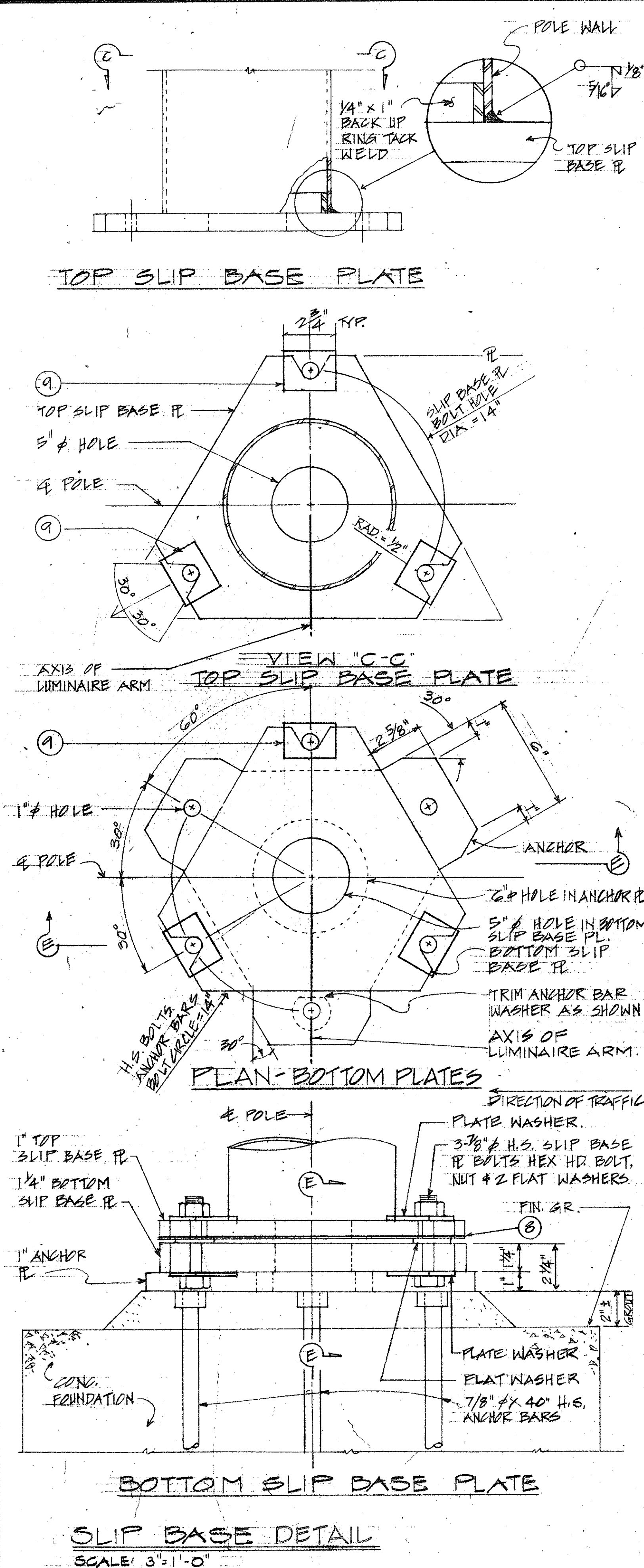
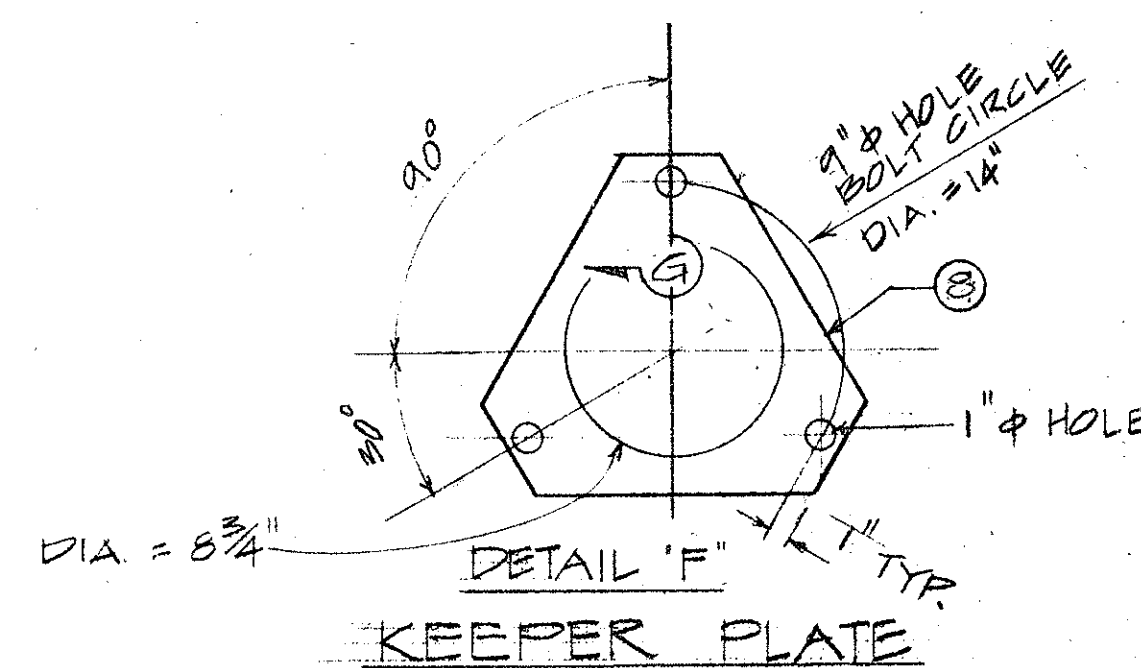
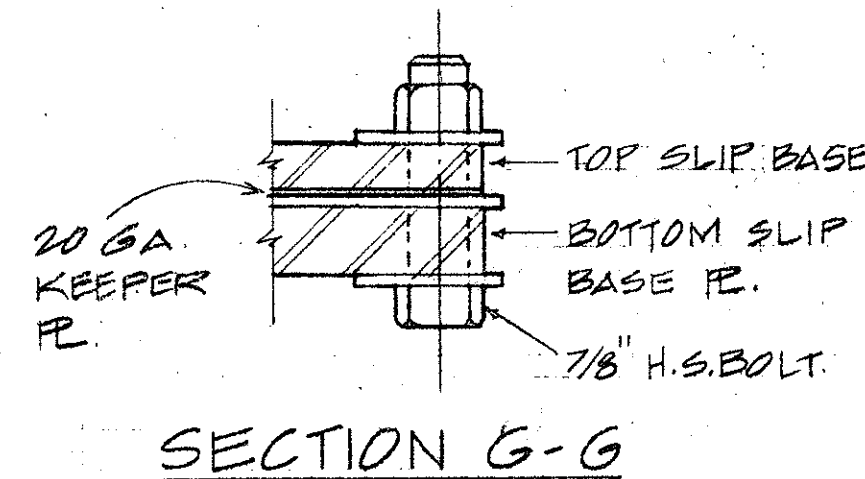
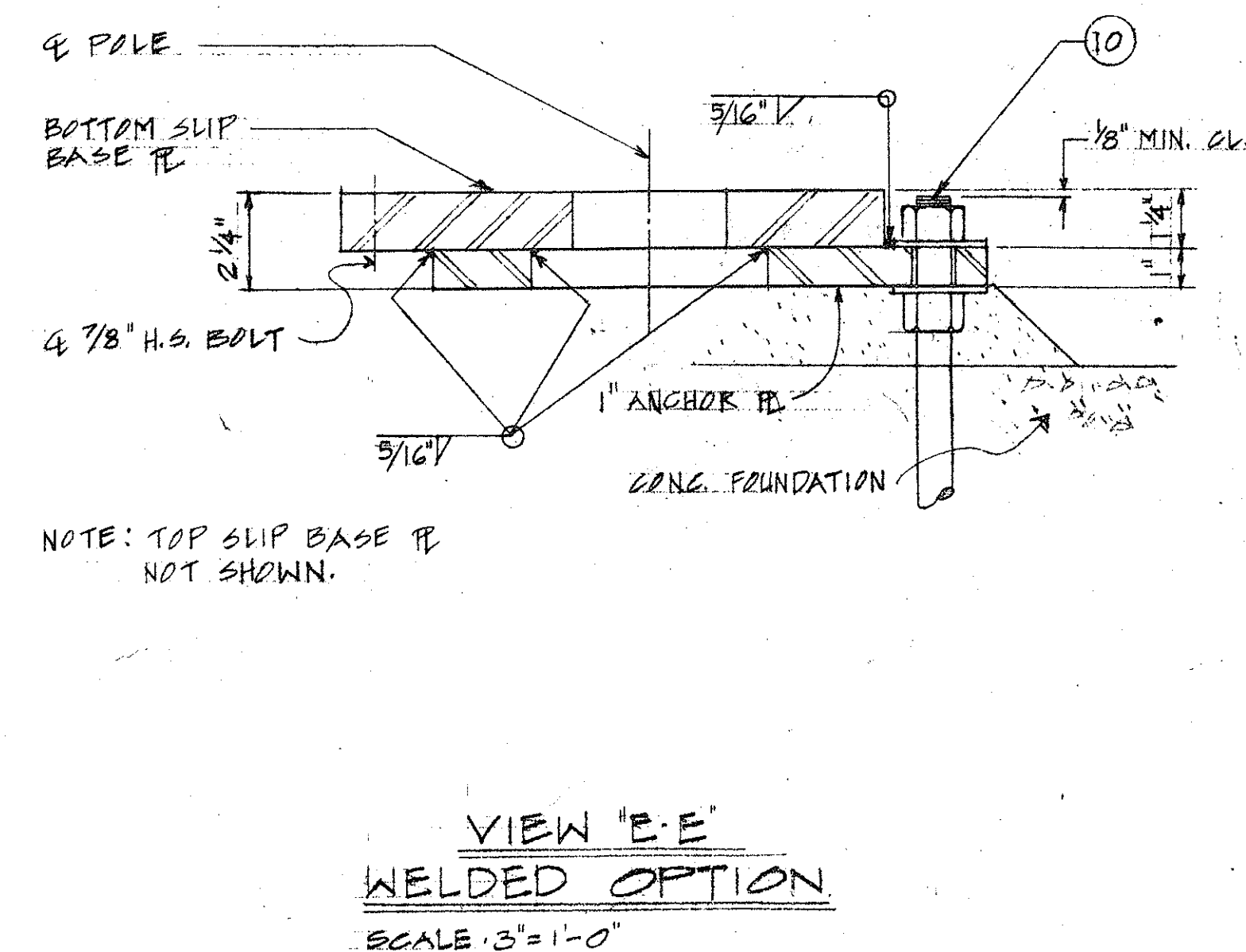
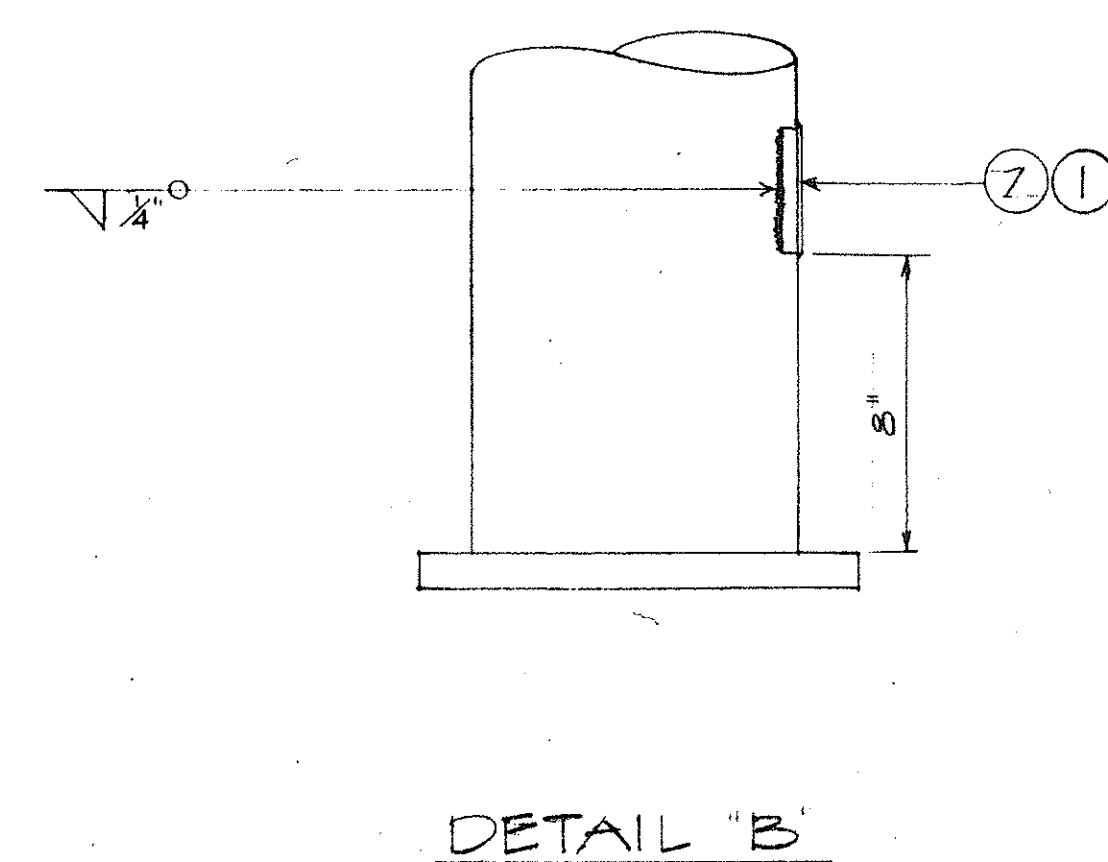


STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 SLIP BASE INSERT STANDARD
 SAFETY IMPROVEMENT
 PALAHLAI TO KUNIA
 F.A.I. PROJ. NO. I-HI-108
 SCALE AS NOTED
 SHEET NO. 91 OF 12 SHEETS

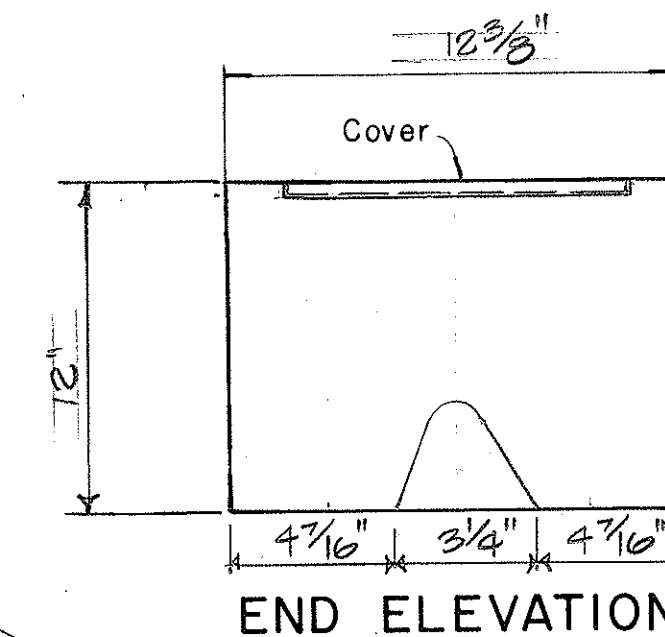
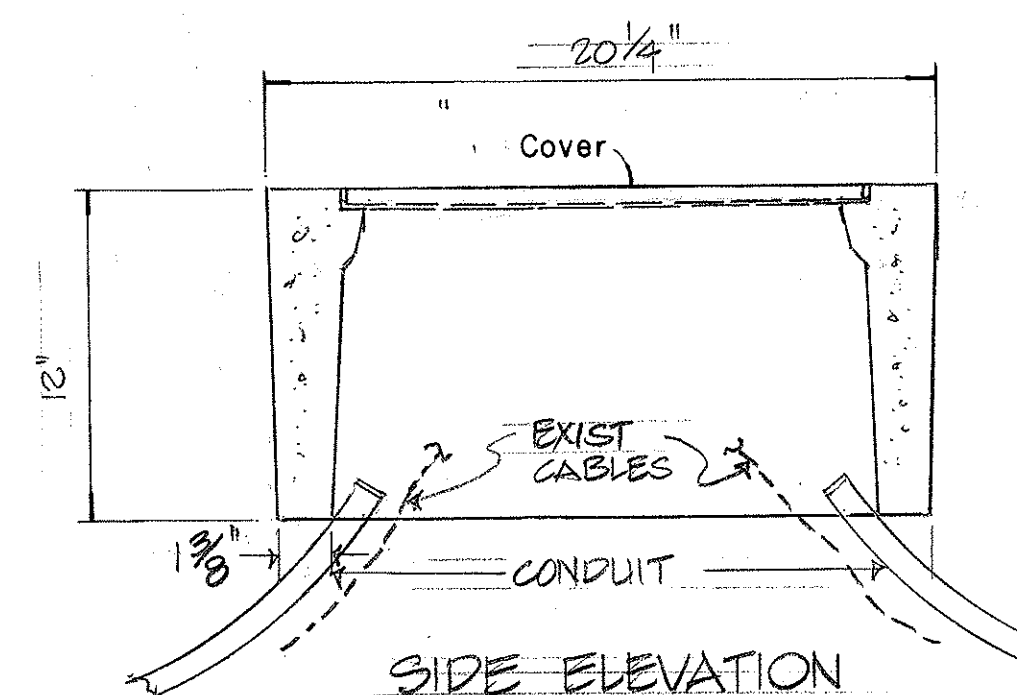
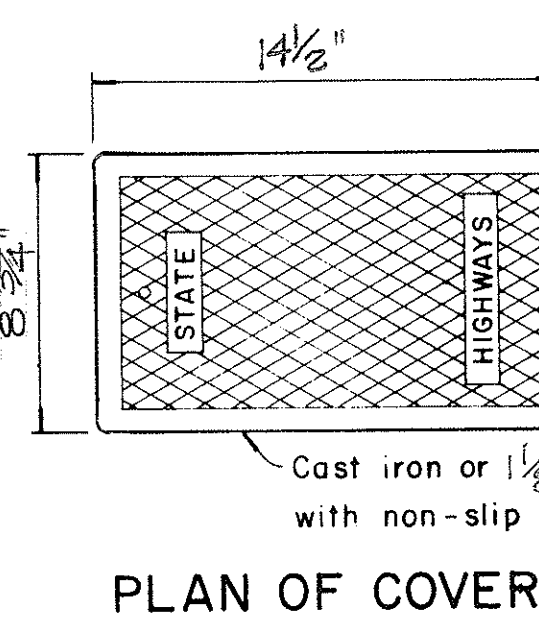
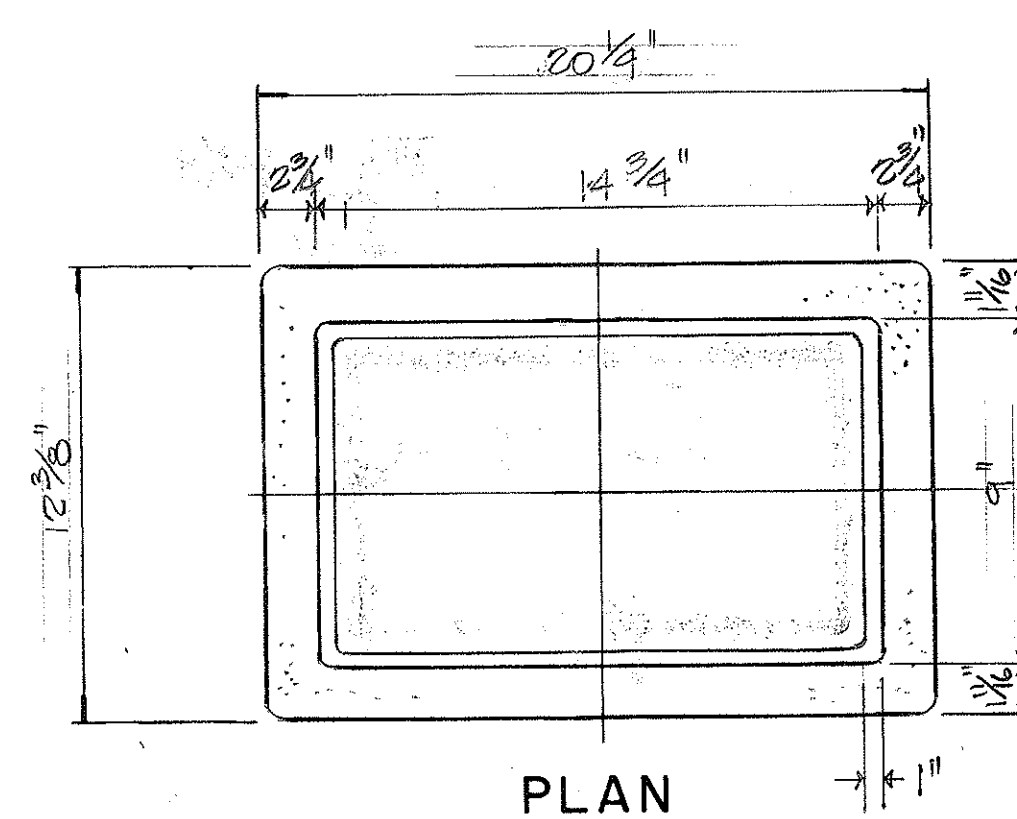
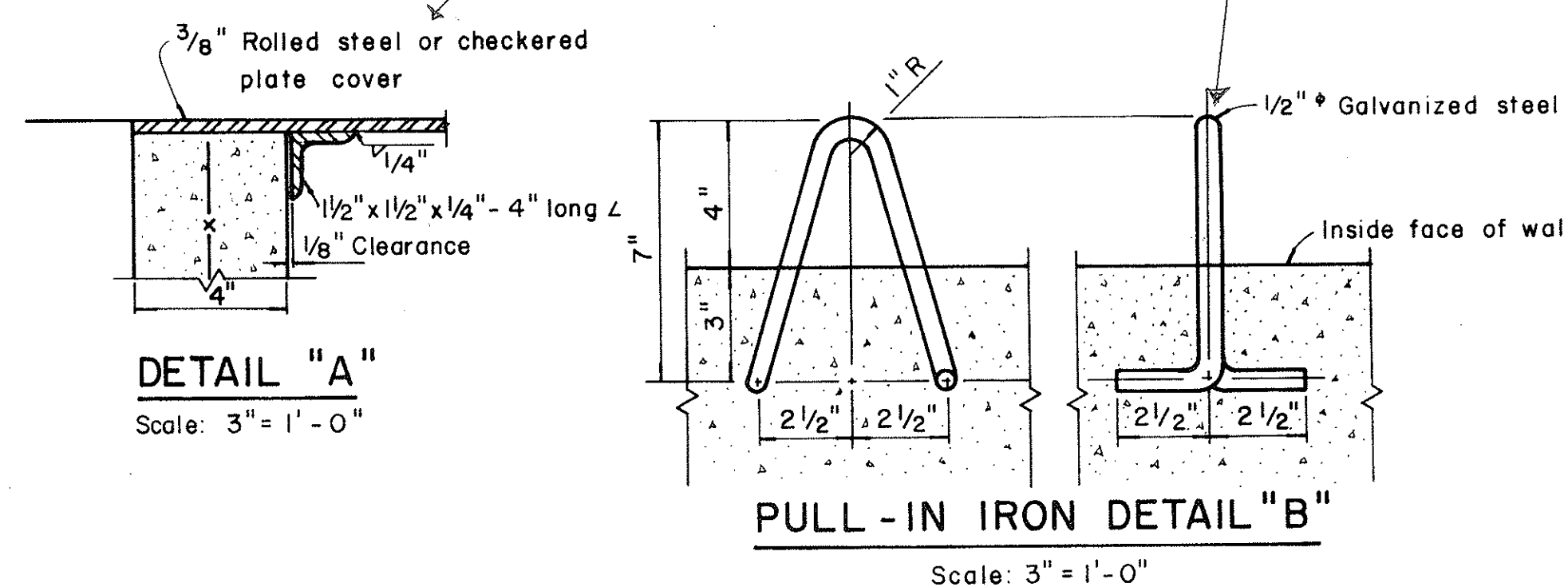
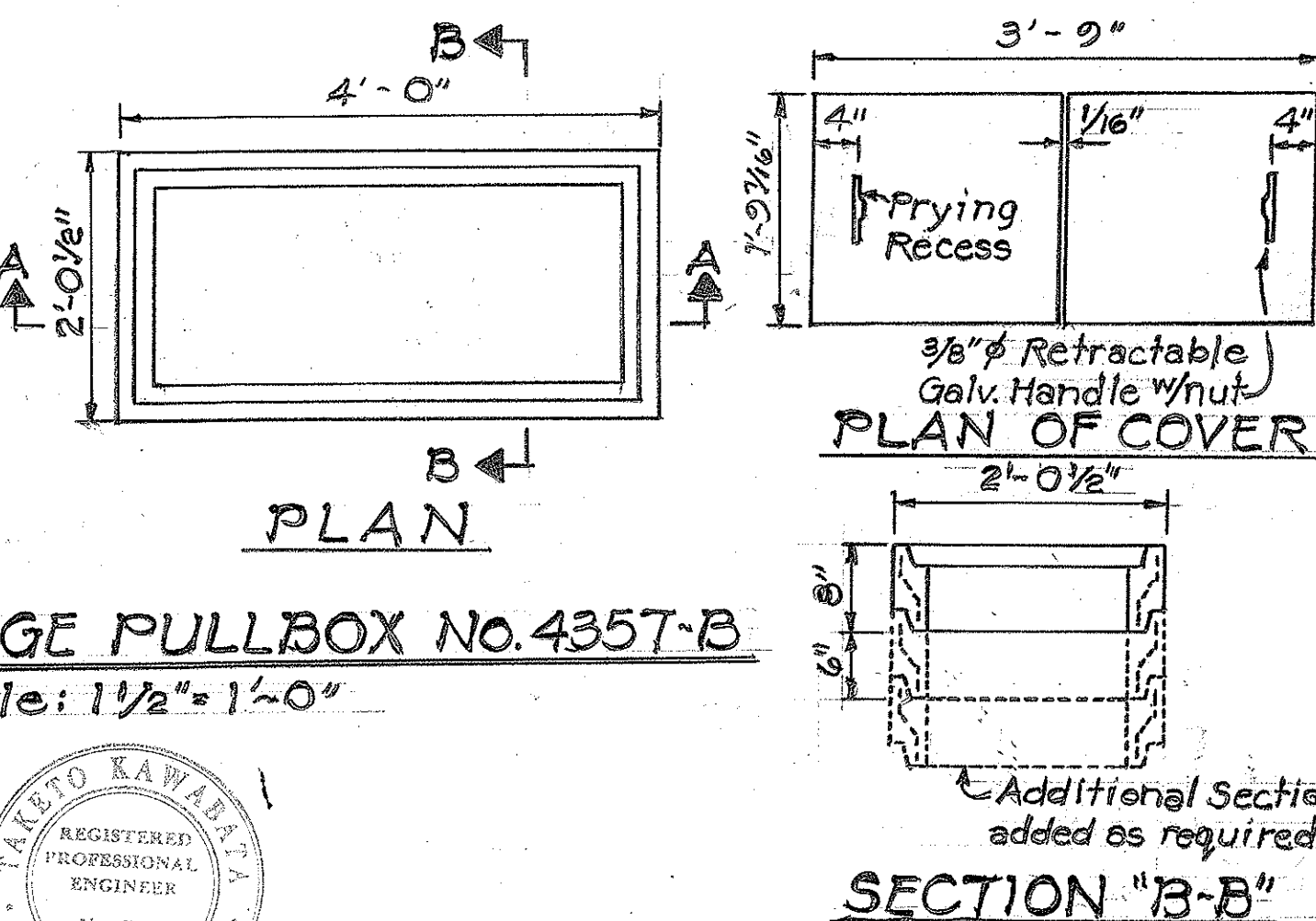
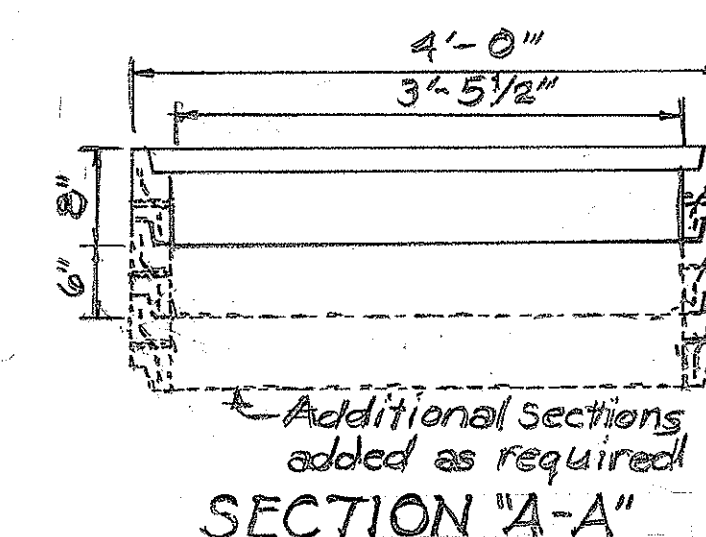
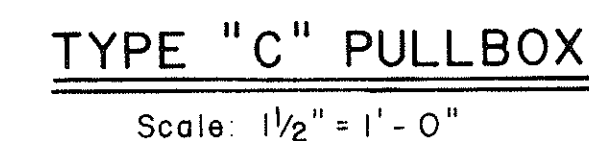
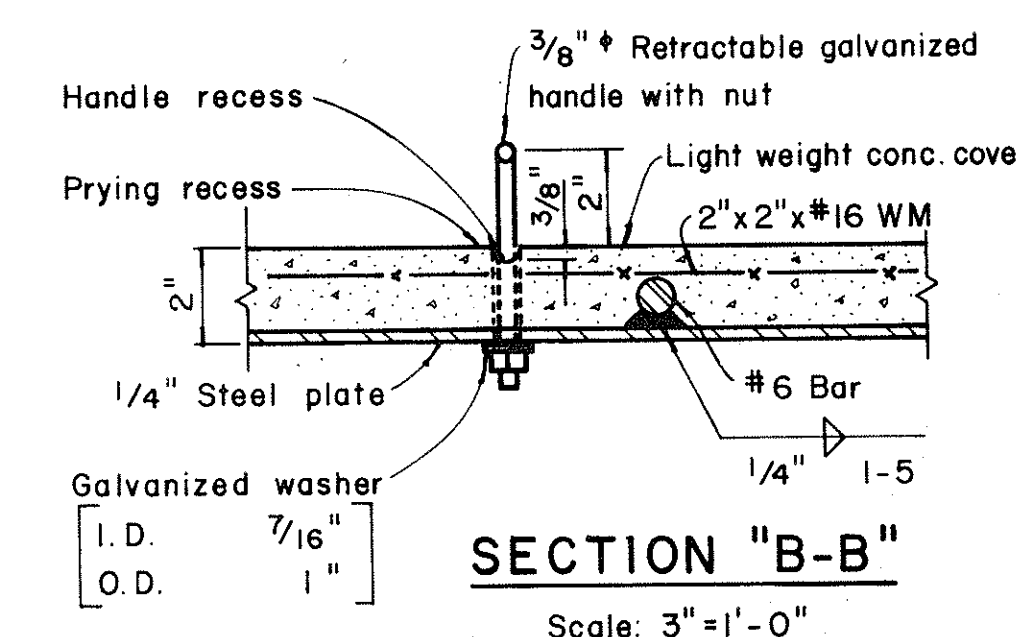
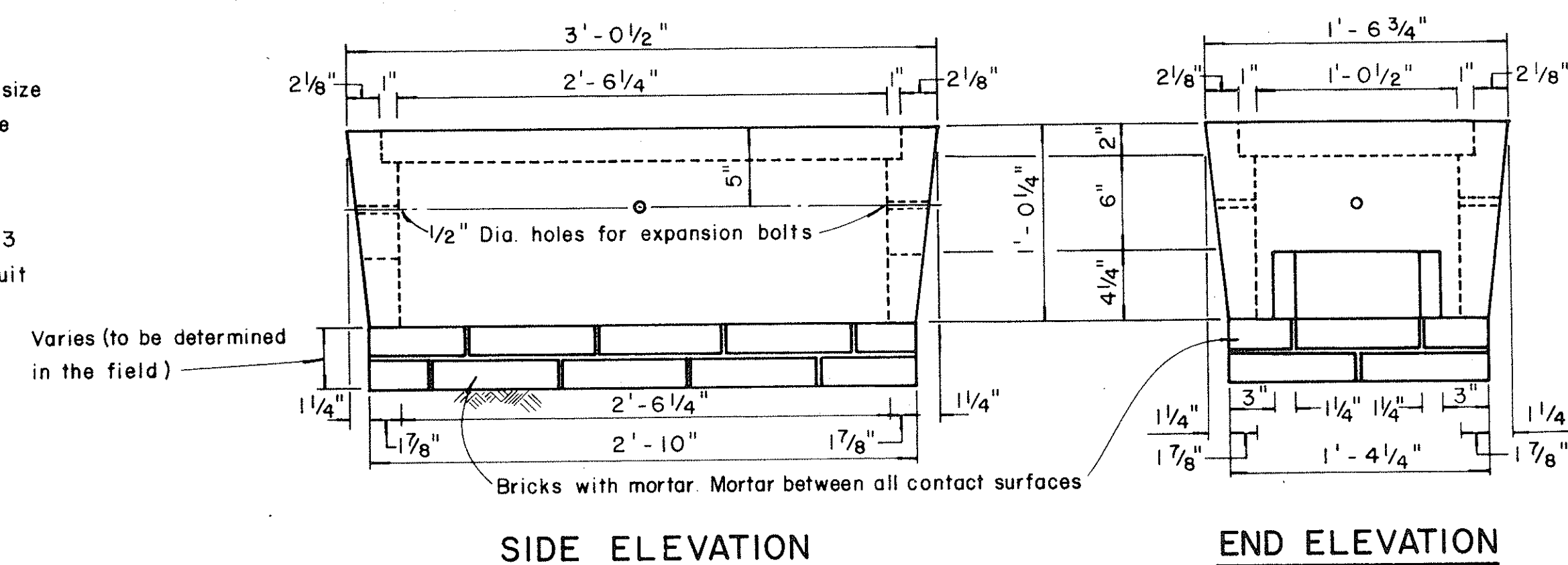
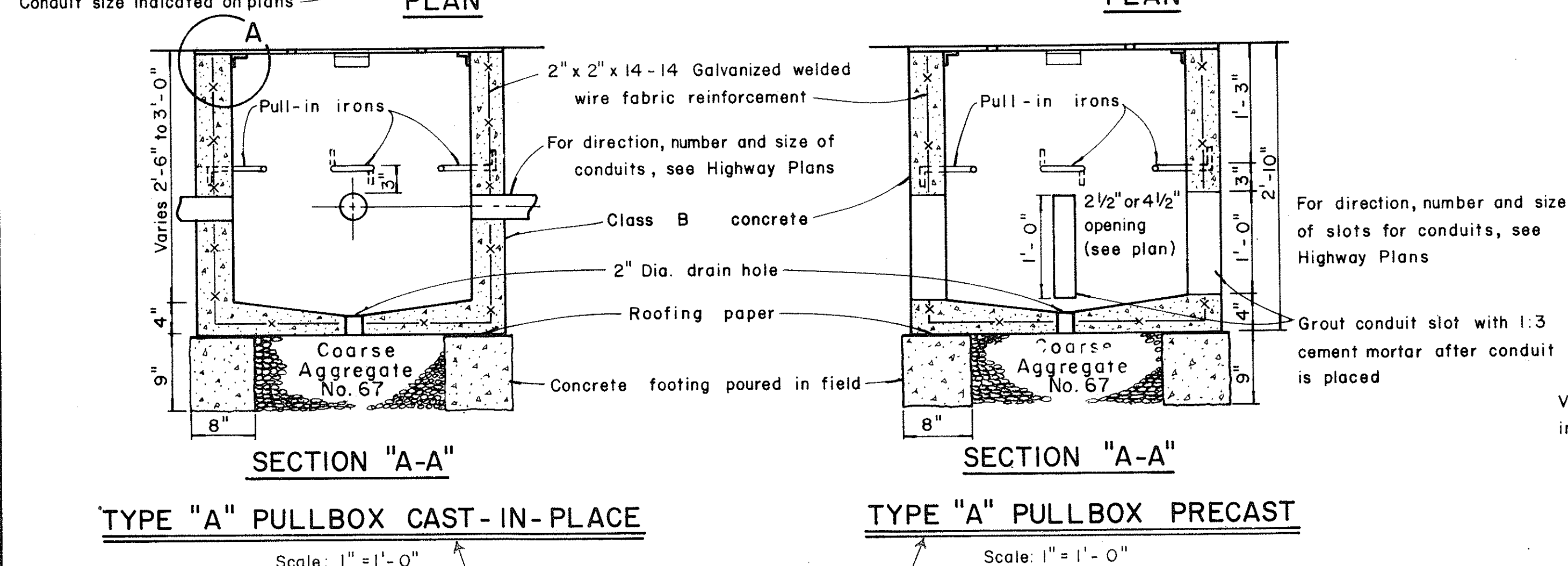
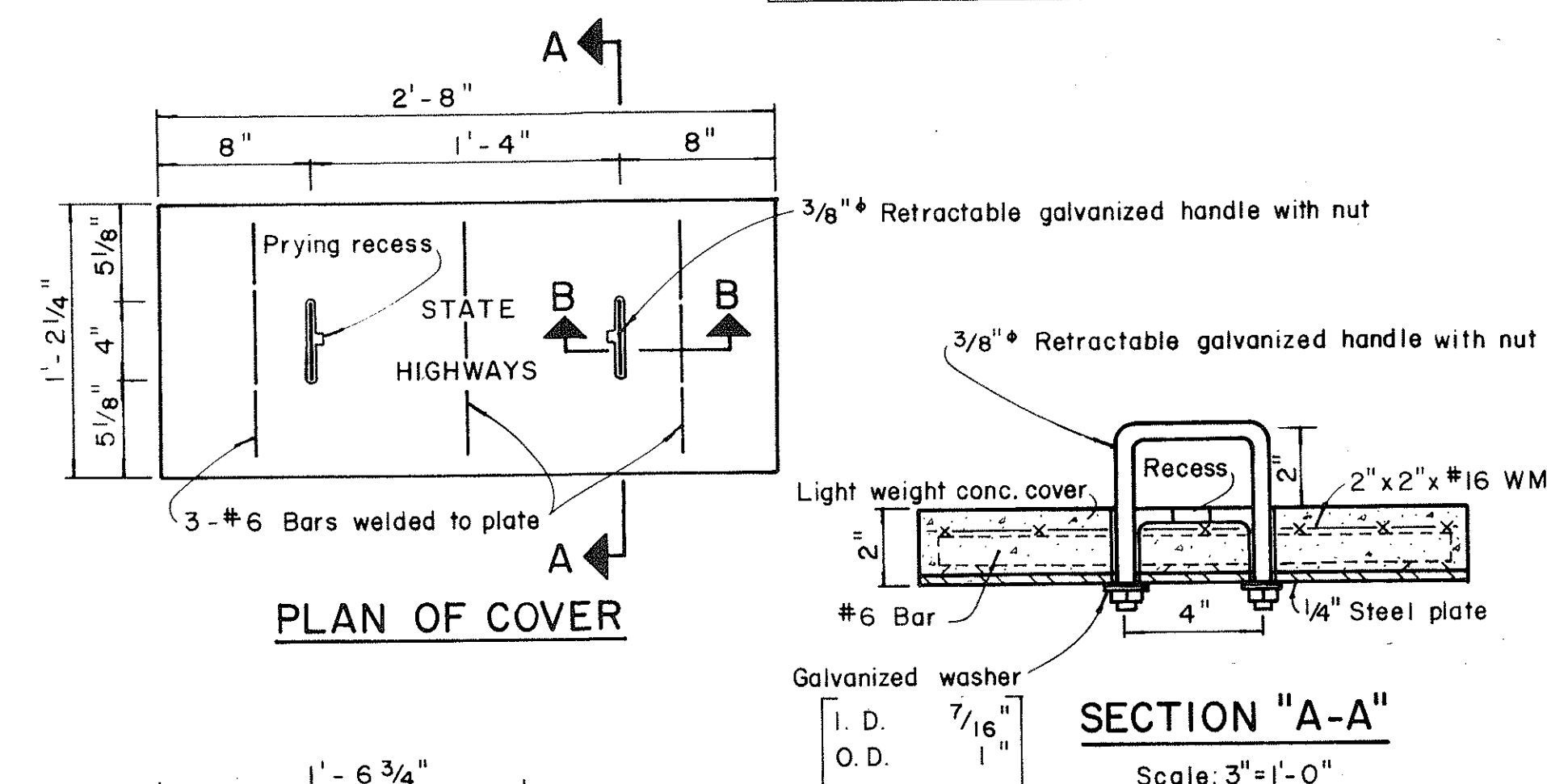
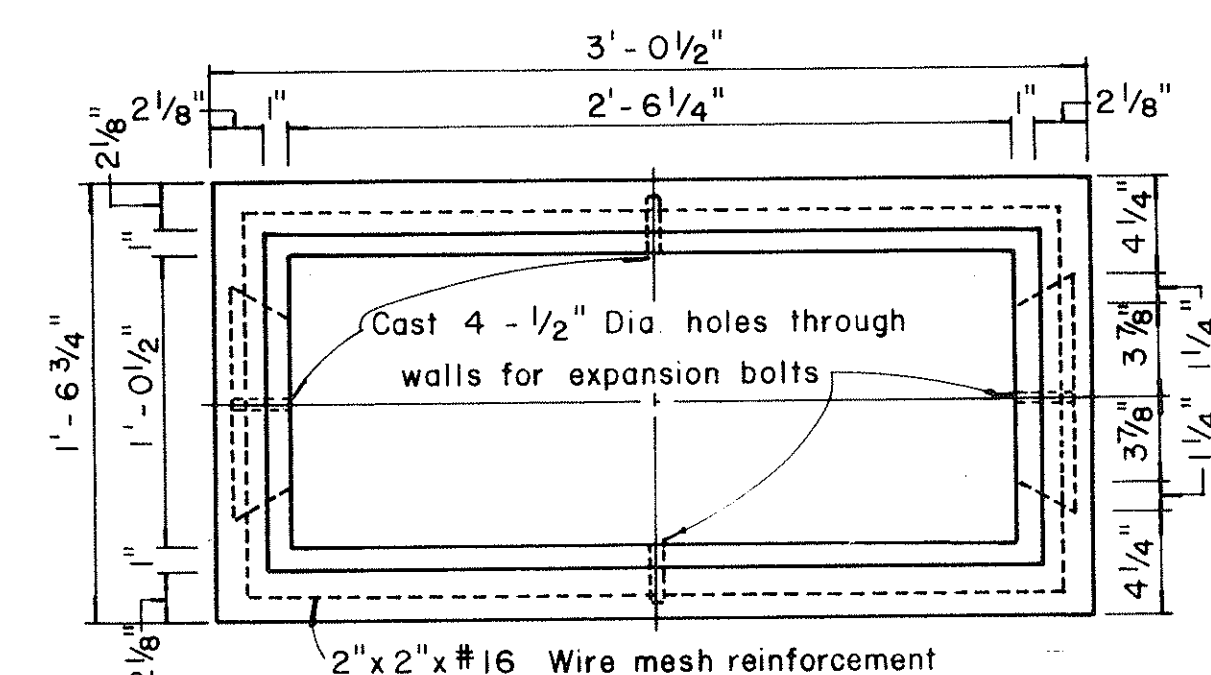
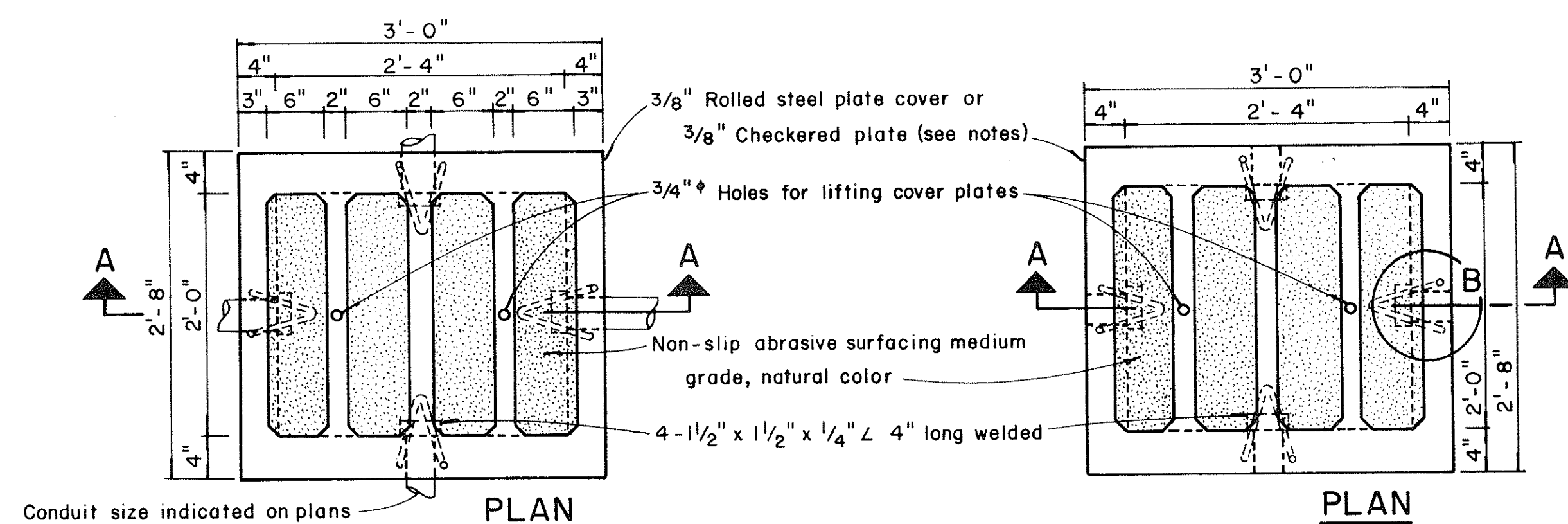
DATE	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

NOTES:

- | | |
|---|------------------------------|
|  | STATE OF HAWAII |
| | DEPARTMENT OF TRANSPORTATION |
| | HIGHWAYS DIVISION |
| | <u>HIGHWAY LIGHTING</u> |
| | <u>SLIP BASE POLE</u> |
| | <u>SAFETY IMPROVEMENT</u> |
| | <u>PALAILA TO KUNIA</u> |
| | F.A.T. PROJ NO. I-H-1 (108) |
| THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION | SCALE: AS NOTED DATE: _____ |
| <i>Taketo Kawanabe</i> | |
| SHEET No. 9 OF 12 SHEETS | |



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1 (108)	1975	93	100



DETAIL OF LARGE PULLBOX No. 4357-B
Scale: $1\frac{1}{2}" = 1'-0"$

NOTE:
For 8" Riser details, See Sht. #21,
For Steel Cover details, See Sht. #24.

NOTES: (FOR TYPE "A" PULLBOX)

1. $\frac{3}{8}$ " Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
2. $\frac{3}{8}$ " Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
3. Pull irons shall be placed opposite each conduit slot.
4. Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.

TYPE "B" PULLBOX-PRECAST
NOT TO SCALE

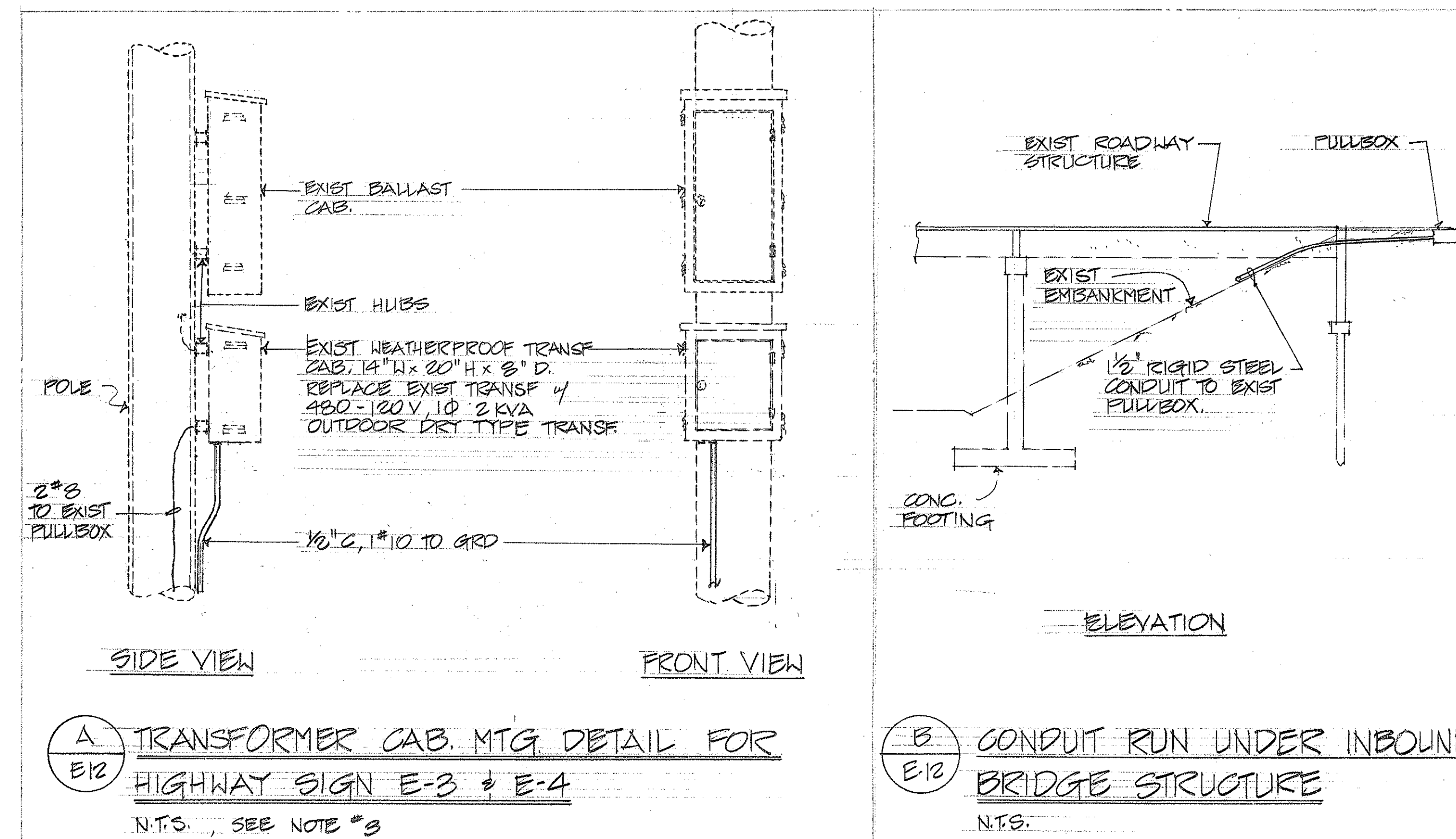
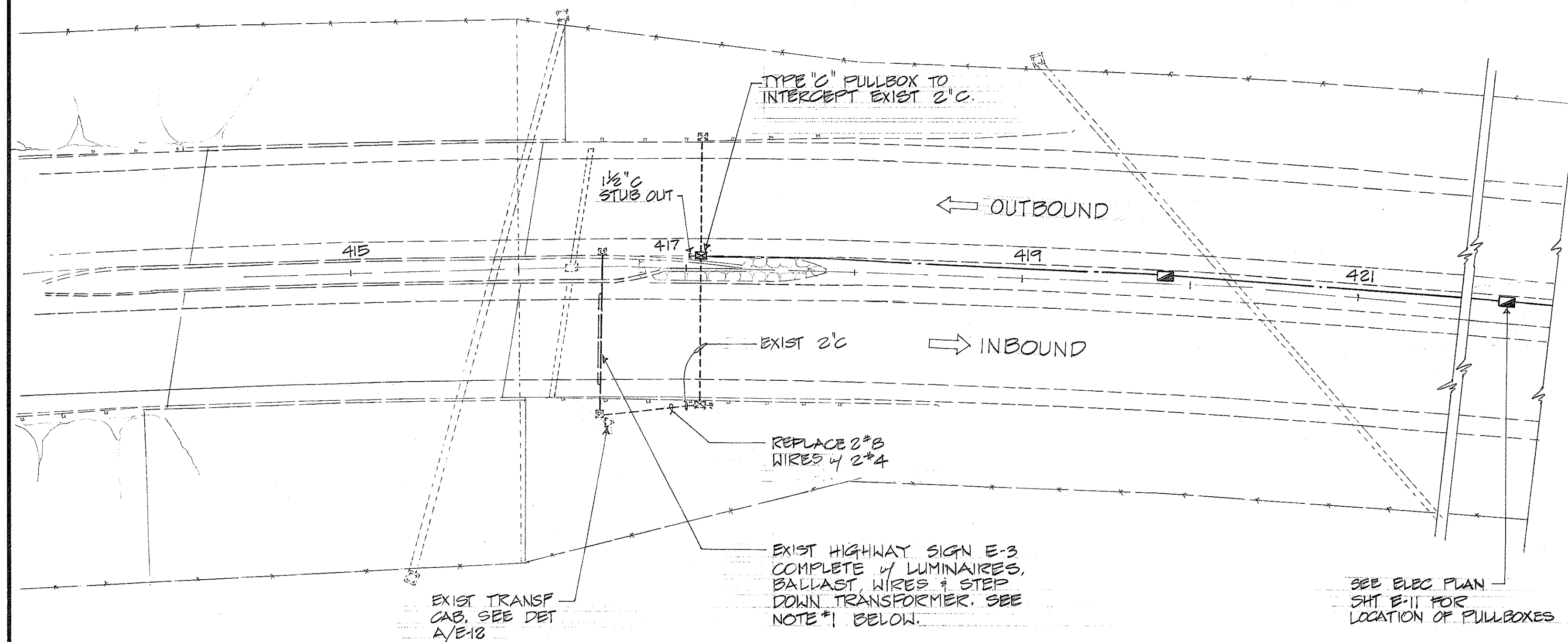
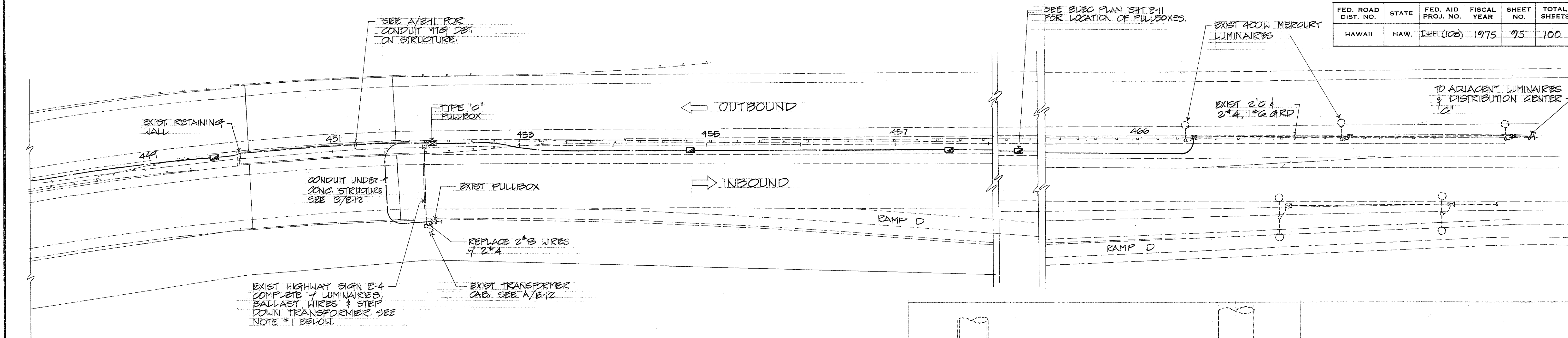
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SAFETY IMPROVEMENT
PALAILA TO KUNIA
F.A.T. PROJ. NO. I-HI-1 (108)

SHEET No. 10 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHH (108)	1975	95	100



ELECTRICAL PLAN

SCALE: 1" = 50'

NOTES:

1. REMOVE & RETURN EXIST TRANSF 240 TO 120V TO STATE HIGHWAY DIVISION (PROJECT ENGINEER).
2. SEE SHT E-10 FOR TYPE "B" & "C" PULLBOXES DETAILS.
3. ALL EXPOSED CONDUITS & TRANSFORMERS MTD. C. STRUCTURE TO BE PAINTED w/ TWO COATS OF GREEN PAINT MATCHING THE STRUCTURE.

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK NO.	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

T. K. Kawaihewa

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY SIGN ELEC. PLAN & DETAILS

SAFETY IMPROVEMENTS
PALAILAI TO KUNIA
P.A.I. PROJ. I-H-1 (108)

SCALE: AS NOTED DATE

SHEET NO. E-12 OF 12 SHEETS

95