

ELECTRICAL SYMBOLS

PROPOSED ROADWAY LIGHTING LUMINAIRE ON METAL LAMP POST. FIRST NUMERAL INDICATES DISTANCE FROM FACE OF TRANSFORMER. BASE TO TRAVELED EDGE. SECOND NUMERAL INDICATES BRACKET LENGTH. C-12 INDICATES LAMP POST WILL BE CENTERED IN MEDIAN. NUMERAL BRACKET LENGTH. R-12 INDICATES LAMP POST ON BRIDGE RAIL. NO TRANSFORMER BASE REQUIRED. USE POLE TOP TRANSFORMER. W-12 INDICATES LAMP POST ON WALL. NO TRANSFORMER BASE REQUIRED. USE POLE TOP TRANSFORMER. NOTE: ALL ABOVE LAMP POSTS SHALL HAVE 30' SHAFTS, UNLESS A THIRD NUMERAL IS INDICATED. I.C. W-10-25 INDICATES 25' SHAFT (SEE SHT. NO. 124). 20,000 LUMEN LUMINAIRE 11,000 LUMEN LUMINAIRE UNDERPASS LIGHT D-22 ILLUMINATED SIGN. D-22 INDICATES SIGN NUMBER. 12'-0" INDICATES SIGN LENGTH. 2'-6'-0" INDICATES 2' G' LAMPS TO BE USED.	2C CABLE IN STEEL CONDUIT, 2" EXCEPT AS NOTED. 2C CABLE IN NON-METALLIC CONDUIT, 2" CONCRETE ENCASED. 2C DIRECT BURIAL CABLE 2C 2 CABLES 1C 1 CABLE ☒ PULL BOX, TYPE "A" ☒ PULL BOX, TYPE "B" ☒ PULL BOX, TYPE "C" ☒ CONDUIT DUCT MARKER ☒ FUTURE PULL BOX
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NOTE:
NON-METALLIC CONDUIT CALLED FOR IN HIGHWAY LIGHTING SYSTEM SHALL BE ASBESTOS CEMENT DUCT (THIN WALL) CONFORMING TO THE REQUIREMENTS OF LATEST FEDERAL SPECIFICATIONS WC-571, TYPE 1.

TERMINATE STEEL CONDUITS 6' UP ON POLE AND LEAVE 40' SLACK IN EACH CABLE FOR CONTINUATION UP POLE BY OTHERS

50' JOINT POLE BY OTHERS

STA. 141+50 MATCH LINE

SCHOOL STREET

TOP OF CUT

BOT. OF CUT

INSTALL EMPTY 2" C THROUGH C.B. AND CAP ENDS.

WEST BOUND

WEST BOUND

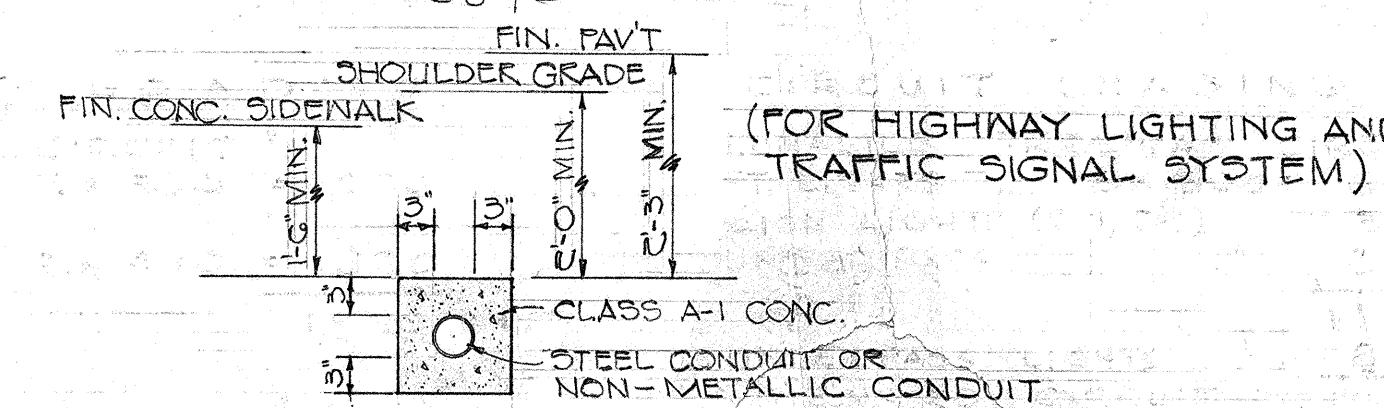
EAST BOUND

EAST BOUND

RAMP "D"

BOT. OF SLOPE

TOP OF CUT



TYPICAL DETAIL OF CONDUITS ENCASED IN CONCRETE JACKET
SCALE: 3/4" = 1'-0"

LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
James J. Tudor, Registered Engineer No. 664
DATE 7-2-57

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO F-072-1 (1), UNIT 3
STATION 135+00 TO STATION 141+00
HIGHWAY LIGHTING
SCALE: 1" = 20' SEPTEMBER 1957

SHEET NO. 1 OF 11 SHEETS

.S173 (1).70 121

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072(1)	1956	71	148

TO 2 ADDITIONAL LUMINAIRES. SEE SHEET NO. 133 (NUUANU HIGHWAY)
ALSO SEE THIS SHEET FOR GROUNDING OF LAMP POSTS ON RAMP "H".

TERMINATE STEEL CONDUITS 8' UP ON POLE AND LEAVE 40' SLACK IN EACH CABLE FOR CONTINUATION UP POLE BY OTHERS

TO 2 ADDITIONAL LUMINAIRES SEE SHEET NO. 133 (NUUANU HIWAY)

2-2" C FOR CITY & COUNTY (BY C.F.C.)
C.F.C. PULL BOX (BY C.F.C.)

2-2" C FOR CITY & COUNTY (BY C.F.C.)
C.F.C. PULL BOX (BY C.F.C.)

1-2" C 1 WITH 2 C FOR LIGHTING CIRCUIT

CONDUIT EXPANSION FITTING AT EXPANSION JOINT. SEE DETAIL SHEET NO. 128

INSTALL DUCT UNDER STRUCTURE

LEAVE 20' SLACK COIL IN GROUND HERE

INSTALL 2 SERIES MULTIPLE TRANSFORMERS FOR SIGN LIGHTS

TERMINATE 1" C IN FLUSH COUPLING IN CONC. FOOTING FOR FUTURE SIGN.

OUTLET BOXES FOR FUTURE UNDERPASS LIGHTS

CEILING OUTLET BOX

CEILING OUTLET BOX

CEILING OUTLET BOX

CEILING OUTLET BOX

TERMINATE IN FLUSH COUPLING IN WALL FOR FUTURE SIGN.

T.H. SUBSTATION

SEE SHEET NO. 132 NUUANU HIGHWAY

CIRCUIT LOADING SUMMARY LUNALILO FREEWAY CIRCUIT #2

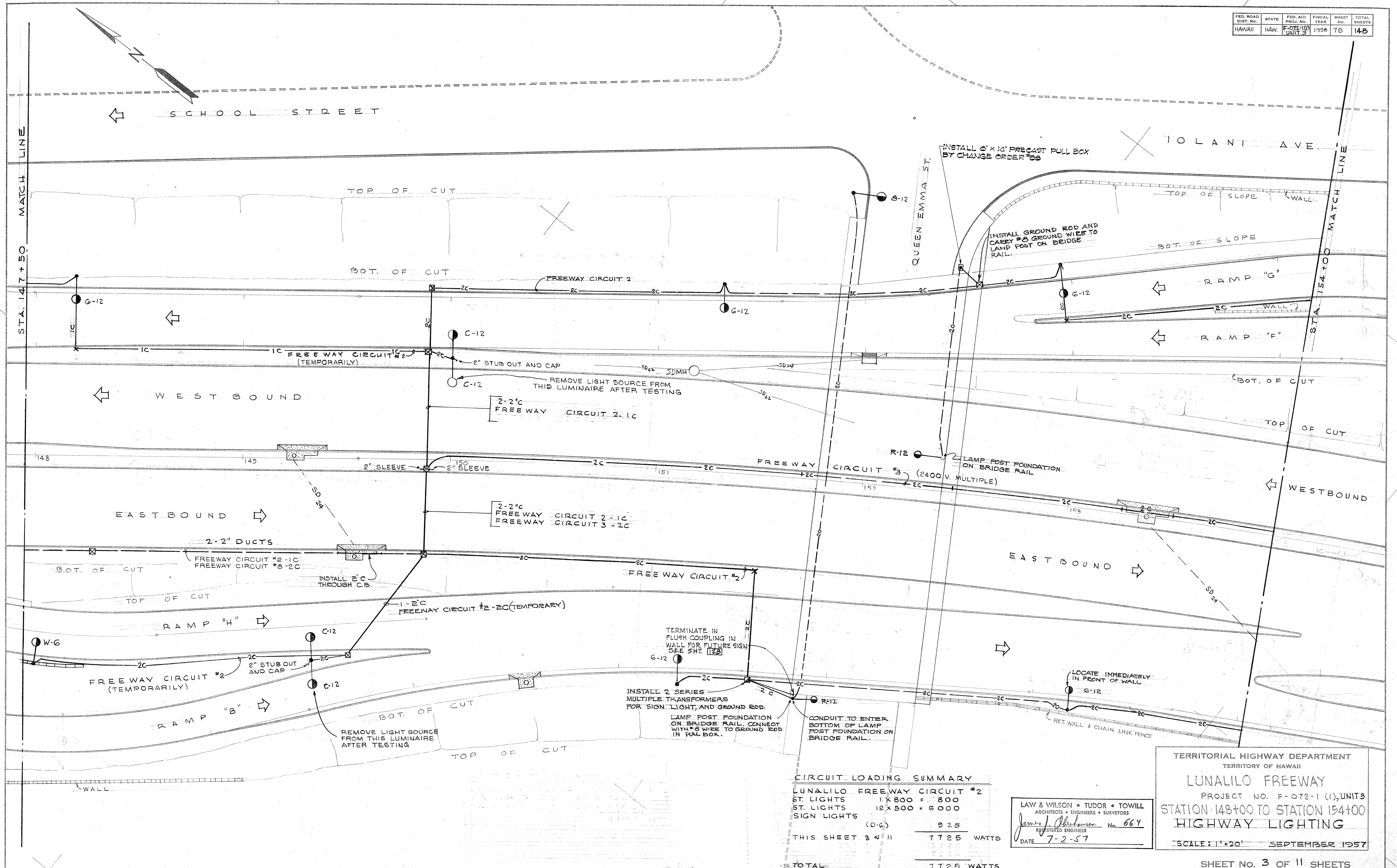
ST. LIGHTS	9 x 500 =	4500
SIGN LIGHTS (D-4)		800
THIS SHEET 24	11	5300 WATTS
SHEET 34	11	7725
SHEET 4	11	8190
(NUUANU HIWAY)		21305 WATTS

LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
James J. Tudor
REGISTERED ENGINEER No. 664
DATE 7-2-57

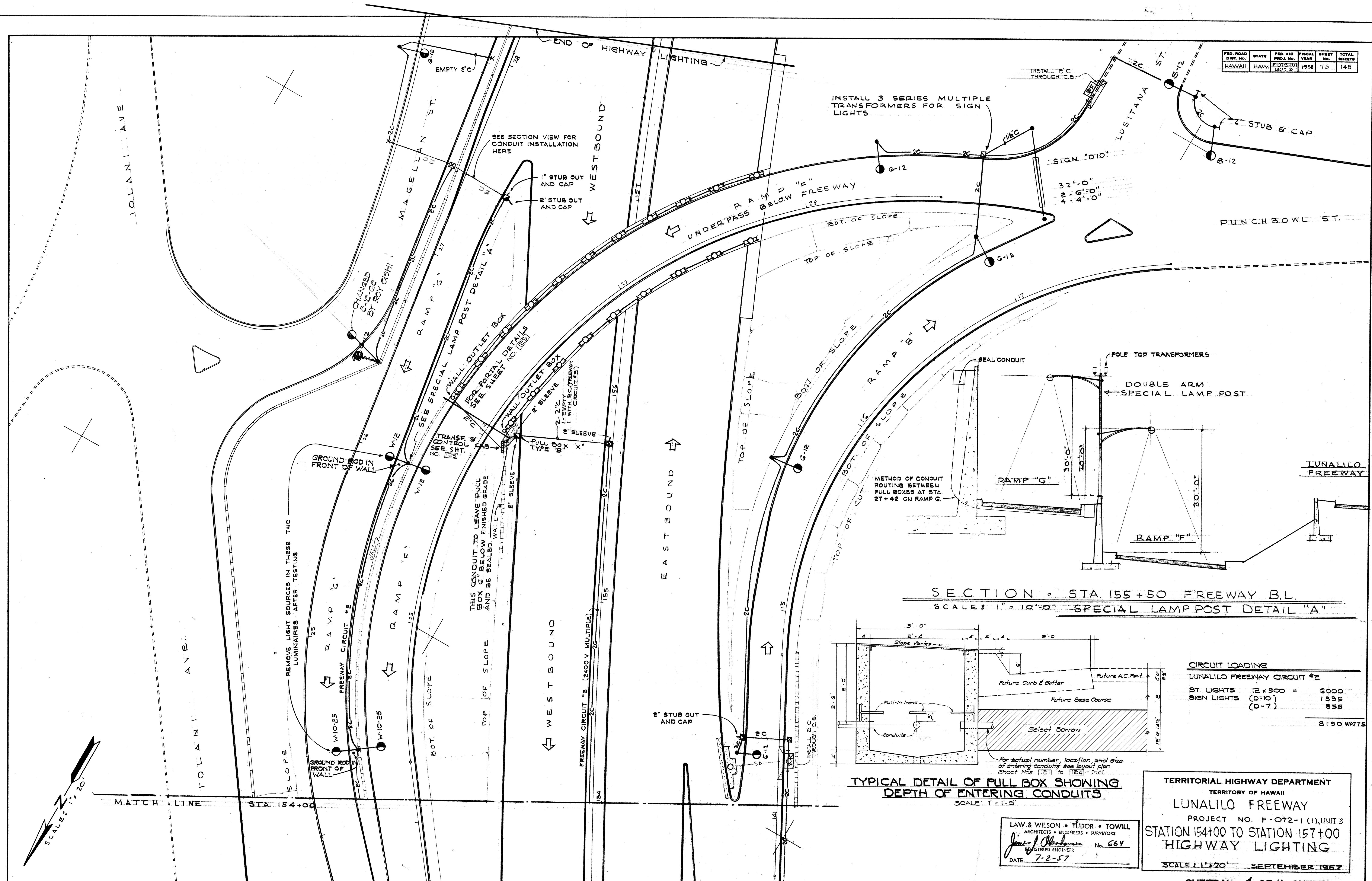
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1 (1), UNIT 3
STATION 142+00 TO STATION 148+00
HIGHWAY LIGHTING
SCALE: 1"=20' SEPTEMBER 1957

SHEET NO. 2 OF 11 SHEETS

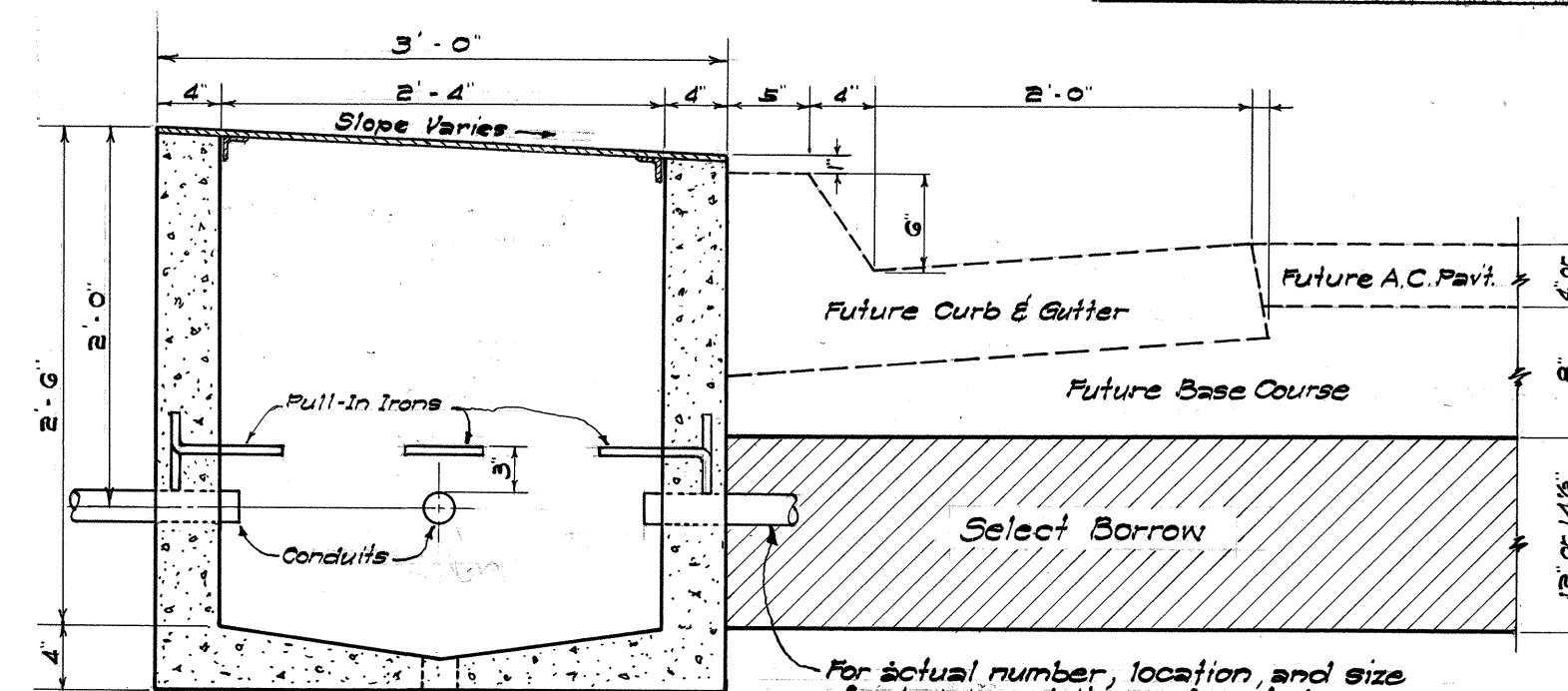
SURVEY PLOTTED BY: _____
 DATE: _____
 ORIGINAL PLAN DESIGNED BY: _____
 DRAWN BY: _____
 NOTE BOOK NO. _____
 QUANTITIES CHECKED BY: _____
 CHECKED BY: _____
 C.Y.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(1)	1958	73	148



SECTION - STA 155+50 FREEWAY B.L.
SCALE: 1" = 10'-0" SPECIAL LAMP POST DETAIL "A"



TYPICAL DETAIL OF PULL BOX SHOWING DEPTH OF ENTERING CONDUITS
SCALE: 1" = 1'-0"

CIRCUIT LOADING			
LUNALILO FREEWAY CIRCUIT #2			
ST. LIGHTS	12 x 500 =	6000	
SIGN LIGHTS (D-10)		1395	
(D-7)		855	
		8190 WATTS	

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ARCHITECTS • ENGINEERS • SURVEYORS
James J. Tudor No. 664
REGISTERED ENGINEER
DATE 7-2-57

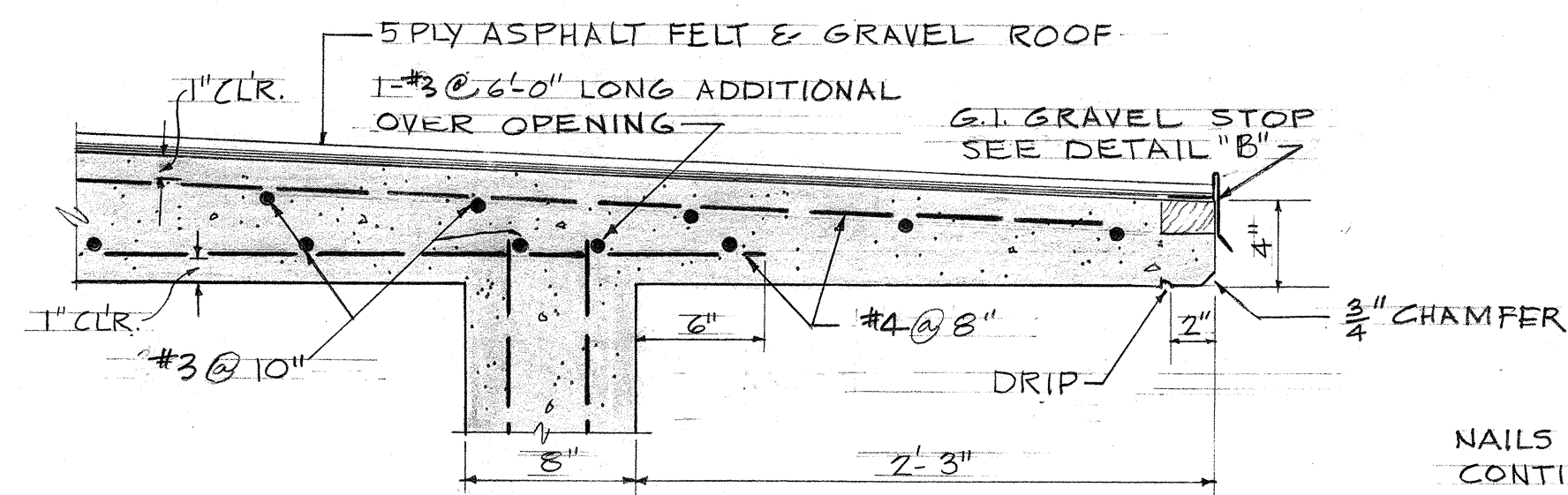
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3
STATION 154+00 TO STATION 157+00
HIGHWAY LIGHTING
SCALE: 1" = 20' SEPTEMBER 1957

SHEET NO. 4 OF 11 SHEETS

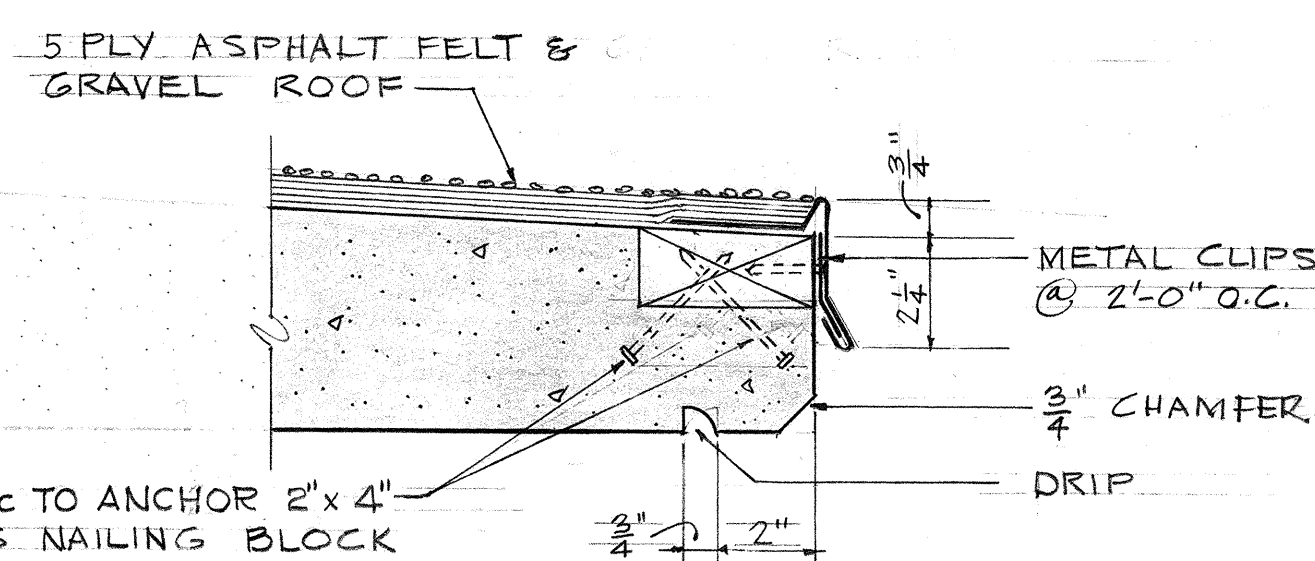
ORIGINAL	SURVEY PLOTTED BY	DATE
PLAN	DESIGNED BY	
NOTE BOOK	DRAWN BY	
No.	QUANTITIES BY	
	QUANTITIES CHECKED BY	
	CHECKED BY	



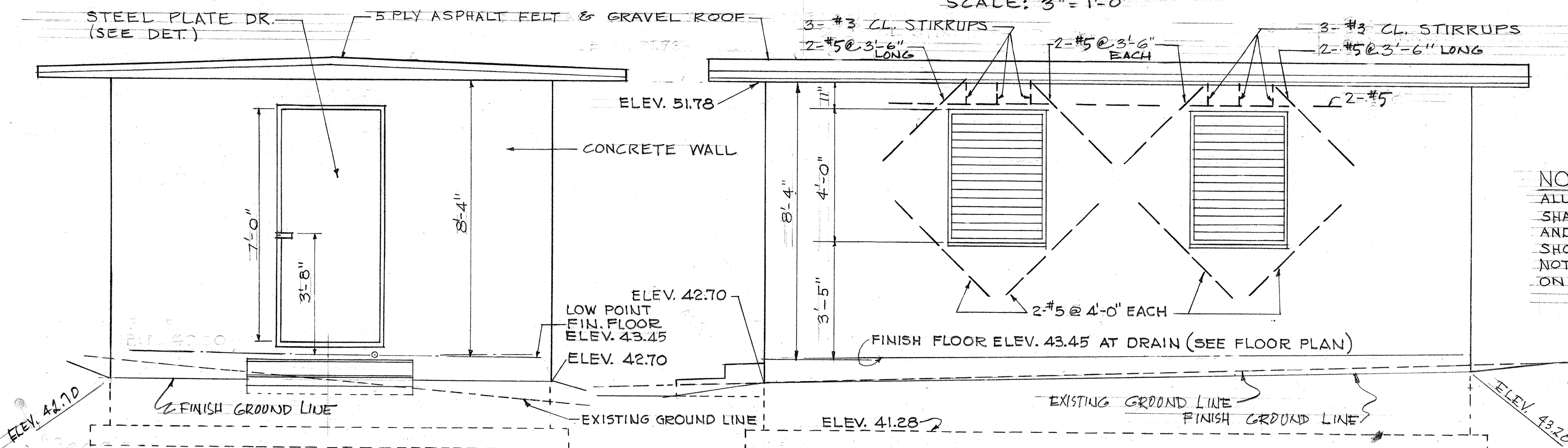
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
HAWAII	HAW	F-012-110 UNIT 3	1958	74	148



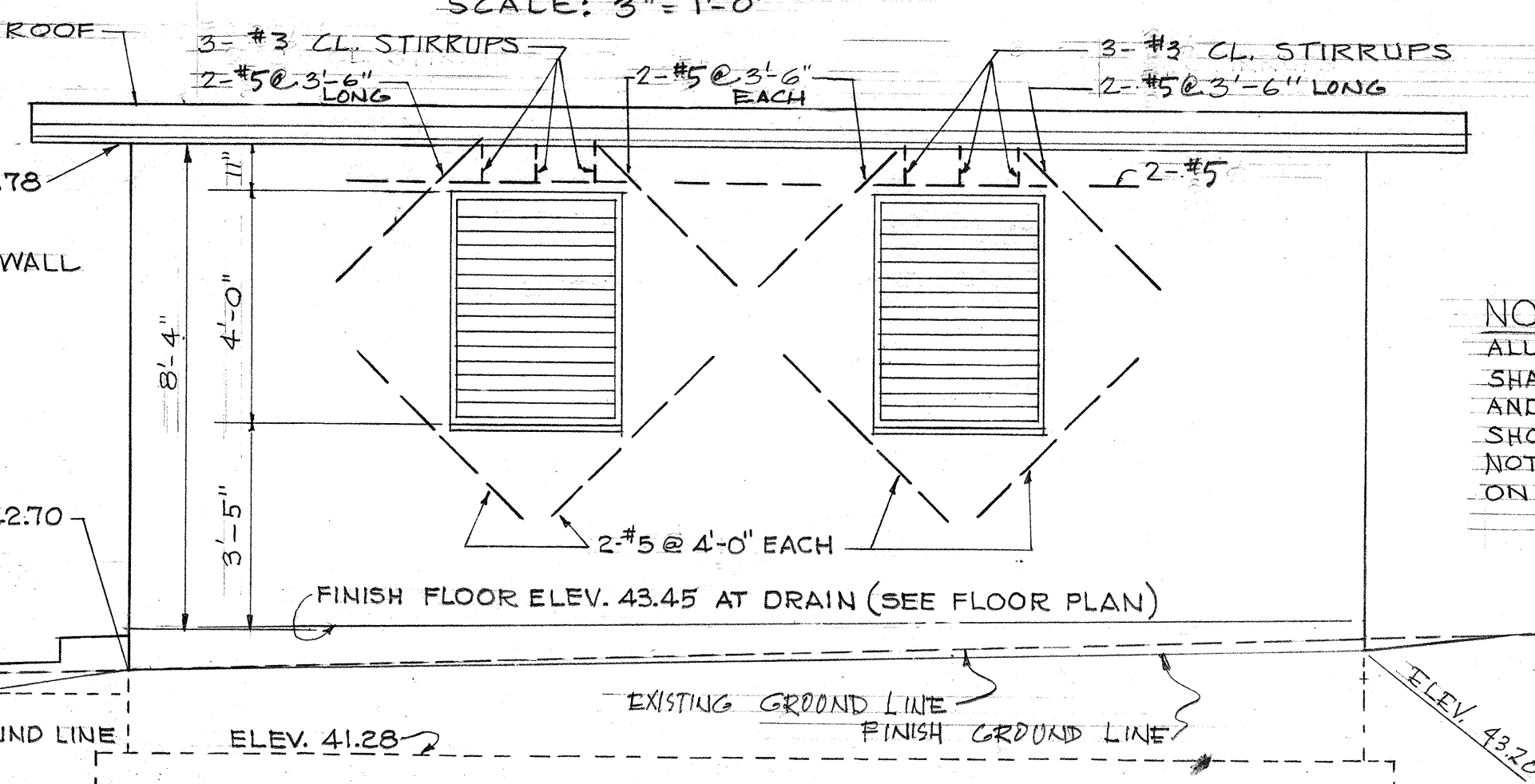
DETAIL "A"
SCALE: $1\frac{1}{2}" = 1'-0"$



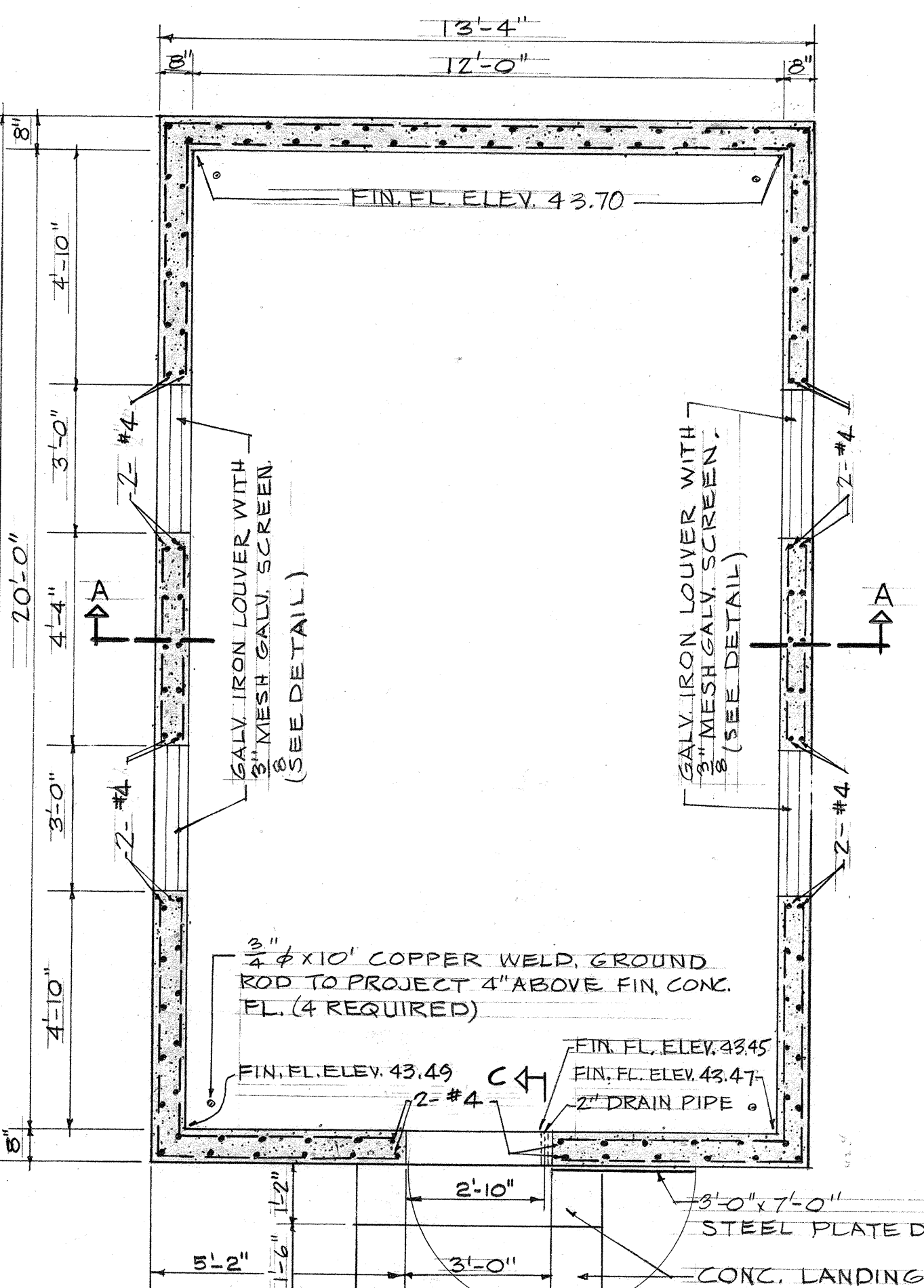
G.I. GRAVEL STOP
DETAIL "B"
SCALE: 3" = 1'-0"



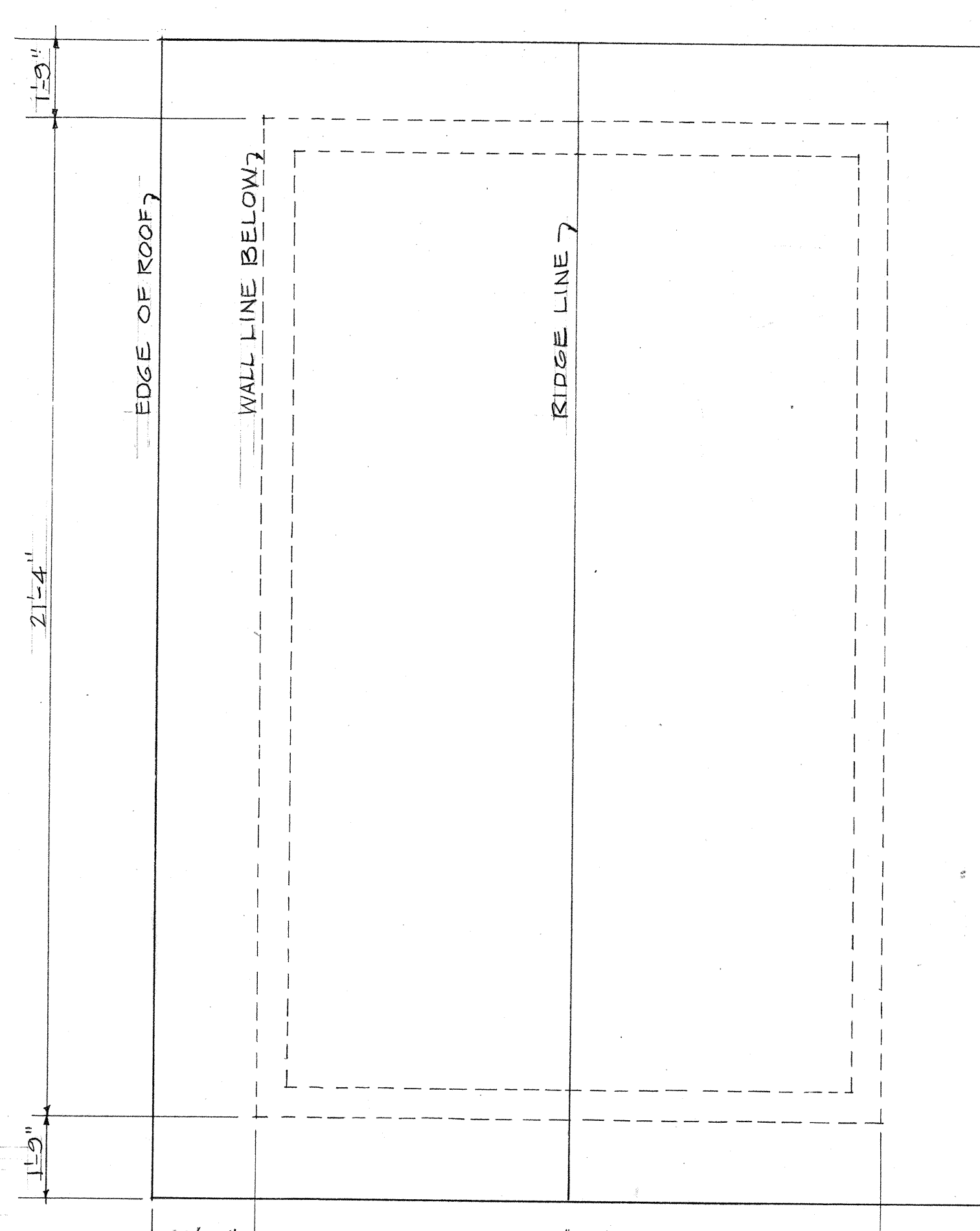
FRONT ELEVATION
SCALE: $\frac{3}{8}'' = 1'-0''$



SIDE ELEVATION
SCALE: $\frac{3}{8}" = 1'0"$

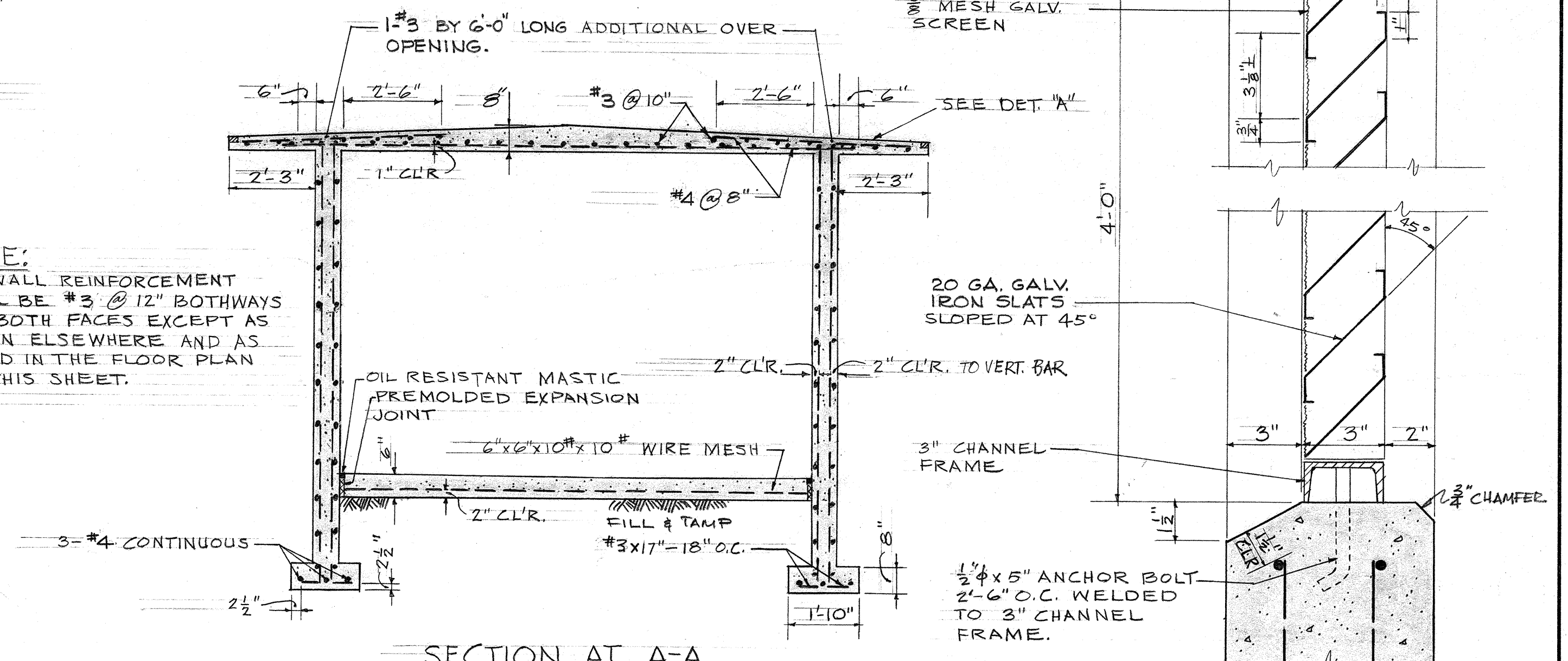


FLOOR PLAN
SCALE: $\frac{3}{8}'' = 1'-0''$

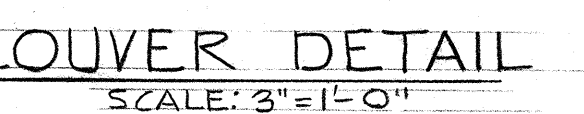


ROOF PLAN
SCALE: $\frac{3}{8}" = 1'-0"$

CONCRETE AND CONCRETE FINISH
ALL CONCRETE SHALL BE CLASS "A-1" UNLESS OTHERWISE NOTED. ALL EXPOSED EXTERIOR SURFACES OF CONCRETE WALLS AND ROOF SHALL BE GIVEN "CLASS 2 SURFACE FINISH".

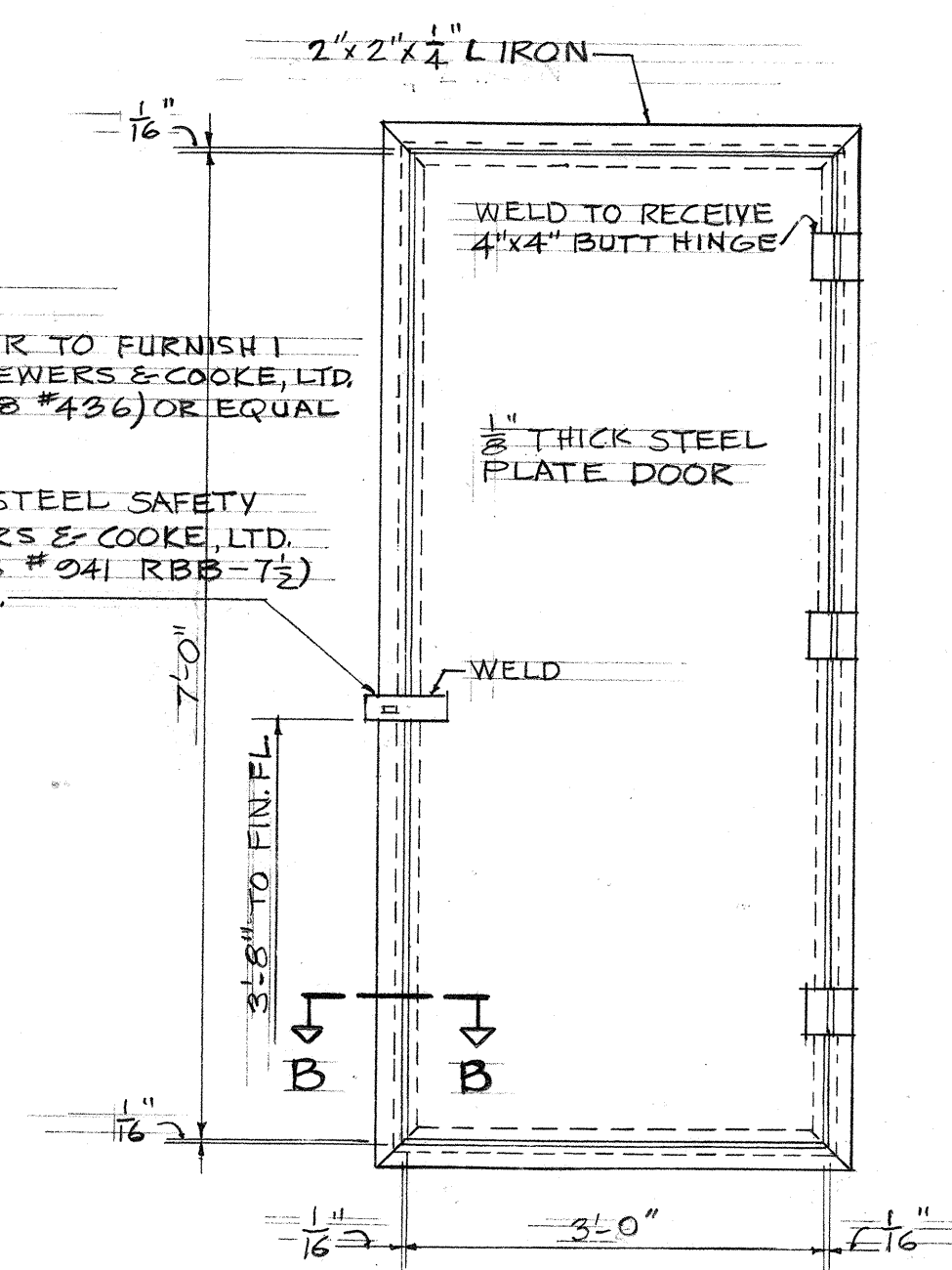


SECTION AT A-A
SCALE: $\frac{3}{8}'' = 1' - 0''$

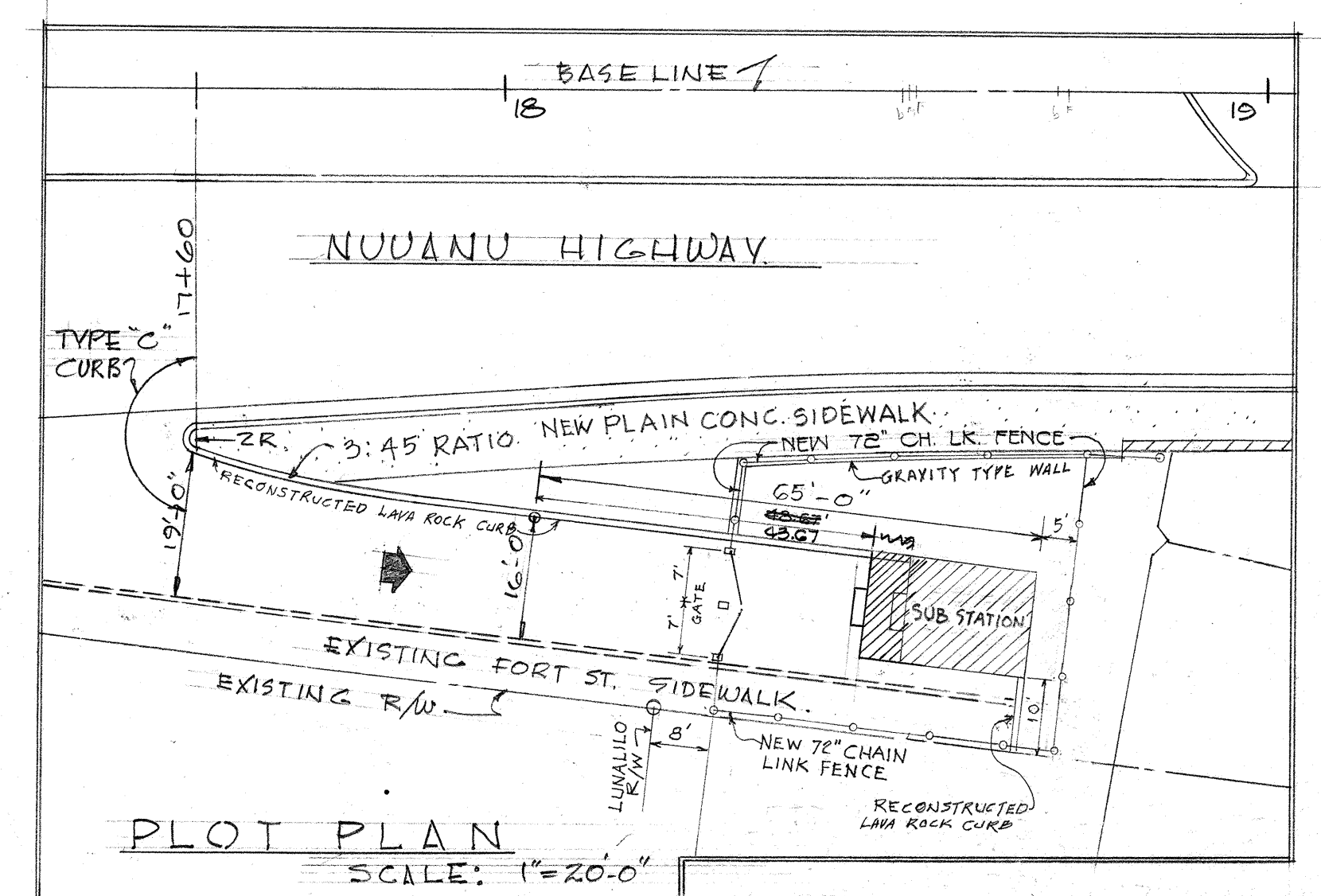


NOTE:
CONTRACTOR TO FURNISH 1
PADLOCK (LEWERS & COOKE, LTD
CATALOG 48 #436) OR EQUAL

WROUGHT STEEL SAFETY
HASP (LEWERS & COOKE, LTD.
CATALOG 48 # 941 RBB-7½)
OR EQUAL.



DOOR DETAIL
SCALE: $\frac{3}{4}'' = 1'-0''$



PLOT PLAN
SCALE: 1"=20'-0"

LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
James B. Wilson No. _____
REGISTERED ENGINEER
DATE JUL 5 1957

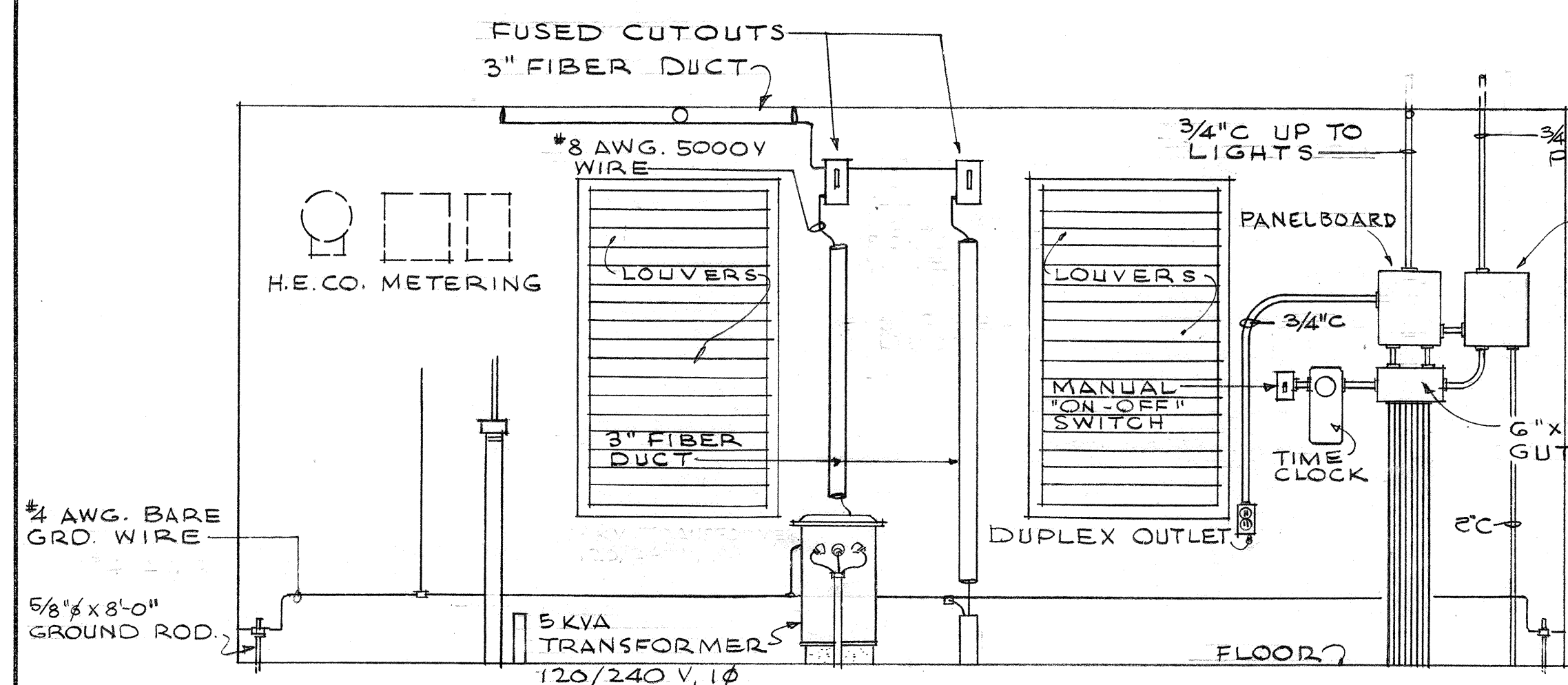
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F 072-1(1), UNIT 3
REGULATOR SUB-STATION
STRUCTURAL DETAILS.

SHEET No. 5 OF 11 SHEETS

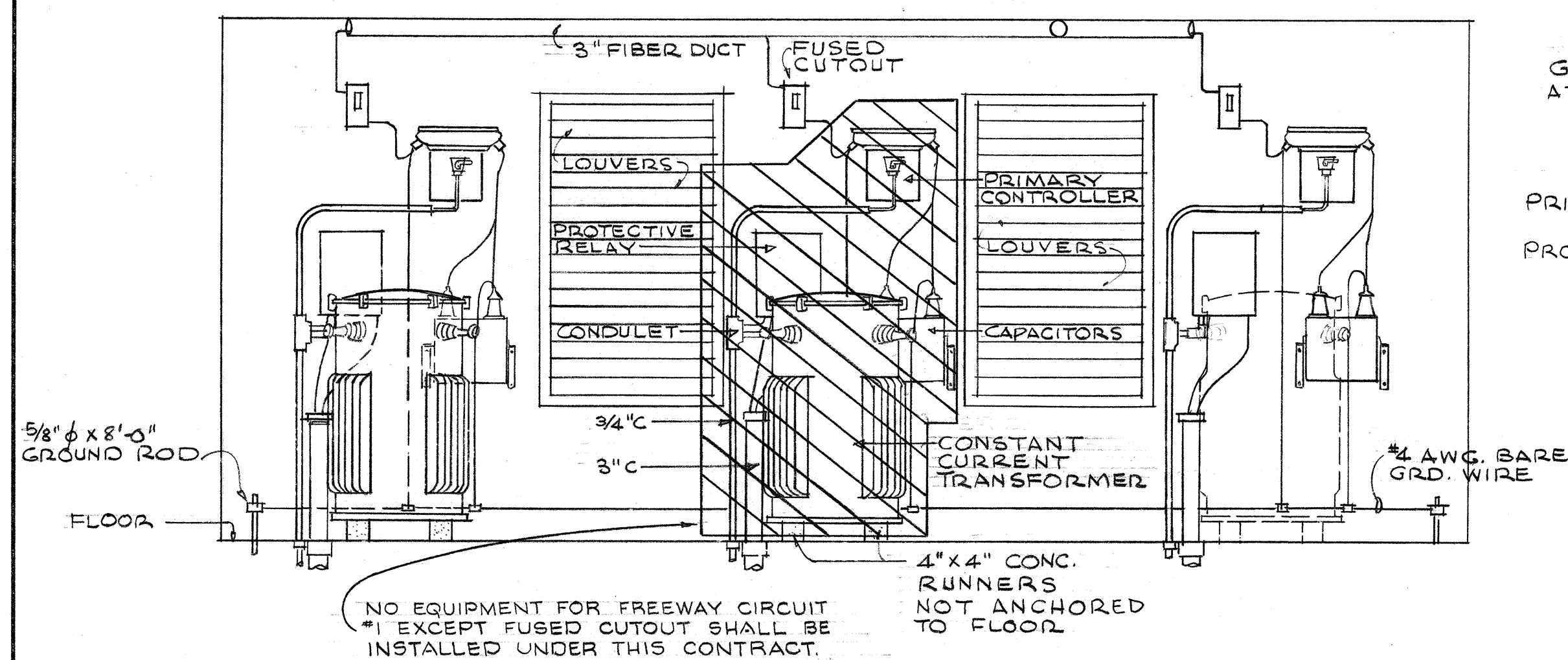
.S173 (1).74 125

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

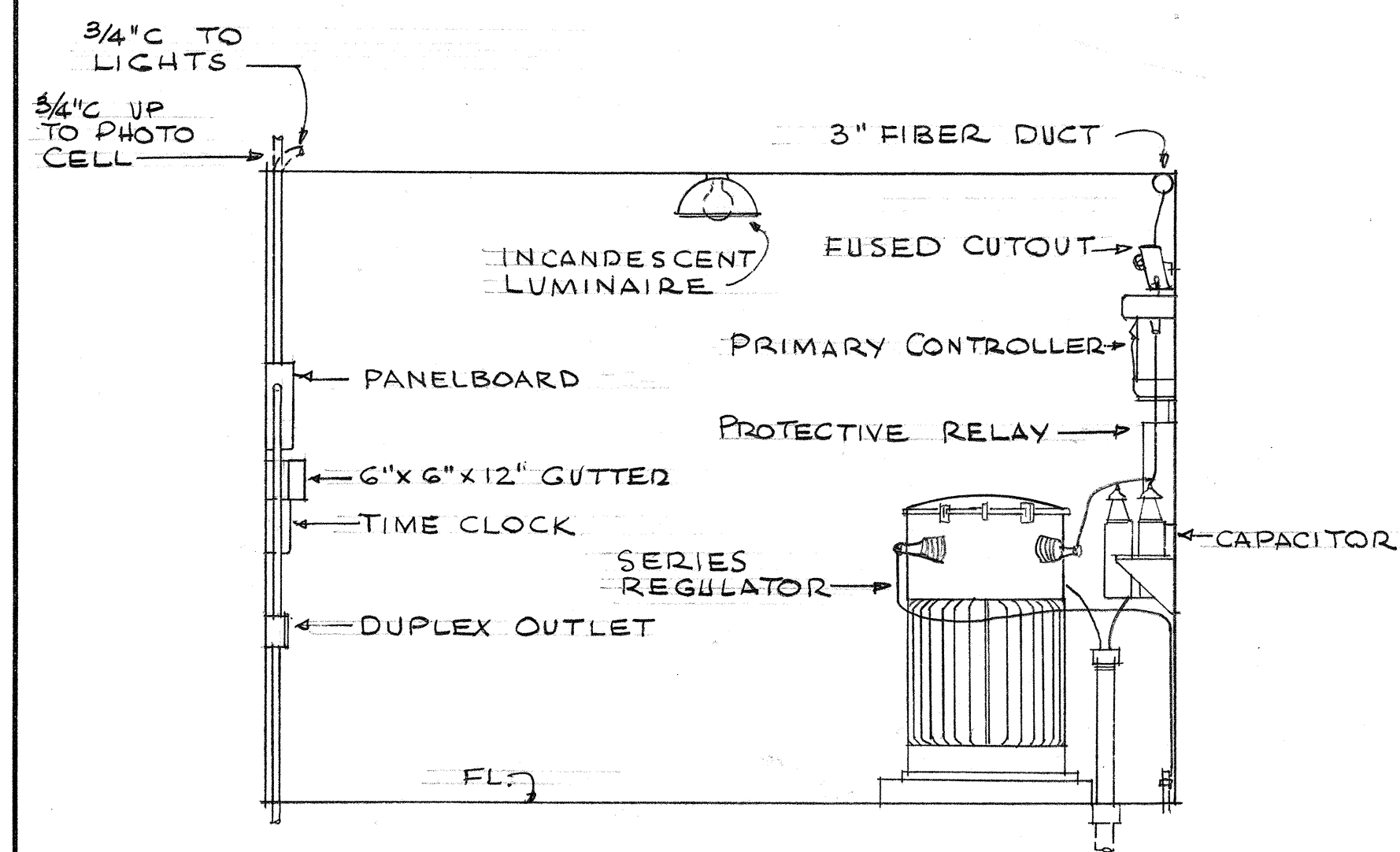
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1958	7.5	148	



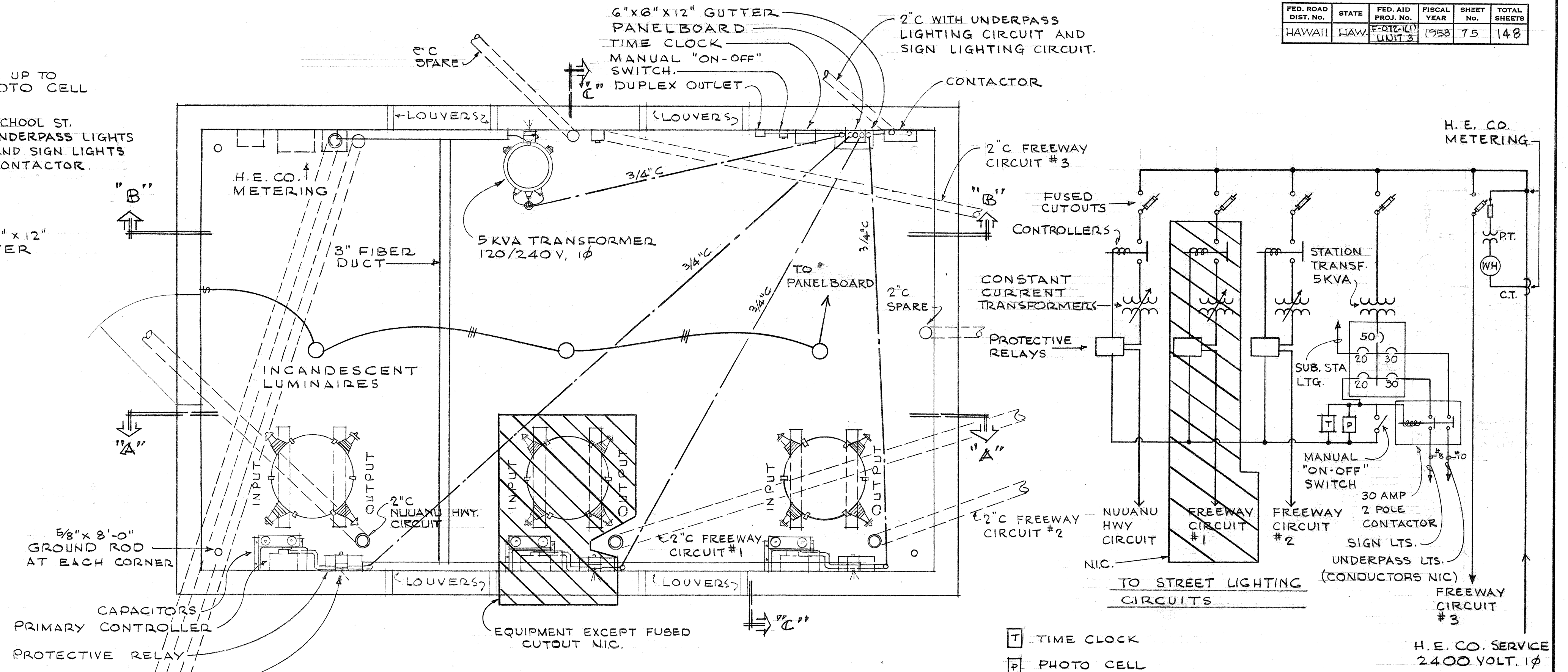
SECTION "B-B"



SECTION "A-A"



SECTION "C-C"



PLAN

ONE LINE DIAGRAM

T. H. SUB STATION EQUIPMENT LAYOUT PLAN

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

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

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3
T. OF H. SUB STATION
ELECTRICAL PLAN

LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
James J. Wilson
REGISTERED ENGINEER No. 664
DATE 7-2-57

SEPTEMBER 1957
SHEET NO. 6 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(1) UNIT 3	1958	76	148

CIRCUIT LOADING SUMMARY

VINEYARD CIRCUIT #1	
EXIST. LIGHTS 5 x 800	= 7200
FUTURE LIGHTS 4 x 800	= 3200
THIS SHEET 7 # 11	= 10400
SHEET 1 # 11	= 1820 (FUTURE)
(NUUANU HIWAY) SHEET 1 # 5	= 7200
(NUUANU HIWAY) SHEET 2 # 5	= 8000
PEDESTRIAN WALKWAY	= 675
	28095

FOR RECONNECTION OF LIGHTING AT THIS INTERSECTION SEE NUUANU HIWAY LIGHTING LAYOUT SHT. NO. 130

4 FUTURE LIGHTS ON VINEYARD CIRCUIT #1

TEMPORARY DIRECT BURIAL CABLE END CAPPED

WESTBOUND LANES

EASTBOUND LANES

2E PED. OVERCROSSING

VINEYARD STREET

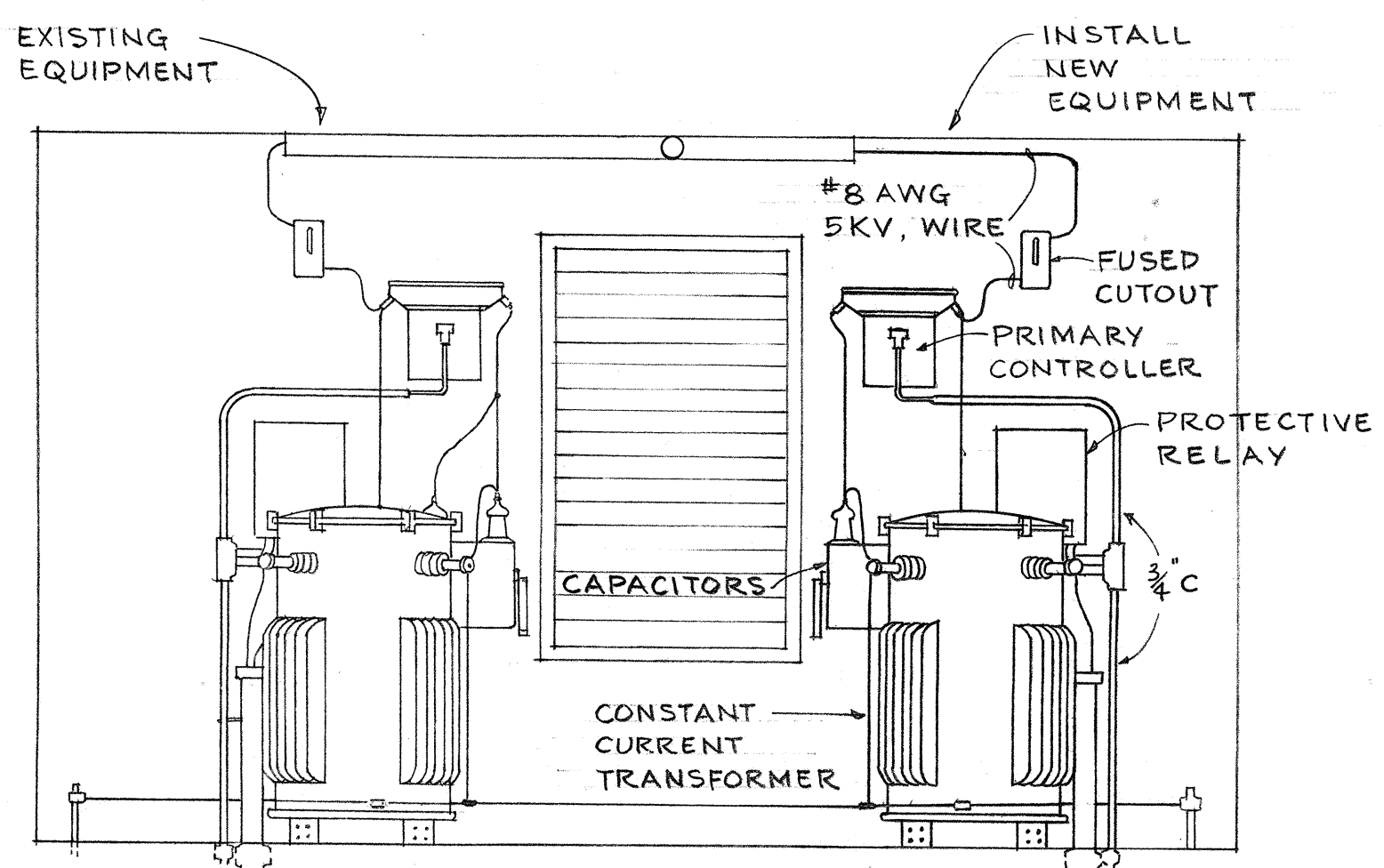
LIGHTS ON VINEYARD CIRCUIT #1

LIGHTS ON VINEYARD CIRCUIT #2

INSTALL 1 NEW CABLE IN EACH CONDUIT AND SEPARATE EXISTING SERIES LOOP INTO 2 SERIES LOOPS.

INSTALL 2 CABLES FROM NEW CONSTANT CURRENT TRANSFORMER IN SUBSTATION TO PULLBOX.

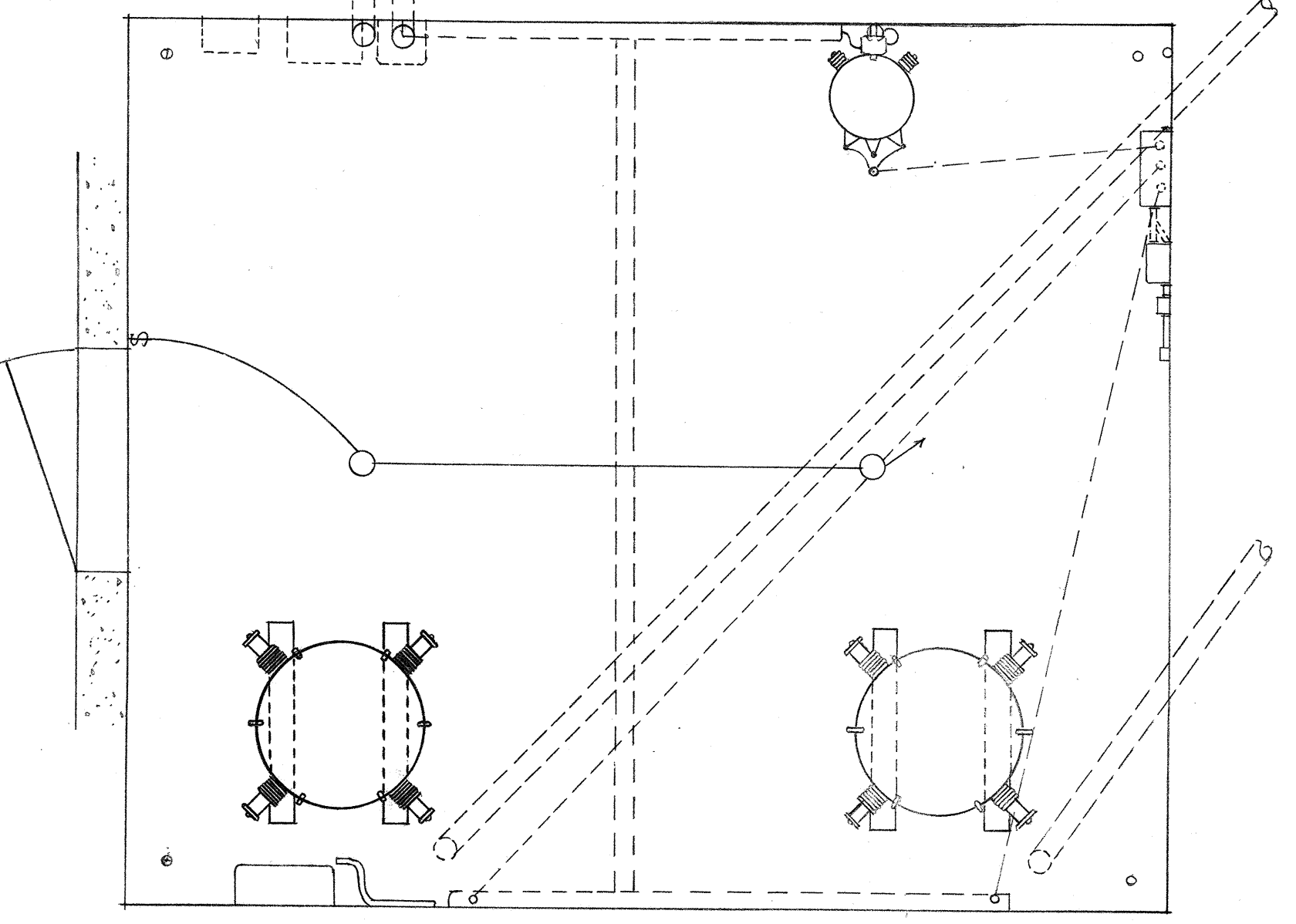
SUB-STATION YARD



EXISTING HIGHWAY LIGHTING SYSTEM - VINEYARD THOROUGHFARE

ELECTRICAL SYMBOLS FOR HIGHWAY LIGHTING ONLY

- 8-15-28'-6" PROPOSED ROADWAY LIGHTING LUMINAIRE ON METAL LAMP POST. FIRST NUMERAL INDICATES DISTANCE FROM FACE OF TRANSFORMER BASE TO FACE OF CURB. SECOND NUMERAL INDICATES BRACKET LENGTH. THIRD NUMERAL INDICATES LENGTH OF POLE ABOVE TRANSFORMER BASE IF OTHER THAN 30 FEET.
- 20000 LUMEN LUMINAIRE
- 11000 LUMEN LUMINAIRE
- D-22 ILLUMINATED SIGN. D-22 INDICATES SIGN NUMBER. 12'-0" INDICATES SIGN LENGTH. (FUTURE) 2'-6"-0" = INDICATES 2'-6" LAMPS TO BE USED
- UNDERPASS LUMINAIRE
- 2" CABLE IN STEEL CONDUIT, 2" EXCEPT AS NOTED.
- 2" CABLE IN NON-METALLIC CONDUIT, 2" CONCRETE ENCASED.
- 2" DIRECT BURIAL CABLE
- 2 CABLES
- 1 CABLE
- PULL BOX, TYPE "A"
- PULL BOX, TYPE "B"
- PULL BOX, TYPE "C"
- DUCT MARKER



EXISTING T.O.H. SUBSTATION AT QUEEN EMMA ST.

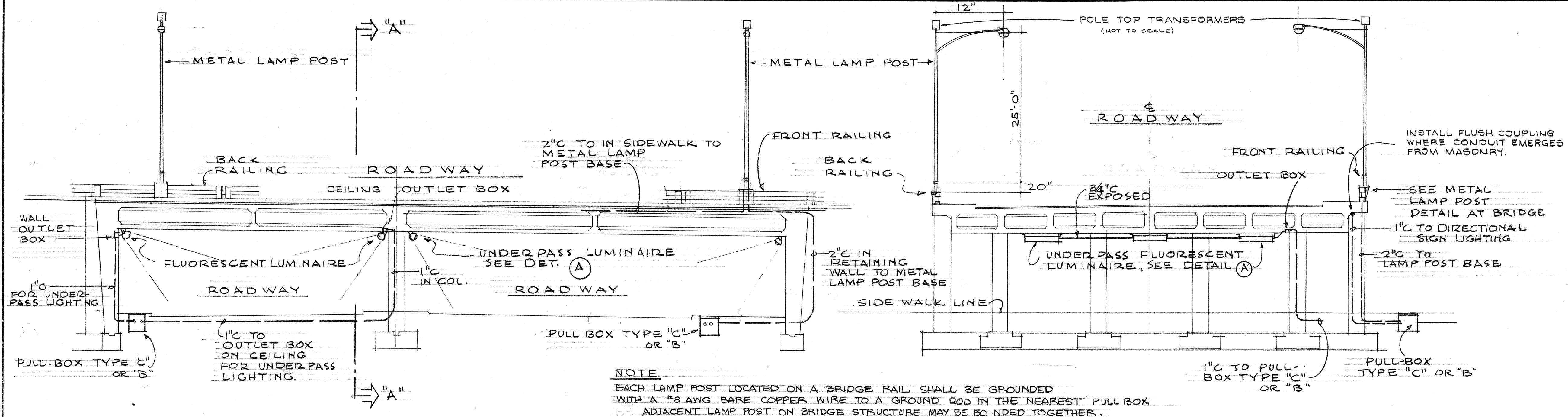
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3
CONNECTION TO
VINEYARD STREET
SUB STATION

LAW & WILSON • TUDOR • TOWELL
ARCHITECTS • ENGINEERS • SURVEYORS
James J. O'Brien, No. 664
REGISTERED ENGINEER
DATE 7-2-57

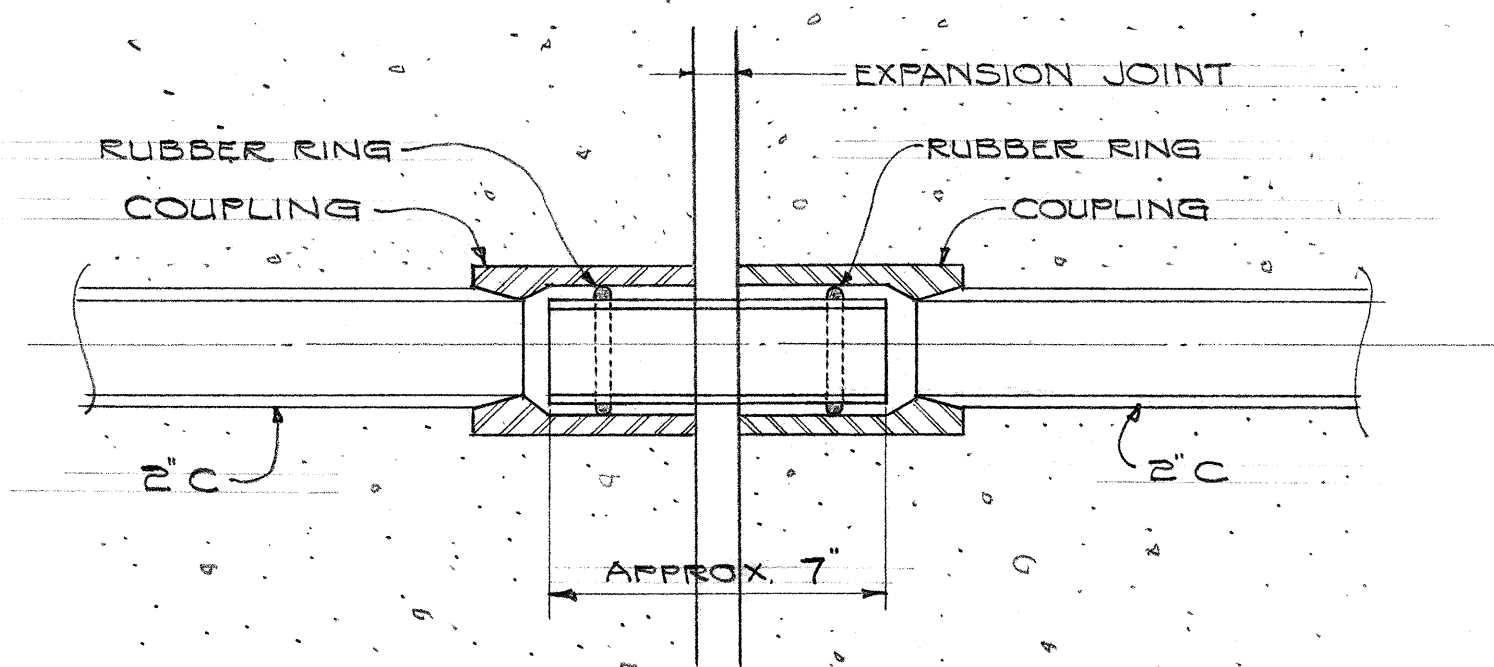
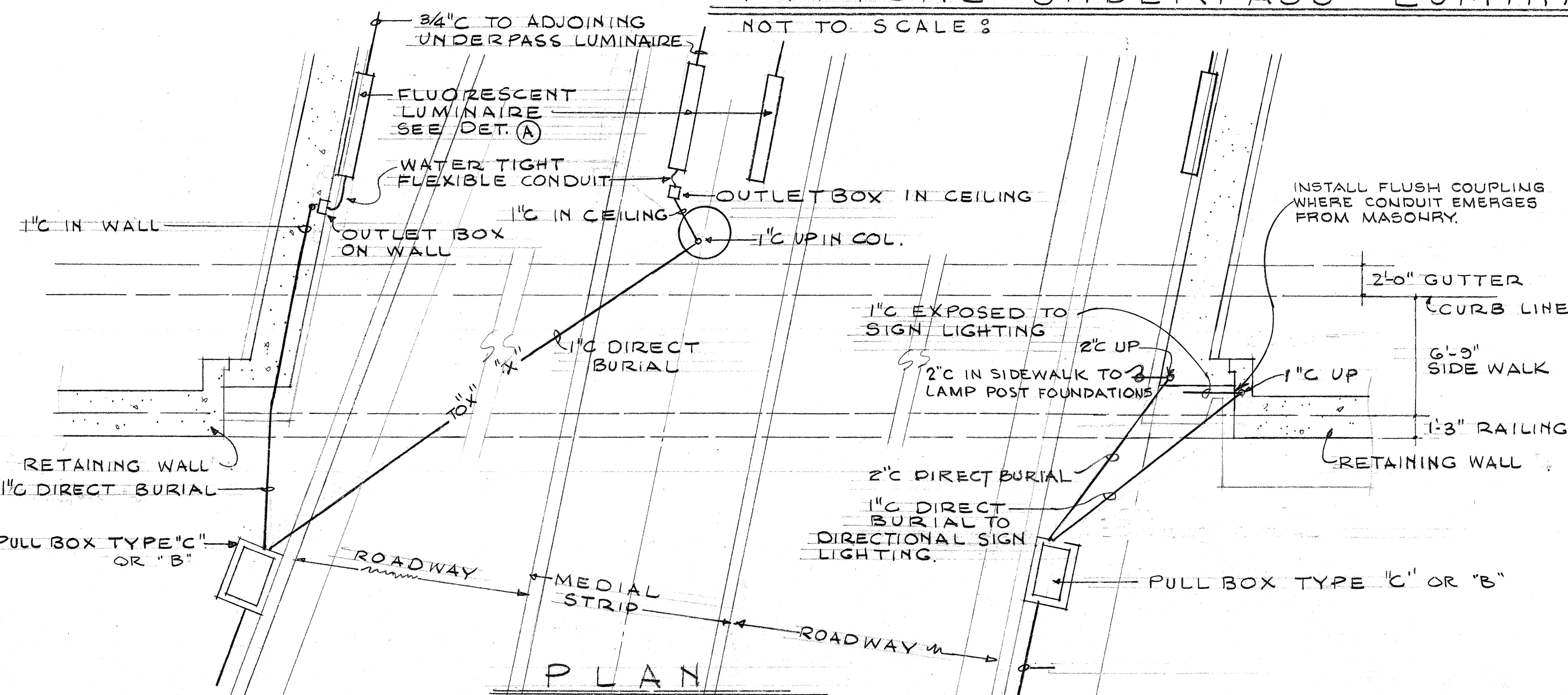
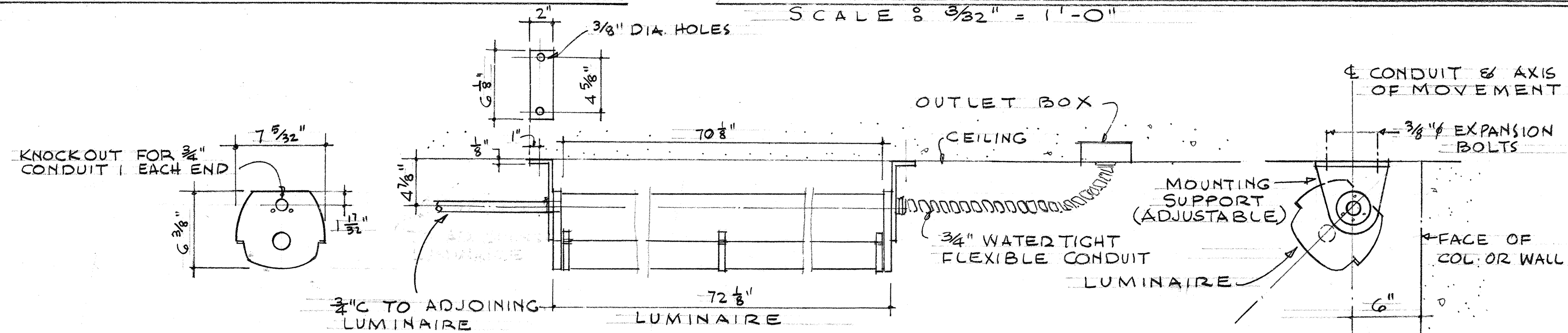
SHEET No. 7 OF 11 SHEETS

.8173 (1).76 127



NOTE

THESE DETAILS ARE TYPICAL FOR ALL STRUCTURES. FOR ACTUAL CONDUIT REQUIREMENTS AT EACH, SEE LIGHTING LAYOUT PLANS. OTHER CONDUITS MAY BE REQUIRED AT CERTAIN STRUCTURES SUCH AS TRAFFIC SIGNALS, REMOTE SIGNS, ETC. SEE TRAFFIC SIGNAL AND LIGHTING LAYOUT PLANS.



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3

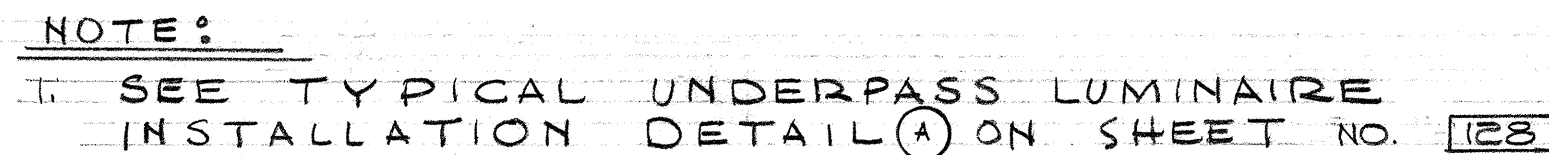
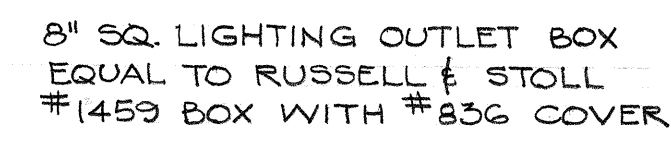
TYPICAL LIGHTING & CONDUIT INSTALLATION AT UNDERPASS & BRIDGE
SEPTEMBER 1957

LAW & WILSON • TUDOR • TOWELL
ARCHITECTS • ENGINEERS • SURVEYORS
James I. Wilson, No. 664
REGISTERED ENGINEER
DATE 7-2-57

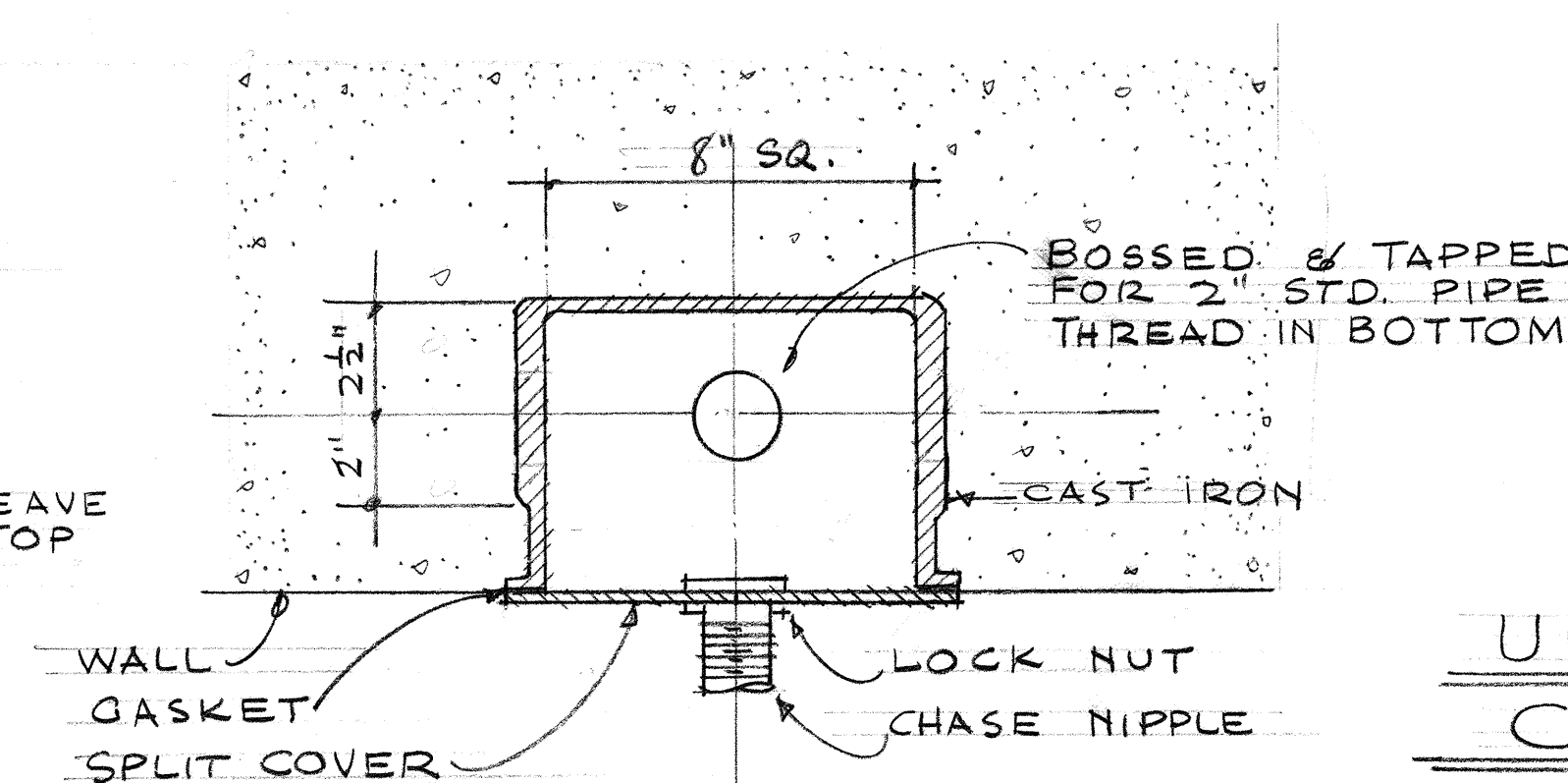
SHEET No. 8 OF 11 SHEETS

.8173 (1).77 128

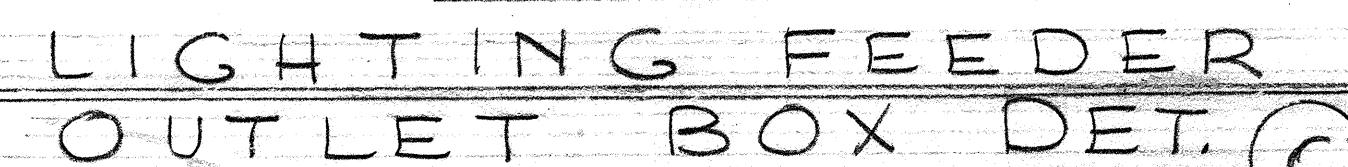
ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DESIGNED BY _____	" _____
	DRAWN BY _____	" _____
	TRACED BY _____	" _____
NOTE BOOK	QUANTITIES BY _____	" _____
No. _____	QUANTITIES CHECKED BY _____	" _____
	CHECKED BY _____	" _____



LUNALILO FREEWAY



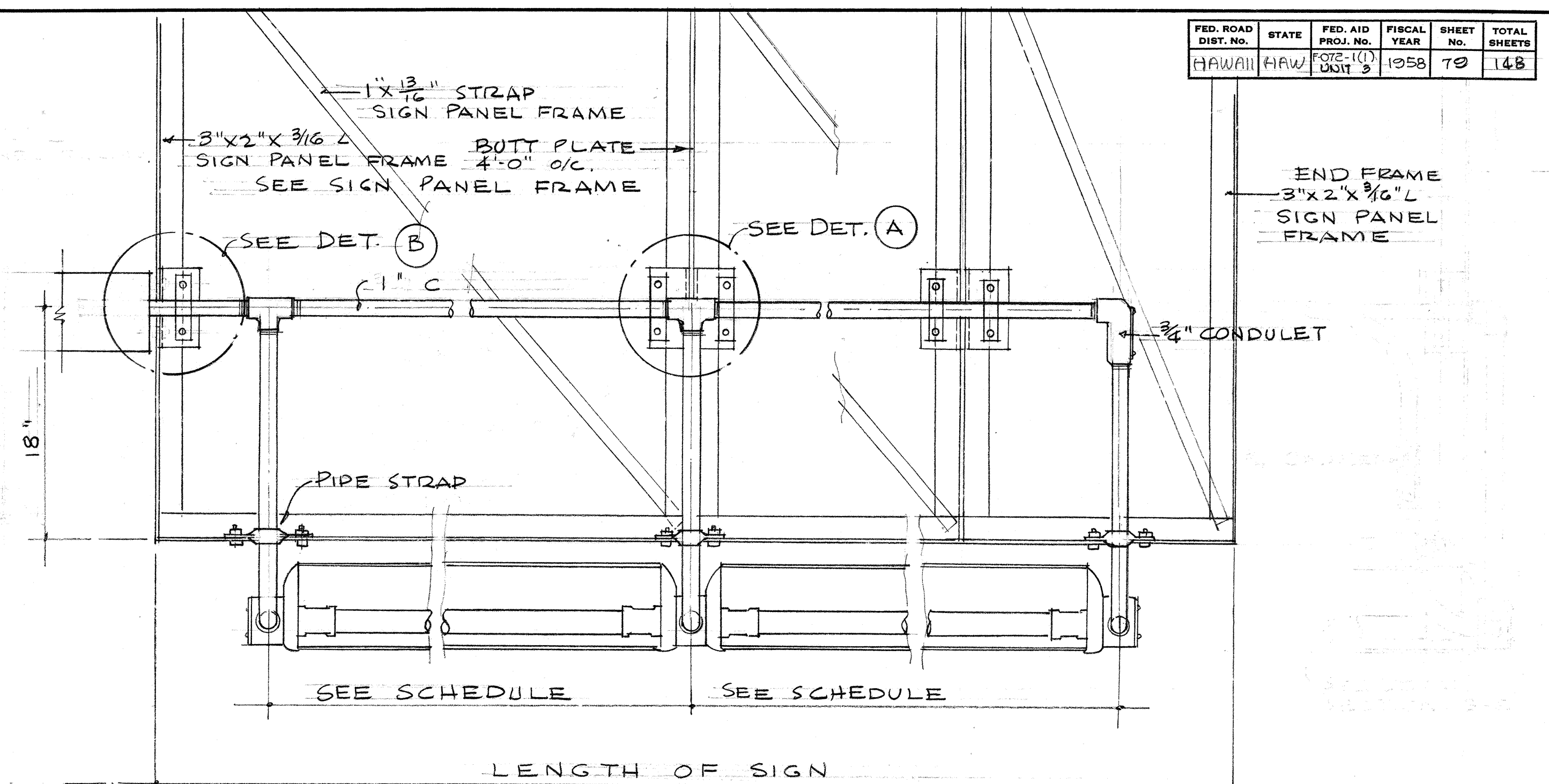
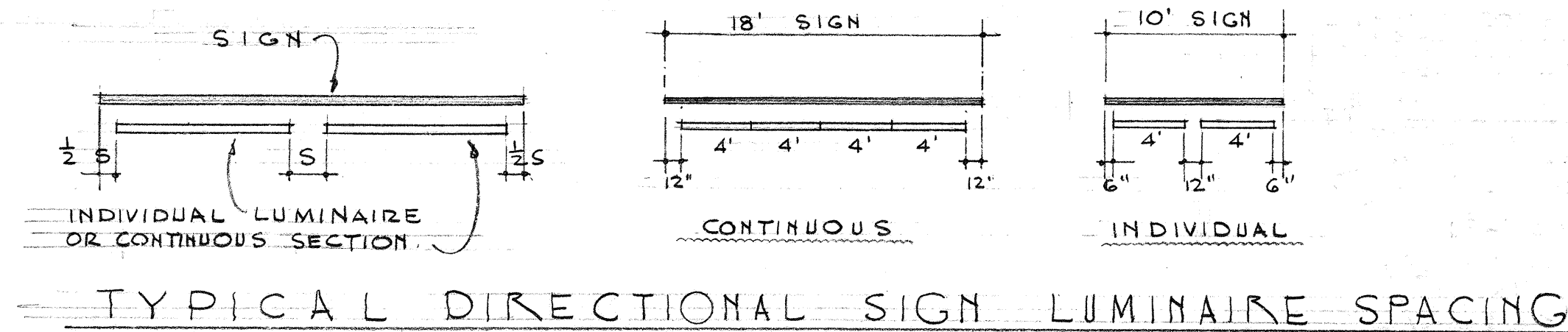
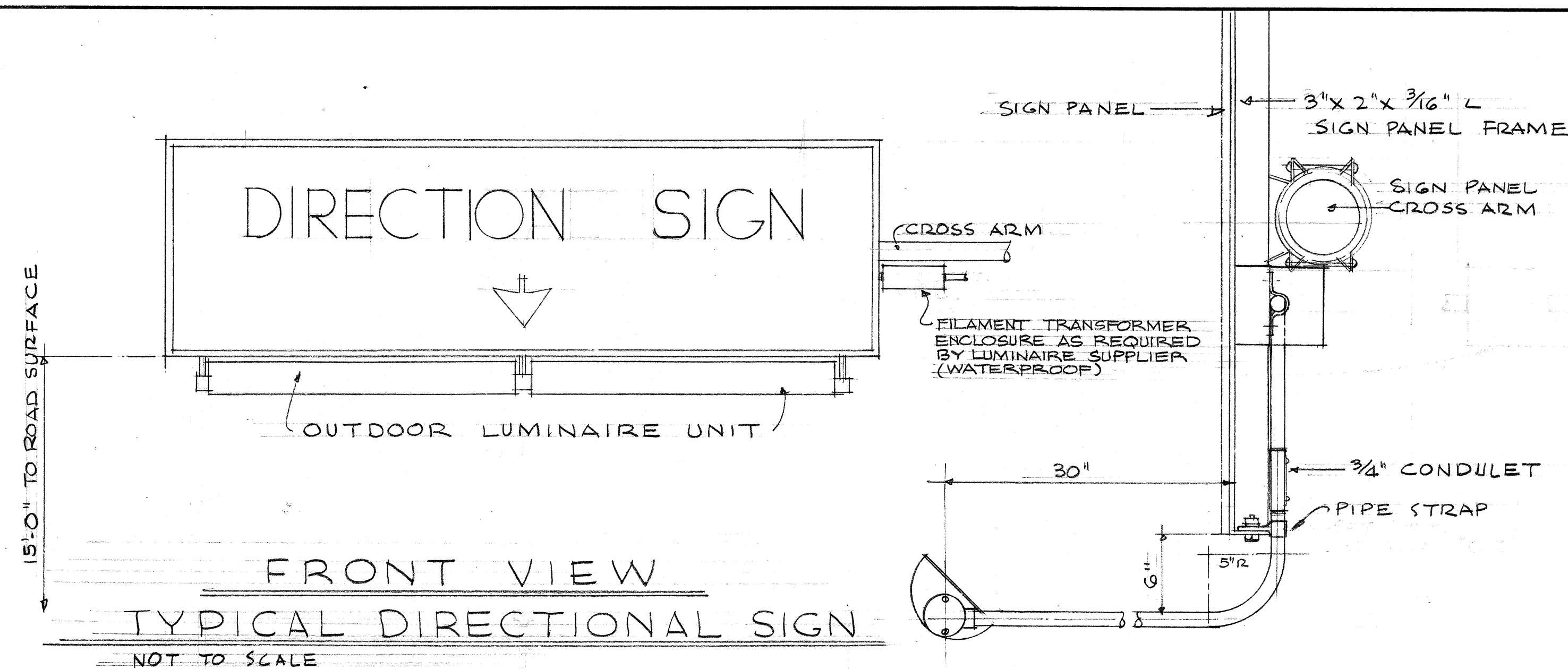
SECTION



SCALE: 3" = 1'-0"

LAW & WILSON • TUDOR • TOWIL
ARCHITECTS • ENGINEERS • SURVEYORS
James J. Chisholm No. 664
REGISTERED ENGINEER
DATE 7-2-57

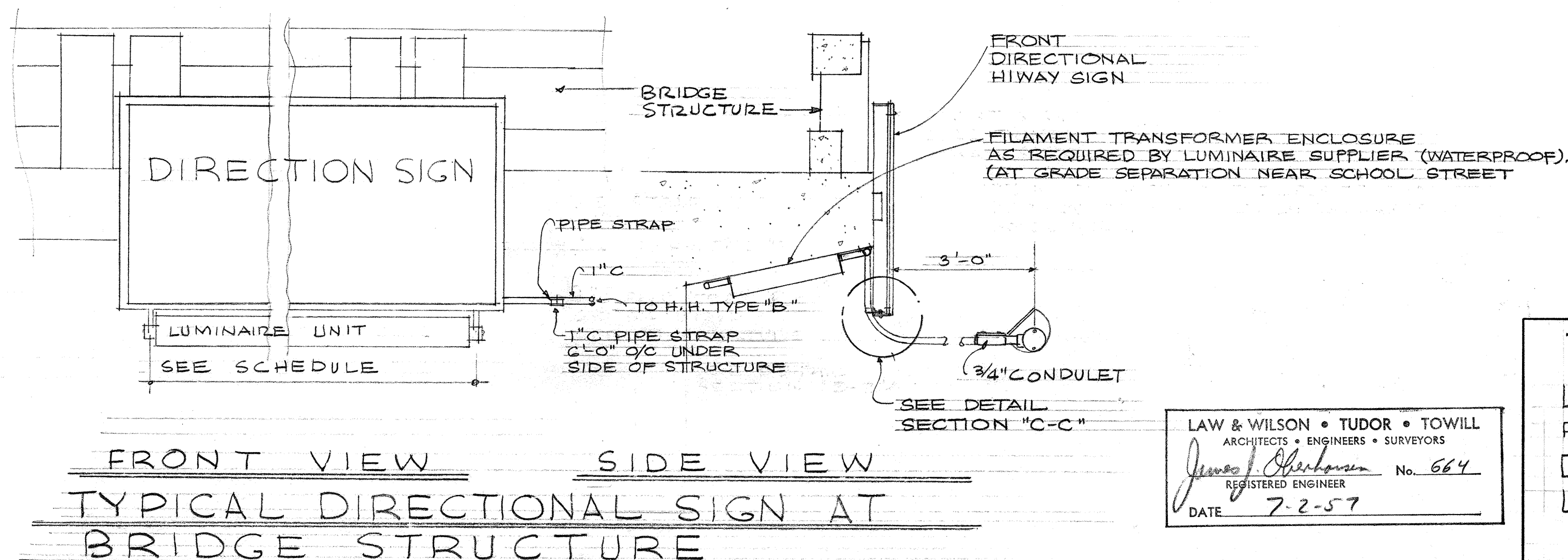
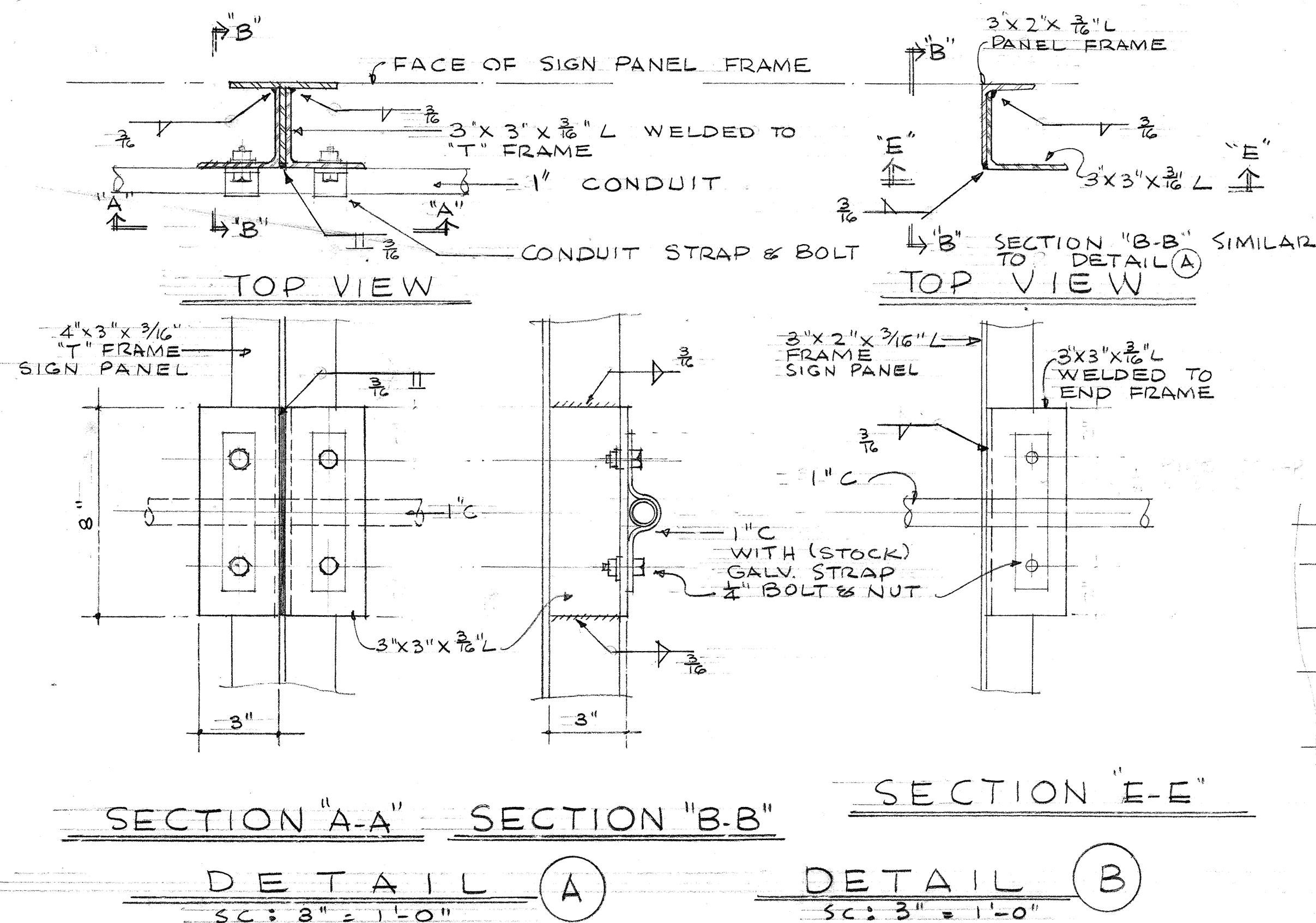
. \$173 (1).75\$ 129



NOTES:

1. THESE DETAILS ARE TYPICAL AND INTENDED TO SHOW METHODS OF MOUNTING AND WIRING. ACTUAL DETAILS, LOCATION AND SIZE OF FILAMENT TRANSFORMER ENCLOSURES SHALL BE AS RECOMMENDED BY LUMINAIRE MANUFACTURER.

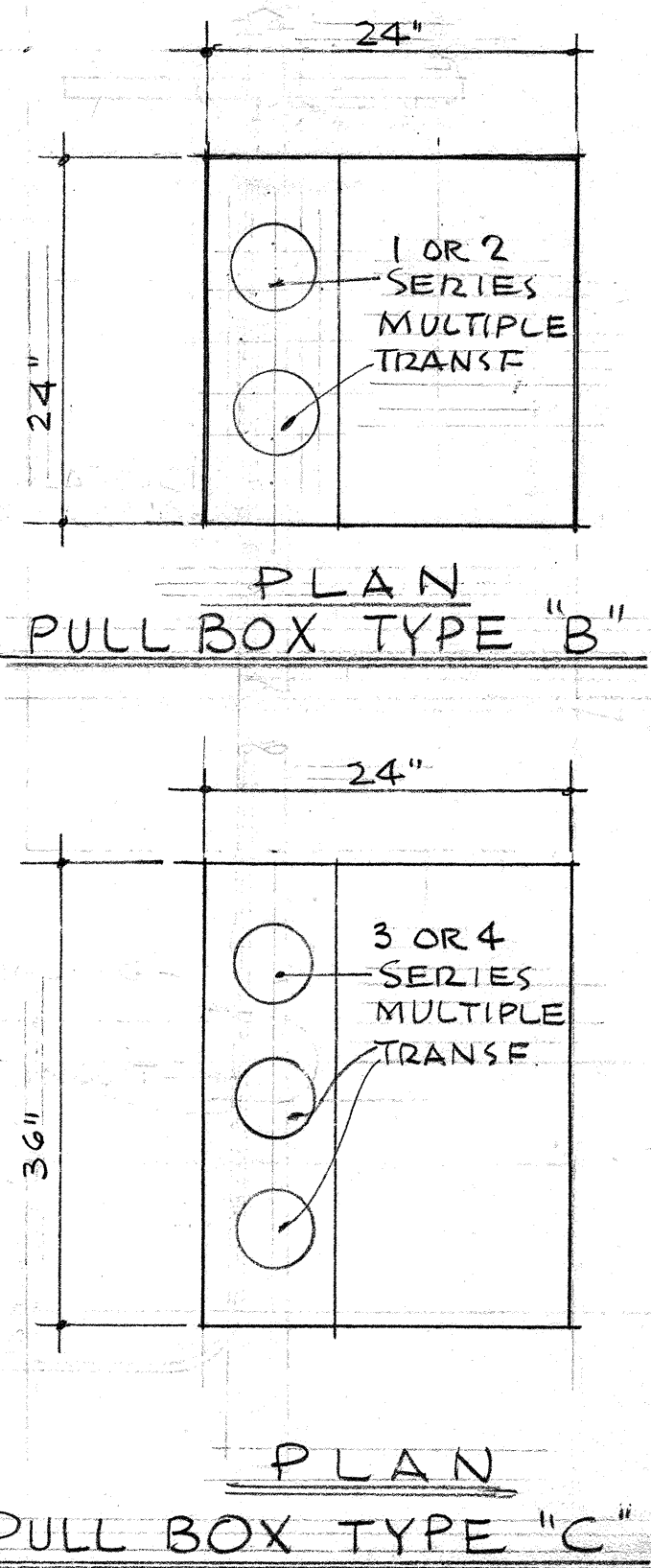
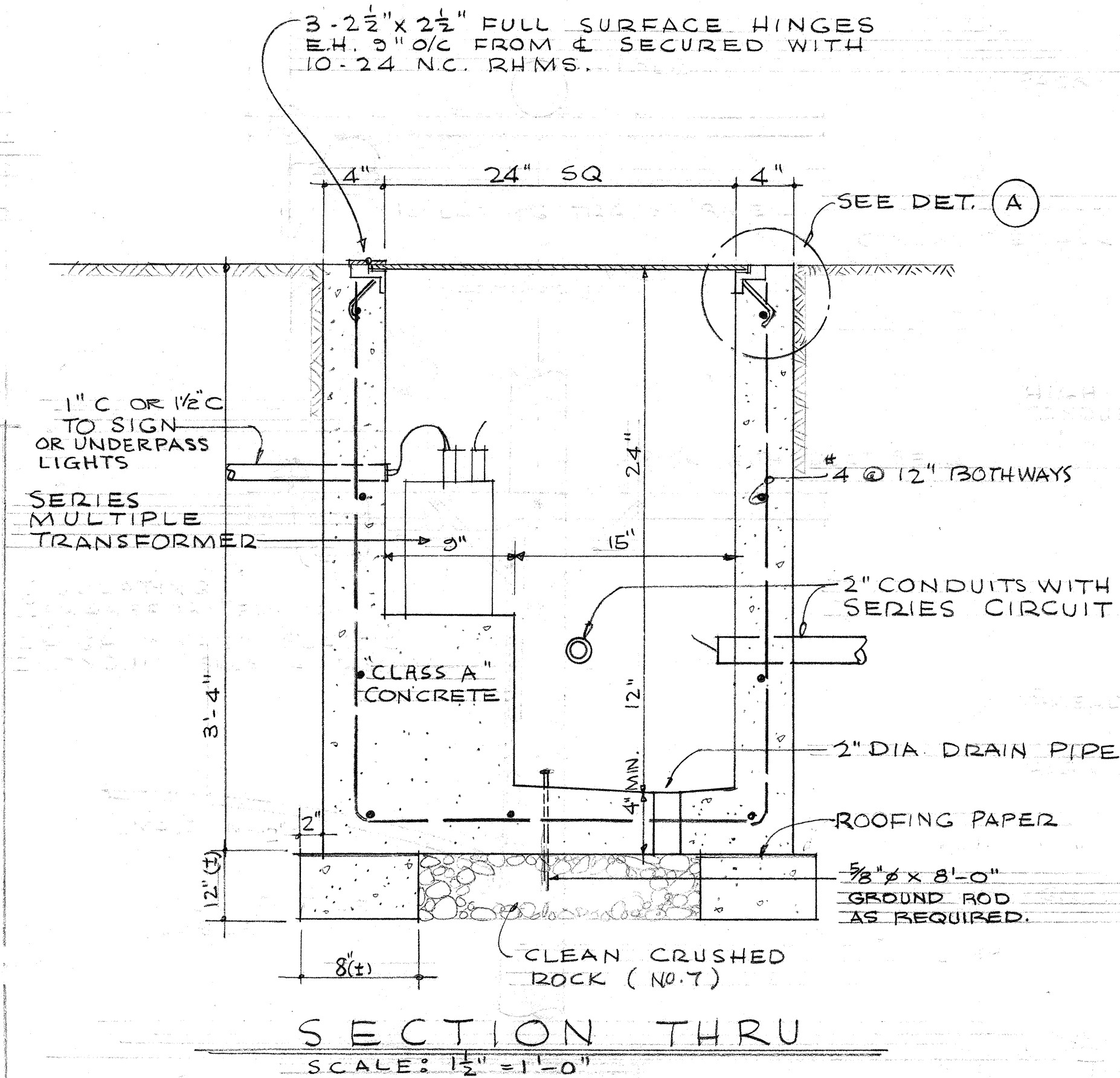
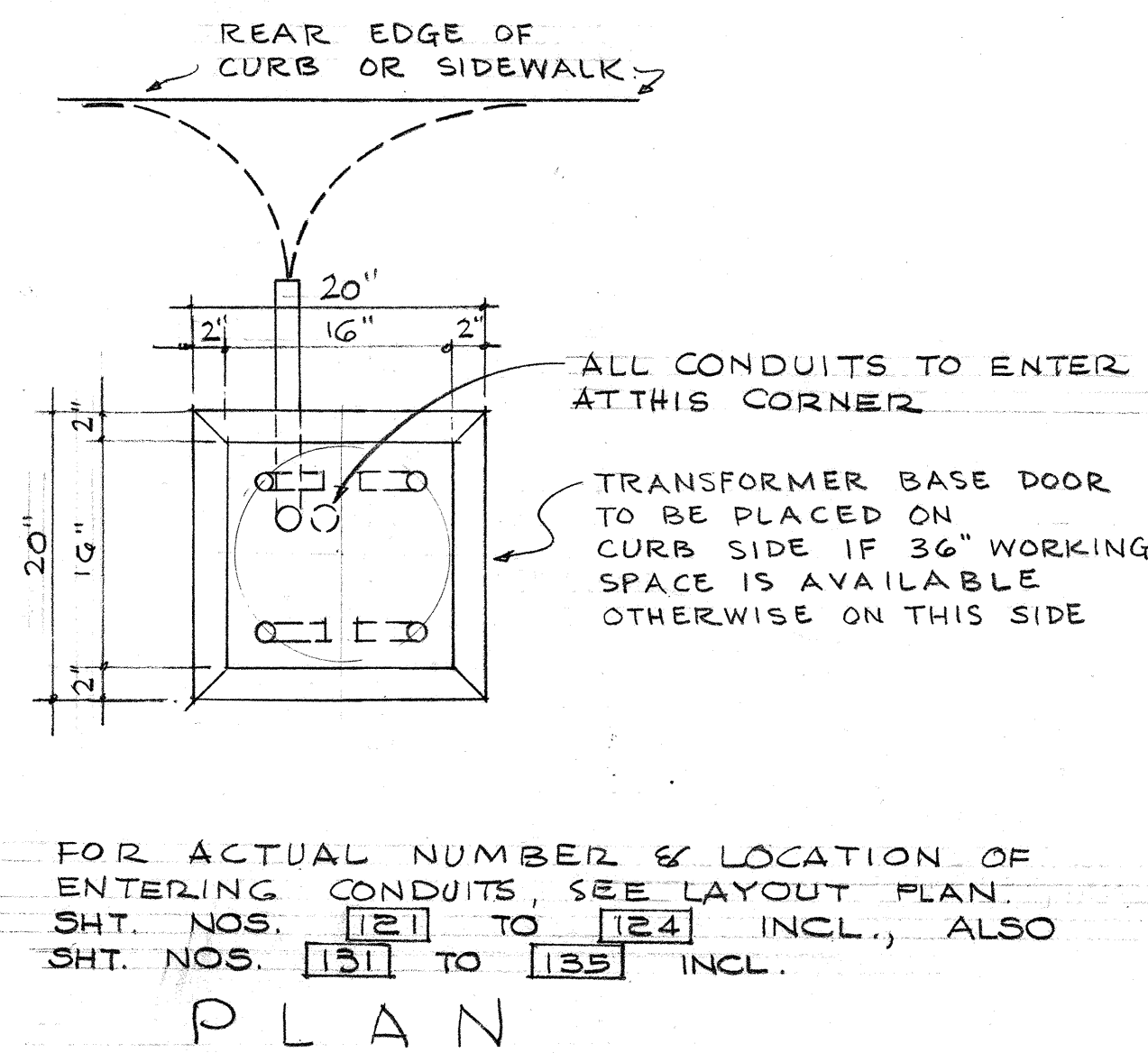
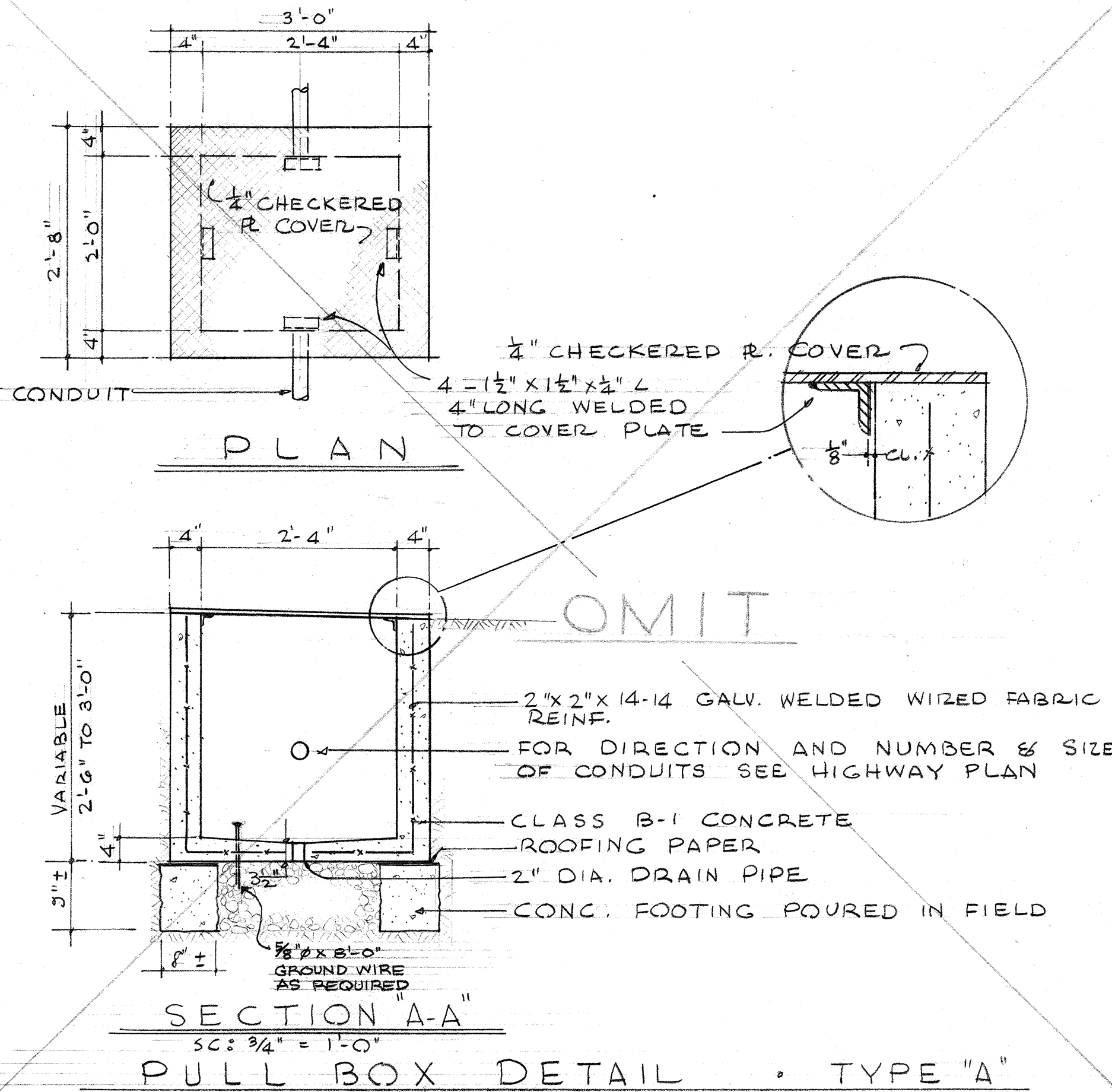
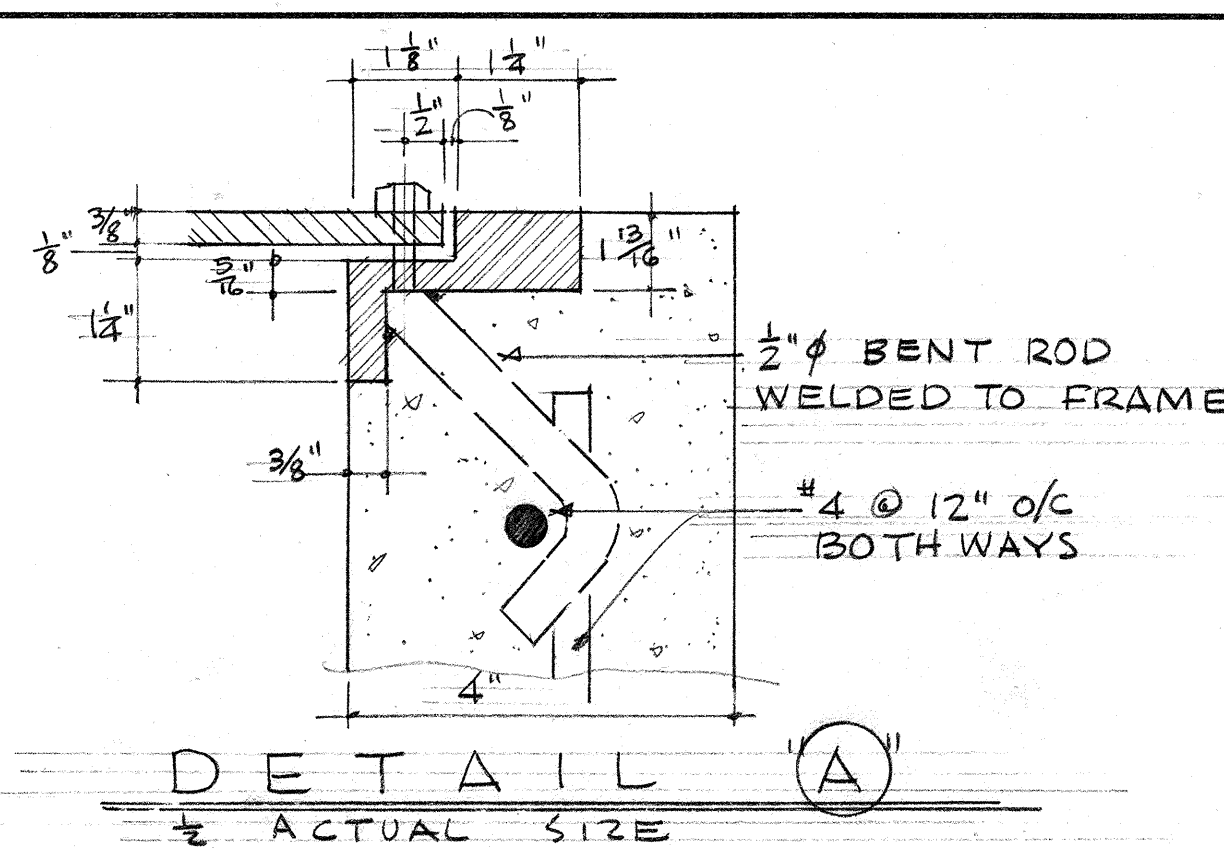
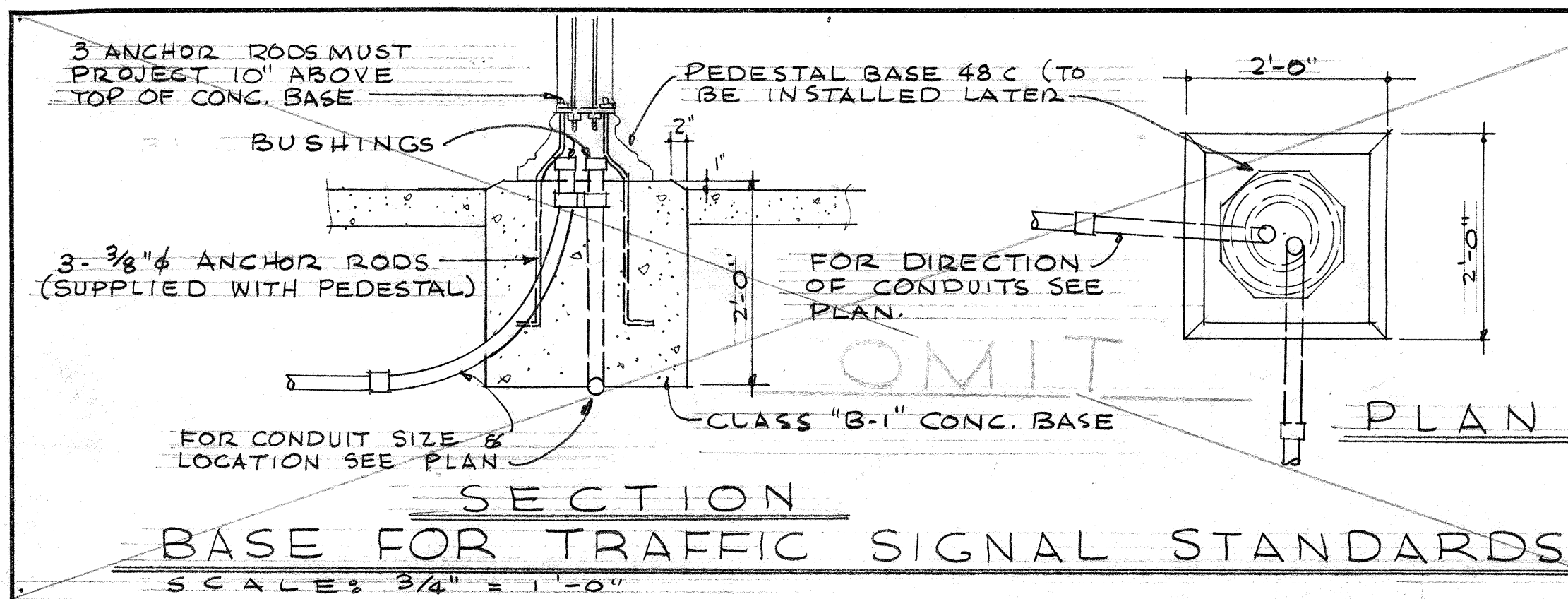
DIRECTIONAL SIGN LUMINAIRE SCHEDULE		
LENGTH OF SIGN	NUMBER & SIZE OF LUMINAIRE	LUMINAIRE SPACING
10	2-4'-0"	INDIVIDUAL
12	2-4'-0"	INDIVIDUAL
14	2-6'-0"	INDIVIDUAL
16	2-6'-0"	INDIVIDUAL
18	4-4'-0"	CONTINUOUS
20	2-4'-0", 2-6'-0"	2-8' CONT. SECTIONS
22	2-4'-0", 2-6'-0"	CONTINUOUS
24	2-4'-0", 2-6'-0"	2-10' CONT. SECTIONS
26	4-6'-0"	CONTINUOUS
28	6-4'-0"	2-12' CONT. SECTIONS
30	2-6'-0", 4-4'-0"	CONTINUOUS
32	2-6'-0", 4-4'-0"	2-14' CONT. SECTIONS



LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
JAMES J. TOWILL
REGISTERED ENGINEER
DATE 7-2-57

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3
DIRECTIONAL SIGN LIGHTING DETAIL
SEPTEMBER 1957

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BU-061-1(6)	1958	70	148
HAWAII	HAW.	F-072-1(1)	1958	80	148

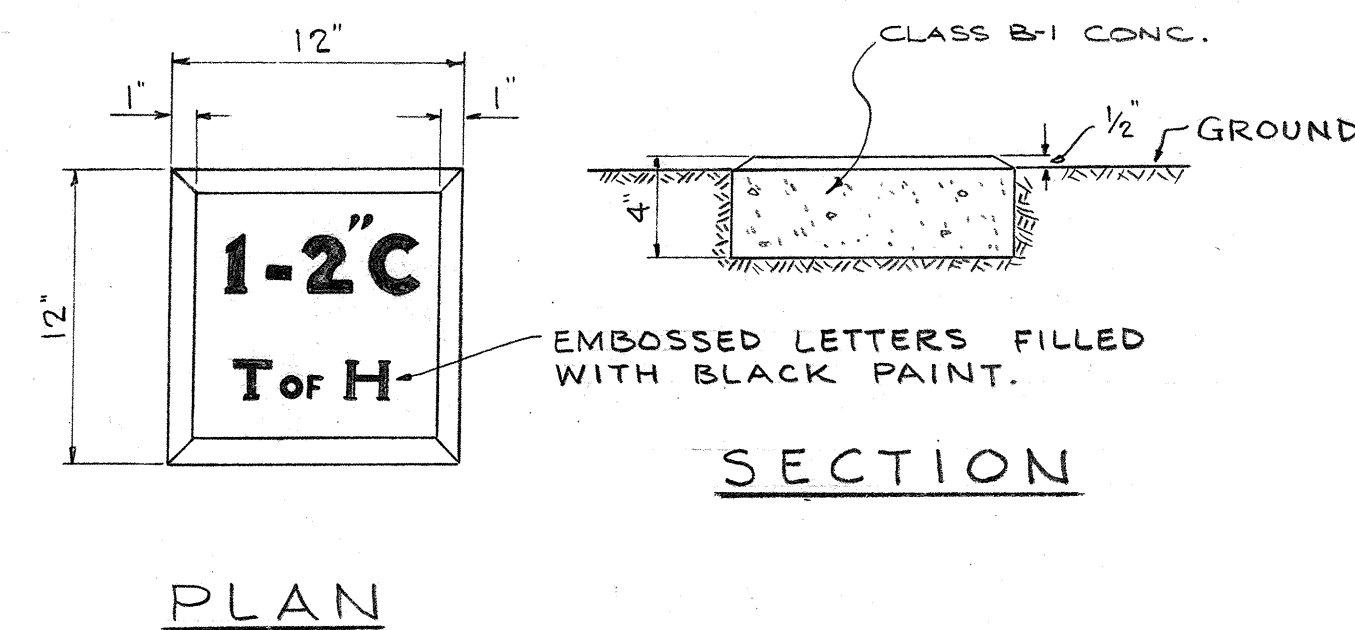


PULL BOX TYPE "B" DETAIL

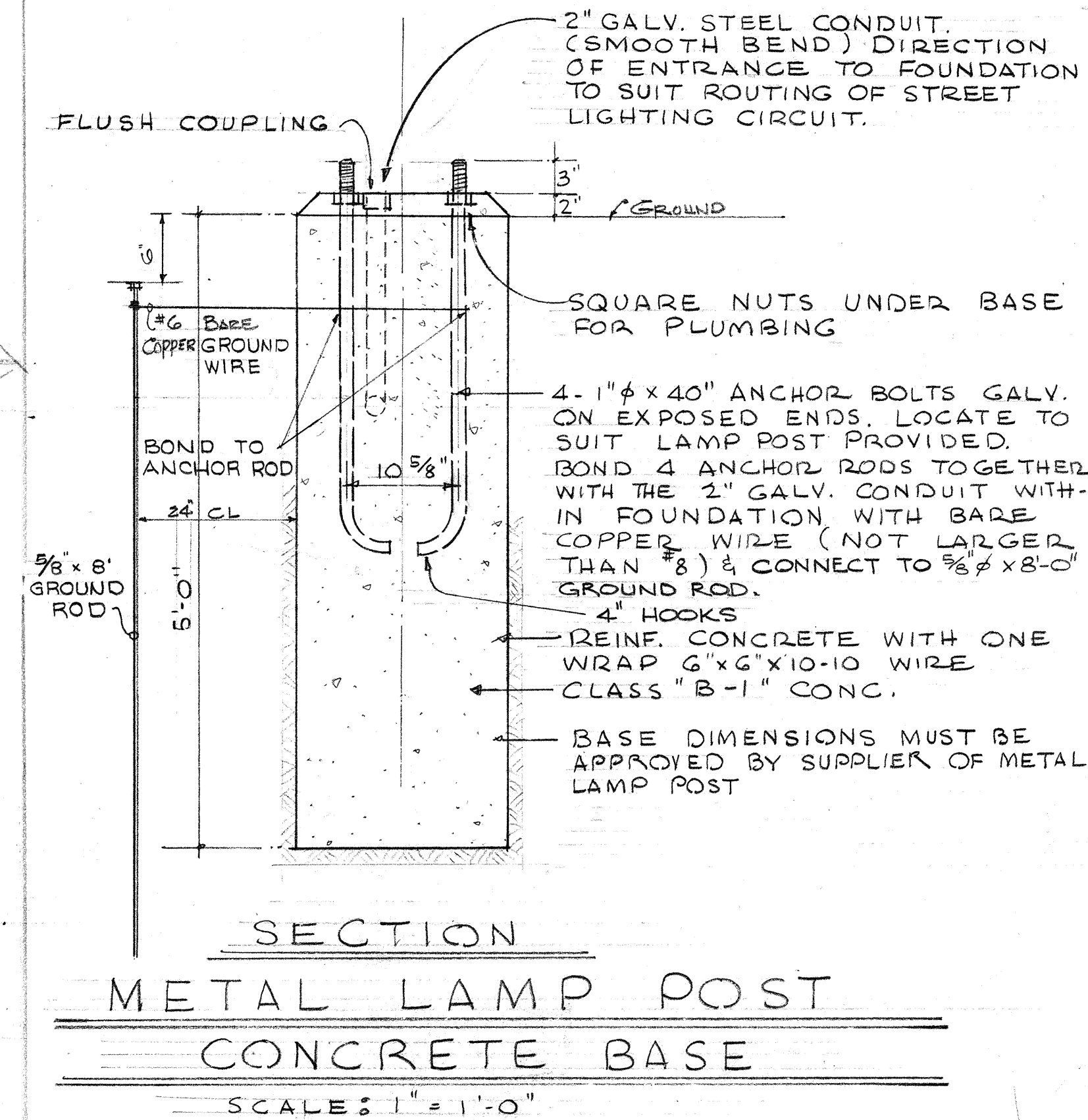
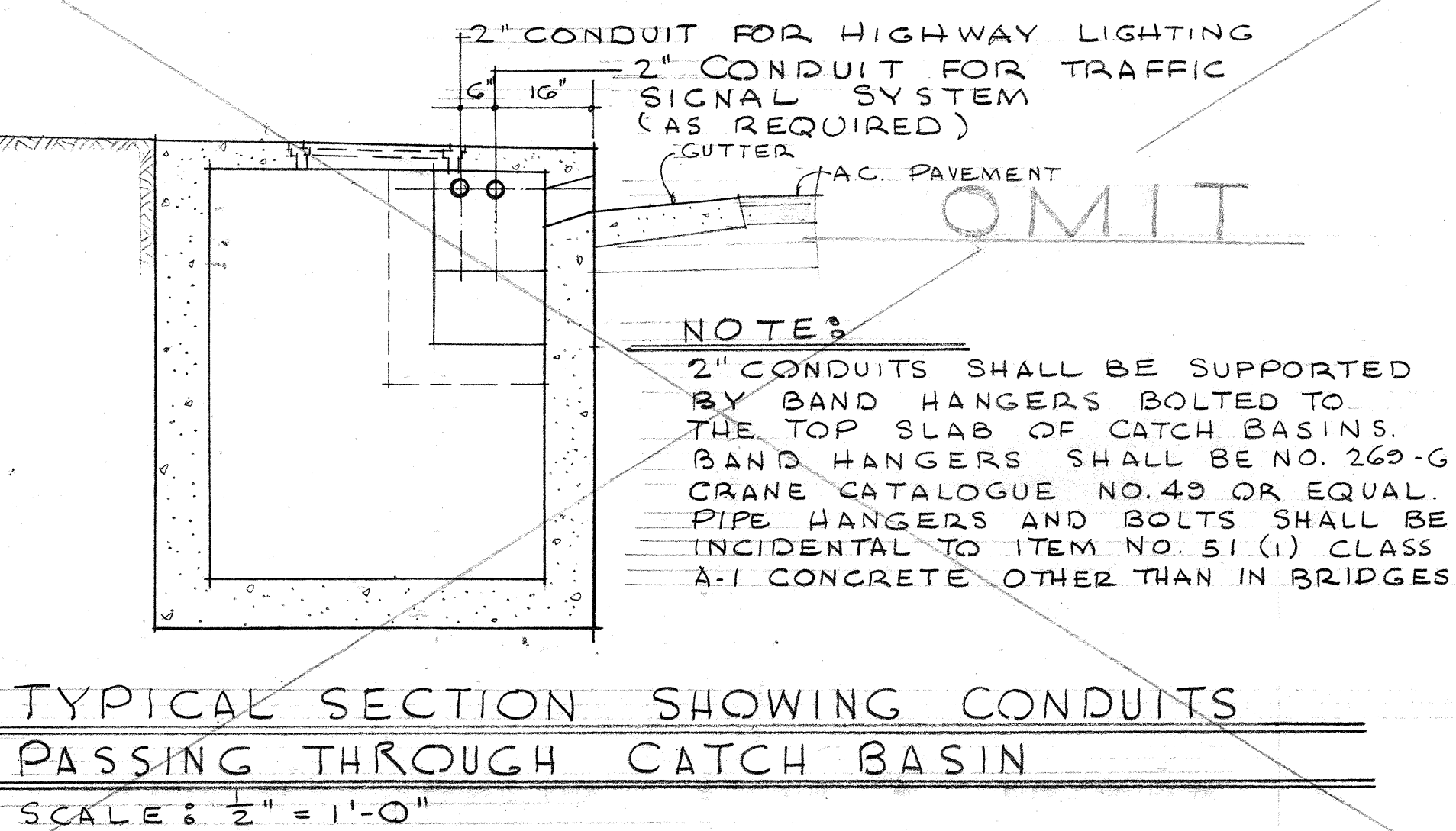
NOTE: 1. PULL BOX TYPE "C" SECTION SIMILAR TO TYPE "B"

2. FOR ACTUAL NUMBER & LOCATION OF ENTERING CONDUITS SEE LAYOUT PLAN. SHT. NOS. 121 TO 124 INCL., ALSO SHT. NOS. 131 TO 135 INCL.

NOTE: THESE DETAILS ARE INTENDED TO SUPPLEMENT TERRITORY STANDARD. IF ANY CONFLICT, TERRITORY STANDARDS WILL CONTROL.



CONDUIT MARKER DETAIL



LAW & WILSON • TUDOR • TOWILL
ARCHITECTS • ENGINEERS • SURVEYORS
REGISTERED ENGINEER No. 664
DATE 7-2-57

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
LUNALILO FREEWAY
PROJECT NO. F-072-1(1), UNIT 3
NUUANU HIGHWAY
PROJECT NO. BU-061-1(6), UNIT 4
HIGHWAY LIGHTING
DETAILS
SEPTEMBER 1957

SHEET NO. OF SHEETS

. \$173 (1).80 . \$146 (2).70 136