

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	66	121

LUMINAIRE NO.
44/A/BC
FEEDER
PHASES

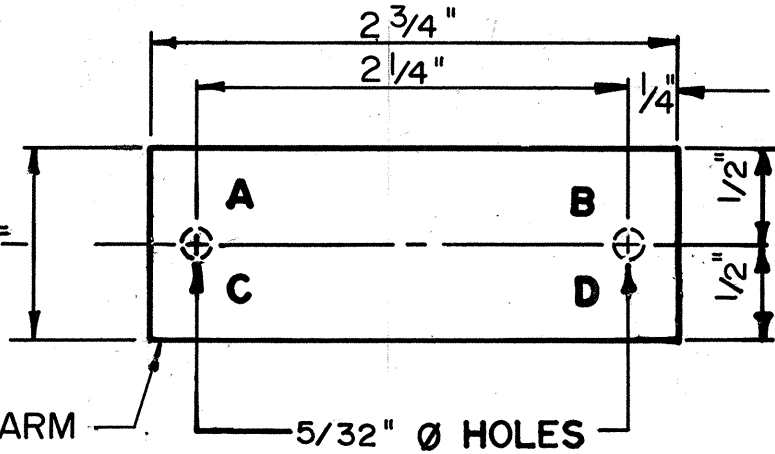
L E G E N D			
SYMBOLS	REPRESENTS	REFERENCE	
		DETAIL	NOTE
	SINGLE ARM METAL LIGHTING STANDARD, FOUNDATION, ANCHOR BASE AND 150 WATT H.P.S. LAMP	1,2/E7	4,5/E1
	TWIN ARM METAL LIGHTING STANDARD, FOUNDATION, SLIP BASE (1) 150 WATT H.P.S. AND (1) 250 WATT H.P.S. LAMP (U.O.N.)	1,2,3/E7	3,5/E1
	PULLBOX, TYPE B FOR LIGHTING SYSTEM	DWG. E8	
	UNDERGROUND RACEWAY FOR LIGHTING SYSTEM	1,2/E1	2/E1
	SINGLE MAST ARM INSTALLED ON WOOD OR CONCRETE POLE, AND 150 WATT H.P.S. LAMP. SEE DETAIL 4/E6 FOR I.D. TAG INFORMATION	3/E6	4/E1

NOTE: ESTIMATED QUANTITY FOR LUMP SUM PAY ITEMS WILL BE USED TO DETERMINE THE THEORETICAL UNIT PRICE AS DEFINED IN SUB-SECTION 104.02 (B) OF THE STANDARD SPECIFICATIONS.

E L E C T R I C A L			
ITEM NUMBER	ITEM	UNIT	QUANTITIES
622.7002	METAL LIGHTING STANDARD ON GRADE, SINGLE ARM	EA.	5
622.7003	METAL LIGHTING STANDARD ON GRADE, TWIN ARM	EA.	43
622.7005	MAST ARMS, FOR WOOD POLES	EA.	3
622.7021	UNDERGROUND RACEWAY, LIGHTING SYSTEM	L.S.	(8,900 LF)
622.7009	WIRE, 600 VOLT, 1/C, #2	L.S.	(53,000 L.F.)
622.7006	MAST ARMS, FOR METAL TRAFFIC SIGNAL STANDARD, 20 FT.	EA.	4
622.7016	PULLBOX, TYPE B, LIGHTING SYSTEM	EA.	51
622.7020	ELECTRICAL APPURTENANCES	L.S.	1
622.7004	MAST ARMS, FOR CONCRETE POLES	EA.	2

LIST OF ABBREVIATIONS

C	RACEWAY (TYPE & SIZE AS INDICATED)
NMR	NON-METALLIC RACEWAY (TYPE PVC)
RGS	RIGID GALVANIZED STEEL CONDUIT
RAL	RIGID ALUMINUM CONDUIT
PVC	POLYVINYLCHLORIDE CONDUIT
CAD	CEMENT ASBESTOS DUCT
LTG.	LIGHTING
LTG. STD	LIGHTING STANDARD
BKT.	BRACKET ARM
FND	FOUNDATION
CKT.	CIRCUIT
FDR	FEEDER (OR BRANCH THEREOF)
GND	GROUND
N.T.S	NOT TO SCALE
N.I.C	NOT IN CONTRACT
FUT.	FUTURE
(E)	EXISTING
CONC.	CONCRETE
H.P.S.	HIGH PRESSURE SODIUM LAMP
HG	MERCURY VAPOR LAMP
E.T.W.	EDGE OF TRAVELED WAY
U.O.N.	UNLESS OTHERWISE NOTED

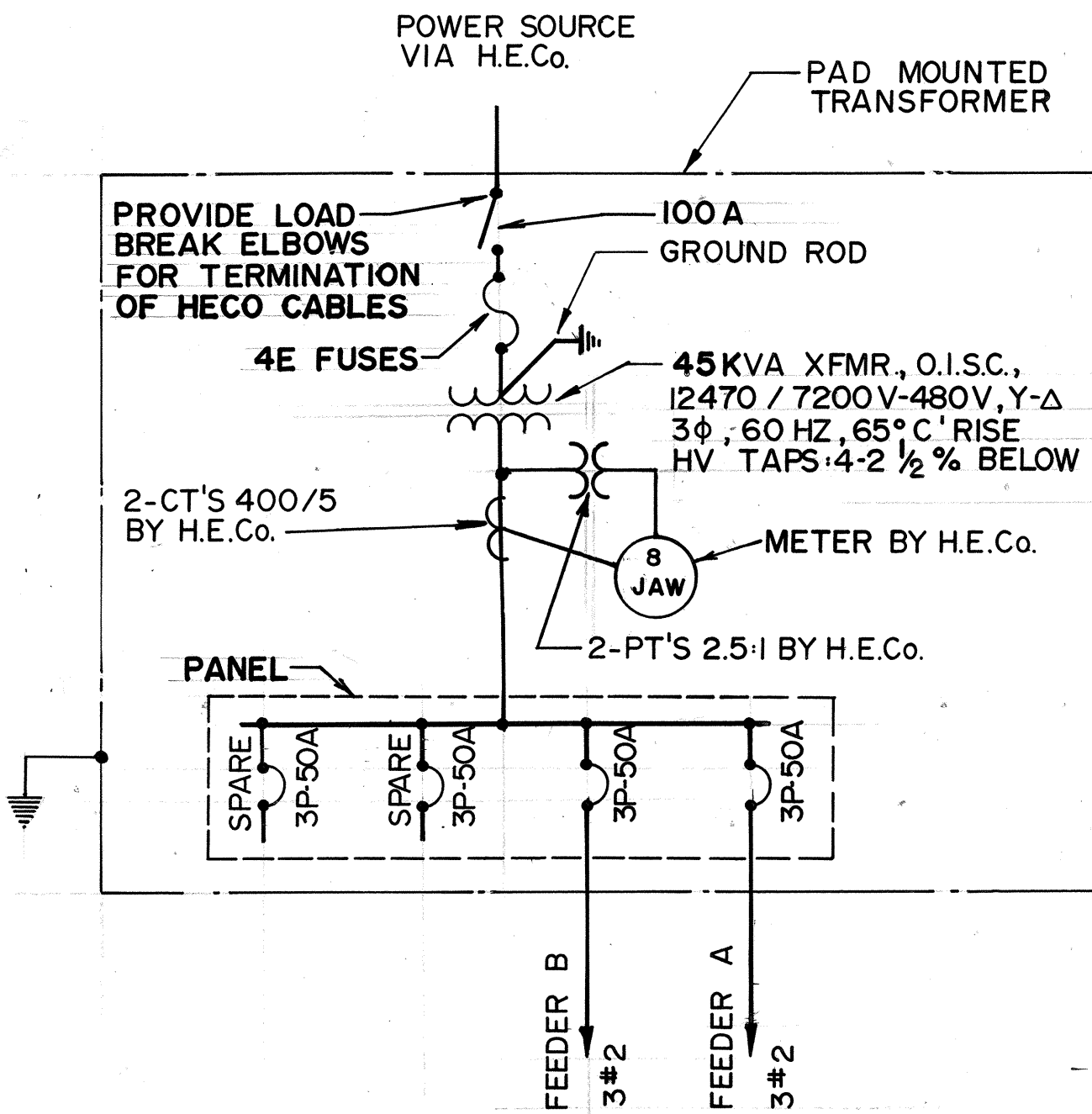


PLACE TAG ON TWIN ARM POLE WITH LUMINAIRE NOS. FACING CORRECT LUMINAIRE.

DETAIL 3/E1
I.D. TAG DETAIL FOR LTG. STDS.

LEGEND:

- A. LEFT SIDE LUMINAIRE NO.
B. RIGHT SIDE LUMINAIRE NO.
C. LEFT SIDE LUMINAIRE WATTAGE (N FOR H.P.S.)
D. RIGHT SIDE LUMINAIRE WATTAGE (N FOR H.P.S.)



SINGLE LINE DIAGRAM
SCALE: NONE

NOTES:

1/E1 DETAILS AND NOTES ARE NUMBERED AS FOLLOWS:

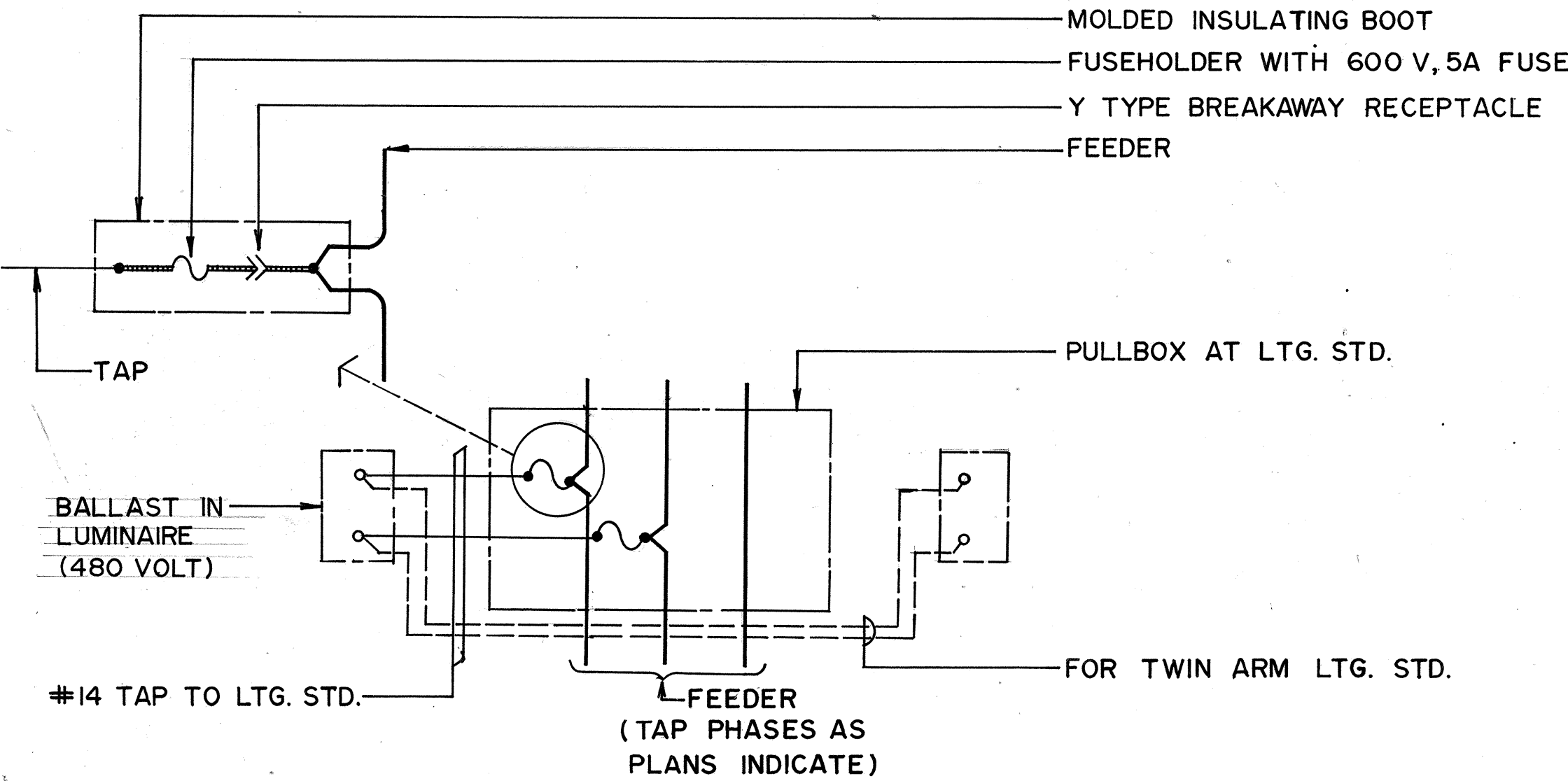
3/E1 ELECTRICAL SHEET ON WHICH DETAIL OR NOTE IS SHOWN
DETAIL OR NOTE NUMBER

2/E1 FOR UNDERGROUND RACEWAYS, PROVIDE TYPE RGS OR TYPE NMR. FOR RACEWAY EXPOSED OR IN STRUCTURE, PROVIDE TYPE RGS, EXCEPT AS OTHERWISE INDICATED.

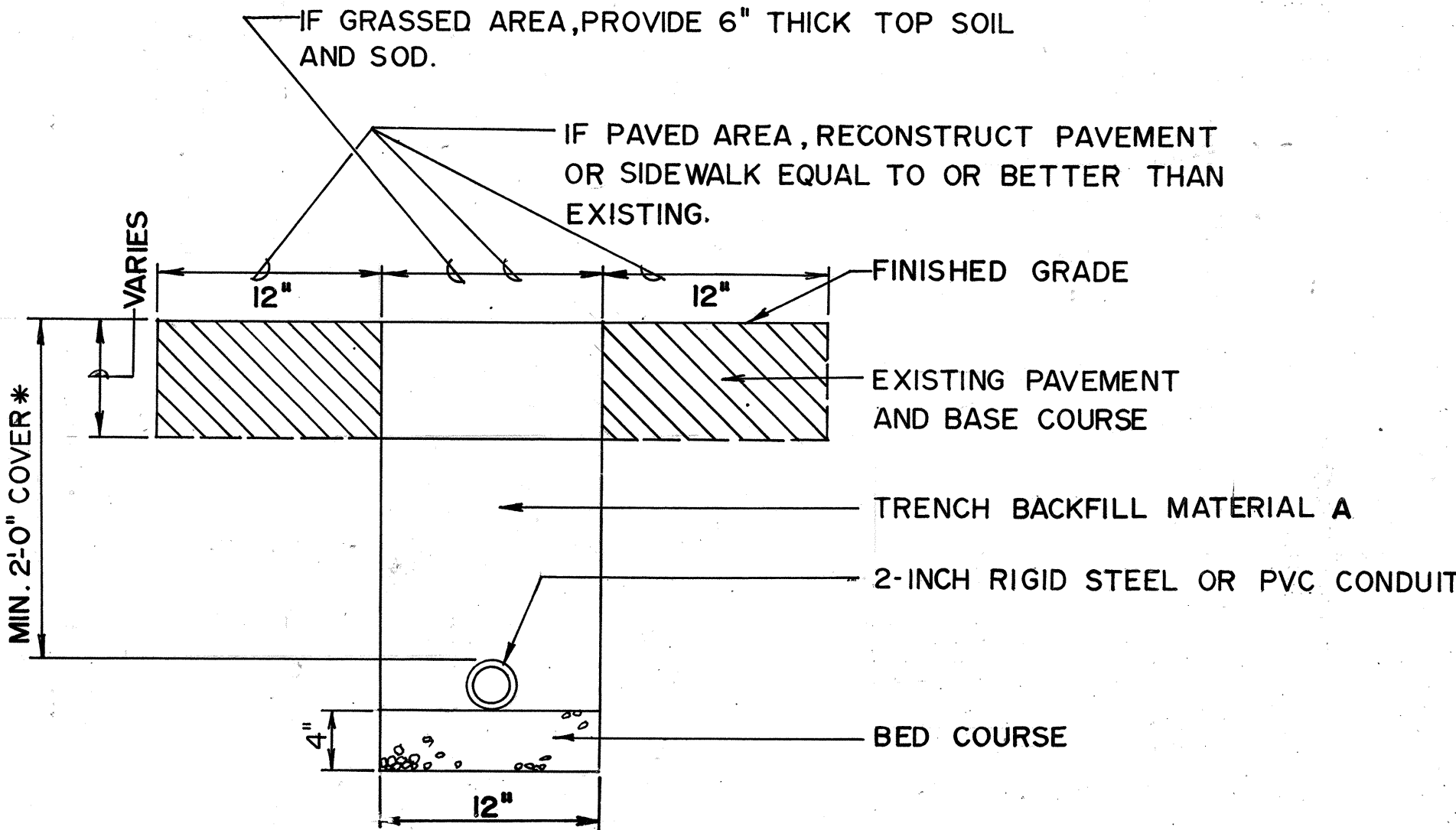
3/E1 ROADWAY MINIMUM AVERAGE MAINTAINED ILLUMINATION VALUES SHALL BE 0.6 FOOTCANDLES FOR THE 150-WATT LUMINAIRE AND 1.0 FOOTCANDLES FOR THE 250-WATT LUMINAIRE. TYPE II LUMINAIRE DISTRIBUTION PATTERN.

4/E1 ROADWAY MINIMUM AVERAGE MAINTAINED ILLUMINATION VALUE SHALL BE 0.9 FOOTCANDLES. TYPE II LUMINAIRE DISTRIBUTION PATTERN.

5/E1 EACH LIGHTING STANDARD SHALL BE PROVIDED WITH AN I.D. TAG MADE FROM 3-PLY BLACK/WHITE/BLACK LAMINATED PLASTIC WITH 1/5" HIGH COMMERCIAL GOTHIC ENGRAVED LETTERS. TAG INFORMATION SHALL INCLUDE LUMINAIRE NUMBER(S) AND WATTAGE(S) AS SHOWN ON THE PLANS. DRILL NO. 29 HOLES AND ATTACH WITH NO. 7 CADMIUM PLATED DRIVE SCREWS. SEE DETAIL 3/E1 FOR TWIN ARM LIGHTING STANDARD AND TYPE III TRAFFIC SIGNAL STANDARD. USE SIMILAR I.D. TAG FOR SINGLE ARM LIGHTING STANDARD.

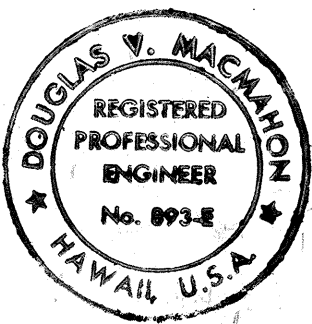


DETAIL 2/E1
TAP TO LIGHTING STANDARD LUMINAIRE
NOT TO SCALE



* IN PAVED AREAS, INCREASE THE MINIMUM COVER TO 3'-0"

DETAIL 1/E1
TRENCH FOR RACEWAY
NOT TO SCALE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

PART I

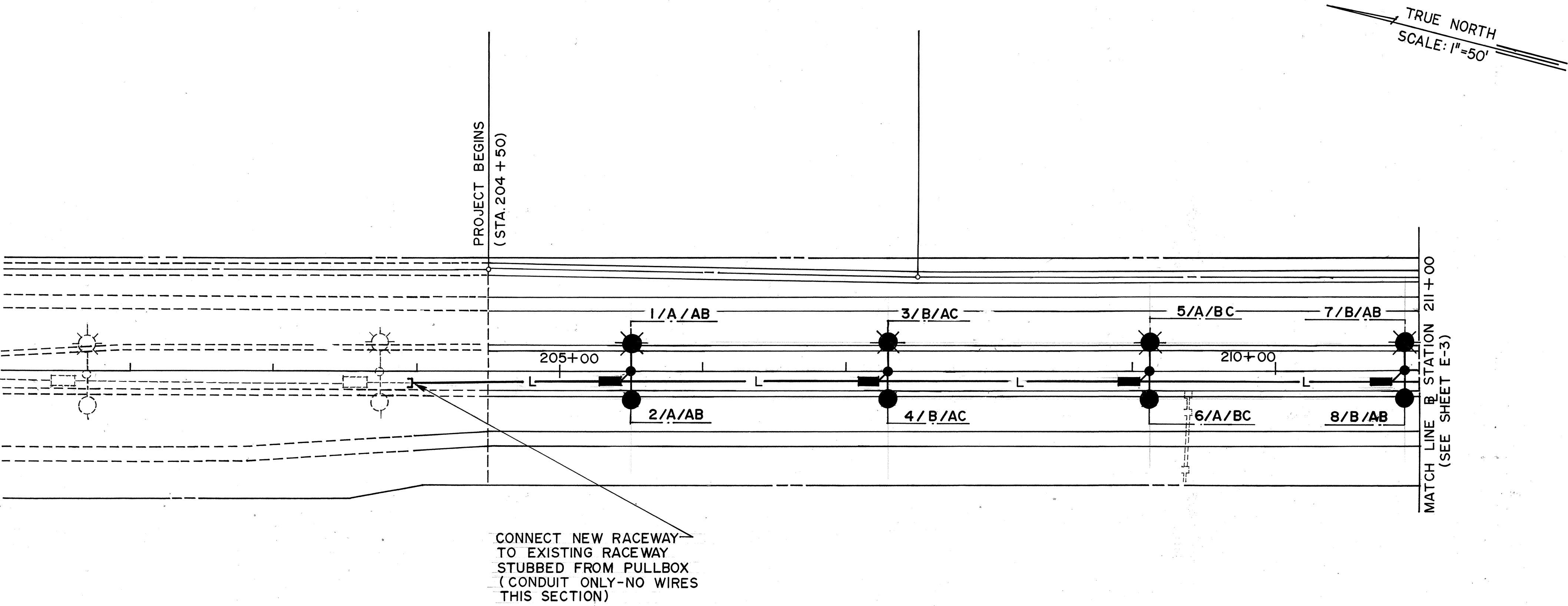
FORT WEAVER ROAD

F.A.P. PROJ. F-076-1(1)

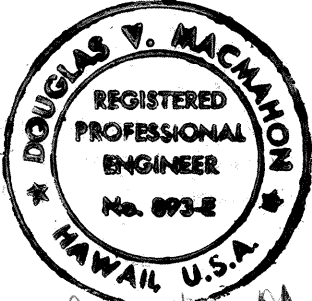
SCALE: AS SHOWN DATE: JUNE 1985

SHEET No. E 1 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	67	121



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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

PART I

FORT WEAVER ROAD

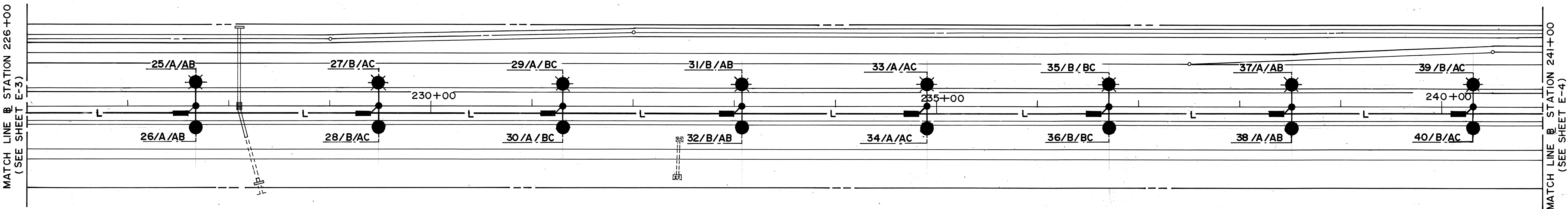
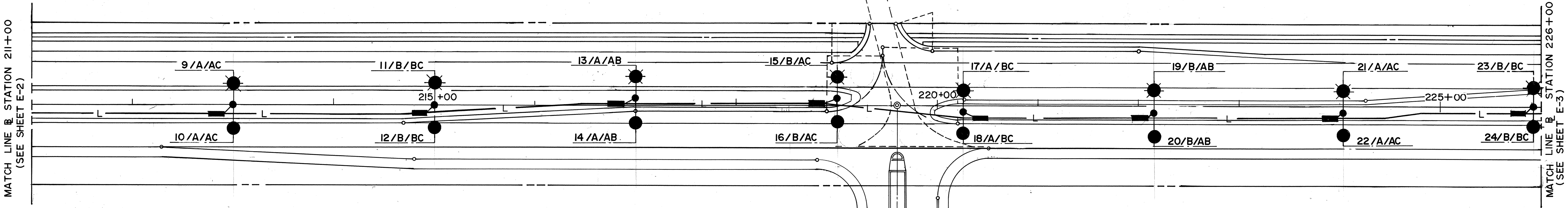
F.A.P. PROJ. F-076-1(1)

SCALE: 1" = 50' DATE: JUNE 1985

SHEET No. **E 2** OF **8** SHEETS

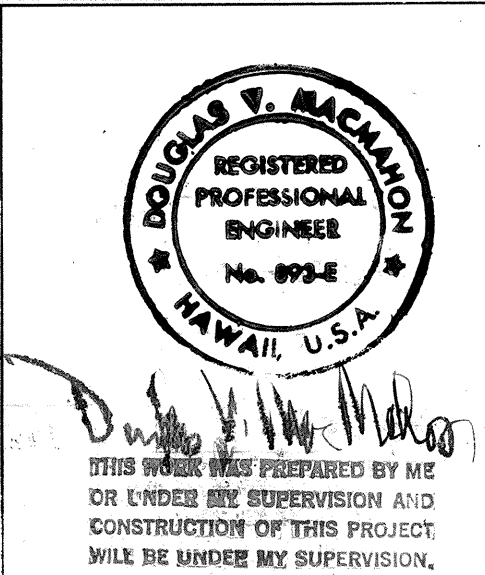
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	68	121

TRUE NORTH
SCALE: 1"=50'



ORIGINAL PLAN	DATE
TRACED BY	
DESIGNED BY	
QUANTITY BY	
CHECKED BY	
NO.	

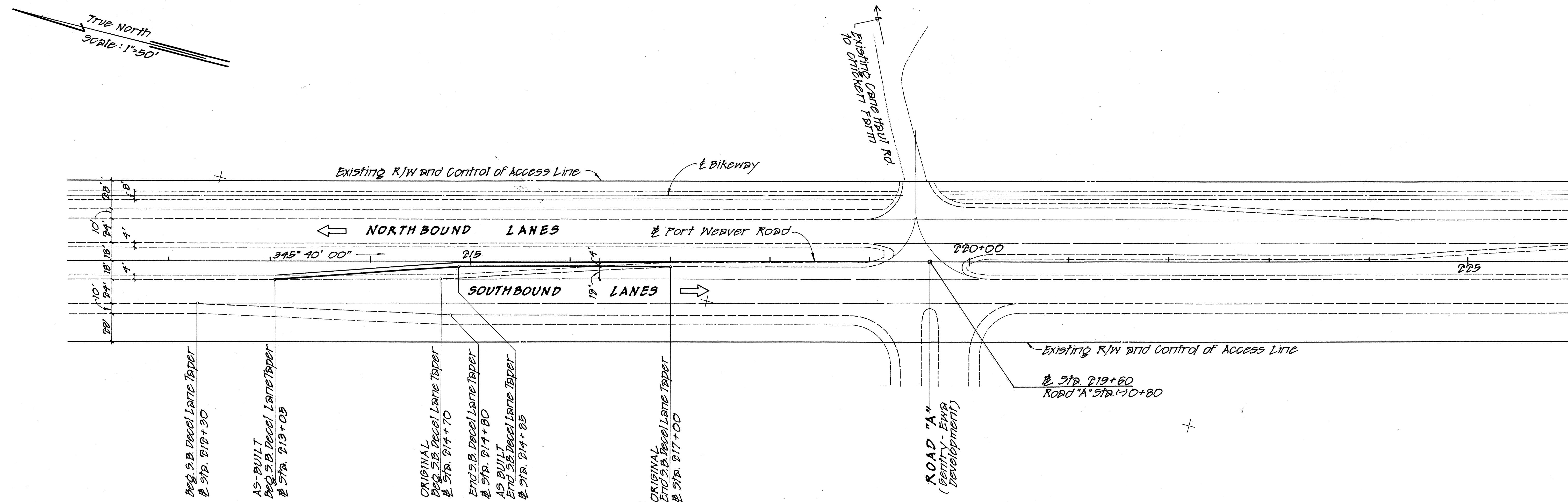
12/9/85
REVISED ROAD "A" INTERSECTION AND ALSO RELOCATION OF LIGHT STANDARDS IN THAT AREA



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
PART II
FORT WEAVER ROAD
F.A.P. PROJ. F-076-1(1)

SCALE: 1"=50' DATE: JUNE 1985
SHEET No. **E 3** OF 8 SHEETS



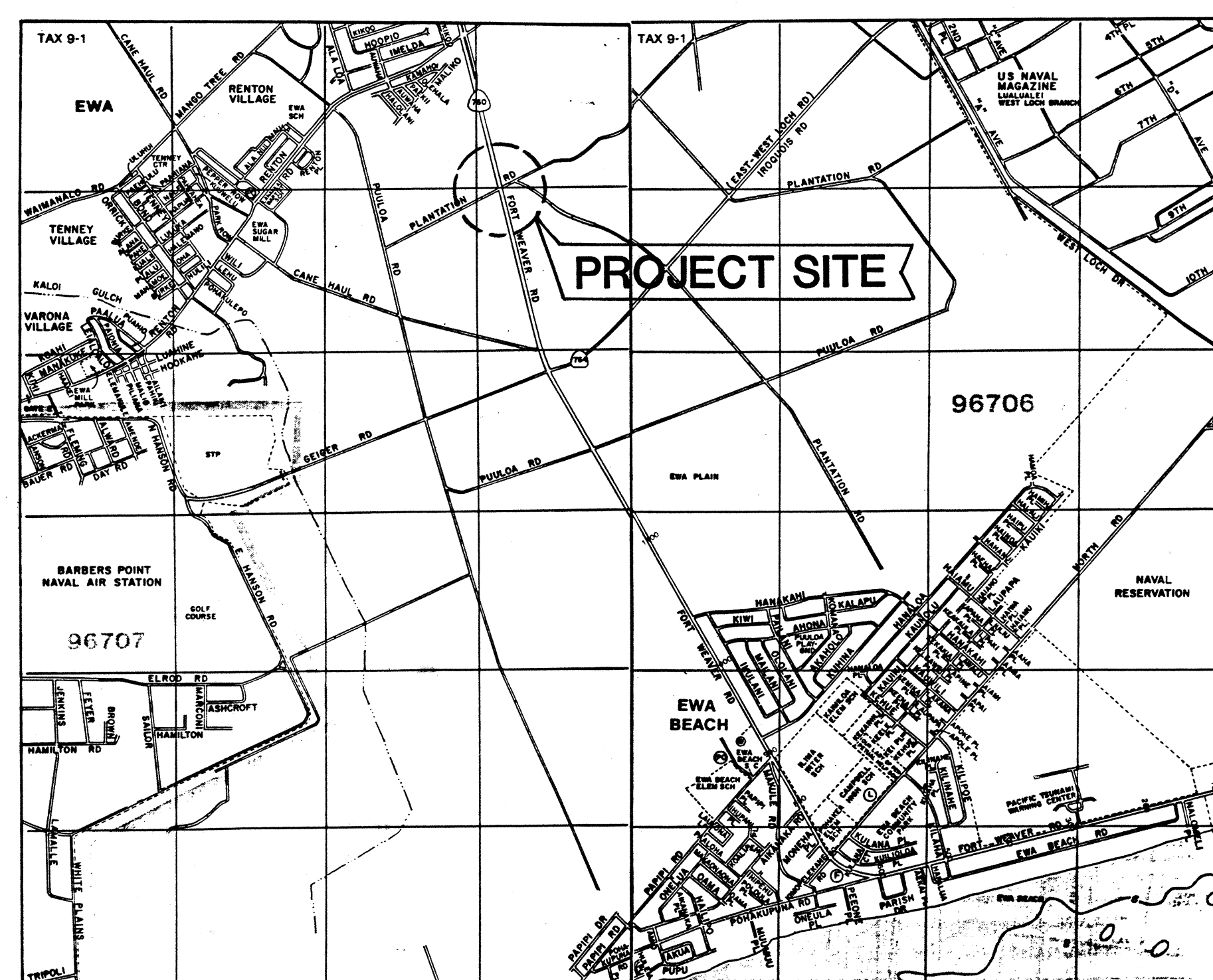
PLAN SHOWING AS-BUILT CONDITIONS ~ S.B. DECEL LANE TAPER

NOTE: (ref)
Original Detail Plan of Roadway - Street No. 2 of 7 Streets
Fort Weaver Road Widening & Realignment
F.A.P. Project No. F-076-1(1)

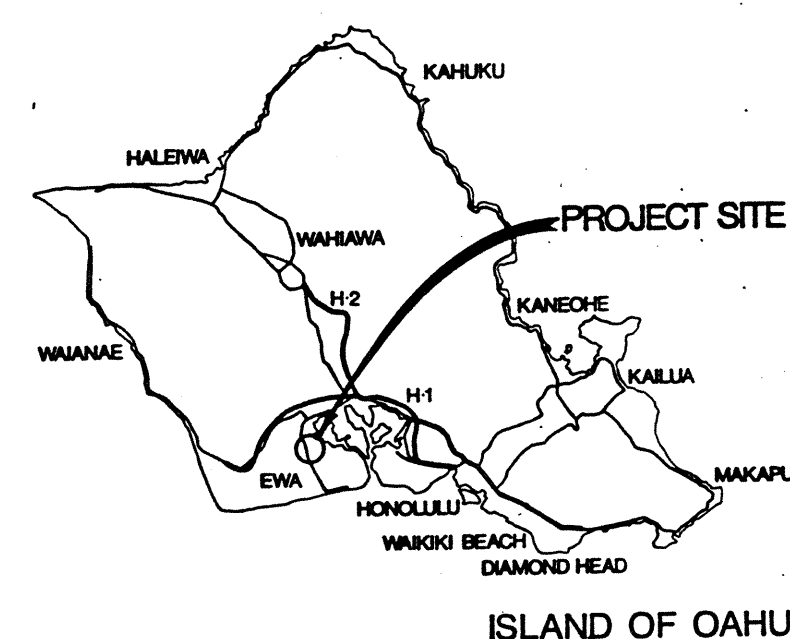
AS-BUILT PLANS FOR
EXTENSION OF SOUTH BOUND
LEFT TURN DECELERATION LANE
FOR INTERSECTION AT STATION 219+60
(FAP PROJECT NO. F-076-1(1))
HONOLULU, EWA, OAHU, HAWAII

OWNER and DEVELOPER:
THOMAS HENRY GENTRY

PREPARED BY: **ESH** ENGINEERS SURVEYORS HAWAII, INC.
ENGINEERS SURVEYORS PLANNERS SUITE 1, BUILDING 6
1020 AUAHI STREET
HONOLULU, HAWAII 96814



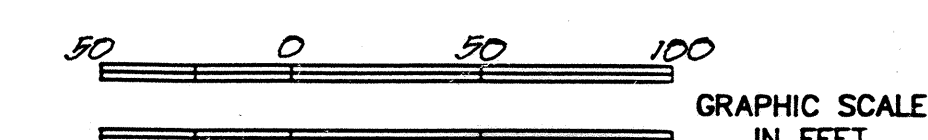
LOCATION MAP



TAX MAP KEY: 9-1-10:2

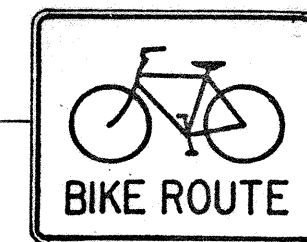
INDEX	
SHEET NO.	DESCRIPTION
1	TITLE AND INDEX SHEET, PLAN - AS BUILT CONDITIONS
2	SIGNING & STRIPING PLAN AND ELECTRICAL PLAN

68 S-1



REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.				
ENGINEERS SURVEYORS HAWAII, INC.				
BY: ITS VICE PRESIDENT DATE:				
ESH ENGINEERS SURVEYORS HAWAII, INC. 1020 AUAHI ST., BLDG. 6, RM. 1 HONOLULU, HAWAII 96814 531-3116 HON. 885-4590 KAMUELA				
AS-BUILT PLANS FOR EXTENSION OF SOUTH BOUND LEFT TURN DECELERATION LANE FOR INTERSECTION AT STATION 219+60 (FAP PROJECT NO. F-076-1(1)) HONOLULU, EWA, OAHU, HAWAII				
TITLE AND INDEX SHEET PLAN - AS BUILT CONDITIONS				
APPROVED:				
FILE	POCKET	FOLDER	NO.	

True North
Scale: 1"=50'



D11-1
TO REMAIN
IN ORIGINAL
LOCATION

Existing R/W and Control of Access Line

4" Yellow Edge Stripe (Paint)
w/ Type H Markers @ 40' O.C.

4" Guide Stripe

SPEED
LIMIT
45

RD-1 (45)
TO REMAIN
IN ORIGINAL
LOCATION

SPEED
LIMIT
45

RD-1 (45)
ON HWY. LG.
STD.

Type C raised priv't. Markers
@ 40' O.C.

4 EA. Type A raised
priv't. Markers

ROAD "A"
(Entry - EWB
Development)

Sta. 219+60
ROAD "A" Sta. 1+0+80

NORTH BOUND LANES

SOUTH BOUND LANES

Existing R/W and Control of Access Line

SIGNING & STRIPING PLAN

NOTE: (ref.)
Original Signing & Striping Plan - Sheet No. T-2
Fort Weaver Rd. Widening & Realignment
F.A.P. Project No. F-076-1(1)

Underground Raceway
To remain in Original
location

13/A/AB
To remain in
Original location

Underground Raceway
Type B Pull Box
To remain in
Original location

14/A/AB
To remain in
Original location

Twirl Arm Metal
Lighting Standard

11/B/BC

Type B Pull Box

Type B Pull Box
To remain in
Original location

10/A/AC
To remain in
Original location

Underground
Raceway

9/A/AC
To remain in
Original location

Underground Raceway
To remain in Original
location

True North
Scale: 1"=50'

ELECTRICAL PLAN

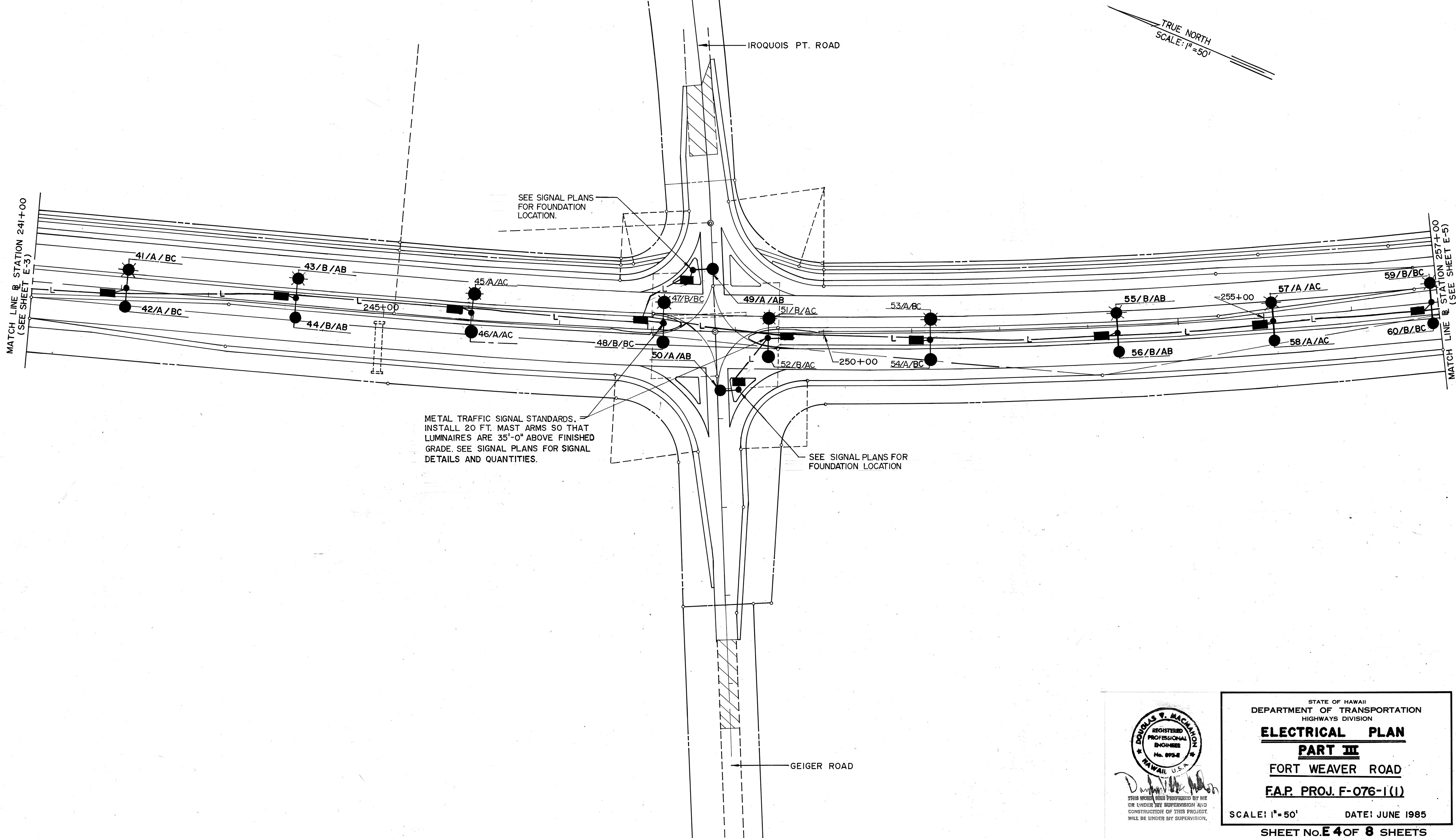
NOTE: (ref.)
Original Electrical Plan - Sheet No. E-3
Fort Weaver Rd. Widening & Realignment
F.A.P. Project No. F-076-1(1)

68 S-2

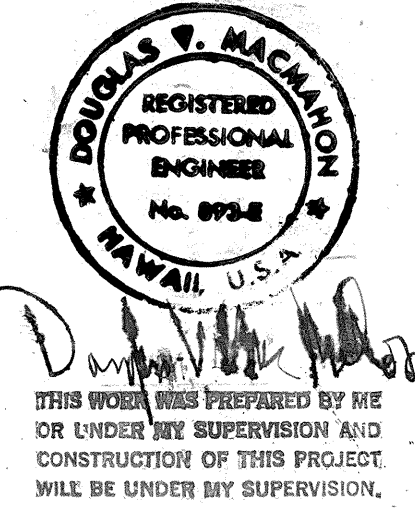
50 0 50 100
GRAPHIC SCALE
IN FEET

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.				
ENGINEERS SURVEYORS HAWAII, INC.				
BY ITS VICE PRESIDENT DATE				
ESH ENGINEERS SURVEYORS HAWAII, INC. 1020 AUAAHI ST., BLDG. 6, RM. 1 HONOLULU, HAWAII 96814 531-3116 HON. 885-4590 KAMUELA				
AS-BUILT PLANS FOR EXTENSION OF SOUTH BOUND LEFT TURN DECELERATION LANE FOR INTERSECTION AT STATION 219+60 (FAP PROJECT NO. F-076-1(1)) HONOLULU, EWA, OAHU, HAWAII				
SIGNING & STRIPING PLAN AND ELECTRICAL PLAN				
APPROVED:				

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	69	121



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



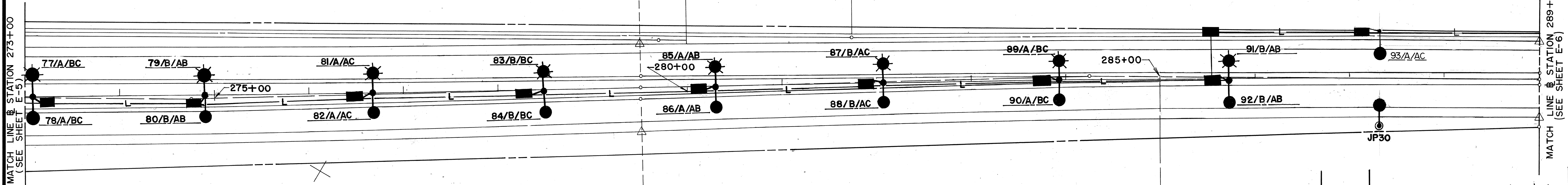
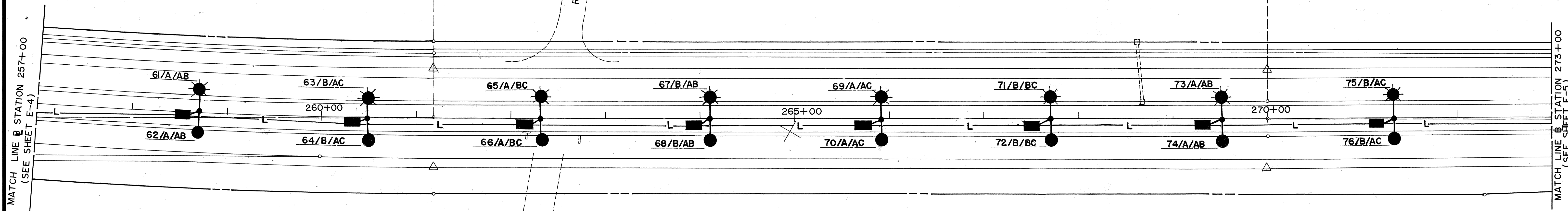
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
PART III
FORT WEAVER ROAD
F.A.P. PROJ. F-076-1(1)

SCALE: 1" = 50' DATE: JUNE 1985
SHEET No. **E 4** OF **8** SHEETS

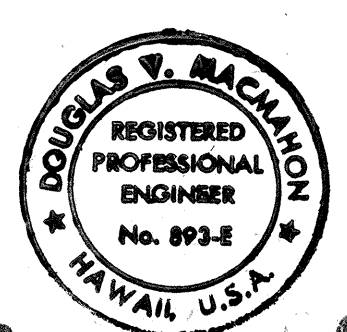
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	70	121

TRUE NORTH
SCALE: 1"=50'



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

7/28/86	Pullbox at Sta. 287+15 Relocated to Sta. 285+55 Left
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

PART IV

FORT WEAVER ROAD

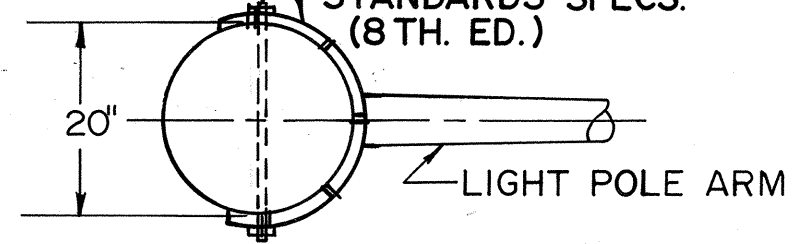
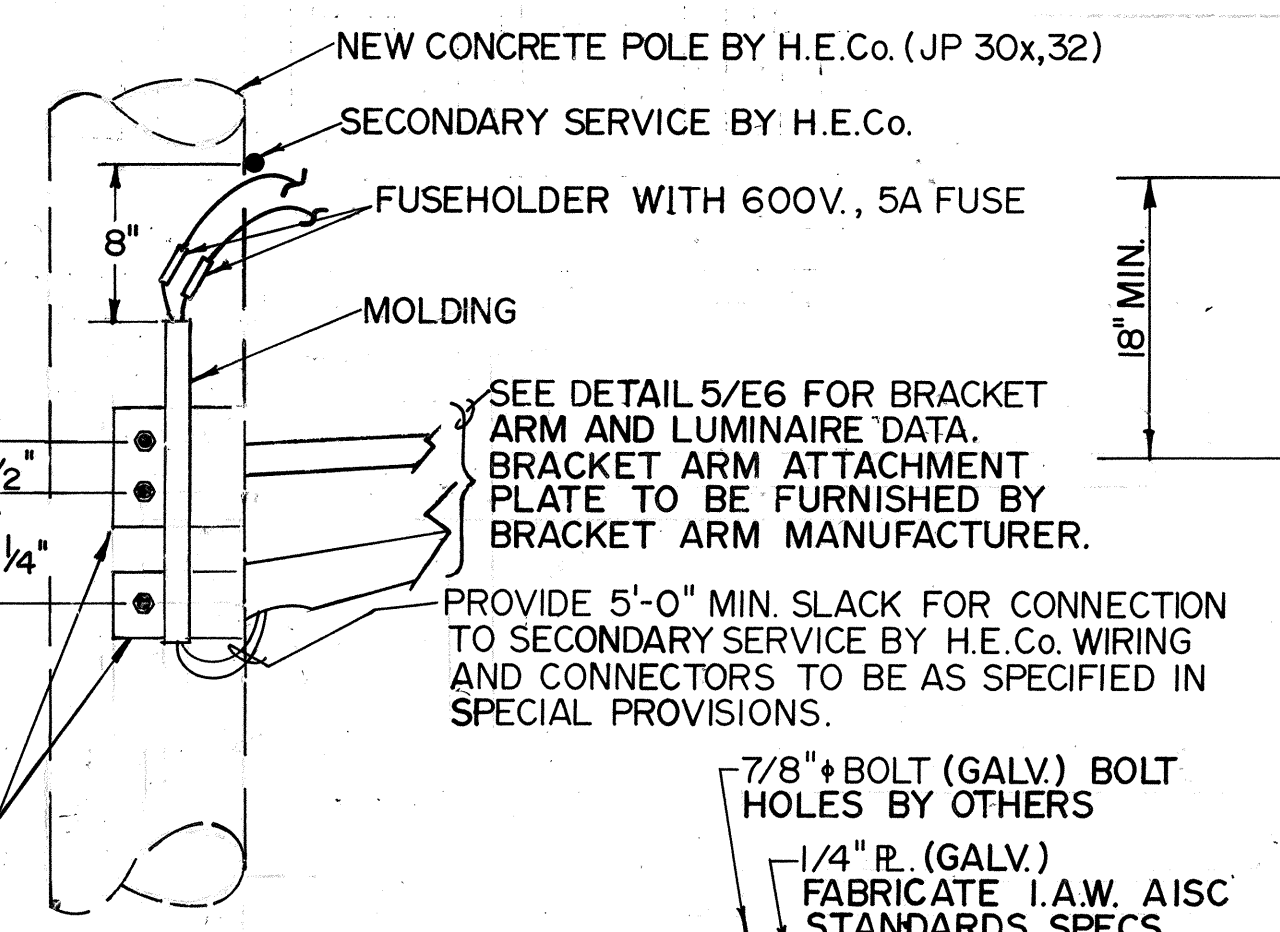
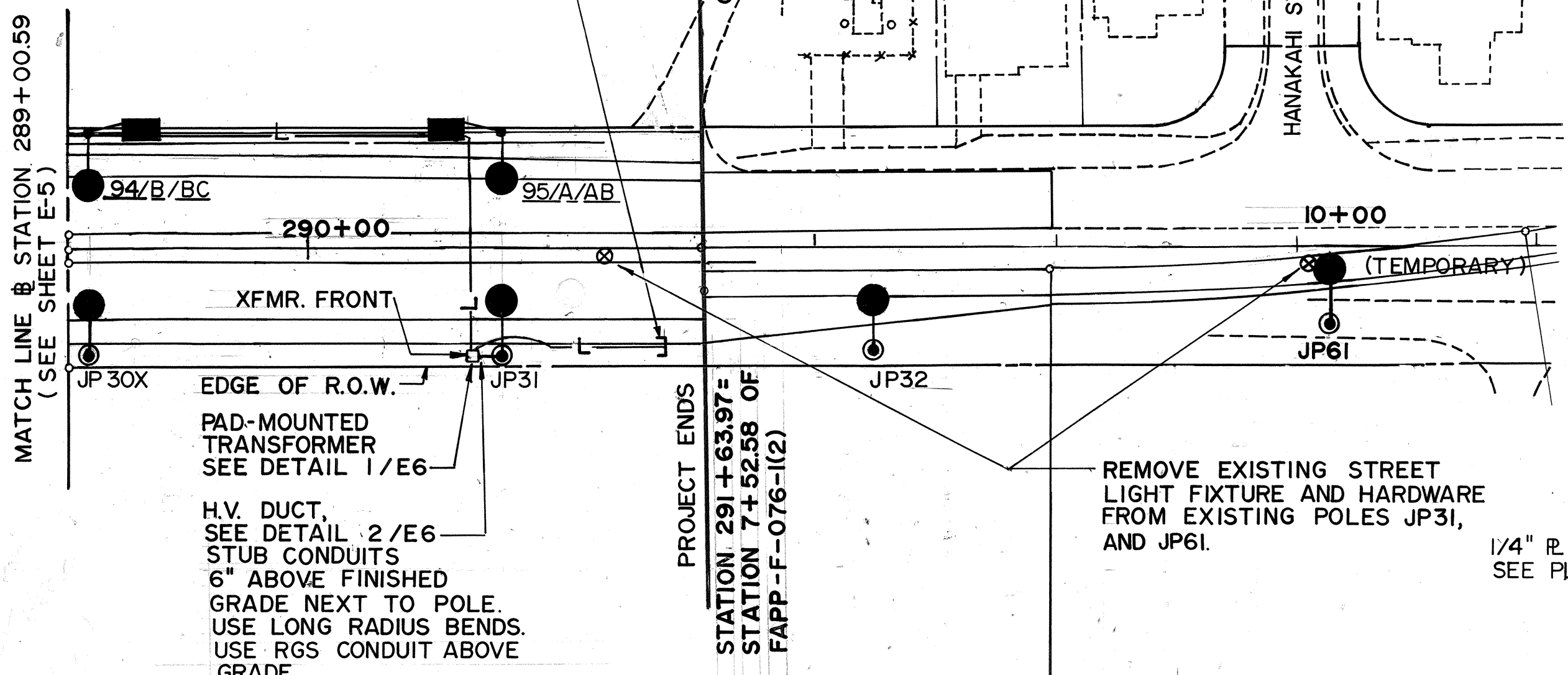
F.A.P. PROJ. F-076-1(1)

SCALE: 1"=50' DATE: JUNE 1985

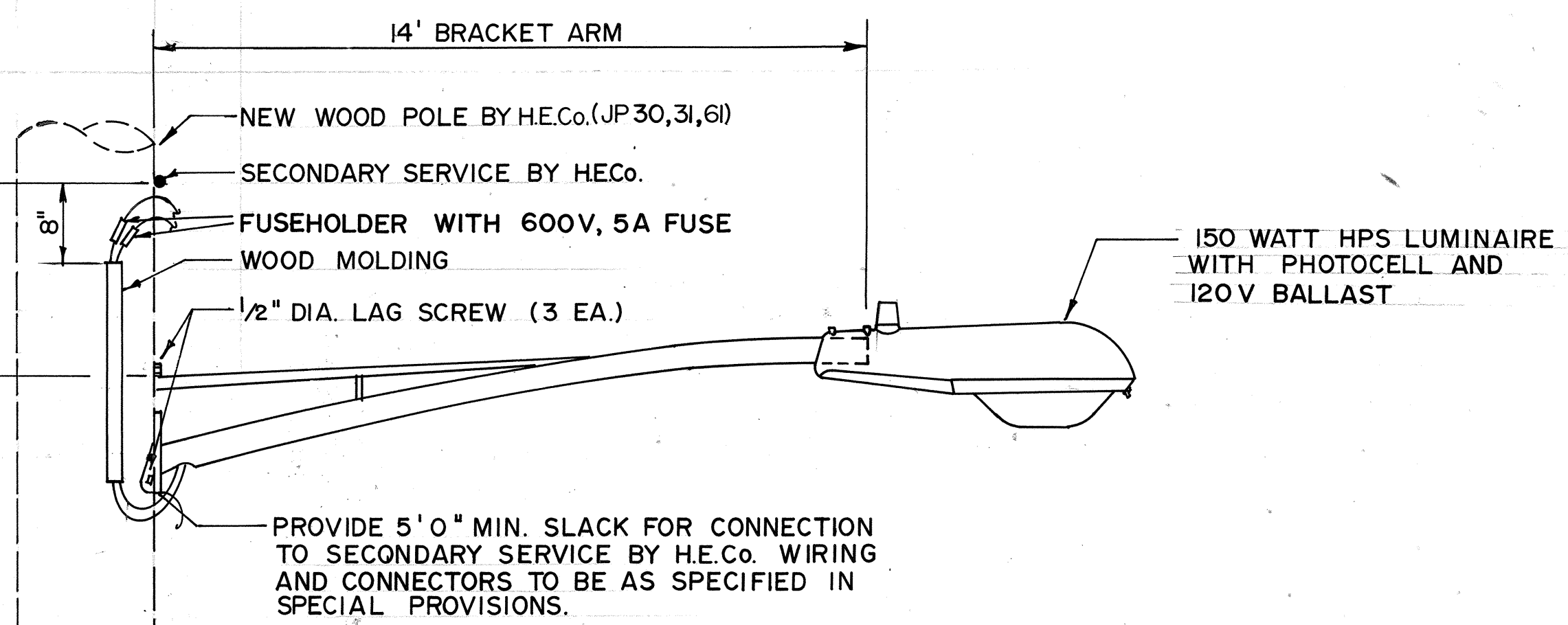
SHEET No. **E 5** OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	71	121

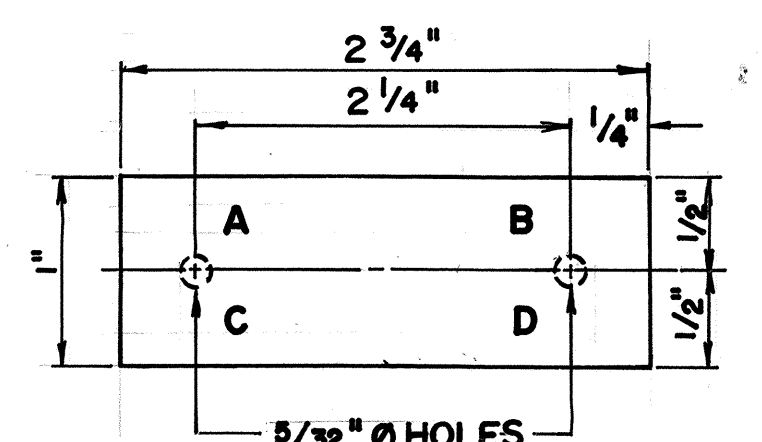
FROM SECONDARY DUCT AREA IN TRANSFORMER PAD (SEE PAD PLAN THIS SHEET), ROUTE 2" CONDUIT AROUND JOINT POLE AND END AT STA. 291+50, 45' OFFSET RIGHT. CAP END OF CONDUIT. INSTALL CONDUIT MARKER FOR FUTURE CONNECTION.



PLAN VIEW
NOTE: VERIFY DIAMETER OF POLE WITH H.E.CO. PRIOR TO PLATE FABRICATION

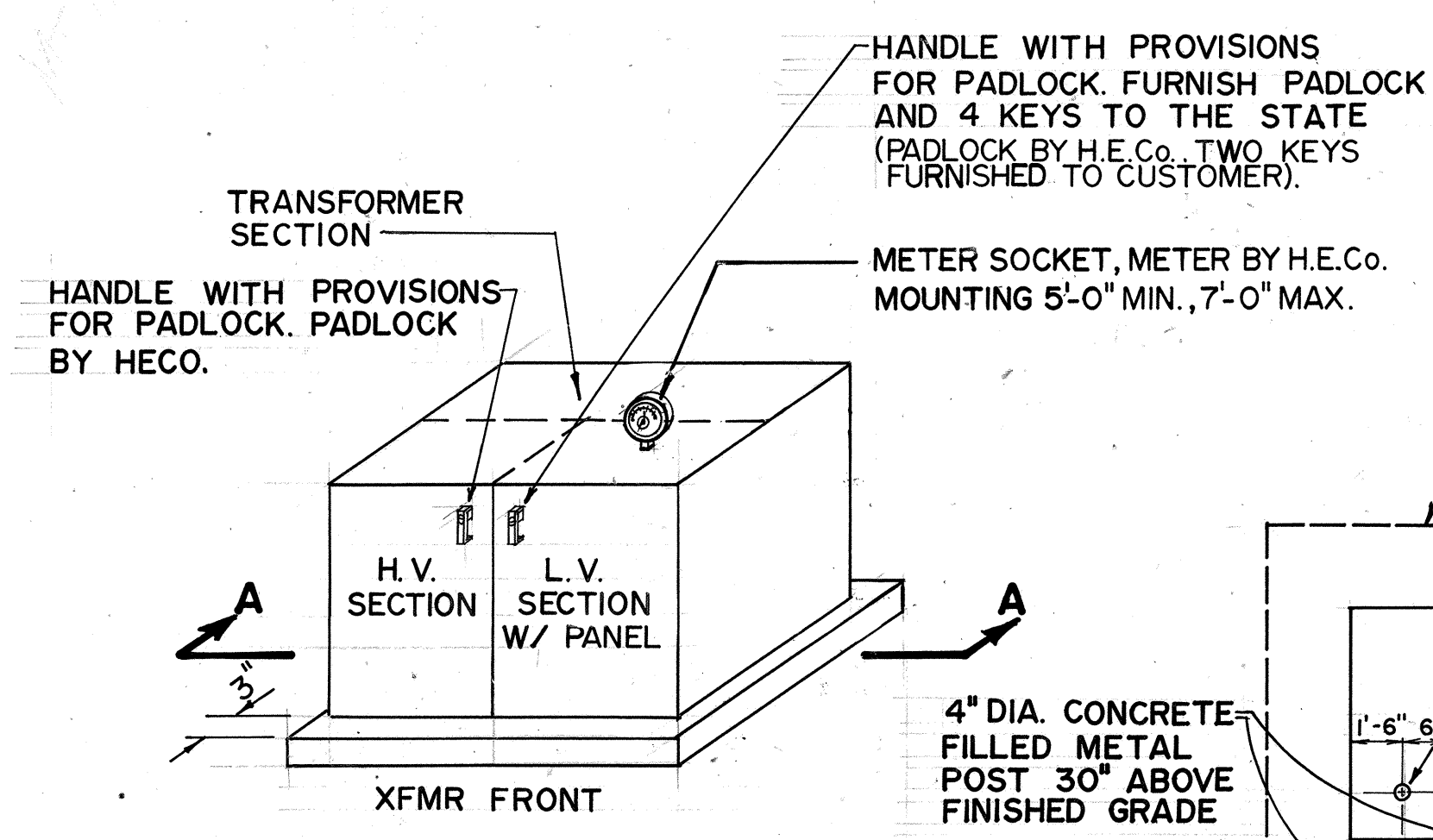


DETAIL 5/E6-WOOD POLE
MAST ARM MOUNTING DETAIL
NOT TO SCALE

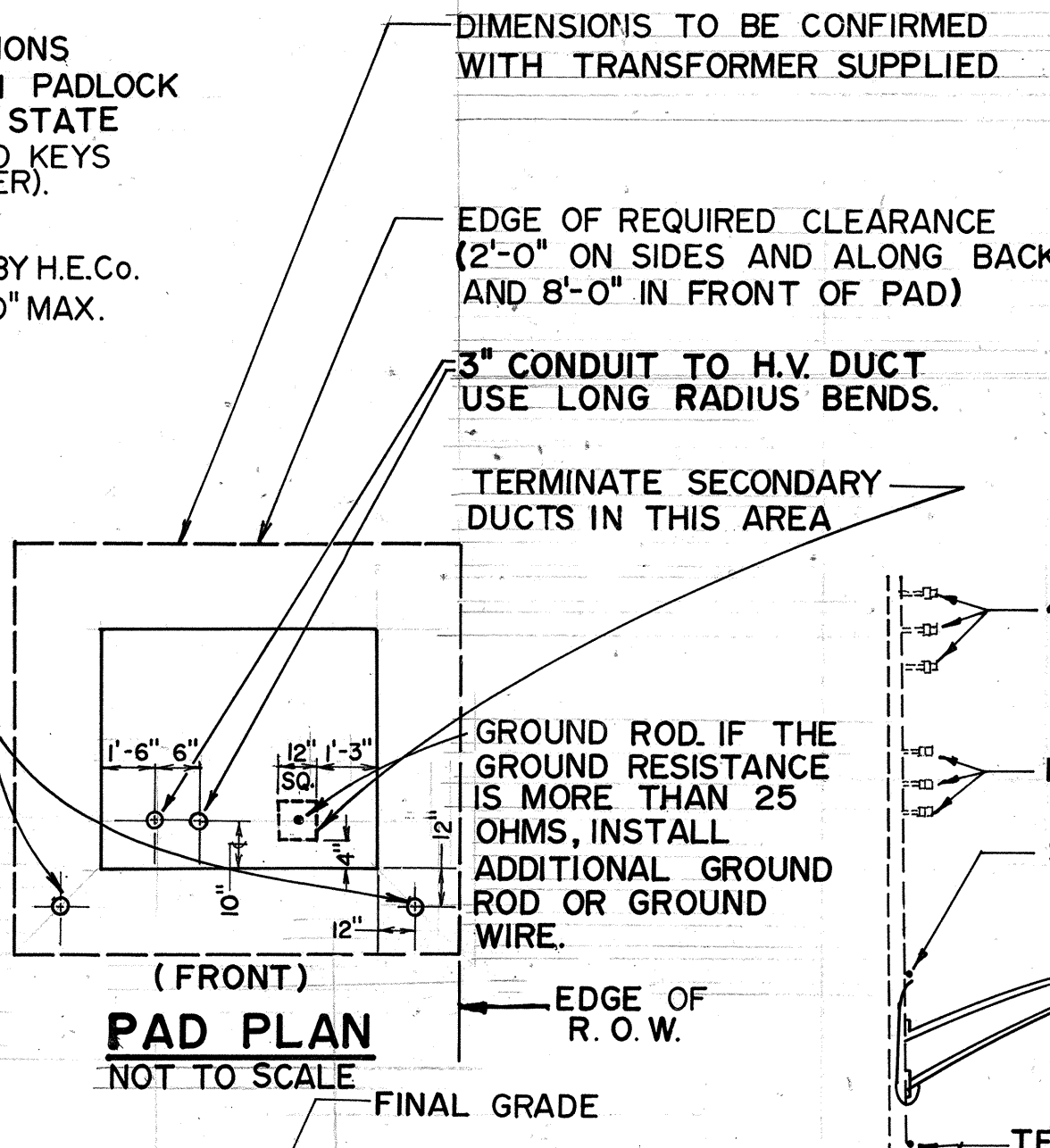


- LEGEND:**
A-CONTRACT NUMBER
B-LIGHT NUMBER
C-LAMP DATA (N FOR H.P.S.)
D-REFRACTOR DATA
- NOTES:**
1. I.D. TAG SHALL BE MADE FROM 3-PLY BLACK/WHITE/BLACK LAMINATED PLASTIC WITH 1/8" HIGH COMMERCIAL GOTHIC ENGRAVED LETTERS.
2. ATTACH TO WOOD POLE WITH 4D ALUMINUM NAILS.
3. ATTACH TO CONCRETE POLES USING EXISTING INSERTS.

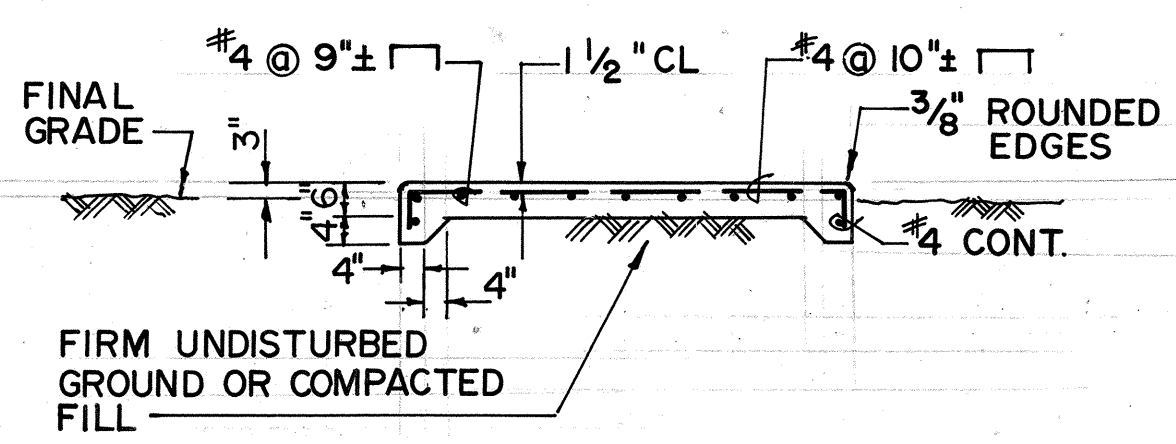
DETAIL FOR JOINT POLE I.D. TAG
NOT TO SCALE



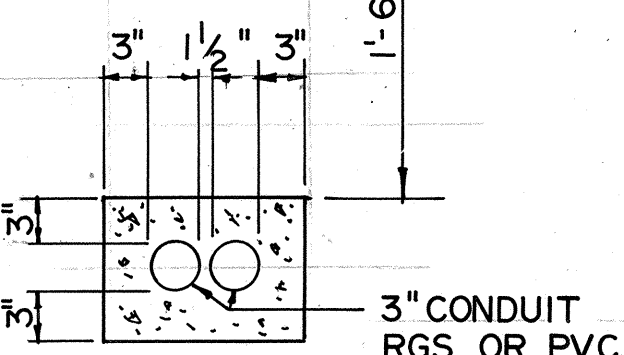
DETAIL 1/E6
PAD MOUNTED TRANSFORMER
NOT TO SCALE



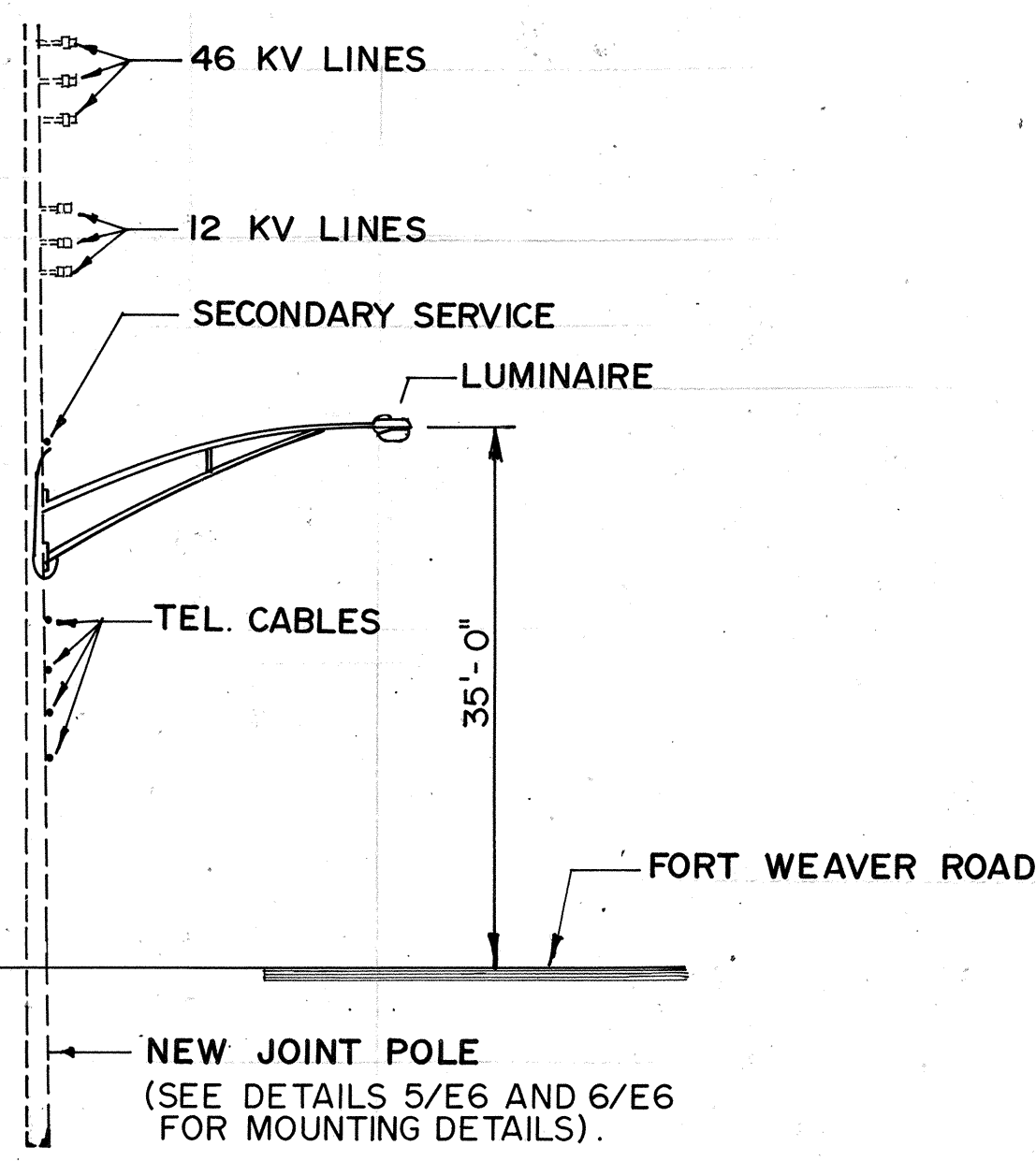
(FRONT)
PAD PLAN
NOT TO SCALE



SECTION "A-A"
PAD ONLY
NOT TO SCALE



DETAIL 2/E6
H.V. DUCT ENCASUREMENT
NOT TO SCALE



DETAIL 3/E6
MAST ARM INSTALLATION
NOT TO SCALE

I.D. TAG INFORMATION FOR LUMINAIRES ON JOINT POLES		
J. P. NO.	INFORMATION	
30 (WOOD POLE)	501 N 150	602 II
30X (CONC. POLE)	501 N 150	603 II
31 (WOOD POLE)	501 N 150	554 II
32 (CONC. POLE)	501 N 150	604 II
61 (WOOD POLE)	501 N 150	555 II

DETAIL 4/E6
JOINT POLE I.D. TAG INFORMATION
NOT TO SCALE

8/21/86	RELOCATED CONDUIT STUBOUT FROM LEFT SIDE OF HWY TO RIGHT
12/19/89	REVISED MAST ARM MOUNTING DETAIL
DATE	REVISION

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION.

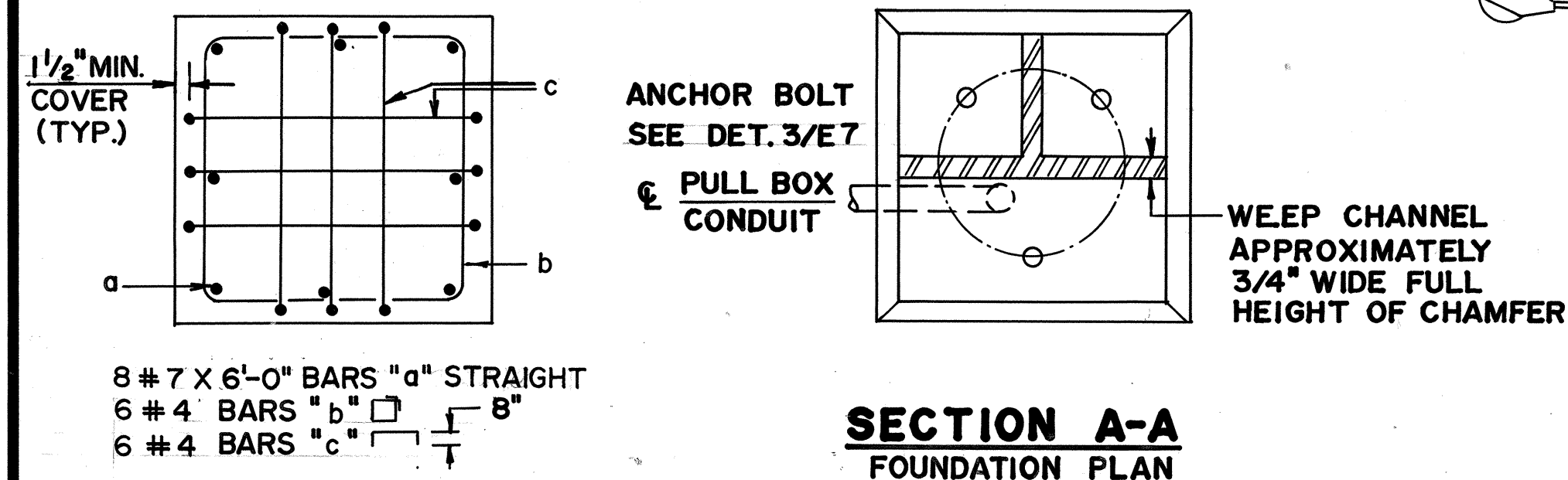


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

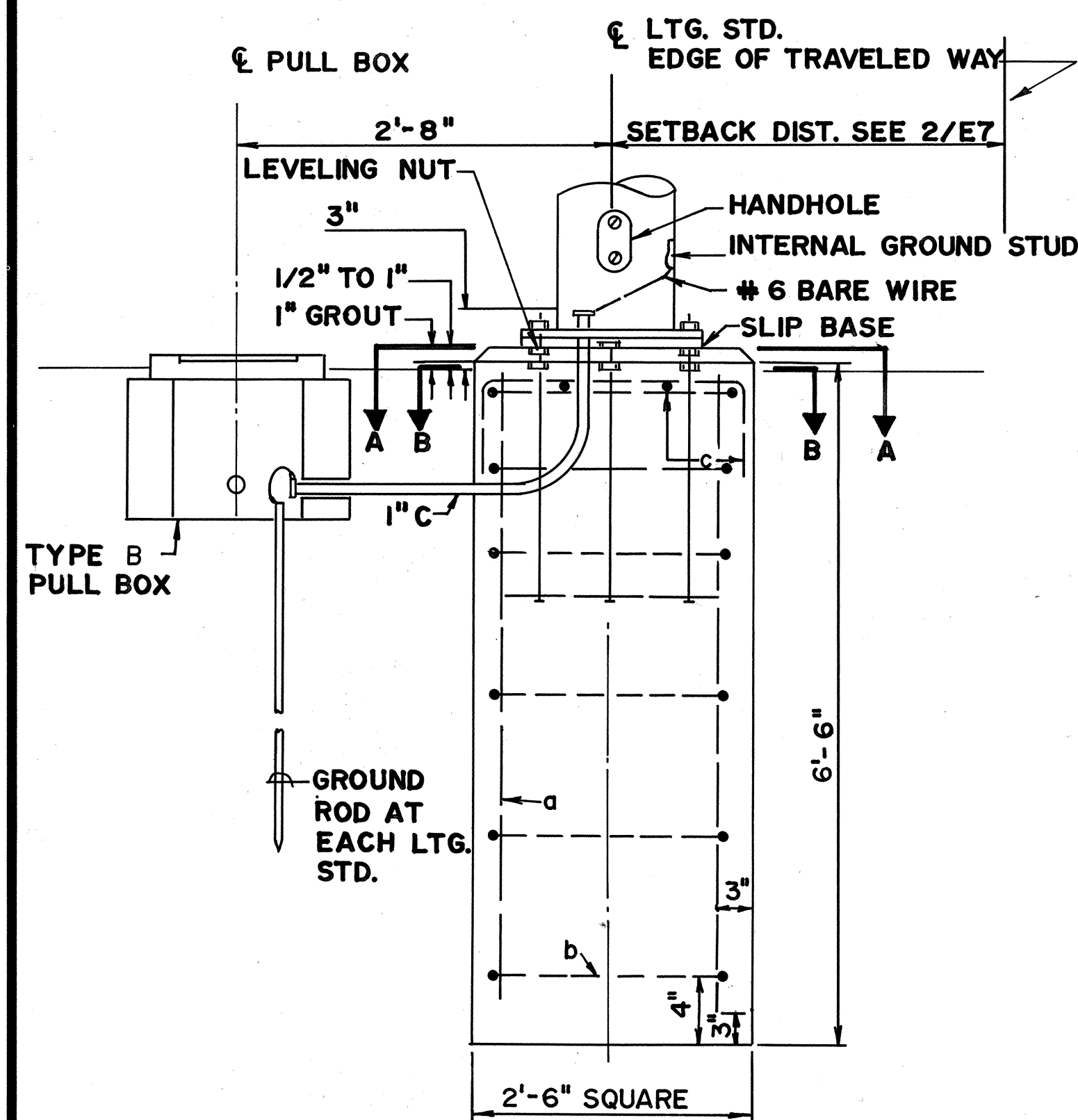
ELECTRICAL PLAN
PART V
FORT WEAVER ROAD
F.A.P. PROJ. F-076-1(1)

SCALE: AS SHOWN DATE: JUNE 1985
SHEET No. **E 6** OF 8 SHEETS
C.O. ADD. 71

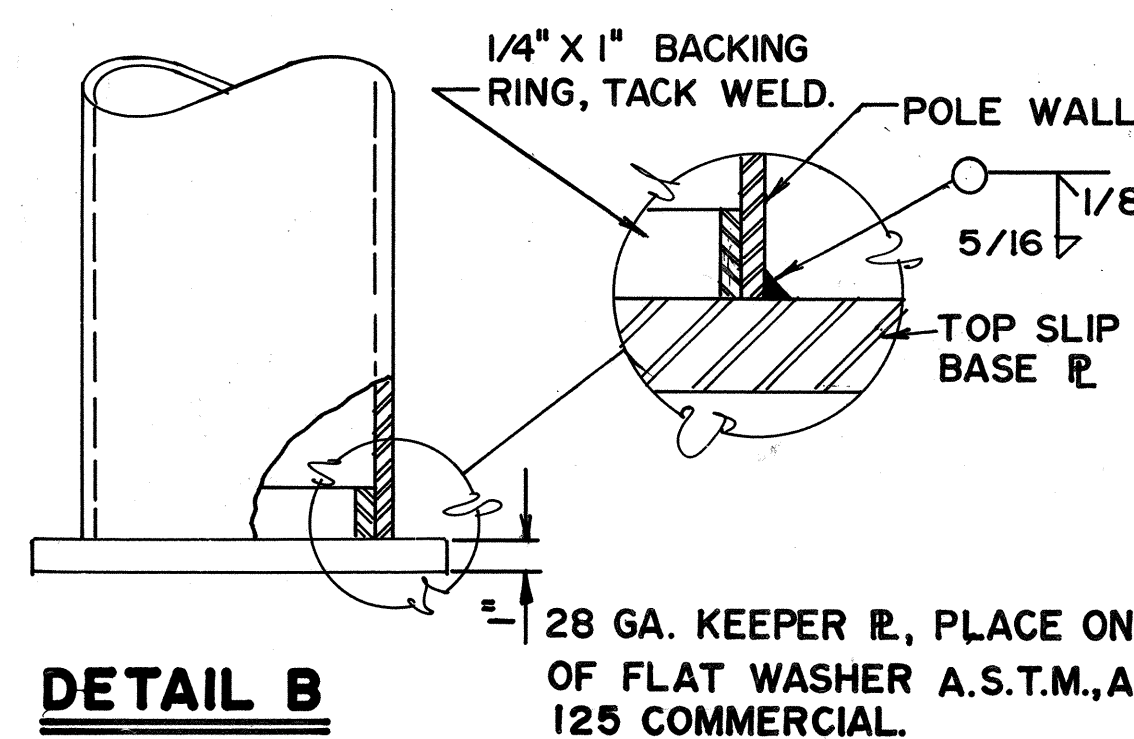
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	72	121



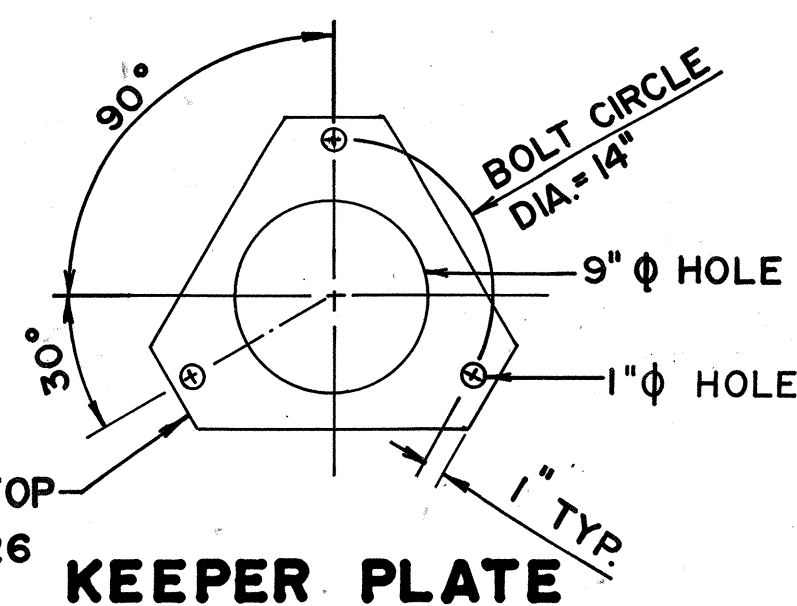
SECTION B-B
REINFORCING PLAN



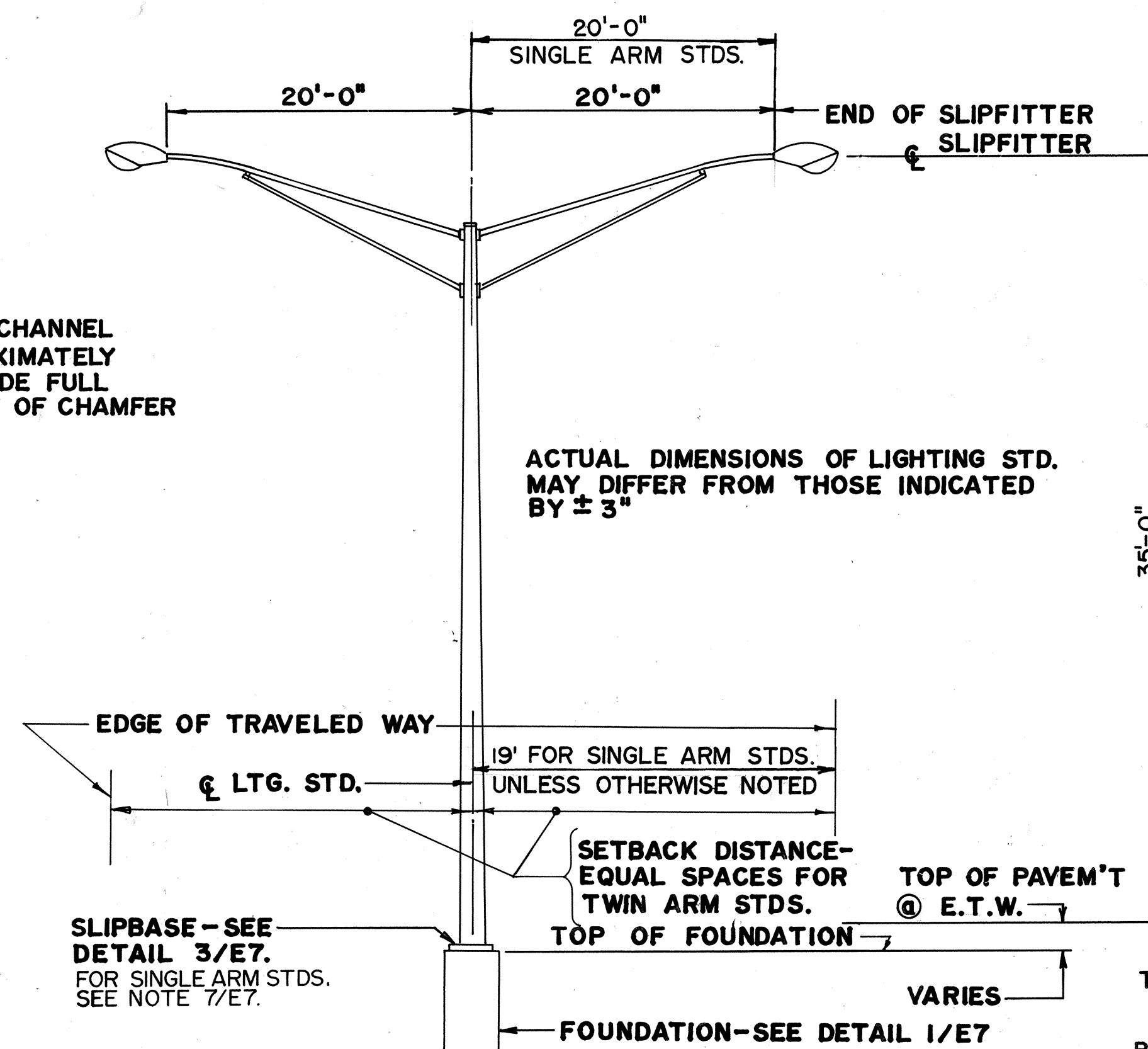
DETAIL 1/E7
LIGHTING STANDARD FOUNDATION
NOT TO SCALE



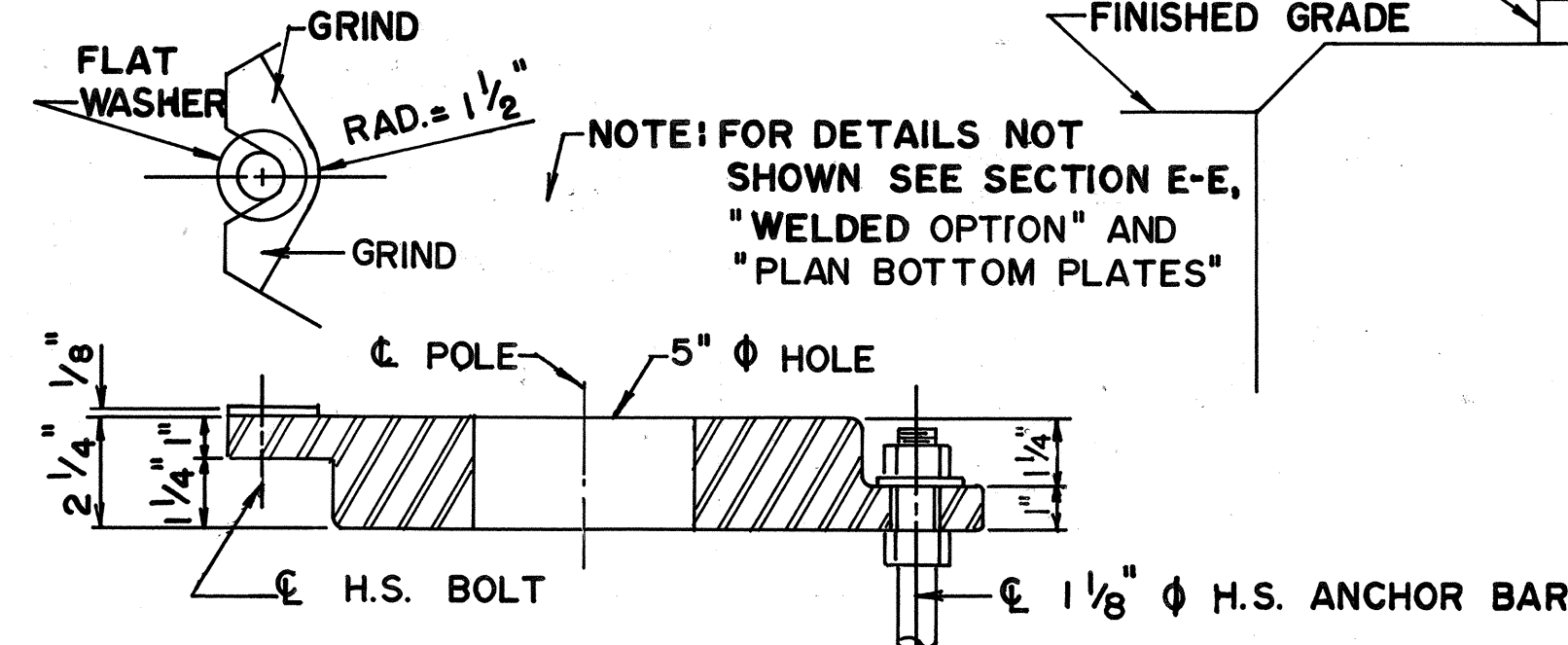
DETAIL B



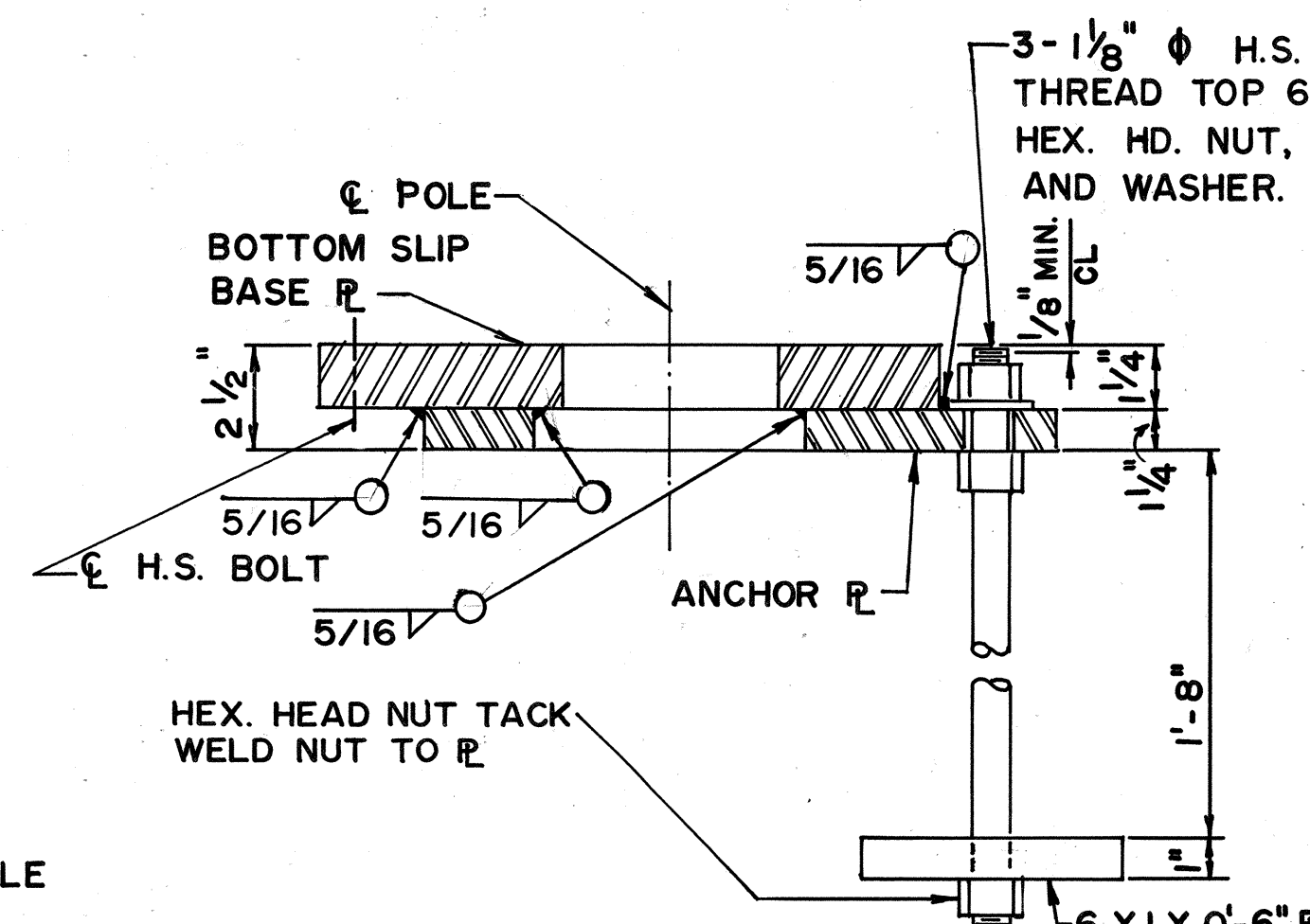
KEEPER PLATE



DETAIL 2/E7 - LIGHTING STANDARD
NOT TO SCALE



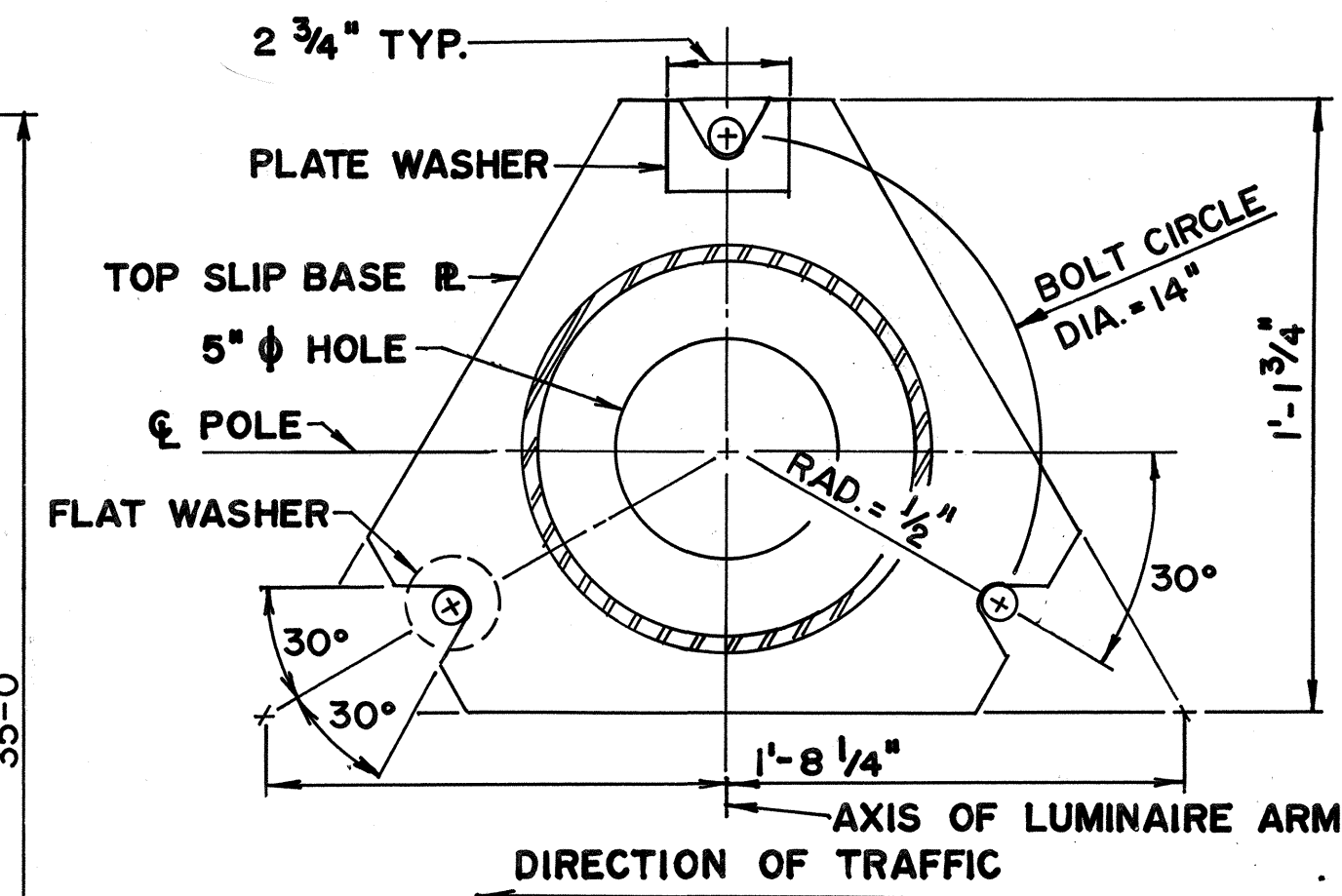
CAST OPTION



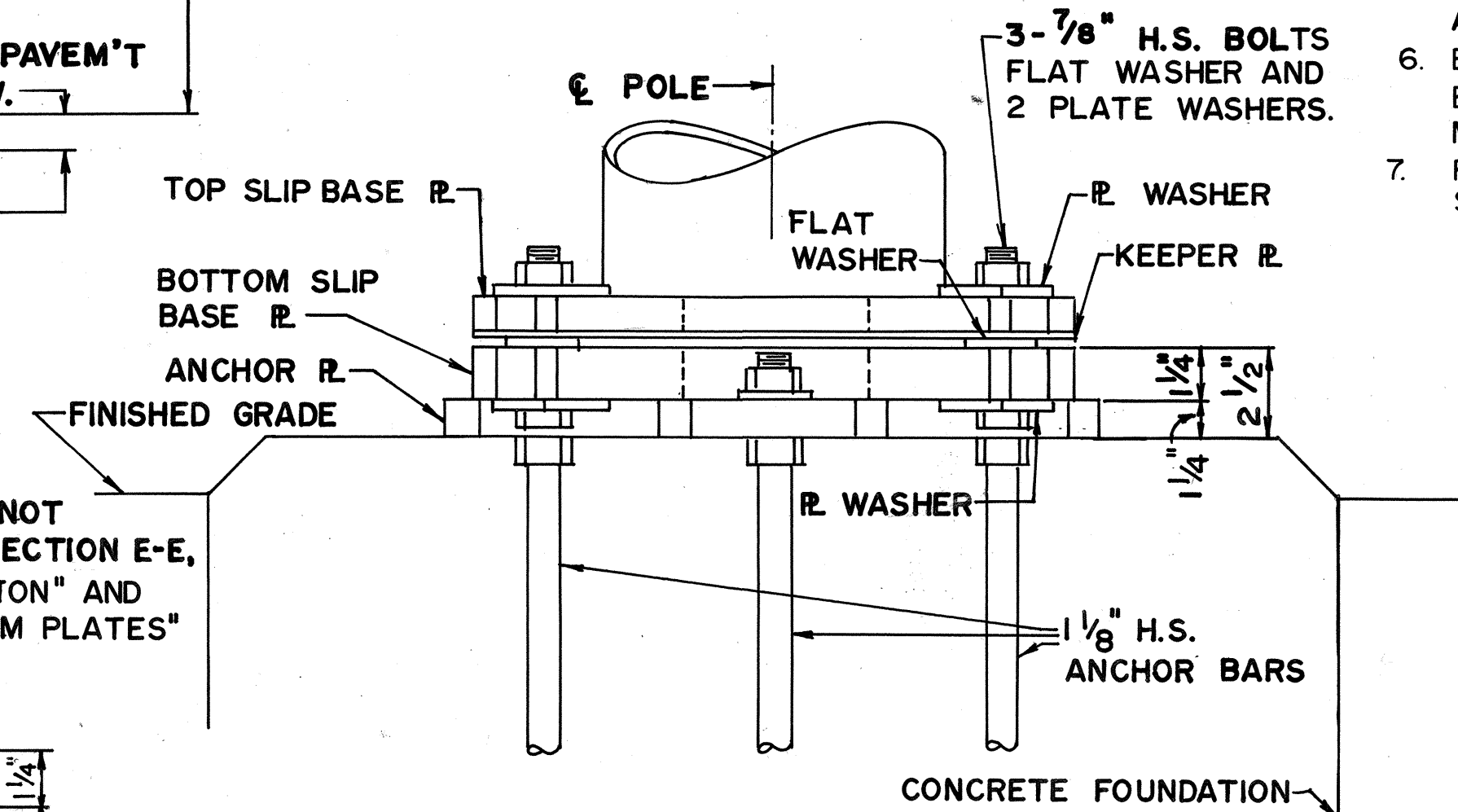
WELDED OPTION

SECTION E-E

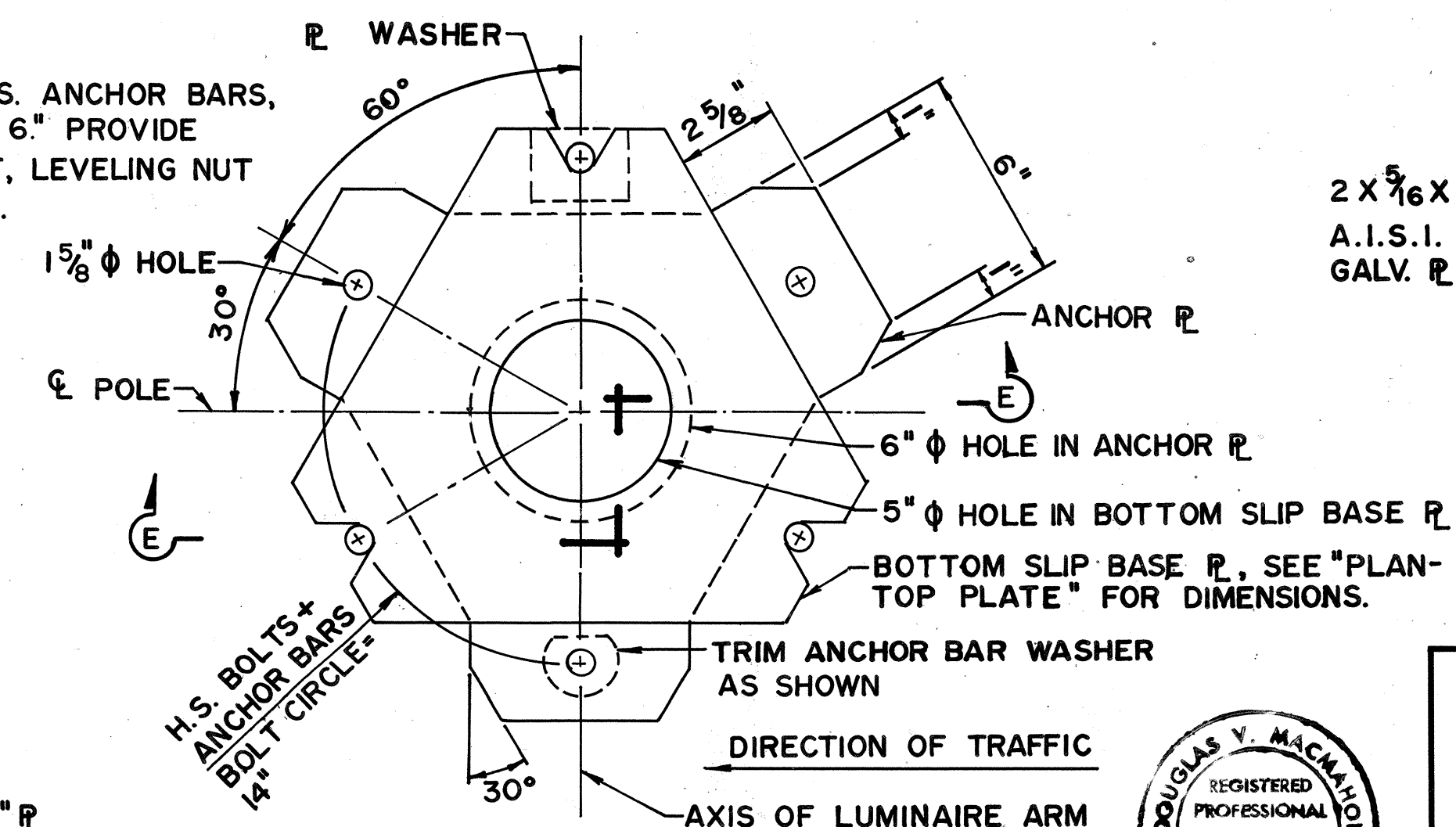
DETAIL 3/E7 - LIGHTING STANDARD SLIP BASE
NOT TO SCALE



PLAN-TOP PLATE



ELEVATION



PLAN - BOTTOM PLATES

SLIP BASE PLATE DETAILS

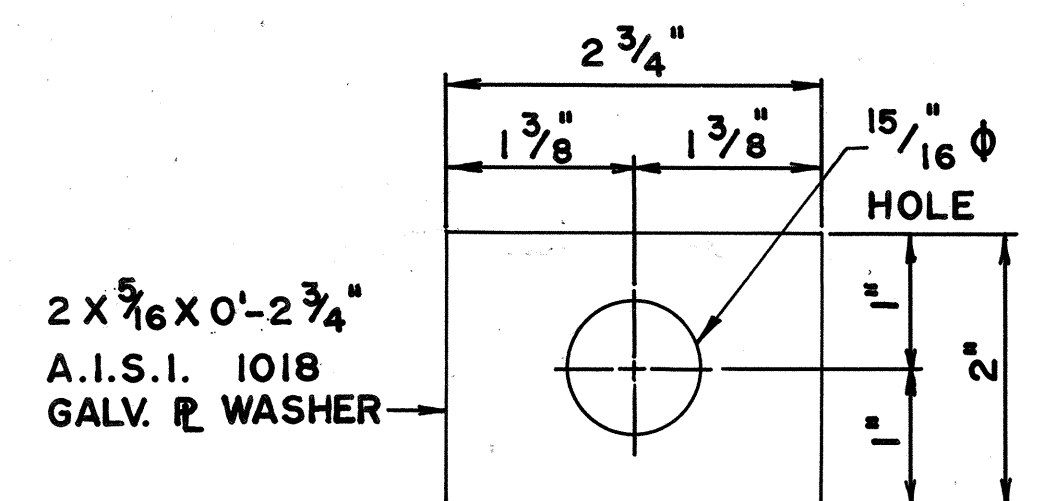


PLATE WASHER

2 X ⁵/₁₆ X 0'-2 ³/₄
A.I.S.I. 1018
GALV. P WASHE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DETAILS

FORT WEAVER ROAD
F.A.P. PROJ. F-076-1(1)

SCALE: AS SHOWN DATE: JUNE 1985

SHEET No. E7 OF 8 SHEETS

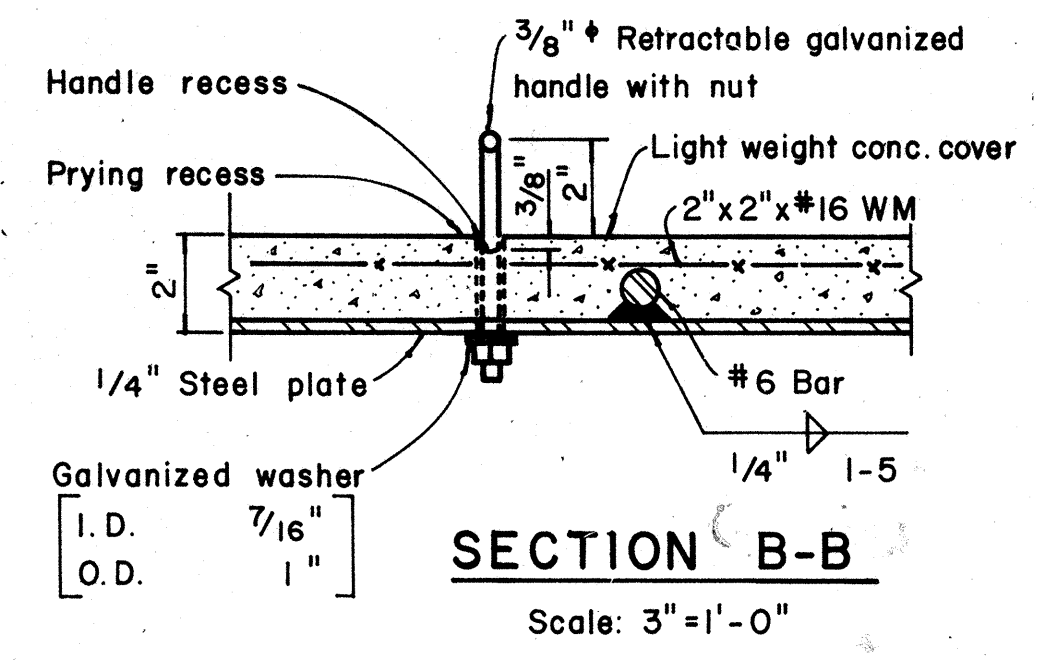
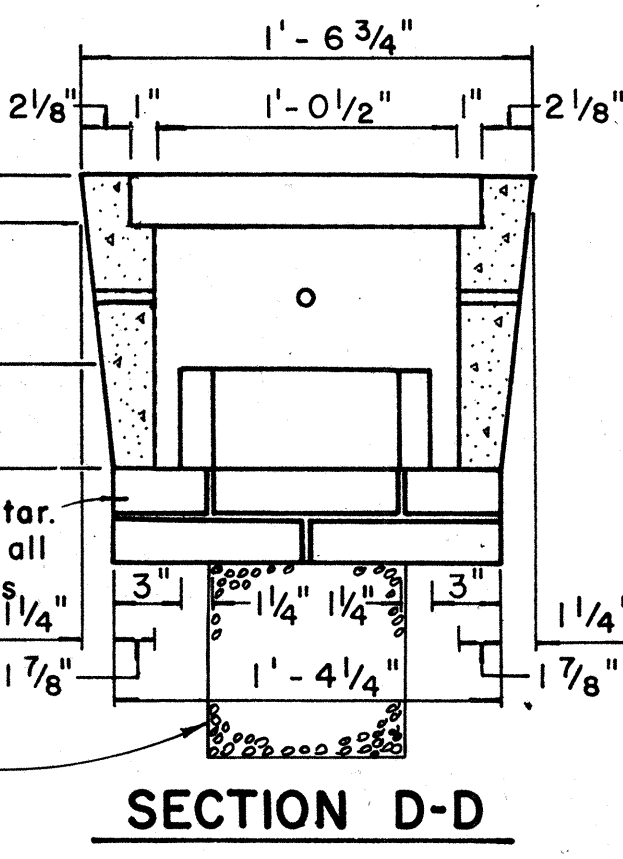
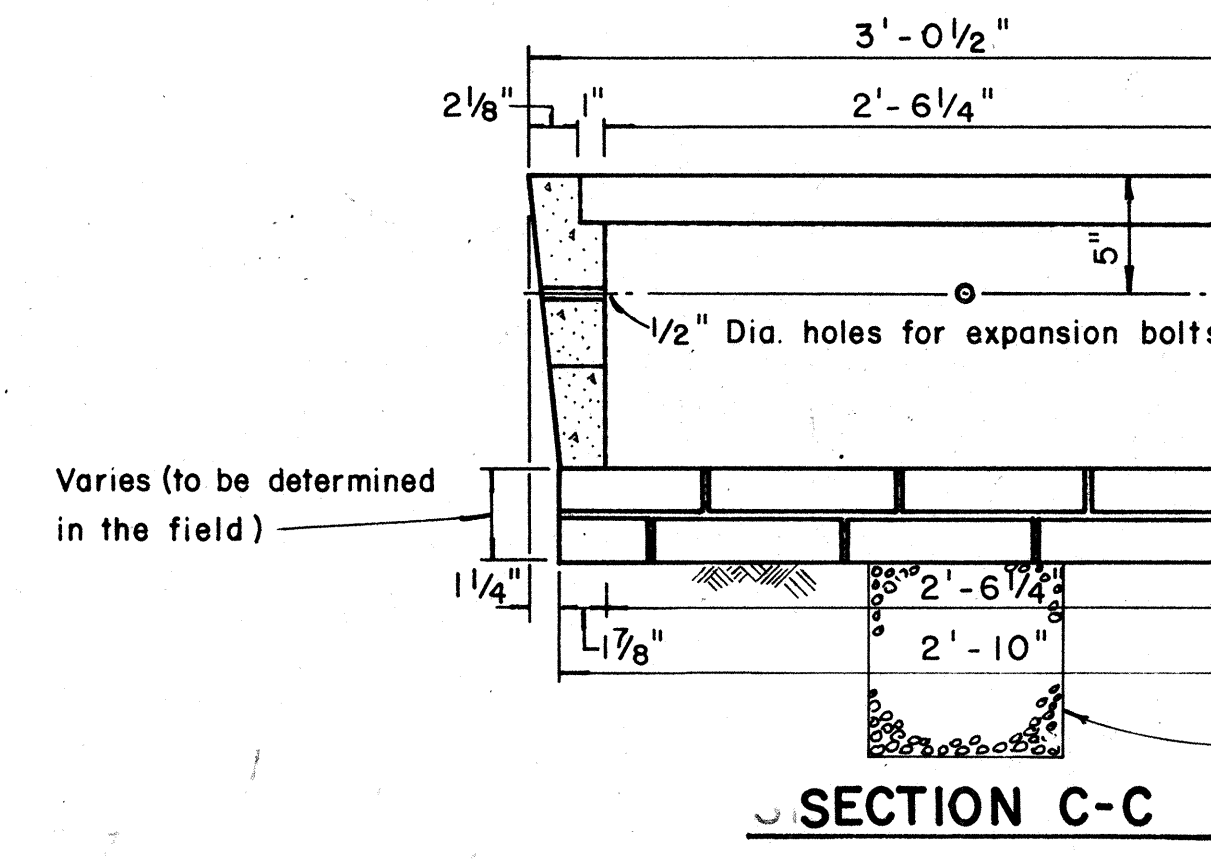
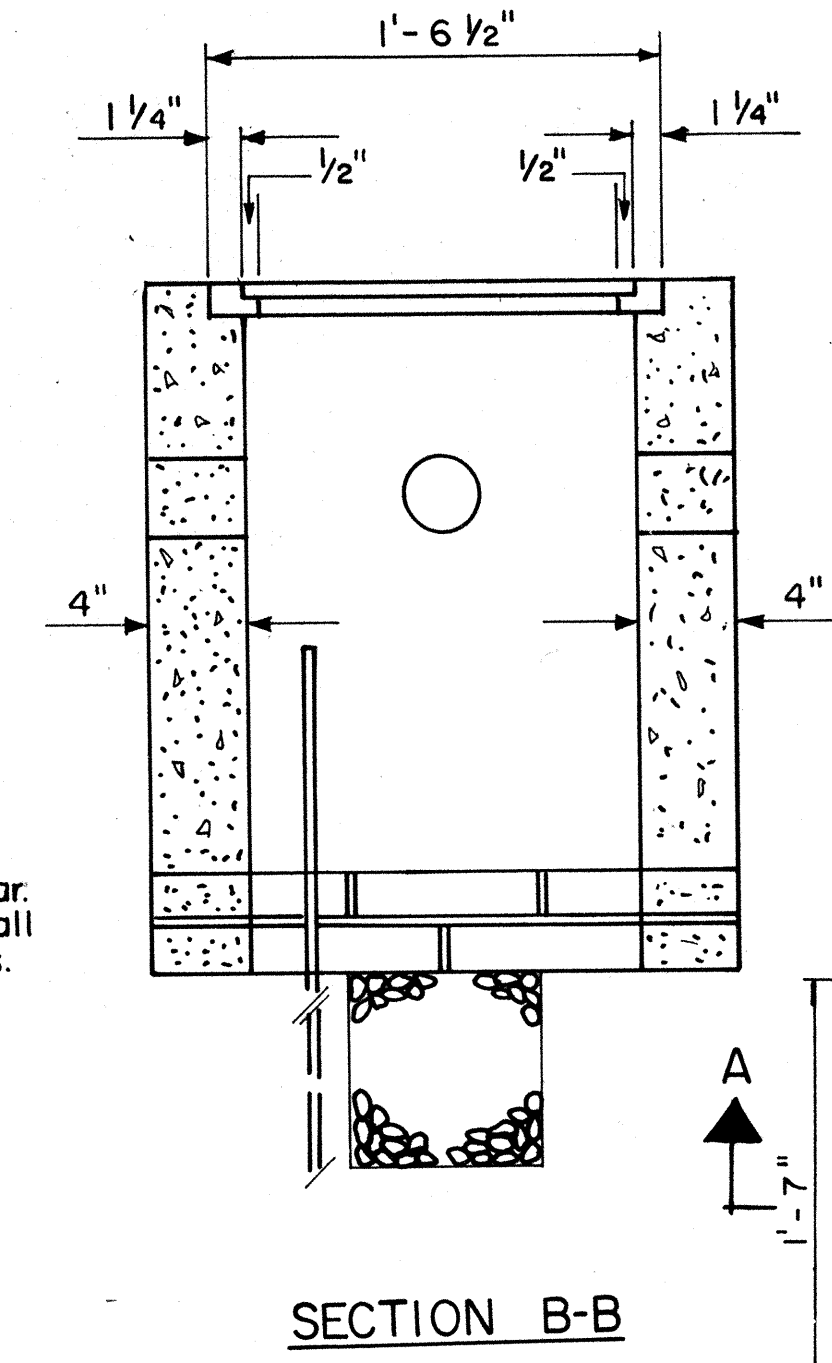
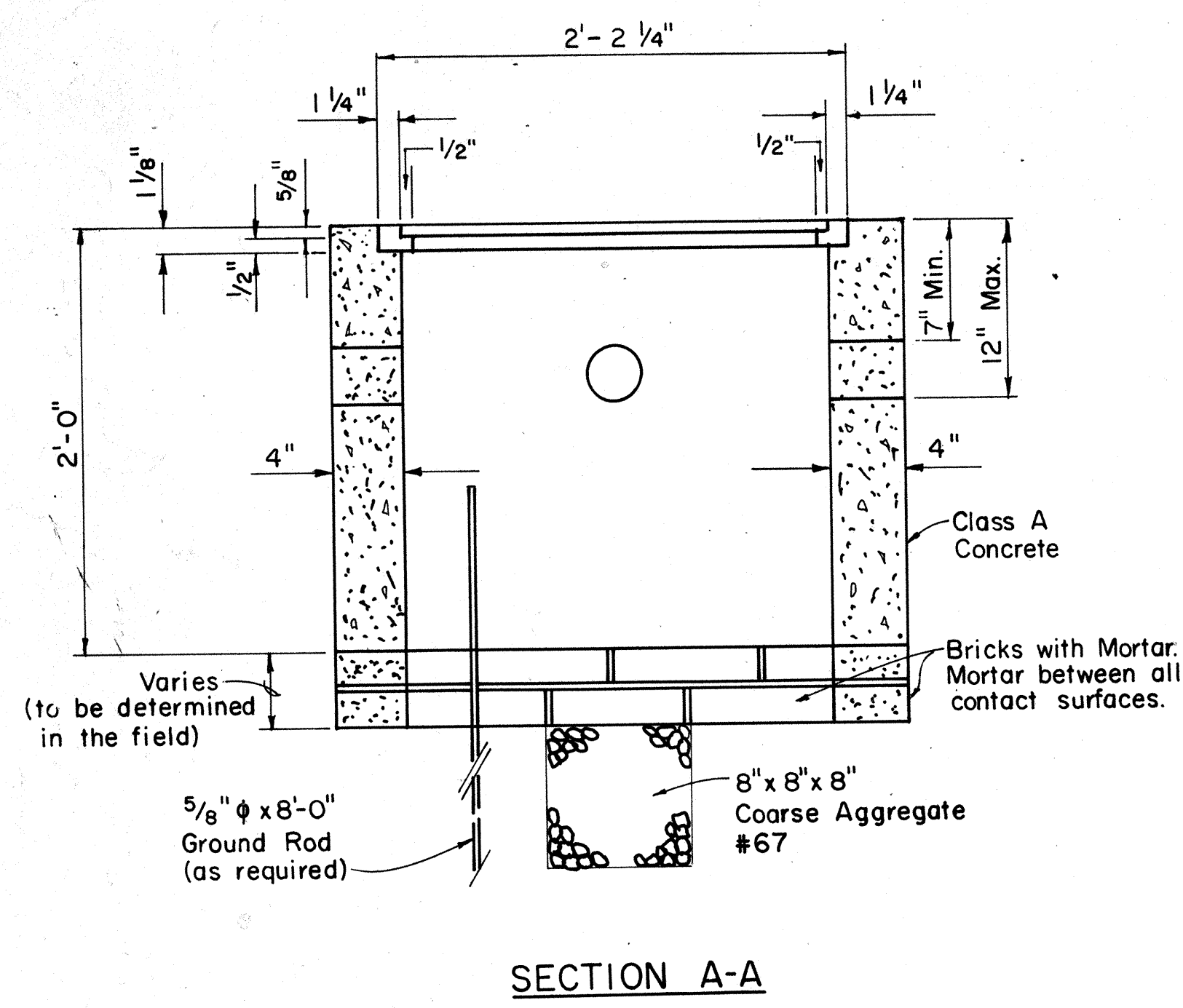
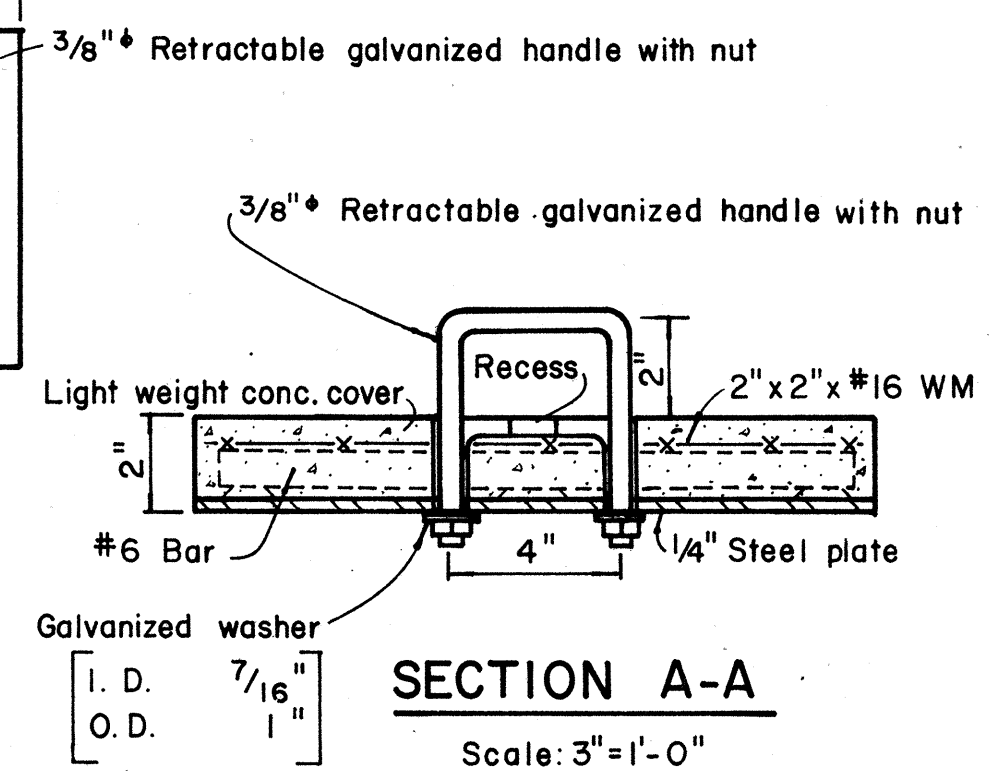
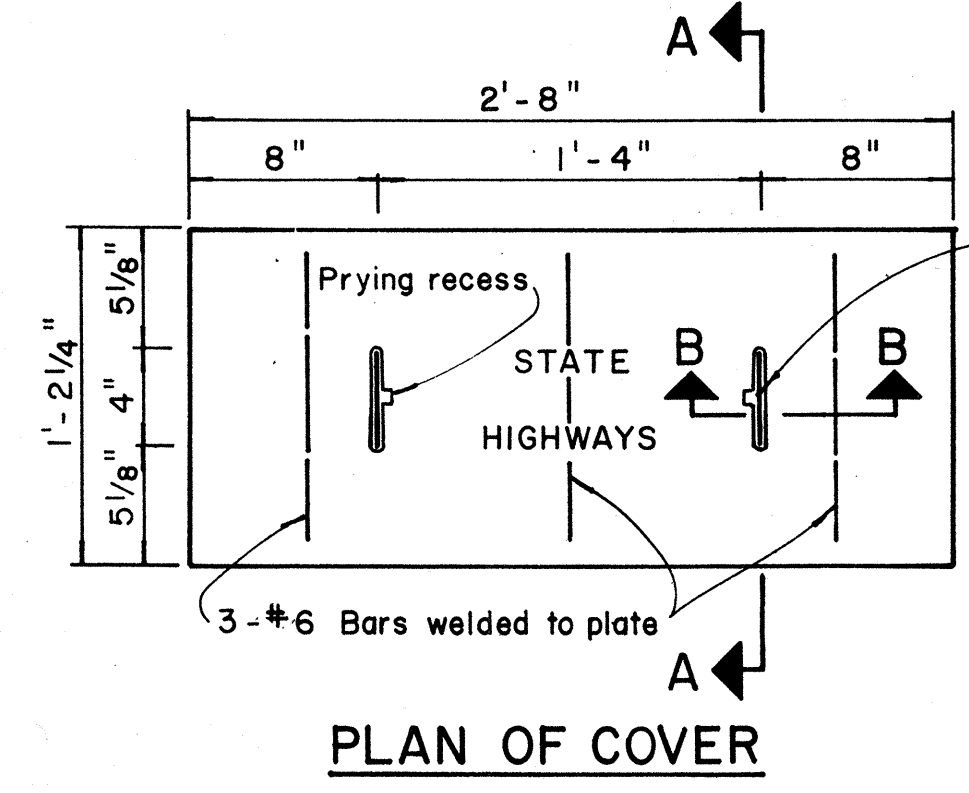
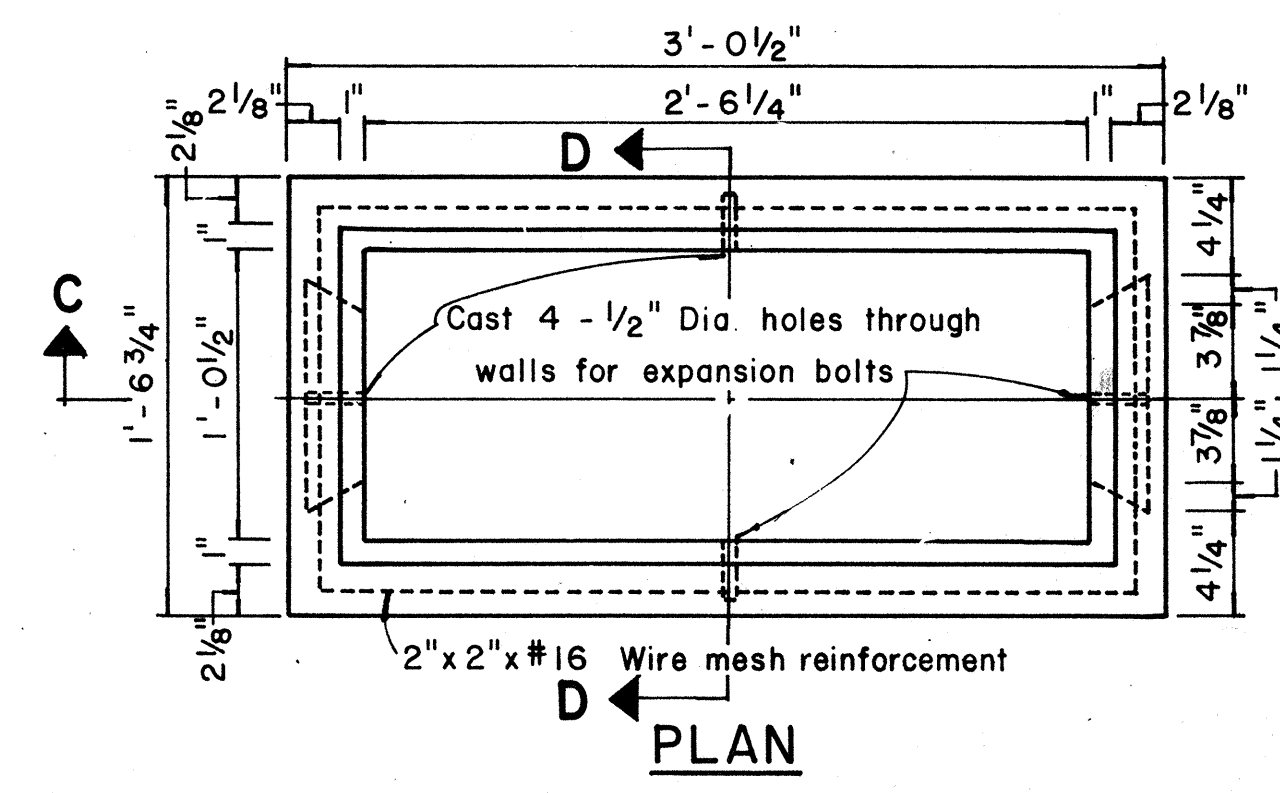
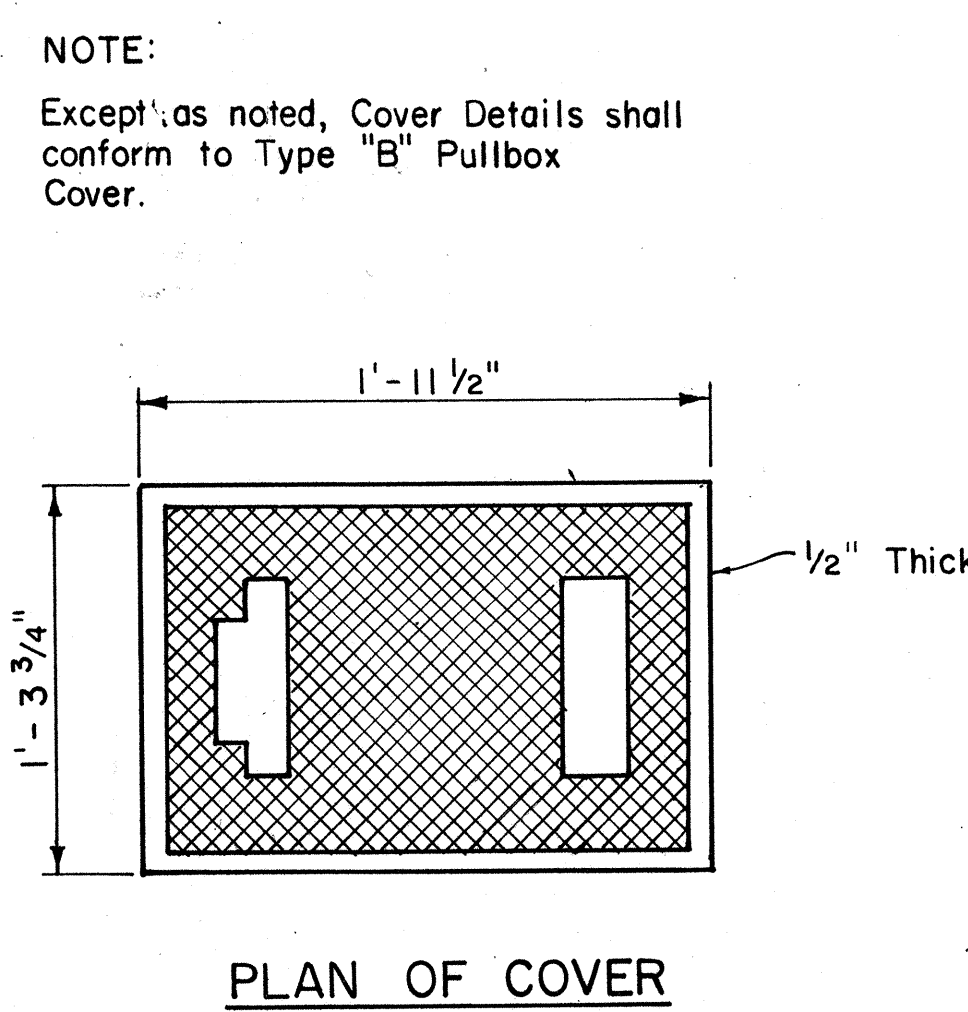
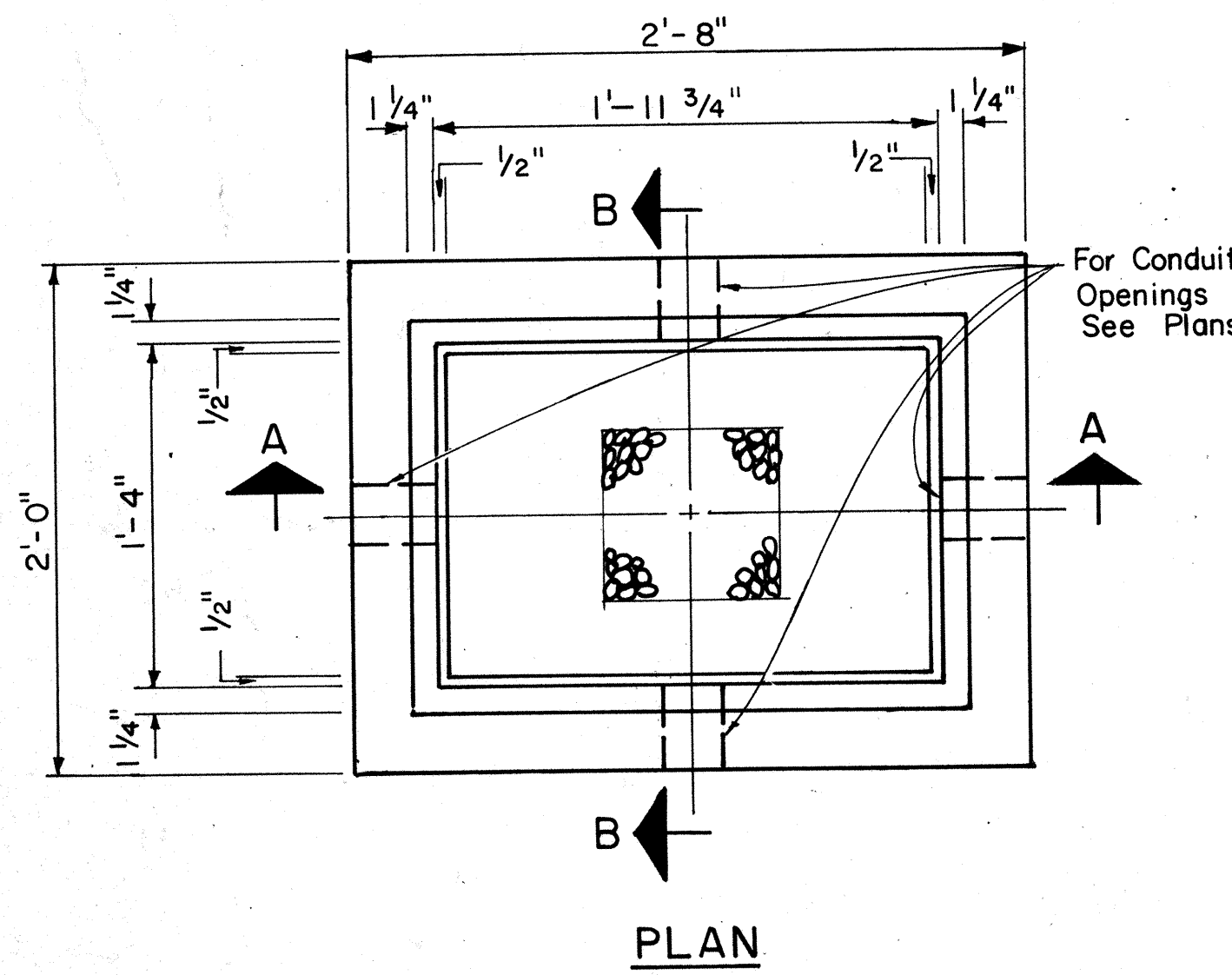
NOTES-DETAIL

1. PLATES SHALL CONFORM TO A.S.T.M. A-36, EXCEPT AS NOTED.
2. CAST OPTION SHALL CONFORM TO A.S.T.M. A-27 GRADE 70-40 ALTERNATIVE DETAILS APPROVED BY THE ENGINEER MAY BE SUBSTITUTED FOR THE ARM CONNECTIONS SHOWN.
3. TORQUE $7/8"$ H.S. BOLTS TO 84 FOOT-POUNDS.
4. $1\frac{1}{8}"$ HIGH STRENGTH ANCHOR BARS, WRENCH TIGHTEN, TORQUE REQUIREMENT WAIVED, FABRICATORS ELECTING TO USE LARGER MINIMUM ARM DIAMETERS MUST ADJUST THE DETAILS AS REQUIRED TO PERMIT SOLID SEATING OF CAP SCREWS. IN LIEU OF THE TORQUE REQUIREMENTS FOR H.S. BOLTS, CAP SCREWS SHALL BE TIGHTENED BY THE TURN-OF-NUT METHOD $1/6"$ TURN FROM SNUG TIGHT CONDITION. NO WASHER WILL BE REQUIRED.
5. H.S. BOLTS, FLAT WASHERS AND NUTS AND WASHERS FOR H.S. ANCHOR BARS SHALL CONFORM TO A.S.T.M. A-325. HIGH STRENGTH ANCHOR BARS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF A.S.T.M. A-325 TYPE I OR TYPE 2.
6. BOLTS, ANCHOR BARS, PLATES, WASHERS AND NUTS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION OR MODIFICATION.
7. FOR ANCHOR BASES ON SINGLE ARM STDS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.



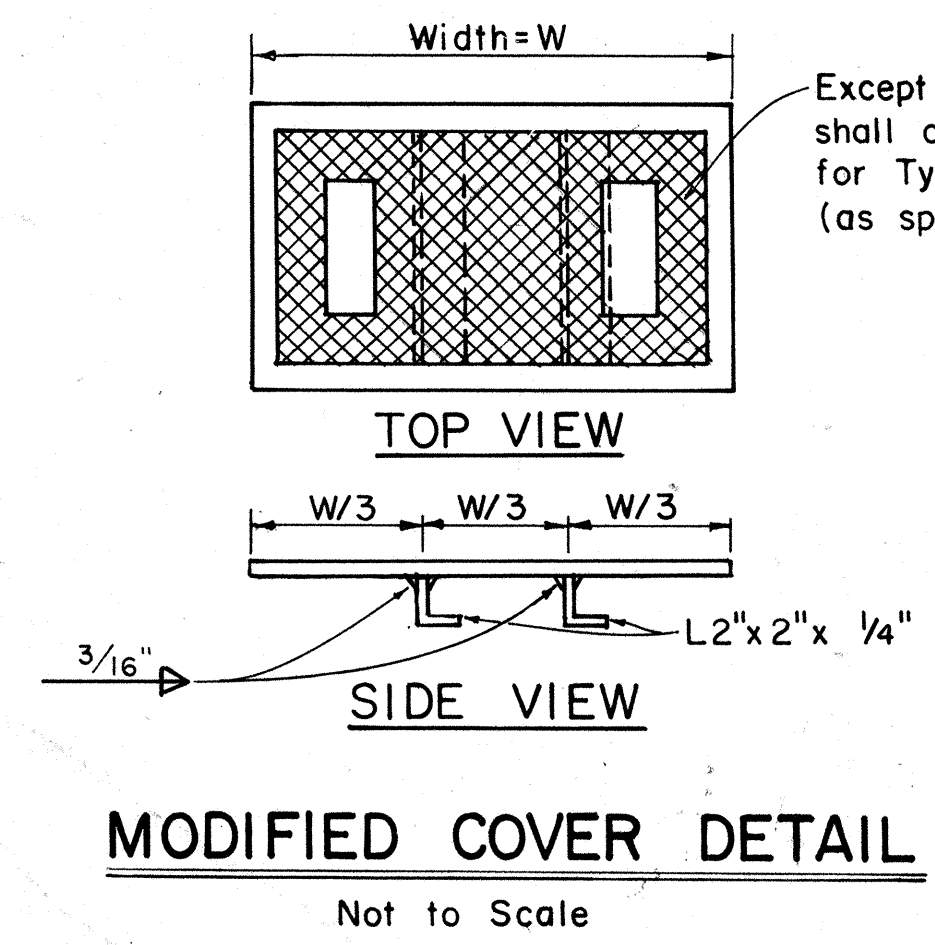
THIS WORK WAS PREPARED BY
~~OR UNDER MY SUPERVISION AND~~
 CONSTRUCTION OF THIS PROJECT
 WILL BE UNDER MY SUPERVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(1)	1986	73	121

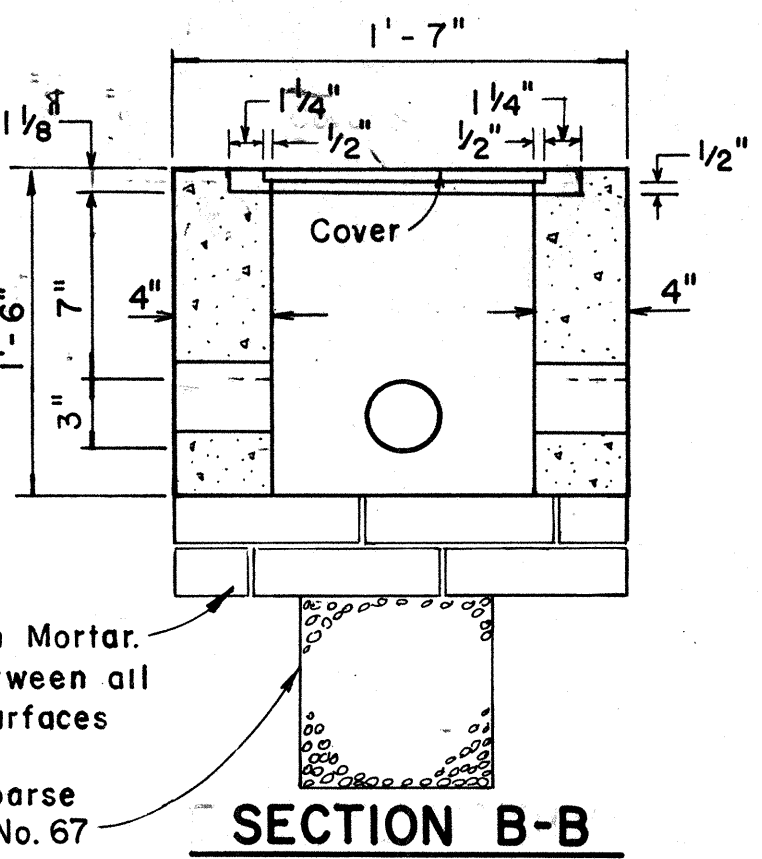
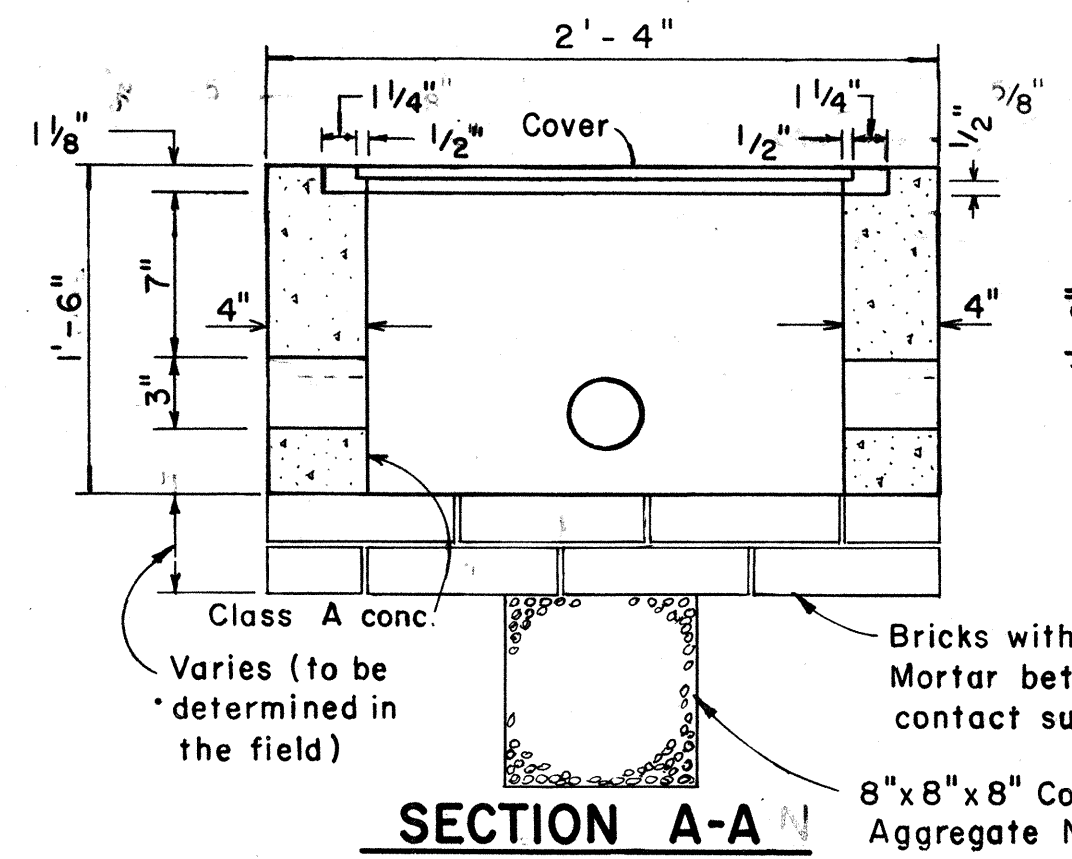
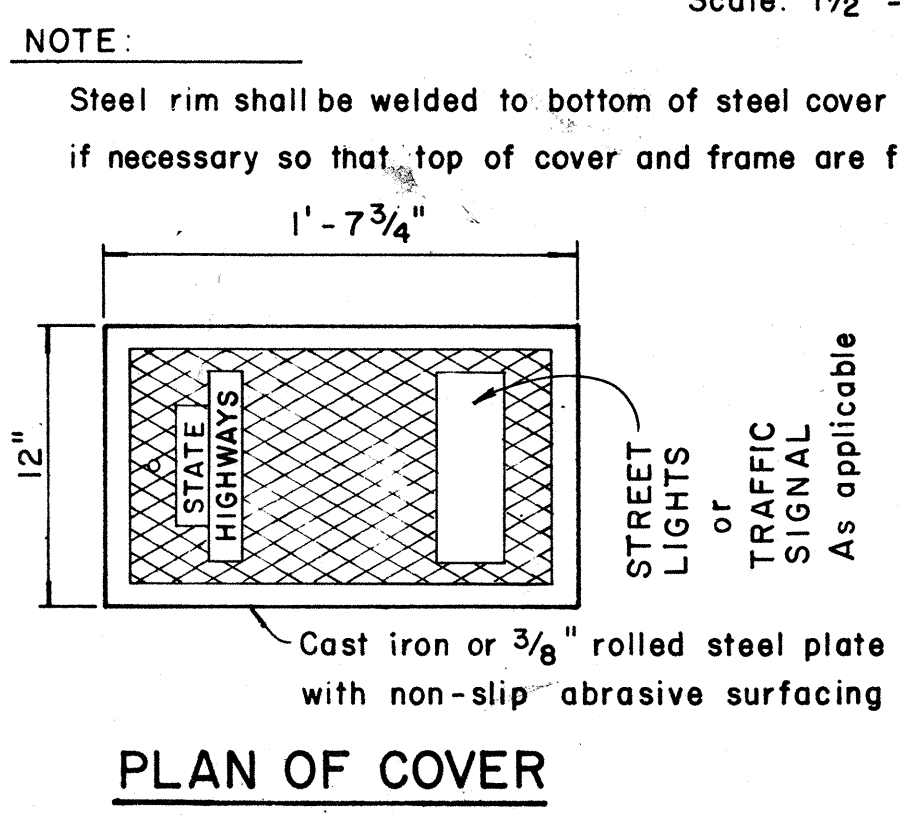
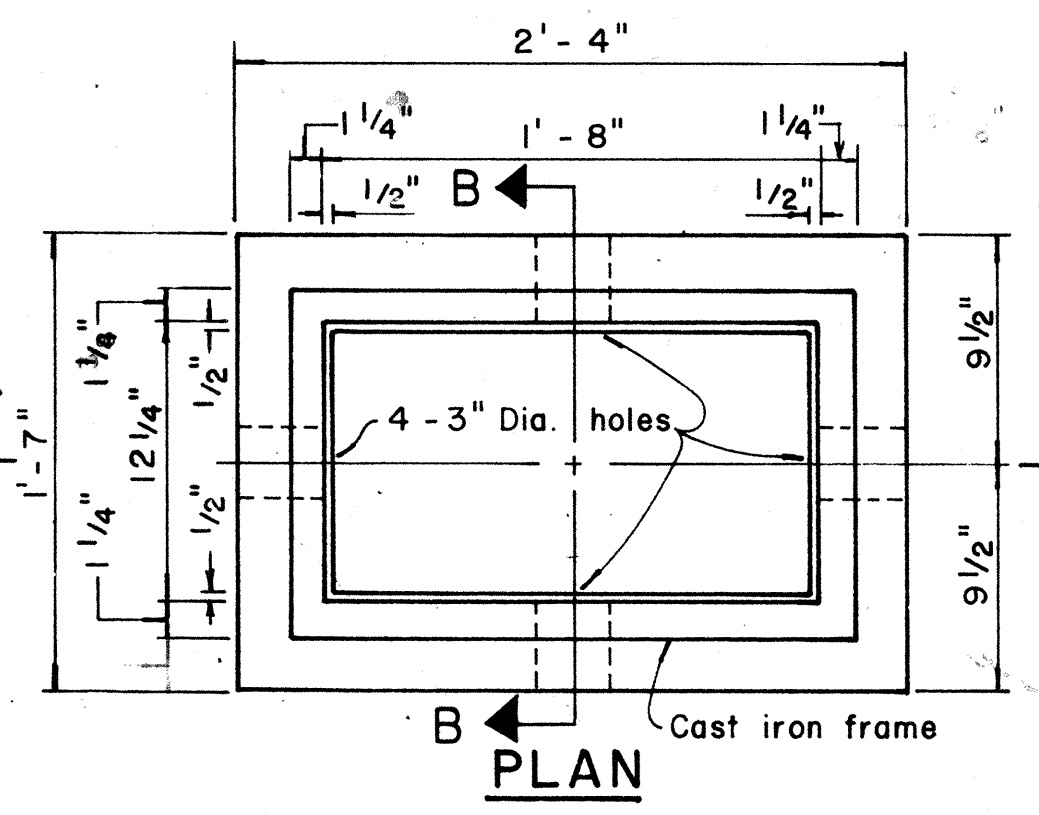


TYPE "C" PULLBOX
Scale: 1 1/2" = 1'-0"

DATE	12/23/85
DESIGNED BY	HT
CHECKED BY	HT
NOTED BY	HT
ORIGINAL PLAN	No.



TYPE "A" PULLBOX
Scale: 1 1/2" = 1'-0"



TYPE "B" PULLBOX
Scale: 1 1/2" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	HT	3-5-86
2	Revised Type "A" Pullbox & Added Modified Cover.	HT	1-31-80
3	Revised Type B & C Pullbox details.	HT	2-1-83

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
DATE: 12/23/85

APPROVED:
ASSISTANT CHIEF, ENGINEERING
DATE: 12-30-89

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PULLBOXES

Scale as noted Date JUNE 1985
SHEET No. E8 OF 8 SHEETS DT 401