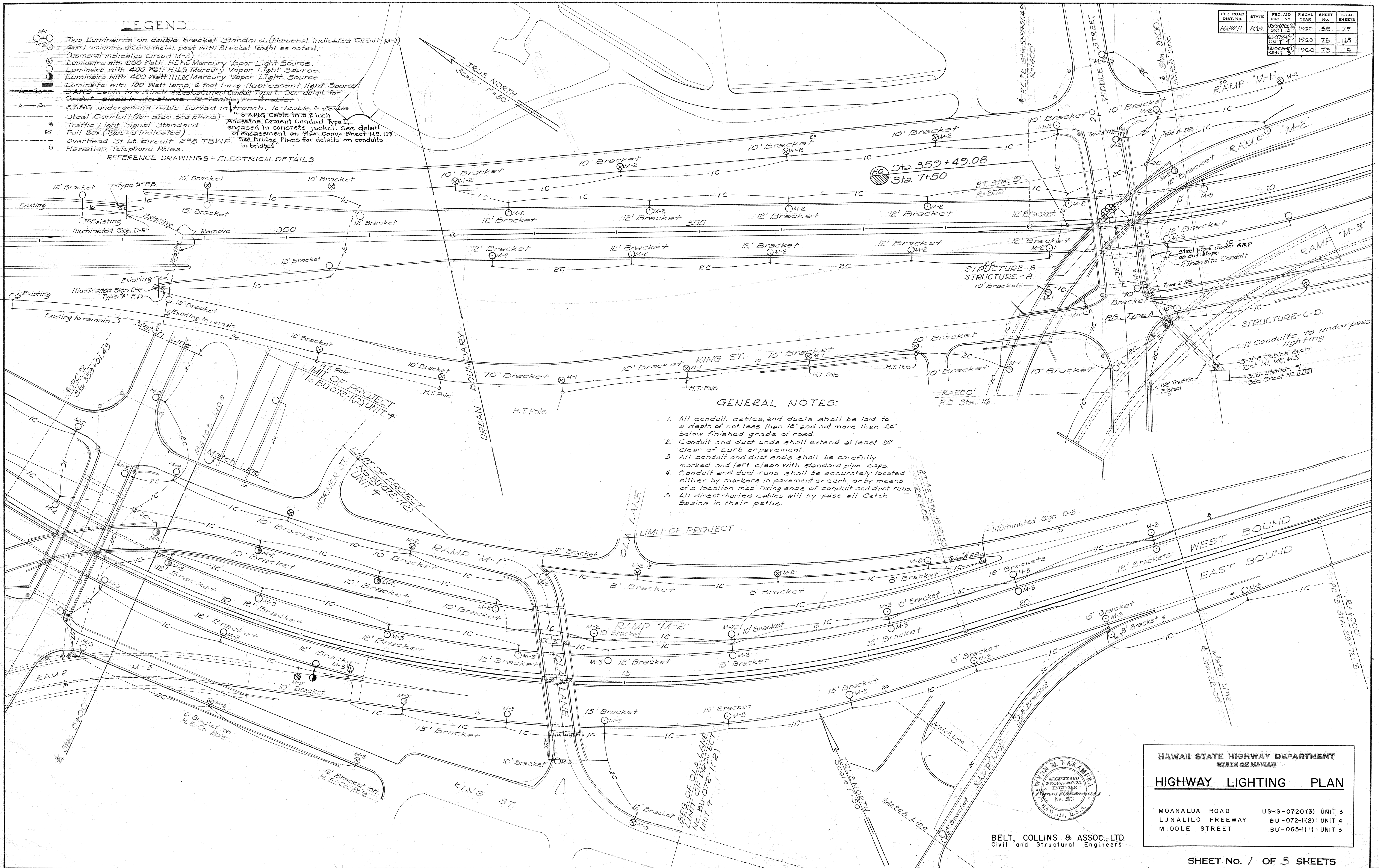


BEG. OF PROJ. 346+50 US-5-0720(3) UNIT 3

LEGEND

- M-1 Two luminaires on double bracket standard. (Numeral indicates Circuit M-1)
 - M-2 One luminaire on one metal post with bracket length as noted. (Numeral indicates Circuit M-2)
 - M-3 Luminaire with 200 Watt H.S.D. Mercury Vapor Light Source.
 - M-4 Luminaire with 400 Watt H.S.D. Mercury Vapor Light Source.
 - M-5 Luminaire with 400 Watt H.I.L.B. Mercury Vapor Light Source.
 - M-6 Luminaire with 100 Watt lamp, 6 foot long fluorescent light source.
 - M-7 6 AWG cable in 2 inch Asbestos Cement Conduit Type 1. See detail for conduit size in structure. 12' Bracket.
 - M-8 8 AWG cable in 2 inch Asbestos Cement Conduit Type 1. See detail for conduit size in structure. 12' Bracket.
 - M-9 BANG underground cable buried in trench. 12' Bracket.
 - M-10 Steel Conduit (for size see plans).
 - M-11 Traffic Light Signal Standard.
 - M-12 Pull Box (Type as Indicated).
 - M-13 Overhead St. Lt. circuit 2" x 3 TBWP. See Bridge Plans for details on conduits in bridges.
 - M-14 Hawaiian Telephone Poles.
- REFERENCE DRAWINGS - ELECTRICAL DETAILS

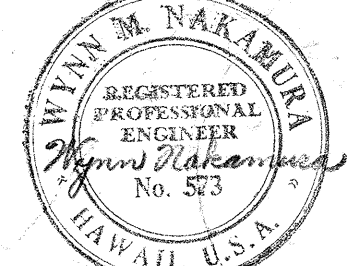
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
100	HAWAII	US-50720(3)	1960	52	79
UNIT 3		BU-072-1(2)	1960	75	118
UNIT 4		BU-065-1(1)	1960	75	118



GENERAL NOTES:

- All conduit, cables and ducts shall be laid to a depth of not less than 18" and not more than 24" below finished grade of road.
- Conduit and duct ends shall extend at least 24" clear of curb or pavement.
- All conduit and duct ends shall be carefully marked and left clean with standard pipe caps.
- Conduit and duct runs shall be accurately located either by markers in pavement or curb, or by means of a location map fixing ends of conduit and duct runs.
- All direct-buried cables will by-pass all Catch Basins in their paths.

DATE	2-27-61
DESIGNED BY	W. M. Nakamura
DRAWN BY	G. A. Allen
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
NO.	



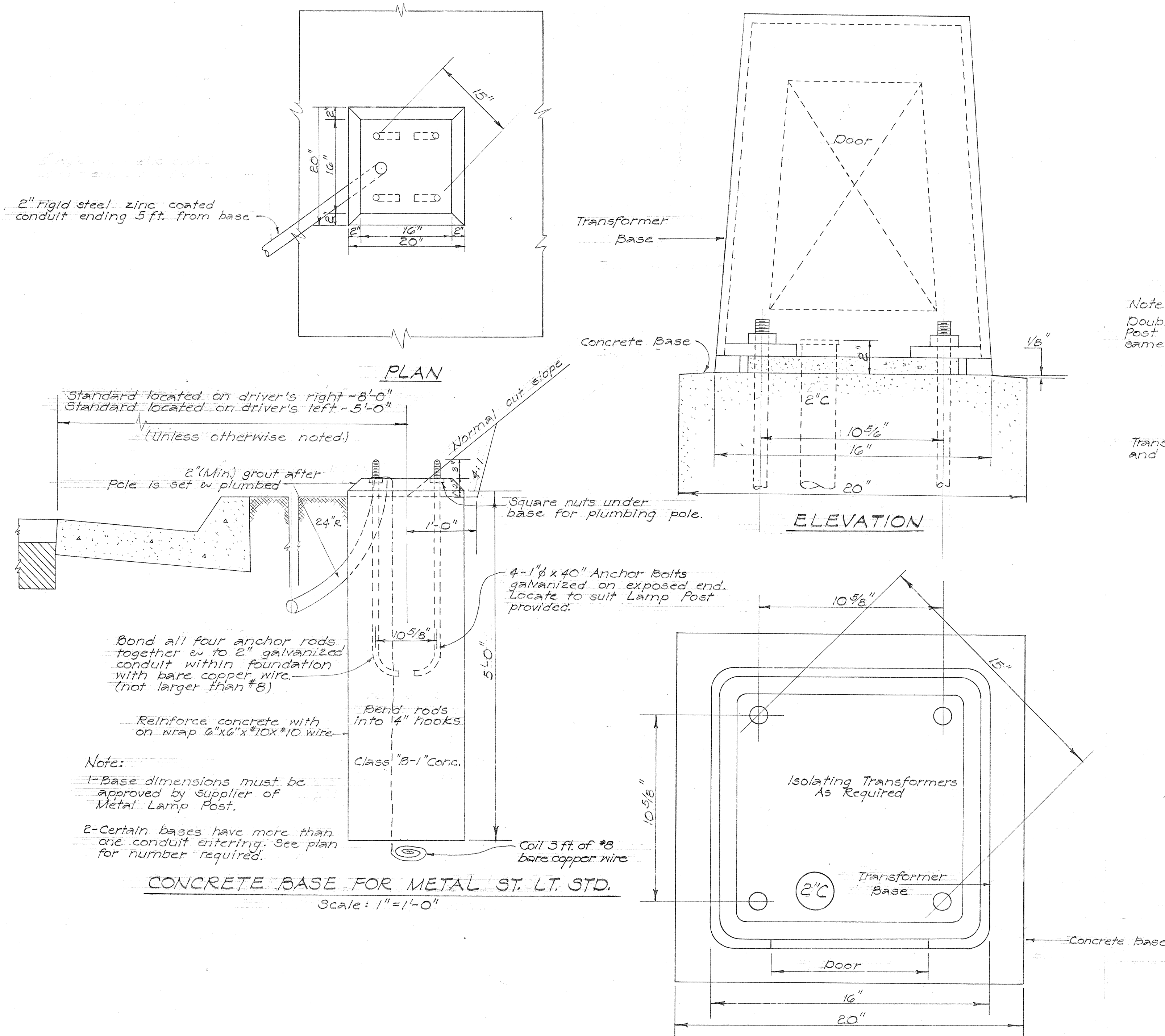
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

HIGHWAY LIGHTING PLAN

MOANALUA ROAD US-5-0720(3) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4
MIDDLE STREET BU-065-1(1) UNIT 3

BELT, COLLINS & ASSOC., LTD.
Civil and Structural Engineers

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	US-0720(3)	1960	53	79
		BU-072-1(2)	1960	81	115
		BU-065-1(1)	1960	76	115



Note:
Double arm Lamp Post shall be of same design.

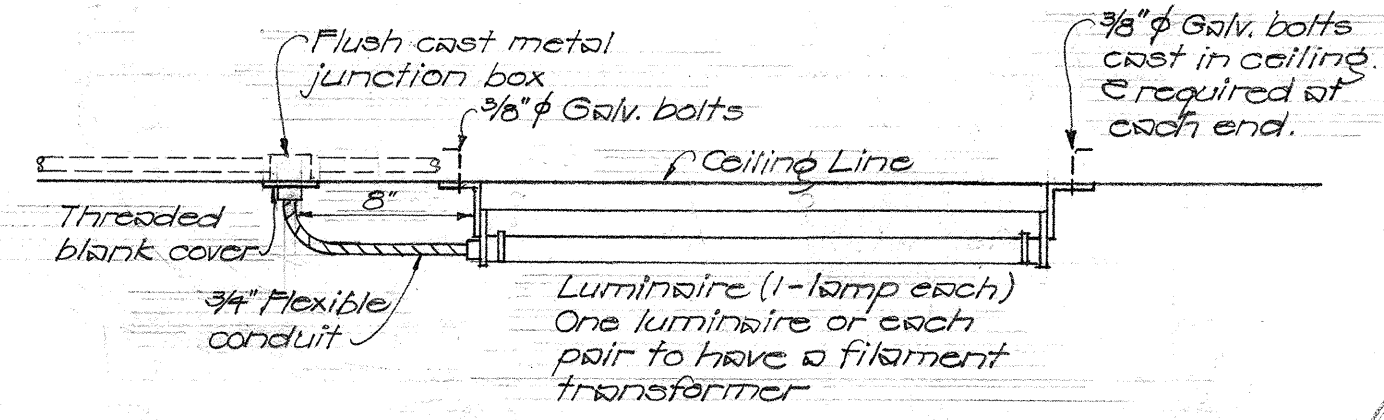
Transformer housing and base (See detail)

Lamp Post Base (See Detail)

TYPICAL SINGLE ARM METAL LAMP POST
Scale: 1/4" = 1'-0"

LIGHTING LAYOUT KALIHI STREAM BRIDGE
Scale: 1" = 10'

LONGITUDINAL SECTION
Scale: 1" = 10'



FIXTURE MOUNTING DETAIL
Not to scale



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STATE OF HAWAII

ELECTRICAL DETAILS
LIGHTING ON KALIHI STREAM BRIDGE

MOANALUA ROAD US-S-0720 (3) UNIT 3
LUNALILO FREEWAY BU-072-1 (2) UNIT 4
MIDDLE STREET BU-065-1 (1) UNIT 3

DESIGNED BY	DATE
DRAWN BY	3-57
CHECKED BY	3-57
NOTED BY	
QUANTITIES CHECKED BY	
NO.	

TYPICAL DETAIL OF CONDUITS ENCASED IN CONCRETE JACKET
Scale: 1" = 1'-0"

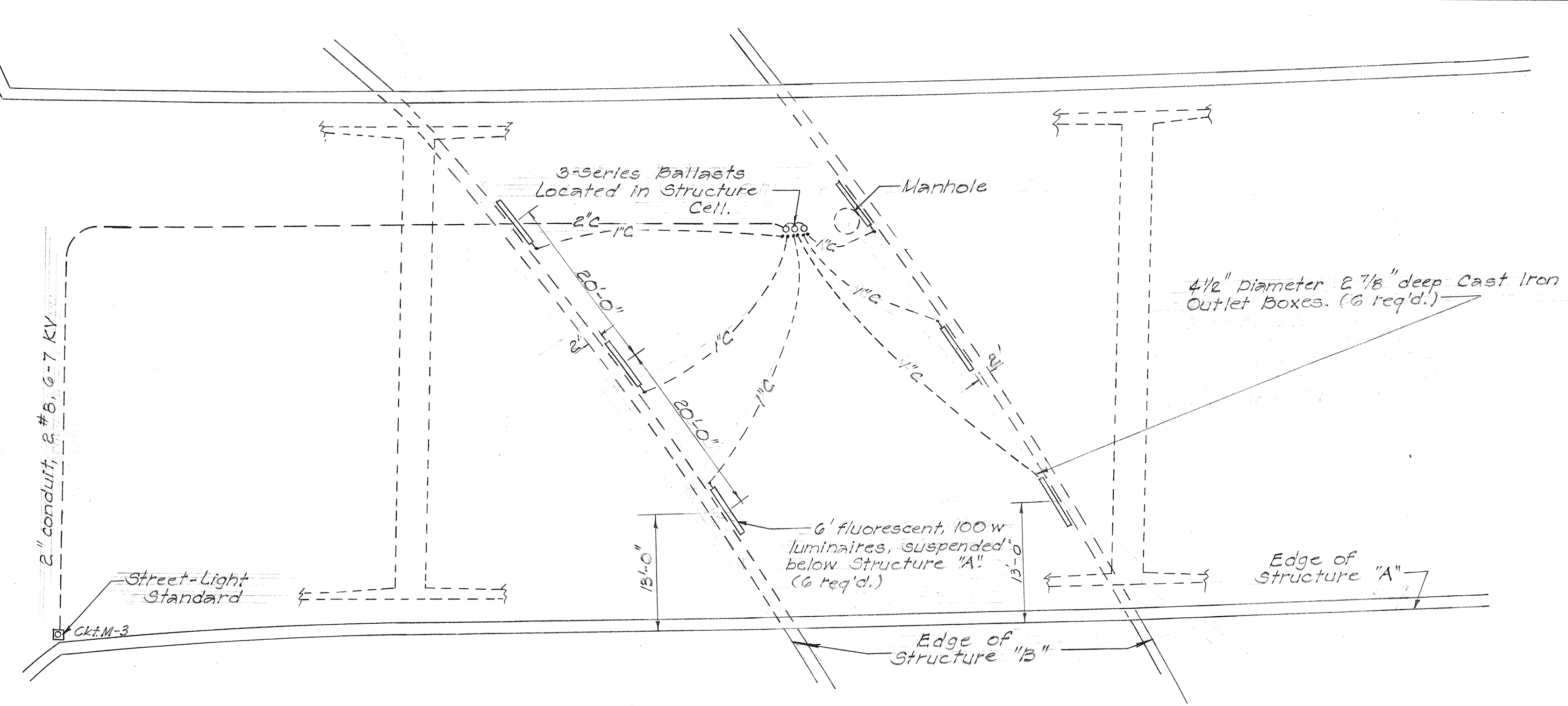
DETAIL OF BACKFILL FOR DIRECTLY BURIED CABLES
Scale: 3/4" = 1'-0"

\$526.53

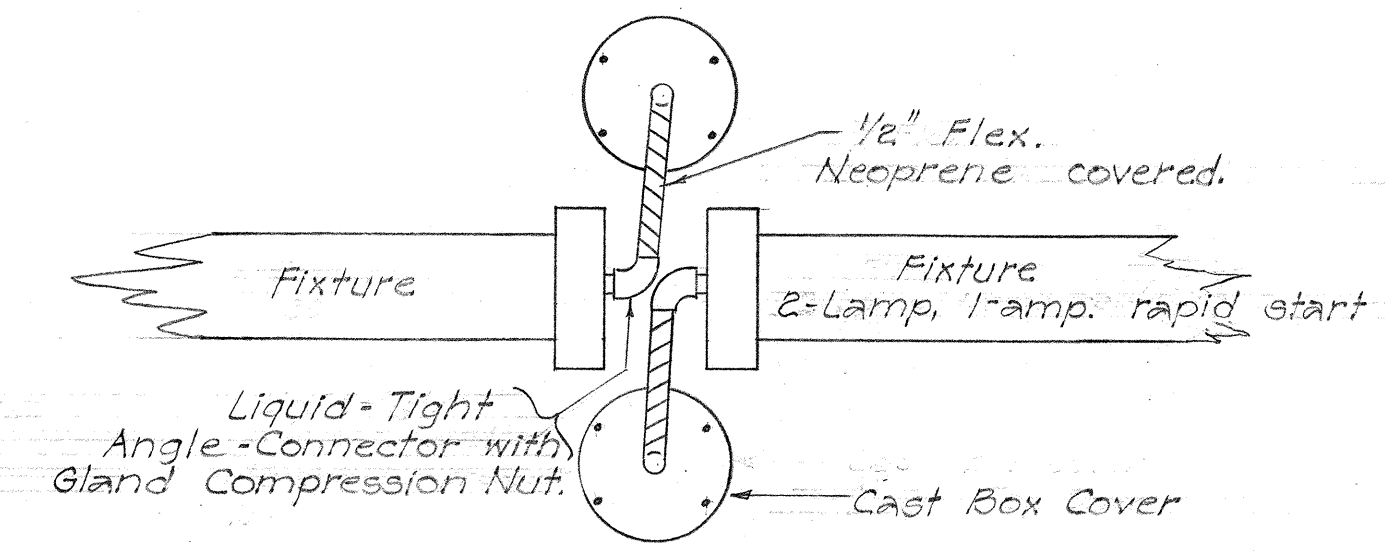
\$174.81

\$161.76

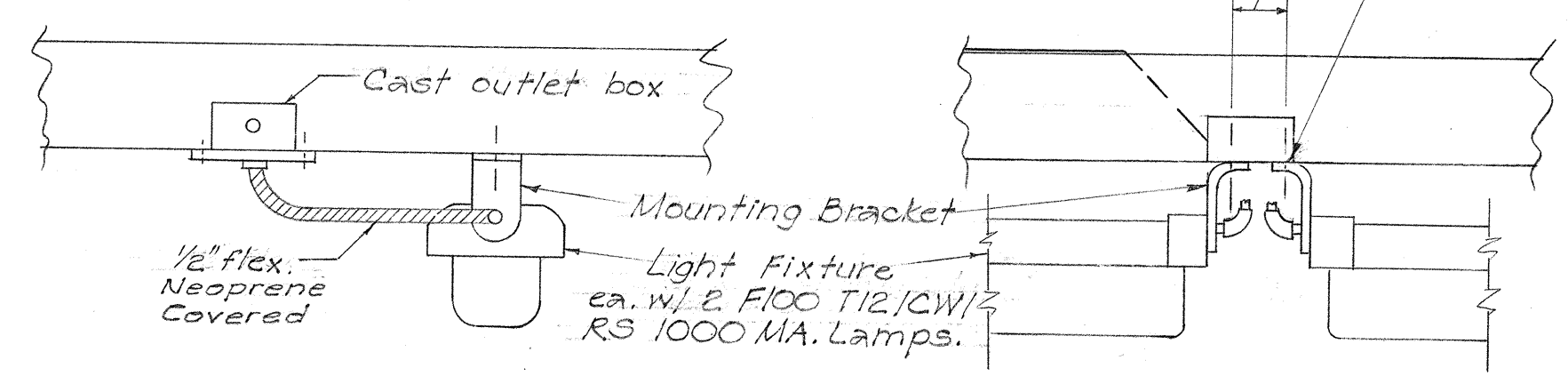
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	US-50720(3)	1960	54	79
		BU-072-1(2)	1960	80	118
		BU-065-1(1)	1960	77	118



PLAN
FLUORESCENT LUMINAIRES AT STRUCTURE "A"
Scale: 1"=10'

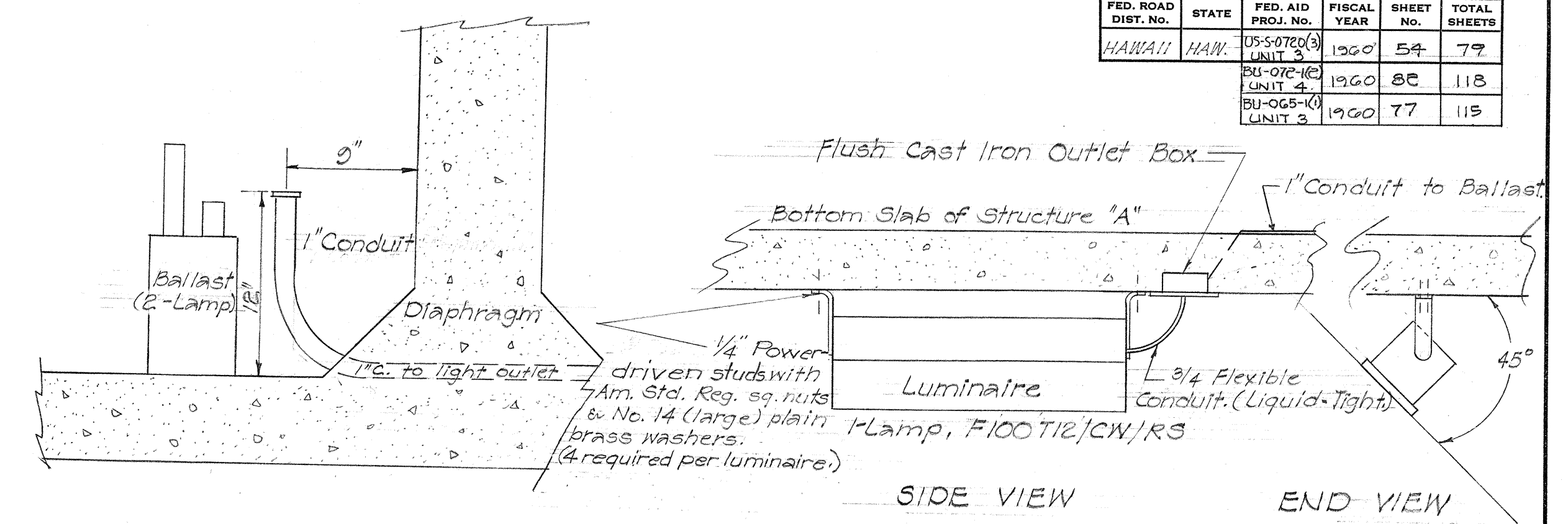


DETAIL OF FIXTURE CONNECTION TO OUTLET BOXES
No Scale



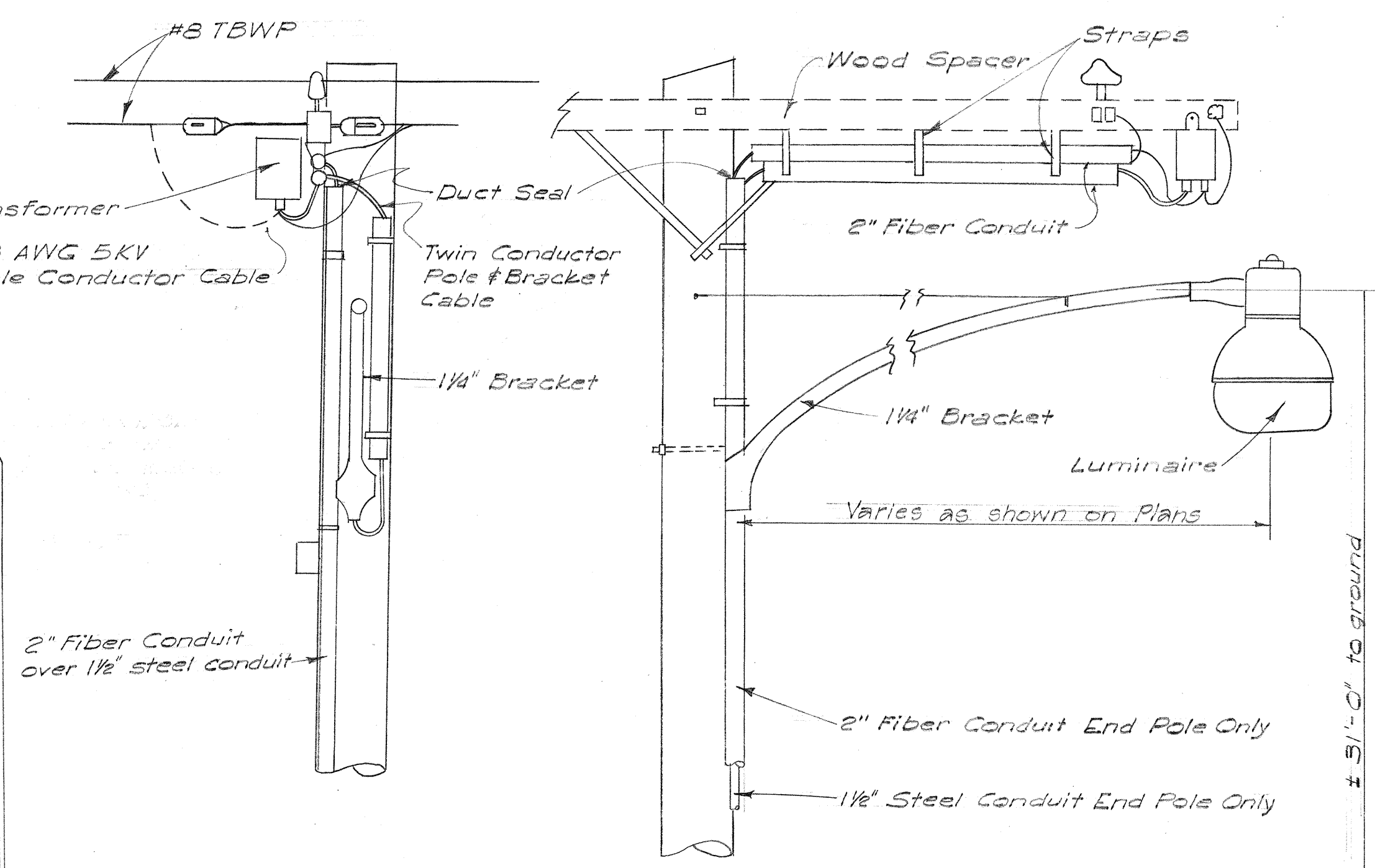
END VIEW
No Scale

SIDE VIEW
No Scale



DETAIL OF BALLAST IN STRUCTURE CELL
Scale: 1 1/2"=1'-0"

DETAIL OF FLUORESCENT LUMINAIRE AT STRUCTURE "A"
Scale: 1/2"=1'-0"

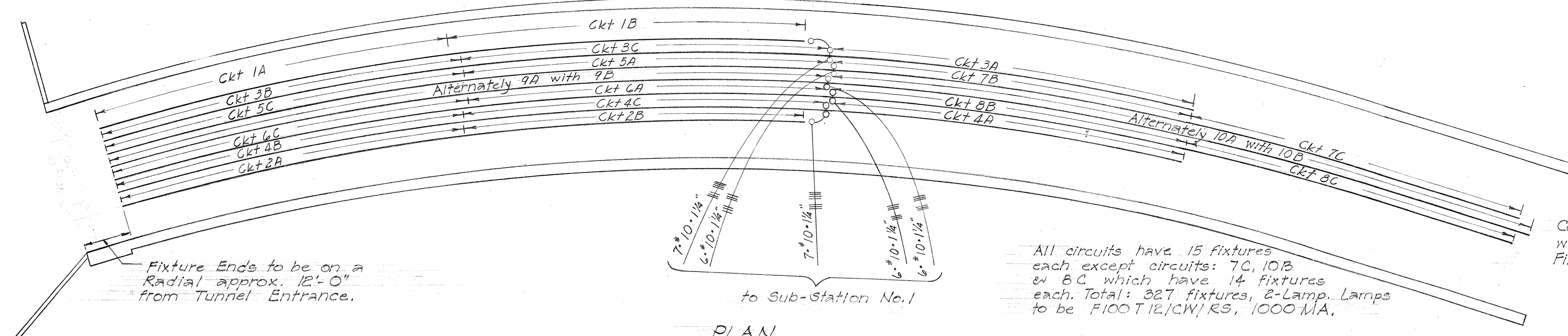


FRONT ELEVATION
No Scale

SIDE ELEVATION
No Scale

MOUNTING DETAIL OF LUMINAIRE BRACKET ON UTILITY POLE

NOTE:
Pole Top Isolating Transformers Shall Be Used Where Lamp Posts are Mounted on Wing Walls of Structure "A"



PLAN
LIGHTING LAYOUT - STRUCTURE "C-D"
Scale: 1"=20'

All circuits have 15 fixtures each except circuits: 7C, 10B & 8C which have 14 fixtures each. Total: 327 fixtures, 2-Lamp Lamps to be F100 T12/CW/R3, 1000 MA.

Center Row to Coincide with E. of Road Bed.
Fixture Rows to be 3'-0" o.c.



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HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

ELECTRICAL DETAILS
LIGHTING LAYOUT ON STRUCTURES

MIDDLE STREET	BU-065-1(1) UNIT 3
LUNALILO FREEWAY	BU-072-1(2) UNIT 4
MOANALUA ROAD	US-S-0720(3) UNIT 3

ORIGINAL PLAN	DESIGNED BY	DATE
	TRACED BY	8-27
	QUANTITIES BY	8-27
	CHECKED BY	
NOTE BOOK	CHECKED BY	
	NO.	

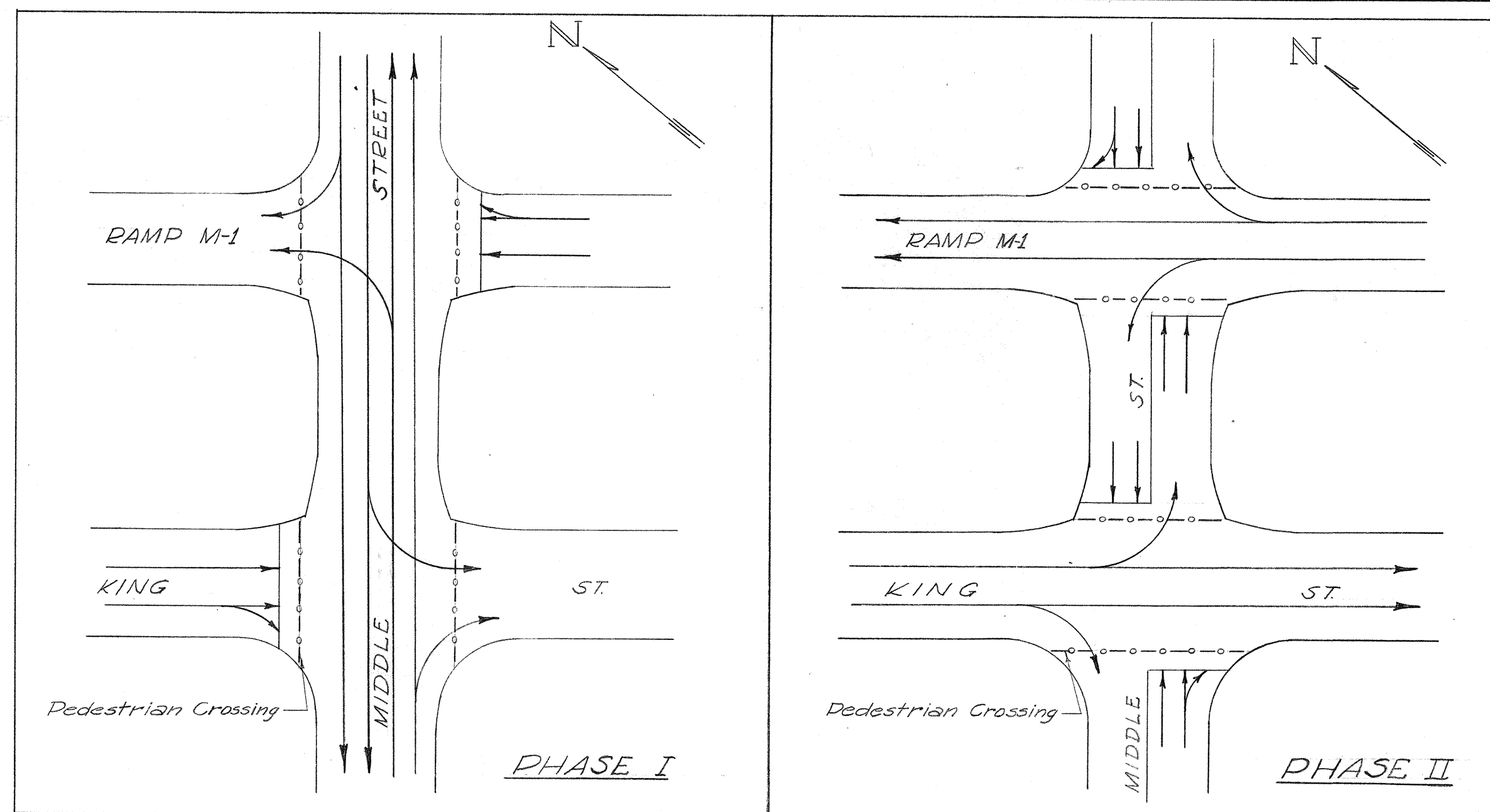
LEGEND:

- New Traffic Signal Standard
- New Dispatcher Box
- ▢ New Type 1 Pull Box
- 2" New Asbestos Cement Conduit Type I encased in concrete jacket (Size indicated)
- Exist. Traffic Signal Stds.
- Pedestrian Crossing

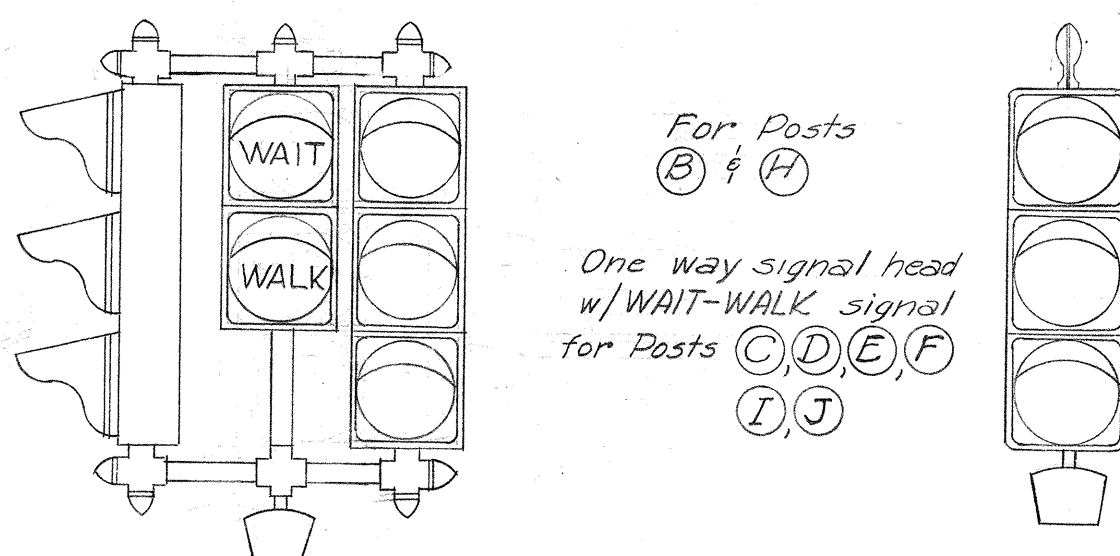
GENERAL NOTES:

1. Exact location of Traffic Signal Stds. to be determined in the field by the Engr.
2. For detail of Type 'A' Pull Box see Elec. detail sht No. 4 of G.
3. H.E. Co. to install electric meter & power source hook-up.
4. All conduits not in structures shall be encased in concrete jacket.

See Sht. 7 of G for details.

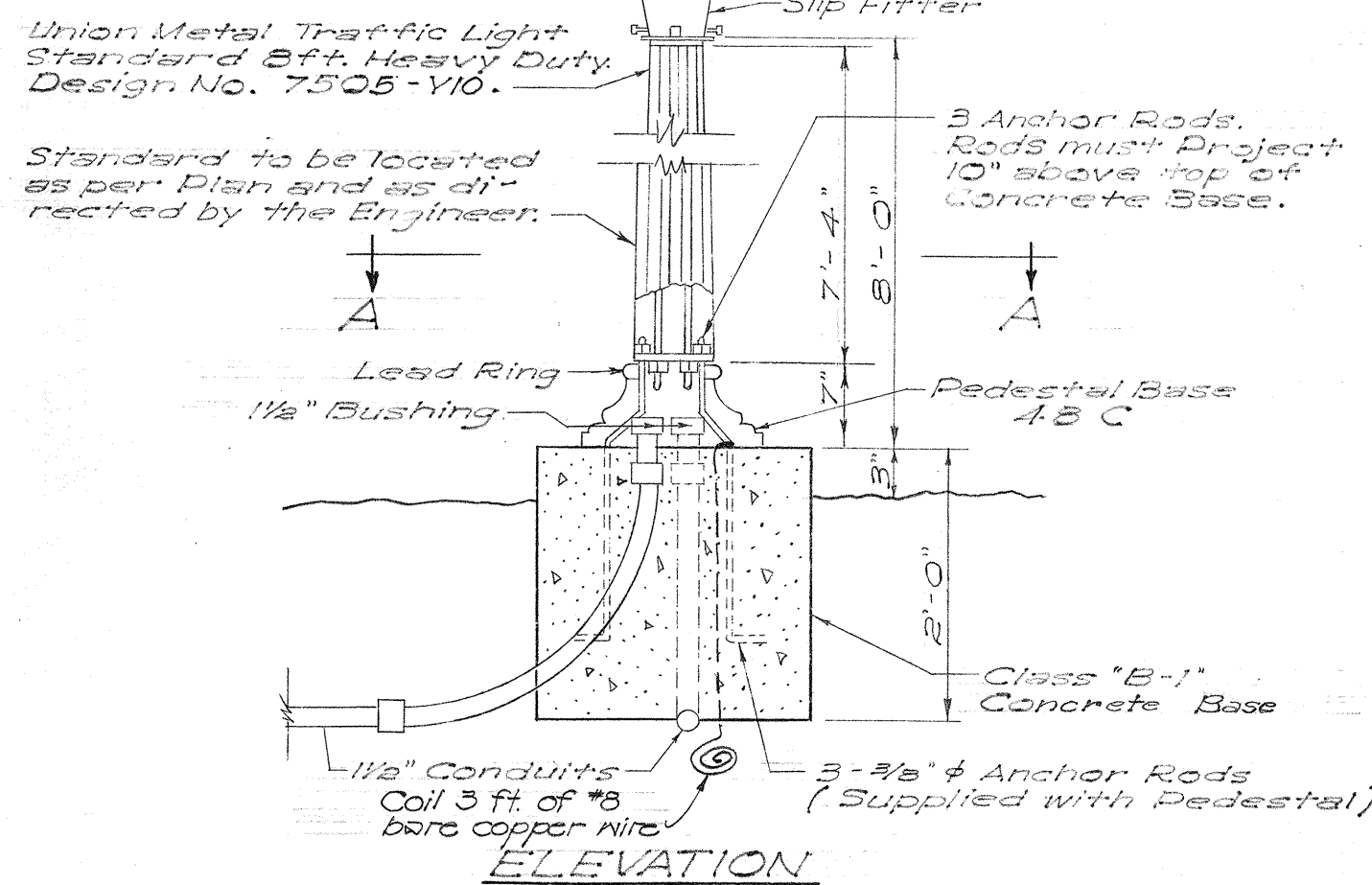


PHASE DIAGRAMS

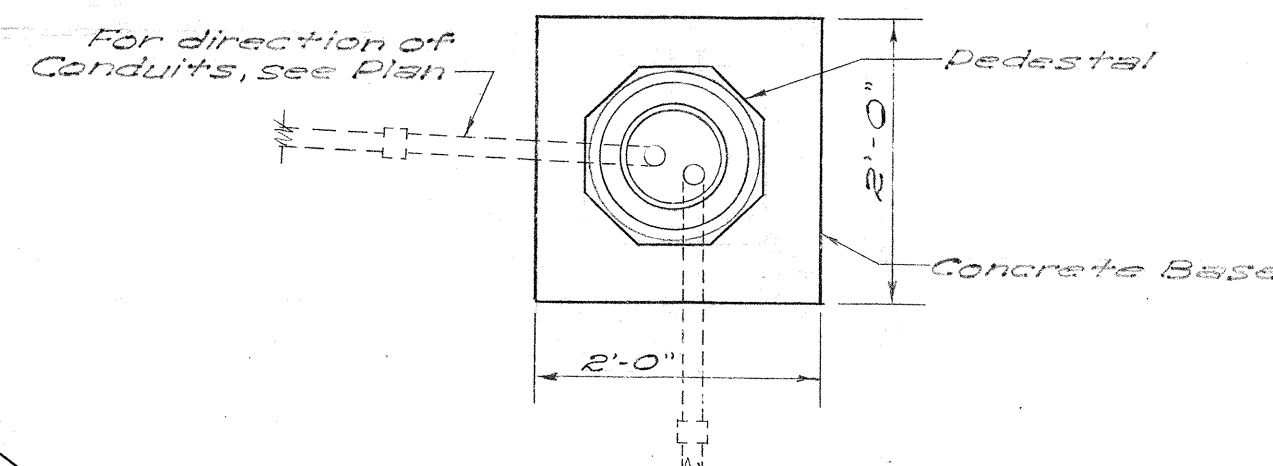


THREE-WAY SIGNAL HEAD

ONE-WAY SIGNAL HEAD



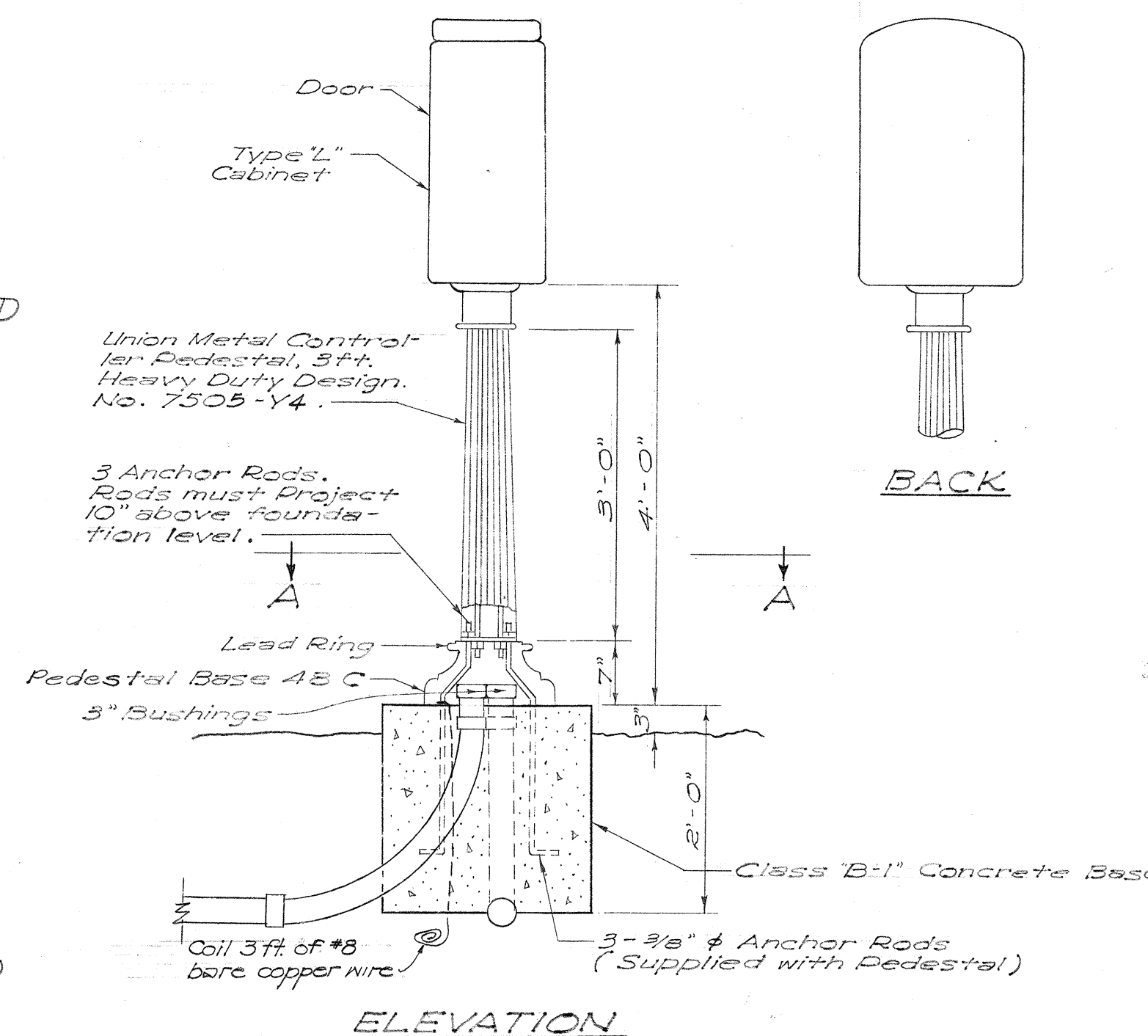
ELEVATION



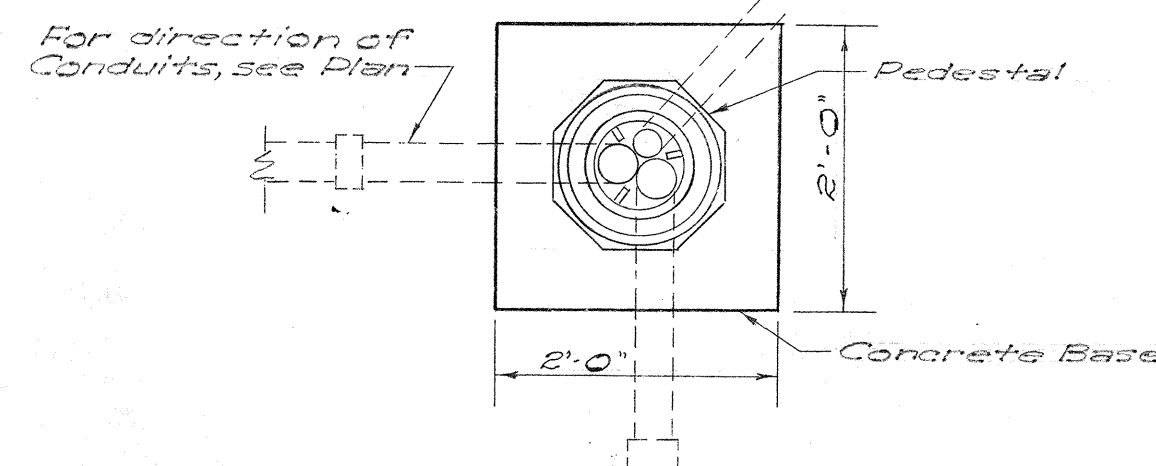
SECTION 'A-A'

TRAFFIC SIGNAL ASSEMBLY

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



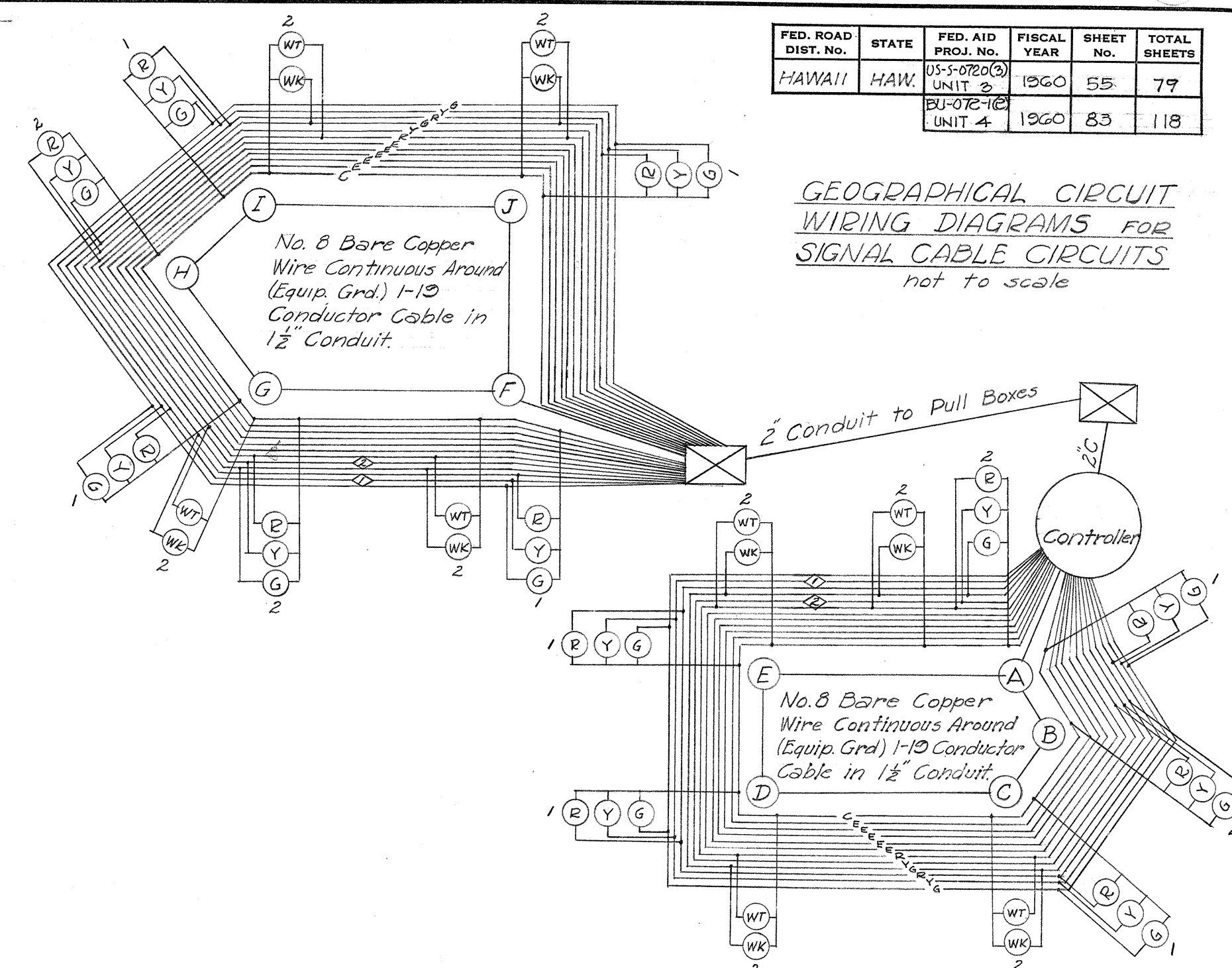
ELEVATION



SECTION 'A-A'

DISPATCHER CABINET ASSEMBLY

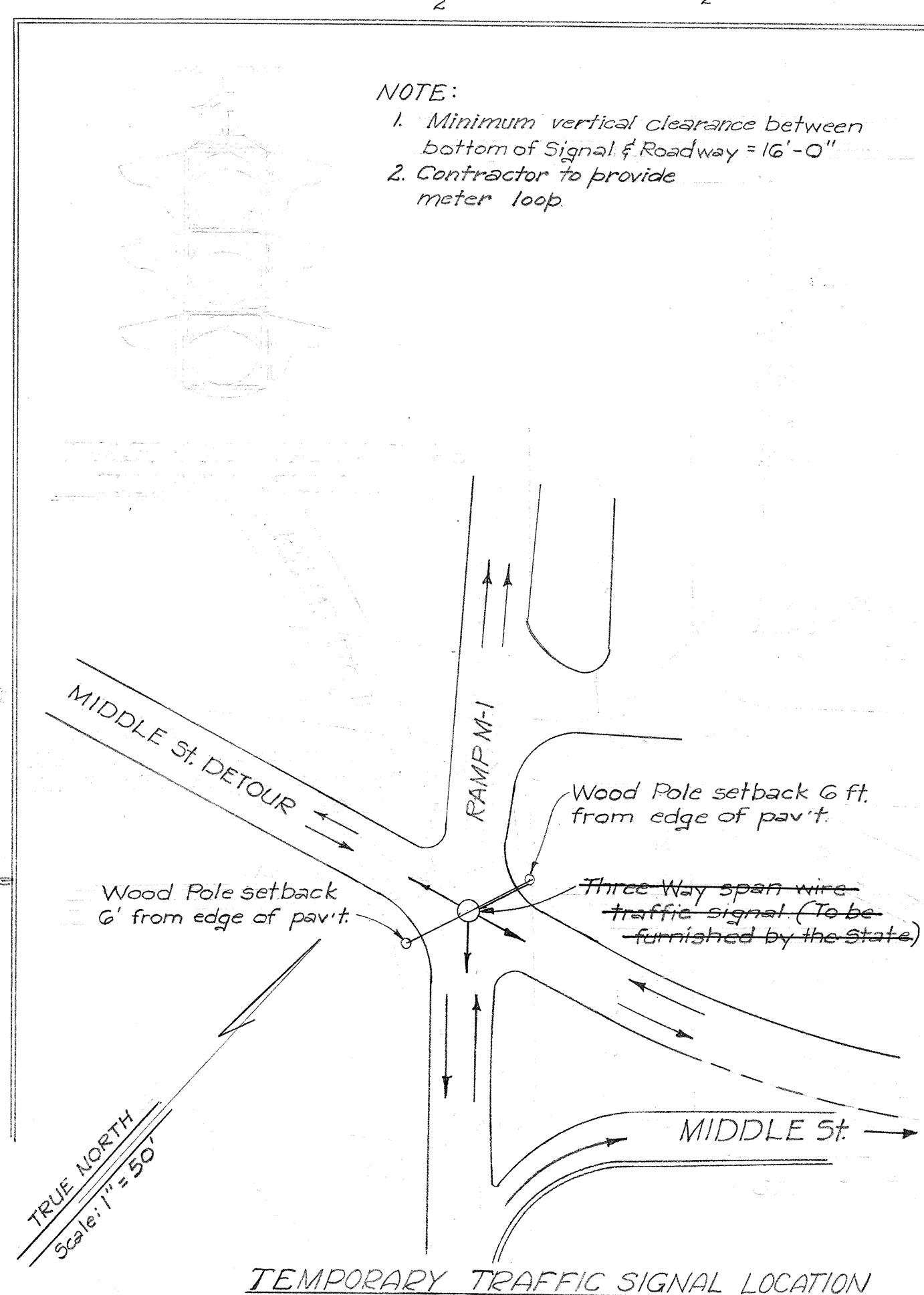
Scale: 3/4" = 1'-0"



GEOGRAPHICAL CIRCUIT WIRING DIAGRAMS FOR SIGNAL CABLE CIRCUITS not to scale

NOTE:

1. Minimum vertical clearance between bottom of signal & roadway = 16'-0"
2. Contractor to provide meter loop.



TEMPORARY TRAFFIC SIGNAL LOCATION

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

ELECTRICAL DETAILS

INSTALLATION OF TRAFFIC SIGNAL EQUIPMENT

MOANALUA ROAD US-S-0720(3) UNIT 3
LUNALILO FREEWAY BU-072-1(2) UNIT 4



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