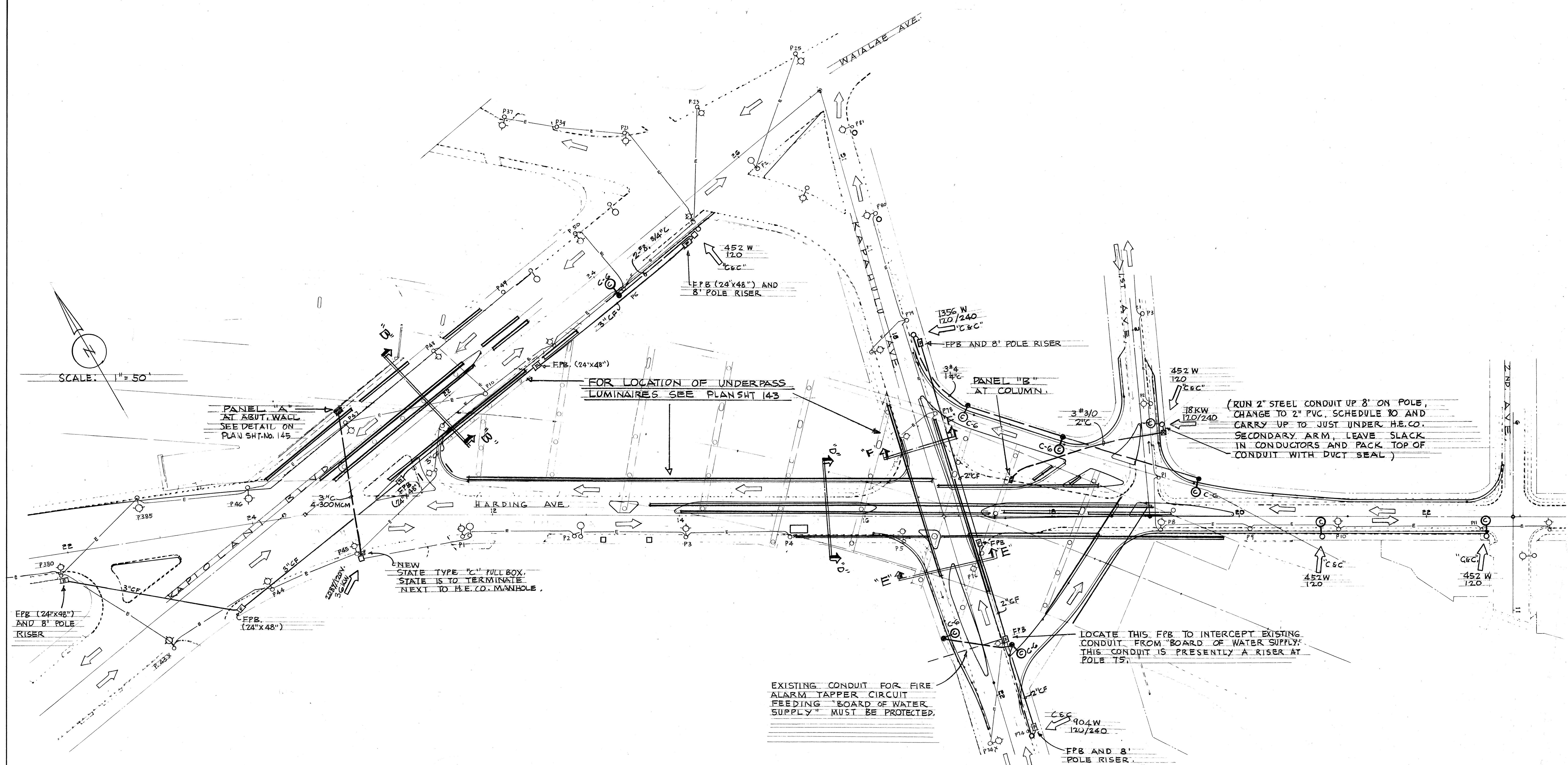




- NOTES:**
1. FOR ELECTRICAL SYMBOLS SEE PLAN SHEET NO. 143
 2. FOR UNDER PASS LUMINAIRES LOCATION AND STRUCTURE SECTIONS SEE PLAN SHT. NO. 143
 3. FOR UNDERPASS LUMINAIRES OR SHOWN ON THIS SHEET, SEE 1"=20' SCALE DWG. ON PLAN SHEET NOS. 141 AND 142
 4. ALL WORK ON EXISTING CITY AND COUNTY STREET LIGHTING AND FIRE ALARM EQUIPMENT AND CIRCUITS WILL BE DONE BY THE CITY AND COUNTY STREET LIGHTING DIVISION. THE CONTRACTOR SHALL NOTIFY THE CITY AND COUNTY STREET LIGHTING DIVISION AT LEAST ONE WEEK PRIOR TO THE DATE ANY WORK ON THE CITY AND COUNTY SYSTEM IS REQUIRED.

This work was prepared by me or under my supervision.

J. Oberhausen
James J. Oberhausen

REGISTERED PROFESSIONAL ENGINEER
No. 666
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
LAYOUT

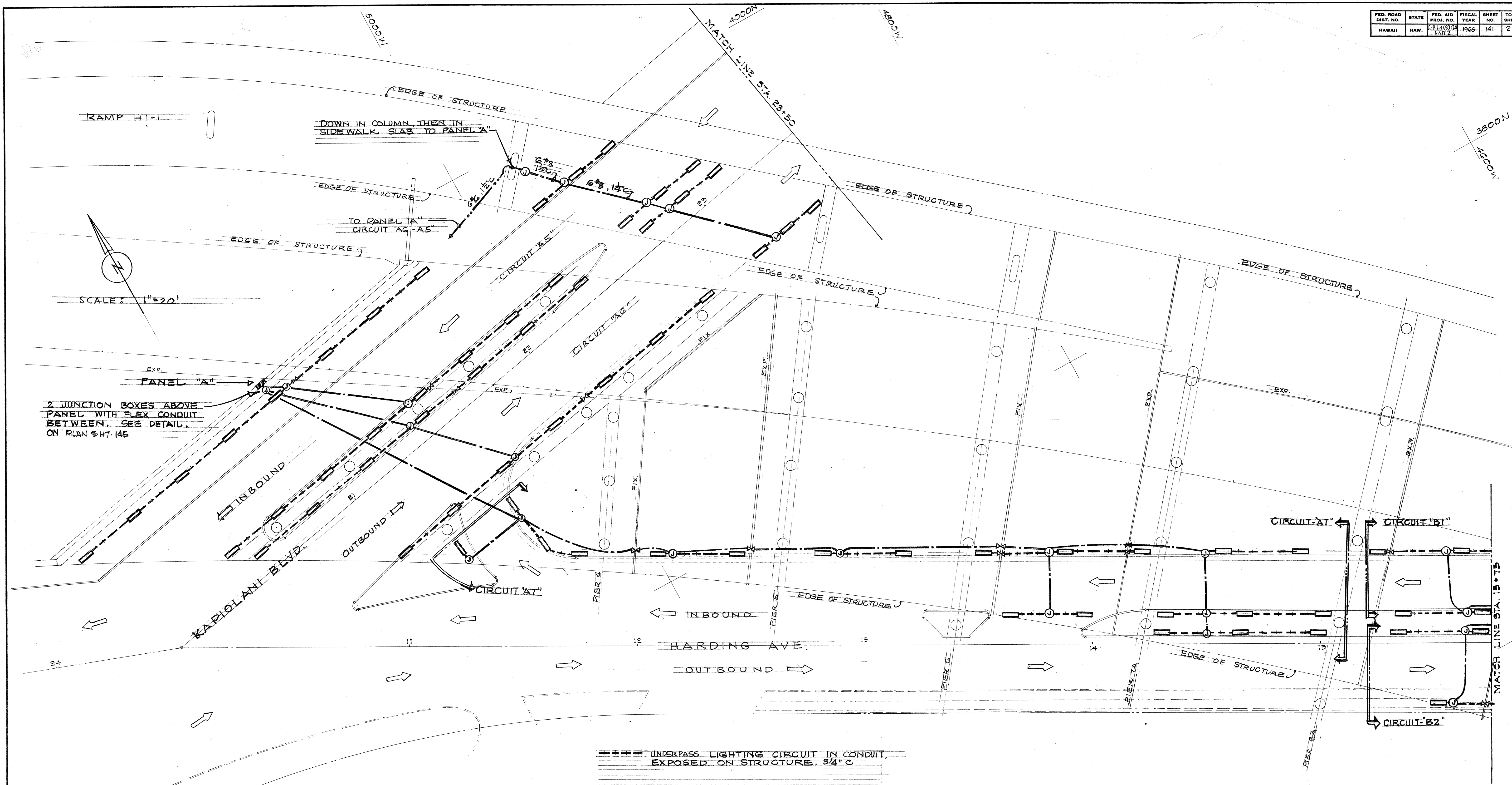
F.A.I. PROJ. NO. I-HI-1(5):24, UNIT 2

SCALE: 1" = 50'

MAY 1965

SHEET No. 3 OF 10 SHEETS

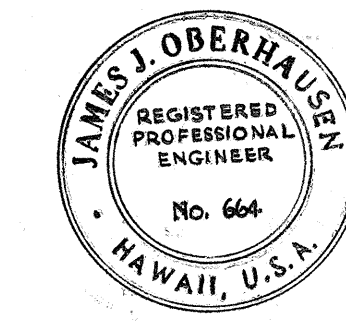
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PR-1(5)24	1965	141	276



2 JUNCTION BOXES ABOVE
PANEL WITH FLEX CONDUIT
BETWEEN. SEE DETAIL,
ON PLAN SHT. 145

- UNDERPASS LIGHTING CIRCUIT IN CONDUIT,
EXPOSED ON STRUCTURE, 3/4" C
- UNDERPASS LIGHTING CIRCUIT IN CONDUIT,
CONCEALED IN STRUCTURE, 1" C OR AS
NOTED.
- UNDERPASS LIGHTING CIRCUIT IN CONDUIT,
CONCEALED IN SIDE WALK, WALLS, COL.,
AND UNDERGROUND. SIZE AS NOTED.
- ⊙ JUNCTION BOX, SEE DETAIL
- ✕ EXPANSION FITTING, SEE DETAIL.
- ▬ UNDER PASS LUMINAIRE
2-FLOOT 12 CW/HO G600 LUMEN
LAMPS, 235 WATTS.

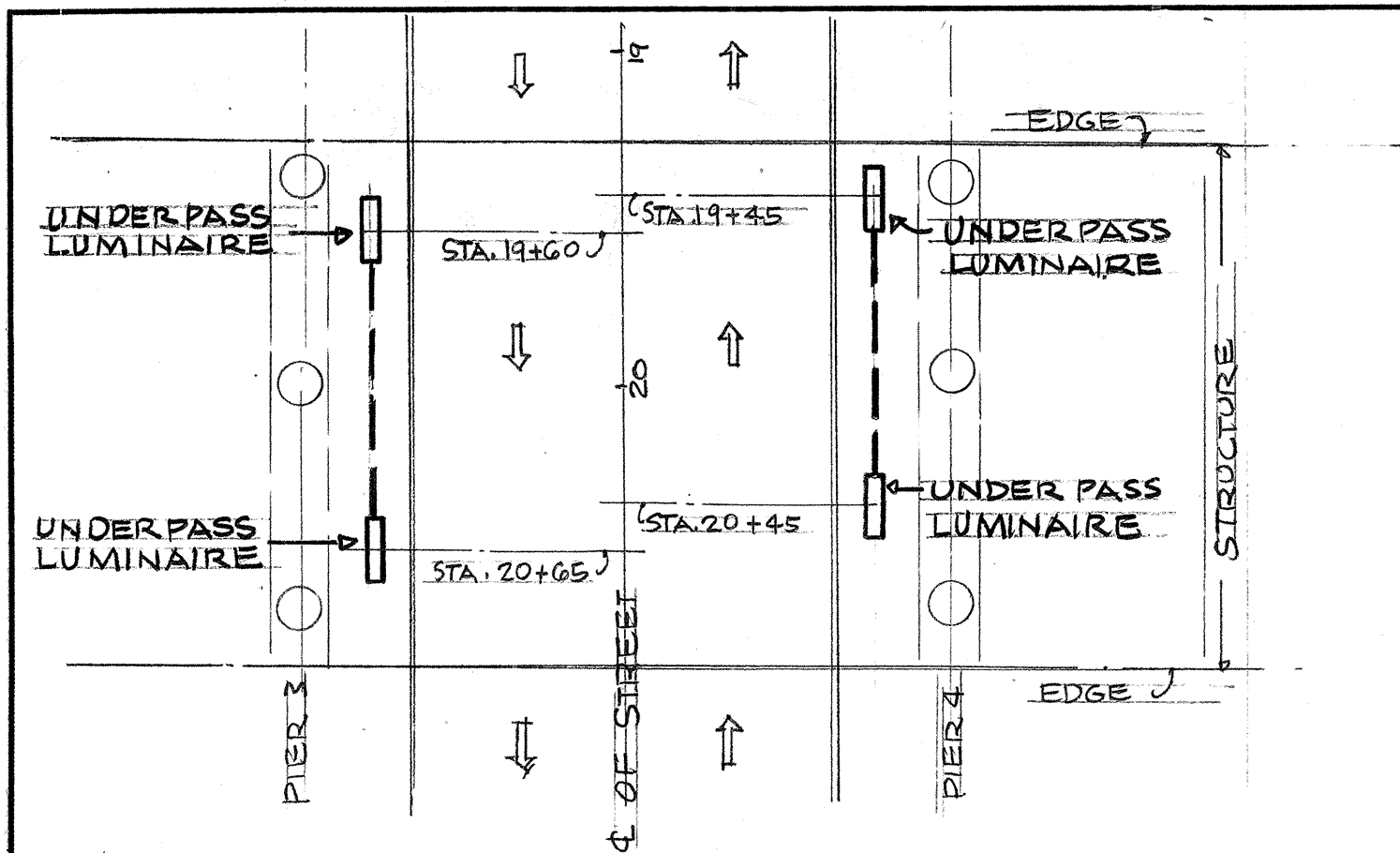
This work was prepared by me or under
my supervision.
James J. Oberhausen
James J. Oberhausen



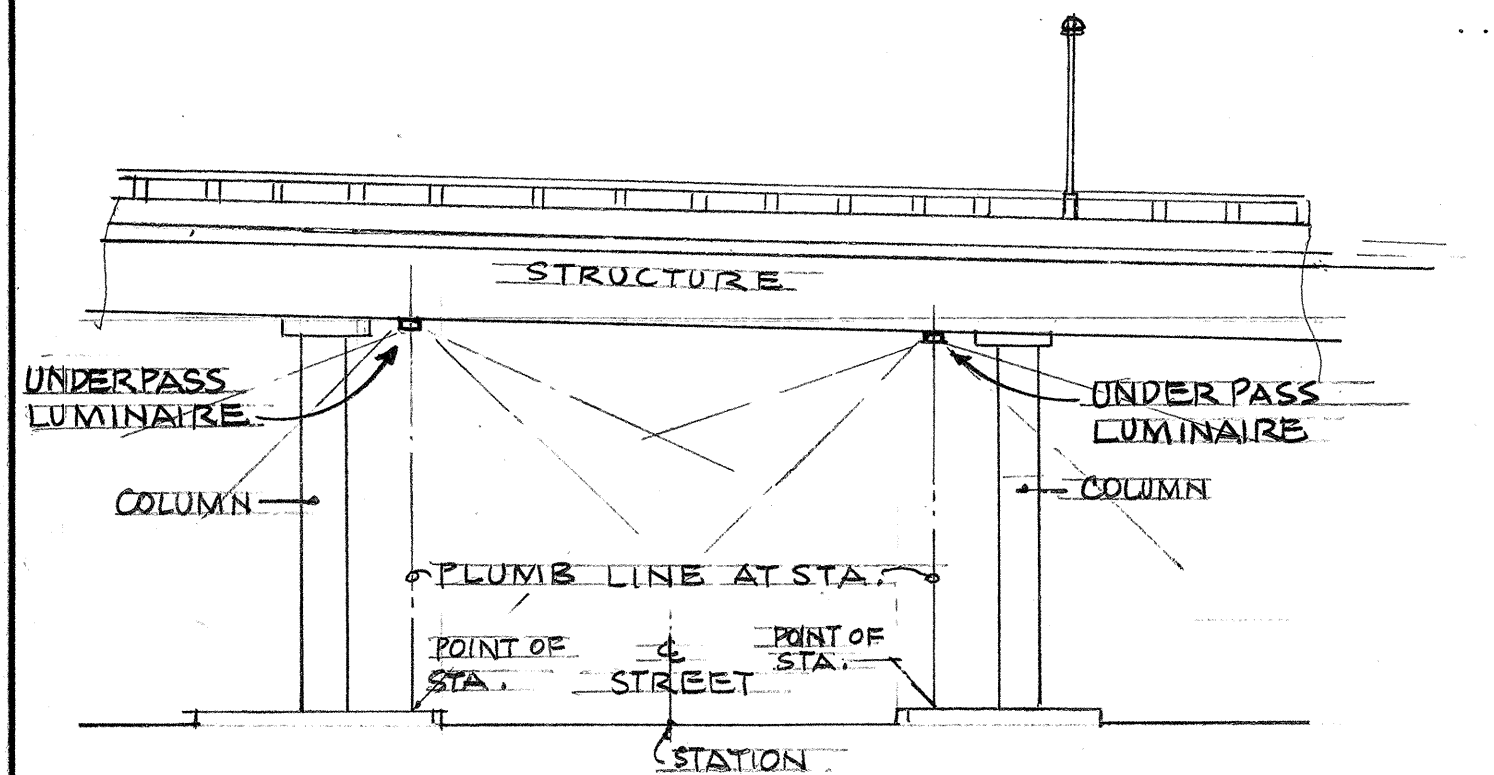
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAY LIGHTING PLAN
LAYOUT

F.A.I. PROJ. NO. I-HI-1(5):24, UNIT 2
SCALE: 1"=20'
SHEET No. 4 OF 10 SHEETS
MAY 1965

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	5-H-1(5)24 UNIT 2	1965	142	276



TYPICAL PLAN - NOT TO SCALE

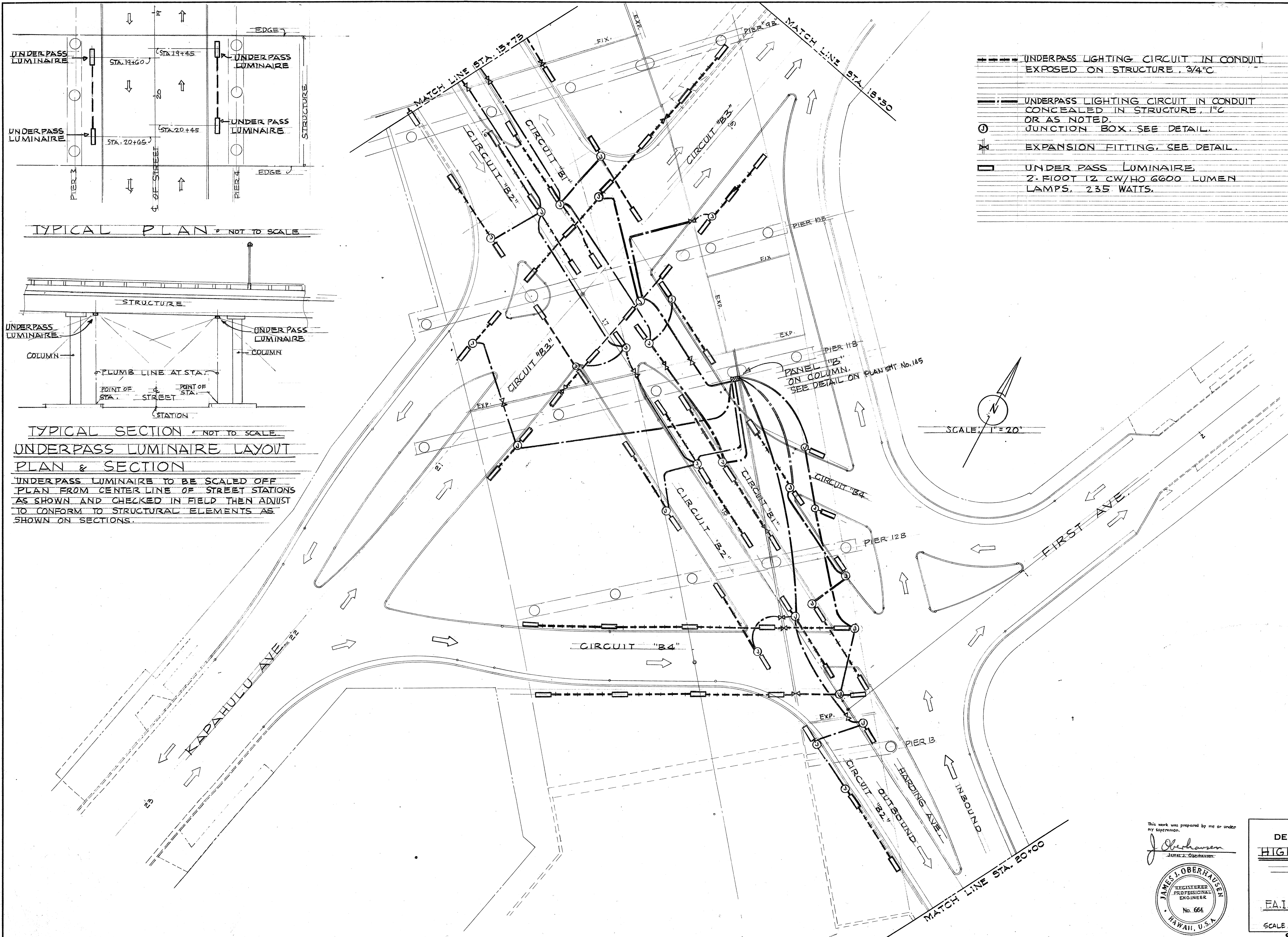
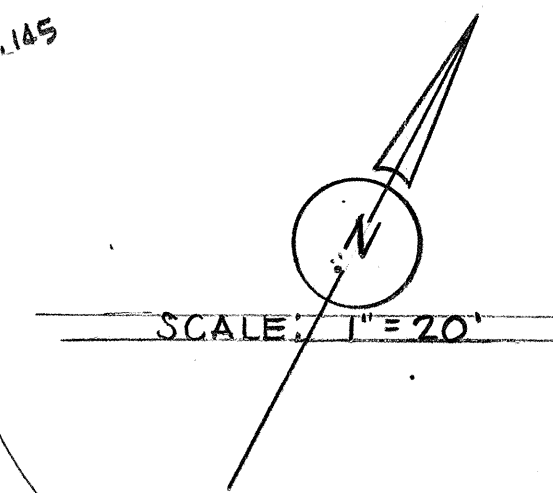


TYPICAL SECTION - NOT TO SCALE

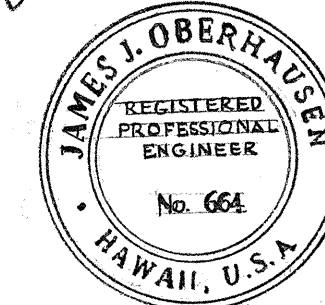
UNDERPASS LUMINAIRE LAYOUT PLAN & SECTION

UNDERPASS LUMINAIRE TO BE SCALED OFF PLAN FROM CENTER LINE OF STREET STATIONS AS SHOWN AND CHECKED IN FIELD THEN ADJUST TO CONFORM TO STRUCTURAL ELEMENTS AS SHOWN ON SECTIONS.

- UNDERPASS LIGHTING CIRCUIT IN CONDUIT EXPOSED ON STRUCTURE, 3/4" C
- UNDERPASS LIGHTING CIRCUIT IN CONDUIT CONCEALED IN STRUCTURE, 1" C OR AS NOTED.
- ⊙ JUNCTION BOX, SEE DETAIL.
- ✕ EXPANSION FITTING, SEE DETAIL.
- UNDERPASS LUMINAIRE 2-FEET 12 CW/HO 6600 LUMEN LAMPS, 235 WATTS.



This work was prepared by me or under my supervision.
J. Oberhausen
JAMES J. OBERHAUSEN



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAY LIGHTING PLAN
LAYOUT

F.A.I. PROJ. NO. I-H-1(5)24, UNIT 2

SCALE: 1" = 20'

SHEET No. 5 OF 10 SHEETS

MAY 1965

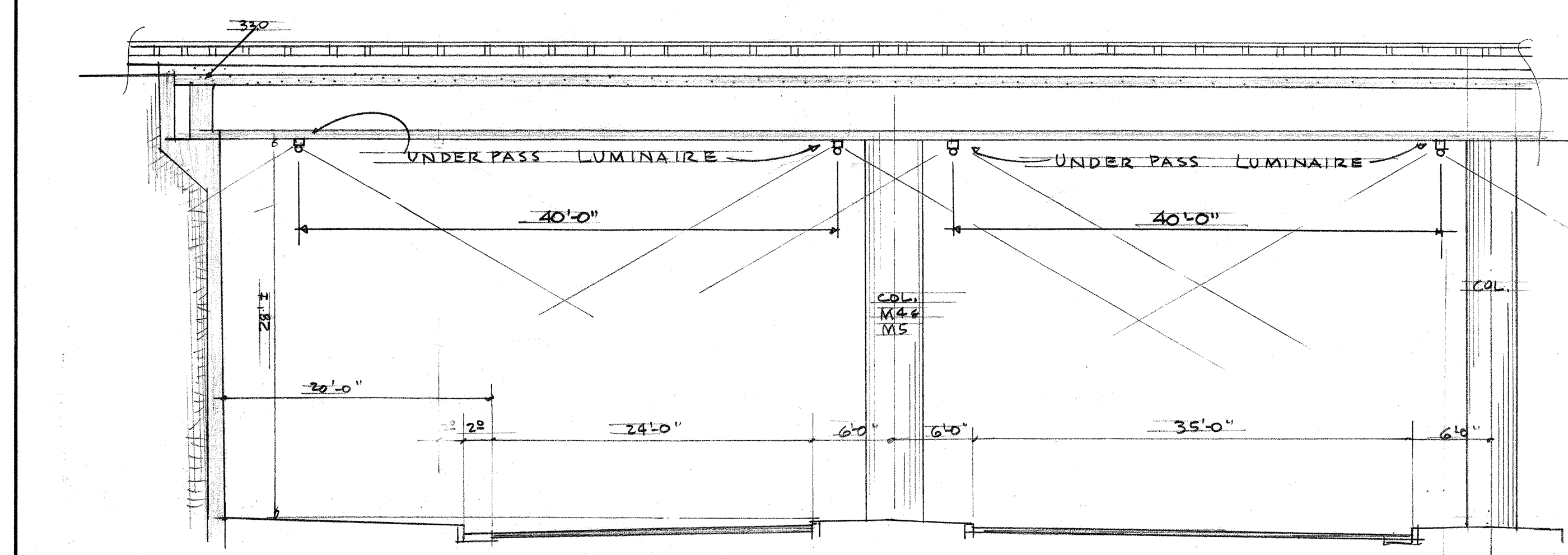
E5 142

LOCAL STREETS KAPAHULU INTERSECTION

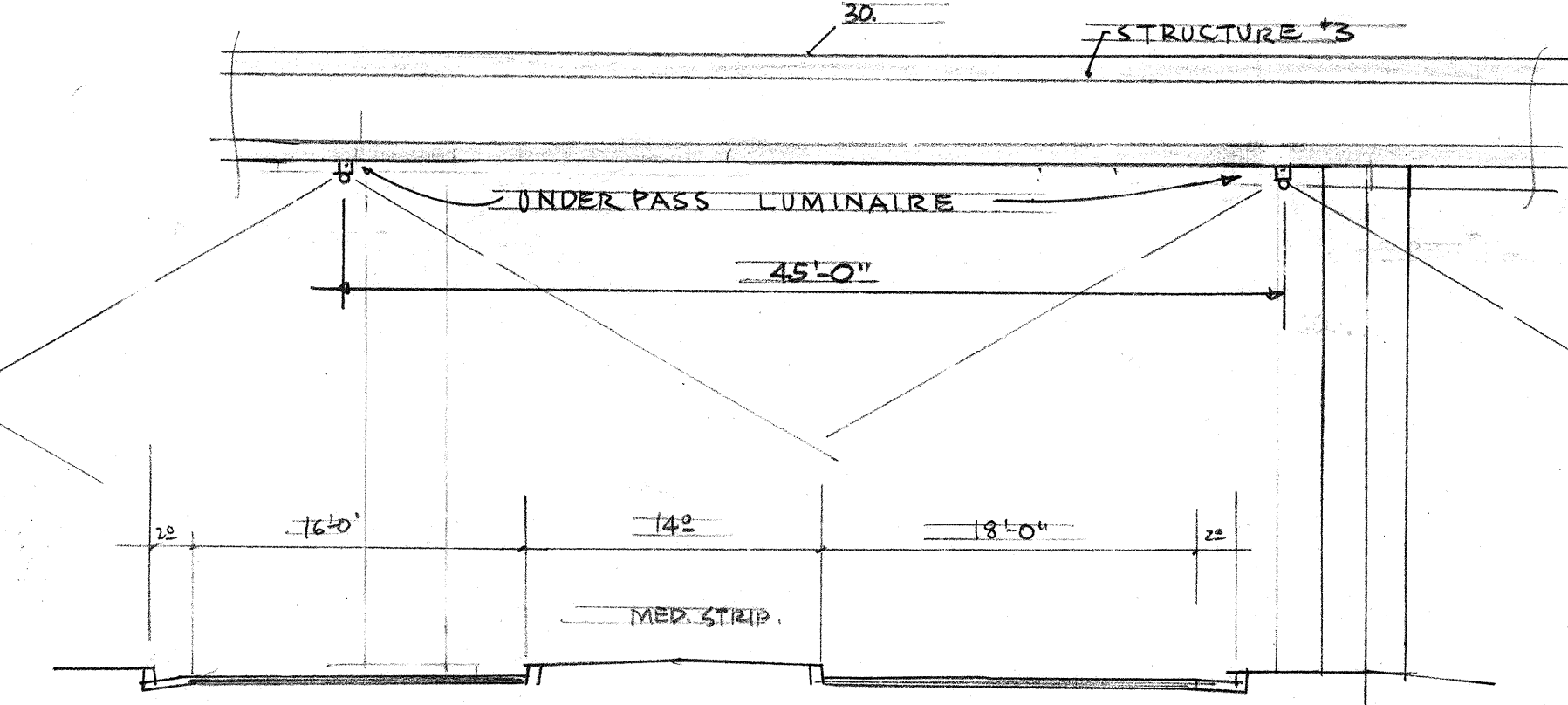
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

ELECTRICAL SYMBOLS

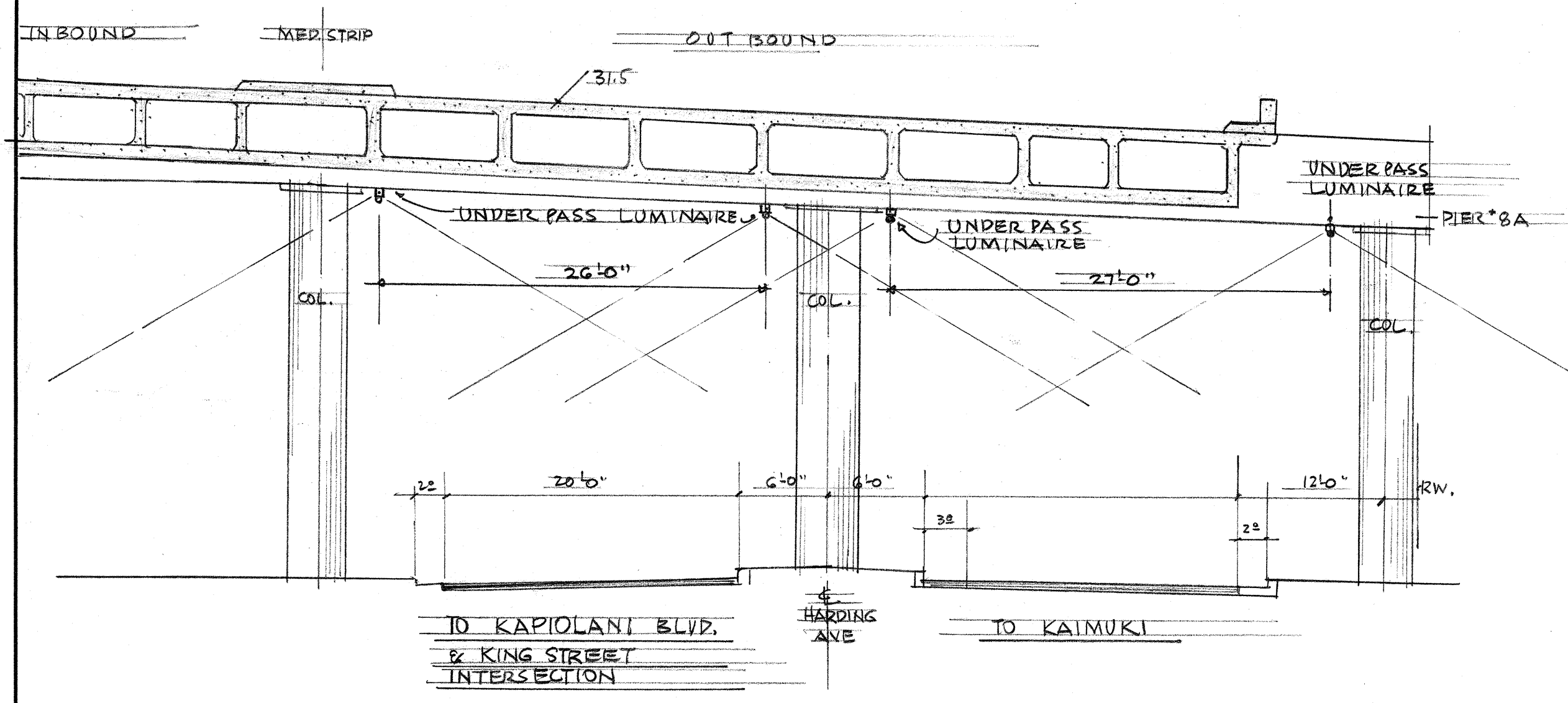
- PROPOSED STATE LUMINAIRE ON METAL LAMP POST.
- PROPOSED C&C LUMINAIRE ON METAL LAMP POST - 20,500 LUMEN, TYPE III, WITH PHOTO CELL.
- PROPOSED C&C G' MAST ARM AND LUMINAIRE ON WOOD POLE - 20,500 LUMEN, TYPE III, WITH PHOTO CELL. (POLE INSTALLED BY OTHERS.)
- 20,500 LUMEN LUMINAIRE WITH PHOTO CELL, TYPE II DISTRIBUTION, 452 WATTS.
- 11,000 LUMEN LUMINAIRE WITH PHOTO CELL, TYPE II DISTRIBUTION, 294 WATTS.
- UNDER PASS LUMINAIRE - 2 FOOT 12 CW/HO 6600 LUMEN LAMPS 235 WATTS.
- ⊙ EXISTING STATE LUMINAIRE DISPOSITION AS NOTED.
- E2C- EXISTING STATE SERIES CIRCUIT TO BE ABANDONED.
- POLE, BY OTHERS.
- HE.CO. SERVICE POINT, LOAD & VOLTAGE AS NOTED.
STATE IS CUSTOMER EXCEPT WHERE DESIGNATED "C & C".
- HANDHOLE OR MANHOLE, BY OTHERS.
- ⊞ EXISTING STATE PULL BOX TO REMAIN.
- ⊞ NEW STATE PULL BOX, TYPE "C"
- ⊞ SIDE WALK JUNCTION BOX, SIZE AND LOCATION OF HUBS AS REQUIRED BY CIRCUIT ROUTING.
- ⊞ JUNCTION BOX FOR UNDERPASS LIGHTS, SIZE AND LOCATION OF HUBS AS REQUIRED BY CIRCUIT ROUTING.
- RIGID STEEL GALVANIZED CONDUIT, WITH 2 COAT BITUMASTIC PAINT, UNDERGROUND 18" MIN. COVER.
- 25c- SAME (1 1/2") WITH 2 SERIES CABLES.
- C- DIRECT BURIAL CABLE, 3-1 CONDUCTORS EXCEPT 2-1 CONDUCTORS TO LAST LUMINAIRE.
- 25c- TWO DIRECT BURIAL SERIES CABLES.
- X- DUCT MARKER.
- S-10 INDICATES LAMP POST WITH 30' NOMINAL HT. IS ON STRUCTURE WITH BRIDGE RAIL.
- 10- INDICATES 10'-0" BRACKET ARM LENGTH.
- 4-10 INDICATES FACE OF LAMP POST WITH 30' NOMINAL HT. IS 4' BACK OF EDGE OF GUTTER.
- 10- INDICATES 10'-0" BRACKET ARM LENGTH.
- C-10 INDICATES LAMP POST WITH 30' NOMINAL HT. IS CENTERED IN MEDIAN WITH 2' MINIMUM FROM ANY FACE TO FACE OF CURB OR EDGE OF USABLE SHOULDER.
- 10- INDICATES 10'-0" BRACKET ARM LENGTH.
- XJ XJ= EXPANSION JOINT.
- X- EXPANSION COUPLING FOR RIGID CONDUIT BURIED IN STRUCTURE AT EXPANSION JOINTS. EXPOSED CONDUIT FOR UNDERPASS CIRCUITS SHALL CROSS XJ WITH FLEX. METALLIC CONDUIT 24" LENGTH.



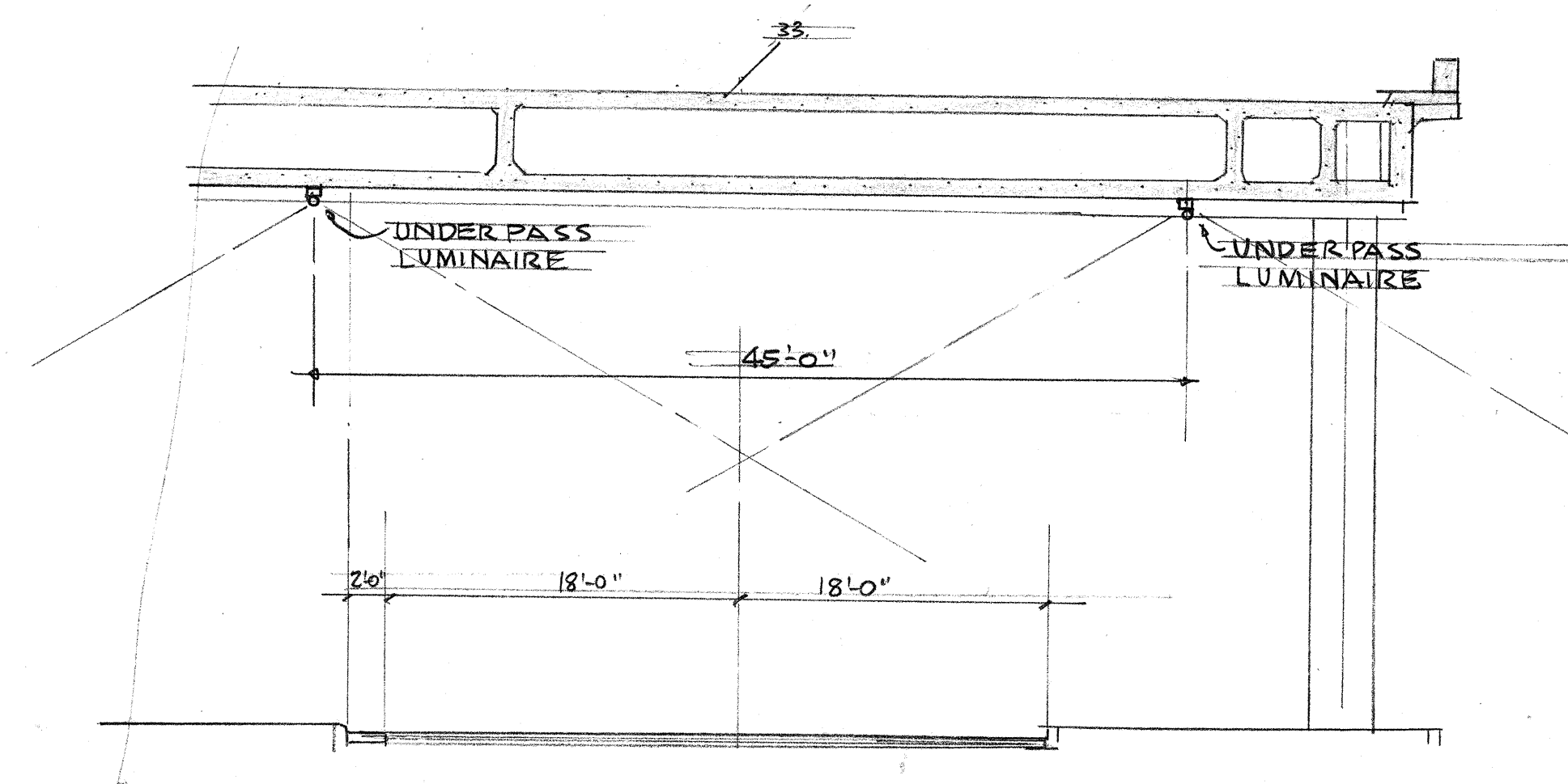
KAPIOLANI BLVD AT STRUCTURE #3
LOOKING TOWARD MAUKA
SCALE: 1/8" = 1'-0"



KAPIOLANI BLVD AT STRUCTURE #3
LOOKING TOWARD MAUKA
SCALE: 1/8" = 1'-0"



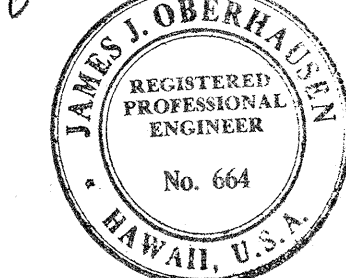
HARDING AVE (KAPIOLANI BLVD TO KAPAHULU)
SCALE: 1/8" = 1'-0"



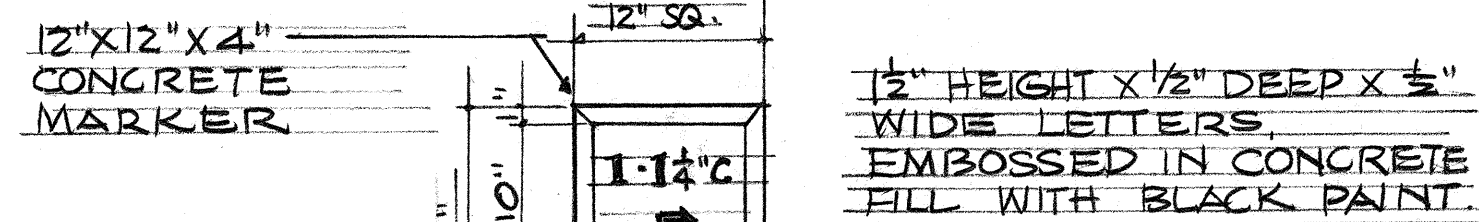
KAPAHULU AVE MAUKA OF STRUCTURE #3
NEAR INTERSECTION OF HARDING AVE.
SCALE: 1/8" = 1'-0"

3" CF	3" RIGID STEEL CONDUIT FOR FIRE ALARM SYSTEM.
2" CF	2" RIGID STEEL CONDUIT FOR FIRE ALARM SYSTEM.
1E1 FPs	STANDARD C&C 19"X28" PULL BOX WITH CHECKER PLATE COVER, INSCRIBED "DEPT. OF TRAFFIC - FIRE ALARM".
1E1 FPs (24"X48")	LARGE PULL BOX CONFORMING TO H.E.CO. UNDERGROUND STANDARD "U-103, WITH 3/8" CHECKER PLATE COVER, INSCRIBED "DEPT. OF TRAFFIC - FIRE ALARM".
○ P358	EXISTING C&C POLE.
○-○	EXISTING C&C POLE WITH EXIST. C&C LIGHTS.
○-○	EXISTING C&C POLE WITH NEW C&C LIGHTS. (BY C&C.)
-E	EXISTING C&C ST. LT. SYSTEM CONDUCTORS.

This work was prepared by me or under my supervision.
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James J. Oberhausen

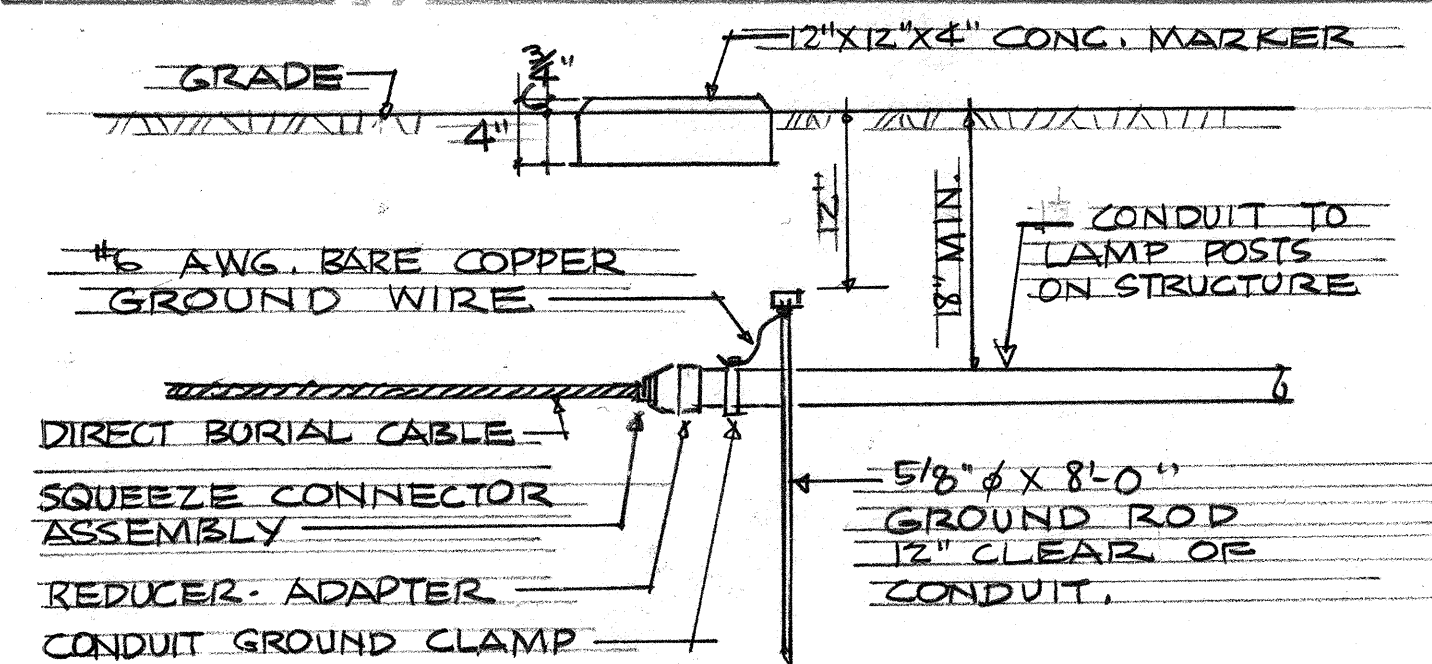


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
ELECTRICAL SYMBOLS & SECTIONS
FA.I. PROJ. NO. I-HI-1(5):24, UNIT 2
SCALE: AS NOTED
MAY 1965
SHEET No. 6 OF 10 SHEETS



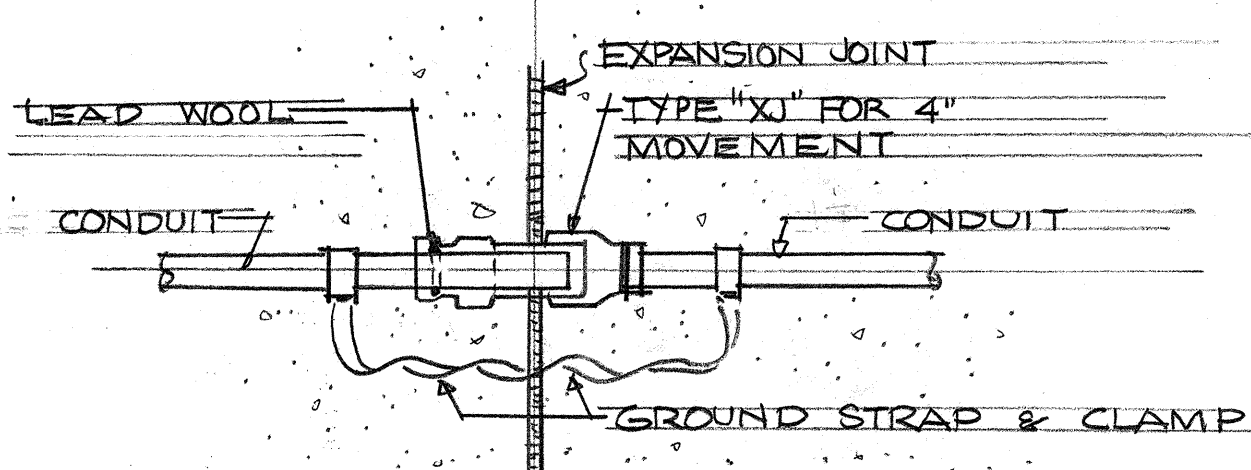
PLAN
X DUCT MARKER DETAIL

G
E7



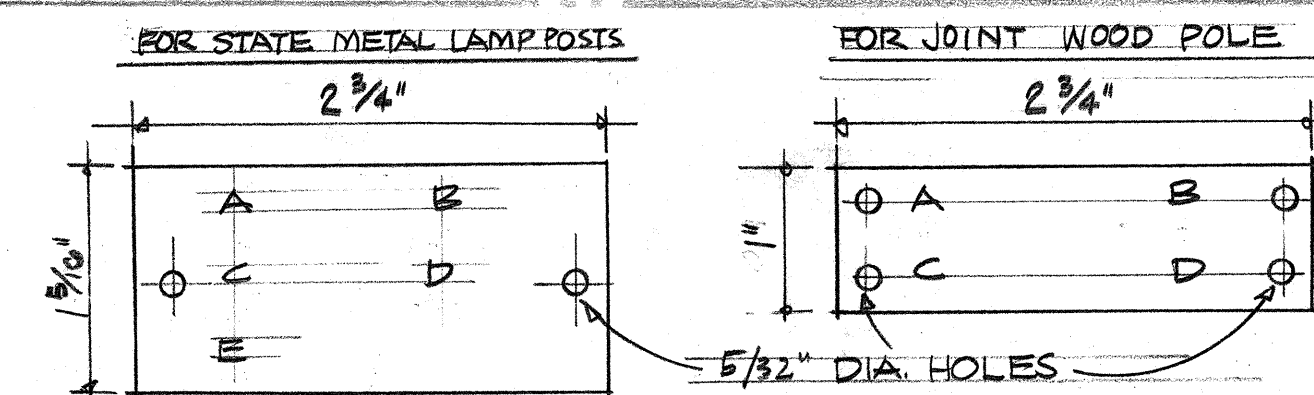
GROUNDING WHERE CIRCUIT CHANGES
FROM DIRECT BURIAL CABLE TO CONDUIT
NOT TO SCALE

H
E7



TYPE "XJ" EXPANSION JOINT
INSTALLED WITH GROUNDING
STRAP & CLAMP • NOT TO SCALE

I
E7



LEGEND

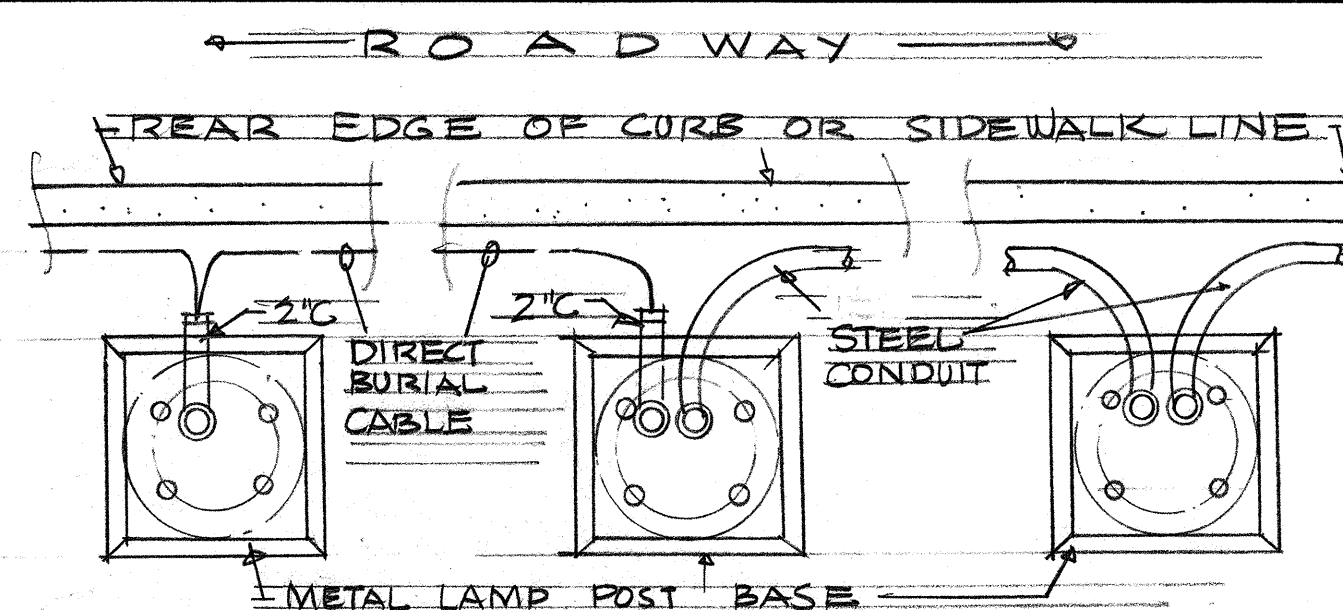
A = CONTRACT NUMBER, OBTAIN FROM STATE OR H.E.CO. LTD.
B = LIGHT NUMBER, FROM CONTRACT DRAWINGS, STATE OR H.E.CO.
C = LAMP DATA, SEE NOTE #5 BELOW.
D = REFRACTOR DATA, USE ROMAN NUMERAL "IES" TYPE AS INDICATED ON DRAWING OR IN SPECIFICATIONS 1-3.
E = POST NUMBER, OBTAIN FROM STATE OR H.E.CO. LTD.

NOTES

1. MAKE FROM LAMINATED "GRAVOFLEX" BLACK ON WHITE.
2. ATTACH TO ALUMINUM POST WITH NO. 7 ALUMINUM DRIVE SCREWS. ATTACH TO STEEL POST WITH NO. 7 GALV. PLATED DRIVE SCREWS. ATTACH TO WOOD POLES WITH 4D ALUMINUM NAILS.
3. ATTACH 6'-0" ABOVE CURB, IF NO CURB 6'-0" ABOVE FIN. GRADE.
4. LETTERS NO. 5 REDUCTION 1/5" ENGRAVED OR STENCILED.
5. ATTACH TO ALL POLES WITH STATE MULTIPLE SYSTEM LUMINAIRES. LAMP DATA CODE: H250 (250 WATT) OR H400 (400 WATT) 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 PANEL BOARD SERVICE POINTS, SEE H.E.CO.

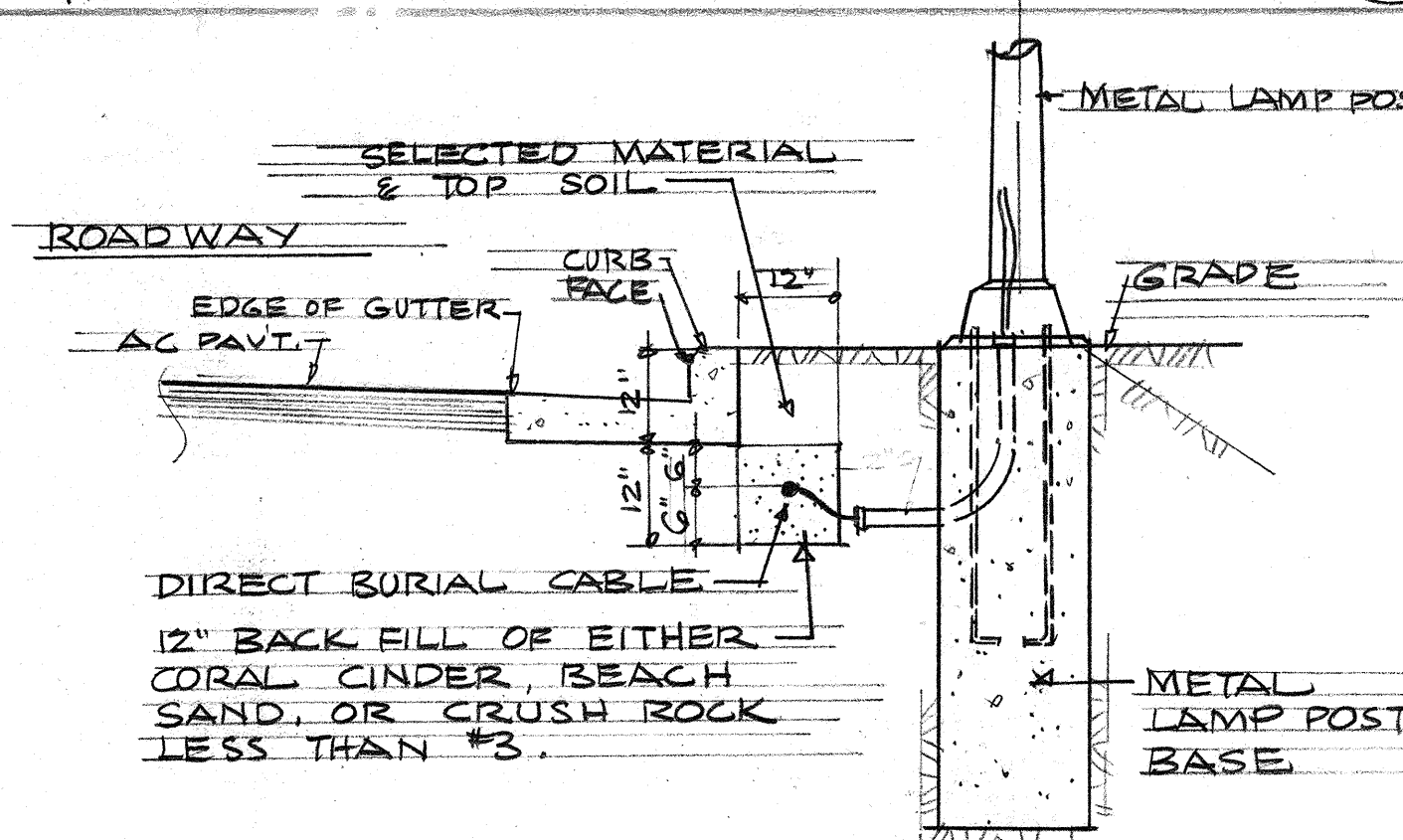
MULTIPLE STREET LIGHTING
IDENTIFICATION TAG.

J
E7



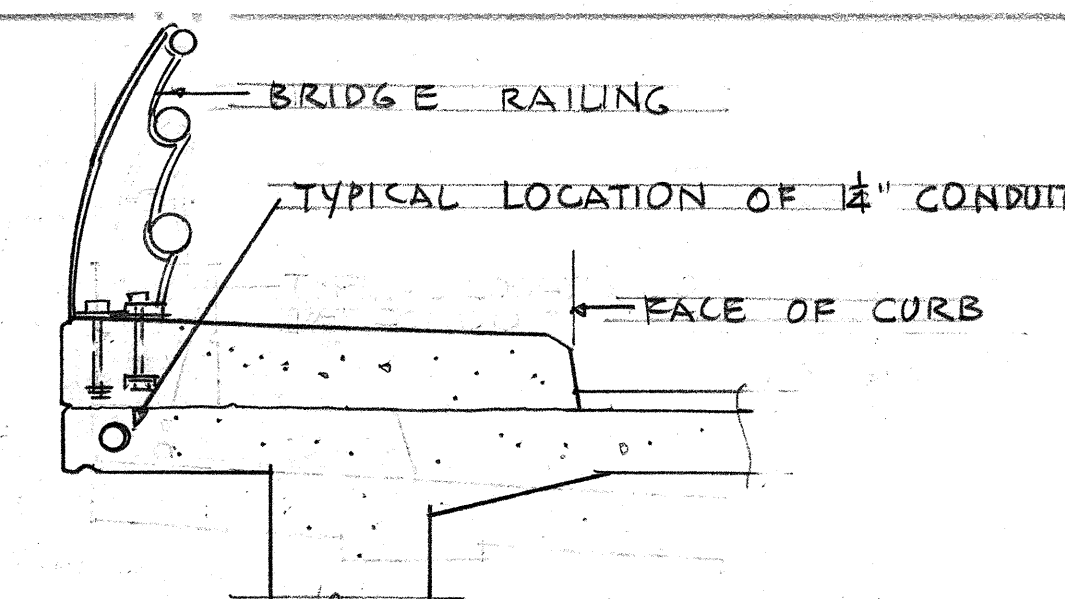
CONDITION #1 CONDITION #2 CONDITION #3
SEE LAYOUT PLAN FOR CONDUIT CONDITION.
METAL LAMP POST CONDITIONS DET.
NOT TO SCALE

C
E7



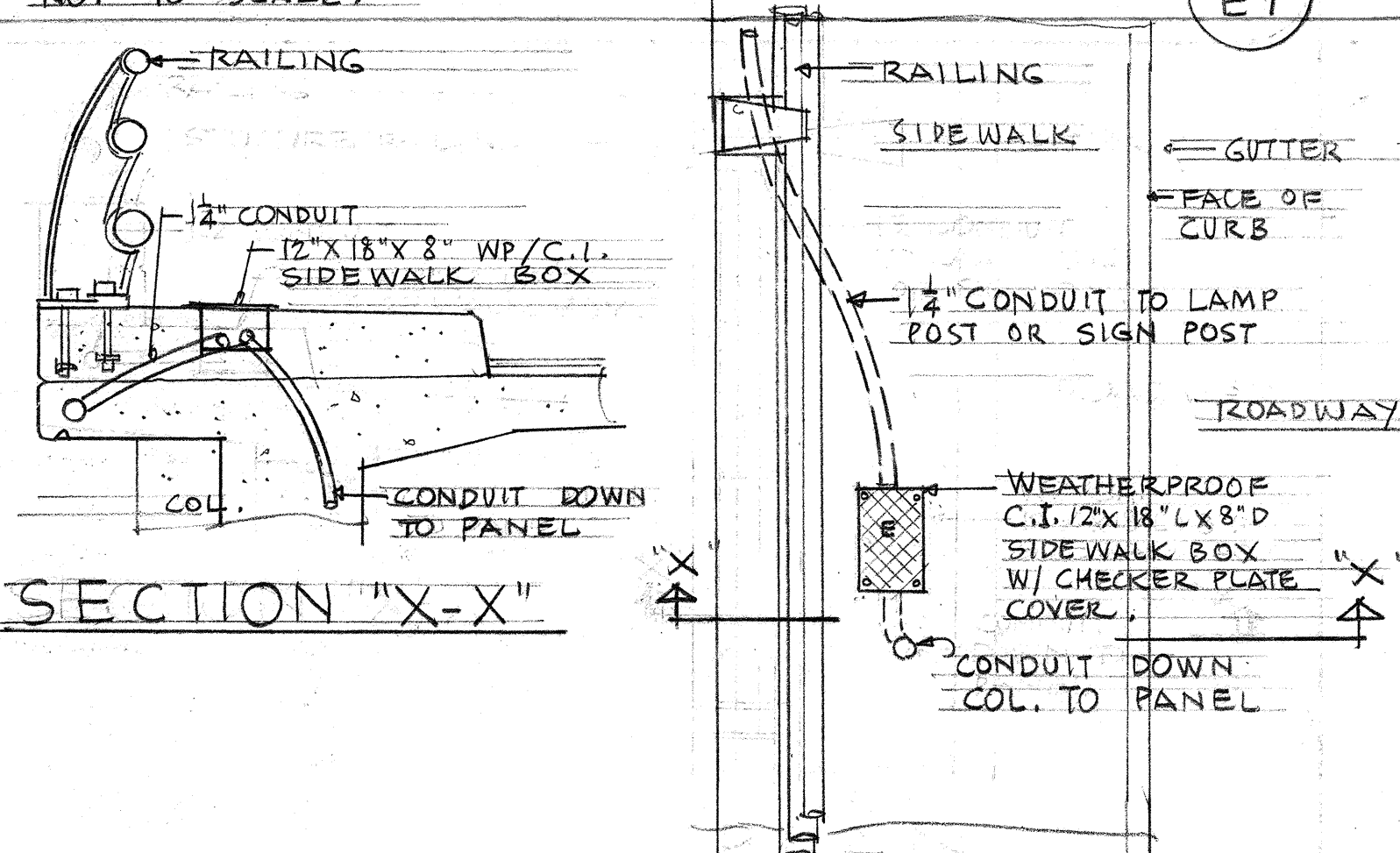
DIRECT BURIAL CABLE DET
SCALE: 1/2" = 1'-0"

D
E7



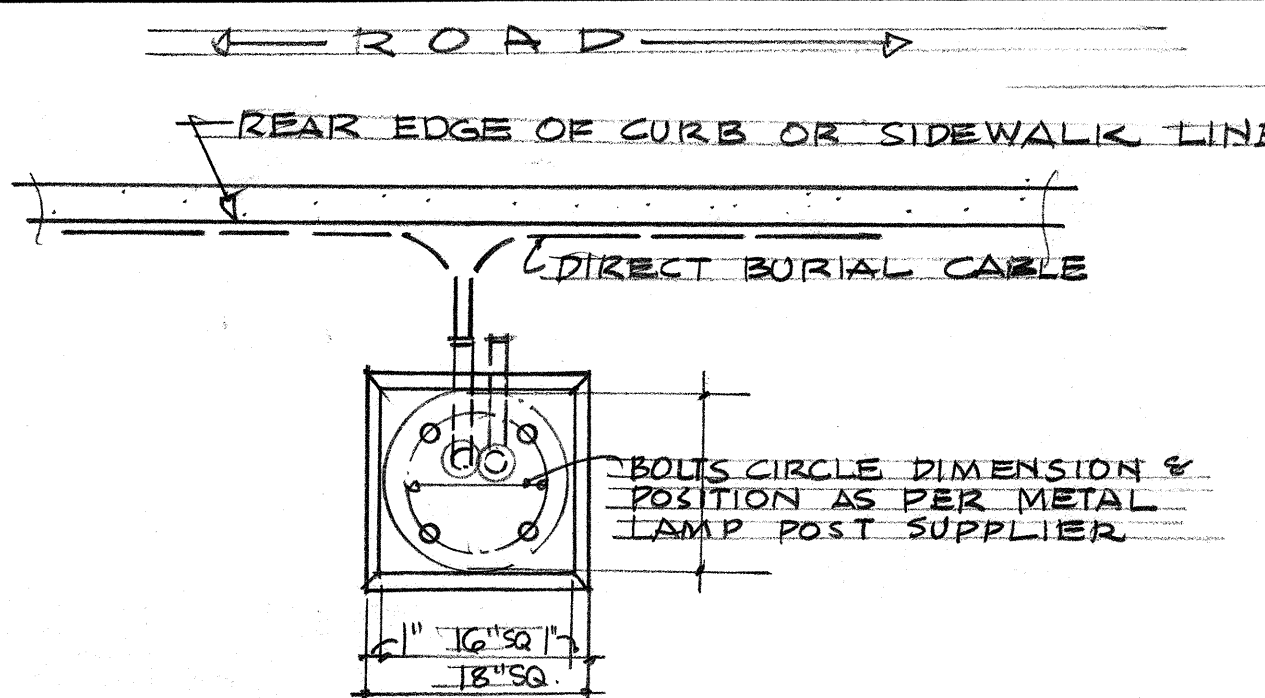
TYPICAL LOCATION OF 1/2" GALV. STEEL
CONDUIT IN STRUCTURE
NOT TO SCALE

E
E7

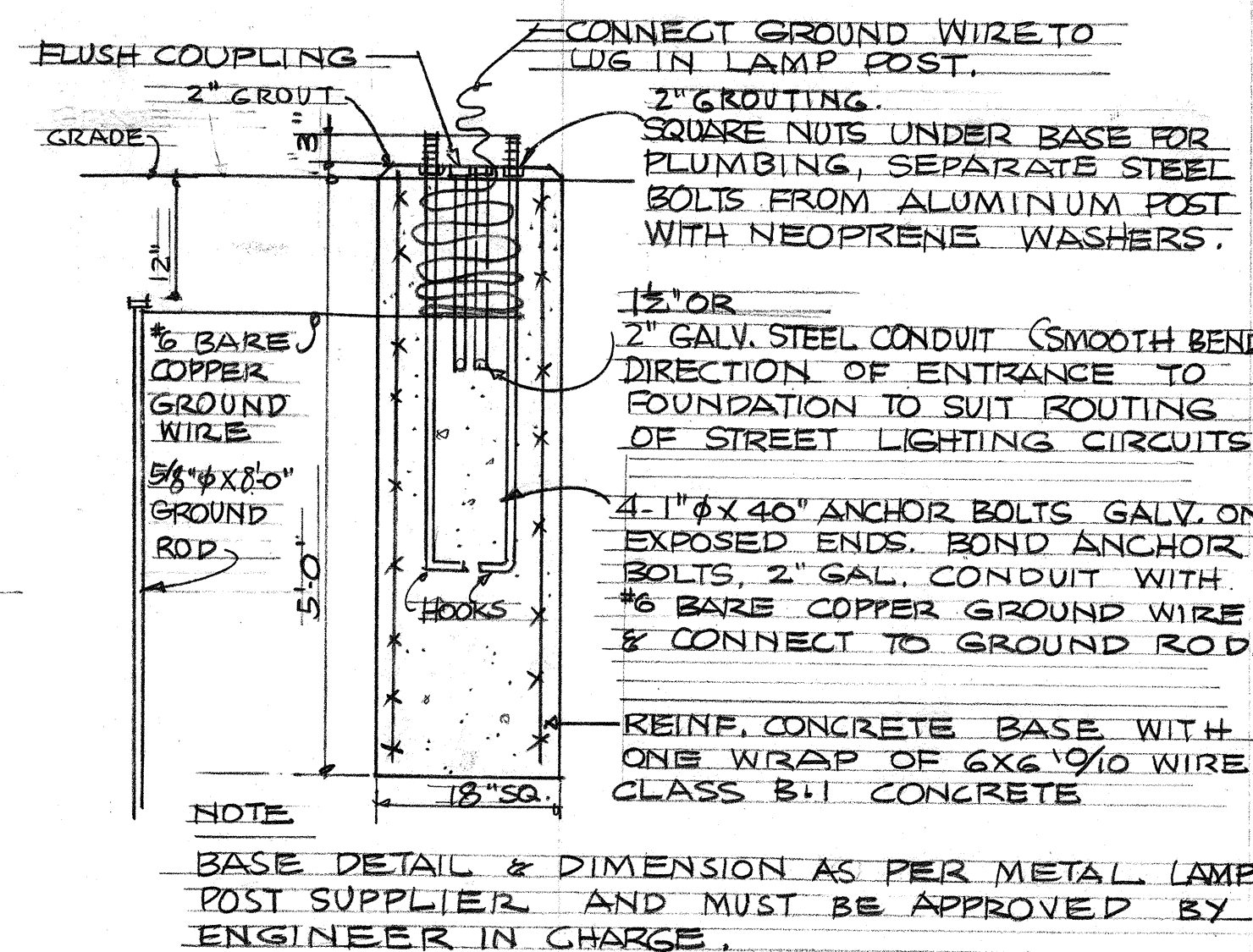


SECTION "X-X"
TYPICAL SIDEWALK BOX AT
STRUCTURE • NOT TO SCALE

F
E7

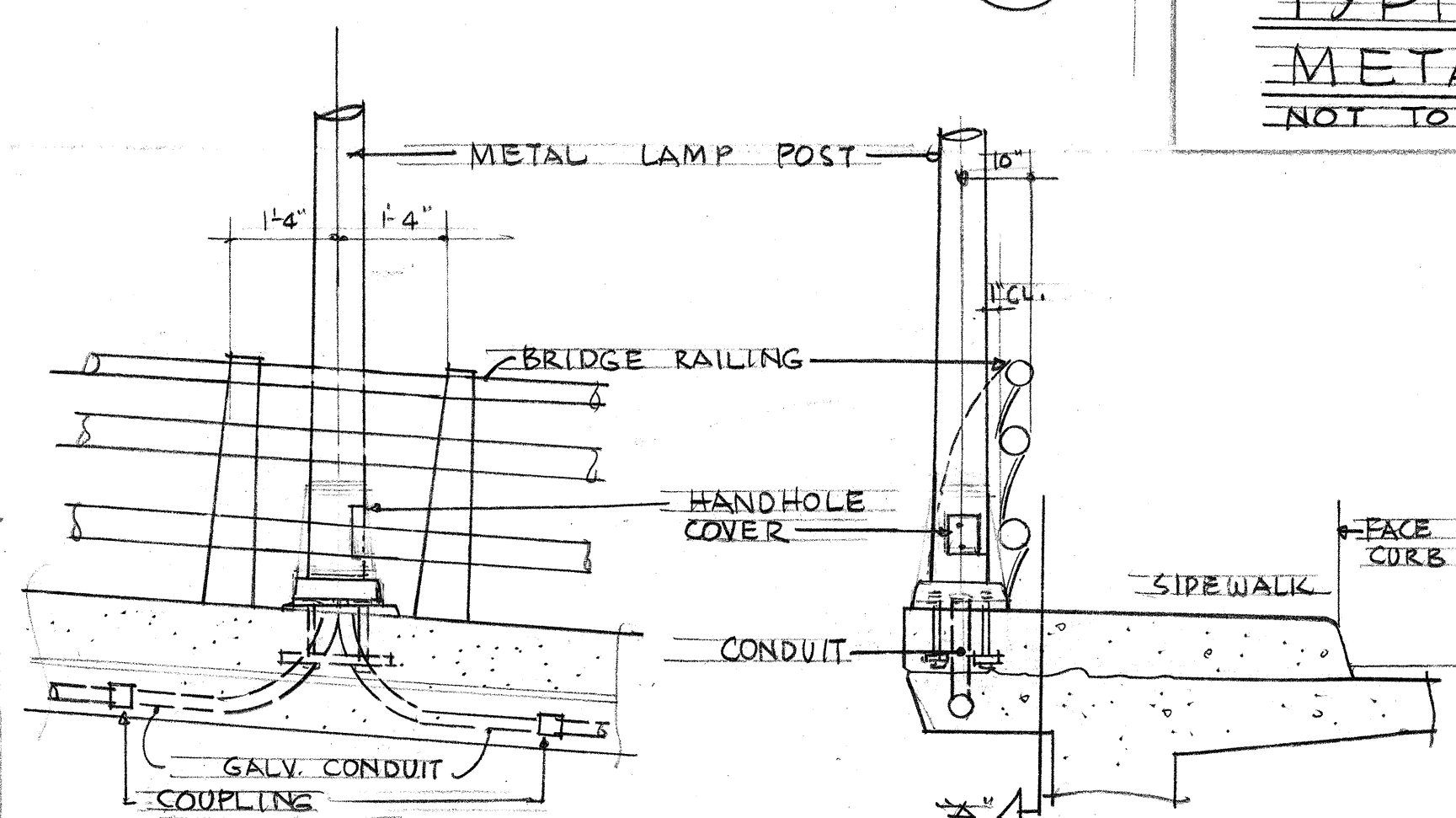


PLAN • SCALE: 3/4" = 1'-0"



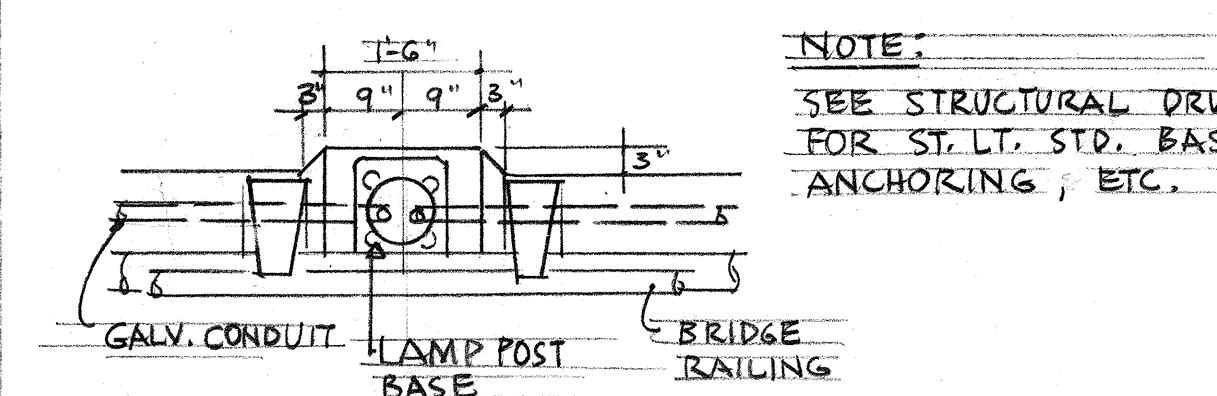
SECTION • SCALE: 3/4" = 1'-0"
TYPICAL LAMP POST BASE

B
E7



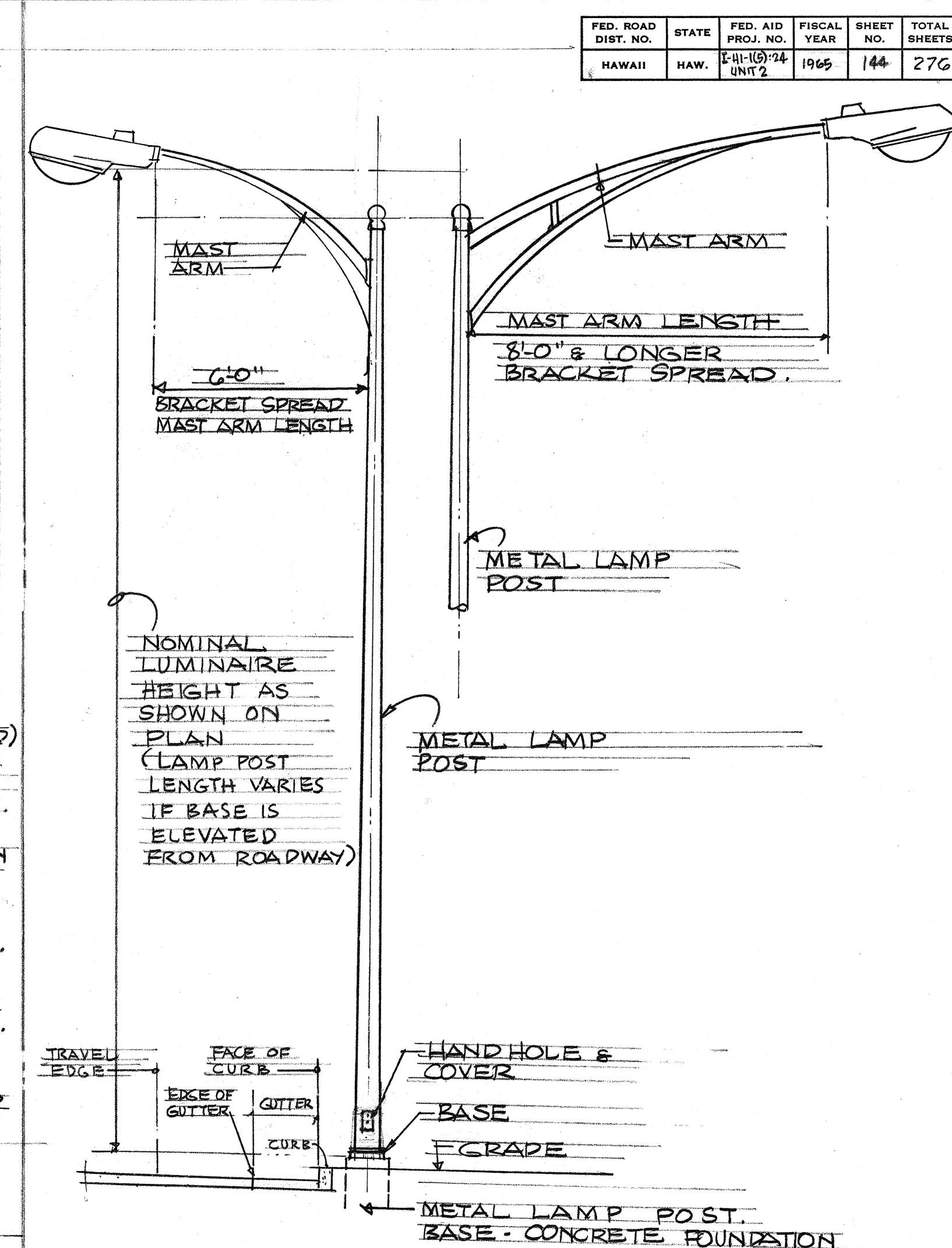
SECTION "A"
SCALE: 1/2" = 1'-0"

SIDE VIEW SECTION
SCALE: 1/2" = 1'-0"



PLAN • SCALE: 1/2" = 1'-0"
TYPICAL LIGHT STANDARD AT
STRUCTURE RAILING

K
E7



TYPICAL STREET LIGHTING
METAL LAMP POST
NOT TO SCALE

A
E7

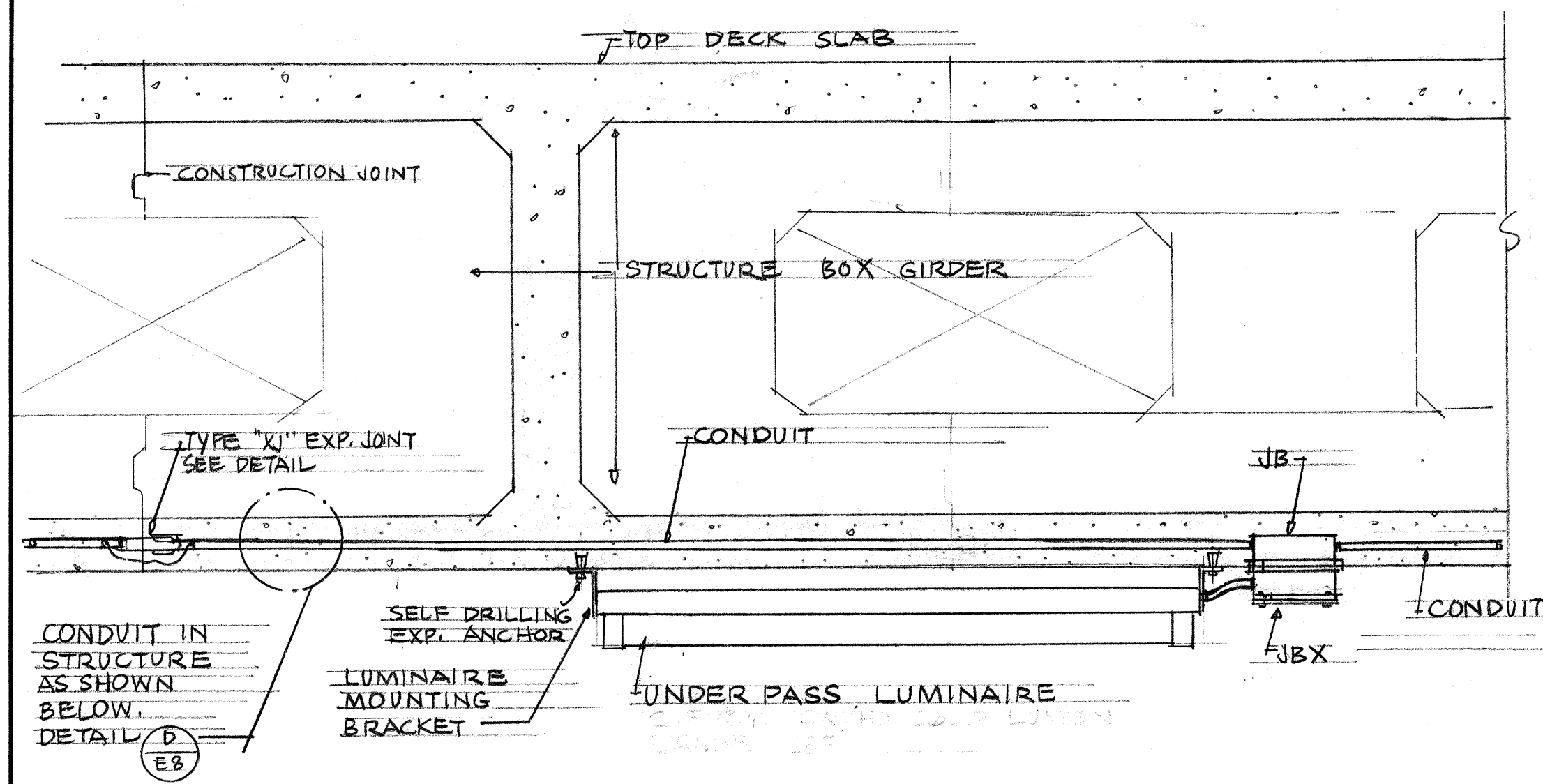
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	141-107-74	1965	144	276

This work was prepared by me or under my supervision.
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HAWAII, U.S.A.

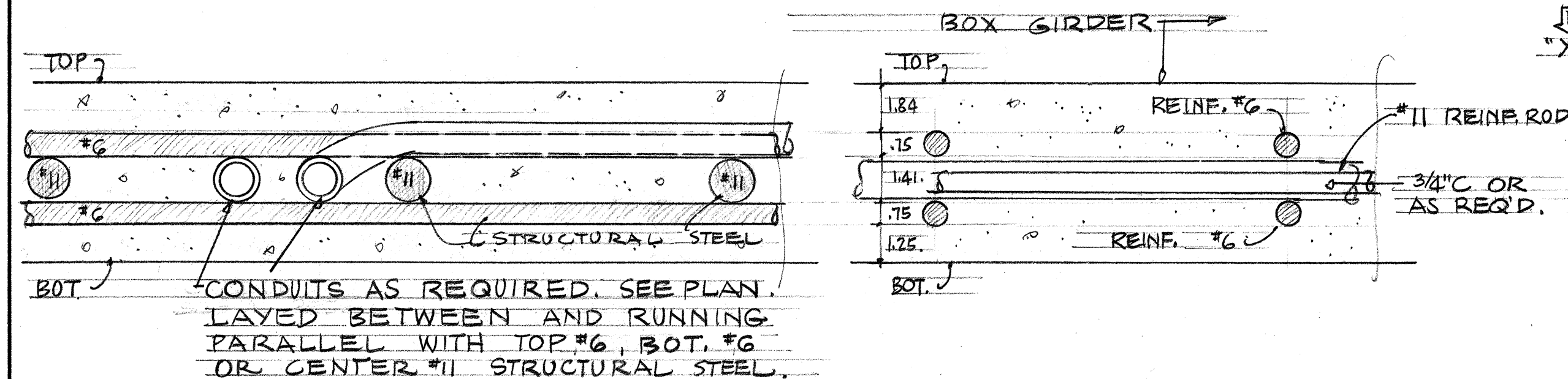
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
DETAILS

F.A.I. PROJ. NO. I-HI-1(5):24, UNIT 2
SCALE: AS NOTED
SHEET No. 7 OF 10 SHEETS
MAY 1965

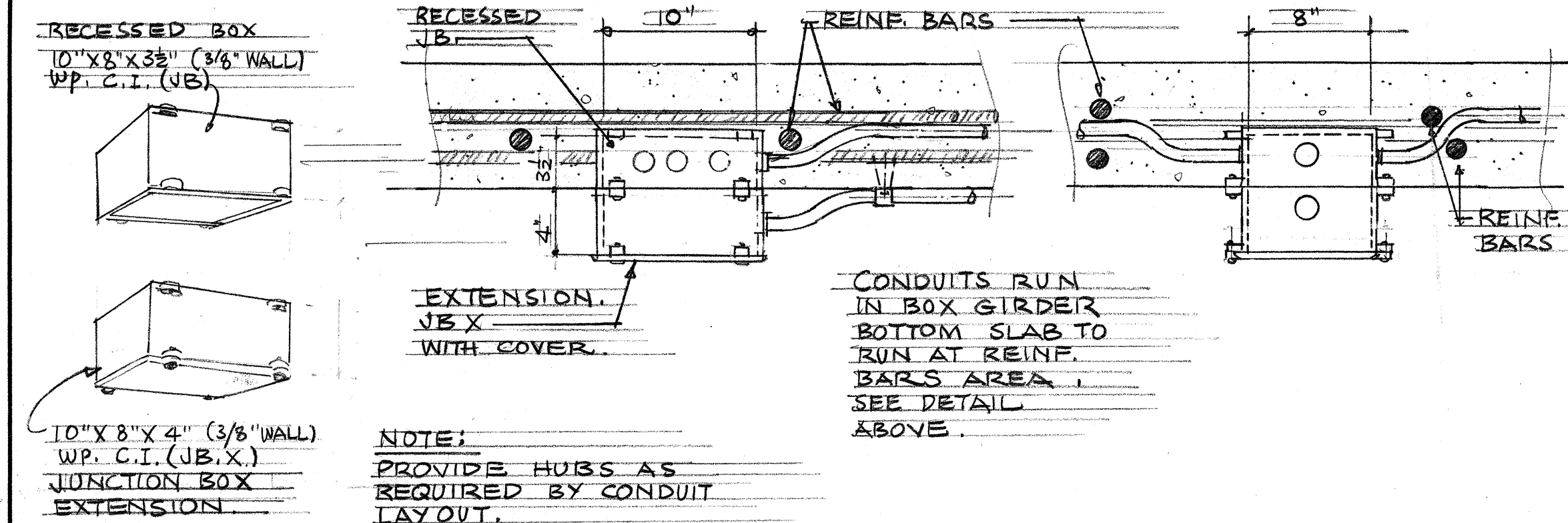


TYPICAL ELECTRICAL WORK AT STRUCTURE BOX GIRDER
SCALE: 3/4" = 1'-0"
C E8

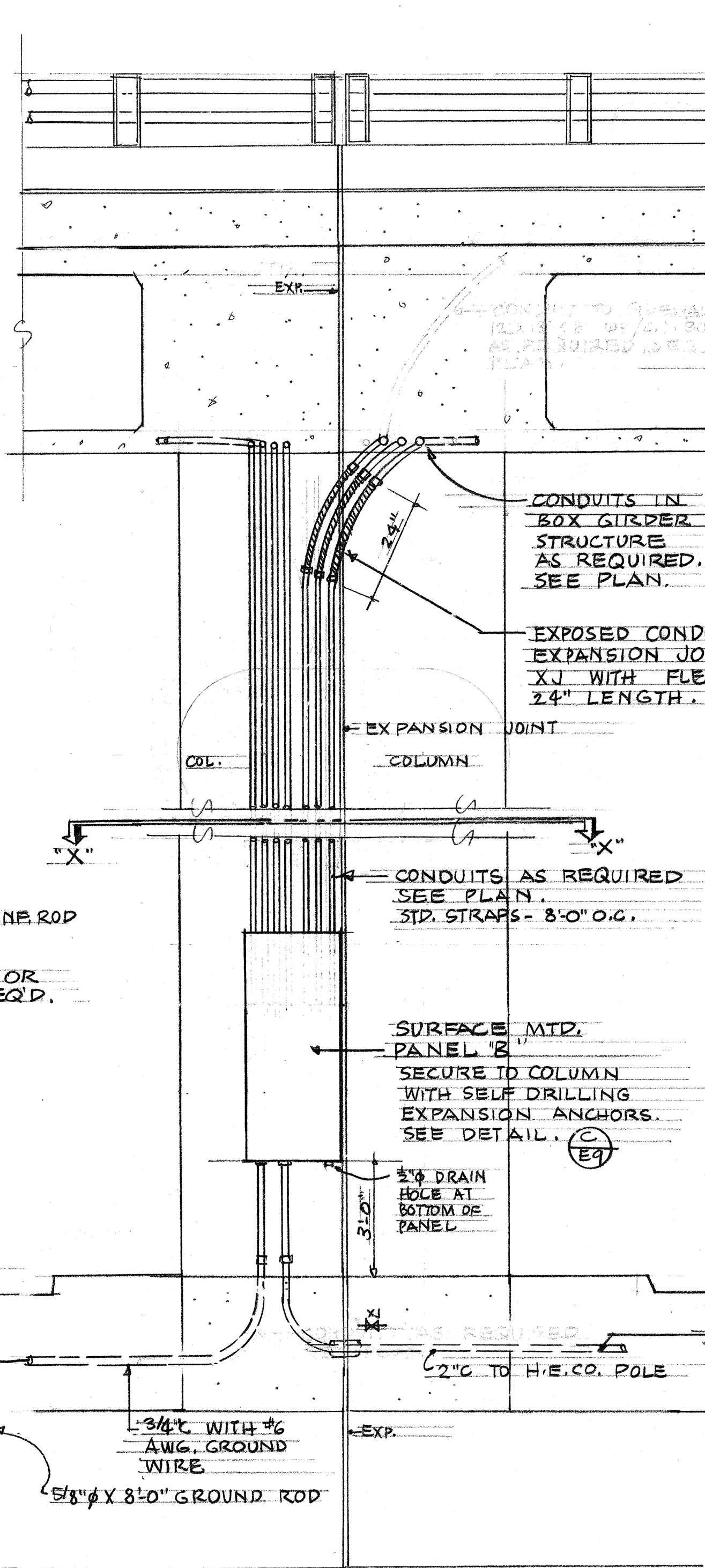


CONDUITS SHALL BE LAYED WITH THE REIN. BARS AS SHOWN. CONDUITS LAY OUT ON PLANS IS JUST SCHEMATICAL & TYPICAL. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL WORK WITH THE STRUCTURAL ENGINEER AND THE STRUCTURAL STEEL CONTRACTOR. INSTALLATION OF ALL ELECTRICAL WORK TO BE AS PER N.E.C., LOCAL BLDG. CODES, AND IN THE BEST PRACTICE OF THE ELECTRICAL TRADE.

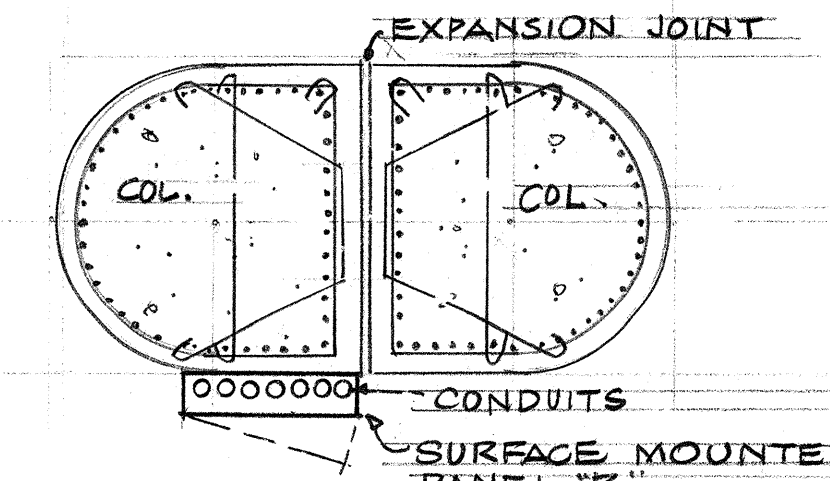
CONDUITS IN STRUCTURAL MEMBER OF BOT. SLAB OF BOX GIRDER - TYPICAL DETAIL
SCALE: 3" = 1'-0"
D E8



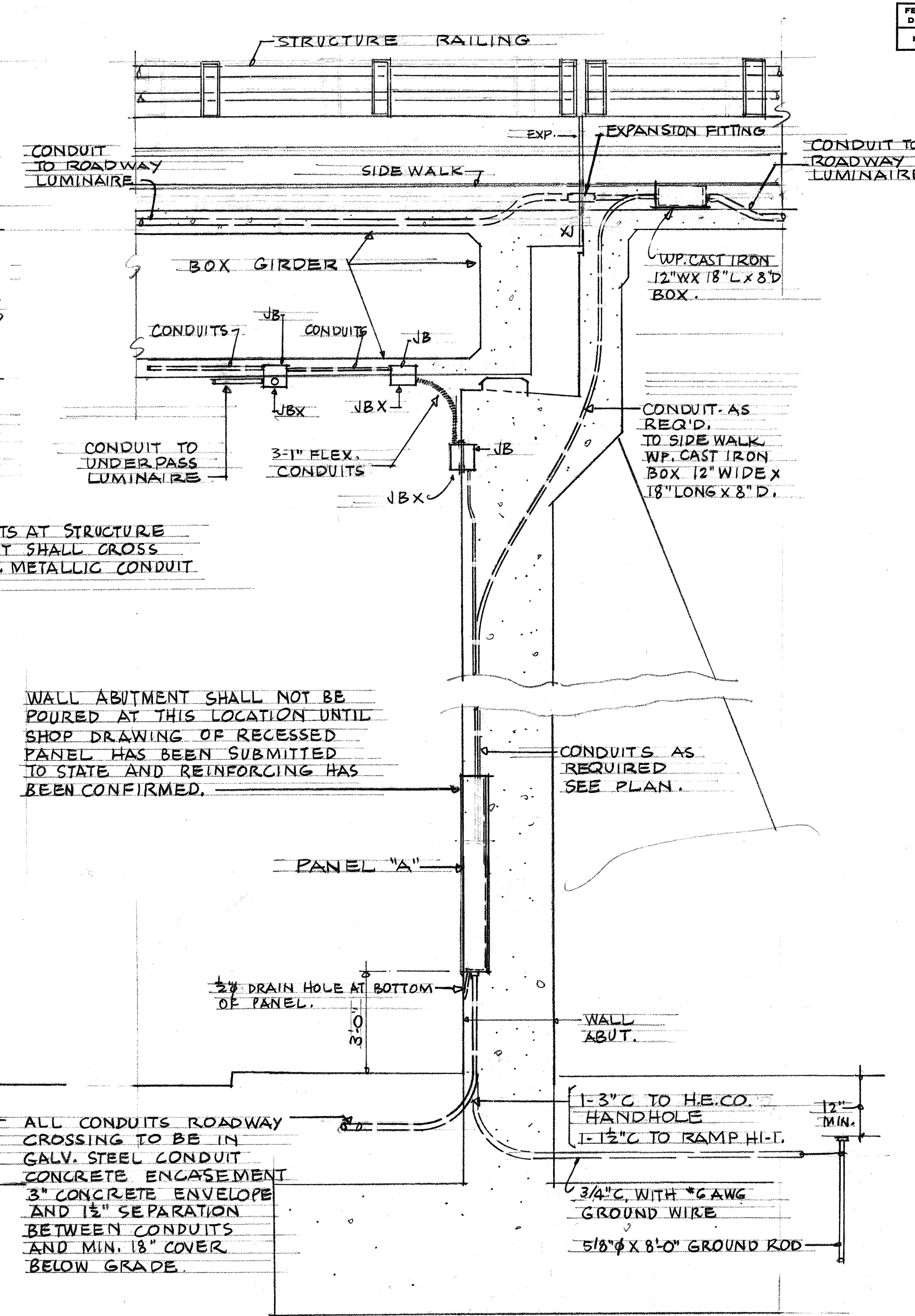
JUNCTION BOX DETAIL - NOT TO SCALE
JB & JBX AT BOTTOM SLAB OF BOX GIRDER STRUCTURE.
JB = JUNCTION BOX
JBX = JUNCTION BOX EXTENSION.
PROVIDE HUBS AS REQUIRED BY CONDUIT LAYOUT.
E E8



ELEVATION - SECTION



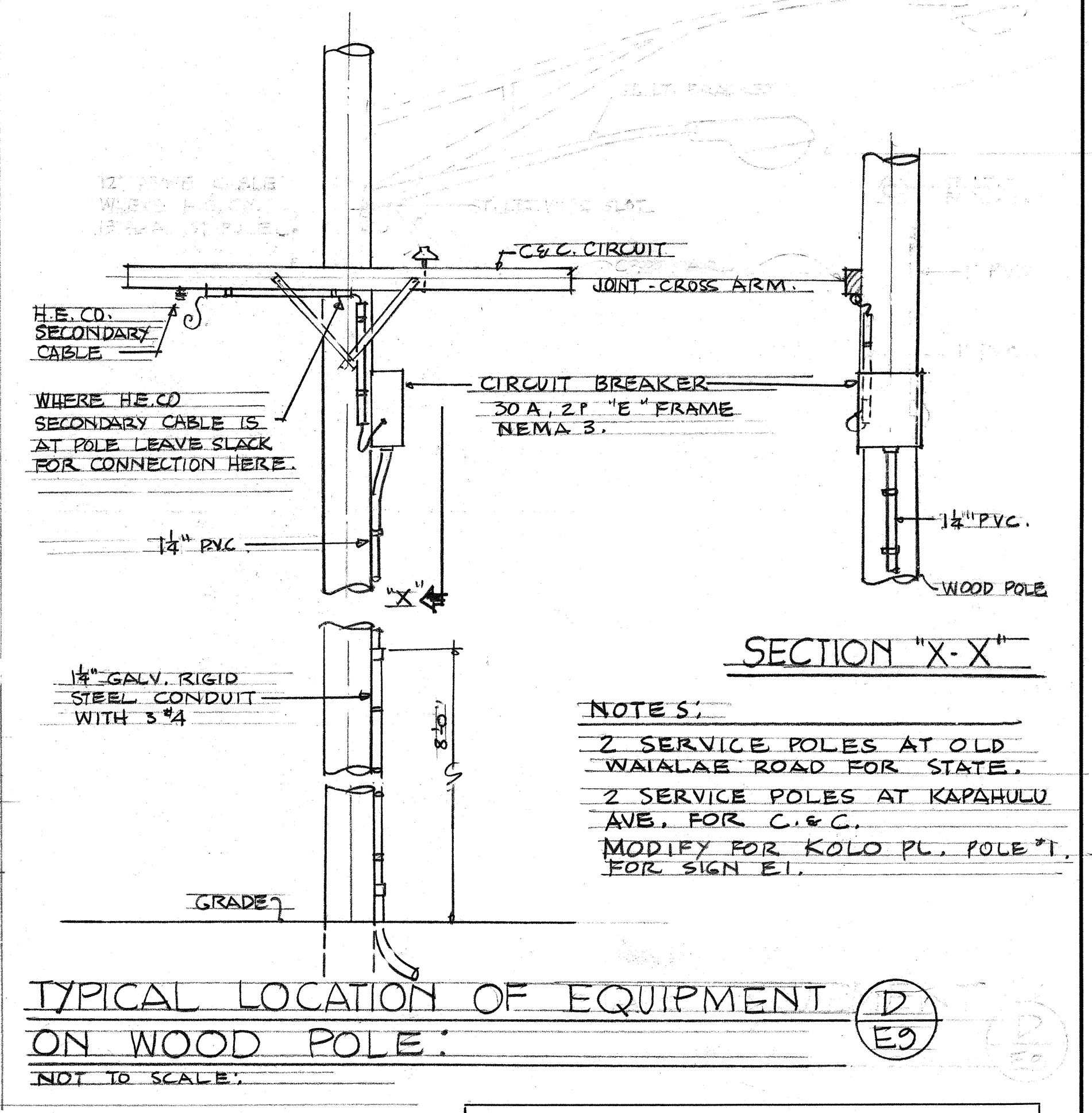
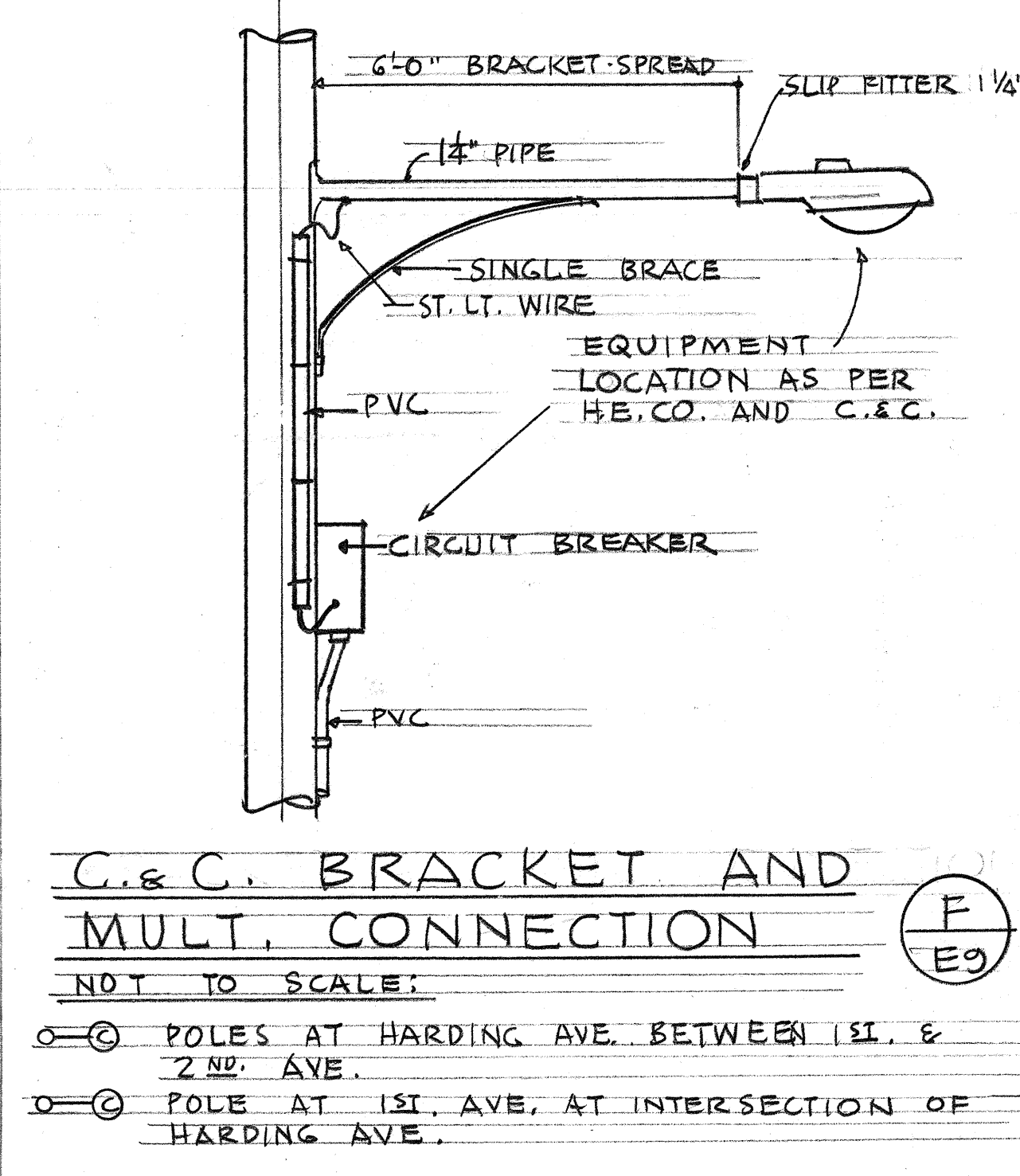
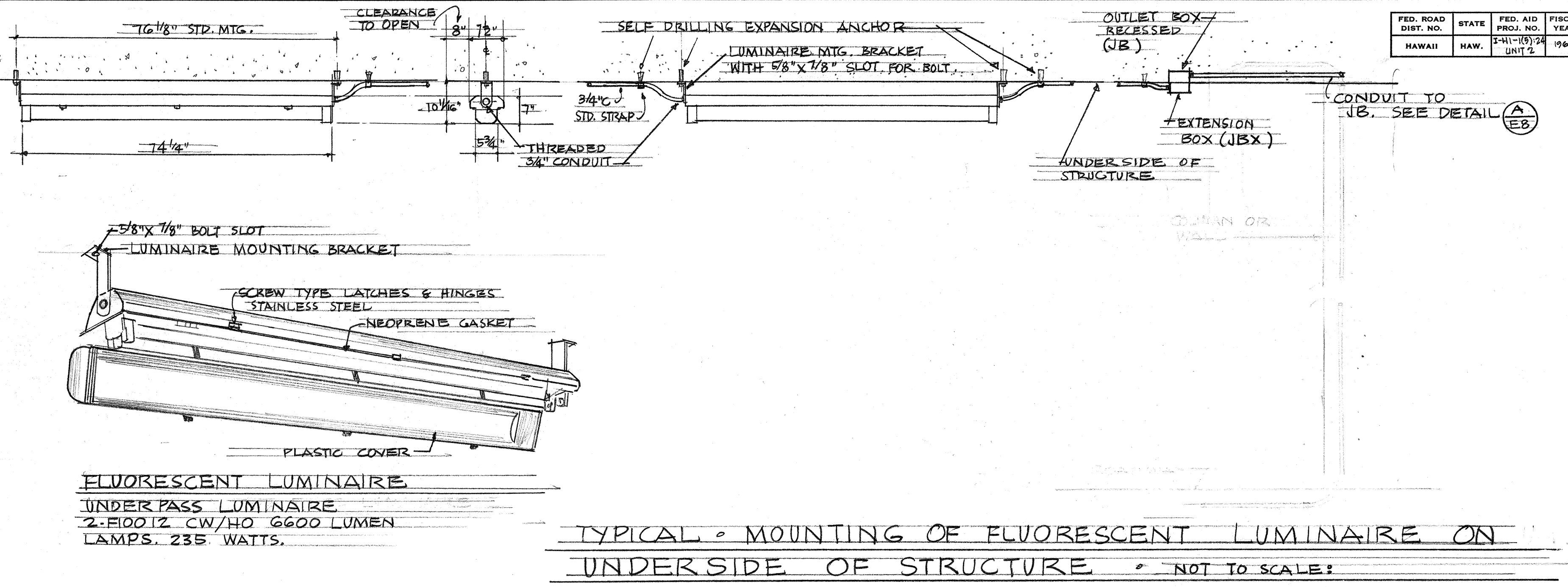
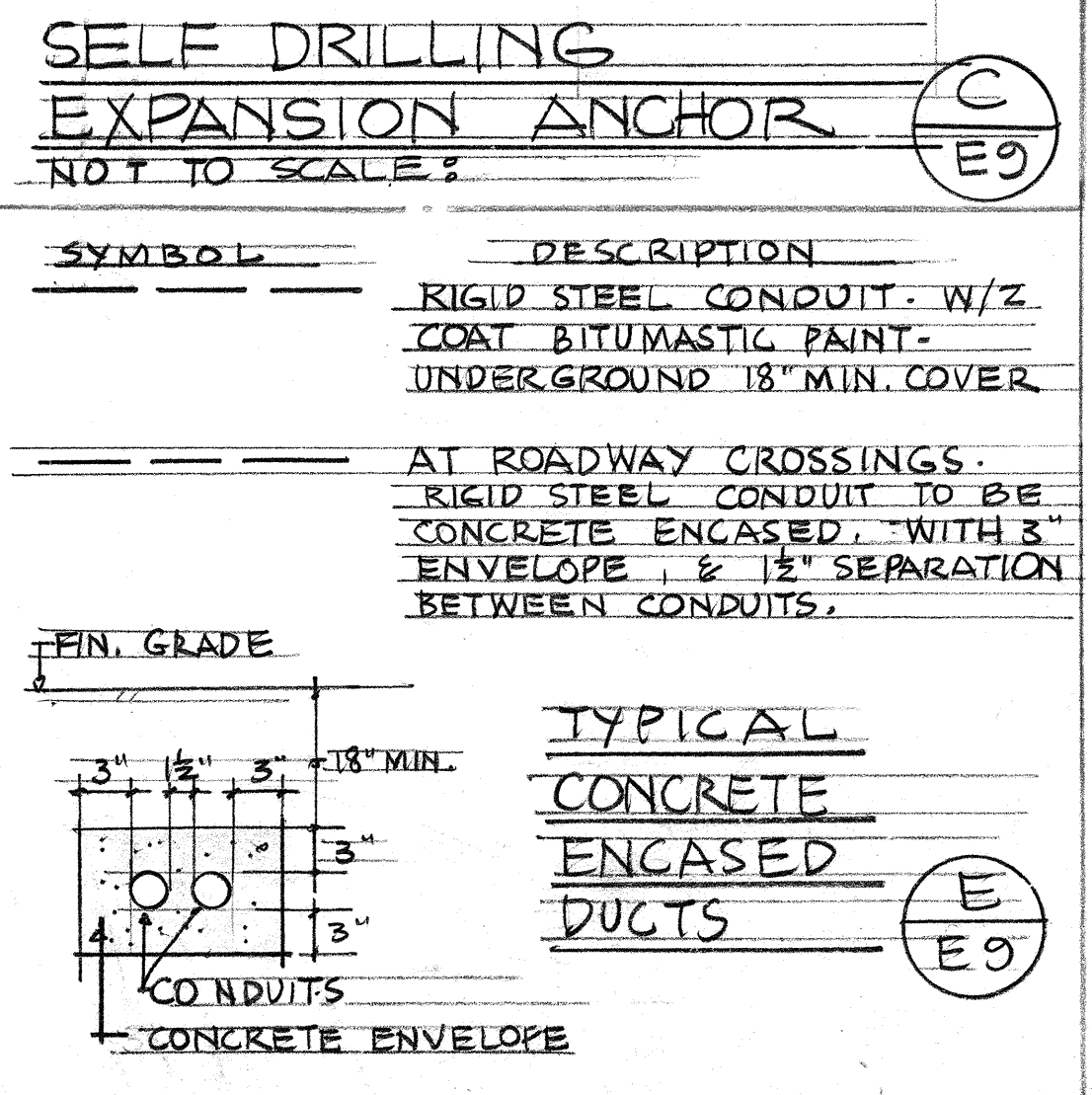
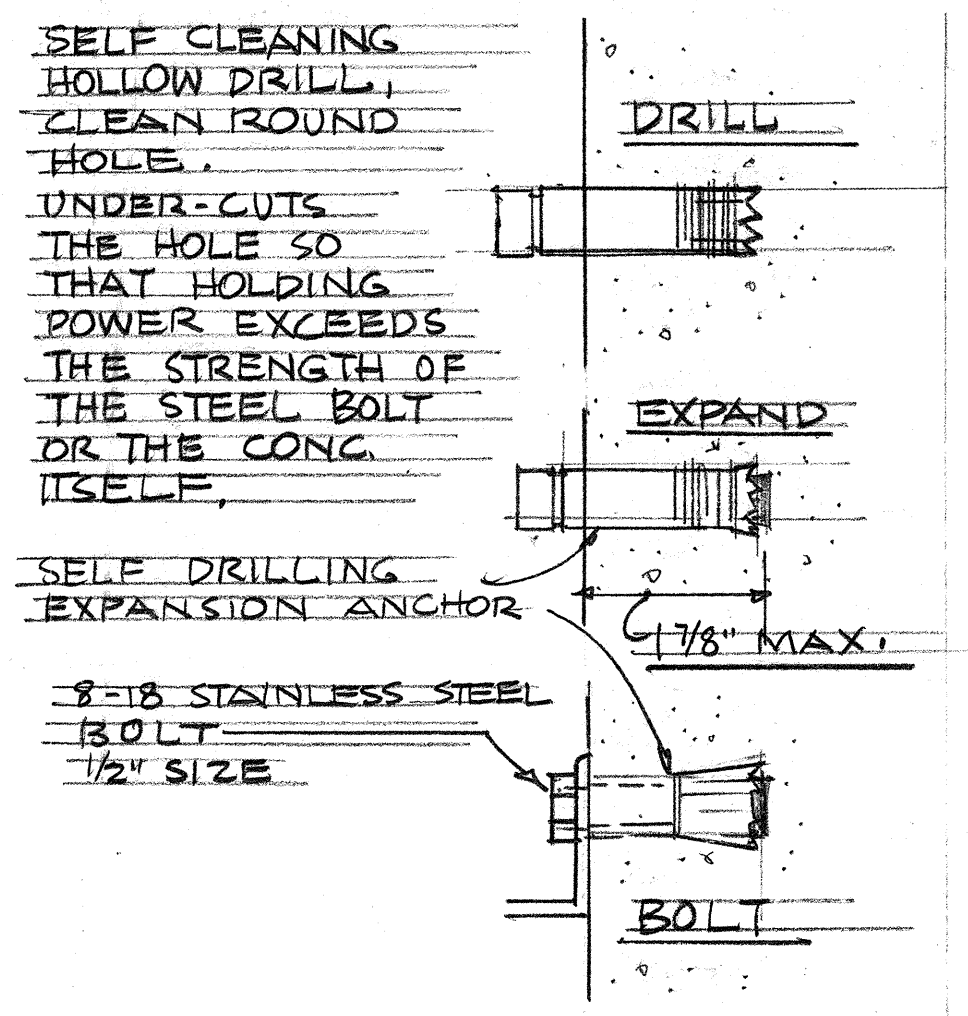
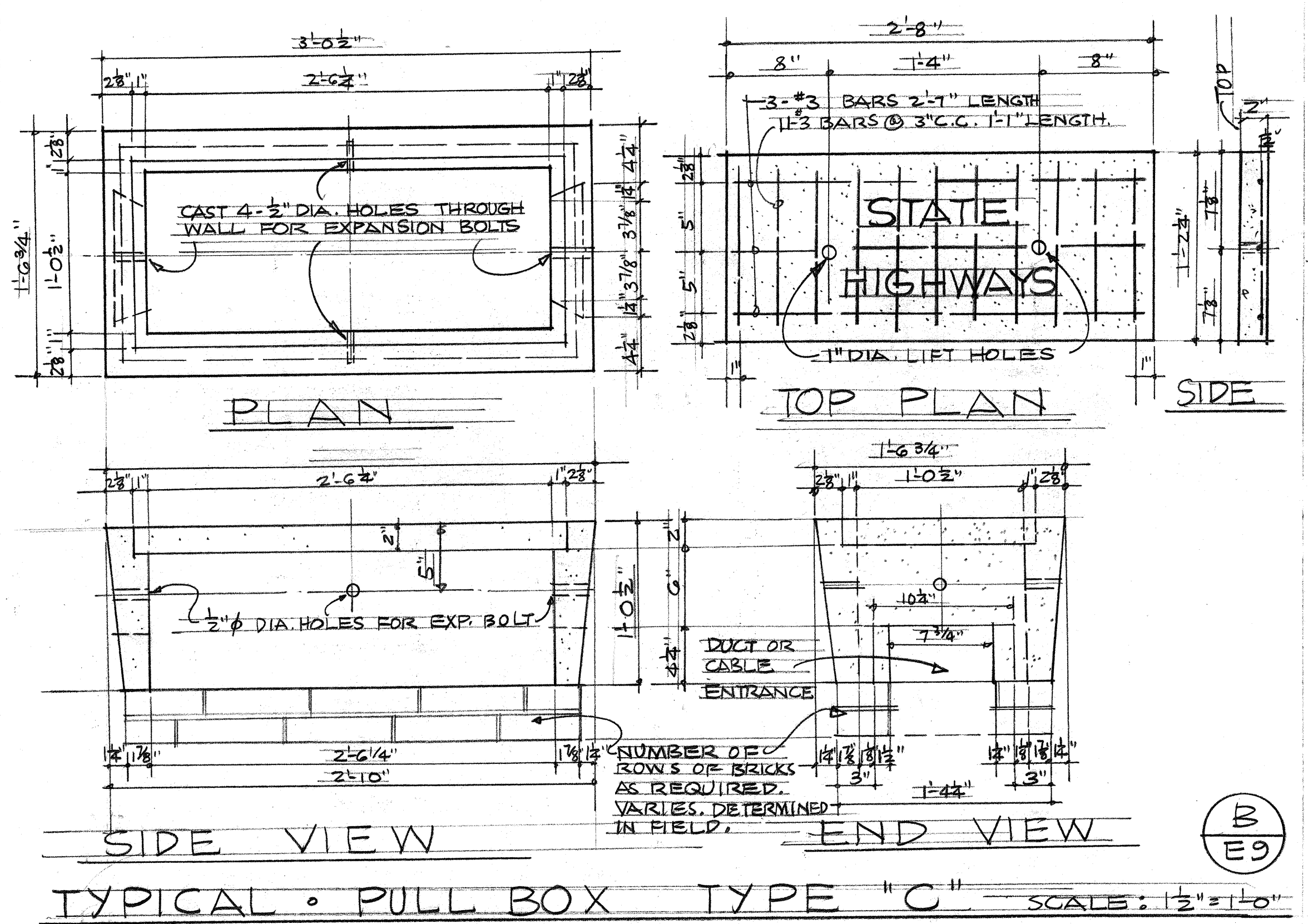
SECTION "X-X" TYPICAL DETAIL SHOWING PANEL "B" AT COLUMN - NOT TO SCALE
B E8



ELEVATION - SECTION TYPICAL DETAIL SHOWING PANEL "A" AT ABUT. WALL. - NOT TO SCALE
A E8

This work was prepared by me or under my supervision.
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No. 664
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
SECTIONS & DETAILS
F.A.I. PROJ. NO. I-HI-1(5)24, UNIT 2
SCALE: AS NOTED
MAY 1965
SHEET No. 8 OF 10 SHEETS



This work was prepared by me or under my supervision.

James J. Oberhausen

JAMES J. OBERHAUSEN
REGISTERED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

DETAILS

F.A.I. PROJ. NO. I-HI-1(5)-24, UNIT 2

SCALE: NONE MAY 1965

SHEET No. 9 OF 10 SHEETS

