

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(8):13	1970	107	244

PLAN LEGEND

[illegible]

GENERAL NOTES

- G1. The indicated locations of lighting standards, conduit and other electrical components may be adjusted as field conditions necessitate.
- G2. Conduit one-inch and smaller shall be RGS or where noted RAL.
- G3. Conduit run in non-paved areas shall be NMC, directly buried for lighting runs, concrete encased for traffic signal runs; except as Note 1/2E provides.
- G4. Conduit run under roadway shall be PVC or RGS, encased.
- G5. None
- G6. Provide a conduit expansion/deflection fitting at beginning and end of bridge in runs crossing bridges. See details 8/6E, 9/6E.
- G7. As indicated on plan sheets, all three phase legs shall be run to the indicated pull point to enable future extension.
- G8. Underground lighting feeders shall be run in two-inch conduit except as Notes 1/2E and 8/2E provide.
- G9. Traffic signal conduit shall be two-inch unless otherwise noted.
- G10. None
- G11. None
- G12. Guying of all wood poles shall be provided as required.
- G13. State forces will adjust controller phasing during the Contract Time.
- G14. Location of traffic signal standards, signals, pull boxes and vehicle detectors is shown approximately only. Exact locations will be determined in the field by the Engineer.

LIST OF ABBREVIATIONS

LTG STD	=	LIGHTING STANDARD
FND	=	CONCRETE FOUNDATION FOR LTG STD
CONC	=	CONCRETE
RGS	=	RIGID GALVANIZED STEEL CONDUIT
NIC	=	NOT IN CONTRACT
FDR	=	FEEDER
LTS	=	LIGHTS
CKT	=	CIRCUIT
NMC	=	NON-METALLIC CONDUIT
GND	=	GROUND
NTS	=	NOT TO SCALE
LUM	=	LUMINAIRE
PVC	=	POLYVINYLCHLORIDE CONDUIT
RAL	=	RIGID ALUMINUM CONDUIT
FUT	=	FUTURE

DETAIL (& NOTE) NUMBERING

1 ← DETAIL (OR NOTE) NUMBERING
1E ← SHEET NO. ON WHICH DETAIL (OR NOTE) APPEARS

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



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ELECTRICAL SHEET 1E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOLS, ABBREVIATIONS
AND
GENERAL NOTES

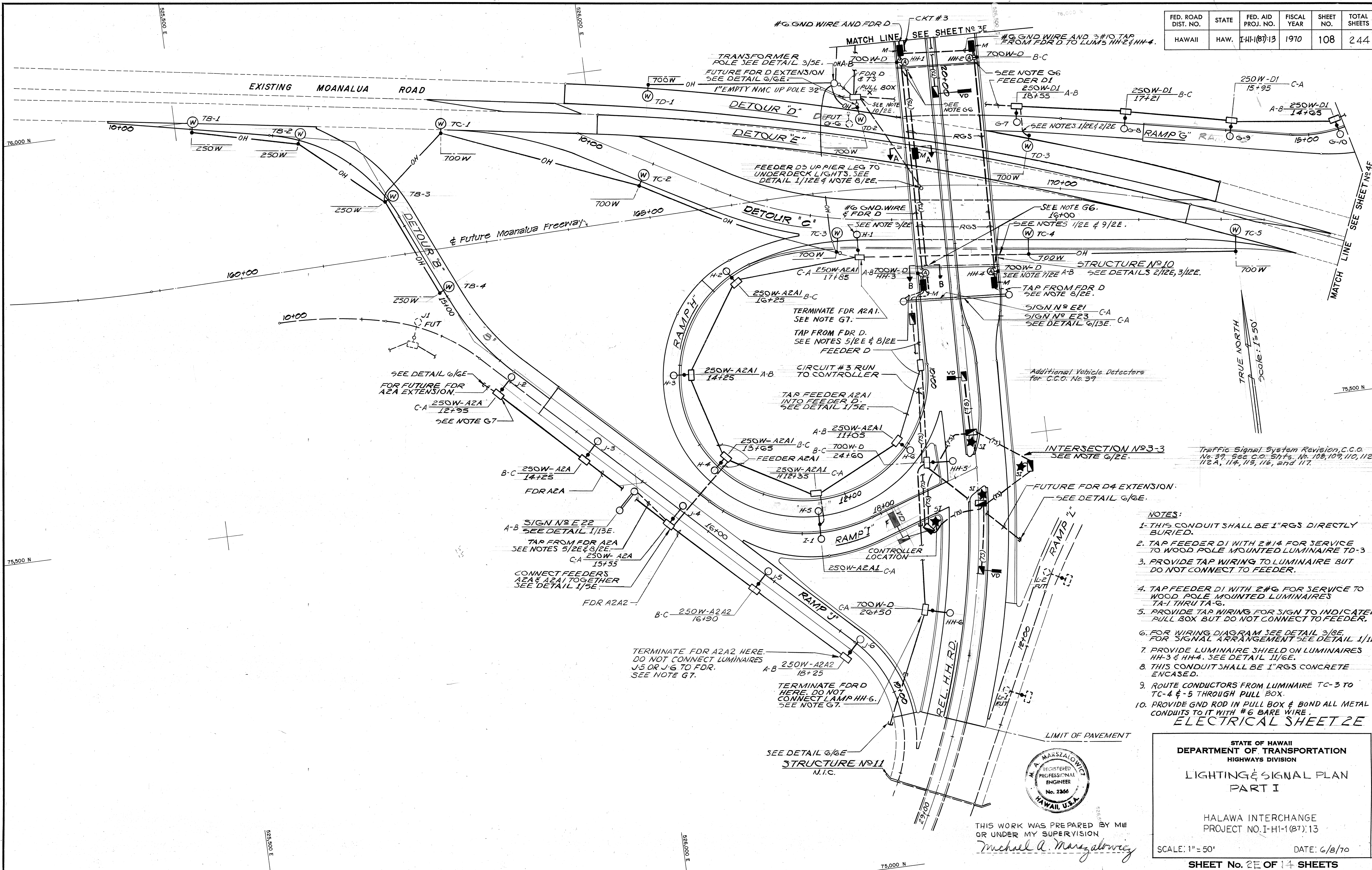
HALAWA INTERCHANGE
PROJECT NO. I-H1-1 (87):13

SCALE: NONE DATE: 6/8/70

SHEET No. 15 OF 14 SHEETS

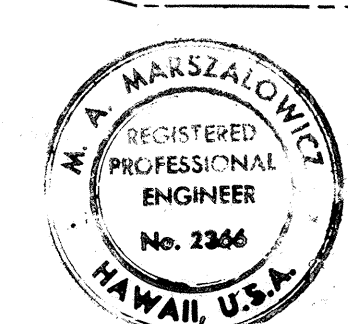
105

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87)-13	1970	108	244



DATE	BY
DESIGNED BY	BY
CHECKED BY	BY
NOTED BY	BY
NO.	

- NOTES:**
1. THIS CONDUIT SHALL BE 1" RGS DIRECTLY BURIED.
 2. TAP FEEDER D1 WITH 2#14 FOR SERVICE TO WOOD POLE MOUNTED LUMINAIRE TD-3.
 3. PROVIDE TAP WIRING TO LUMINAIRE BUT DO NOT CONNECT TO FEEDER.
 4. TAP FEEDER D1 WITH 2#6 FOR SERVICE TO WOOD POLE MOUNTED LUMINAIRE TA-1 THRU TA-6.
 5. PROVIDE TAP WIRING FOR SIGN TO INDICATED PULL BOX BUT DO NOT CONNECT TO FEEDER.
 6. FOR WIRING DIAGRAM SEE DETAIL 3/6E FOR SIGNAL ARRANGEMENT SEE DETAIL 1/11E.
 7. PROVIDE LUMINAIRE SHIELD ON LUMINAIRE HH-3 & HH-4. SEE DETAIL 1/16E.
 8. THIS CONDUIT SHALL BE 1" RGS CONCRETE ENCASED.
 9. ROUTE CONDUCTORS FROM LUMINAIRE TC-3 TO TC-4 & 5 THROUGH PULL BOX.
 10. PROVIDE GND ROD IN PULL BOX & BOND ALL METAL CONDUITS TO IT WITH #6 BARE WIRE.
- ELECTRICAL SHEET 2E**



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHTING & SIGNAL PLAN
PART I

HALAWA INTERCHANGE
PROJECT NO. I-HI-1(87)-13

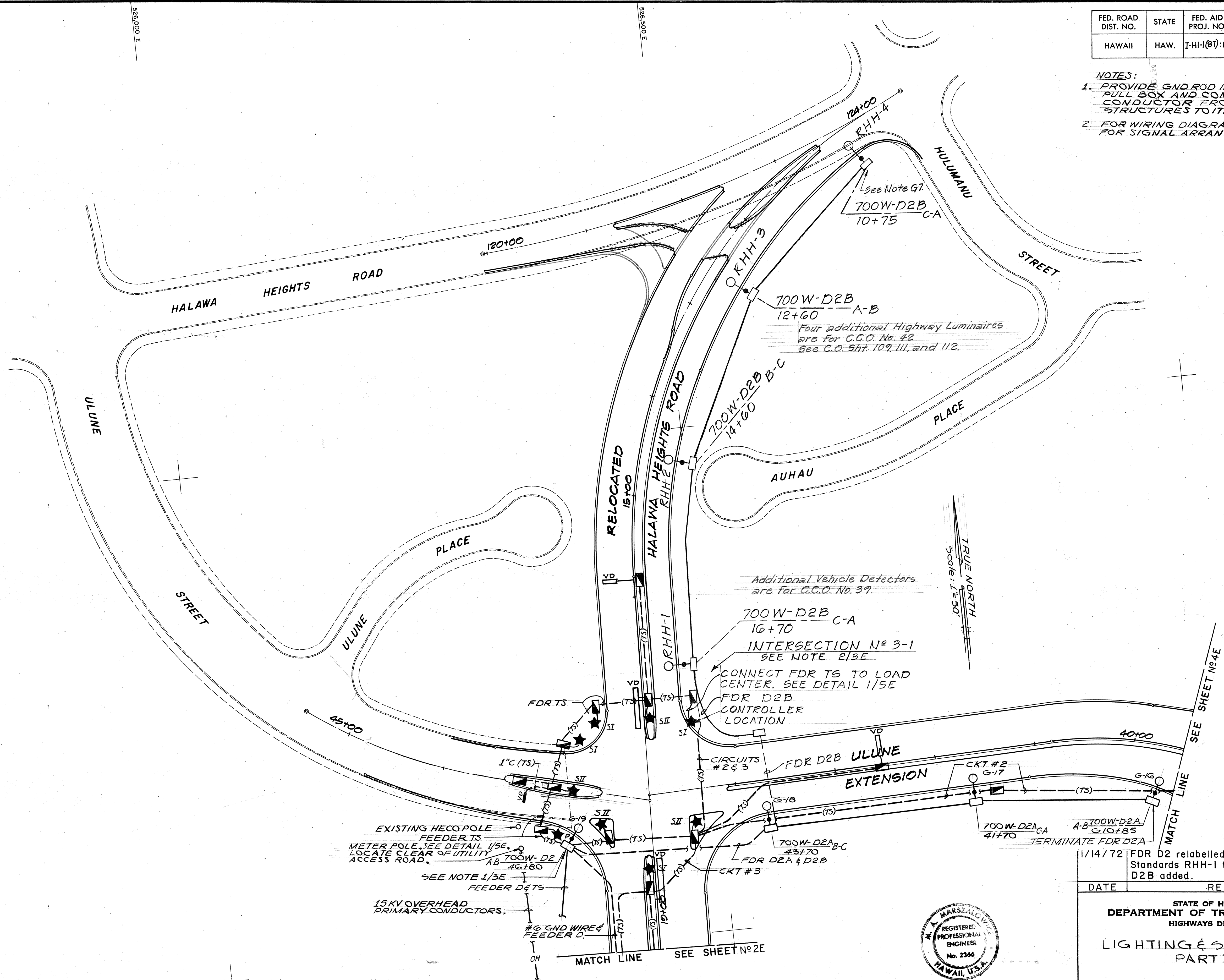
SCALE: 1" = 50' DATE: 6/8/70

SHEET No. 2E OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)-13	1970	109	244

NOTES:

1. PROVIDE GND ROD IN THE INDICATED PULL BOX AND CONNECT #6 GND CONDUCTOR FROM LTG STD'S ON STRUCTURES TO IT.
2. FOR WIRING DIAGRAM SEE DETAIL 1/8E. FOR SIGNAL ARRANGEMENT SEE DETAIL 1/9E.



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1/14/72 FDR D2 relabelled D2A. Lighting Standards RHH-1 thru RHH-4 and FDR D2B added.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHTING & SIGNAL PLAN
PART II

HALAWA INTERCHANGE
PROJECT NO. I-H-1(87)-13

SCALE: 1" = 50'

DATE: 6/8/70

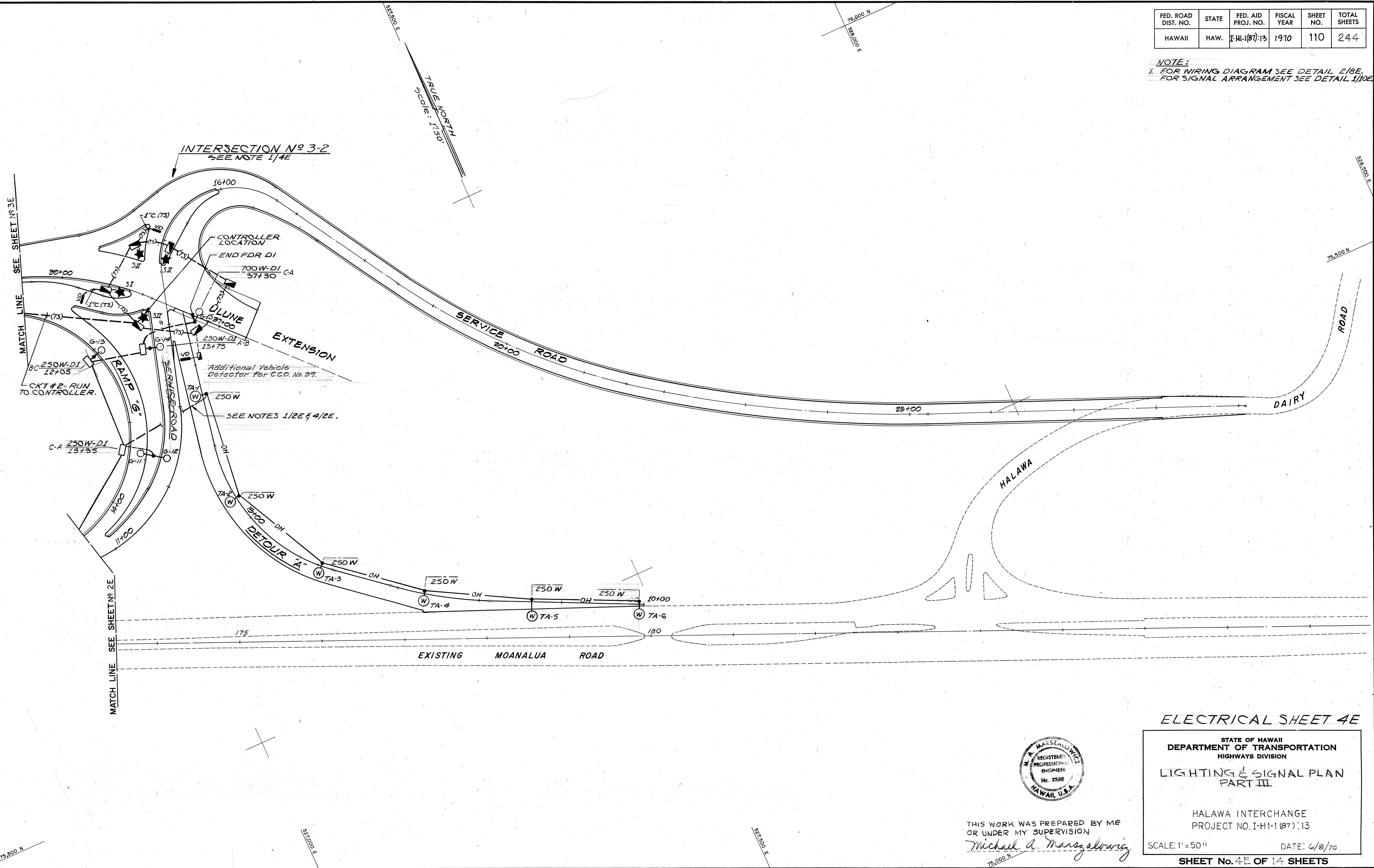
SHEET No. 3E OF 14 SHEETS

Revised: Oct. 19, 1971 (C) (D) 109

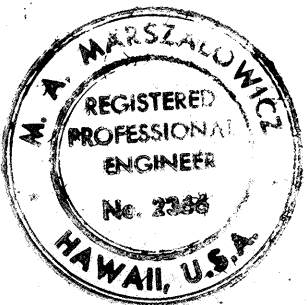
DATE	DESIGNED BY	CHECKED BY
PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
No.	DESIGNED BY	CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87)-13	1970	110	244

NOTE:
 1. FOR WIRING DIAGRAM SEE DETAIL 2/8E.
 2. FOR SIGNAL ARRANGEMENT SEE DETAIL 1/10E.



ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
CHECKED BY	
NO.	



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STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

LIGHTING & SIGNAL PLAN

PART III

HALAWA INTERCHANGE

PROJECT NO. I-HI-1(87)-13

SCALE: 1" = 50'

DATE: 6/8/70

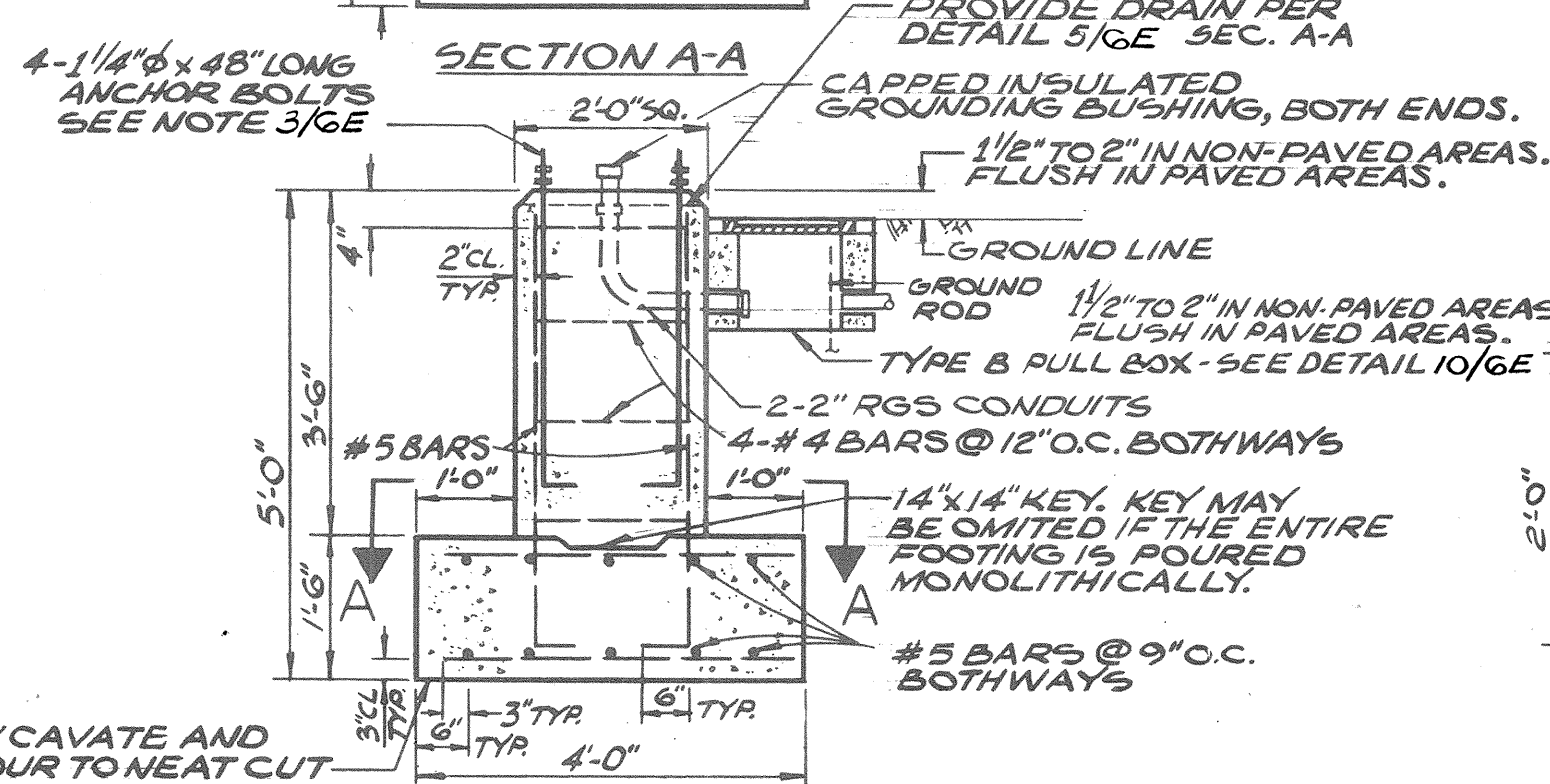
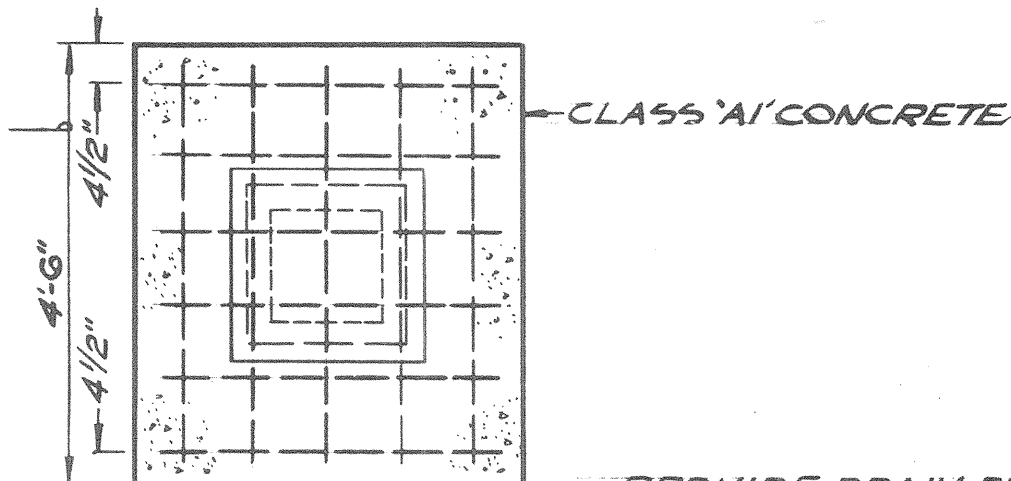
SHEET No. 4E OF 14 SHEETS

Revised: Oct. 19, 1971

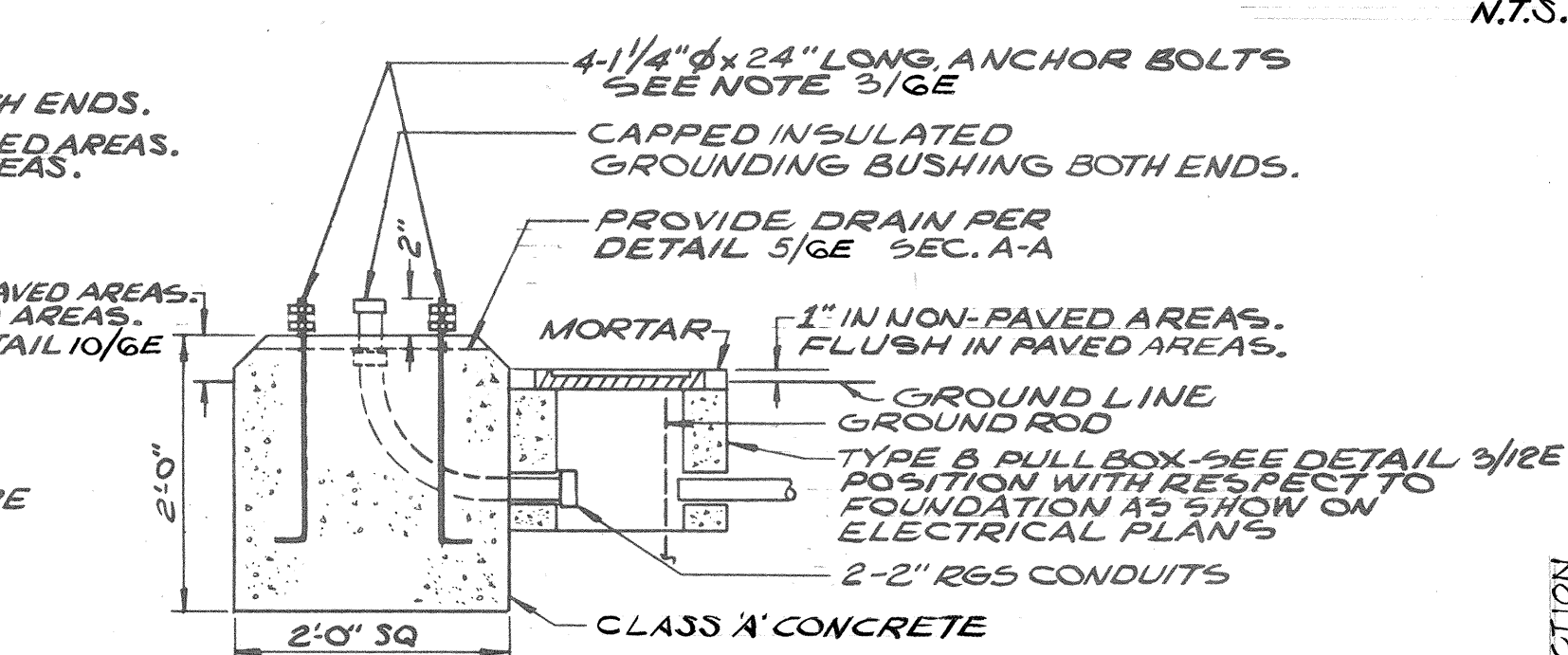
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87):13	1970	112	244

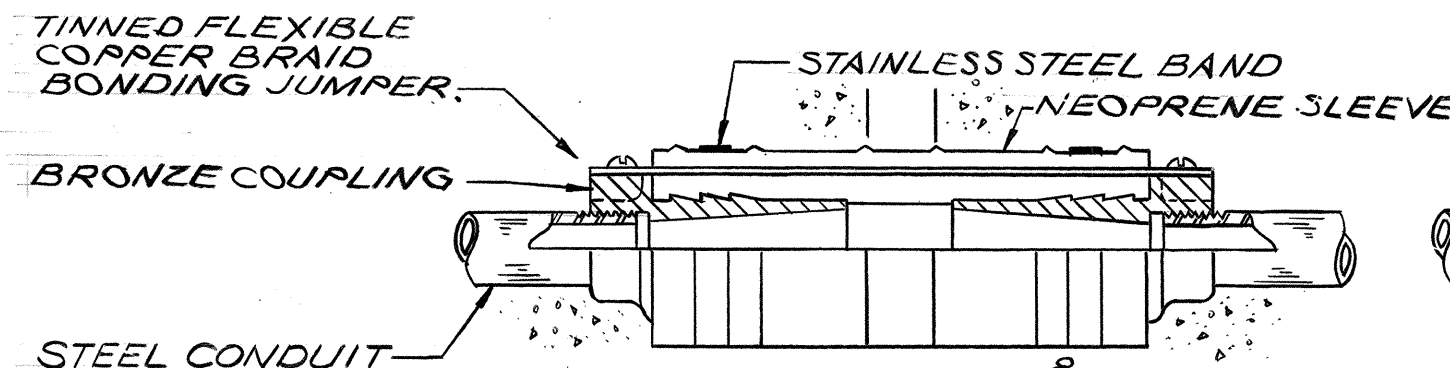
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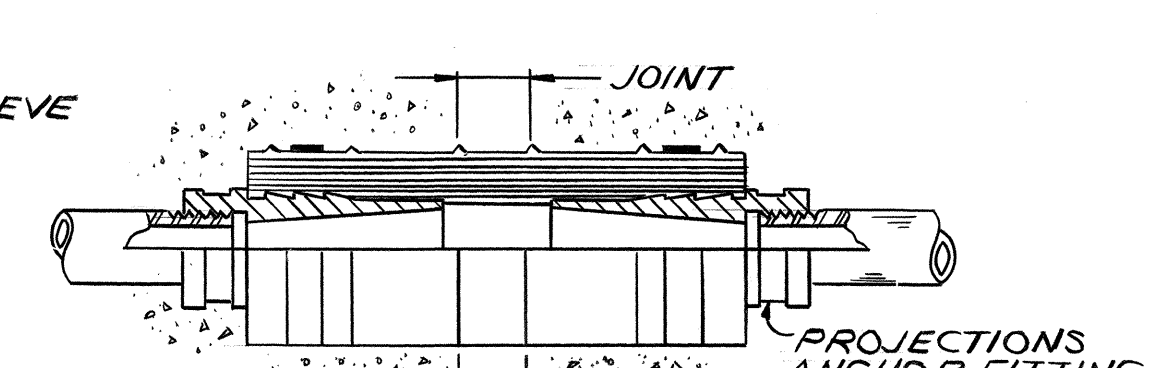
DETAIL 1/6E
FOUNDATION FOR
TYPE II TRAFFIC SIGNAL STANDARD
N.T.S.



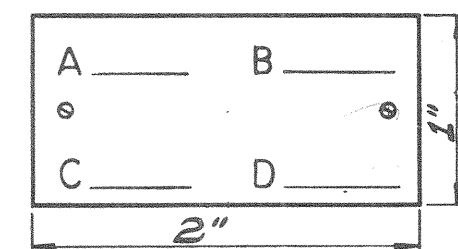
DETAIL 2/6E
FOUNDATION FOR
TYPE I TRAFFIC SIGNAL STANDARD
AND PEDESTRIAN SIGNAL STANDARD
N.T.S.



DETAIL 3/6E
EXPANSION & DEFLECTION FITTING
METAL CONDUIT
N.T.S.

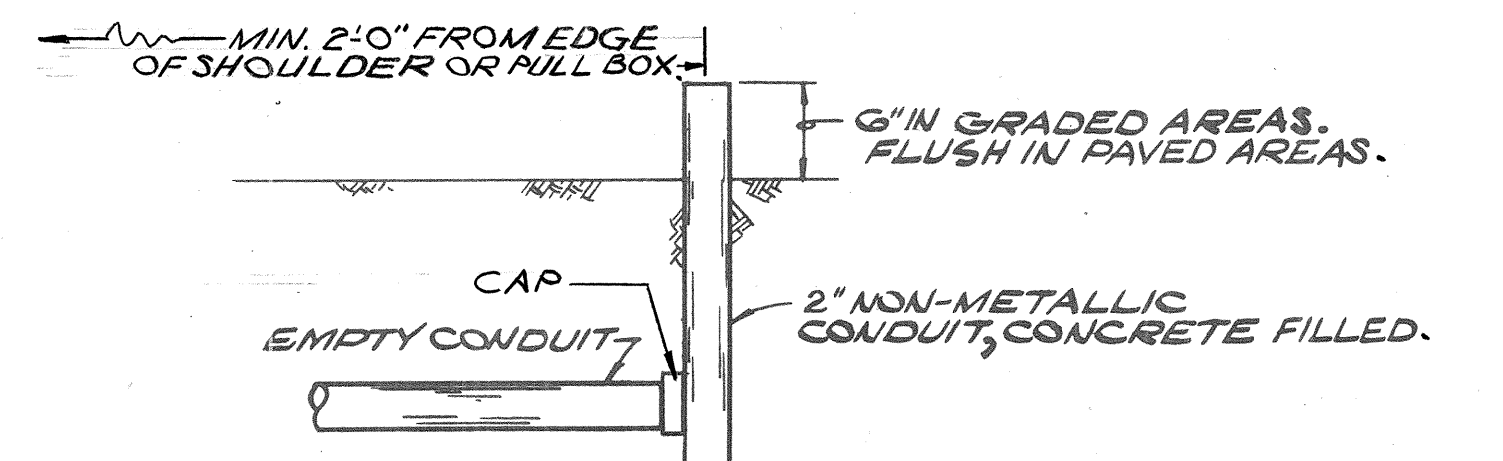


DETAIL 4/6E
EXPANSION & DEFLECTION FITTING
NON-METAL CONDUIT
N.T.S.

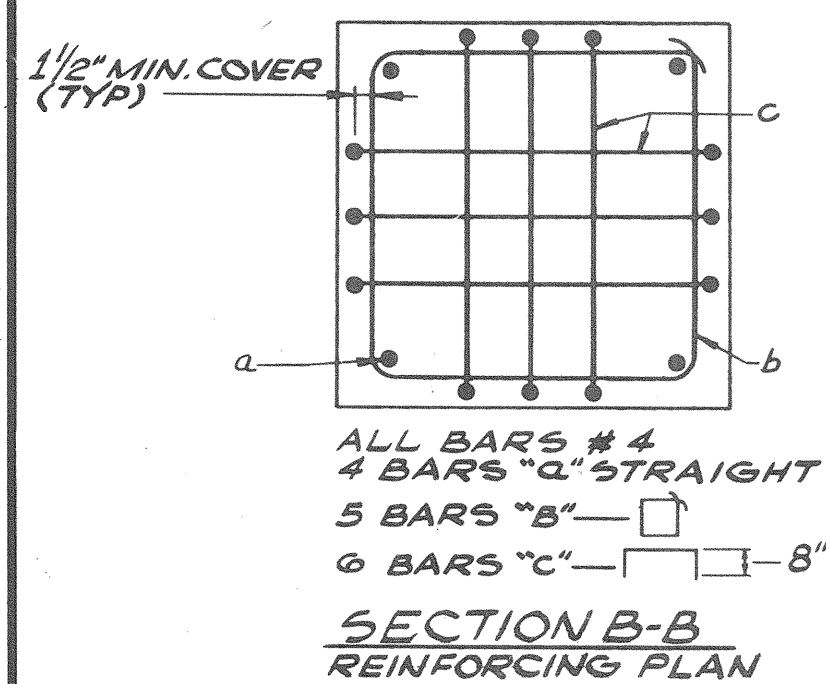


LEGEND
A=CONTRACT NO:
B=LUMINAIRE NO: SEE PLANS
C=LAMP CODE: (SEE PLANS FOR LAMP SIZE) {250W: H37-5KB
700W: H35-18NA
D=IES DISTRIBUTION: (SEE PLANS FOR LAMP SIZE) {250W: M-C-II
700W: M-C-III

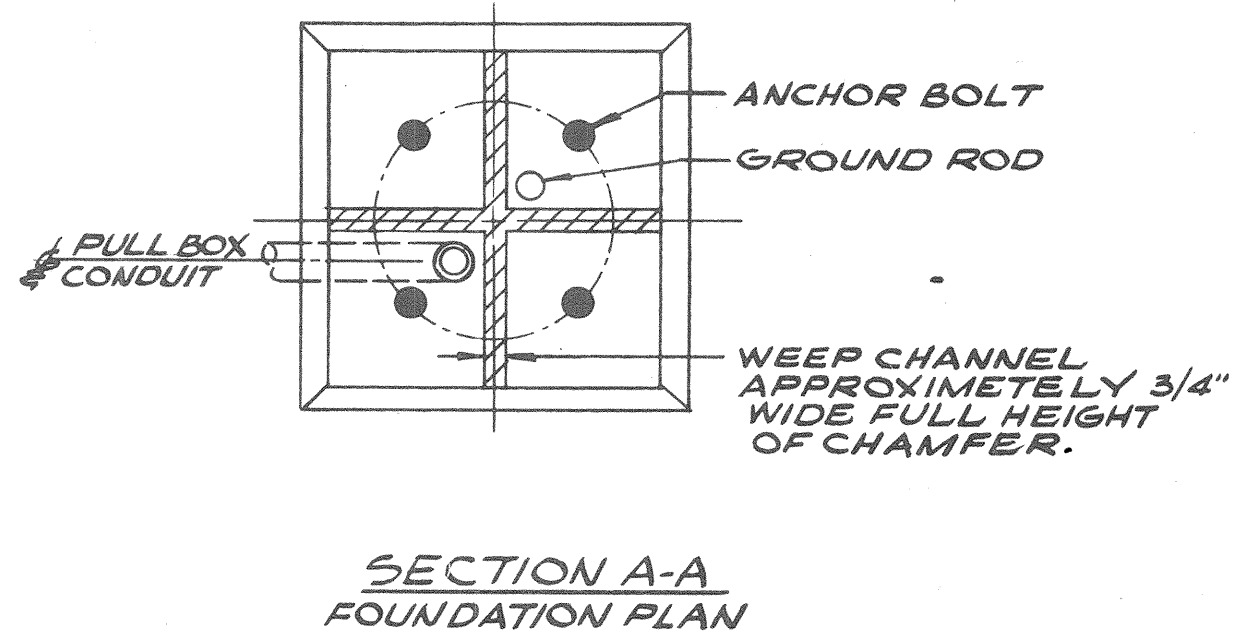
DETAIL 4/6E
LUMINAIRE IDENTIFICATION TAG
N.T.S.



DETAIL 6/6E
CONDUIT CAP & MARK

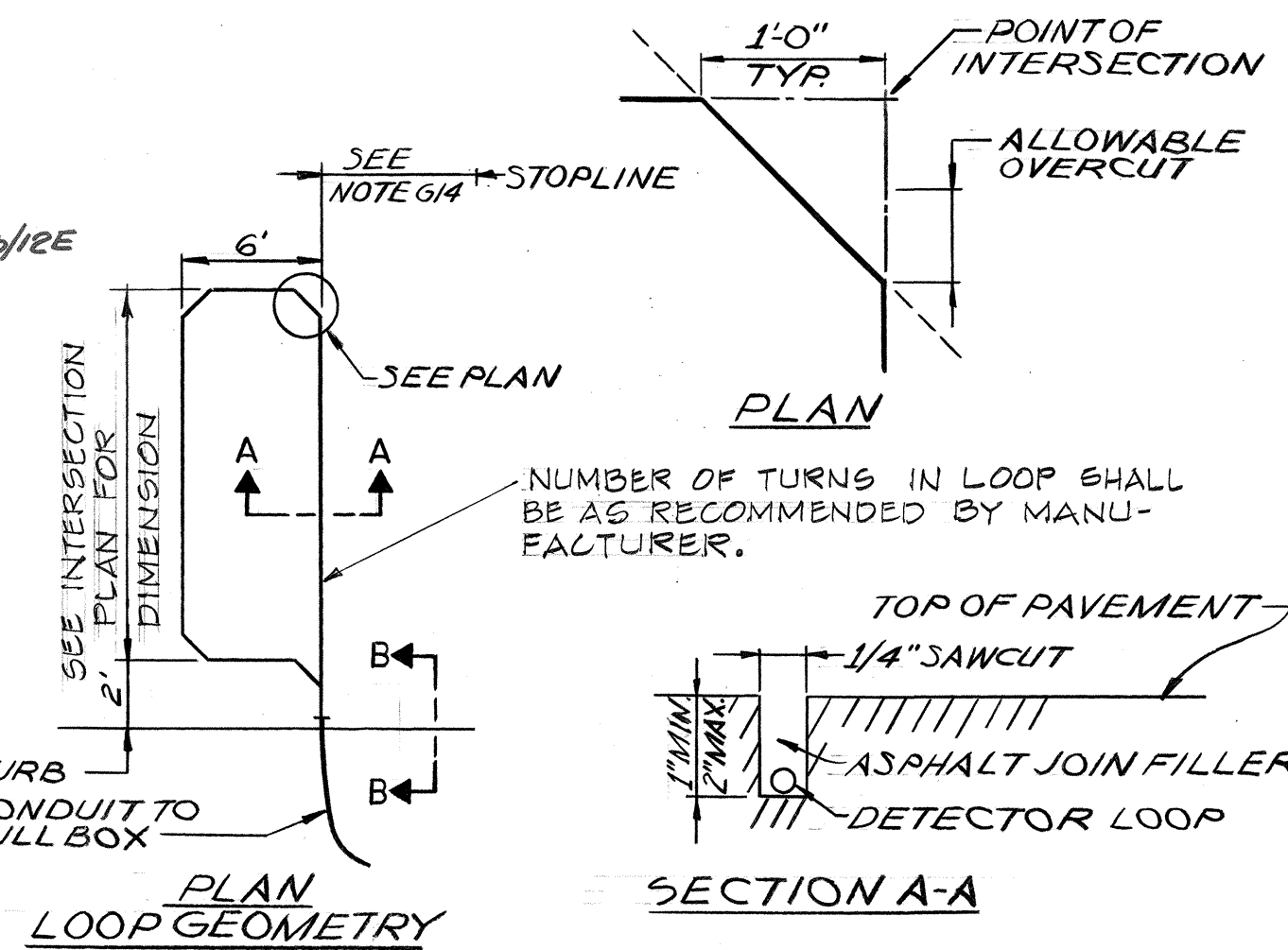


SECTION B-B
REINFORCING PLAN

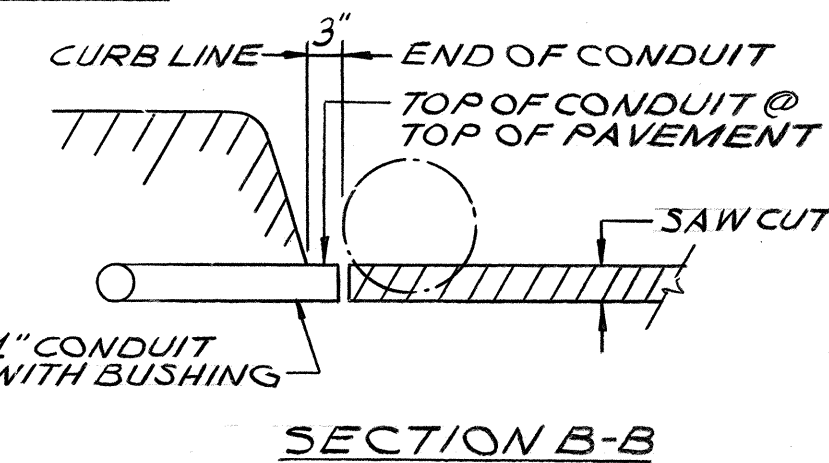


SECTION A-A
FOUNDATION PLAN

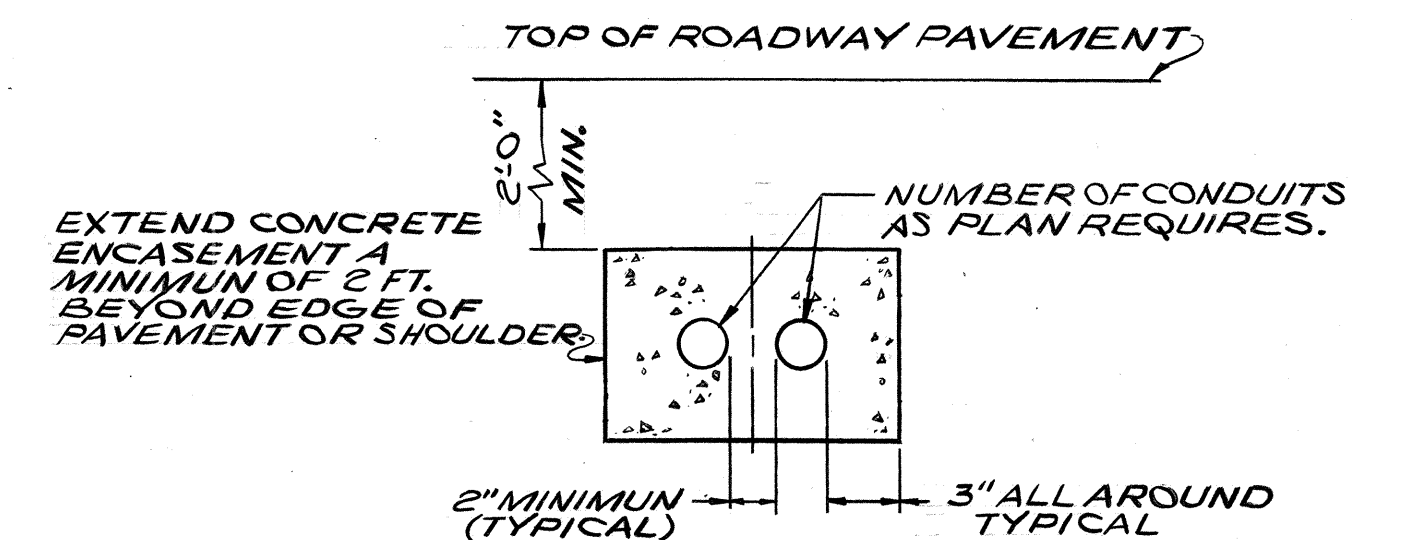
DETAIL 1/6E
LUMINAIRE SHIELD
N.T.S.



PLAN
LOOP GEOMETRY



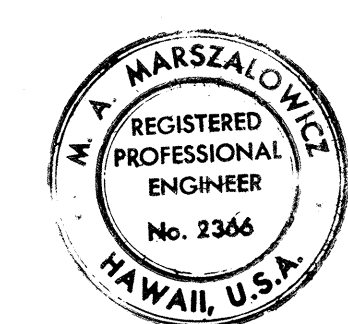
DETAIL 3/6E
VEHICLE DETECTOR LOOP INSTALLATION
N.T.S.



NOTE: EXCEPT THAT THE NUMBER OF CONDUIT RUNS & FEEDERS TO BE INSTALLED SHALL BE AS INDICATED ON PLAN SHEETS, THIS DETAIL IS TYPICAL
(a) FOR ALL HWY LTS SYSTEM CONDUITS UNDER ROADWAY;
(b) FOR ALL TRAFFIC SIGNAL SYSTEM CONDUITS.

DETAIL 7/6E
N.T.S.

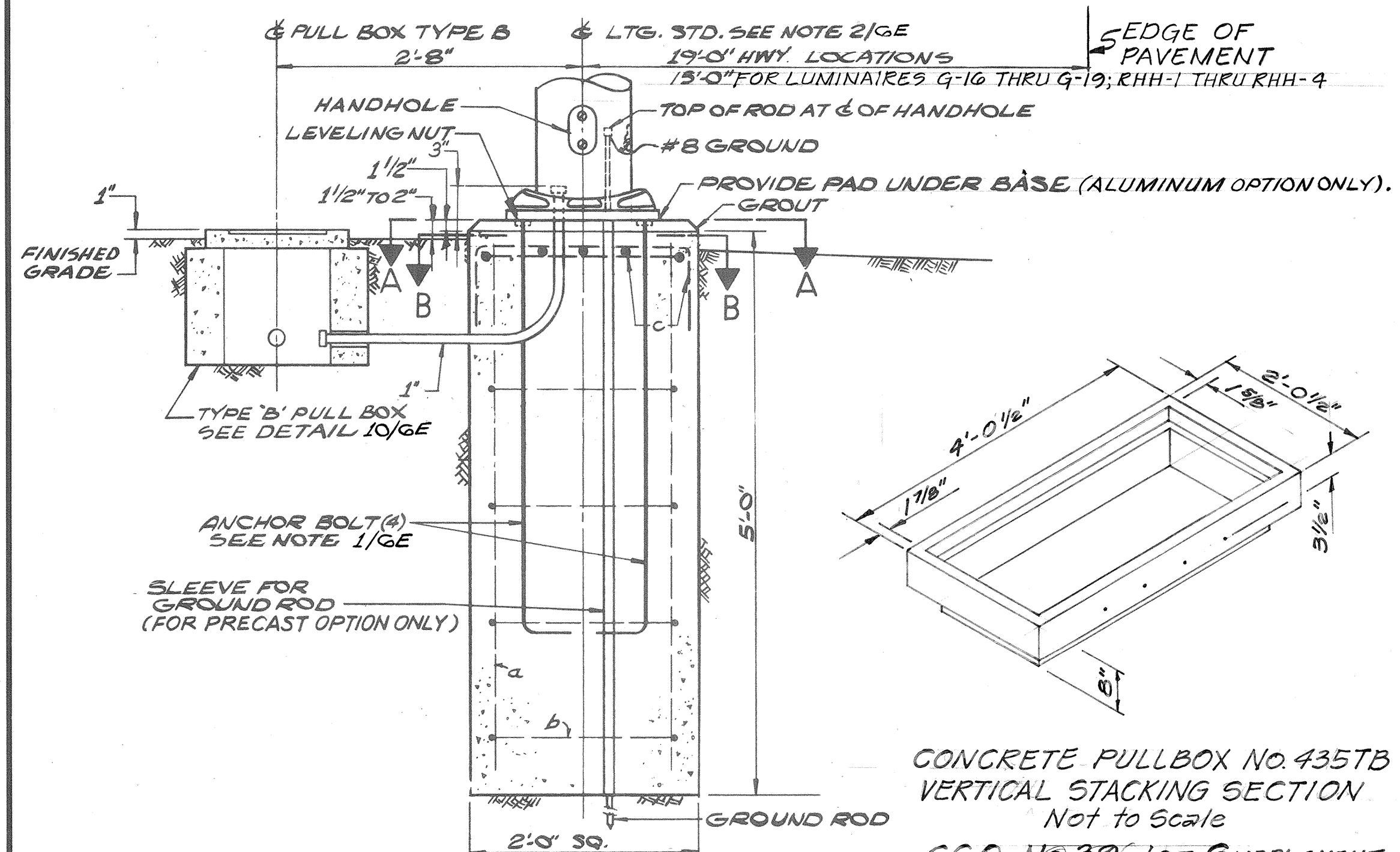
NOTES:
1- ANCHOR BOLT DIAMETER & LENGTH, LOCATION AND PROJECTION SHALL BE SUITED TO THE LIGHTING STANDARD APPROVED.
2- ALUMINUM LIGHTING STANDARD WITH SHOE BASE OPTION IS PICTURED. STEEL LIGHTING STANDARD WITH CAST ALUMINUM TRANSFORMER BASE OPTION NOT PICTURED BUT IS SIMILAR. FOUNDATION DETAILS APPLY TO BOTH OPTIONS.
3- PARTICULARS RELATING TO ANCHOR BOLT PLACEMENT IN TRAFFIC SIGNAL FOUNDATIONS WILL BE GIVEN AT A LATER TIME.



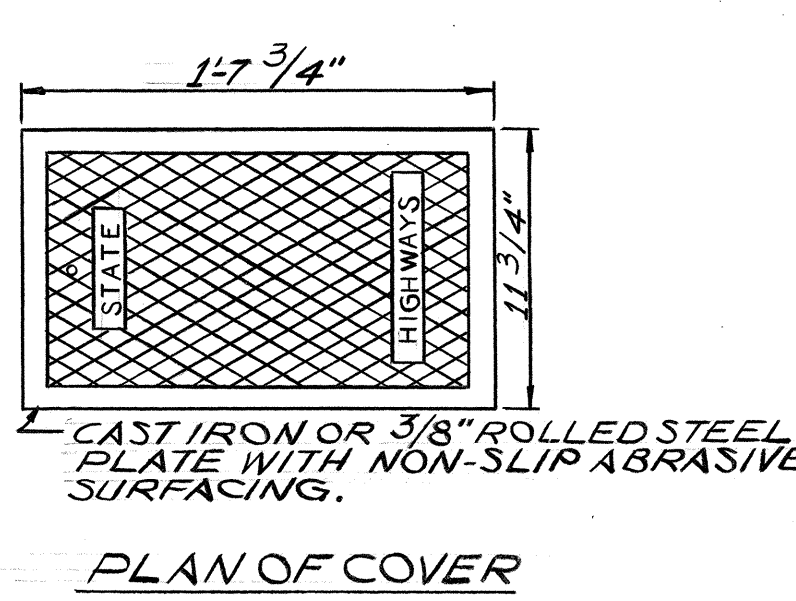
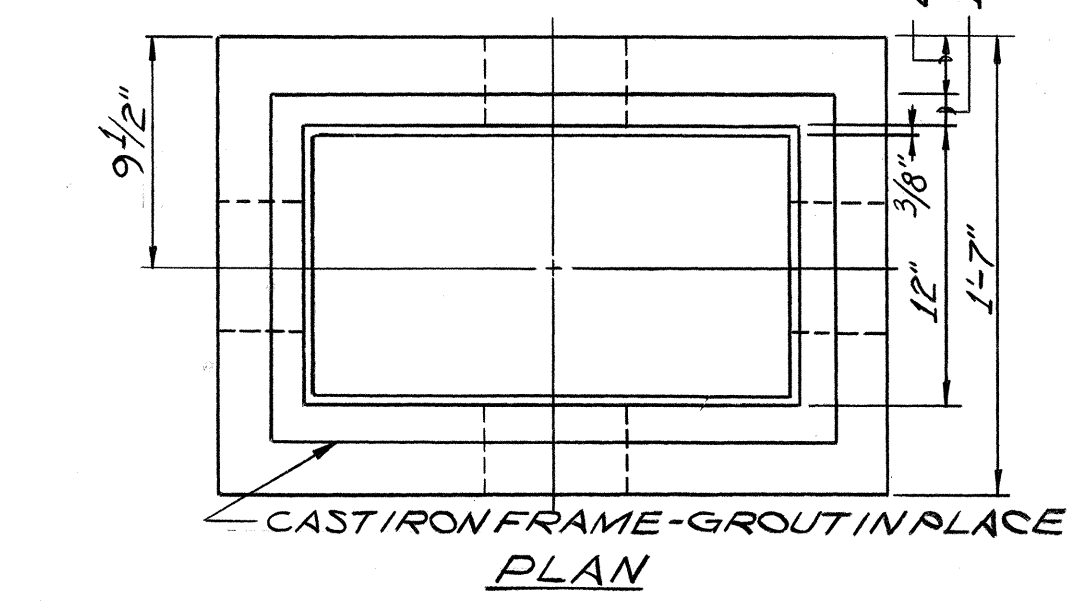
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1/14/72	Location of Lighting Standards G-16 thru G-19 and RHH-1 thru RHH-4 noted on Detail 5/6E
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ELECTRICAL DETAILS PART I HALAWA INTERCHANGE PROJECT NO. I-H-1(87):13 SCALE: NONE DATE: 6/8/70 SHEET No. 6E OF 14 SHEETS	

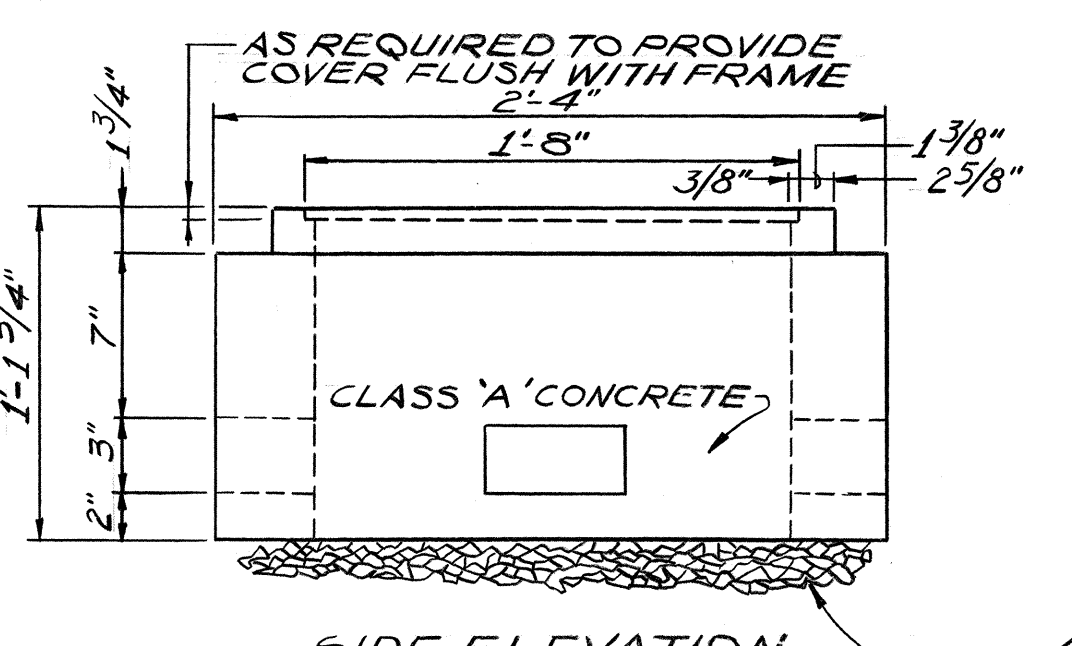
DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	



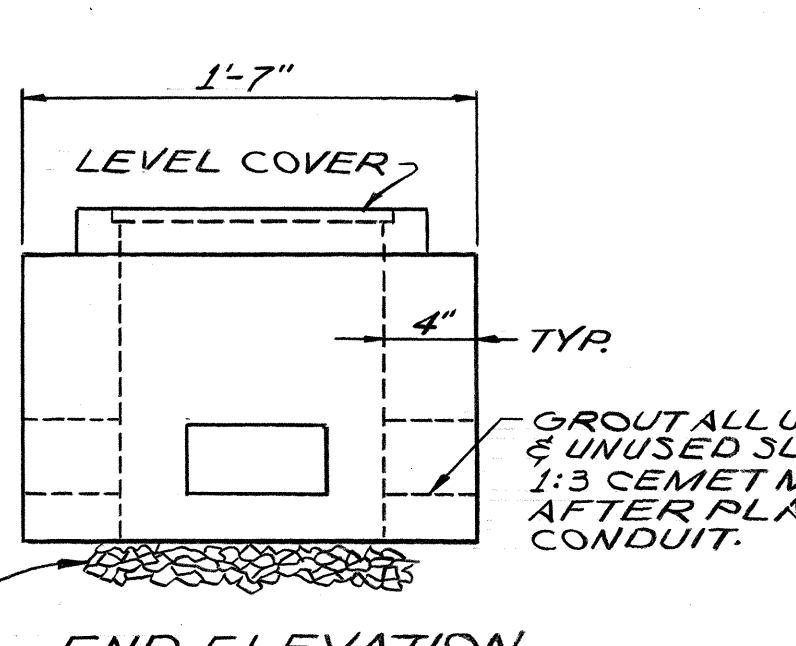
DETAIL 5/6E
LIGHTING STANDARD FOUNDATION
FOR LOCATIONS BEHIND SHOULDERS
SCALE: 1"=1'-0"



PLAN OF COVER



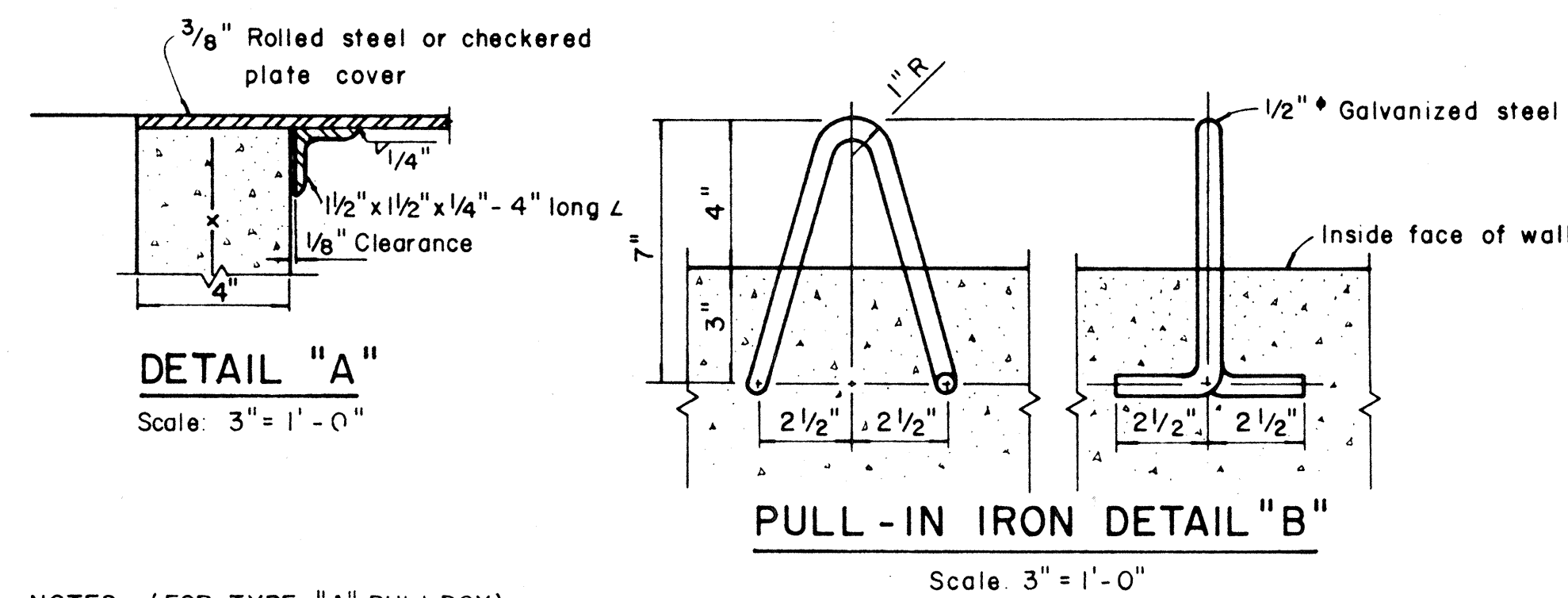
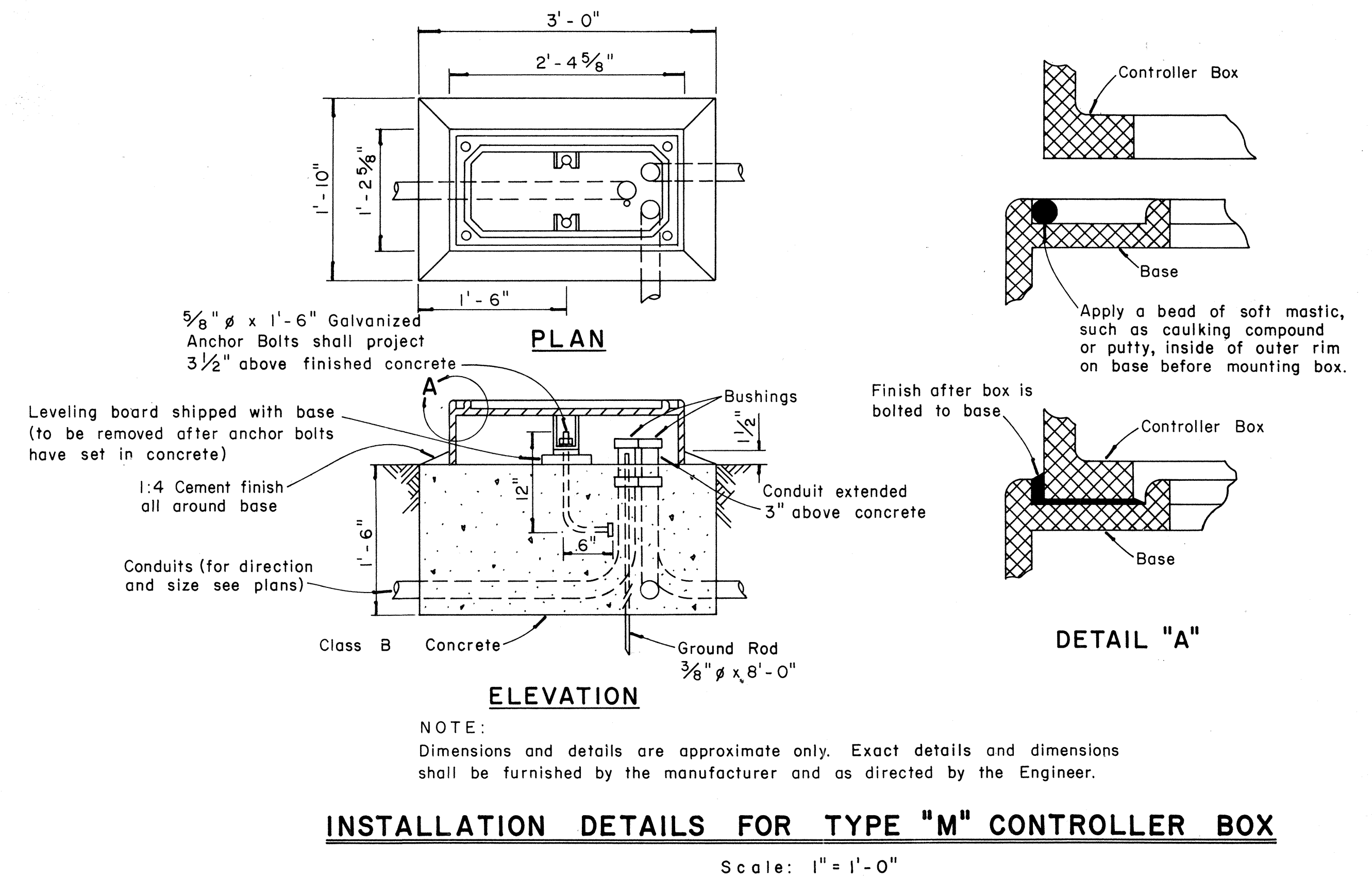
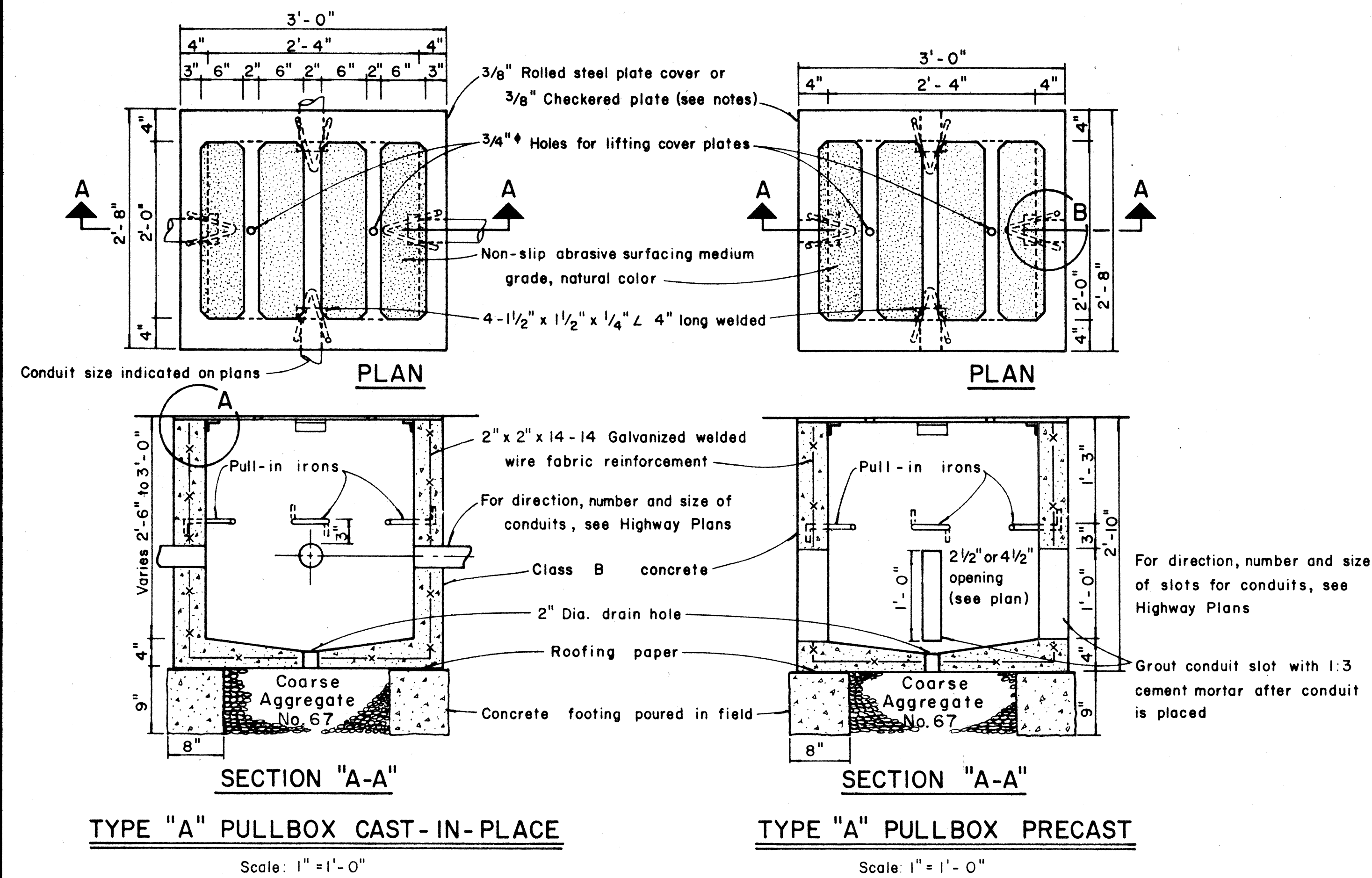
SIDE ELEVATION



END ELEVATION

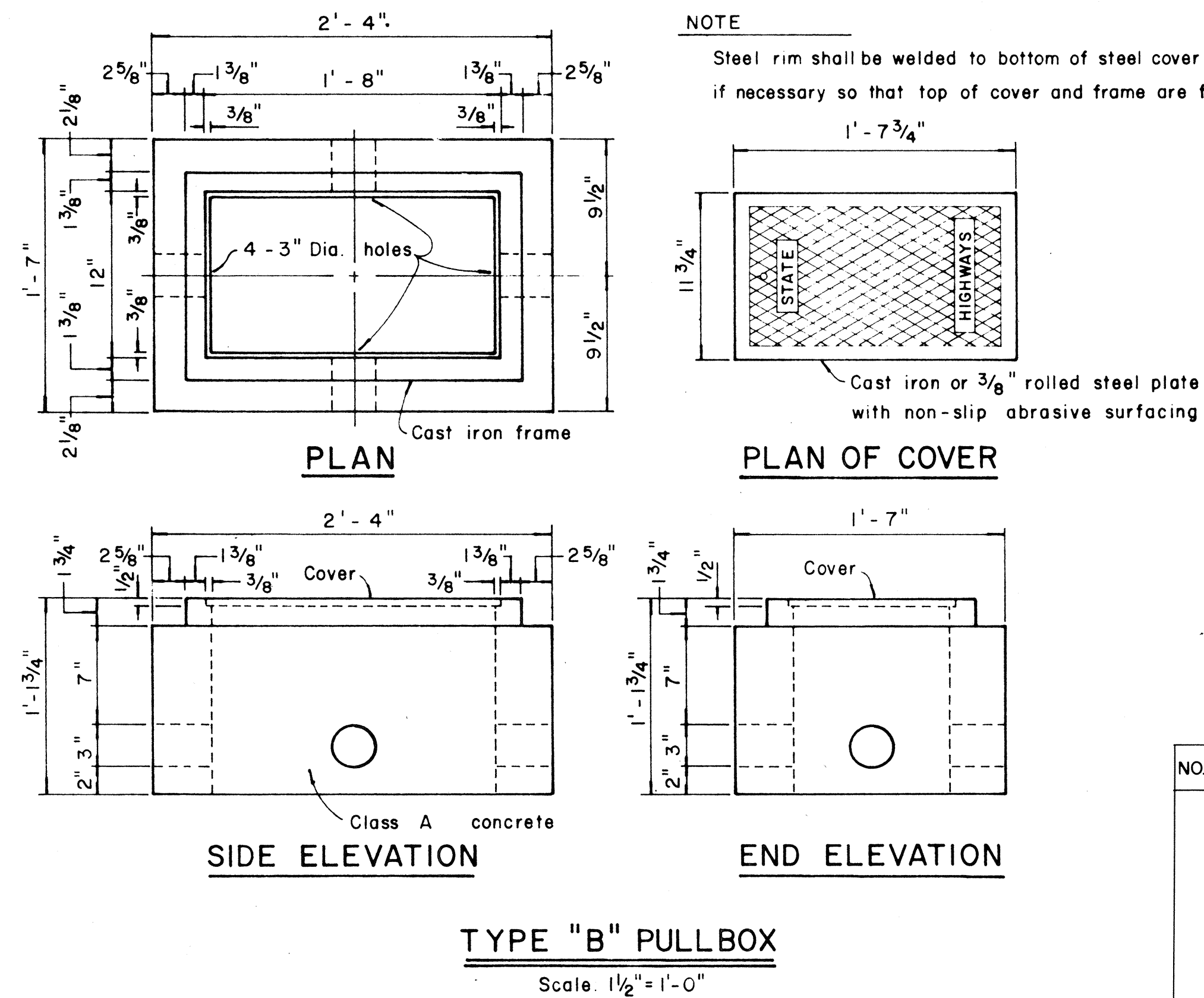
DETAIL 10/6E
TYPE "B" PULL BOX
SCALE: 1 1/2"=1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HA-1(87)13	1970	112A	244



- NOTES: (FOR TYPE "A" PULLBOX)

1. $\frac{3}{8}$ " Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
2. $\frac{3}{8}$ " Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
3. Pull irons shall be placed opposite each conduit slot.
4. Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.



TYPE "B" PULLBOX

Scale: $1\frac{1}{2}" = 1'-0"$

APPROVAL RECOMMENDED: *Erich Tanaka* 12/29/69
TRAFFIC ENGINEER DATE

APPROVED: *[Signature]* 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PULLBOXES
AND
TYPE "M" CONTROLLER BOX

Scale as noted Date:

SHEET No. OF SHEETS DT 402

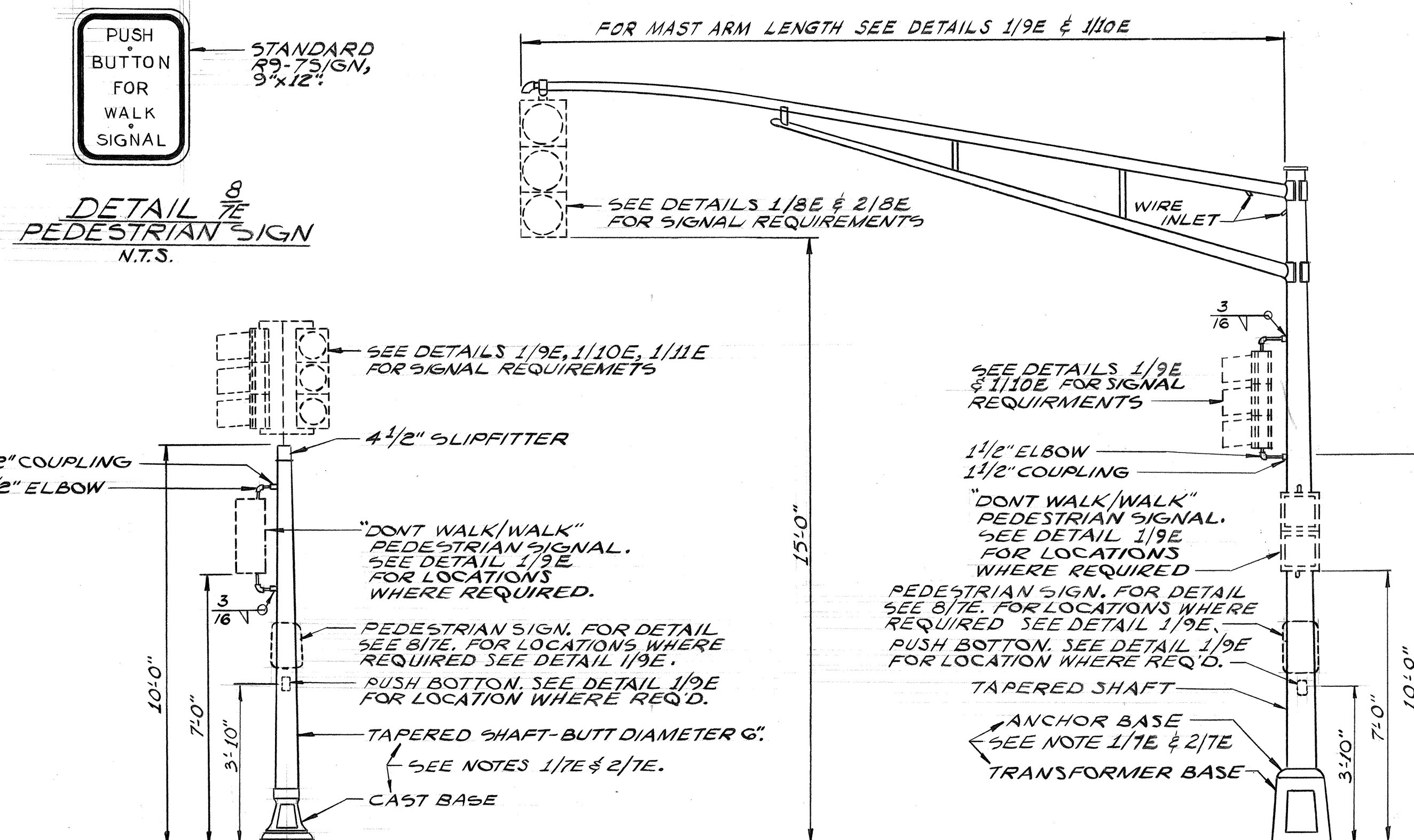
Oct. 19, 1971

CO 112A

112 A

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)-13	1970	113	244

NOTES:
1- ROUND TAPERED ALUMINUM SHAFT WITH CAST ALUMINUM BASE IS SHOWN. FLUTED TAPERED STEEL SHAFT WITH CAST IRON BASE OPTION NOT PICTURED BUT ITS SIMILAR.
2- LOCATE DOOR ON SIDE OPPOSITE APPROACHING TRAFFIC.



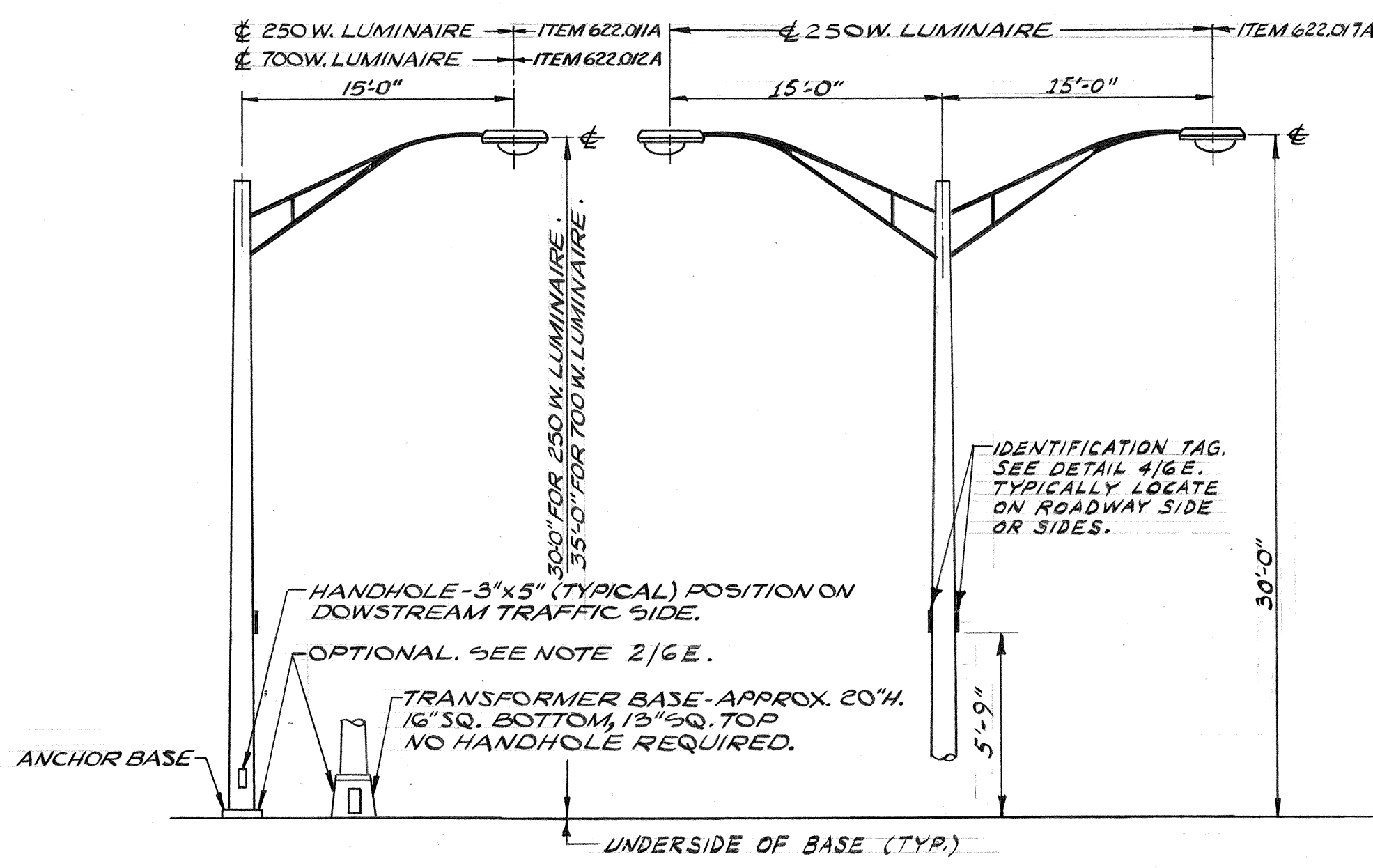
DETAIL 1/7E
TRAFFIC SIGNAL STANDARD-TYPE I
NO SCALE

DETAIL 3/7E
TRAFFIC SIGNAL STANDARD-TYPE II
NO SCALE

DETAIL 4/7E
CONTROLLER MOUNTING
NO SCALE

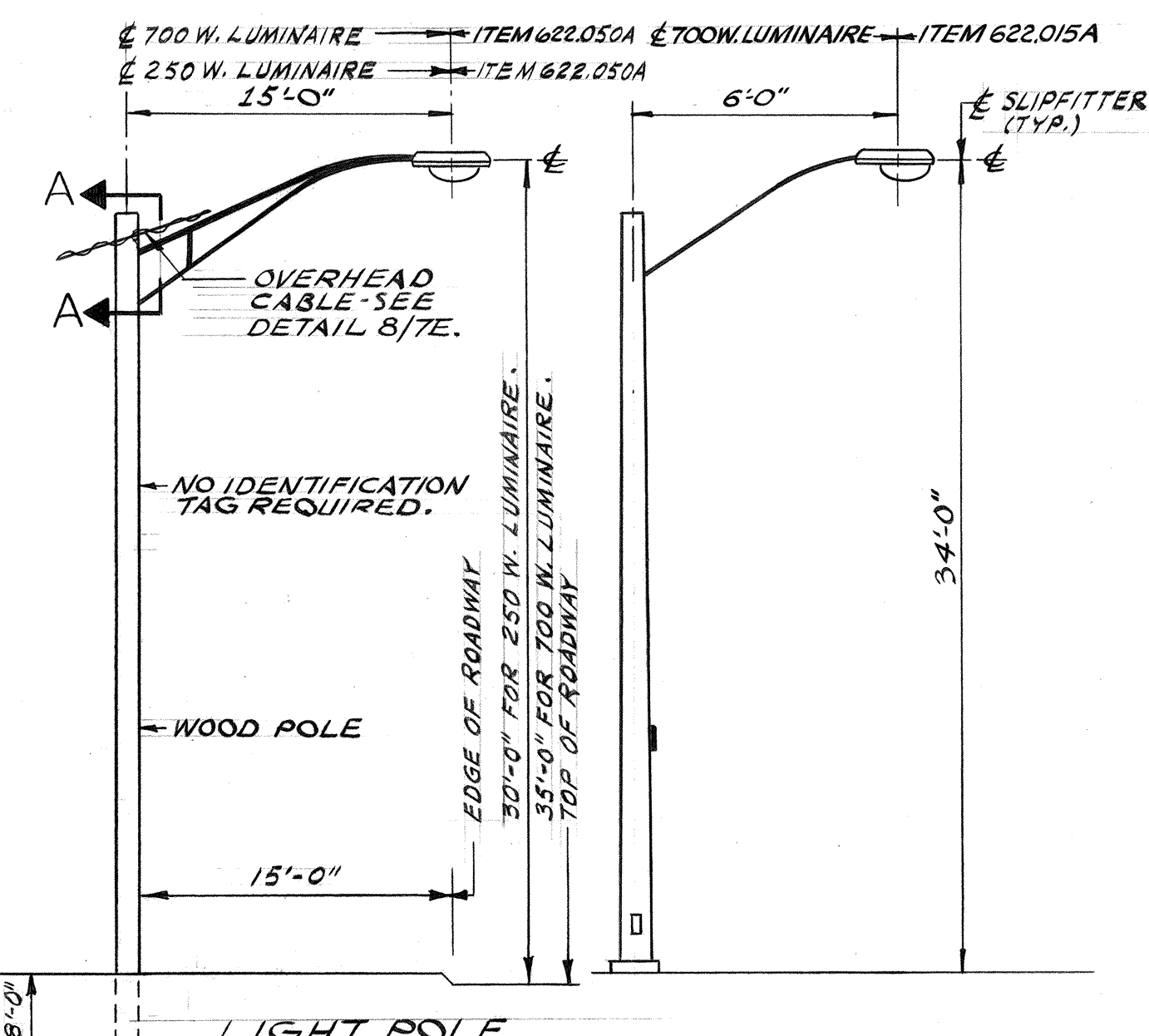
DETAIL 5/7E
CONTROLLER FOR INTERSECTION NOS 3-1
SCALE: 1/8"=1'-0"

SECTION A-A
DETAIL 8/7E
WIRING @ LIGHT POLE
N.T.S.



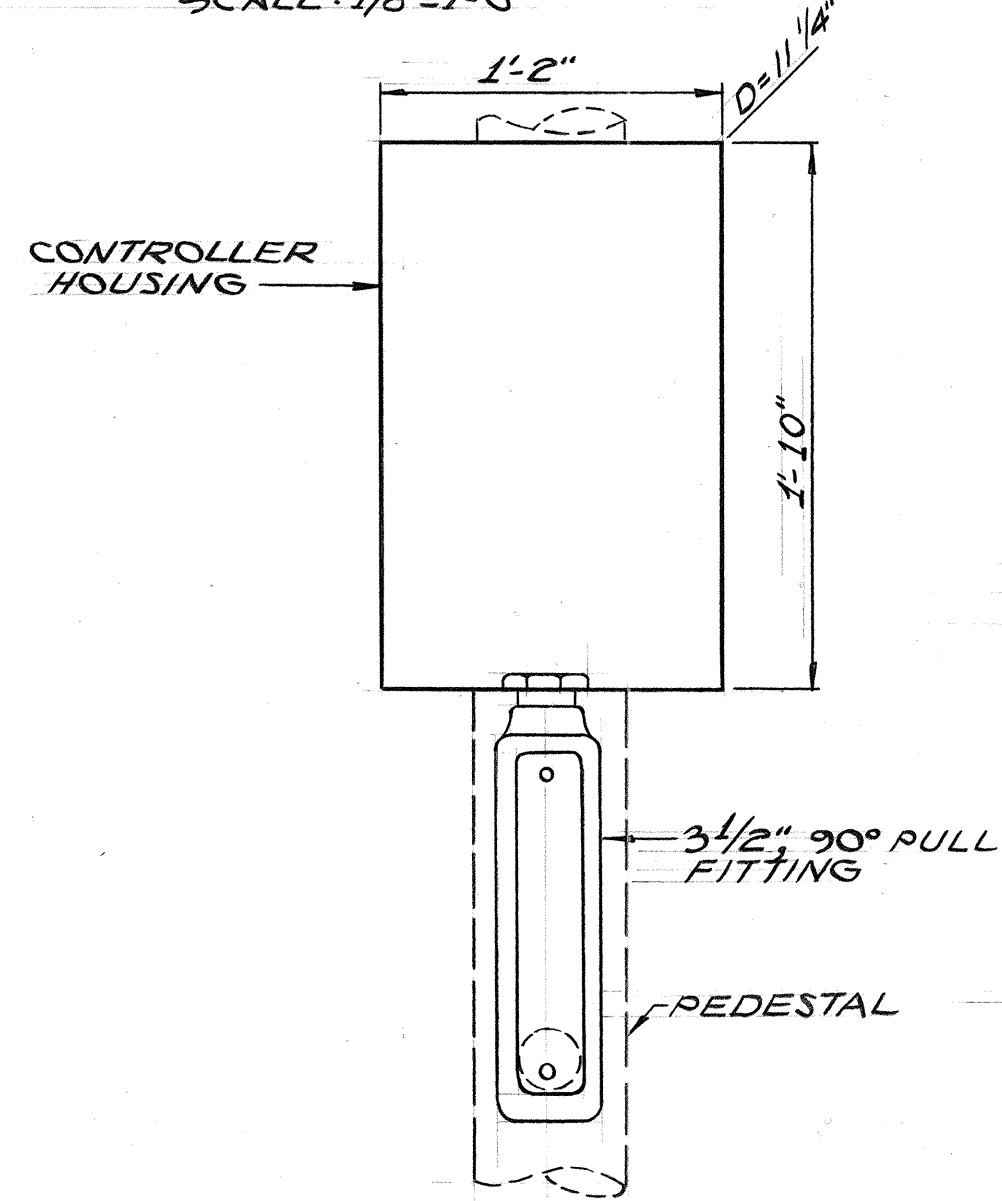
METAL LTG. STD. LOCATED BEHIND SHOULDERS

DETAIL 1/7E
LIGHTING STANDARD TYPES
NOTE: MOUNTING HEIGHTS AND BRACKET ARM LENGTHS ARE APPROX. $\pm 3"$
NO SCALE

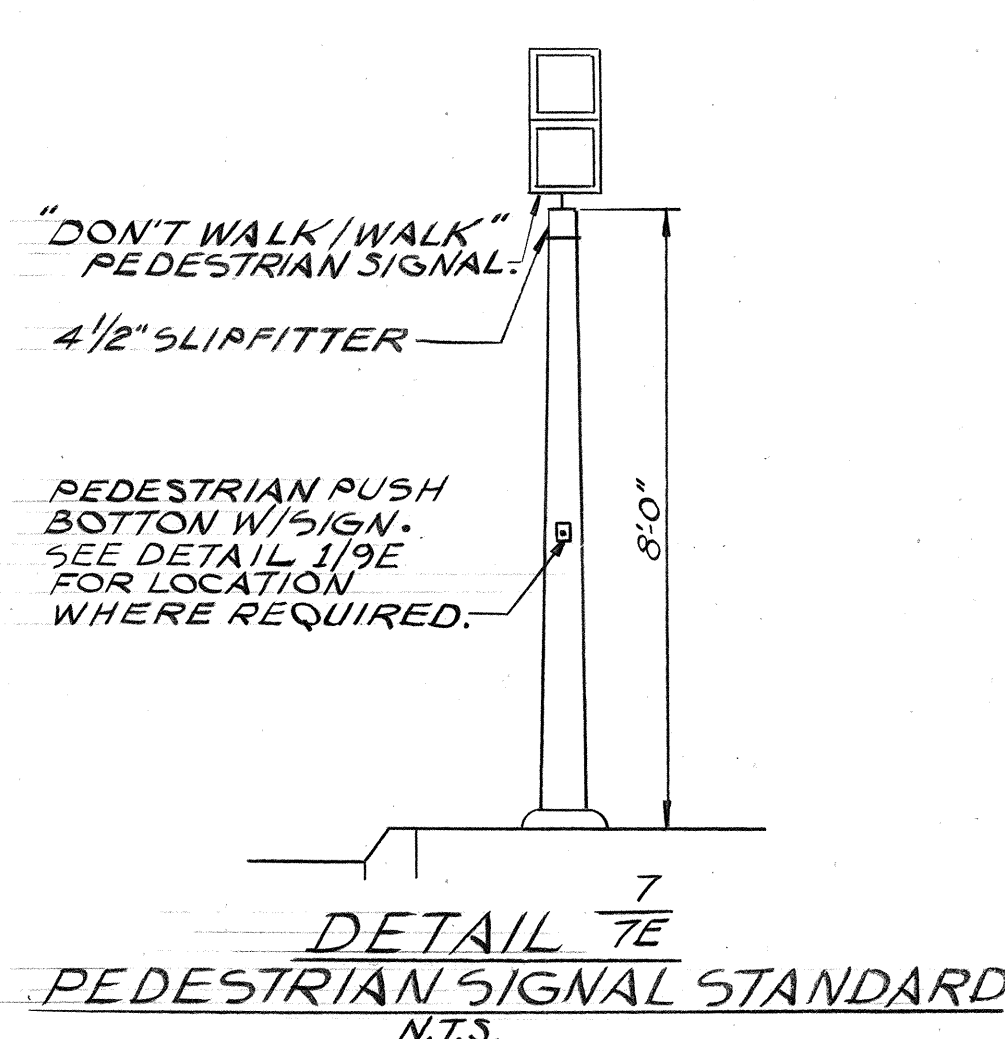


LIGHT POLE
LOCATED BEHIND
SHOULDER

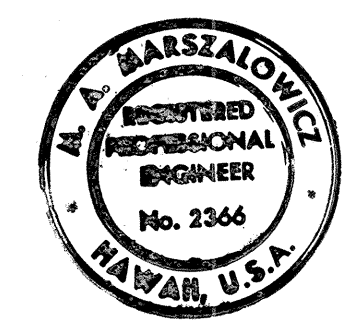
LTG. STD. ON STRUCTURE NOS 10



DETAIL 6/7E
CONTROLLER FOR INTERSECTIONS NOS 3-2 & 3-3
SCALE: 1/8"=1'-0"



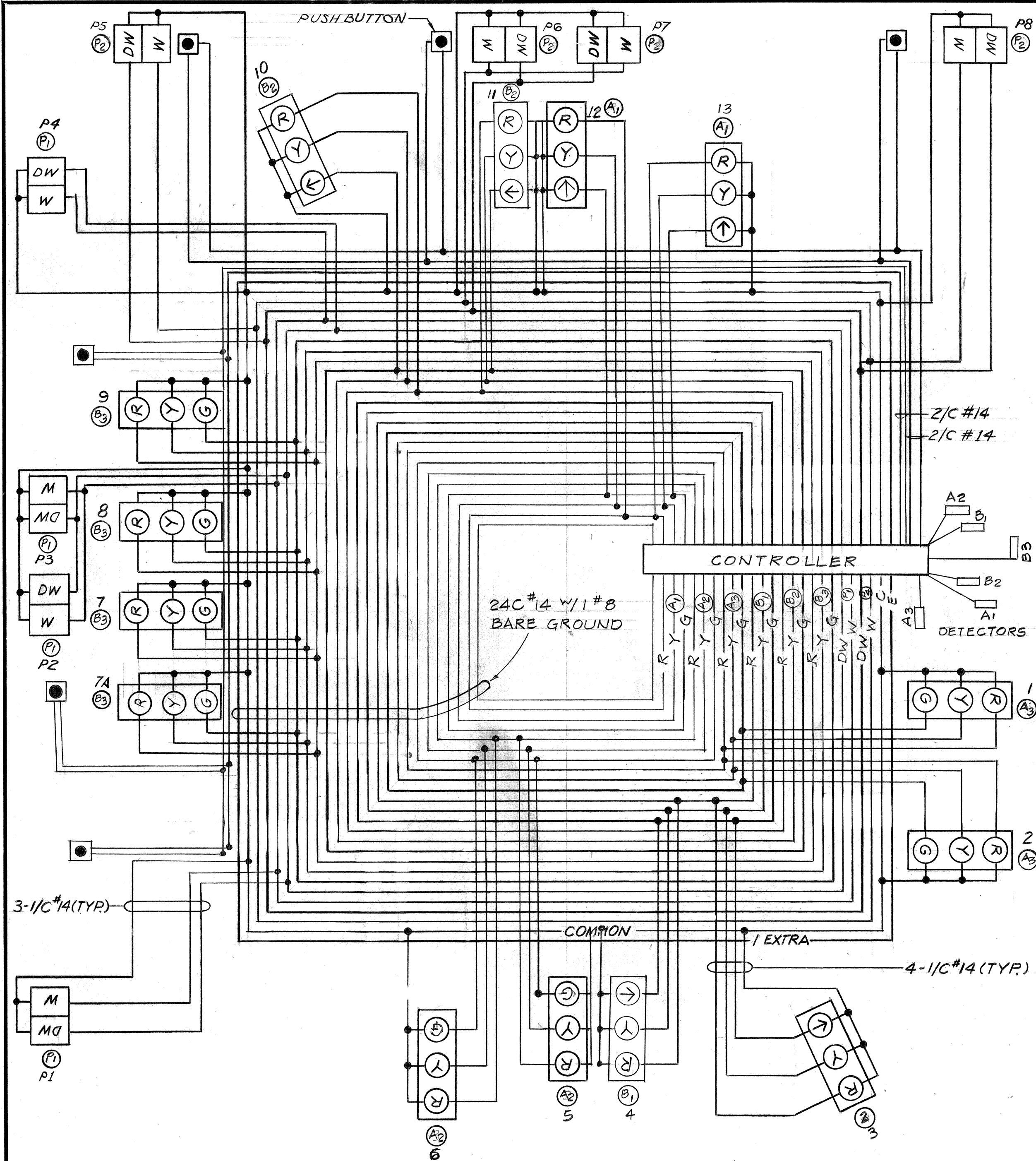
DETAIL 7/7E
PEDESTRIAN SIGNAL STANDARD
N.T.S.



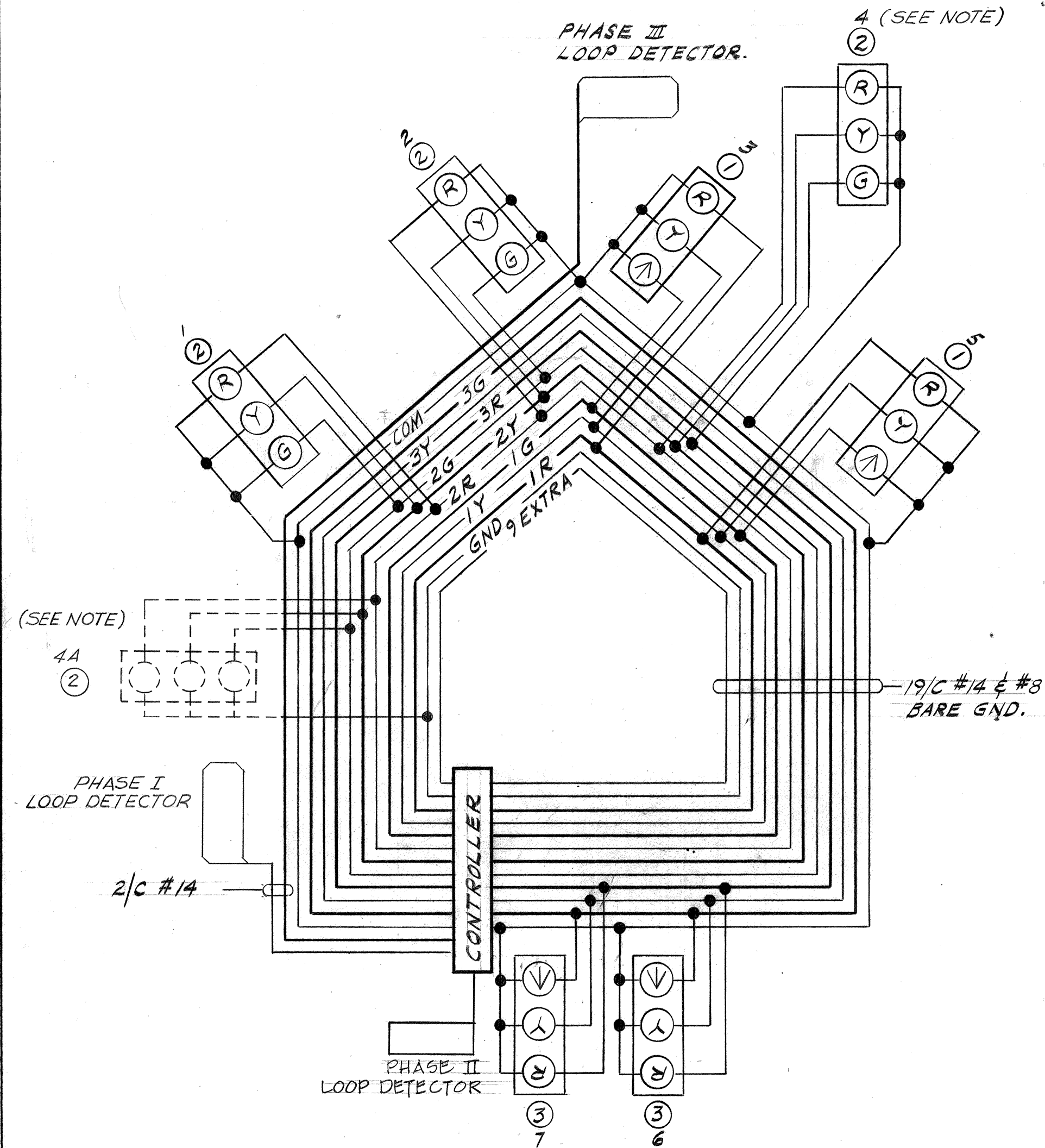
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL DETAILS
PART II
HALAWA INTERCHANGE
PROJECT NO. I-H-1(87)-13
SCALE: AS SHOWN
DATE: 6/8/70
SHEET No. 7E OF 14 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL	_____
PLAN	_____
NO.	_____

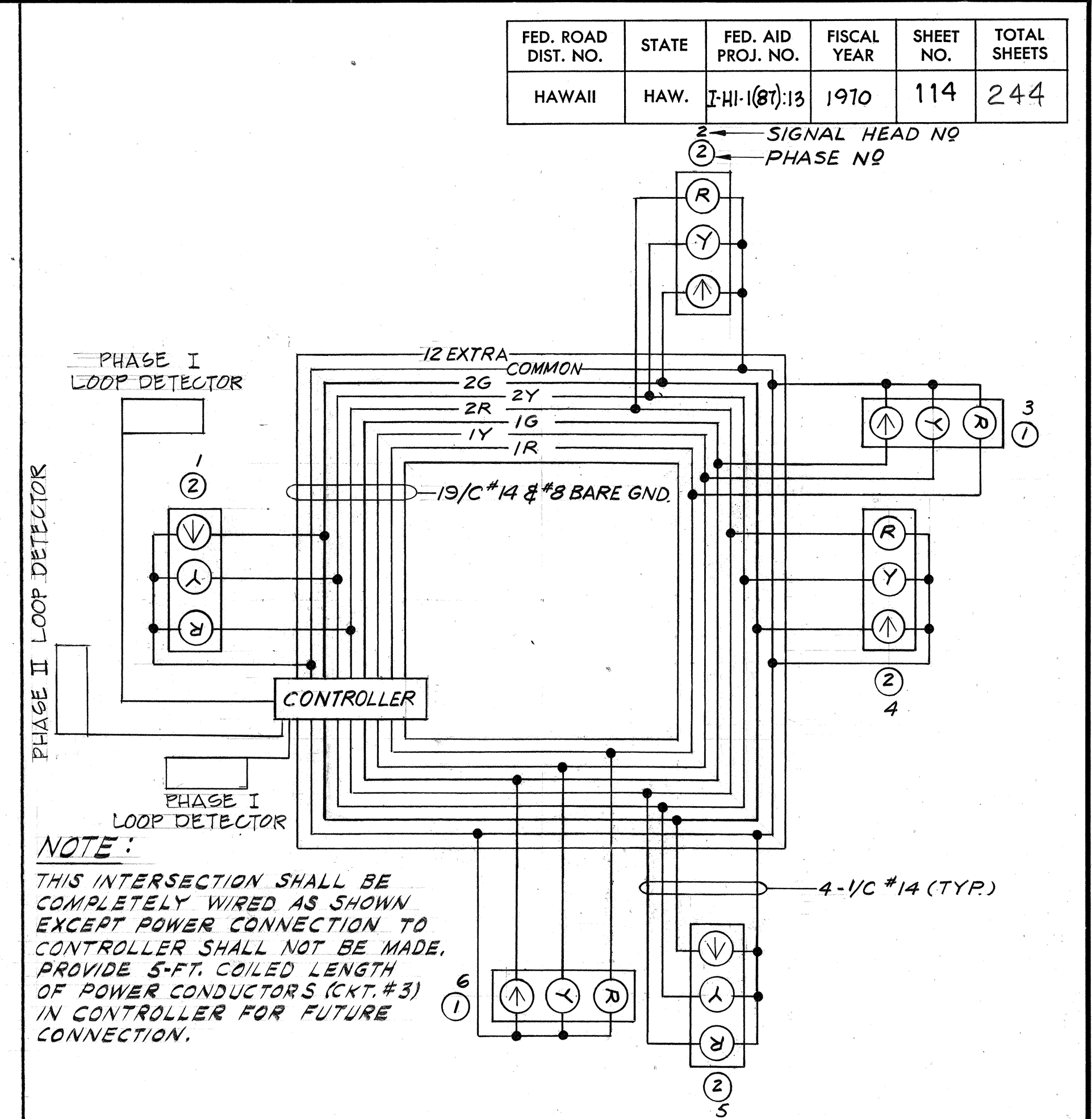


DETAIL 1/8E
INTERSECTION NO 3-1
WIRING DIAGRAM



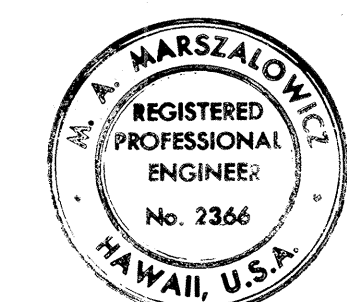
NOTE:
PROVIDE SIGNAL HEAD NO. 4 AS SHOWN. UNDER A FUTURE CONTRACT IT WILL BE REMOVED AND REINSTALLED AS SIGNAL HEAD NO. 4A. PROVIDE SUFFICIENT WIRE IN BASE OF STANDARD TO PERMIT FUTURE CONNECTION.

DETAIL 2/8E
INTERSECTION NO 3-2
WIRING DIAGRAM



NOTE:
THIS INTERSECTION SHALL BE COMPLETELY WIRED AS SHOWN EXCEPT POWER CONNECTION TO CONTROLLER SHALL NOT BE MADE. PROVIDE 5-FT. COILED LENGTH OF POWER CONDUCTORS (CKT. #3) IN CONTROLLER FOR FUTURE CONNECTION.

DETAIL 3/8E
INTERSECTION NO 3-3
WIRING DIAGRAM



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ELECTRICAL SHEET 8E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEMS
WIRING DIAGRAMS
HALAWA INTERCHANGE
PROJECT NO. I-H1-1(87):13
SCALE: NONE
DATE: 6/8/70

SHEET No. 8E OF 14 SHEETS

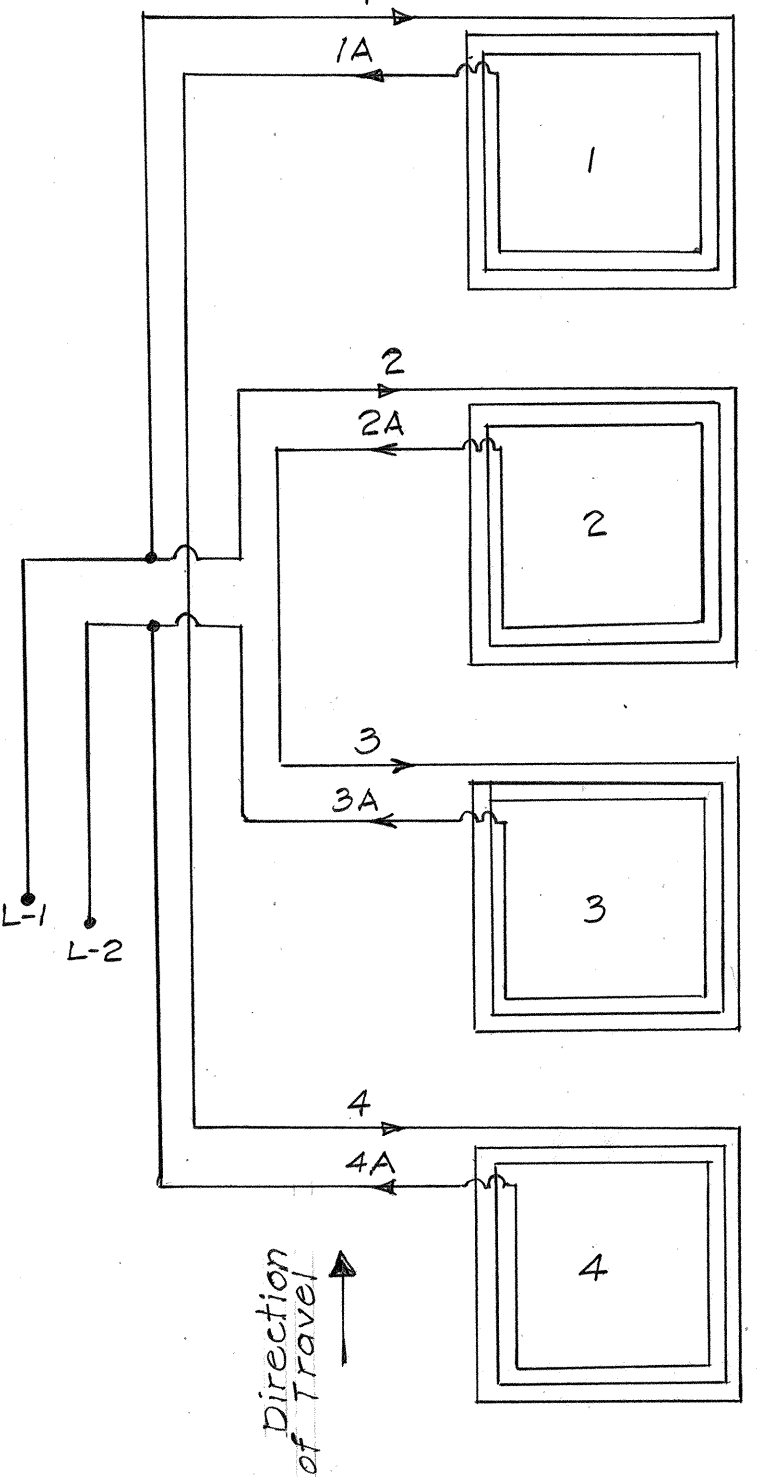
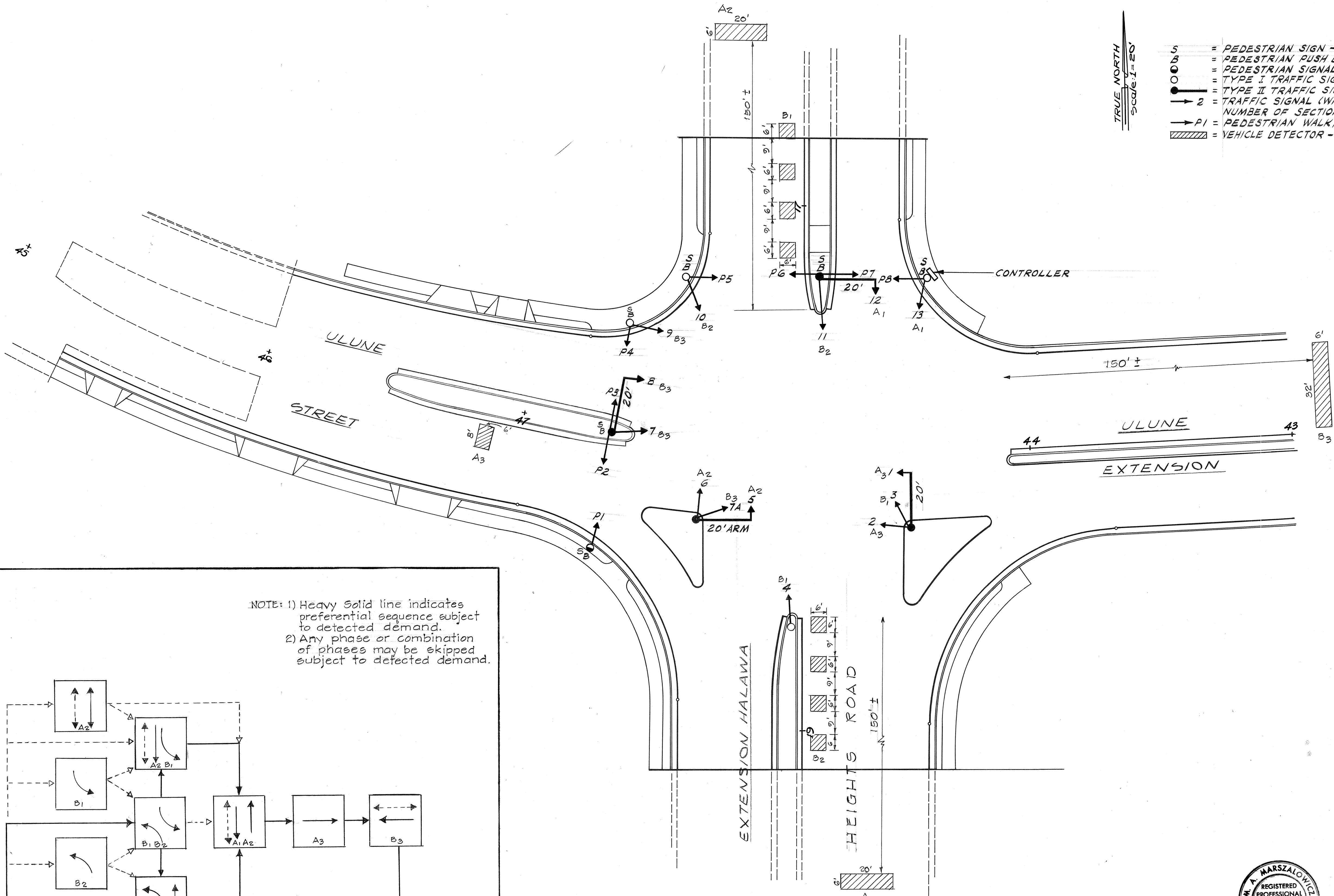
Revised: Oct. 17, 1971

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87)13	1970	115	244

- S = PEDESTRIAN SIGN - SEE DETAIL 8/7E.
- B = PEDESTRIAN PUSH BUTTON.
- = PEDESTRIAN SIGNAL STANDARD - SEE DETAIL 7/7E.
- = TYPE I TRAFFIC SIGNAL STANDARD - SEE DETAIL 2/7E.
- = TYPE II TRAFFIC SIGNAL STANDARD - SEE DETAIL 3/7E.
- 2 = TRAFFIC SIGNAL (WITH IDENTIFYING NUMBER), FOR NUMBER OF SECTIONS SEE DETAIL 1/8E, USE 12 INCH LENSES.
- PI = PEDESTRIAN WALK/DON'T WALK SIGNAL (WITH IDENTIFYING NUMBER)
- ▨ = VEHICLE DETECTOR - SEE DETAIL 3/6E.

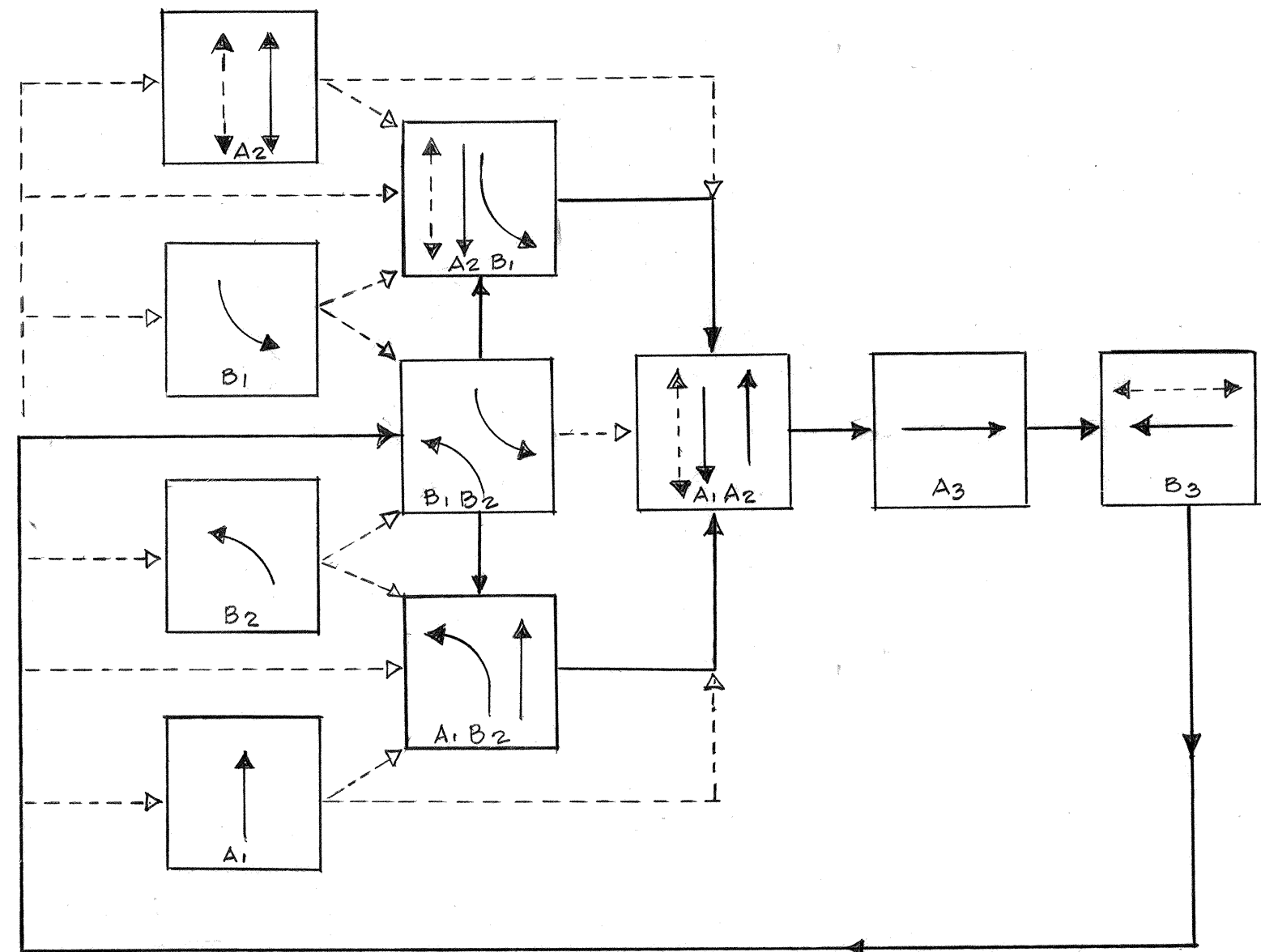
TRUE NORTH
Scale 1" = 20'



LOOP CONNECTION FOR MULTIPLE LOOPS IN LEFT TURN LANES
Not to scale

- NOTE: 1. All leads shall be tagged
2. Insulation test for each loop to ground shall not read less than 10 megohms (use megger)
3. All loops shall be wound in the same direction.

NOTE: 1) Heavy solid line indicates preferential sequence subject to detected demand.
2) Any phase or combination of phases may be skipped subject to detected demand.



PHASING DIAGRAM

DETAIL 1/9E
INTERSECTION No 3-1



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ELECTRICAL SHEET 9E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL PLAN
INTERSECTION No 3-1

HALAWA INTERCHANGE
PROJECT NO. I-HI-1(87)13

SCALE: 1" = 20' DATE: 6/8/70

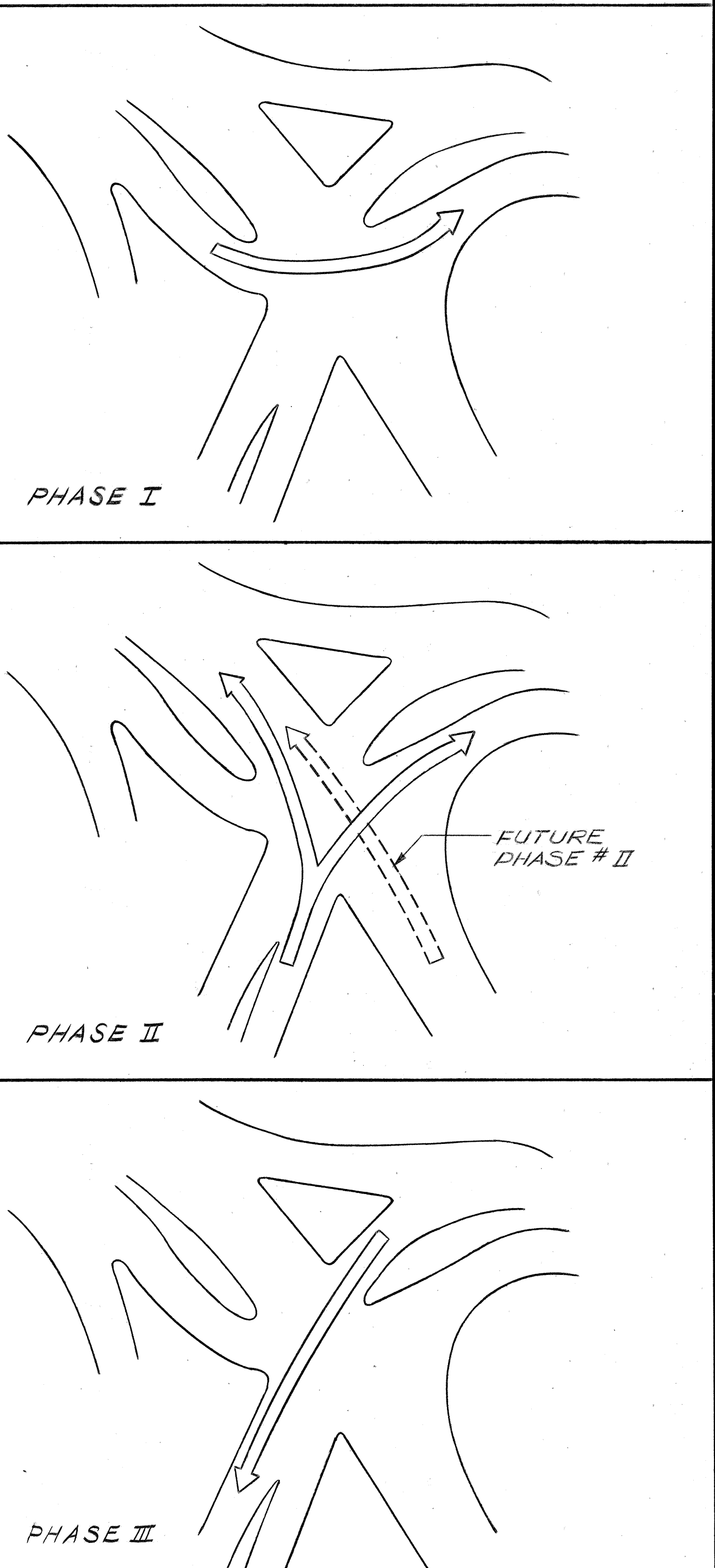
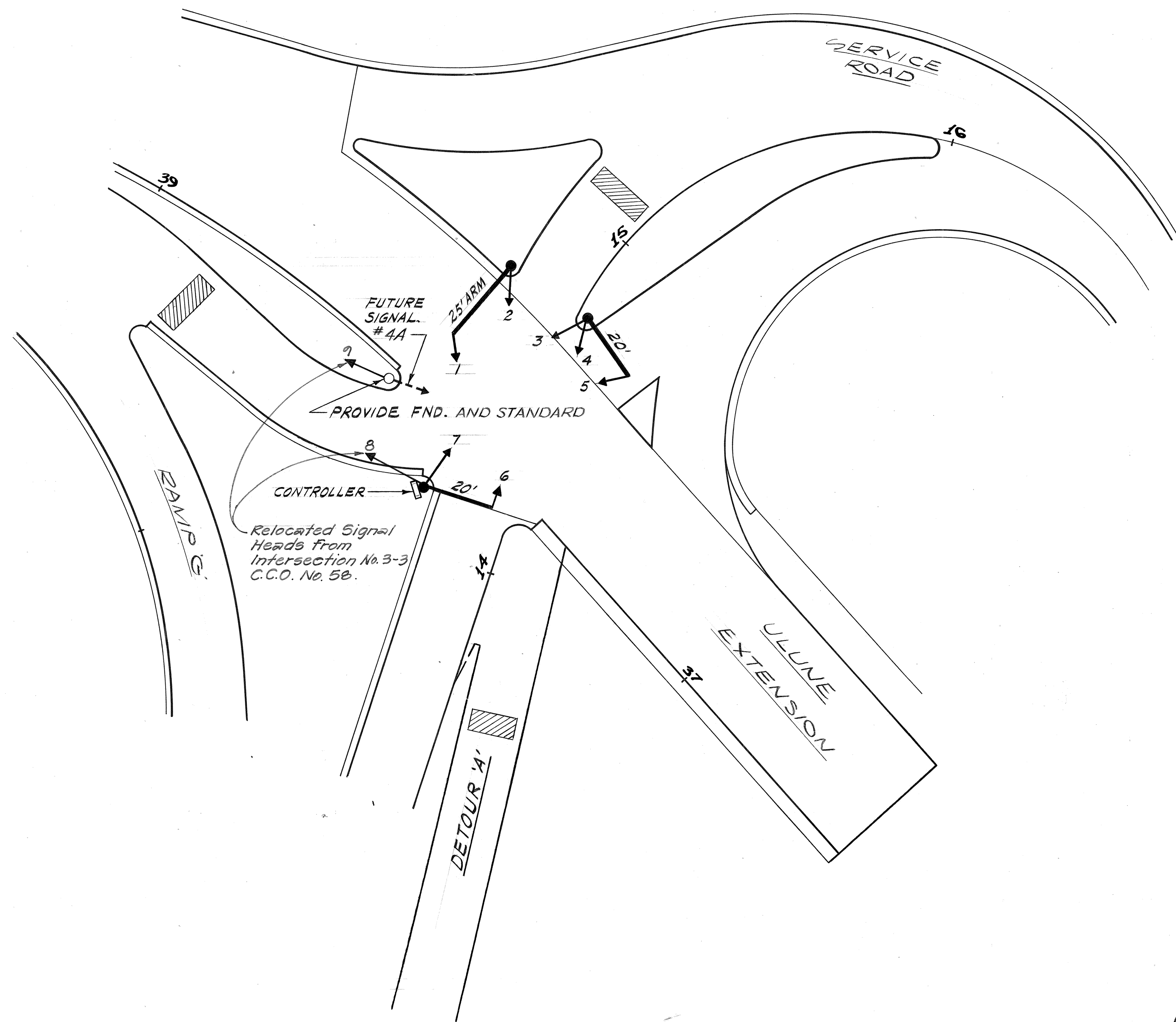
SHEET No. 9E OF 14 SHEETS

Revised: Oct. 17, 1971

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)13	1970	116	244

- = TYPE I TRAFFIC SIGNAL STANDARD - SEE DETAIL 2/7E.
 ● = TYPE II TRAFFIC SIGNAL STANDARD - SEE DETAIL 3/7E.
 → 2 = TRAFFIC SIGNAL (WITH IDENTIFYING NUMBER). FOR NUMBER OF SECTIONS SEE DETAIL 2/8E. USE 12 INCH LENSES.
 ▨ = VEHICLE DETECTOR - SEE DETAIL 3/6E.

TRUE NORTH
SCALE: 1"=20'



DETAIL 1110E
INTERSECTION NO. 3-2



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ELECTRICAL SHEET 10E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL PLAN
INTERSECTION
NO. 3-2

HALAWA INTERCHANGE
PROJECT NO. I-H-1(87)13

SCALE: 1"=20" DATE: 6/8/70

SHEET NO. 10E OF 14 SHEETS

Revised: Oct. 17, 1971

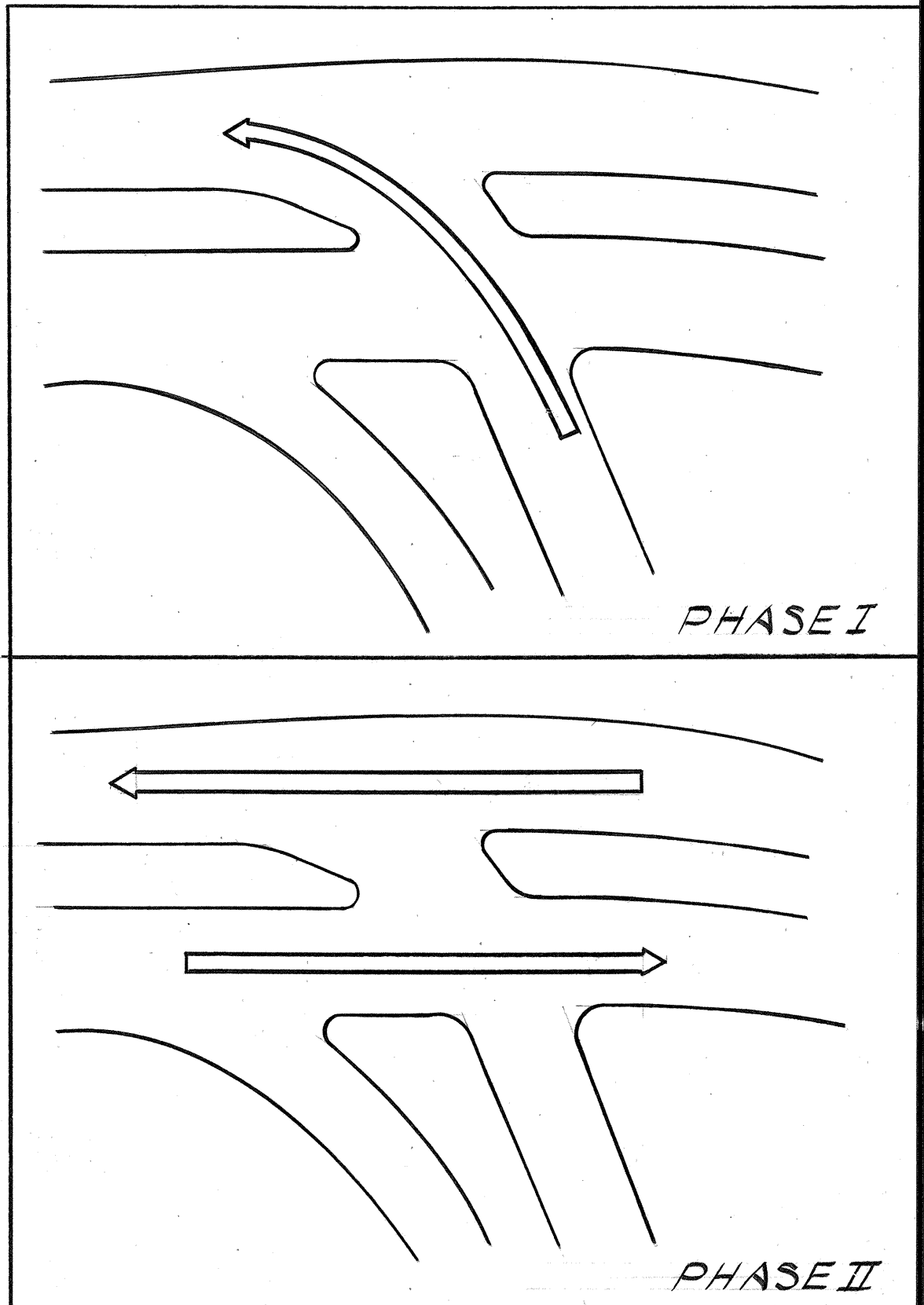
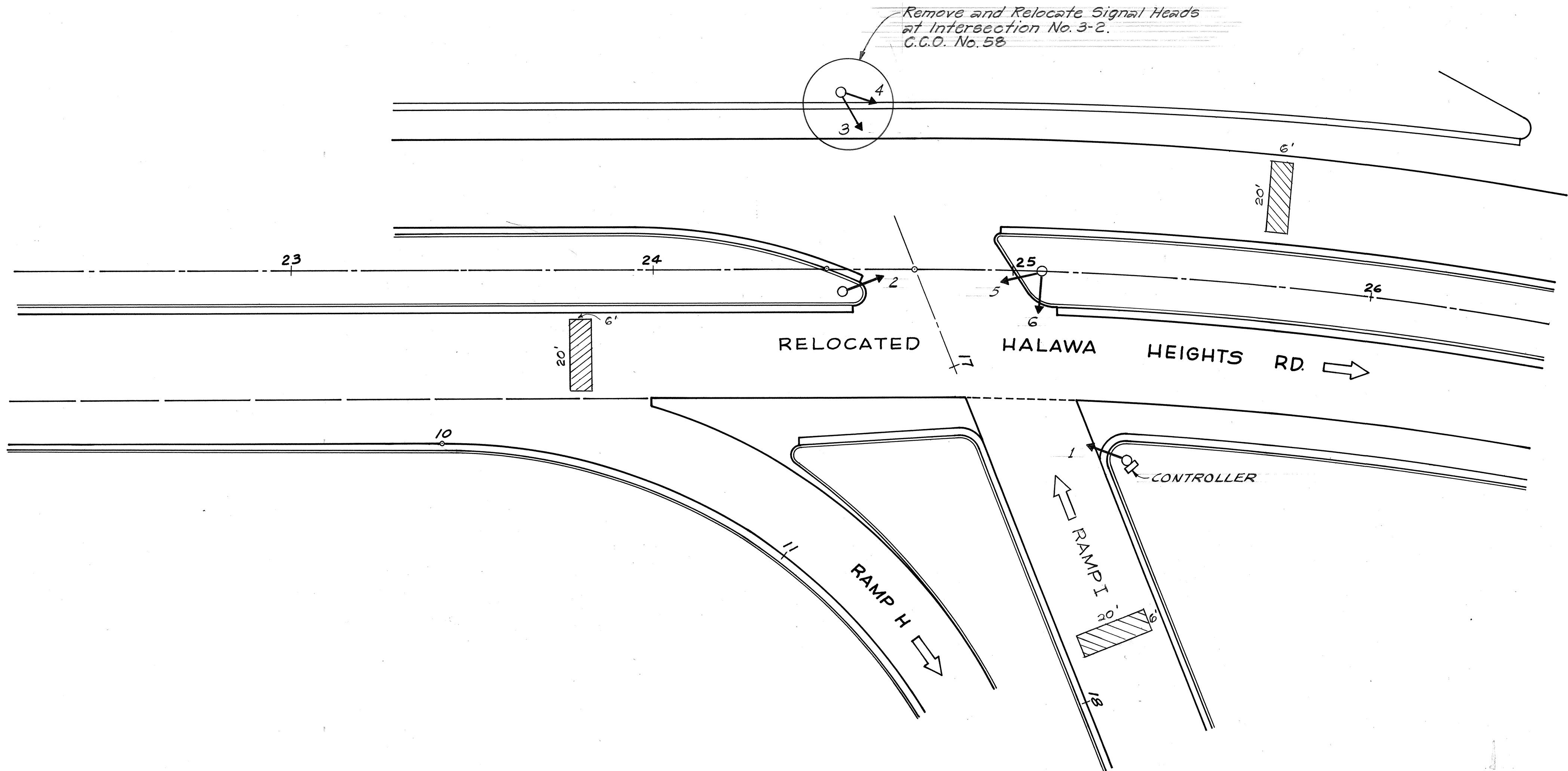
116

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
NO.	
DESIGNED BY	
TRACED BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87):13	1970	117	244

- = TYPE 1 TRAFFIC SIGNAL STANDARD - SEE DETAIL 2/1E.
- = TRAFFIC SIGNAL (WITH IDENTIFYING NUMBER) - FOR NUMBER OF SECTIONS SEE DETAIL 3/8E, USE 12 INCH LENSES.
- ▨ = VEHICLE DETECTOR - SEE DETAIL 3/6E

TRUE NORTH
Scale: 1" = 20'



DETAIL 1/11E
INTERSECTION No. 3-3
1" = 20'

DESIGNED BY	DATE
FRAMED BY	"
DESIGNED BY	"
FRAMED BY	"
CHECKED BY	"
CHECKED BY	"
NO.	



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ELECTRICAL SHEET 11E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL PLAN
INTERSECTION 3-3

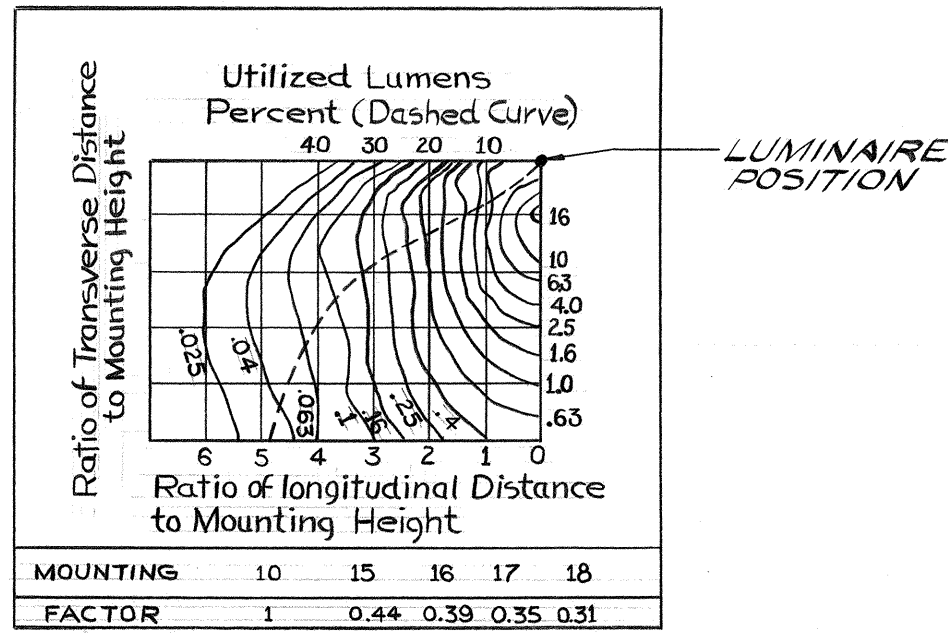
HALAWA INTERCHANGE
PROJECT NO. I-H-1(87):13

SCALE: 1" = 20' DATE: 6/8/70

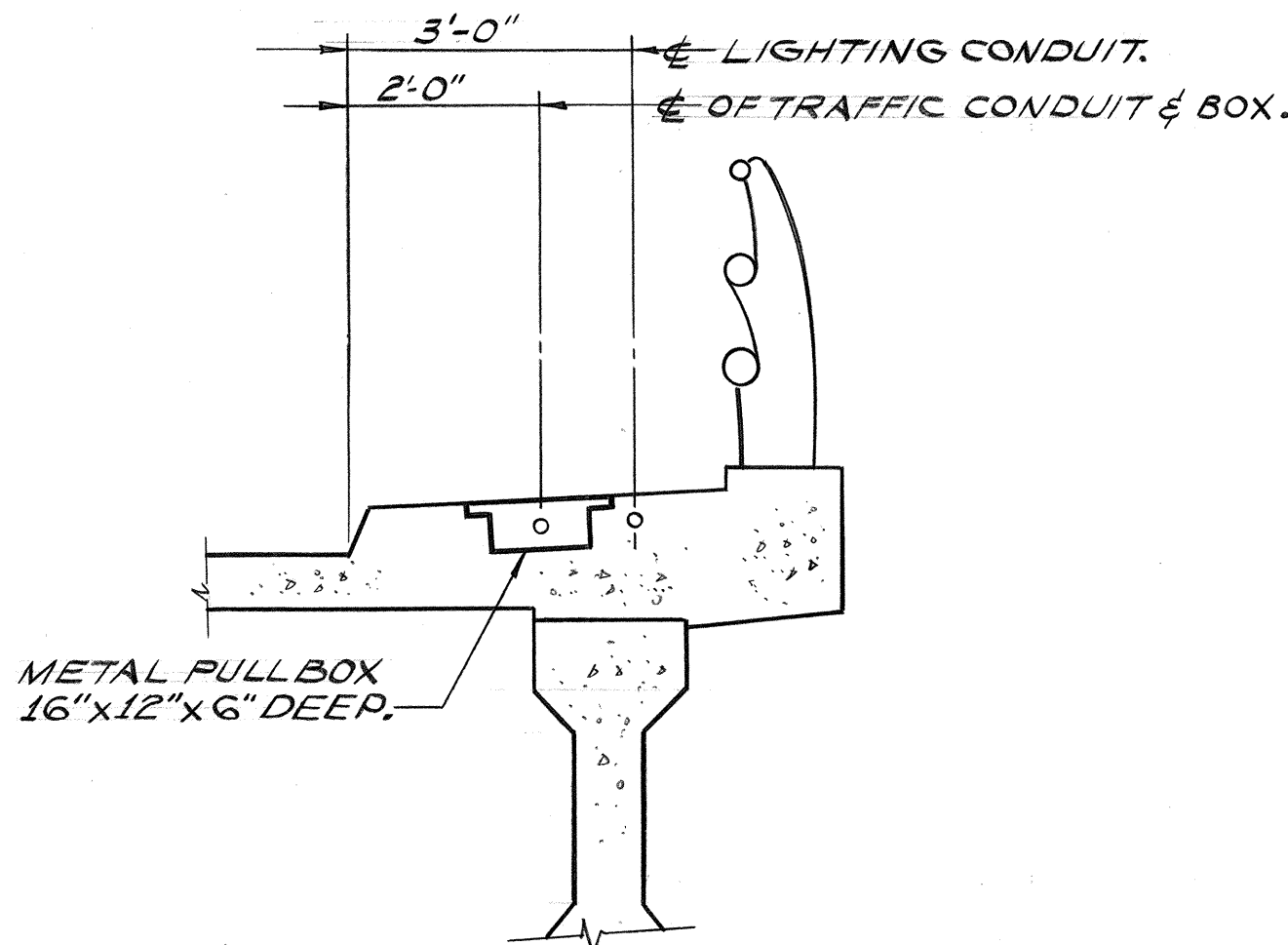
SHEET No. 11E OF 14 SHEETS

Revised: Oct. 19, 1971

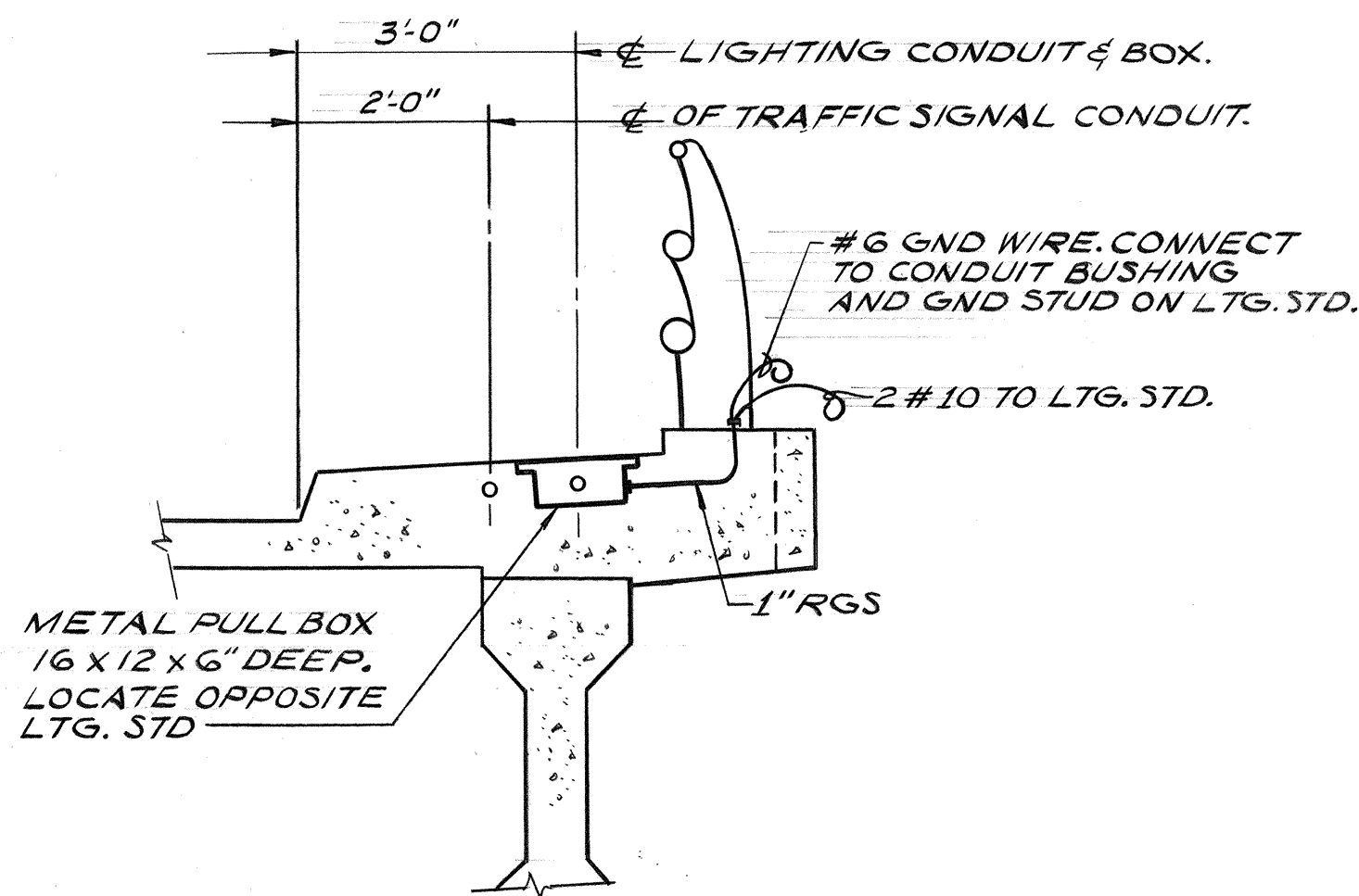
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87)-13	1970	118	244



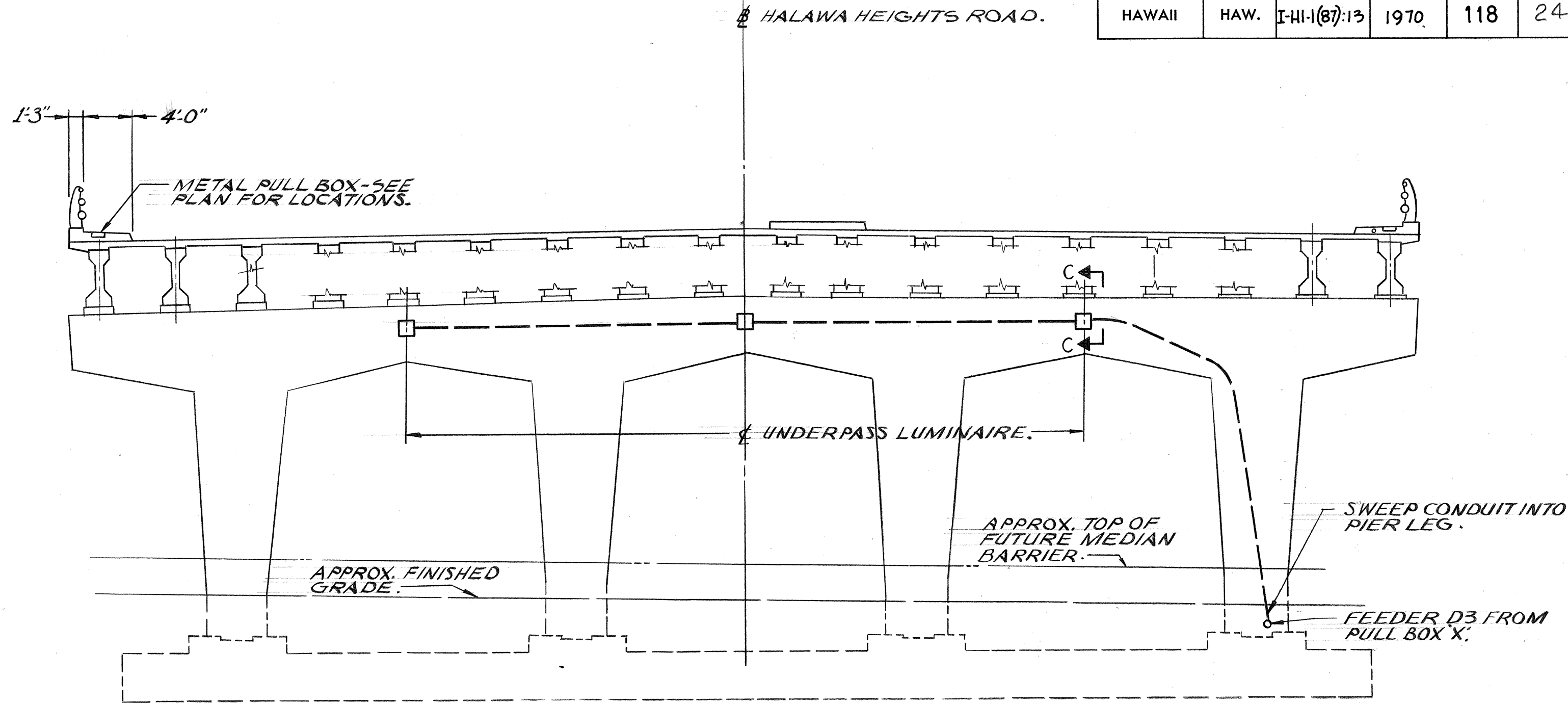
DETAIL 5/12E
PHOTOMETRIC CURVE FOR
UNDERPASS LUMINAIRE
NO SCALE



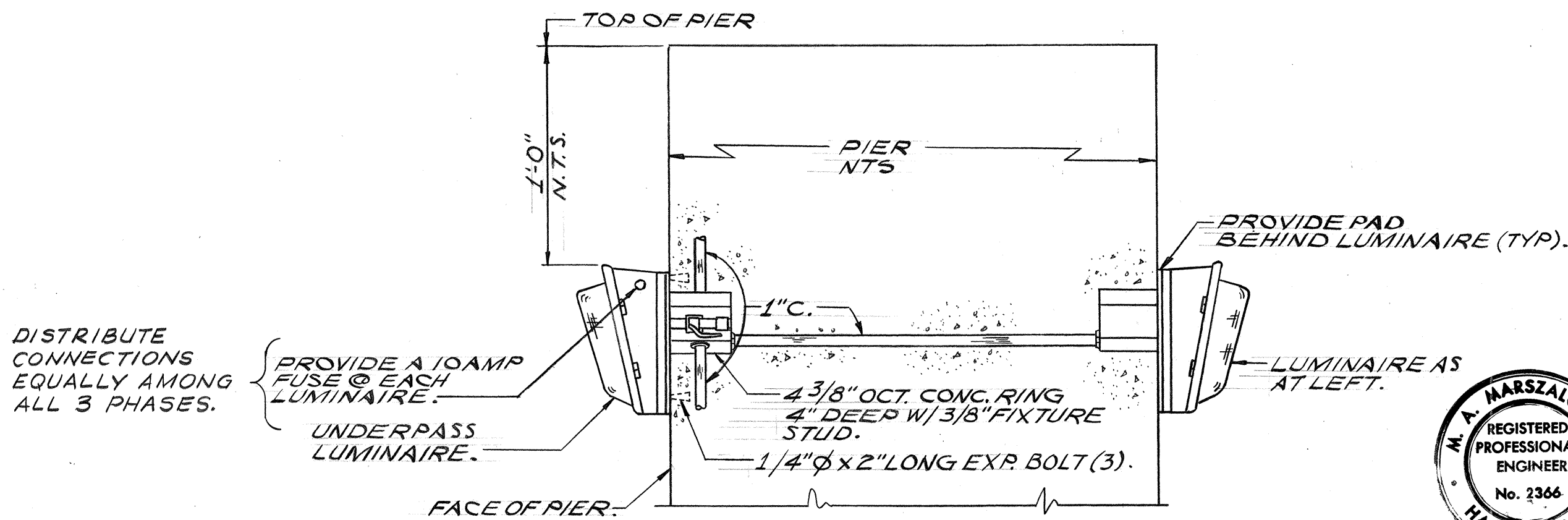
SECTION A-A
DETAIL 2/12E
SCALE: 1/2"=1'-0"



SECTION B-B
DETAIL 3/12E
SCALE: 1/2"=1'-0"



DETAIL 1/12E
ELEVATION - NORTH FACE OF PIER
SCALE: 1/8"=1'-0"



SECTION C-C
DETAIL 4/12E
UNDERPASS LUMINAIRE
SCALE: 1"=1'-0"

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ELECTRICAL SHEET 12E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DETAILS
STRUCTURE NO. 10

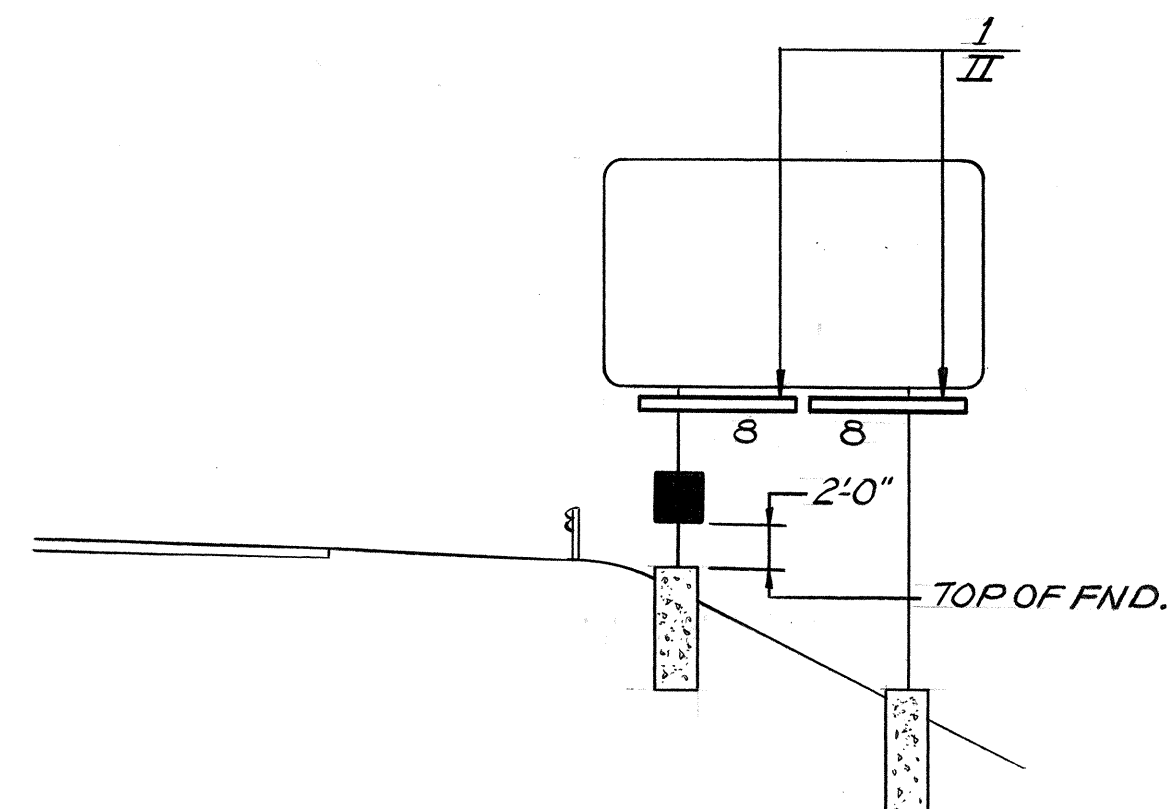
HALAWA INTERCHANGE
PROJECT NO. I-HI-1(87)-13

SCALE: AS SHOWN DATE: 6/8/70

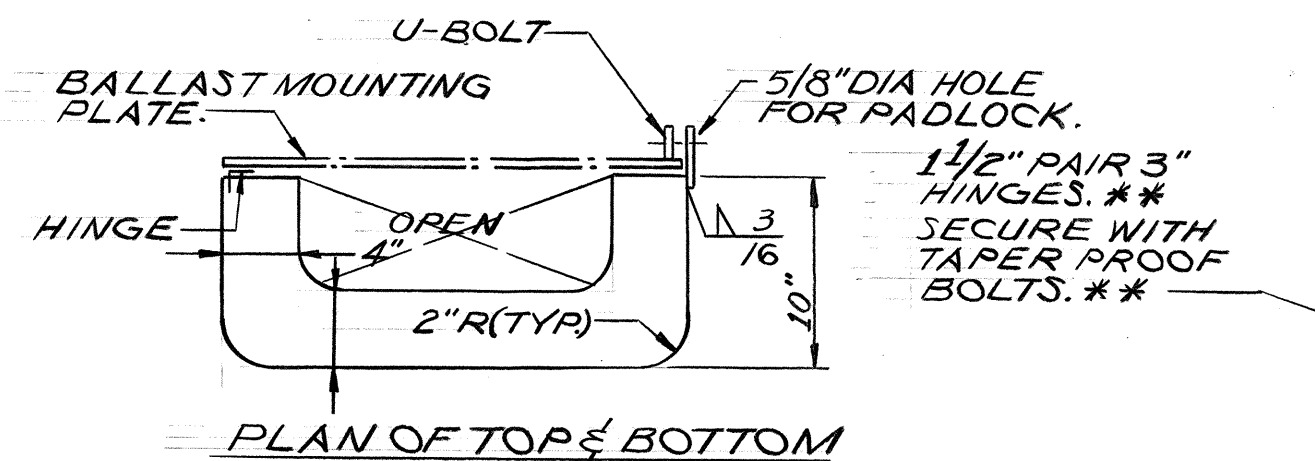
SHEET No. 12E OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87):13	1970	119	244

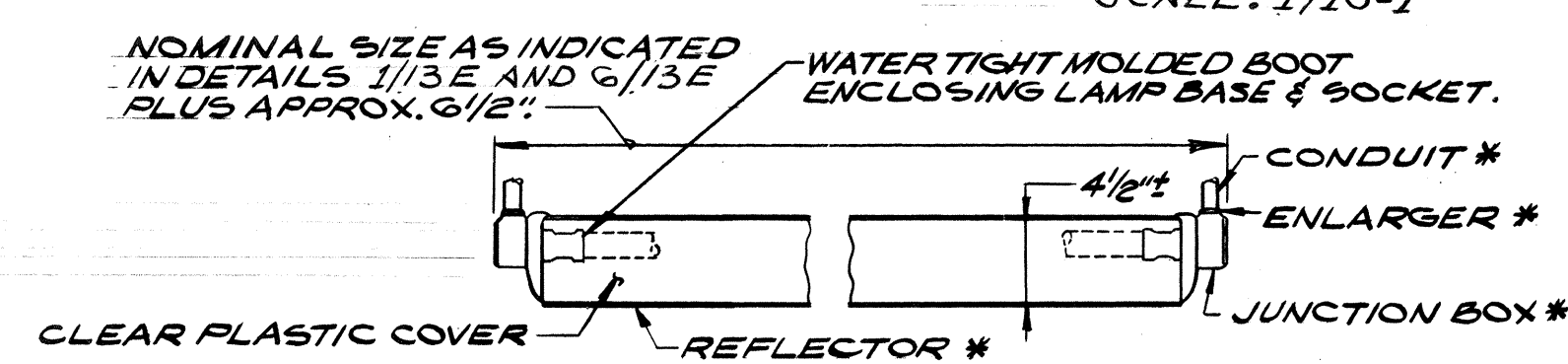
- NOTES**
- FOR SCHEMATIC DIAGRAM OF CONNECTION TO SIGN LUMINAIRES SEE DETAIL 6/3E.
 - FOR DETAIL OF FOUNDATION FOR OVERHEAD SIGN SEE SHEET 117.
 - FOR DETAIL OF FOUNDATION FOR GROUND MOUNTED SIGN SEE SHEET 137.
- * ITEMS REFERENCED WITH ASTERISK SHALL BE OF ALUMINUM.
 ** ITEMS REFERENCED WITH DOUBLE ASTERISK SHALL BE OF STAINLESS STEEL.



DETAIL 1/13E
SIGN NO E22
 (LOOKING EAST)
 N.T.S.



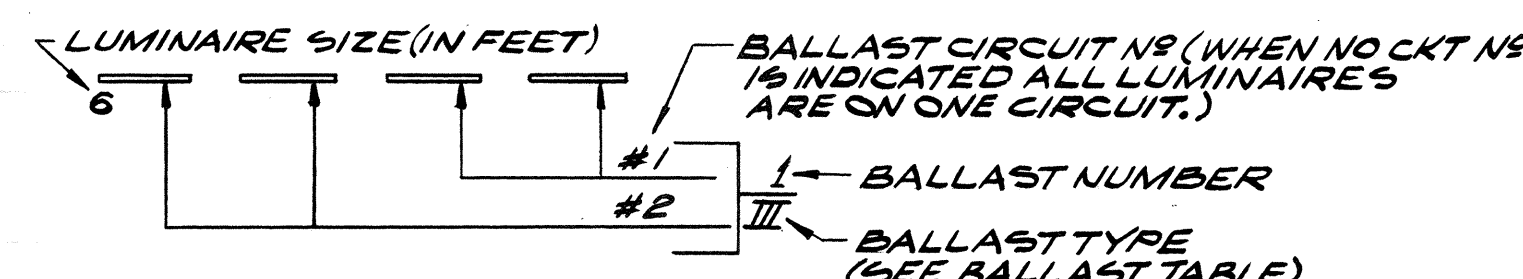
DETAIL 2/13E
BALLAST ENCLOSURE
 SCALE: 1/10=1"



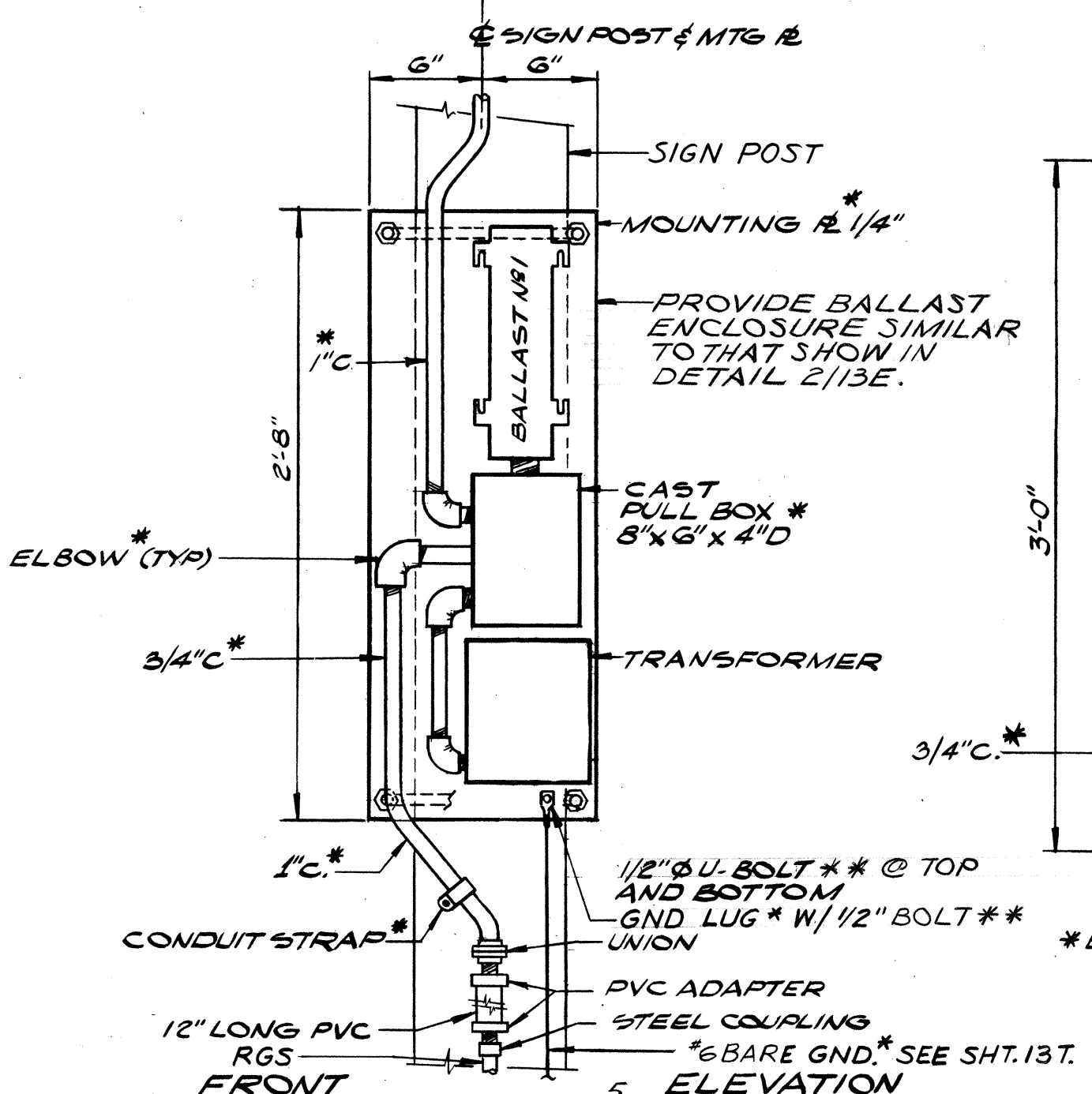
DETAIL 3/13E
SIGN LUMINAIRE
 N.T.S.

BALLAST TABLE

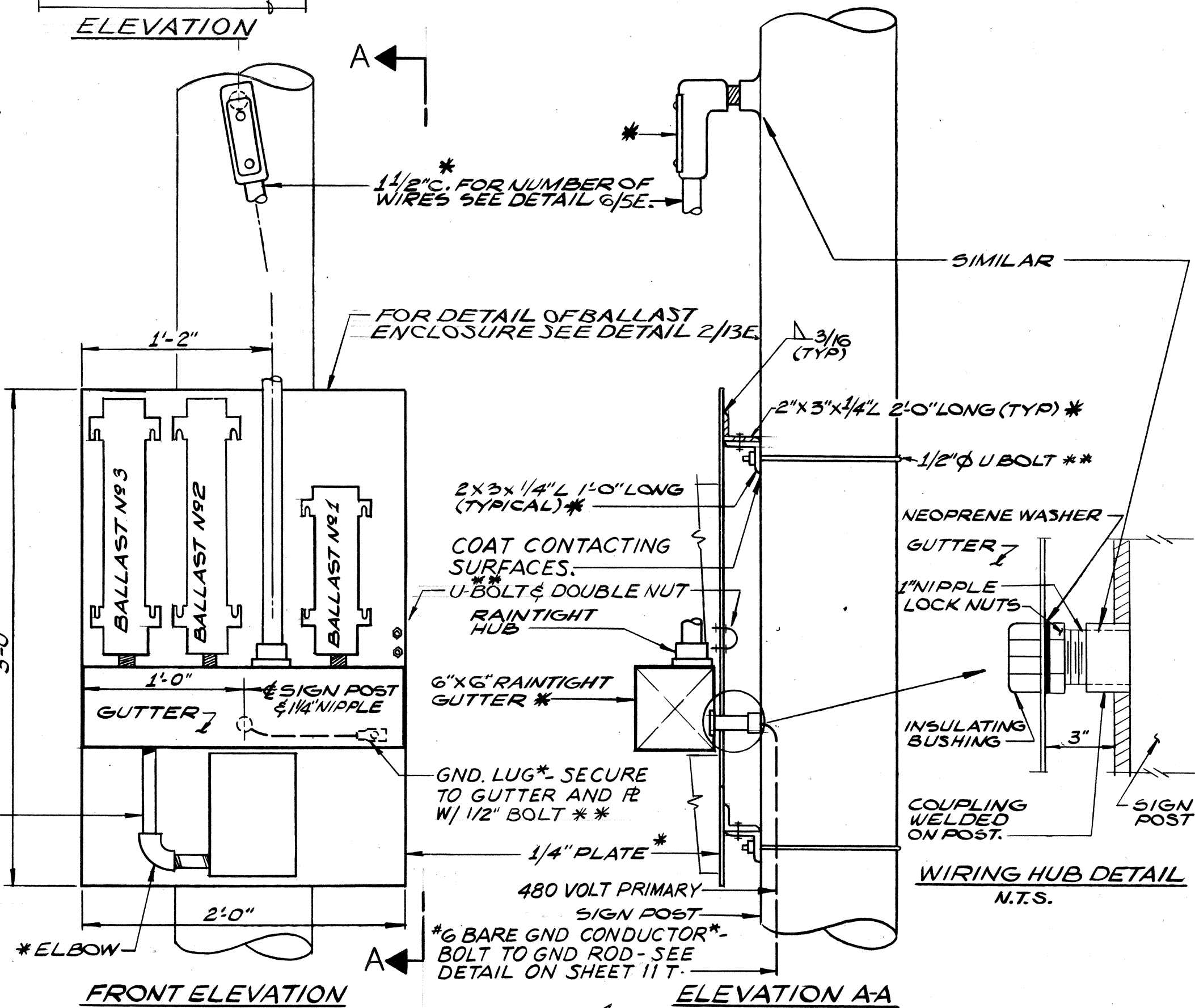
TYPE	DESCRIPTION
I	1 OR 2 LAMP COMBINATION
II	2 OR 3 LAMP COMBINATION
III	4 LAMP COMBINATION



KEY
LUM-TO-BALLAST
CONNECTION
 N.T.S.

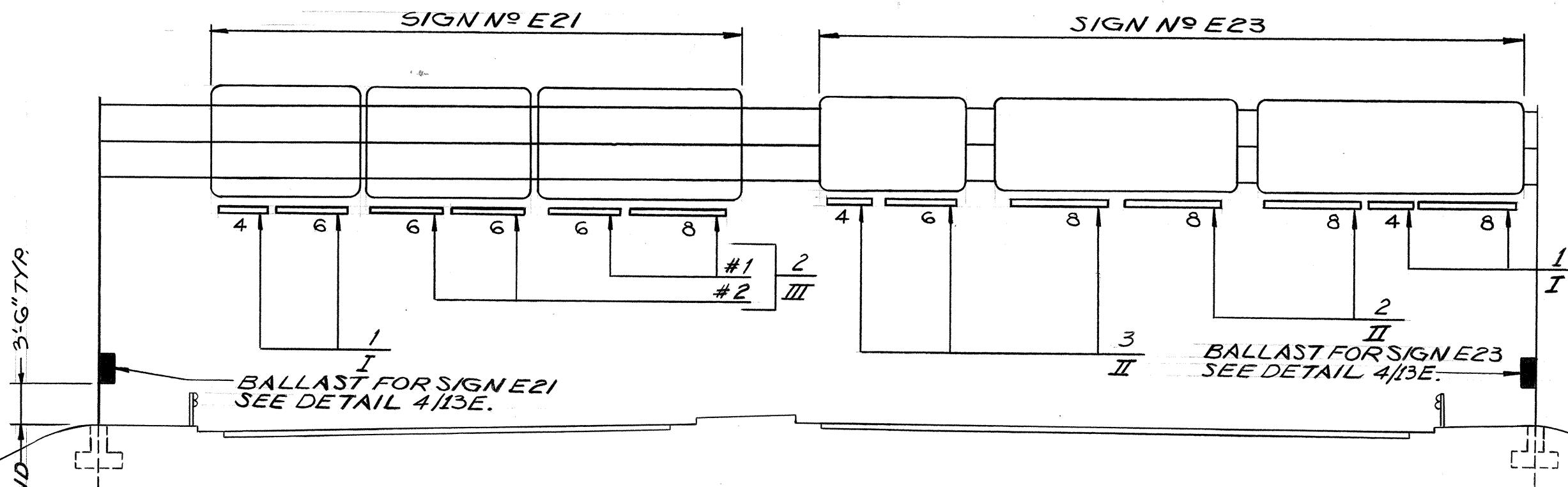


FRONT DETAIL 5/13E
ARRANGEMENT FOR SIGN NO E22
 SCALE: 1/8=1'-0"

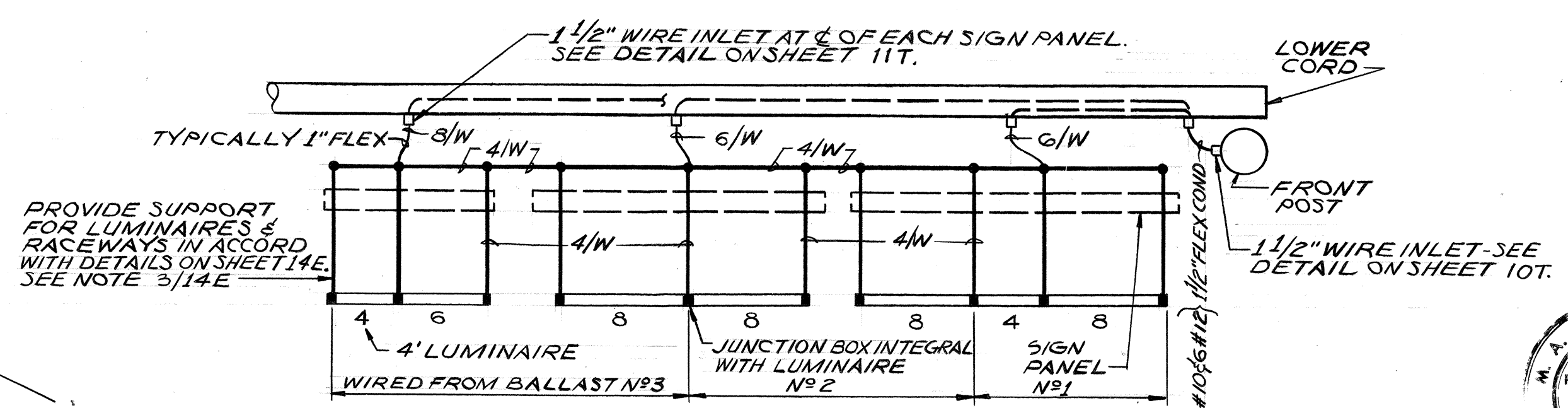


DETAIL 4/13E

BALLAST MOUNTING
 ARRANGEMENT FOR SIGN NO E23 SHOWN.
 ARRANGEMENT FOR SIGN NO E21 SIMILAR.
 SCALE: 1/8=1'-0"



DETAIL 6/13E
SIGNS NO E21 & NO E23
 (LOOKING NORTH)
 N.T.S.



PLAN DETAIL 7/13E
RACEWAY LAYOUT FOR SIGN NO E23
 SIGN NO E21 SIMILAR
 SCALE: 1/8=1'-0"



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ELECTRICAL SHEET 13E

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ELECTRICAL DETAILS
HIGHWAY SIGNS

HALAWA INTERCHANGE
 PROJECT NO. I-HI-1(87):13

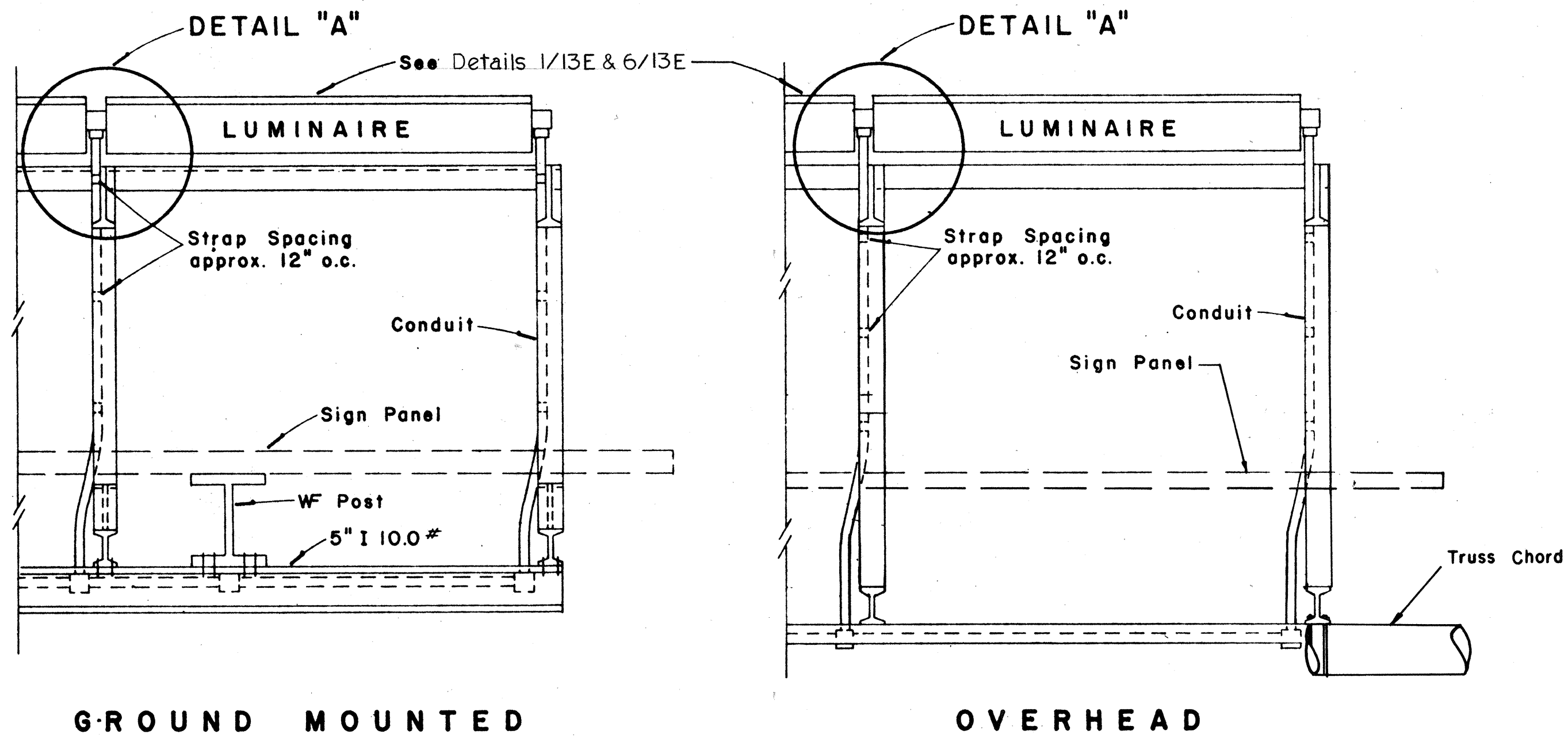
SCALE: AS SHOWN DATE: 6/8/70

SHEET No. 13E OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	14-187-13	1970	120	244

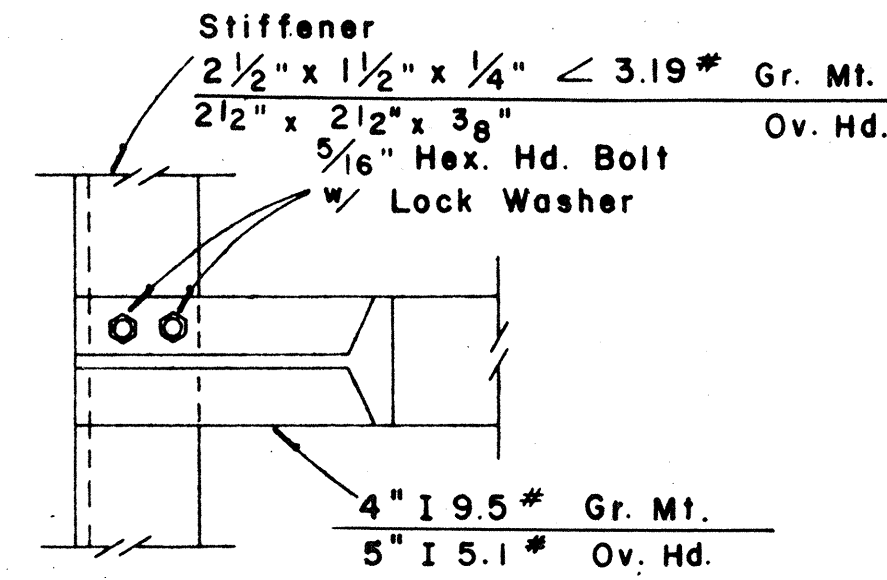
GENERAL NOTES

1. For Raceway layout for sign luminaires see Detail 7/13E.
2. Luminaire brackets shall be spaced to fit luminaires. See Detail 3/13E. Spacing between brackets shall not exceed 6'-9".
3. Luminaire brackets shall be located behind sign panels so as to be concealed thereby from the motorist's view. Location shall also be such that a minimum conduit offset will be required.



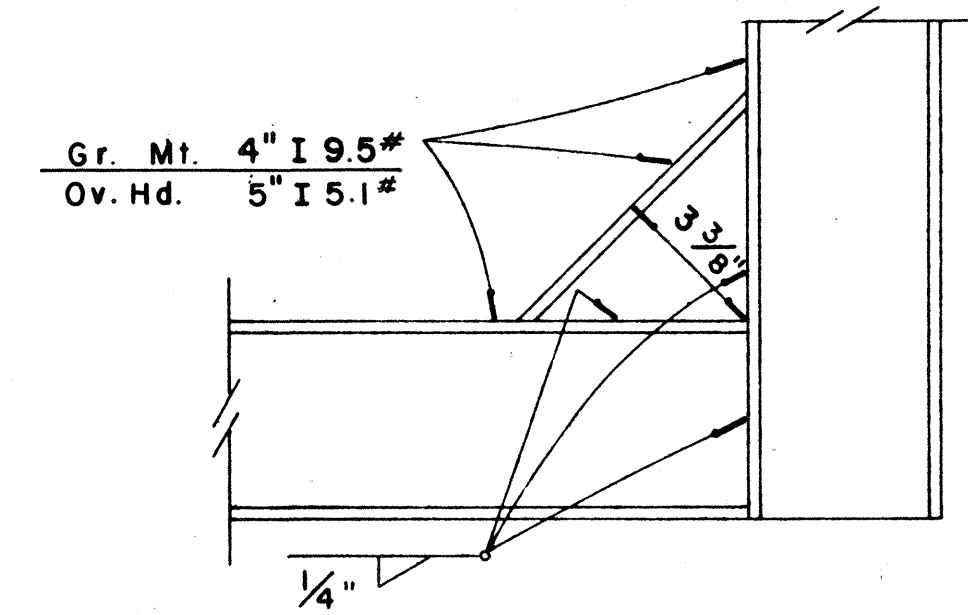
TOP VIEW LUMINAIRE MOUNTING

Scale: 1" = 1'-0"



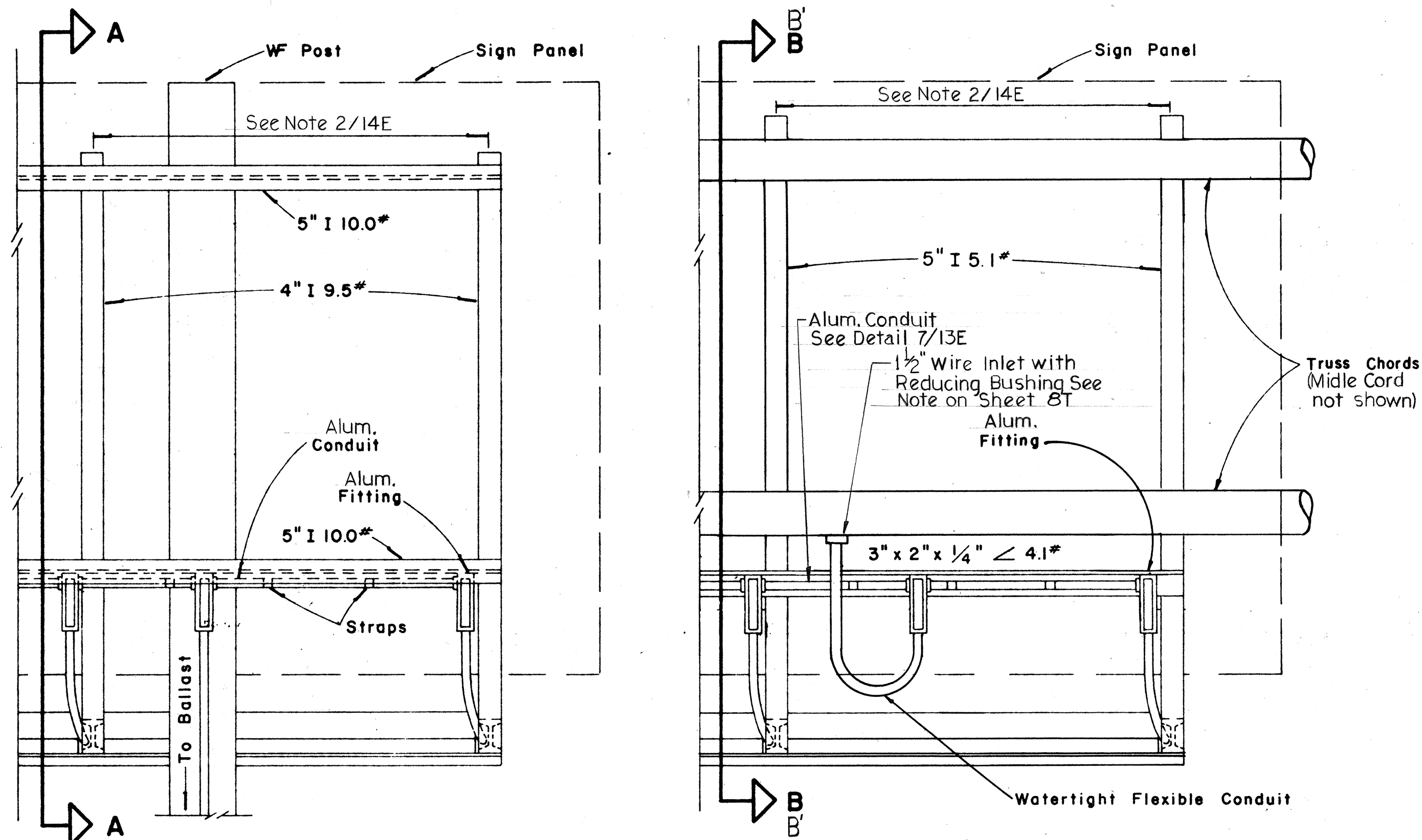
DETAIL "A"

Scale: 3" = 1'-0"



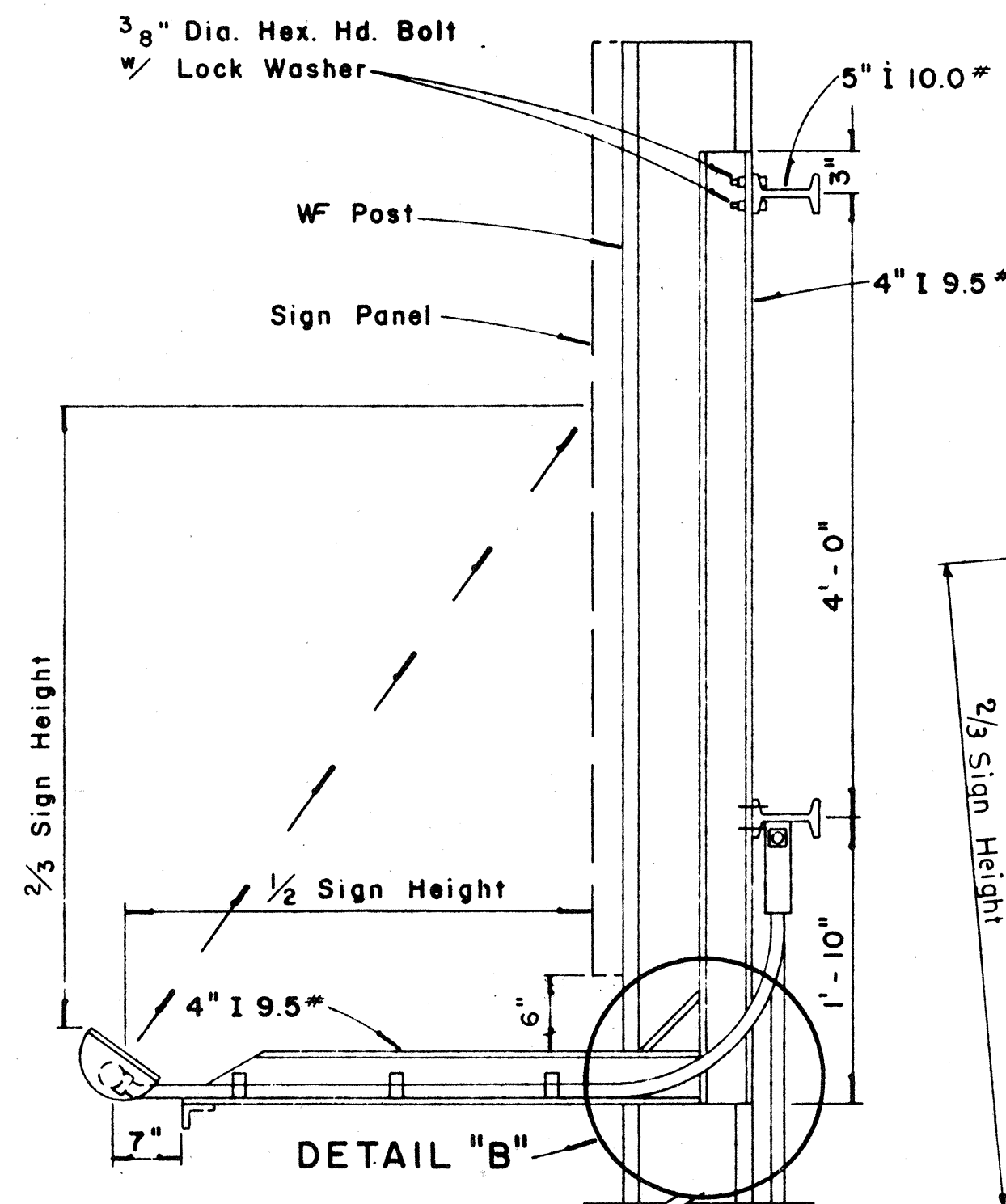
DETAIL "B"

Scale: 3" = 1'-0"



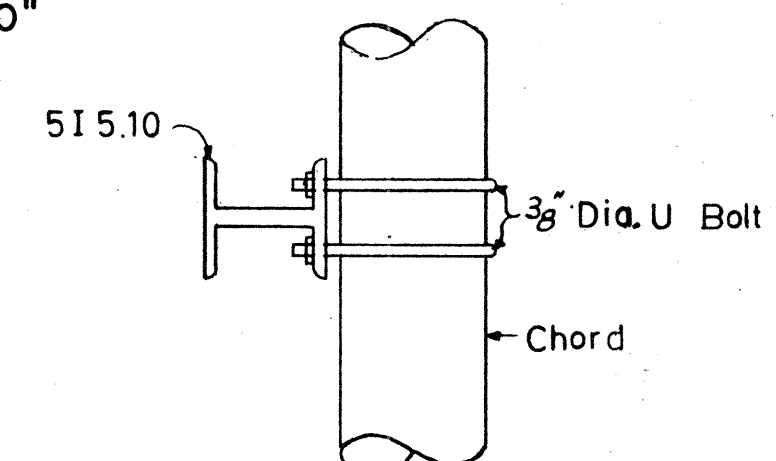
REAR VIEW LUMINAIRE MOUNTING

Scale: 1" = 1'-0"

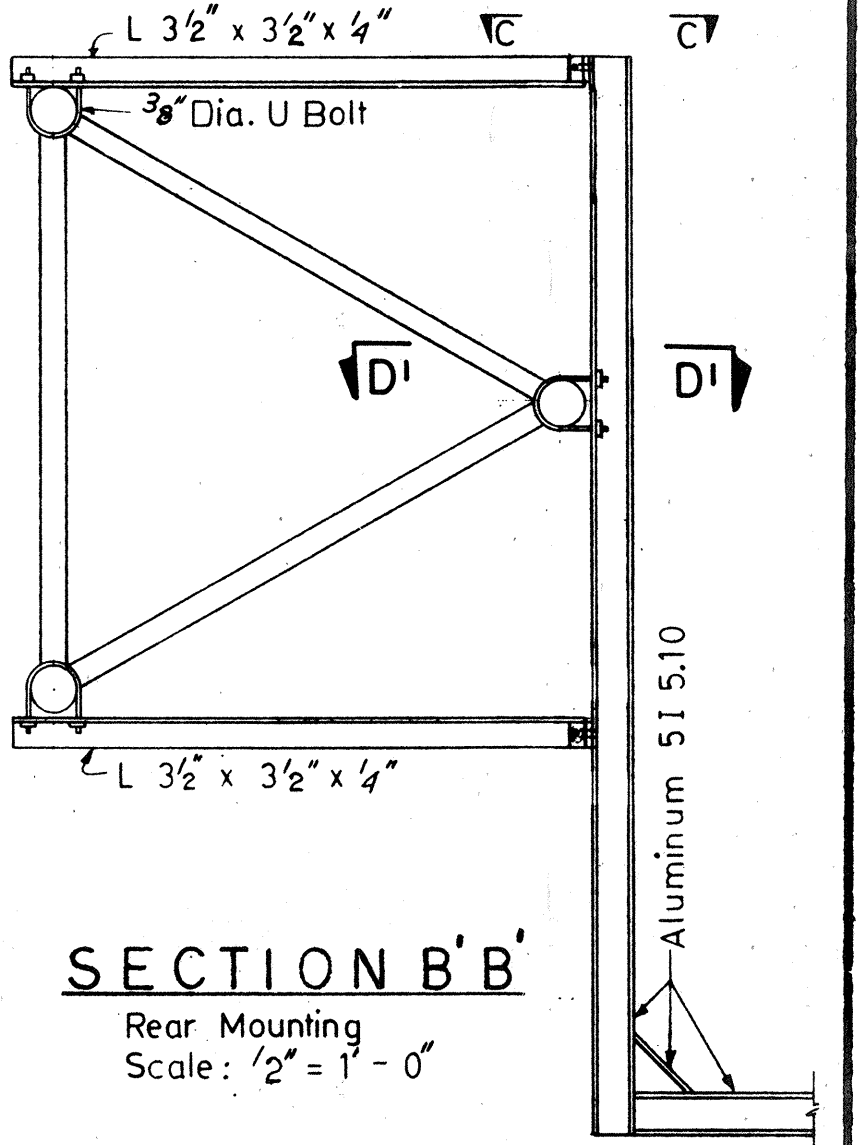


SECTION "A-A"

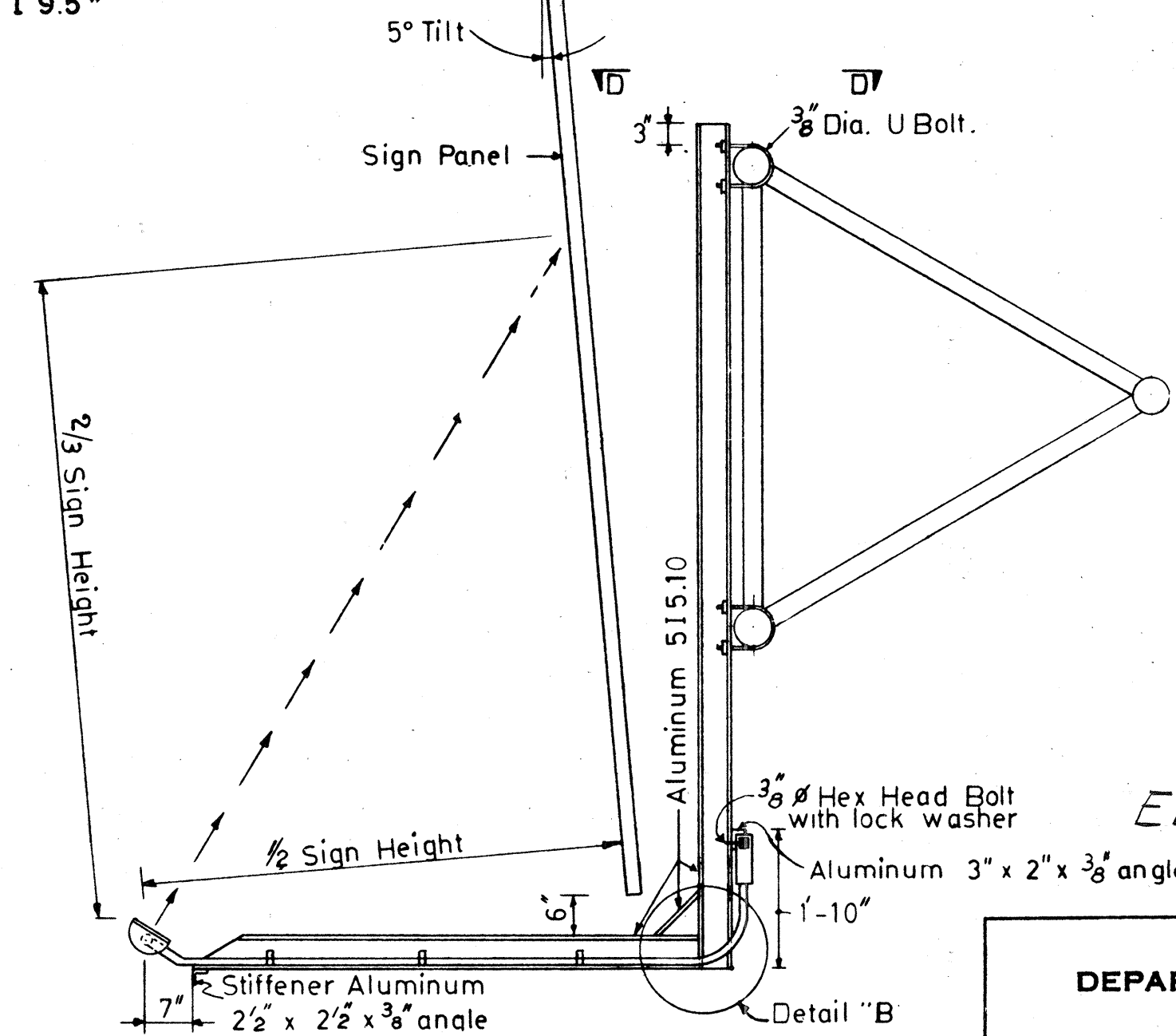
Scale: 1" = 1'-0"



SECTION D-D Section D-D opposite hand Scale: 1/2" = 1'-0"

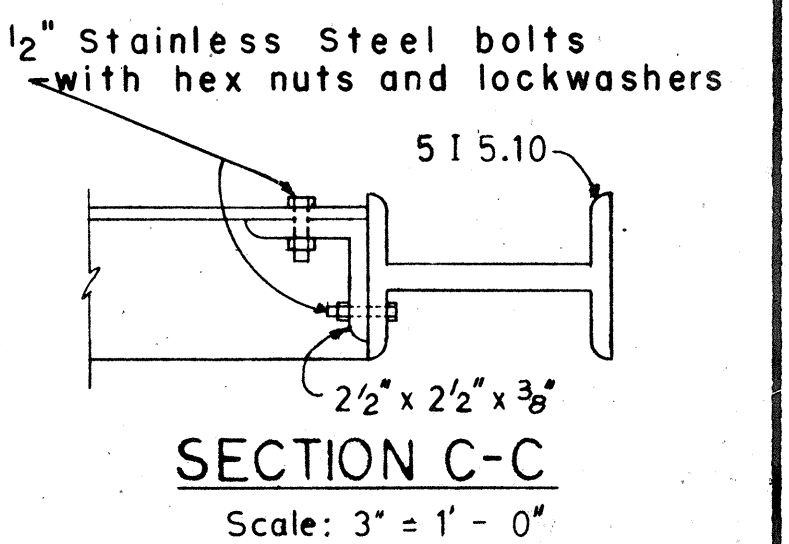


SECTION B'B' Rear Mounting Scale: 1/2" = 1'-0"



SECTION B-B Front Mounting Scale: 1/2" = 1'-0"

NOTE: 3/8" Dia. "U" bolts to be Stainless Steel with hex nuts and washers



SECTION C-C Scale: 3" = 1'-0"

ELECTRICAL SHEET 14E

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

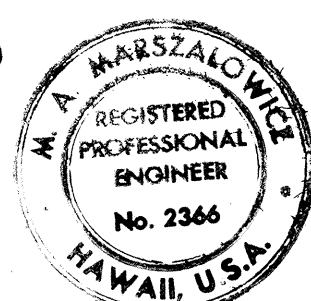
LUMINAIRE MOUNTINGS

Scale: As Shown

SHEET No. 14E OF 14 SHEETS

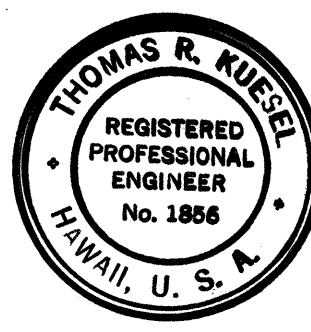
120

DATE	7-25-69
SURVEY PLOTTED BY	W. H. H.
DRAWN BY	W. H. H.
TRACED BY	W. H. H.
NOTED BY	W. H. H.
CHECKED BY	W. H. H.
ORIGINAL PLAN	
NOTE BOOK	
No.	



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Michael A. Marszalowicz



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Thomas R. Kuehl