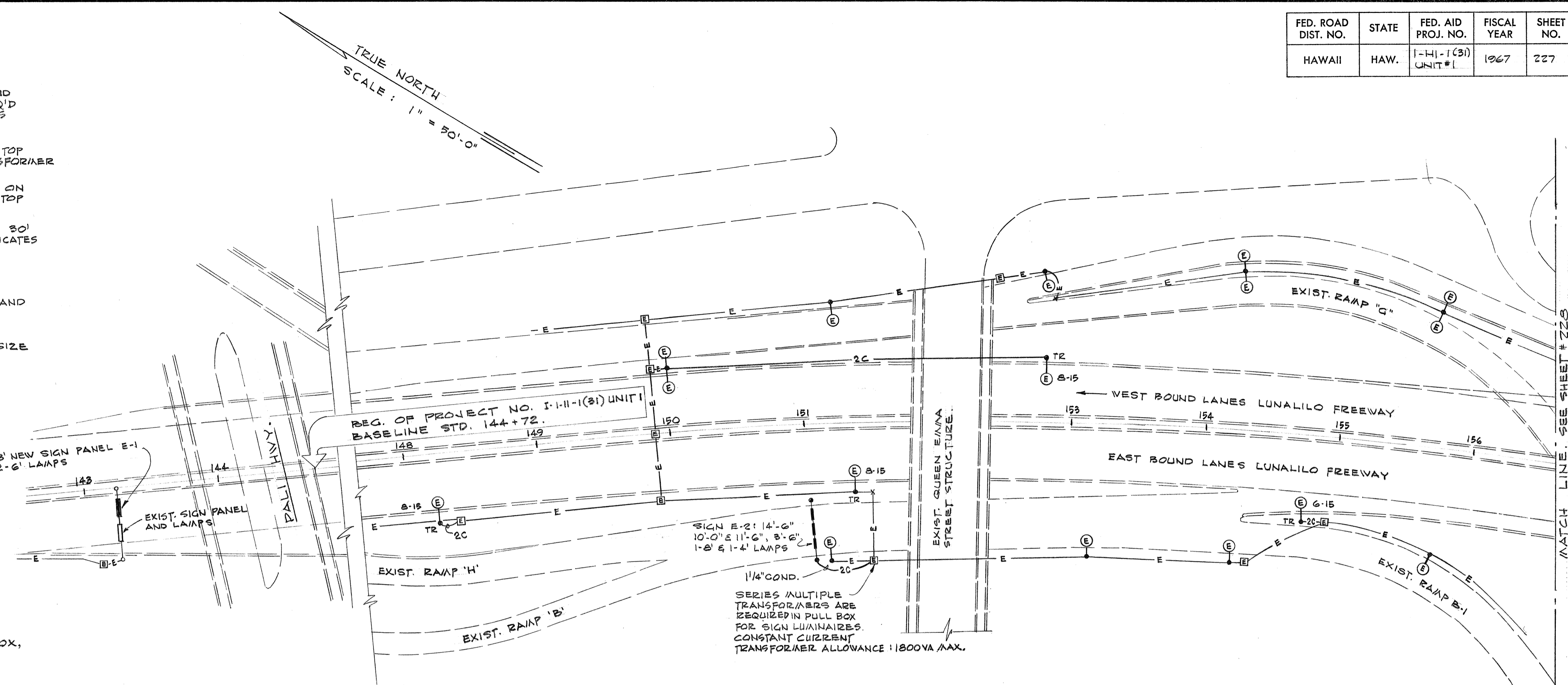


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(31) UNIT #1	1967	227	232

ELECTRICAL SYMBOLS

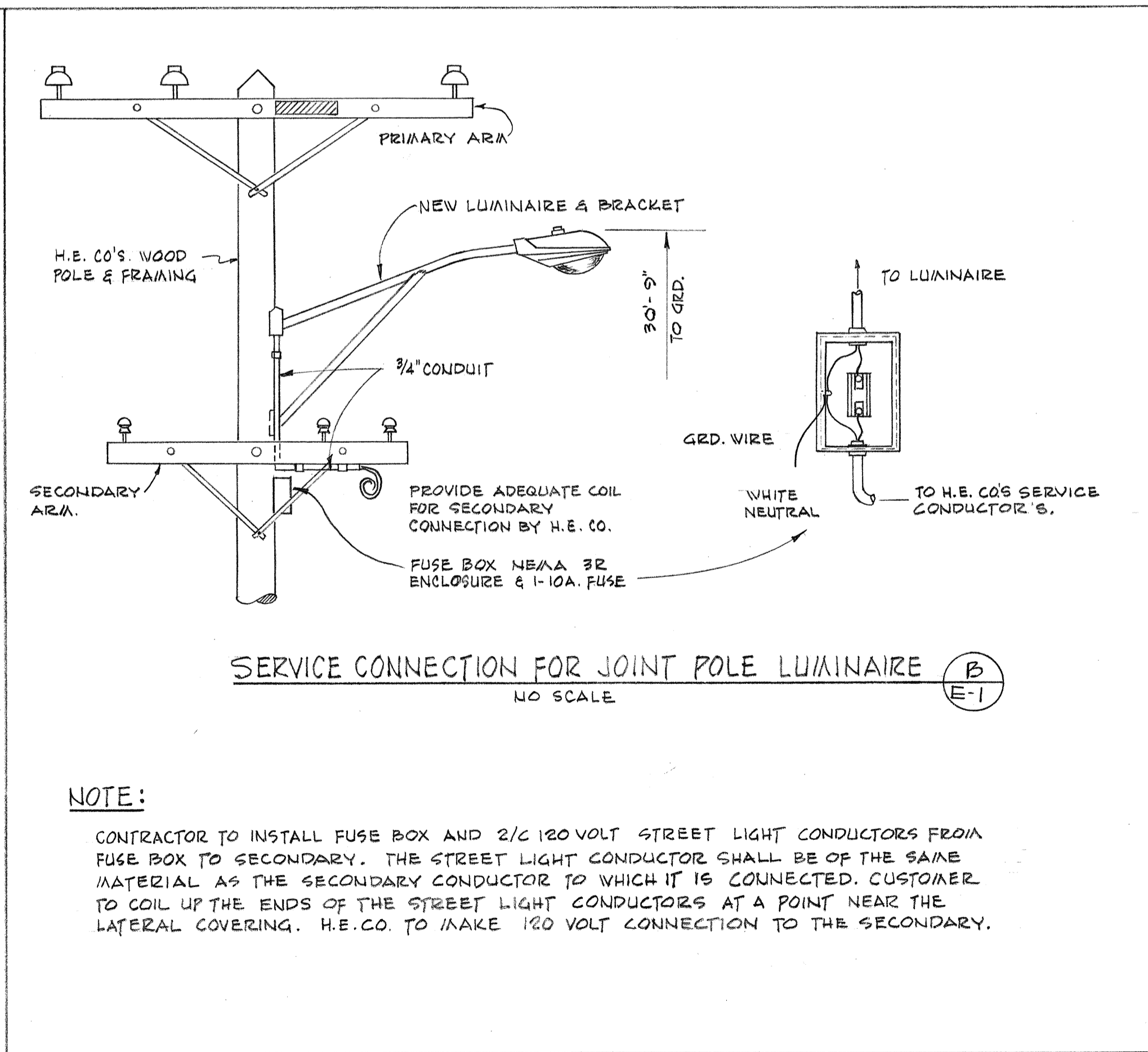
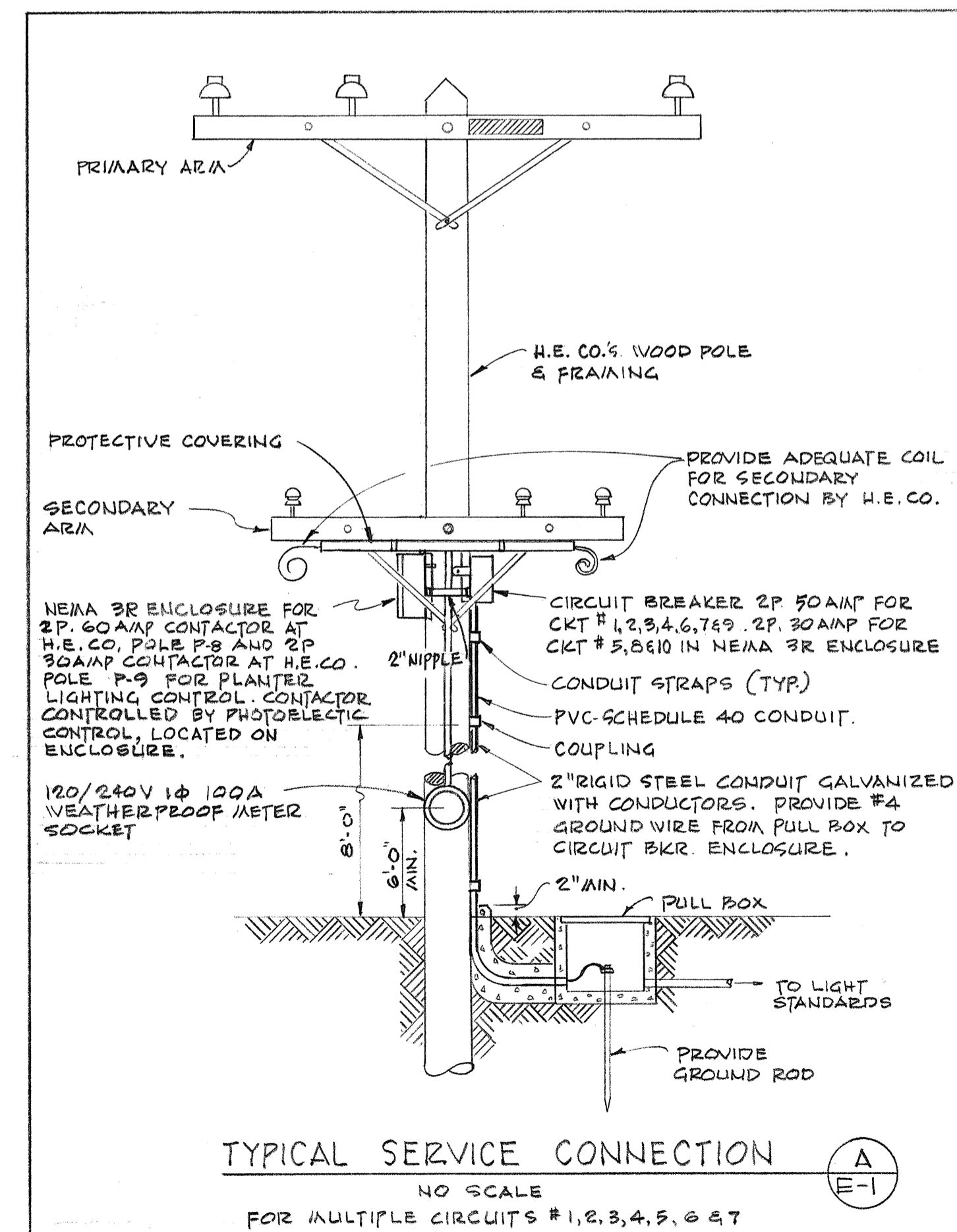
- 10-15 ROADWAY LIGHTING LUMINAIRE ON METAL LAMP POST. FIRST NUMERAL INDICATES DISTANCE FROM FACE OF POLE BASE TO TRAVELED EDGE, SECOND NUMERAL INDICATES BRACKET LENGTH. POLE LENGTH SHALL BE AS REQ'D TO PLACE LUMINAIRE AT 30' ABOVE ROADWAY. POLE LENGTH INCLUDES TRANSFORMER BASE HEIGHT IF ONE IS REQUIRED. "TR" INDICATES A TRANSFORMER BASE IS REQUIRED, OTHERWISE USE ANCHOR BASE.
- W-15 SAME AS ABOVE EXCEPT "W" INDICATES LAMP POST IS MOUNTED ON TOP OF WALL. NO TRANSFORMER BASE NECESSARY. USE POLE TOP TRANSFORMER IF REQUIRED.
- R-10 SAME AS ABOVE EXCEPT "R" INDICATES LAMP POST IS MOUNTED ON BRIDGE RAIL. NO TRANSFORMER BASE NECESSARY. USE POLE TOP TRANSFORMER IF REQUIRED.
- 8-12 ROADWAY LIGHTING LUMINAIRE WITH BRACKET ONLY, MOUNTED AT 30' ABOVE ROADWAY ON WALL. "B" INDICATES BRACKET, NUMERAL INDICATES LENGTH OF BRACKET.
- E EXISTING CABLE IN CONDUIT OR DUCT.
- 2" NON-METALLIC CONDUIT UNLESS INDICATED OTHERWISE, NUMBER AND SIZE OF WIRES AS INDICATED.
- 2" STEEL CONDUIT UNLESS INDICATED OTHERWISE, NUMBER AND SIZE OF WIRES AS INDICATED.
- X CONDUIT TERMINATED WITH MARKER.
- ⊕ EXISTING LUMINAIRE AND METALLIC LAMP POST
- 20,000 LUMEN LUMINAIRE
- 11,000 LUMEN LUMINAIRE
- ▬ UNDERPASS LUMINAIRE
- ⊕ LUMINATED SIGN-LAMPS AS INDICATED - TO BE CONTROLLED BY PHOTOELECTRIC CELL, MOUNTED ABOVE LUMINAIRE + 30' MIN. ABOVE ROAD.
- ⊕ EXISTING PULL BOX
- ⊕ PULL BOX TYPE 'A'
- ⊕ PULL BOX TYPE 'C'
- H.E. CO. HANDHOLE
- H.E. CO. WOOD POLE
- ⊕ STANDARD C & C TRAFFIC DEPARTMENT STREET LIGHT PULL BOX, TYPE 'B', WITH CAST IRON FRAME & COVER. (SEE SHEET 225)
- ⊕ POLE RIGER STEEL CONDUIT AS INDICATED, UP Ⓟ ON WOOD POLE & CAP.
- ROADWAY LIGHTING WITH BRACKET ON H.E.CO. WOOD POLE.
- ⊕ EXPANSION JOINT
- ⊕ OVERHEAD CABLE, SIZE AS NOTED
- ⊕ LAMP POST BASE ONLY
- ⊕ CITY & COUNTY FURNISHED LUMINAIRE.
- ⊕ ROADWAY LIGHTING LUMINAIRE, WALL MOUNTED ON BRACKET WITH CONCRETE CANOPY
- ⊕ WEATHERPROOF FLUORESCENT PLANTER LIGHT



GENERAL NOTES:

- THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF EXISTING EQUIPMENT AND FACILITIES
- ALL EXISTING CIRCUITS ARE SERIES CIRCUITS.
- ALL NEW CIRCUITS ARE MULTIPLE CIRCUITS. LUMINAIRES AND SIGN LIGHTING SHALL BE EQUIPPED TO OPERATE ON 120/240VOLTS 1Ø, 3 WIRE SERVICE. LETTER ON EACH SYMBOL INDICATES THE CIRCUIT NUMBER & WHETHER CONNECTED TO LEG 'A' OR LEG 'B'.
- ALL NEW METAL LAMP POST CONNECTED TO EXISTING SERIE CIRCUITS SHALL HAVE TRANSFORMER BASE.
- ALL EXISTING CITY AND COUNTY STREET LIGHT AND FIRE ALARM EQUIPMENT AND WIRES SHALL BE REMOVED BY THE CITY AND COUNTY STREET LIGHT DIVISION UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL NOTIFY THE CITY AND COUNTY STREET LIGHT DIVISION AT LEAST 5 DAYS BEFORE WORK IS REQUIRED ON THE EXISTING CIRCUITS.
- FOR PULL BOX DETAILS SEE SHEET NO 226

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

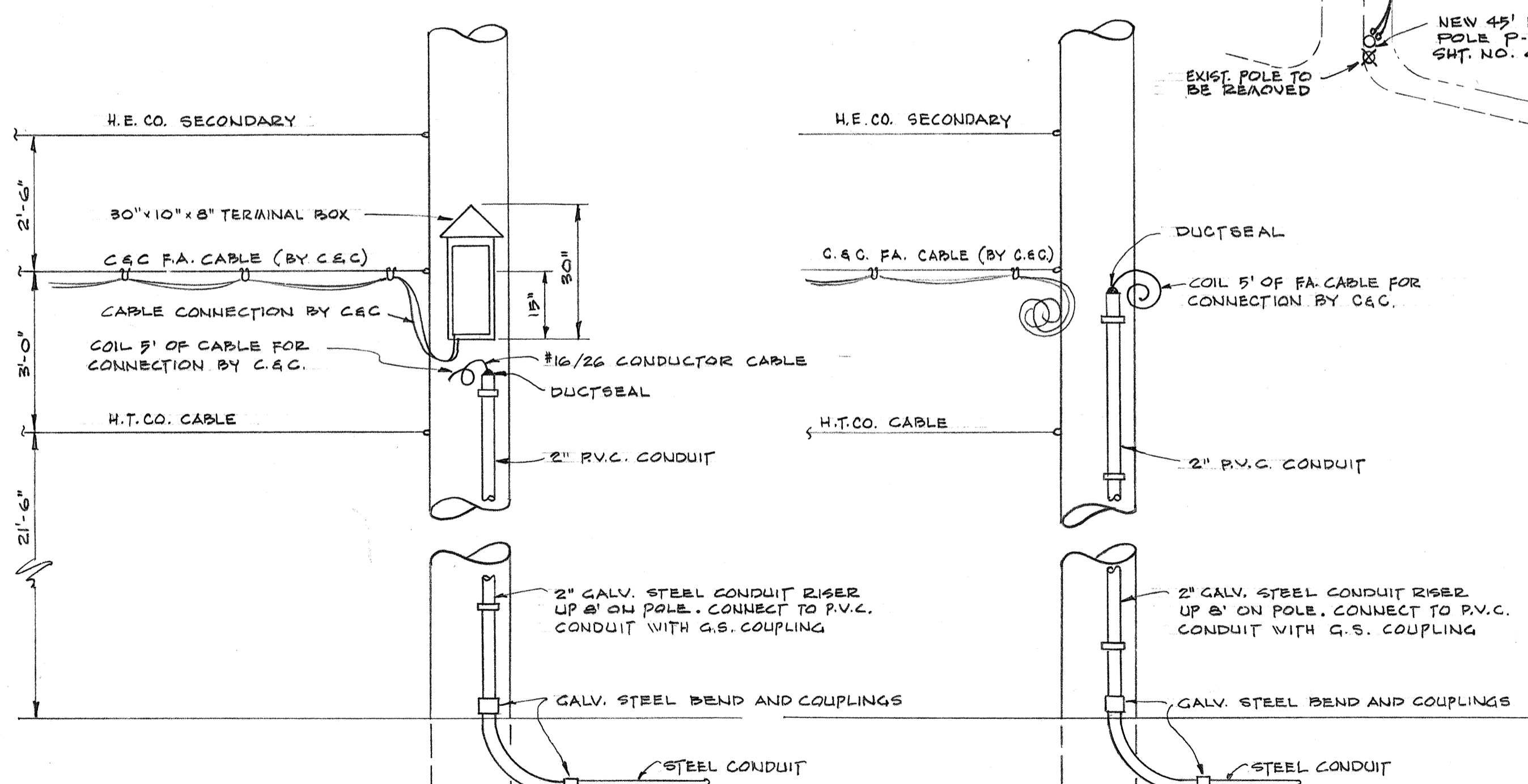
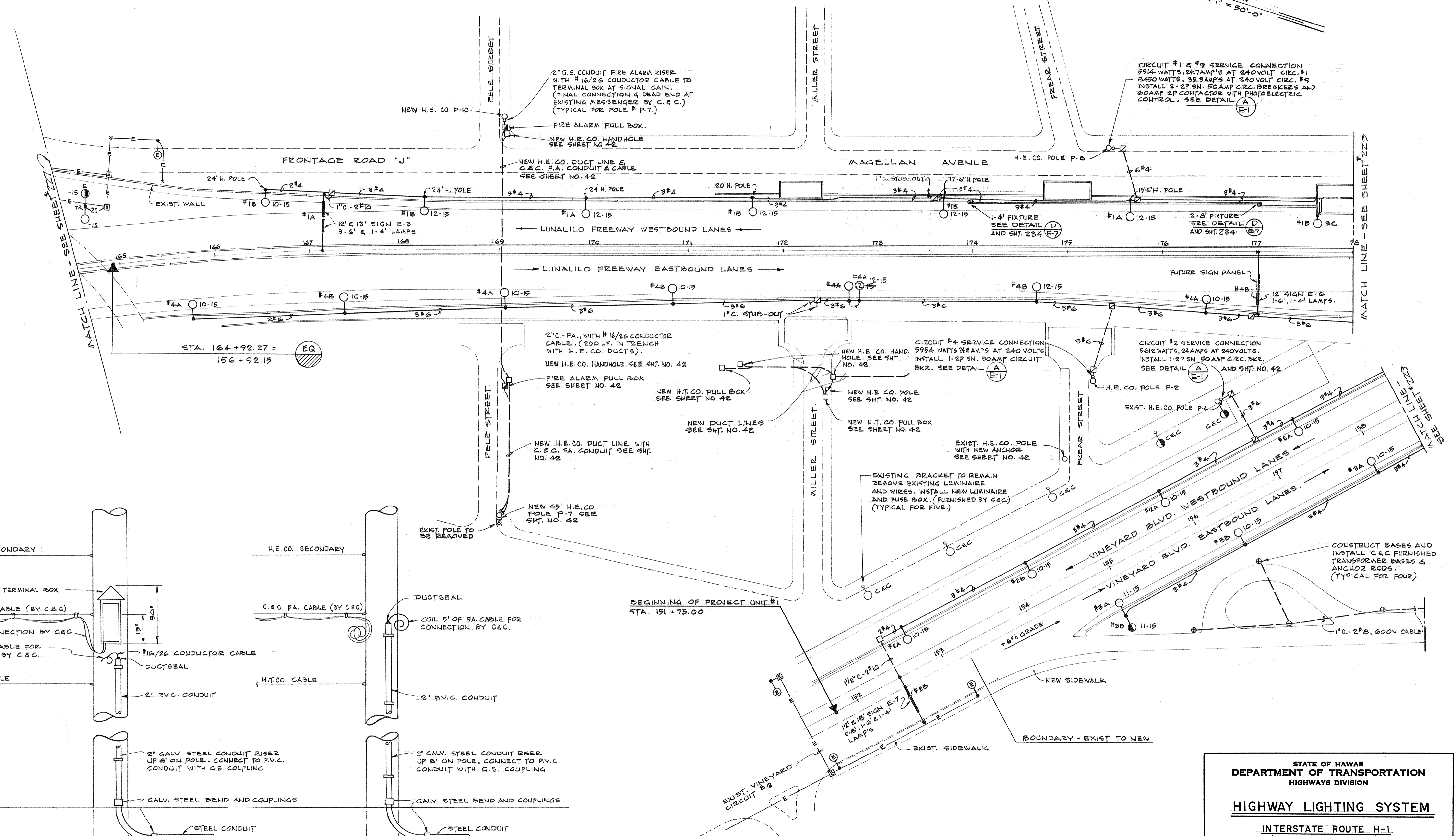
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria St.
F.A.I. Proj. No. I-HI-1(31), Unit I

SCALE: AS SHOWN DATE:

SHEET No. E-1 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(31) UNIT 1	1967	228	232

TRUE NORTH
SCALE: 1" = 50'-0"



TYPICAL DETAIL OF C&C FIRE ALARM TERMINAL BOX
NOT TO SCALE

TYPICAL DETAIL C&C FIRE ALARM RISER
NOT TO SCALE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

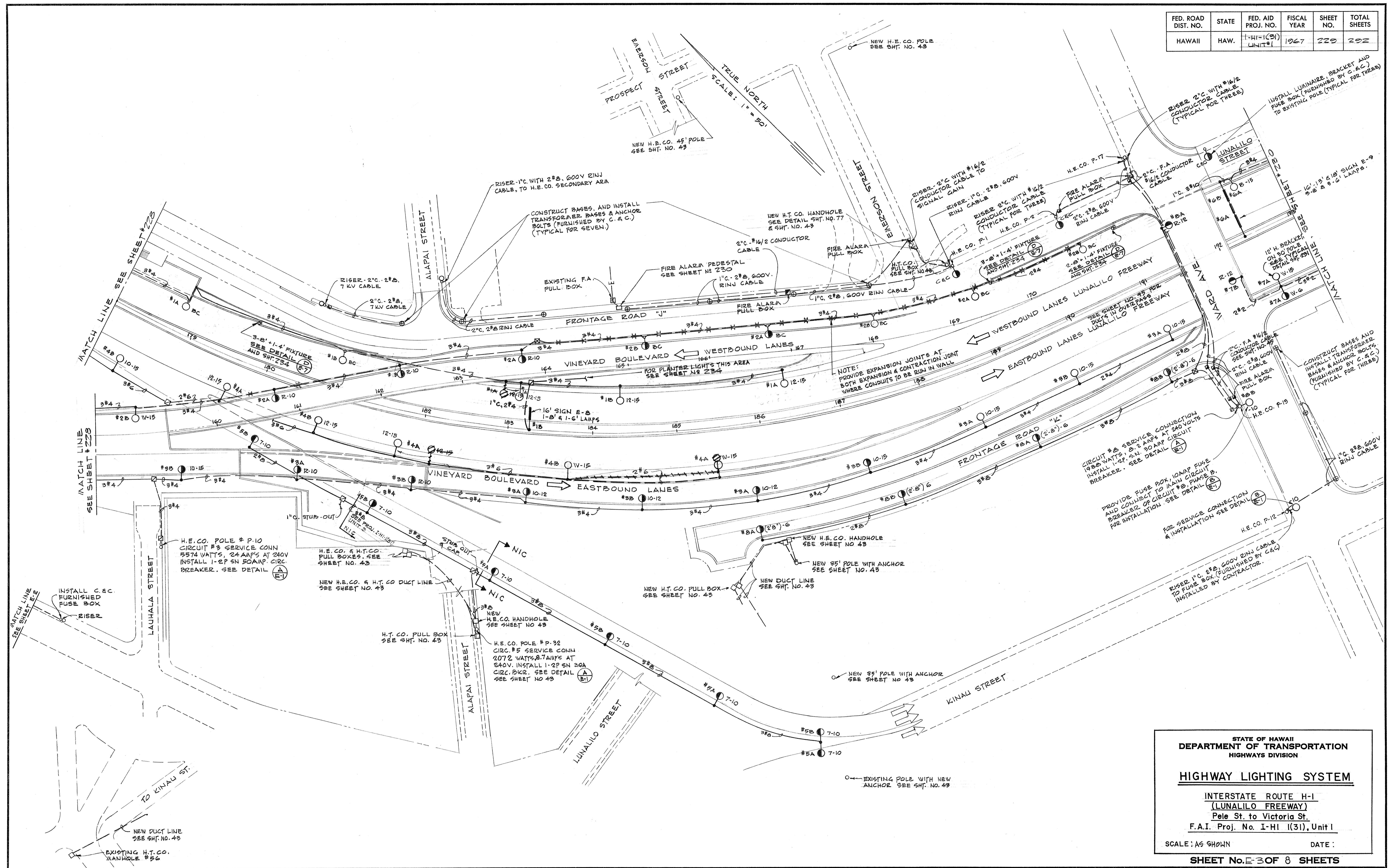
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria S
F.A.I. Proj. No. I-HI-1(31), Unit 1

SCALE: AS SHOWN DATE:

SHEET No. 228 OF 232 SHEETS

D/S 1/11

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H-1-(31) UNIT #1	1967	223	232



DATE	.....
SURVEY PLOTTED BY	.....
DRAWN BY	.....
CHECKED BY	.....
DESIGNED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

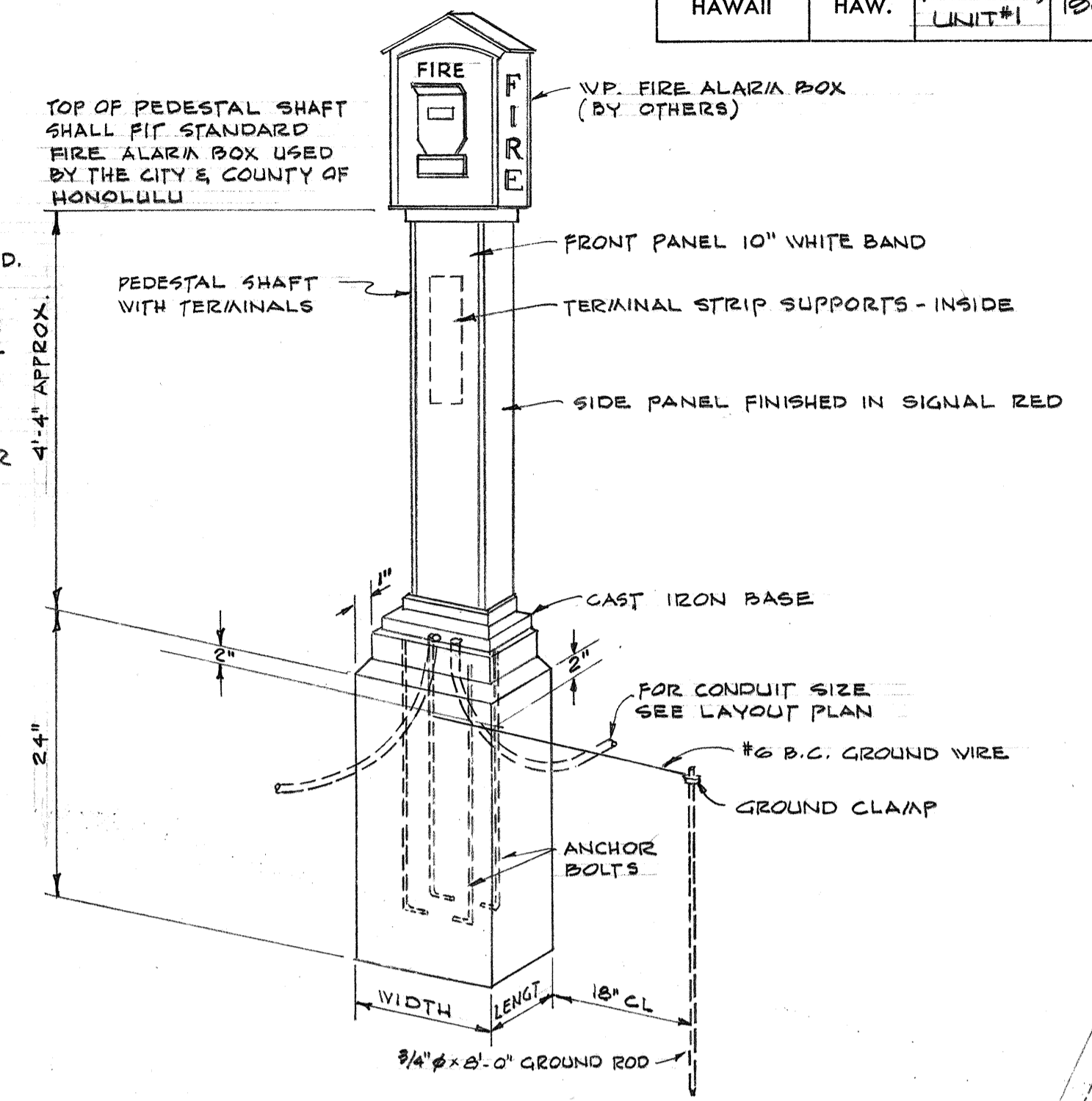
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria St.
F.A.I. Proj. No. I-HI 1(31), Unit I

SCALE: AS SHOWN DATE:

SHEET No. E-30 OF 8 SHEETS

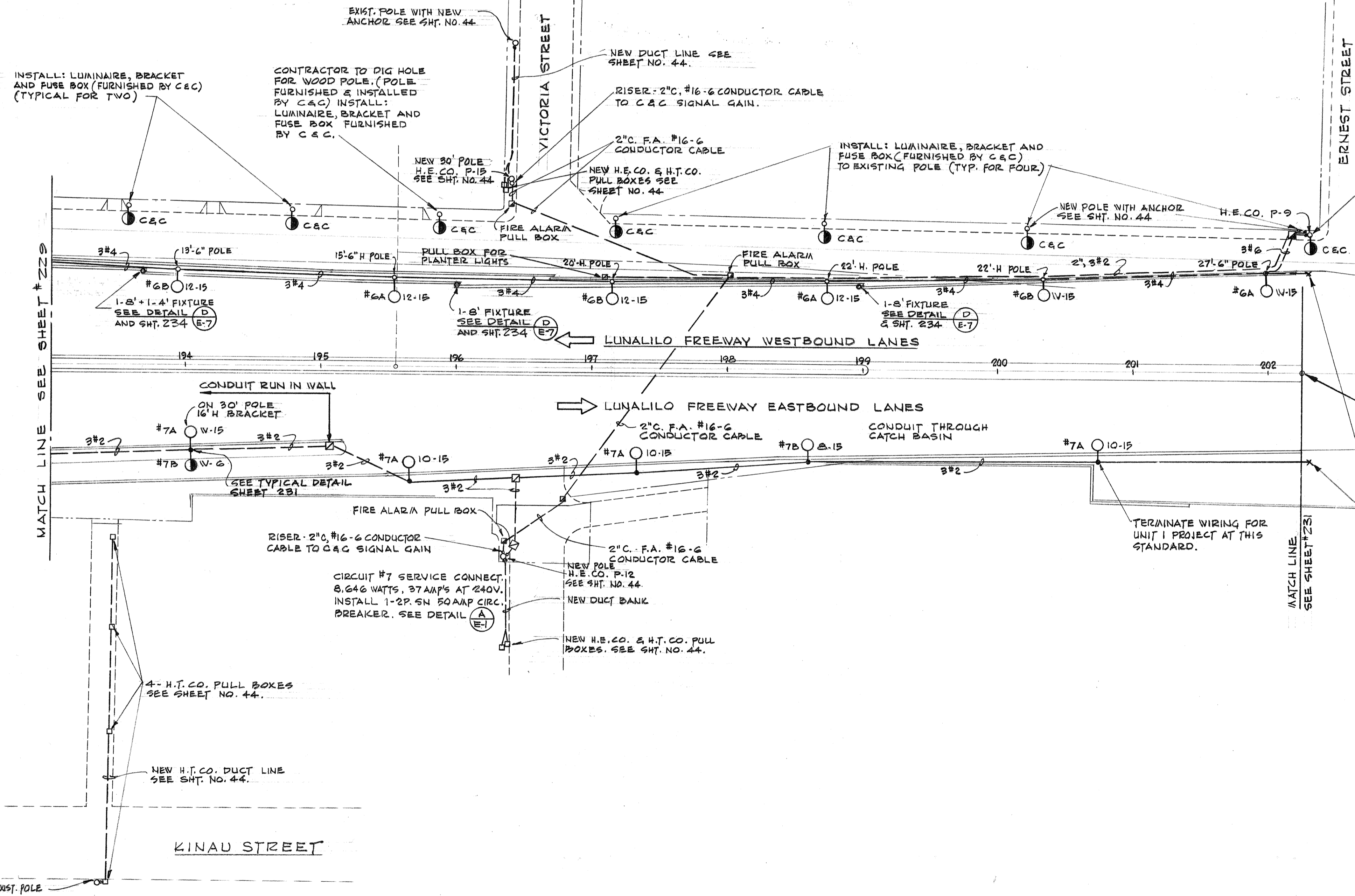
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(31) UNIT #1	1967	230	202

CONCRETE FOUNDATION SIZE 24" DEPTH, WIDTH AND LENGTH TO BE 1" WIDER ON ALL SIDES THAN THE CAST IRON BASE FURNISHED. TOP OF CONCRETE BASE TO BE 2" ABOVE FINISHED GRADE. ANCHOR BOLTS, NUTS AND THE ACCESSORIES, SIZE AND NUMBER AS FURNISHED. CONDUIT SIZE AND NUMBER ENTERING BASE AS NOTED ON PLAN. ALL ANCHOR BOLTS AND CONDUITS TO BE WRAPPED WITH #6 BARE COPPER WIRE WITHIN FOUNDATION AND TO GROUND ROD. RUN #6 B.C. GROUND WIRE BETWEEN ANCHOR BOLTS AND GROUNDING TERMINAL IN FIRE ALARM BOX.



FIRE ALARM PEDESTAL (A) NOT TO SCALE

CIRCUIT #6 & #10 SERVICE CONNECTION 8,176 WATTS, 37 AMP'S AT 240V. CIRC. #6 4,100 WATTS, 17.1 AMP'S AT 240V. CIRC. #10 INSTALL 1-2P. 50 AMP CIRCUIT BREAKER FOR CIRC. #6 & 1-2P. 50 AMP CIR. BKR. FOR CIRC. #10, AND 30 AMP 2P CONTACTOR WITH PHOTOELECTRIC CONTROL SEE DETAIL (A) (E-7)



END OF PROJECT NO I-HI-1(31) UNIT 1. STATION 202+25 BEGIN'G OF PROJECT NO I-HI-1(31) UNIT-2.

DATE	.....
SURVEY PLOTTED BY	.....
DRAWN BY	.....
DESIGNED BY	.....
NOTE BOOK	.....
QUANTITIES BY	.....
CHECKED BY	.....
No.	.....

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

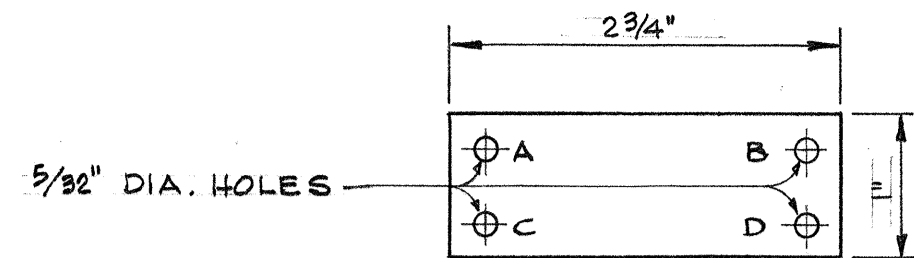
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria St.
F.A.I. Proj. No. I-HI-1(31), Unit 1

SCALE: AS SHOWN DATE:

SHEET No. E-4 OF 8 SHEETS

230

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-11-1(31) UNIT #1	1967	231	292



LEGEND

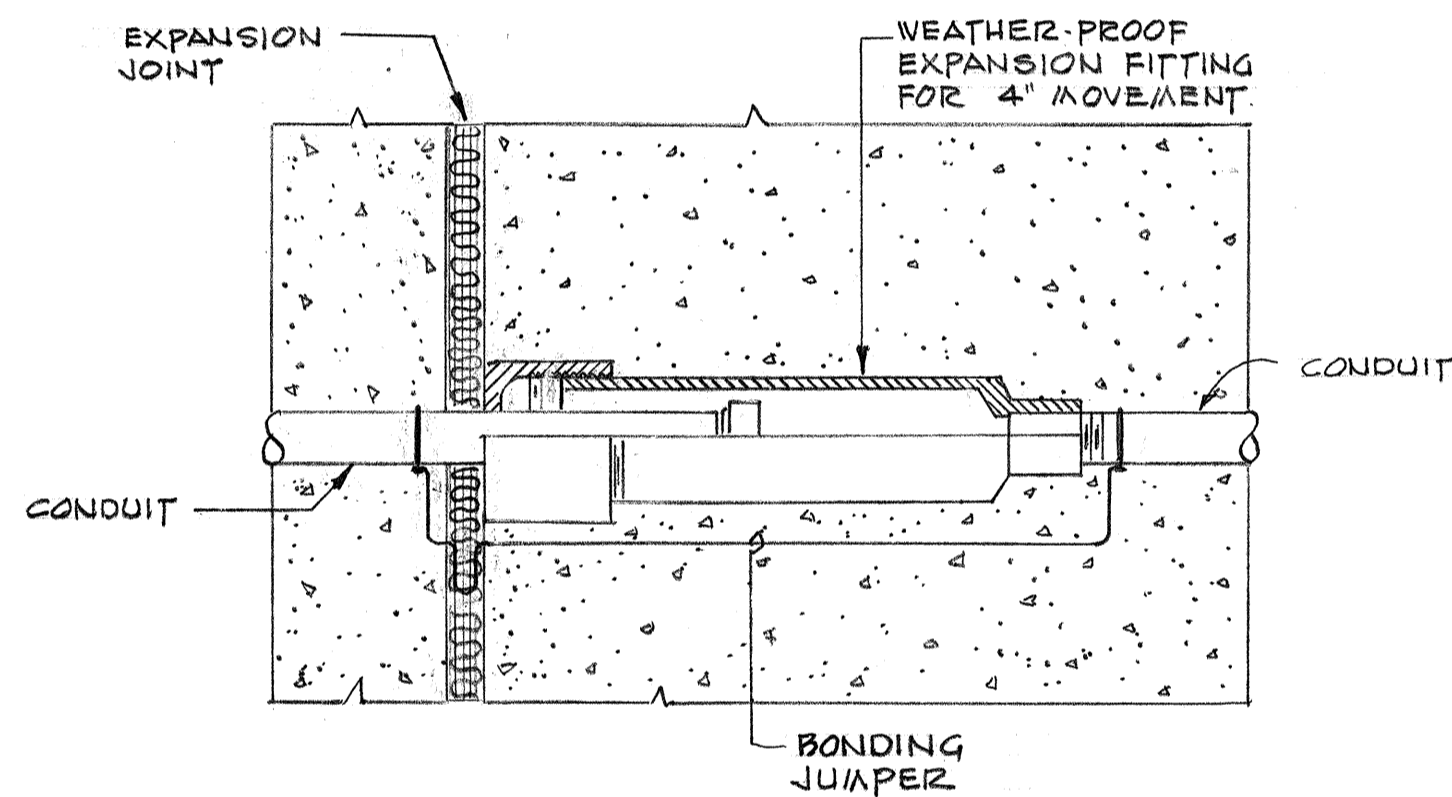
- A = CONTRACT NUMBER. OBTAIN FROM STATE OR H.E.CO. LTD.
- B = LIGHT NUMBER, FROM CONTRACT DRAWINGS, STATE OR H.E.CO. LTD.
- C = LAMP DATA. SEE NOTE #5 & #7 BELOW
- D = REFRACTOR DATA. USE ROMAN NUMERAL "IES" TYPE AS INDICATED ON DRAWING OR IN SPECIFICATIONS I-Z.

NOTES:

- 1 MAKE FROM LAMINATED PLASTIC - BLACK ON WHITE.
- 2 ATTACH TO ALUMINUM POST WITH N#7 ALUMINUM DRIVE SCREWS. ATTACH TO STEEL POST WITH N#7 GALV. PLATED DRIVE SCREWS. ATTACH TO WOOD POLES WITH #4 D ALUMINUM NAILS. ATTACH TO RETAINING WALL WITH EXPANSION ANCHOR & BRASS SCREWS.
- 3 ATTACH 6'-0" ABOVE CURB. IF NO CURB 6'-0" ABOVE FINISHED GRADE.
- 4 LETTERS NE 5 REDUCTION 1/8" ENGRAVED OR STENCILED.
- 5 ATTACH TO ALL POLES WITH STATE MULTIPLE SYSTEM LUMINAIRES LAMP DATA CODE H250 (250WATT) OR H400 (400WATT). IF POST IS DOUBLE BRACKET, TWO TAGS, ONE ON EACH SIDE OF THE POLE WITH THE INFORMATION FOR THE LUMINAIRE ON THE RESPECTIVE SIDE SHALL BE INSTALLED.
- 6 FOR NOMENCLATURE OF TAGS AT ILLUMINATED SIGNS AND PANELBOARD SERVICE POINTS, SEE H.E.CO.
- 7 INSTALL TAGS FOR ALL PLANTER LIGHTS, NICHE LIGHTING AND STEP-LIGHTS. FOR MERCURY VAPOR FIXTURE H100 (100W) & FOR FLUORESCENT FIXTURE LAMP DATA CODE 1-F40-T12 (40W) OR 2-F40-T12 (80W)

MULTIPLE STREET LIGHTING IDENTIFICATION TAG

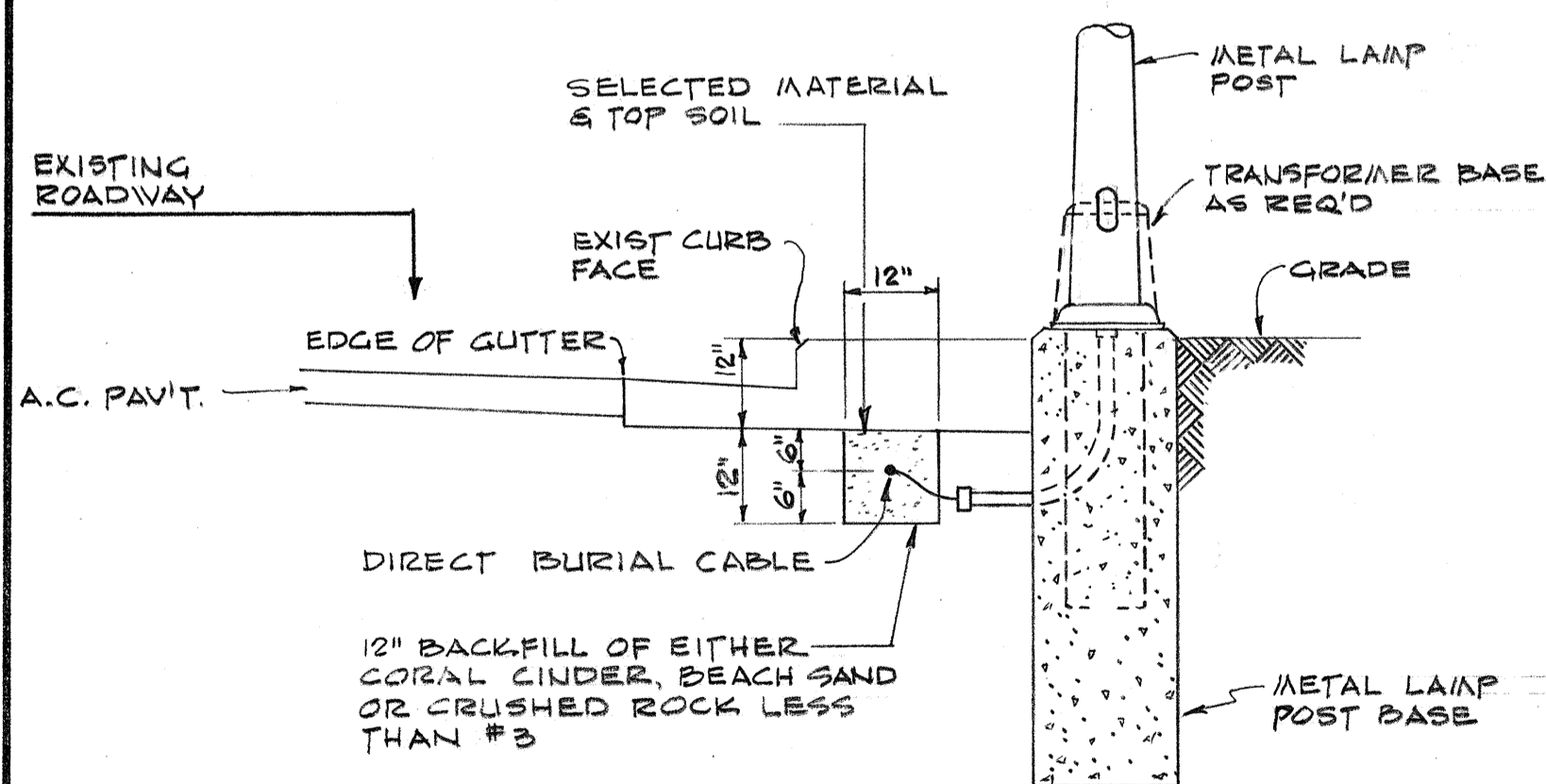
(A) (E-5)



EXPANSION JOINT INSTALLATION

NOT TO SCALE

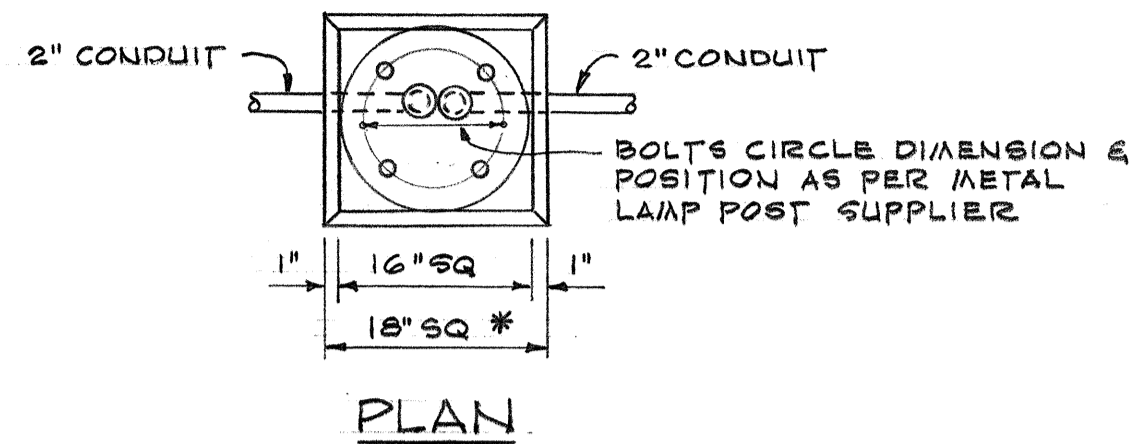
(B) (E-5)



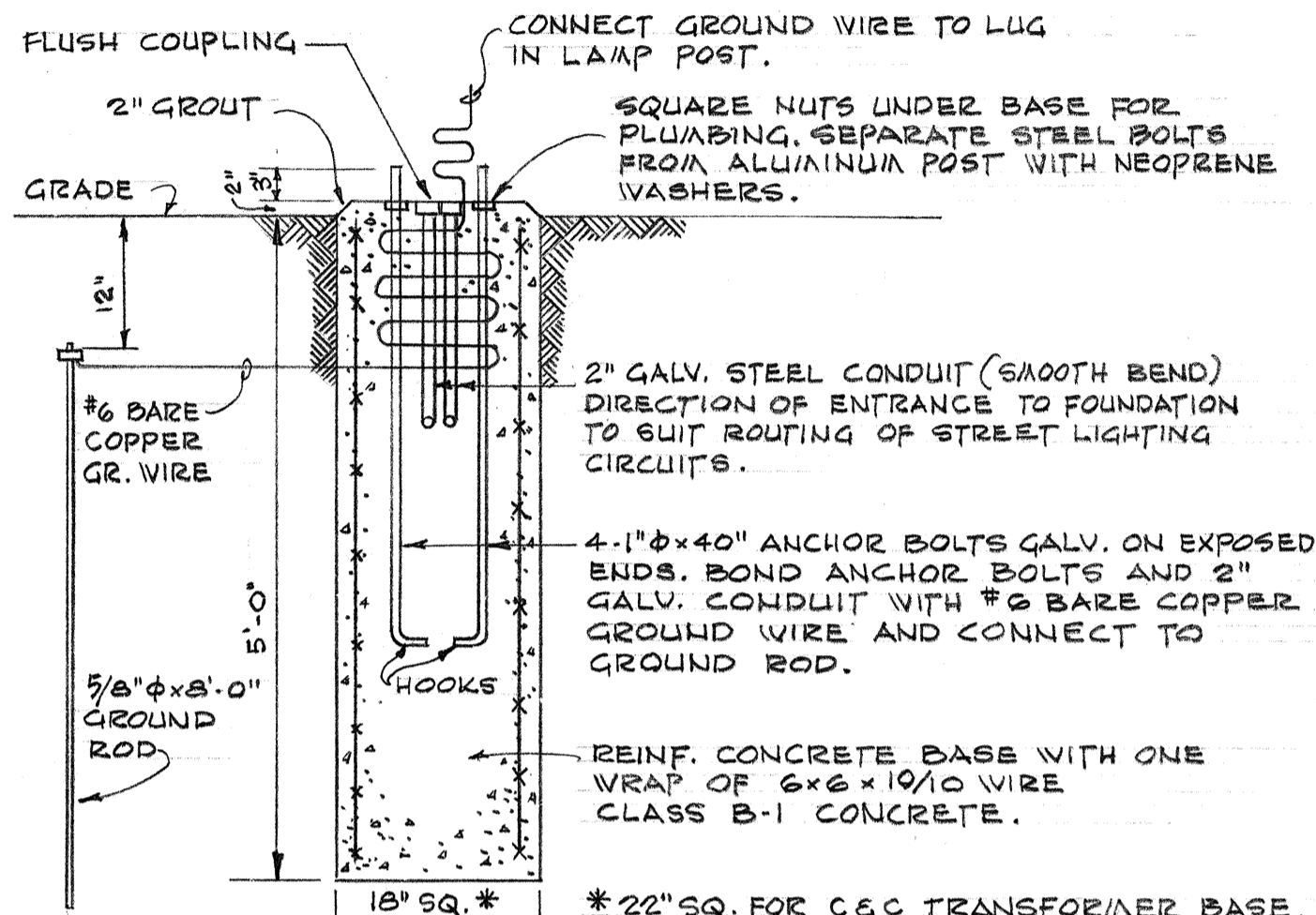
DIRECT BURIAL CABLE DETAIL

SCALE: 1/2" = 1'-0"

(C) (E-5)



PLAN

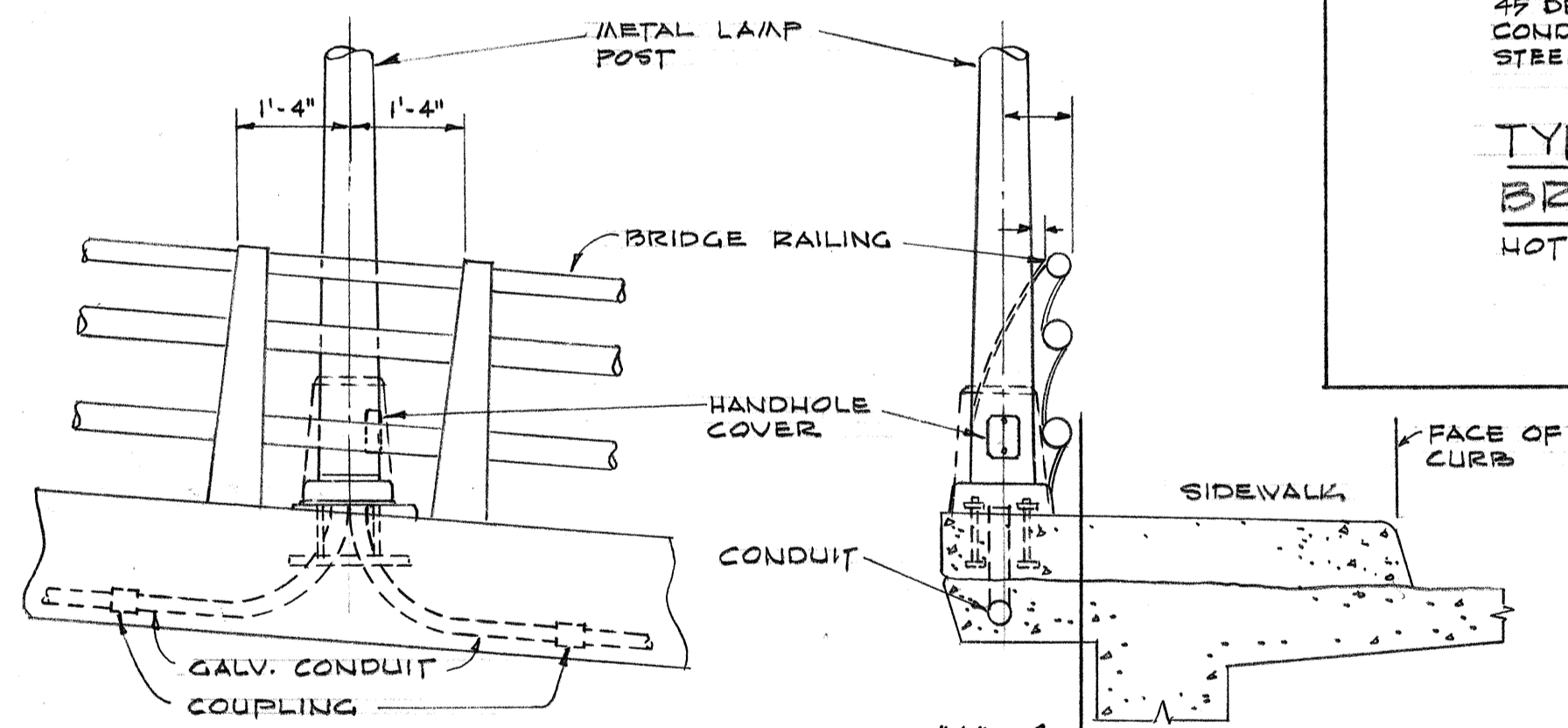


SECTION

TYPICAL LAMP POST BASE

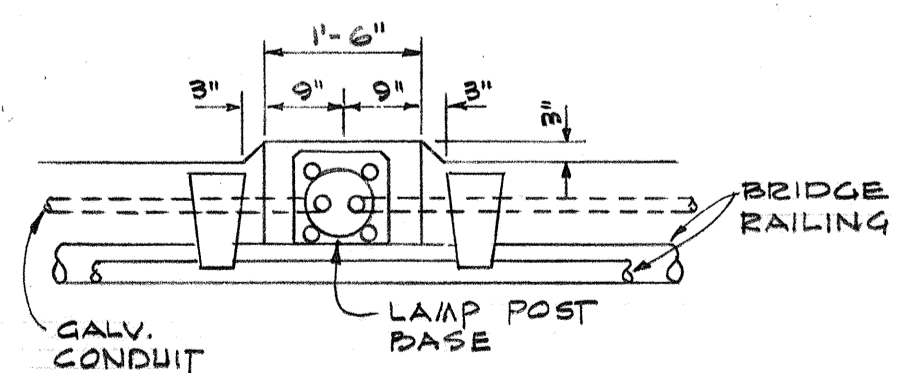
SCALE: 3/4" = 1'-0"

(D) (E-5)



SECTION "A"

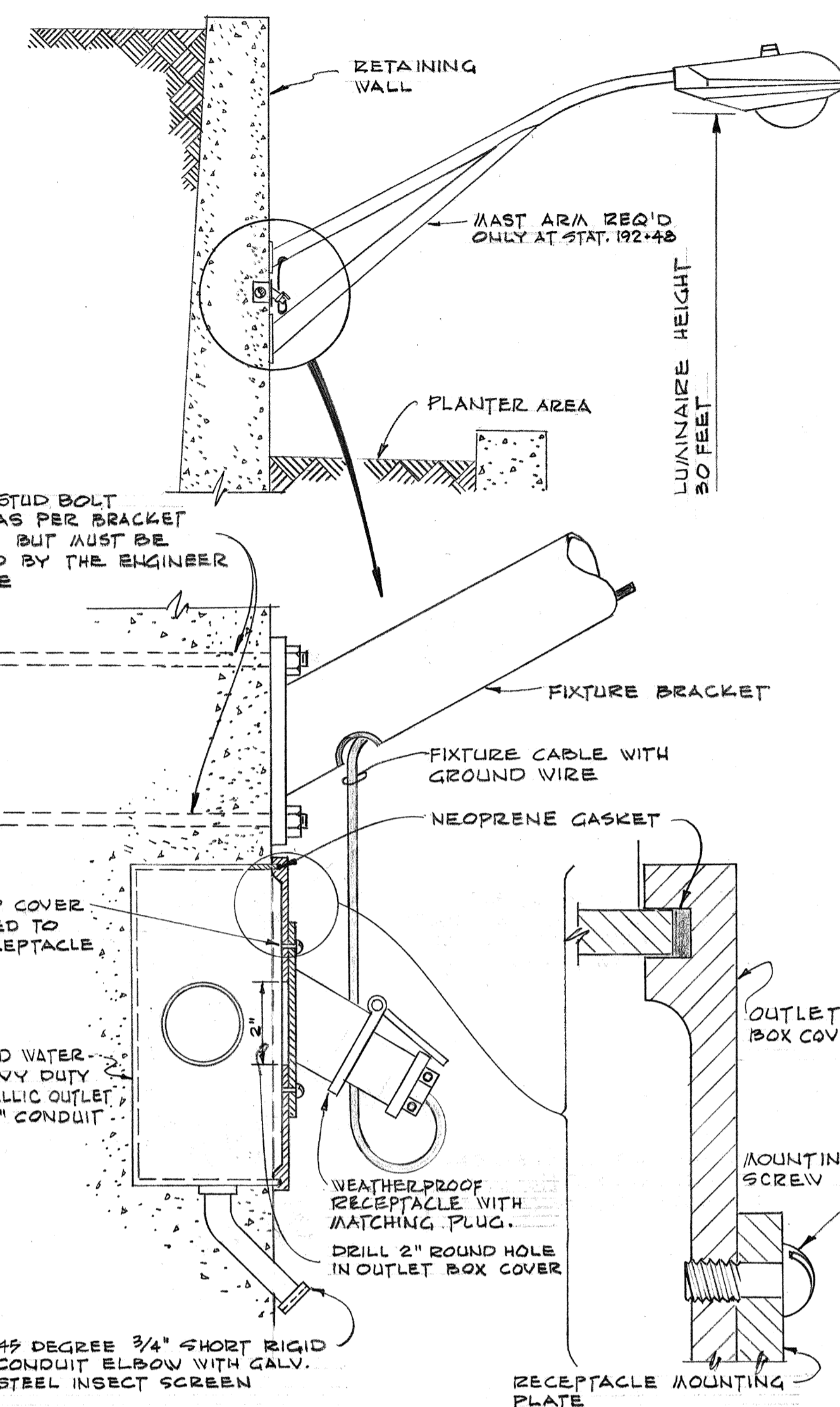
SIDE VIEW SECTION



PLAN

TYPICAL LIGHT STANDARD & CONDUIT LOCATION AT OVERPASS RAILING

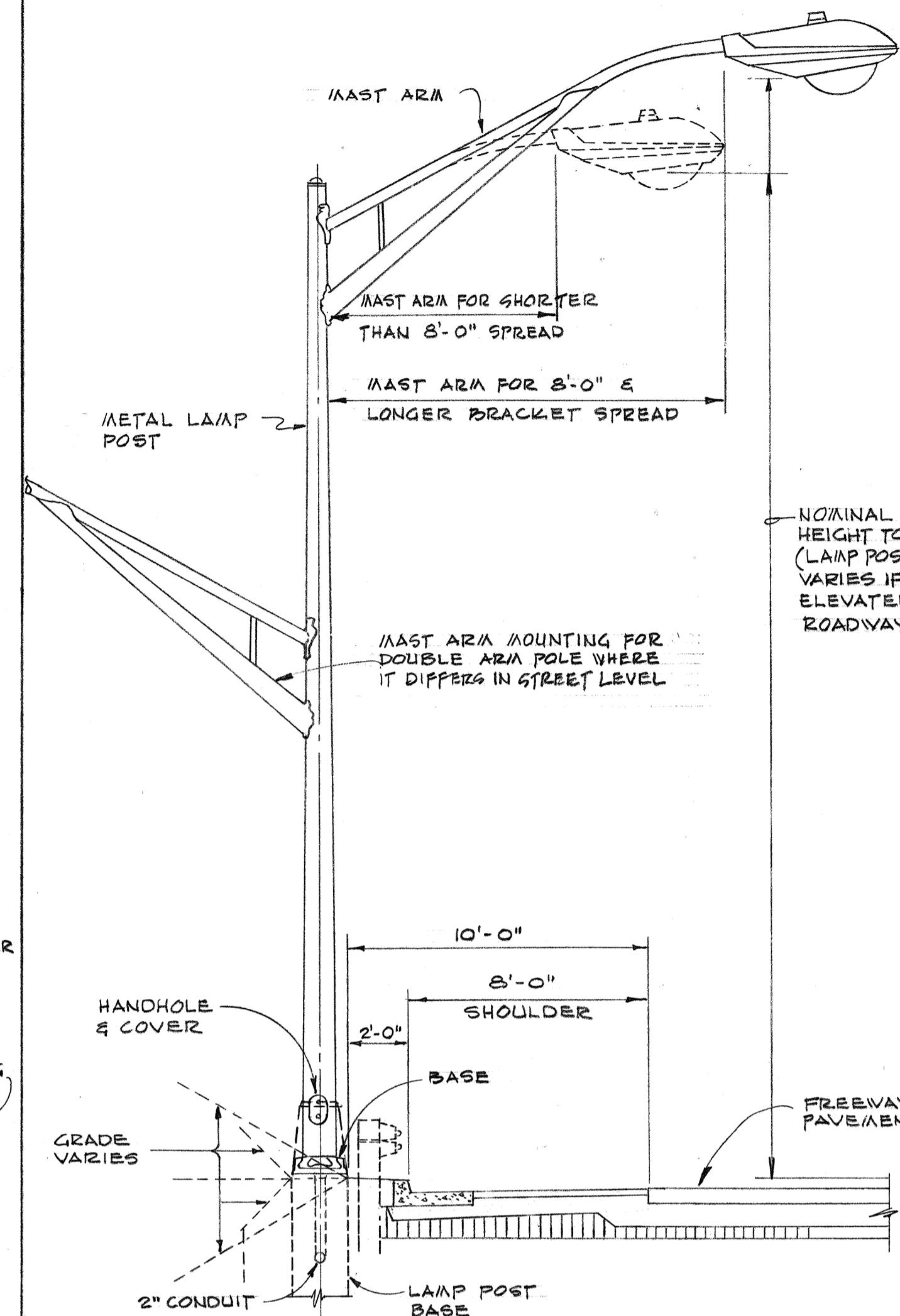
SCALE: 1/2" = 1'-0"



TYPICAL STREET LIGHTING BRACKET CONNECTION

NOT TO SCALE

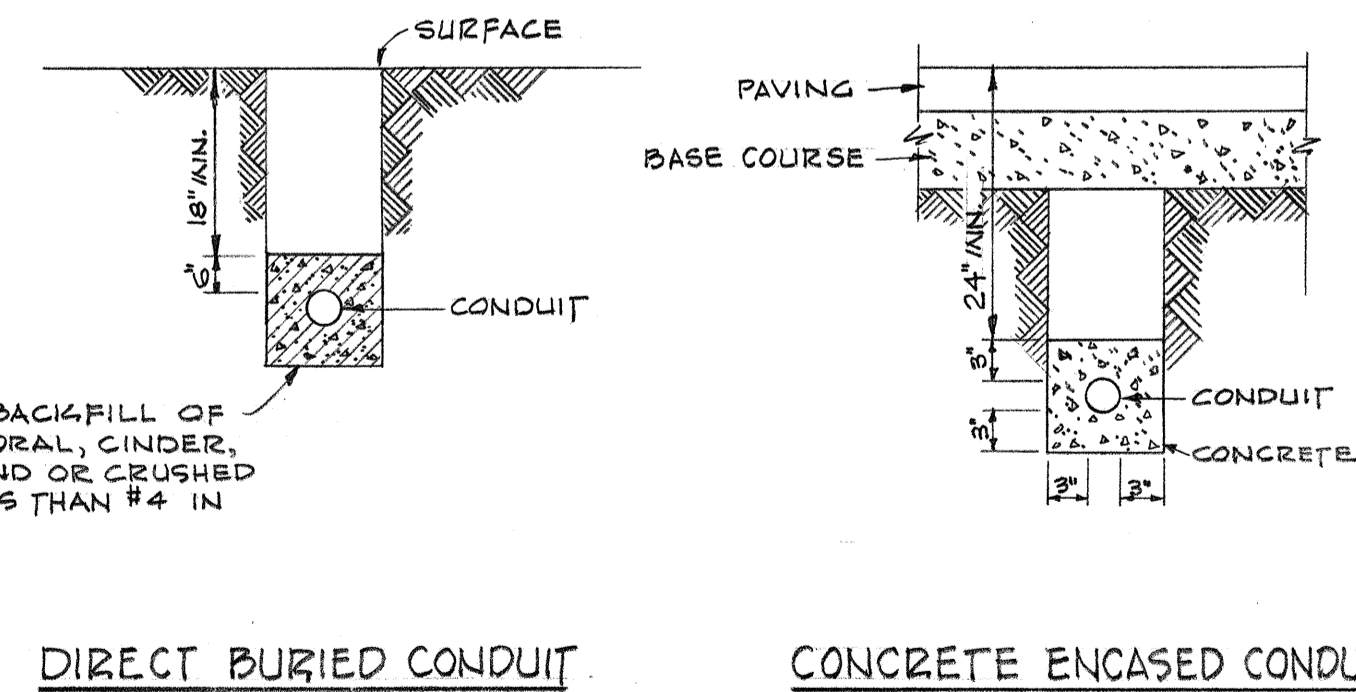
(F) (E-5)



TYPICAL STREET LIGHTING METAL LAMP POST

NOT TO SCALE

(H) (E-5)



TYPICAL DUCT SECTIONS

NO SCALE

(G) (E-5)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria St.
F.A.I. Proj. No. I-11-1(31), Unit 1

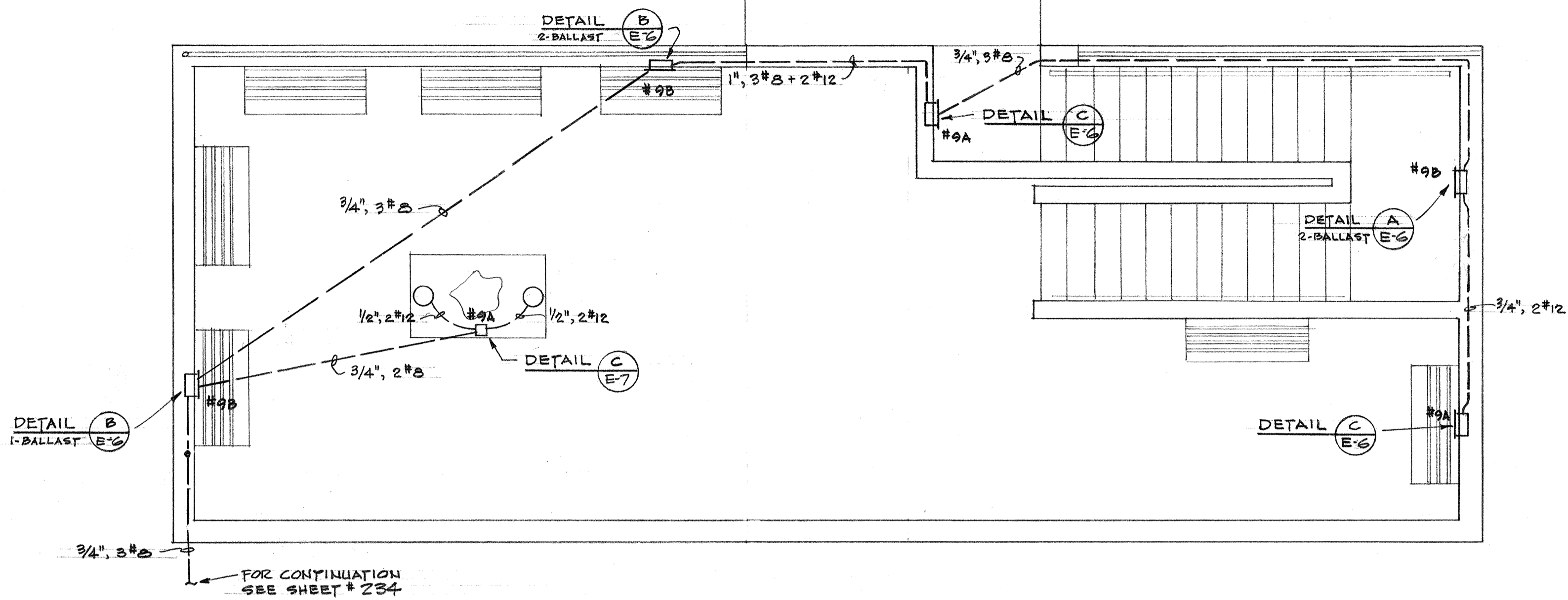
SCALE: AS SHOWN

DATE:

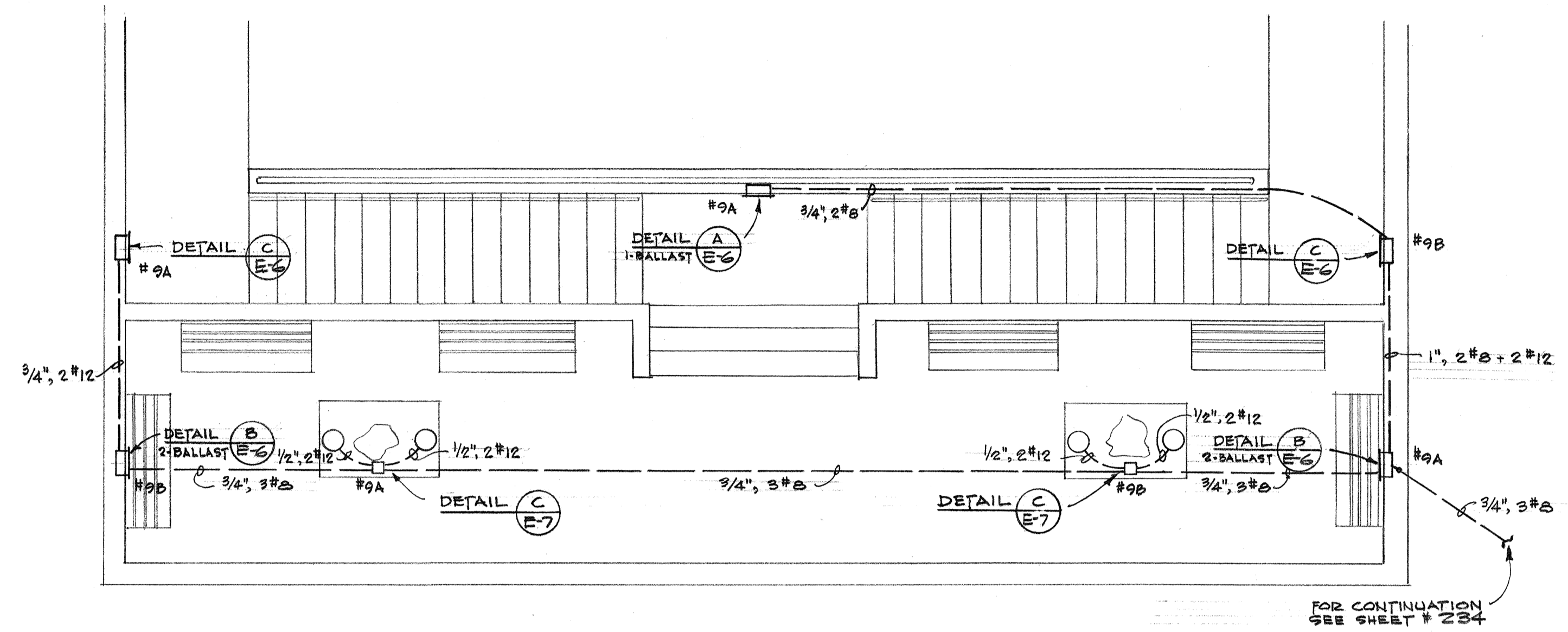
SHEET No. E-5 OF 8 SHEETS

231

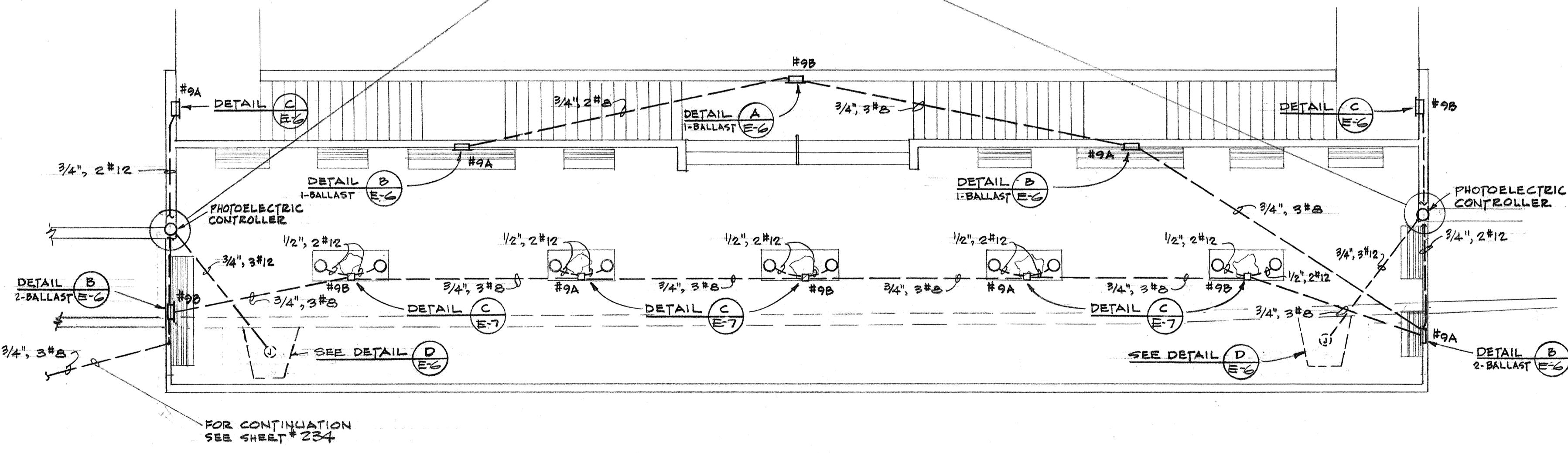
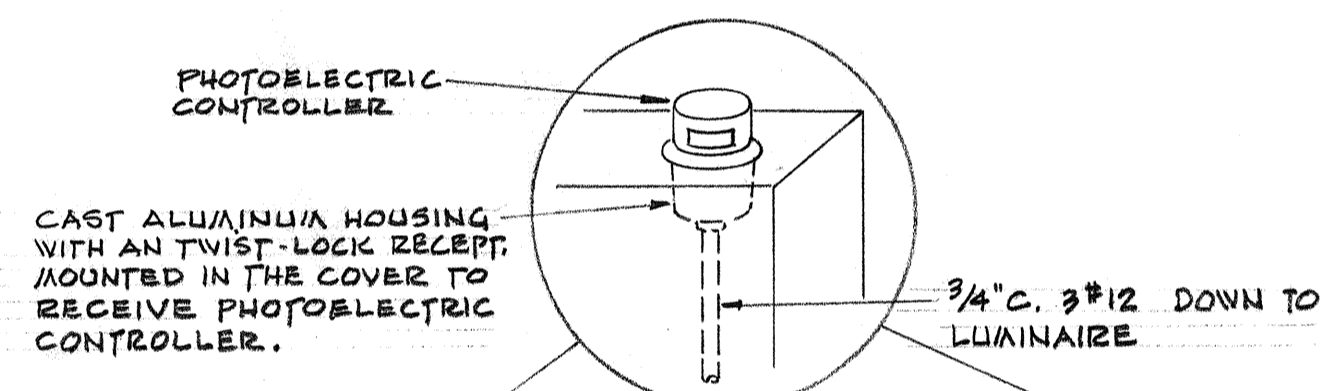
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(31) UNIT #1	1967	232	232



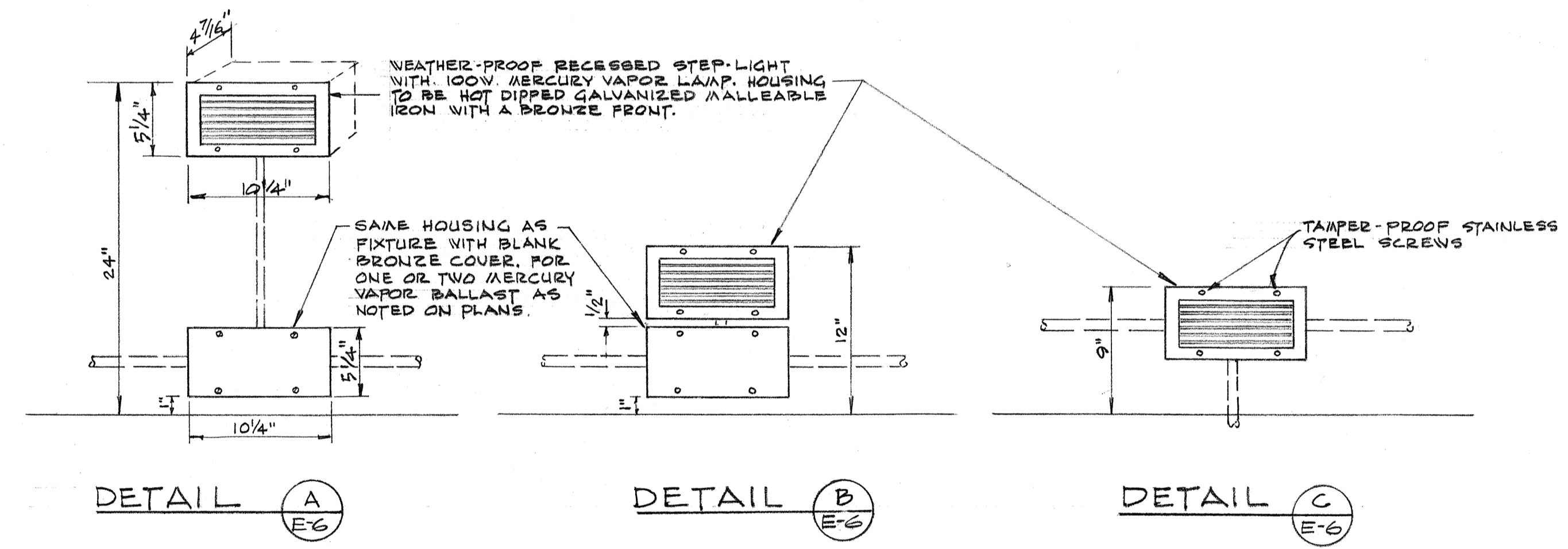
OBSERVATION PLATFORM #1
SCALE: 1/4" = 1'-0"



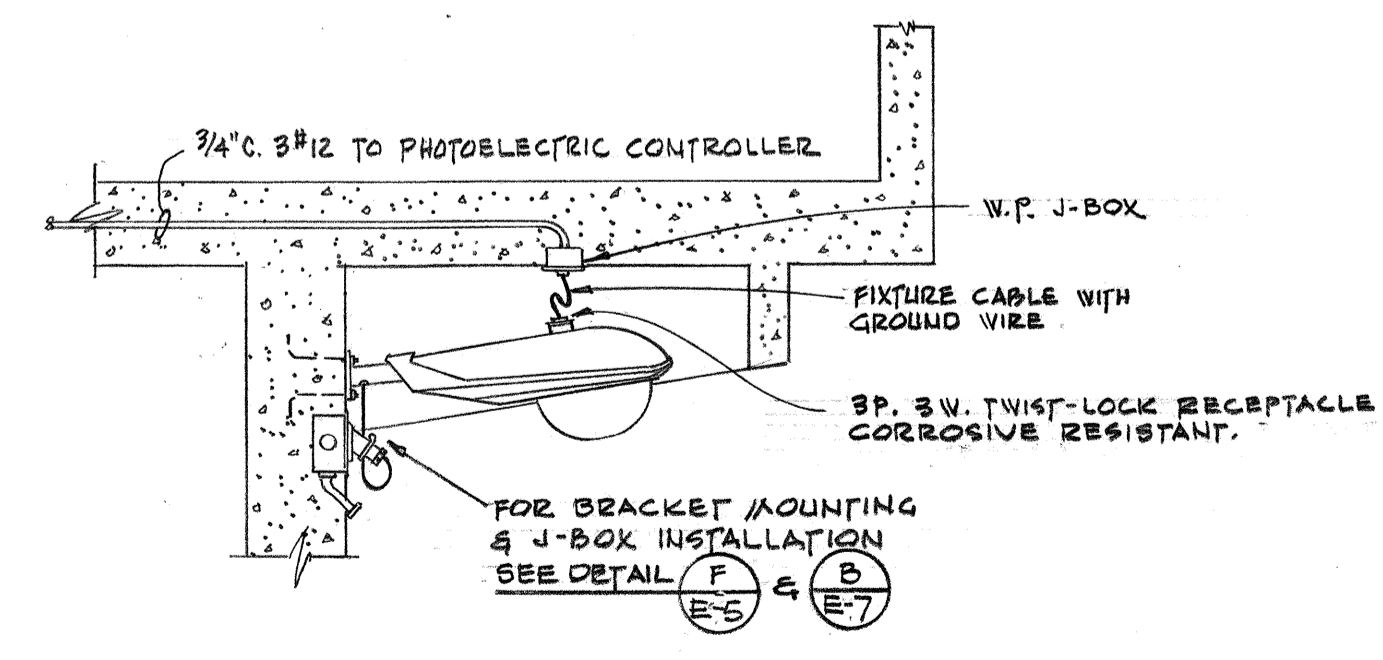
OBSERVATION PLATFORM #2
SCALE: 1/4" = 1'-0"



OBSERVATION PLATFORM #3
SCALE: 1/8" = 1'-0"



STEP-LIGHT MOUNTING DETAILS
SCALE: 1/2" = 1'-0"



MOUNTING DETAIL OF BRACKET LUMINAIRE AT STAT. 177+65 & 178+75

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

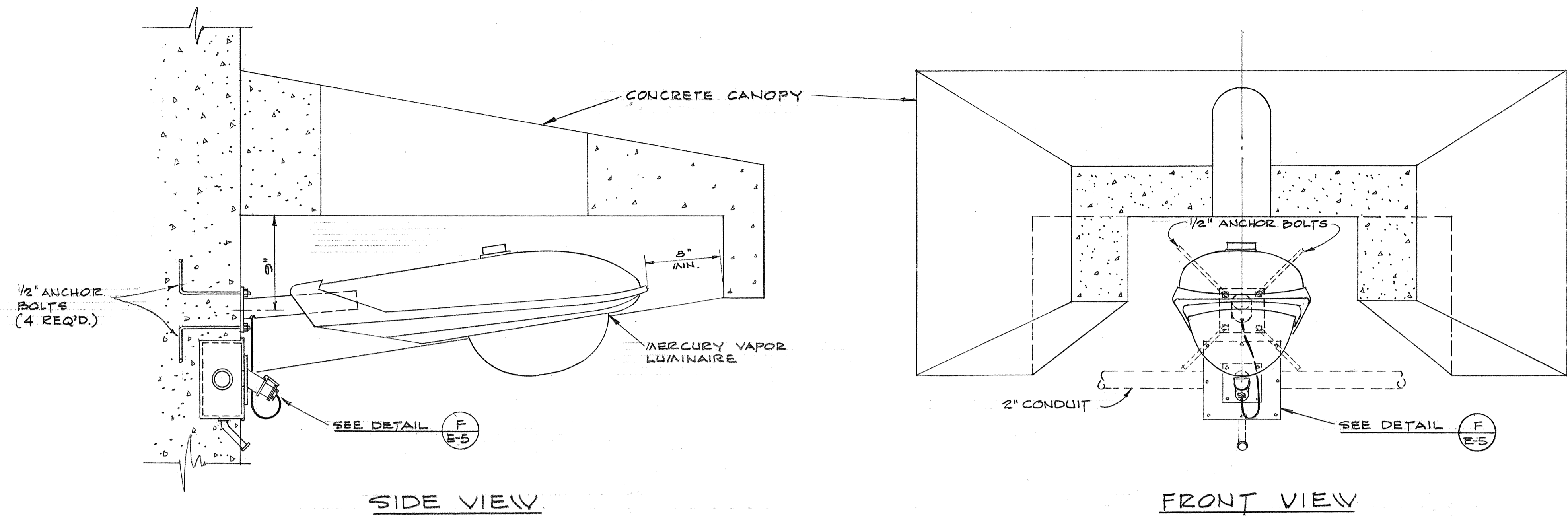
INTERSTATE ROUTE H-1
(LUNALILO FREEWAY)
Pele St. to Victoria St.
F.A.I. Proj No I-HI-1(31), Unit 1

SCALE: AS SHOWN DATE

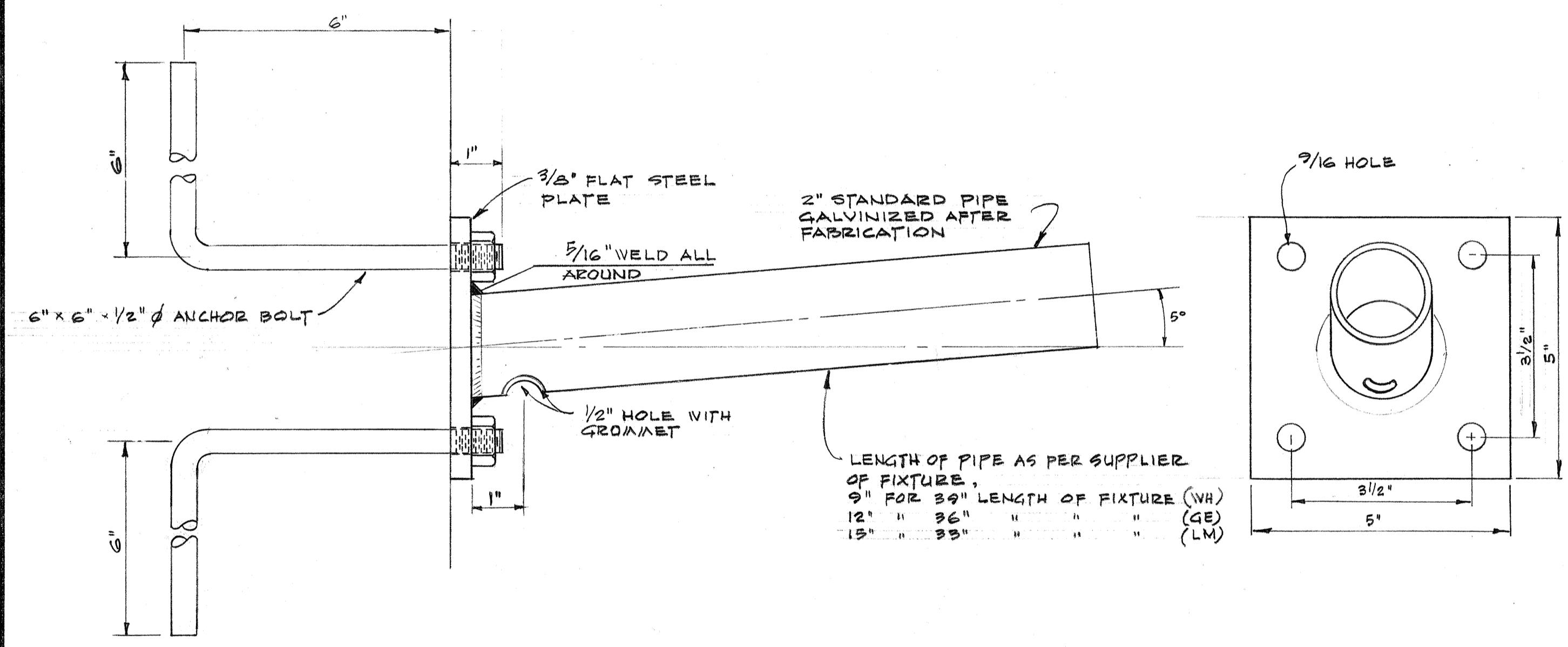
SHEET No. 6 OF 8 SHEETS

PRINTED ON NO. 1000H CLEARPRINT

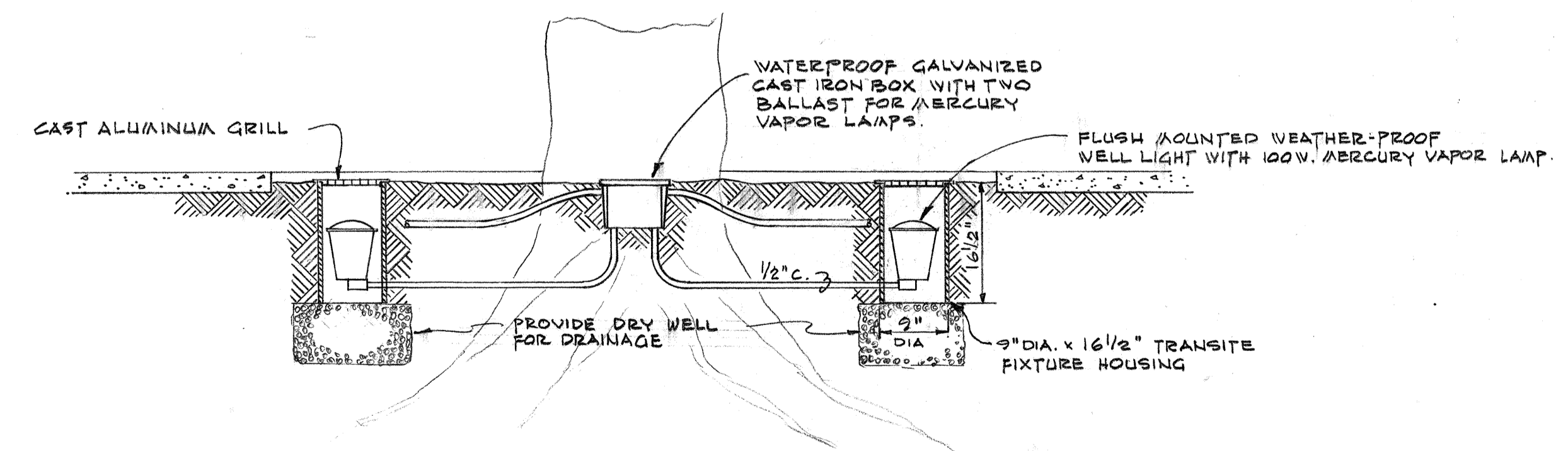
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(31) UNIT #1	1967	233	202



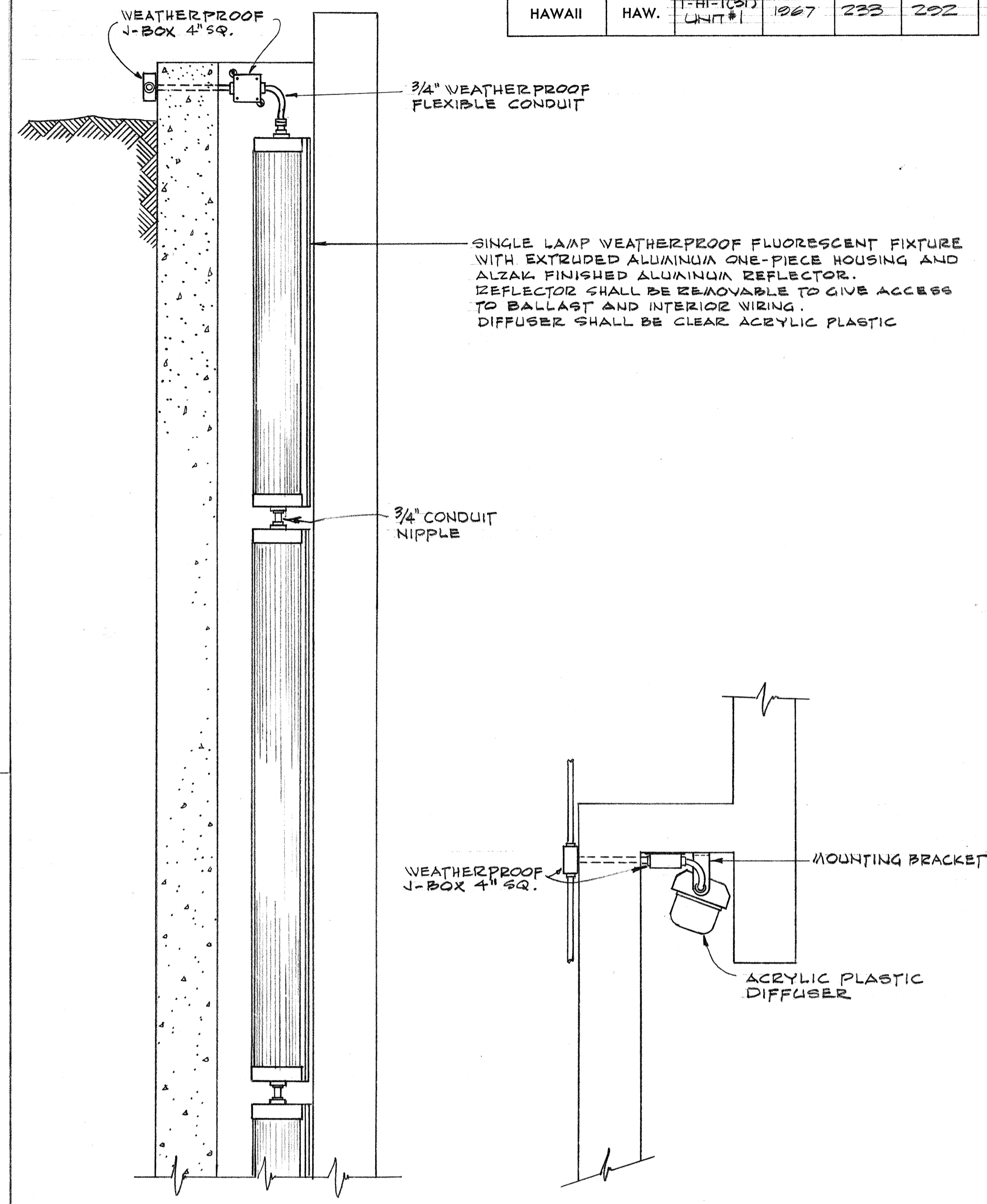
WALL MOUNTED FIXTURE WITH CONCRETE CANOPY MOUNTING DETAIL (A)
 SCALE: 1/2" = 1'-0"



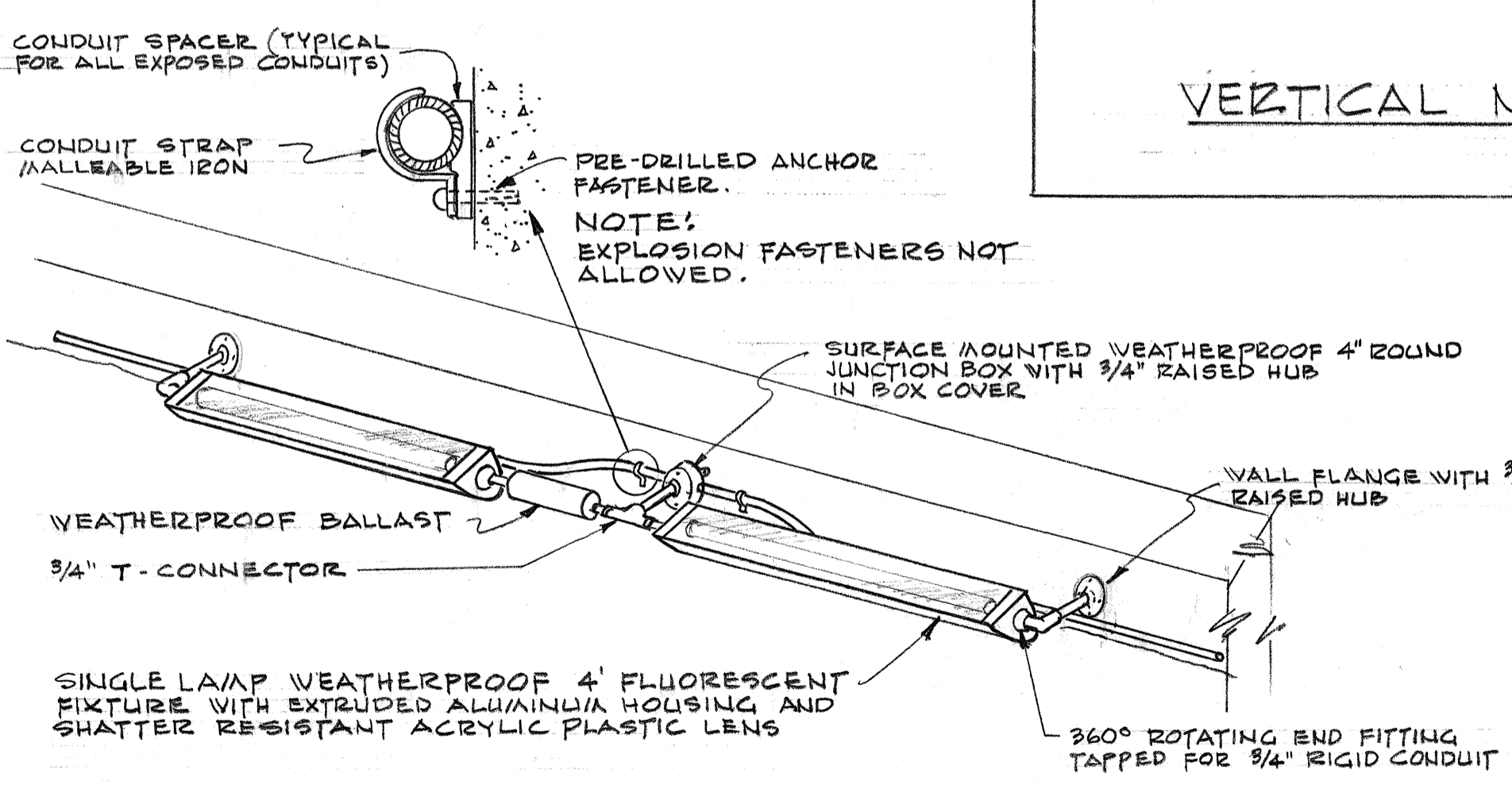
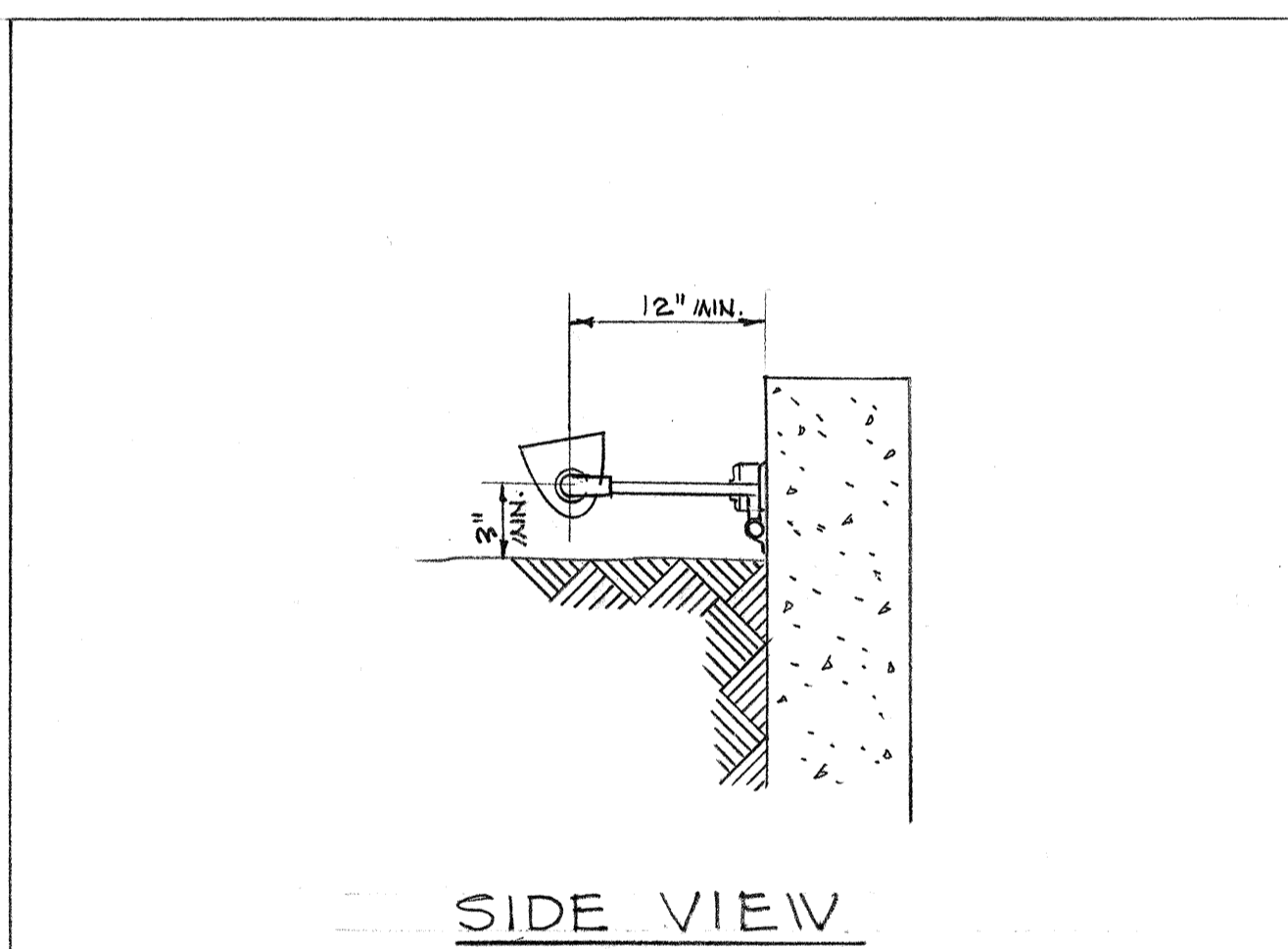
WALL MOUNTED FIXTURE BRACKET DETAIL (B)
 SCALE: 1/2" = 1"



TYPICAL MOUNTING DETAIL FOR FLUSH MOUNTED PLANTER LIGHTS (C)
 NO SCALE



VERTICAL NICHE LIGHT MOUNTING DETAIL (D)
 NO SCALE



PLANTER LIGHT MOUNTING DETAIL (E)
 NO SCALE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

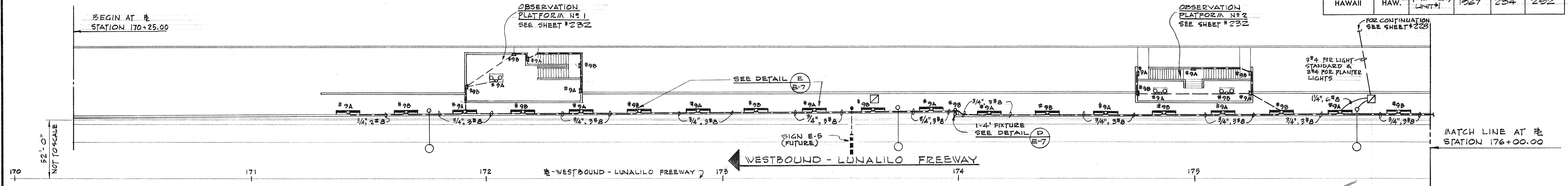
INTERSTATE ROUTE H-1
 (LUNALILO FREEWAY)
 Pele St. to Victoria St.
 F.A.I. Proj. No. I-HI-(31), Unit 1

SCALE: AS SHOWN DATE:

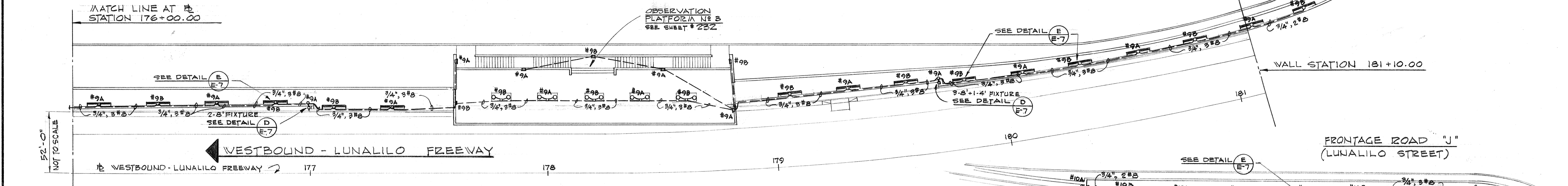
SHEET No. E-7 OF 8 SHEETS

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

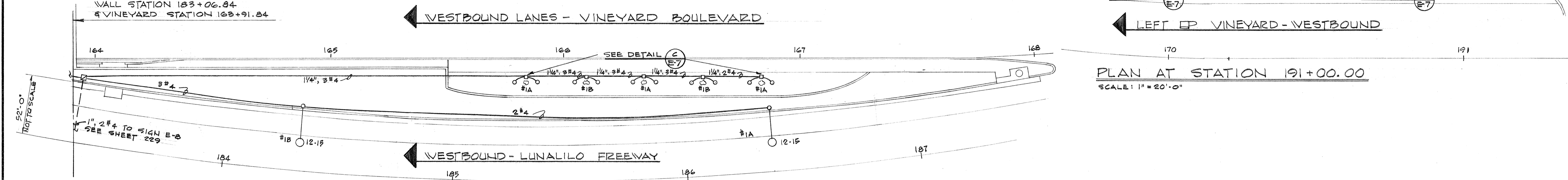
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(31) UNIT 1	1967	234	232



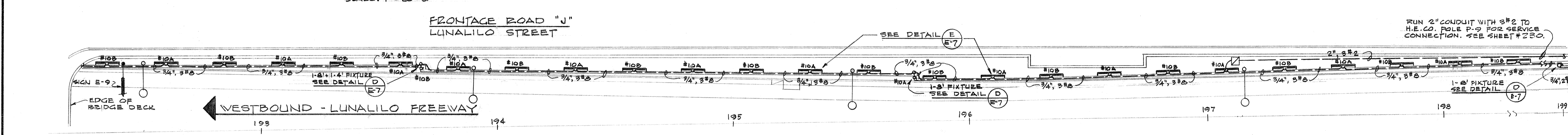
PLAN AT STATION 170+25.00 TO 176+00.00
SCALE: 1" = 20'-0"



PLAN AT STATION 176+00.00 TO 181+10.00
SCALE: 1" = 20'-0"



PLAN AT STATION 183+06.84 TO 187+00.00
SCALE: 1" = 20'-0"



PLAN AT STATION 191+ TO 198+
SCALE: 1" = 20'-0"

DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HIGHWAY LIGHTING SYSTEM

INTERSTATE ROUTE H-1
 (LUNALILO FREEWAY)
 Pele St. to Victoria St.
 F.A.I. Proj No. I-HI-1(31). Unit 1

SCALE: AS SHOWN DATE: _____

SHEET No. 3 OF 8 SHEETS

234