

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)-A	1990	79	186

GENERAL NOTES

1.

SEE HIGHWAY LIGHTING PLANS FOR TEMPORARY AND PERMANENT ELECTRICAL SERVICE CONNECTIONS TO CONTROLLERS, AND TEMPORARY AND PERMANENT CONTROLLER INTERCONNECT SYSTEM.
2.

EXISTING SIGNAL SYSTEM SHALL REMAIN OPERATIONAL UNTIL NEW SYSTEM IS IN SERVICE AND SHALL BE ADJUSTED AS NECESSARY TO FACILITATE CONSTRUCTION OF NEW SYSTEMS AND OTHER FACILITIES SUCH AS UTILITIES, DRAINAGE, ETC. EXISTING LOOP DETECTORS SHALL BE RECONSTRUCTED AT NEW LOCATIONS AS REQUIRED FOR TRAFFIC PATTERNS A AND B. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO "TRAFFIC SIGNAL SYSTEM".
3.

ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS". FEDERAL HIGHWAY ADMINISTRATION, LATEST EDITION, AND AMENDMENTS.
4.

THE LOCATIONS OF THE TRAFFIC SIGNAL STANDARDS, TRAFFIC SIGNAL STANDARDS WITH MAST-ARM, PEDESTRIAN PUSH BUTTONS, TRAFFIC CONTROLLER, PULLBOXES, CONDUITS, BARRIERS & LOOP DETECTORS SHALL BE STAKED OUT IN THE FIELD BY CONTRACTOR & APPROVAL OF THE LOCATIONS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION & INSTALLATION. LOCATIONS SHOWN ON THE PLANS SHALL BE ADJUSTED AS NECESSARY TO PREVENT CONFLICTS WITH EXISTING OR NEW FACILITIES.
5.

THE CONTRACTOR SHALL VERIFY LOCATION & CONDITION OF EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE USED.
6.

IF AERIAL UTILITY LINES ARE IN CONFLICT WITH PROPOSED MASTARMS FOR SIGNAL HEADS, CONTRACTOR SHALL REQUEST IN WRITING ADJUSTMENTS TO AERIAL LINES BY UTILITY COMPANIES AT LEAST 2 MONTHS PRIOR TO THE INSTALLATION OF MASTARMS.
7.

ALL NEW CONDUITS UNDER ROADWAY (INCLUDING DRIVEWAYS) SHALL BE PVC SCHEDULE 80. CONTRACTOR SHALL HAVE THE OPTION OF USING PVC SCHEDULE 40 FOR NEW CONDUITS NOT UNDER ROADWAY, UNLESS OTHERWISE NOTED.
8.

IN ADDITION TO THE CONDUITS INDICATED IN THE "CONDUIT & CABLE SCHEDULE" INSTALL ONE 3-INCH CONDUIT IN THE FOOTINGS OF ALL FINAL CONTROLLERS. CONDUIT SHALL BE STUBBED-OUT 12" FROM FOOTING AND SHALL BE CAPPED.
9.

A SOLID #8 BARE COPPER WIRE SHALL BE INSTALLED IN THE ENTIRE TRAFFIC SIGNAL CONDUIT SYSTEM FOR USE AS A SYSTEM GROUND.
10.

LOOP DETECTORS SHALL BE IN ACCORDANCE WITH STANDARD PLAN TE-40, EXCEPT FOR THE FOLLOWING:

(a)

LOOP SIZE SHALL BE 6'x6'

(b)

LOOP SPACING SHALL BE 12'-0"

(c)

PROVIDE 4 CABLE TURNS IN A LOOP

(d)

PROVIDE SEPARATE LEAD-IN CABLE FOR EACH INDIVIDUALLY NUMBERED LOOP (E.G. LOOP #52) AND FOR EACH GROUP OF LOOPS WITH SAME NUMBERS (E.G. LOOPS #51A AND #51B)
11.

LEAD-IN WIRES IN PULLBOX NEAR LOOPS SHALL BE TAGGED WITH LOOP NUMBER(S).
12.

EXISTING PAVEMENTS SHALL BE RESTORED IN ACCORDANCE WITH DETAIL "RESTORATION OF EXIST. PAVEMENT" SHOWN ON ROADWAY CONSTRUCTION PLANS.

13.

SIGNAL PHASING FOR TRAFFIC PATTERN A AND B SHALL BE SAME AS EXISTING.
14.

DEPARTMENT OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU WILL ASSIST THE ENGINEER IN CONSTRUCTION INSPECTION FOR THE TRAFFIC SIGNAL SYSTEM.
WORK BY THE DEPT. OF TRANSPORTATION SERVICES, C & C OF HONOLULU:

a.

TEST CONTROLLER & AUXILIARY EQUIPMENT IN CABINET.

b.

MAKE ALL ELECTRICAL EQUIPMENT CONNECTIONS IN THE FIELD FOR SIGNAL SYSTEM AFTER THE SYSTEM HAS BEEN INSTALLED IN PLACE BY THE CONTRACTOR. (EXCEPT FOR EVP; SEE SPECIFICATIONS).

c.

FINAL ADJUSTMENT OF TRAFFIC SIGNAL CONTROL EQUIPMENT.
15.

FOOTING TYPE II FOR SIGNAL STANDARD WITH MASTARM AND LIGHTING STANDARD EXTENSION SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD PLAN TE-39, EXCEPT THAT DIMENSION "c" SHALL BE 9'-0".
16.

STEEL PLATES FOR COVERING TRENCHES SHALL HAVE SKID RESISTANT SURFACE.

CONSTRUCTION SEQUENCE

- PHASE I :

(a)

INSTALL ALL NEW CONTROLLERS (MODEL 170 CONTROLLER WITH MODEL 332 CABINET) AND CONNECT TO EXISTING SIGNAL SYSTEM.

(b)

RECONSTRUCT EXISTING LOOP DETECTORS AT NEW LOCATIONS FOR TRAFFIC PATTERN A.

(c)

INSTALL CONTROLLER INTERCONNECT CABLE AND CONNECT TO CITY'S COMPUTERIZED TRAFFIC CONTROL SYSTEM (SEE HIGHWAY LIGHTING PLANS).
- PHASE II :

(a)

CONSTRUCT NEW SIGNAL SYSTEMS, EXCEPT FINAL LOOP DETECTORS AND AS OTHERWISE INDICATED

(b)

CONSTRUCT CONTROLLER FINAL INTERCONNECT SYSTEM (SEE HIGHWAY LIGHTING PLANS).

(c)

RECONSTRUCT LOOP DETECTORS AT NEW LOCATIONS FOR TRAFFIC PATTERN B. CONNECT ALL LOOP DETECTORS TO NEW SIGNAL SYSTEM.

(d)

REMOVE OLD SIGNAL SYSTEM FACILITIES UPON COMPLETION OF NEW SYSTEM.

(e)

INSTALL EVP.
- PHASE III :

(a)

CONSTRUCT FINAL LOOP DETECTORS.

(b)

ADJUST PULLBOXES, ETC. TO FINISH GRADE.

(c)

COMPLETE ALL OTHER WORK.

TRAFFIC SIGNAL LEGEND

EXISTING	PROPOSED	
		CONDUITS AND CABLES, CONDUIT RUN #2
		TRAFFIC SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD WITH PEDESTRIAN PUSH BUTTON ASSEMBLY AND SIGN R10-4b(L) OR R10-4b(R), AS APPROPRIATE
		SIGNAL STANDARD WITH MASTARM (L=40'), POLE H, FOOTING TYPE II, (SEE GEN. NOTE 16)
		SIGNAL STANDARD WITH MASTARM AND LIGHTING STANDARD EXTENSION, POLE A, FOOTING TYPE II (SEE GEN. NOTE 15)
		SIGNAL STANDARD TYPE I
		EMERGENCY VEHICLE PREEMPTION RECEIVER; CIRCUIT A; (H)=HORIZONTAL MOUNT, (V)=VERTICAL MOUNT
		LOOP DETECTORS
		PULLBOX TYPE A
		PULLBOX TYPE B
		PULLBOX TYPE C
		PULLBOX TYPE Z
		TRAFFIC CONTROLLER AND FOUNDATION

ABBREVIATIONS

R	RED
Y	AMBER
G	GREEN
OLA	OVERLAP A
OLB	OVERLAP B
OLC	OVERLAP C
Ø	PHASE OR DIAMETER
SHLD	SHIELDED
EVP	EMERGENCY VEHICLE PRE-EMPTION SYSTEM



R10-4b(R)
5" x 7"



R10-4b(L)
5" x 7"



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Werner Beuggert

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM

NOTES & LEGEND

KALANIANA'OLE HIGHWAY

Waiuape Circle to East Hind Drive

F.A. PROJECT NO. F-072-1(34)-A

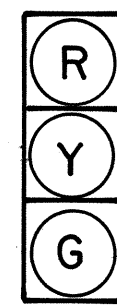
SCALE:

DATE: June 30, 1990

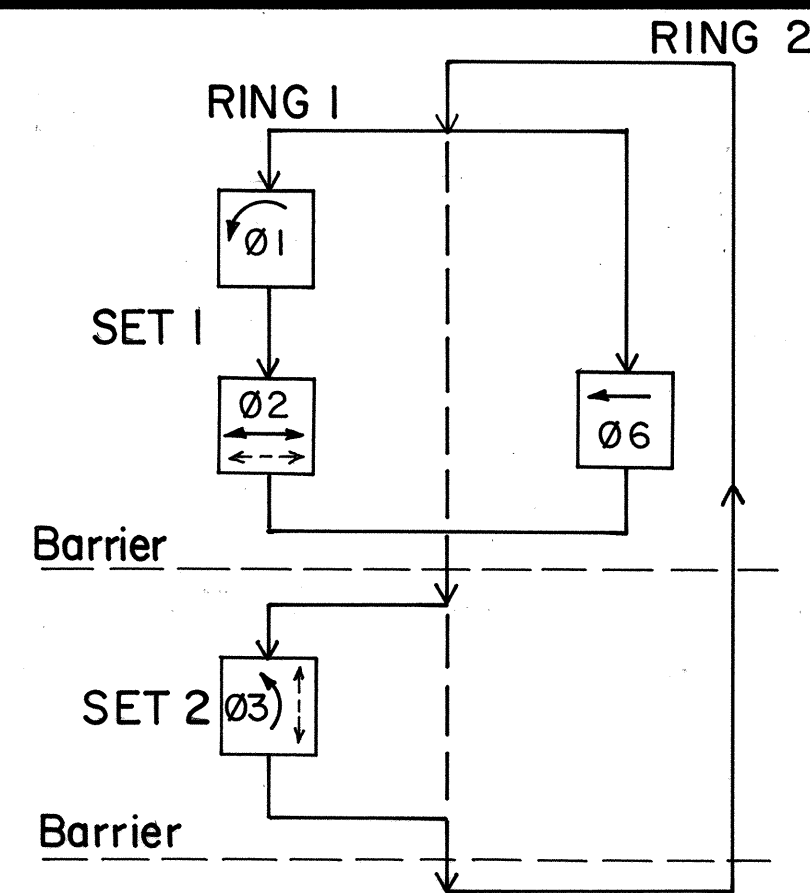
SHEET No. F-1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-I(34)-A	1990	80	186

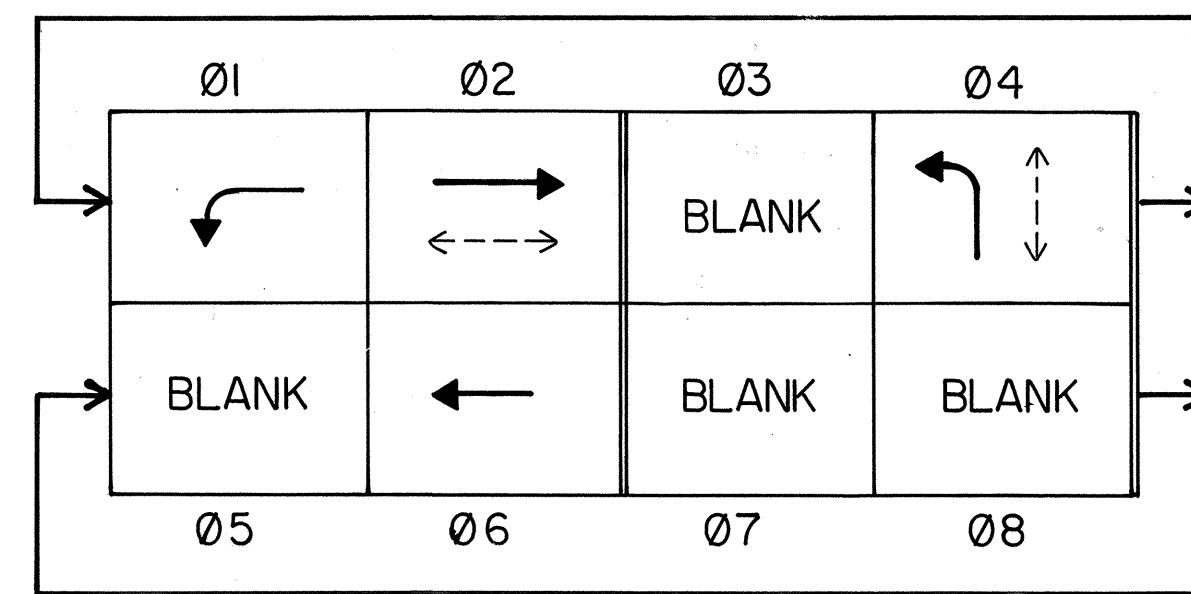
SIGNAL INDICATIONS



E-1



EXISTING PHASE DIAGRAM



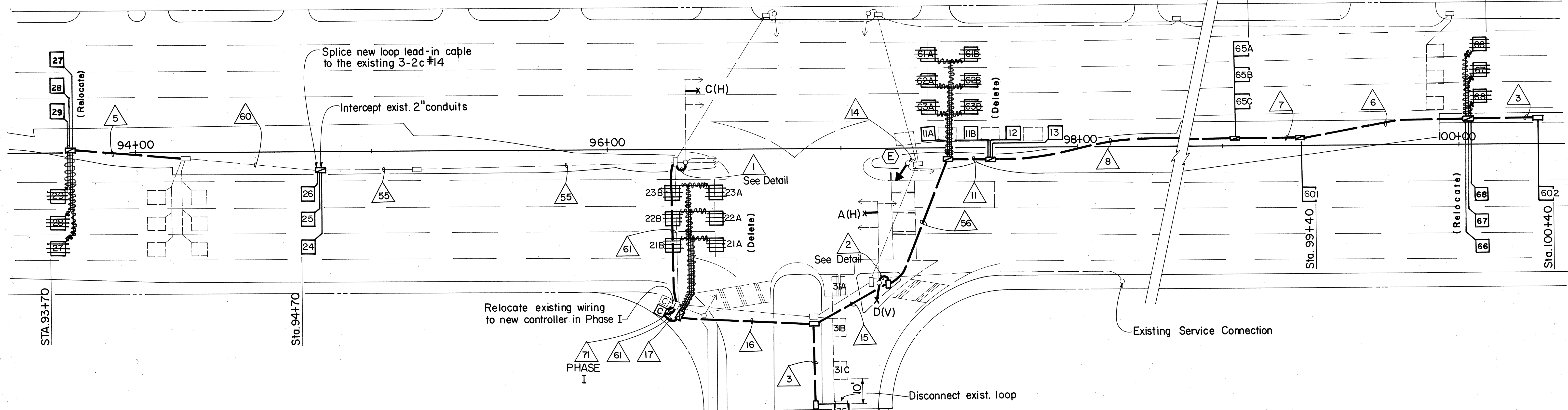
NEW PHASE DIAGRAM
(MODEL 170 CONTROLLER)

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENTS
A	Ø 2
C	Ø 1 + Ø 6
D	Ø 4

NOTES:

- Where cable must be installed in conduits with existing wires & cable, the Contractor shall if necessary, disconnect & remove the existing wires & cables and shall reinstall them with the new cables and reconnect them. The Contractor shall exercise care not to damage existing cable or wires.

TRUE NORTH
Scale: 1" = 20'



CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE	△	CONDUIT	CABLE
1	1-2" RIGID STEEL	1-3c #20 SHLD	56	2-2" SCH 80	12-2c #14 SHLD
2	1-2" RIGID STEEL	2-3c #20 SHLD	60	1-2" SCH 80	3-2c #14 SHLD
3	1-2" SCH 80	1-2c #14 SHLD	61	2-2" SCH 80	6-2c #14 SHLD, 1-3c #20 SHLD
5	1-2" SCH 80	3-2c #14 SHLD	71*	6-2" SCH 80	2-26c #14, 9-2c #14 SHLD, 1-3c #4
6	1-2" SCH 80	4-2c #14 SHLD			
7	1-2" SCH 80	5-2c #14 SHLD			
8	1-2" SCH 80	6-2c #14 SHLD			
11	1-2" SCH 80	9-2c #14 SHLD			
14	1-2" SCH 80 ▲	4-#14			
15	2-2" SCH 80	12-2c #14 SHLD, 2-3c #20 SHLD			
16	2-2" SCH 80	13-2c #14 SHLD, 2-3c #20 SHLD			
17	3-2" SCH 80	16-2c #14 SHLD, 2-3c #20 SHLD			
55	1-2" SCH 80 ▲	6-2c #14 SHLD,			

▲ Existing Conduit, See Note 1

* Contractor to field verify wire runs.

NOTE:

Repair damaged grout & seal conduit opening w/grout

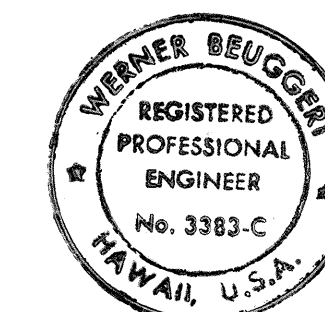
Existing signal pole

Remove grout & concrete to install conduit under base plate

2" conduit outlet body (Install on side protected from traffic)

2" rigid steel conduit to pole junction box (typ.)

TYPICAL CONDUIT INSTALLATION
AT EXIST. SIGNAL POLE
N.T.S.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

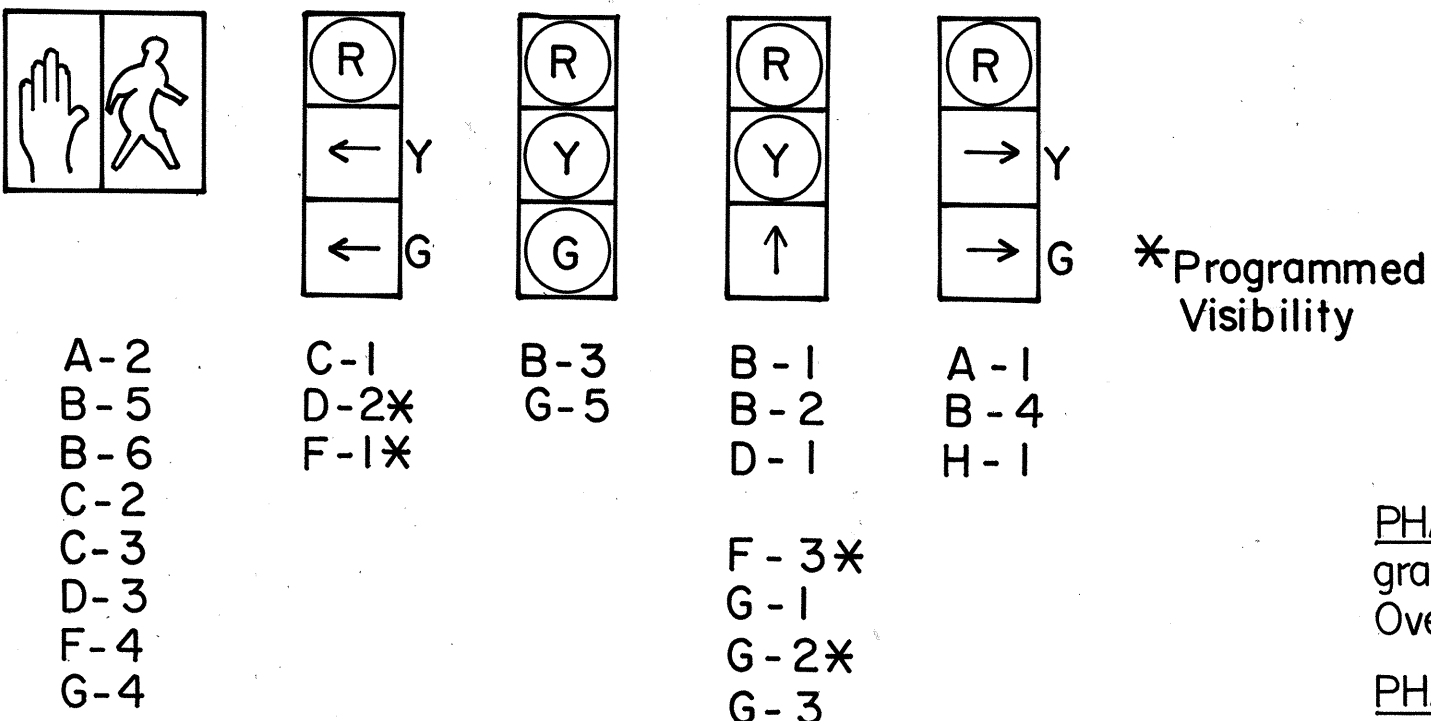
TRAFFIC SIGNAL SYSTEM WAILUPE CIRCLE

KALANIANA'OLE HIGHWAY
Wailupe Circle to East Hind Drive
FA Project No. F-072-I(34)-A

SCALE: As shown DATE: JUNE 30, 1990
SHEET No. F-2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)-A	1990	81	186

SIGNAL INDICATIONS



CIRCUIT	MOVEMENT
A	Ø2 + Ø5
B	Ø8
C	Ø6

OL	Ø	COMMENTS
A	5+8	Loops 51A, 51B, 52A, 52B, 53, 54, 55 & 56 will be connected to Ø5 & Ø8. (Max. green Ø5 will be minimal)
B	5+7+8	Loops 81A, 81B, 81C, 82A, 82B, 82C, 83 & 84 will be connected to Ø8
C	2+8	Loops 21A, 21B, 22A, 22B, 23A, 23B, 24A, 24B, 24C, 25, 26, & 27 will be connected to Ø2

PHASE I: Adjust to 1/2" below detour grade. Place steel plate cover (28"x19"x1/4"). Overlay with AC pavement.
 PHASE II: Install new pullbox 1/2" below grade. Place steel plate cover (40"x28"x1/2"). Overlay with AC pavement.
 PHASE III: Remove plate cover and adjust to finished grade.

PHASE I: Relocate existing signal standard with 3 heads to facilitate construction of drainage box culvert. Reconnect to exist. system.

PHASE I: Relocate existing signal standard with 2 heads to facilitate construction of telephone ductline. Reconnect to exist. system.

NOTES:

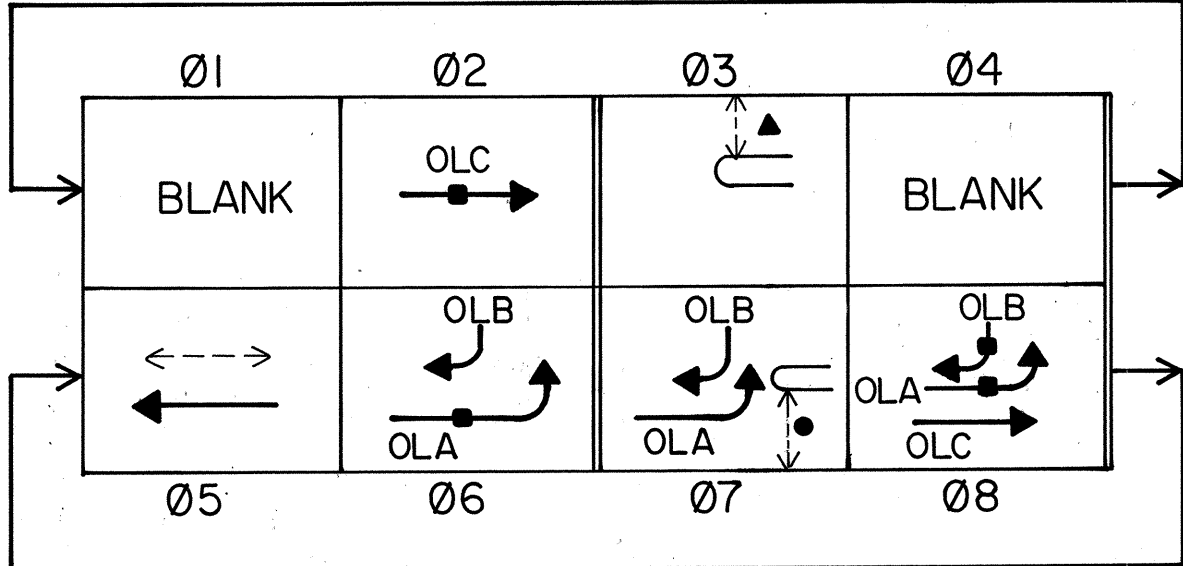
1. Install 2" Steel Conduit in PCC pavement. Stub-out conduit 6" beyond edge of PCC pavement.
2. Centerline of footing for Pole (G) must be in line with centerline of west wall of Electric Manhole E3 (see Sheet U-5).
3. Lighting standard extension on Pole (G) shall be installed in Phase III when aerial utility lines have been removed. (See Street Lighting Plans for slip fit detail for mounting lighting standard on traffic signal standard.)

CONDUIT & CABLE SCHEDULE

CONDUIT	CABLE	CONDUIT	CABLE
3 1-2" SCH 80	1-2c #14 SHLD	25 4-2" SCH 80	2-26c #14 ^Δ , 14-2c #14 SHLD
5 1-2" SCH 80	3-2c #14 SHLD	26 1-2" SCH 80	6-#14, 1-2c #14 SHLD
6 1-2" SCH 80	4-2c #14 SHLD	27 4-2" SCH 80	2-26c #14 ^Δ , 11-2c #14 SHLD, 1-3c #20 SHLD
8 1-2" SCH 80	6-2c #14 SHLD	28 3-2" SCH 80	2-26c #14 ^Δ , 1-2c #14 SHLD, 1-3c #20 SHLD
11 1-2" SCH 80	9-2c #14 SHLD	57 5-2" SCH 80	2-26c #14 ^Δ , 20-2c #14 SHLD, 2-3c #20 SHLD
13 4-2" SCH 80	2-26c #14 ^Δ , 7-2c #14 SHLD	58 4-2" SCH 80	2-26c #14 ^Δ , 4-#14, 13-2c #14 SHLD, 1-3c #20 SHLD
18 2-2" SCH 80	2-26c #14 ^Δ	59 4-2" SCH 80	2-26c #14 ^Δ , 13-2c #14 SHLD
19 1-2" SCH 80	4-#14	73* 6-2" SCH 80	2-26c #14, 9-2c #14 SHLD, 1-3c #4
20 1-2" SCH 80	9-#14, 1-2c #14 SHLD		
21 2-2" SCH 80	11-#14, 2-3c #20 SHLD, 2-2c 14 SHLD		
22 1-2" SCH 80	8-#14, 2-2c #14 SHLD		
23 1-2" SCH 80	12-#14, 1-2c #14 SHLD		
24 2-2" SCH 80	9-#14, 1-2c #14 SHLD, 1-3c #20 SHLD		

^Δ Add 1-#6 AWG Neutral with each 26c #14

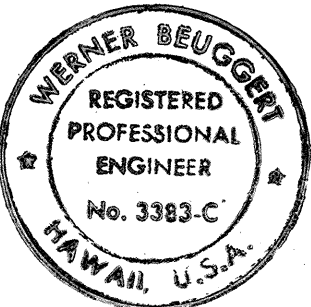
* Contractor to field verify wire runs.



- Overlap with Loop Detector Input
- ▲ Pedestrian inputs for heads C-3 and D-3 connected to Ø3
- Pedestrian inputs for heads F-4 and G-4 connected to Ø7

NEW PHASE DIAGRAM
(TRAFFIC PATTERN C)
MODEL 170 CONTROLLER

EXIST. PHASE DIAGRAM
(TRAFFIC PATTERNS A & B)



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
WEST HIND DRIVE

KALANIANA'OLE HIGHWAY
Waiupe Circle to East Hind Drive
F.A. Project No. F-072-1(34)-A

SCALE: As shown
DATE: JUNE 30, 1990
SHEET No. F-3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)-A	1990	82	186

NOTE:
1. Lighting standard extension on Pole (D) shall be installed in Phase III when aerial utility lines have been removed. (See Street Lighting Plans for slip fit detail for mounting lighting standard on traffic signal standard.)

TRUE NORTH
Scale: 1"=20'

Remove flashing beacon

Embed Conduit in new bridge parapet
(Delete)

SIGNAL INDICATIONS

A-5
A-6
B-3
D-6
E-3
F-1
G-2
G-3

D-3
D-4
D-5
E-1
E-2*
G-1
G-4

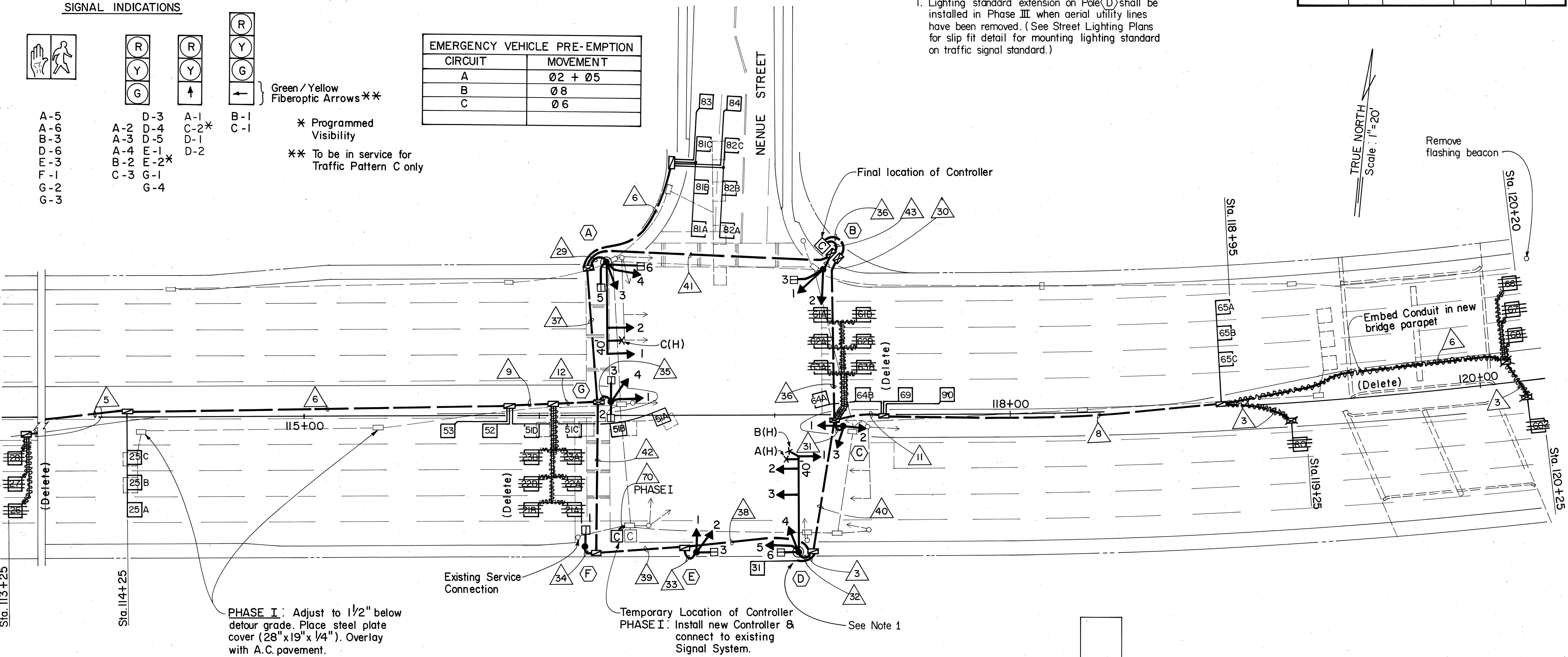
A-1
C-2*
D-1
D-2

B-1
C-1

* Programmed Visibility
** To be in service for Traffic Pattern C only

Green / Yellow Fiberoptic Arrows **

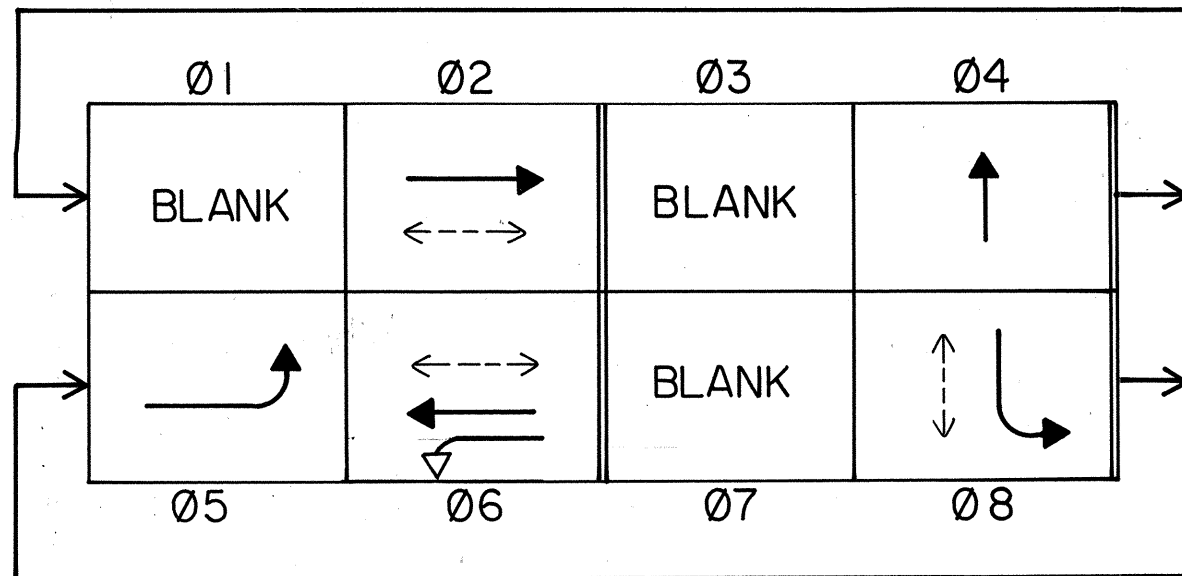
CIRCUIT	MOVEMENT
A	Ø2 + Ø5
B	Ø8
C	Ø6



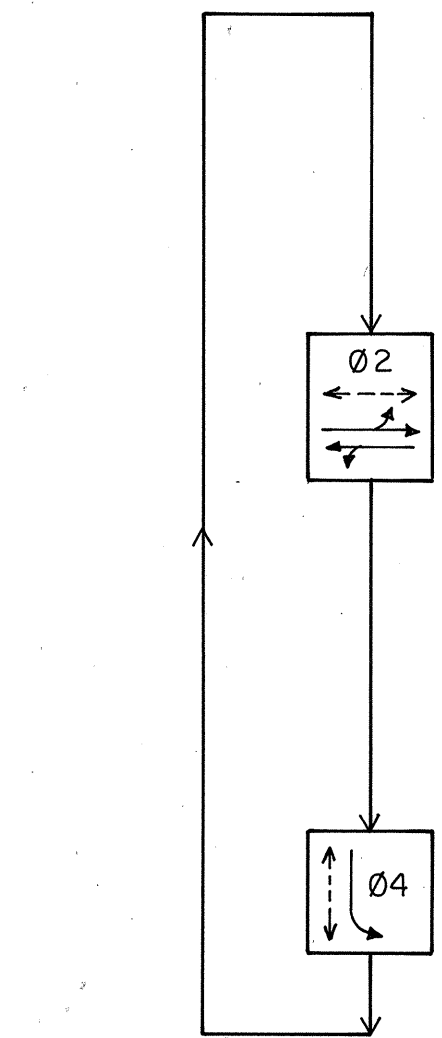
CONDUIT & CABLE SCHEDULE

CONDUIT	CABLE	CONDUIT	CABLE
3 1-2" SCH 80	1-2c #14 SHLD	36 5-2" SCH 80	2-26c #14, 14-2c #14 SHLD, 2-3c #20 SHLD
5 1-2" SCH 80	3-2c #14 SHLD	37 5-2" SCH 80	2-26c #14, 13-2c #14 SHLD
6 1-2" SCH 80	4-2c #14 SHLD	38 2-2" SCH 80	2-26c #14
8 1-2" SCH 80	6-2c #14 SHLD	39 2-2" SCH 80	2-26c #14, 1-2c #14 SHLD
9 1-2" SCH 80	7-2c #14 SHLD	40 3-2" SCH 80	2-26c #14, 2-2c #14 SHLD, 2-3c #20 SHLD
11 1-2" SCH 80	9-2c #14 SHLD	41 5-2" SCH 80	2-26c #14, 16-2c #14 SHLD, 1-3c #20 SHLD
12 2-2" SCH 80	10-2c #14 SHLD	42 3-2" SCH 80	2-26c #14, 2-2c #14 SHLD
29 2-2" SCH 80	11-#14, 2-2c #14 SHLD, 1-3c #20 SHLD	43 5-2" SCH 80	2-26c #14, 17-2c #14 SHLD, 11-#14, 1-3c #20 SHLD
30 1-2" SCH 80	11-#14, 1-2c #14 SHLD	70* 5-2" SCH 80	1-3c #6, 2-26c #14, 6-2c #14
31 1-2" SCH 80	12-#14		
32 2-2" SCH 80	12-#14, 1-2c #14 SHLD, 2-3c #20 SHLD		
33 1-2" SCH 80	9-#14, 1-2c #14 SHLD		
34 1-2" SCH 80	3-#14, 1-2c #14 SHLD		
35 1-2" SCH 80	11-#14, 2-2c #14 SHLD		

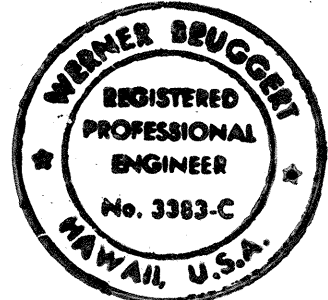
Δ Add 1 #6 AWG Neutral with each 26c #14
* Contractor to field verify wire runs.



PERMISSIVE MOVEMENT
NEW PHASE DIAGRAM
(TRAFFIC PATTERN C)
MODEL 170 CONTROLLER



EXIST. PHASE DIAGRAM
(TRAFFIC PATTERNS A & B)



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Werner Bruggert

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

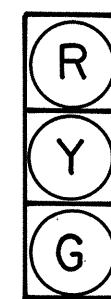
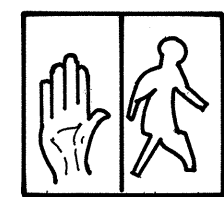
**TRAFFIC SIGNAL SYSTEM
NENU STREET**

KALANIANA'OLE HIGHWAY
Waiupe Circle to East Hind Drive
F.A. Project No. F-072-1(34)-A

SCALE: As shown DATE: JUNE 30, 1990
SHEET No. F-4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1-(34)-A	1990	83	186

SIGNAL INDICATIONS



Green / Yellow
Fiberoptic Arrows **

A-4
B-1
C-1
H-1
I-2
I-3

A-1 F-5
A-2 G-1
A-3 G-2*
F-2 I-1
F-3 I-4
F-4

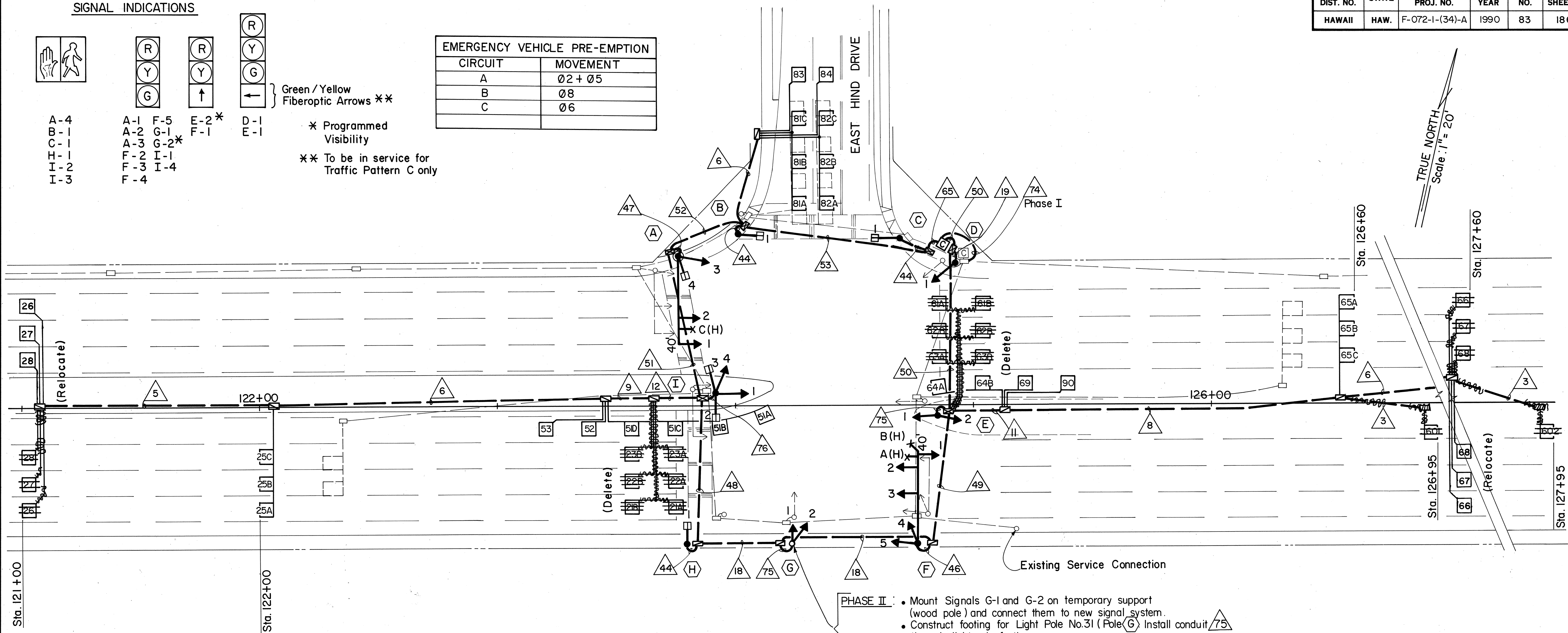
E-2*
F-1

D-1
E-1

* Programmed
Visibility

** To be in service for
Traffic Pattern C only

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	Ø2 + Ø5
B	Ø8
C	Ø6

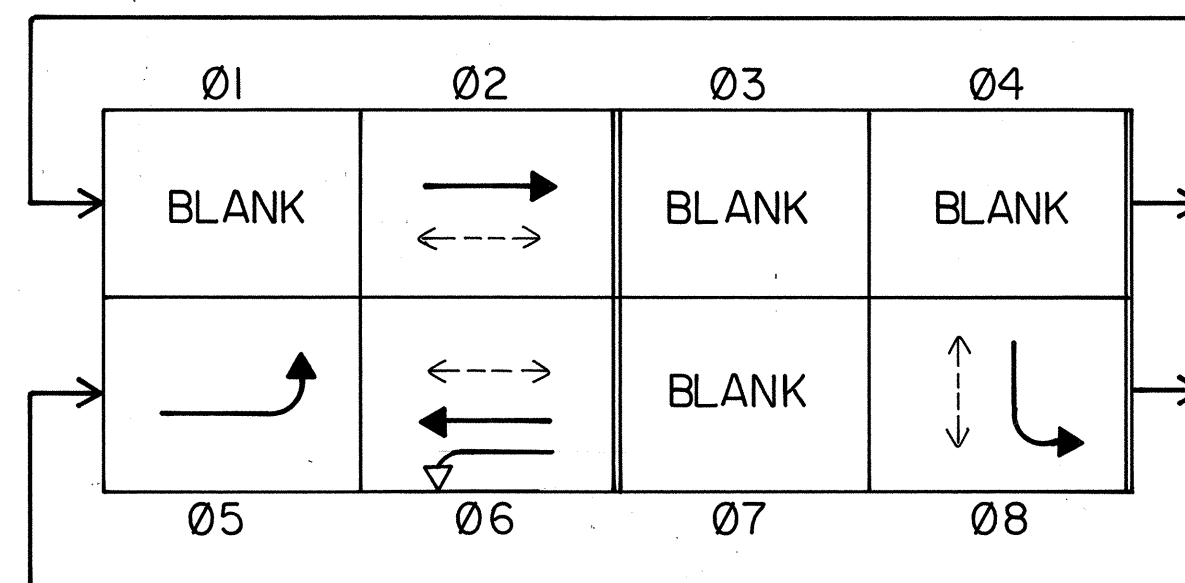


- PHASE II :**
- Mount Signals G-1 and G-2 on temporary support (wood pole) and connect them to new signal system.
 - Construct footing for Light Pole No.31 (Pole G) Install conduit 75 through light pole footing.
- PHASE III :**
- Relocate Signals G-1 and G-2 to Light Pole No. 31 (Pole G)
 - Remove wood pole and complete sidewalk pavement.

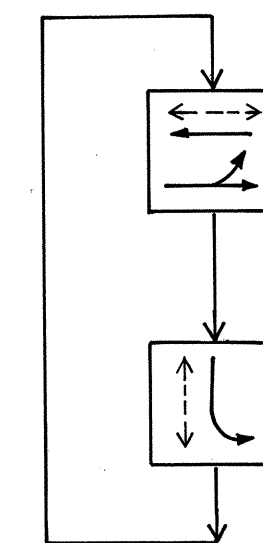
CONDUIT & CABLE SCHEDULE

CONDUIT	CABLE	CONDUIT	CABLE
3 1-2" SCH 80	1-2c #14 SHLD	49 3-2" SCH 80	2-26c #14, 2-3c #14 SHLD
5 1-2" SCH 80	3-2c #14 SHLD	50 5-2" SCH 80	2-26c #14, 12-2c #14 SHLD, 2-3c #20 SHLD
6 1-2" SCH 80	4-2c #14 SHLD	51 5-2" SCH 80	2-26c #14, 12-2c #14 SHLD
8 1-2" SCH 80	6-2c #14 SHLD	52 5-2" SCH 80	2-26c #14, 12-2c #14 SHLD, 1-3c #20 SHLD
9 1-2" SCH 80	7-2c #14 SHLD	53 6-2" SCH 80	2-26c #14, 18-2c #14 SHLD, 1-3c #20 SHLD
11 1-2" SCH 80	9-2c #14 SHLD	65 6-2" SCH 80	2-26c #14, 19-2c #14 SHLD, 1-3c #20 SHLD, 3 #14
12 2-2" SCH 80	10-2c #14 SHLD	74* 4-2" SCH 80	1-19c #14, 7-2c #14
18 3-2" SCH 80	2-26c #14 SHLD	75 1-2" SCH 80	7-#14
19 1-2" SCH 80	4-#14	76 1-2" SCH 80	11-#14, 2-2c #14 SHLD
44 1-2" SCH 80	3-#14, 1-2c #14 SHLD		
45 1-2" SCH 80	9-#14		
46 2-2" SCH 80	10-#14, 2-3c #20 SHLD		
47 2-2" SCH 80	6-#14, 1-2c #14 SHLD, 1-3c #20 SHLD		
48 3-2" SCH 80	2-26c #14, 1-2c #14 SHLD		

Δ Add 1-#6 AWG Neutral with each 26c #14.
* Contractor to field verify wire runs.

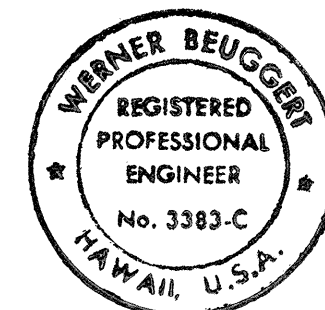


NEW PHASE DIAGRAM
(TRAFFIC PATTERN C)
MODEL 170 CONTROLLER



EXIST PHASE DIAGRAM
(TRAFFIC PATTERNS A & B)

PERMISSIVE
MOVEMENT



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Werner Beugnot

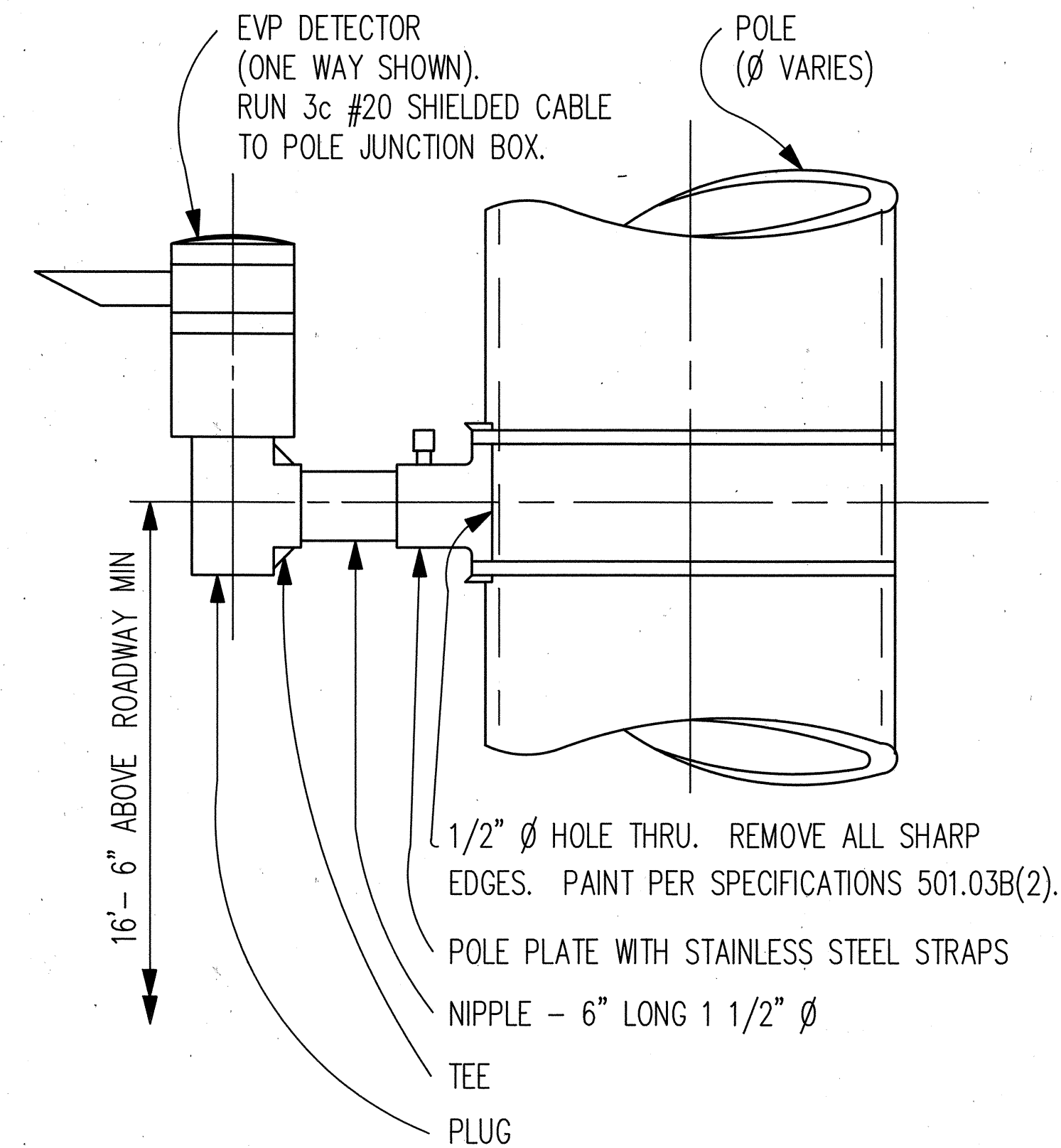
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
EAST HIND DRIVE

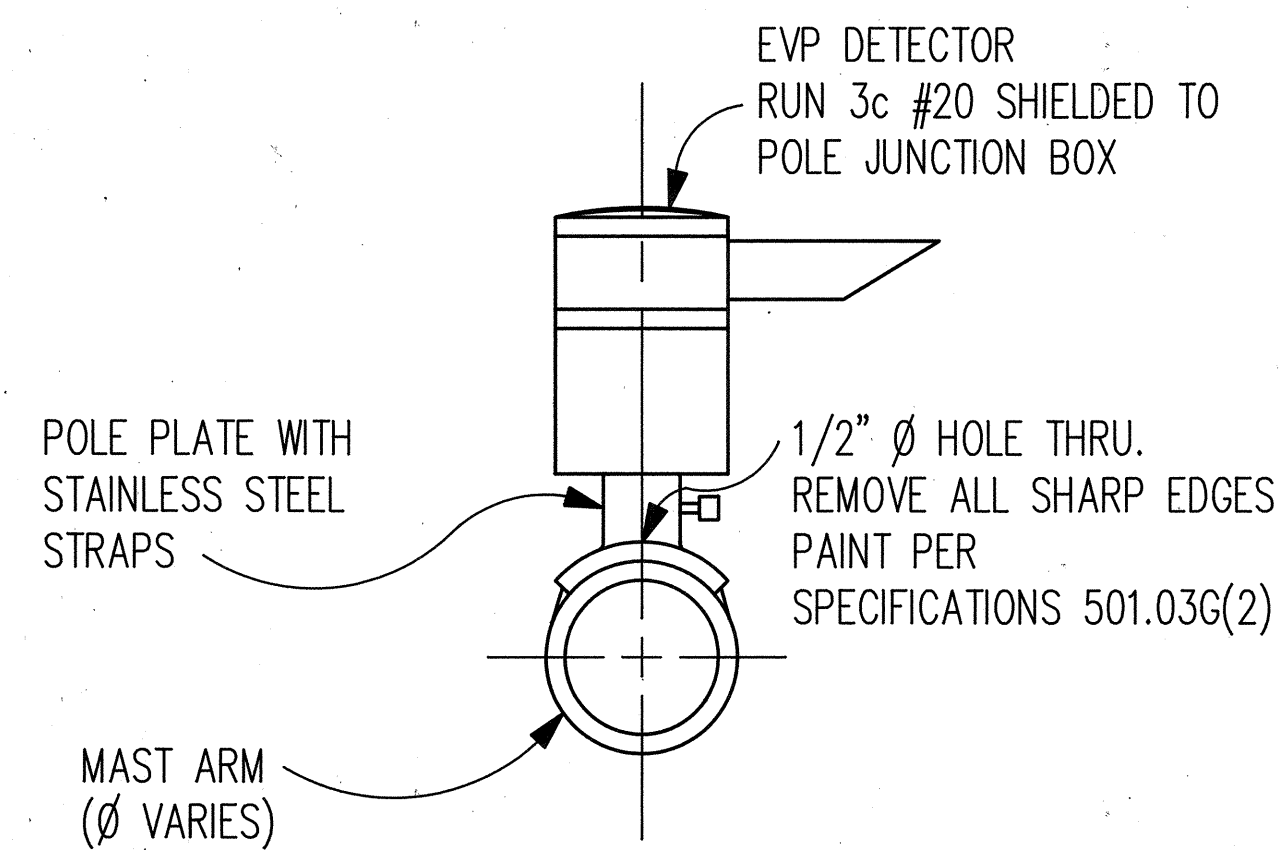
KALANIANA'OLE HIGHWAY
Waiupe Circle to East Hind Drive
FA. Project No. F-072-1(34)-A

SCALE: As shown DATE: JUNE 30, 1990
SHEET No. F-5 OF 6 SHEETS

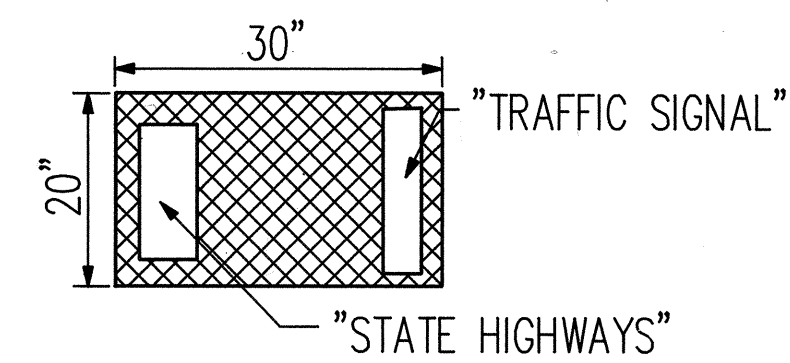
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)-A	1990	84	186



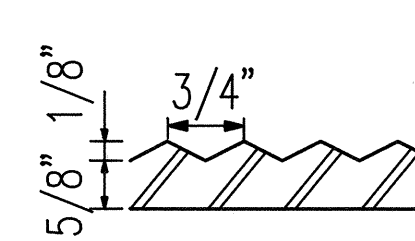
TYPICAL VERTICAL MOUNT OF EVP DETECTOR
NOT TO SCALE



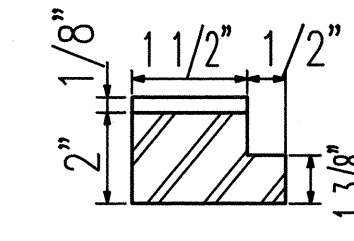
TYPICAL HORIZONTAL MOUNT OF EVP DETECTOR
NOT TO SCALE



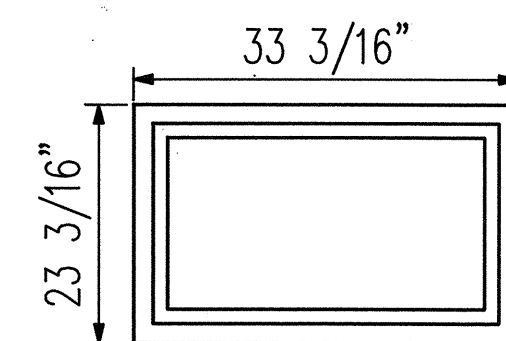
PLAN OF COVER



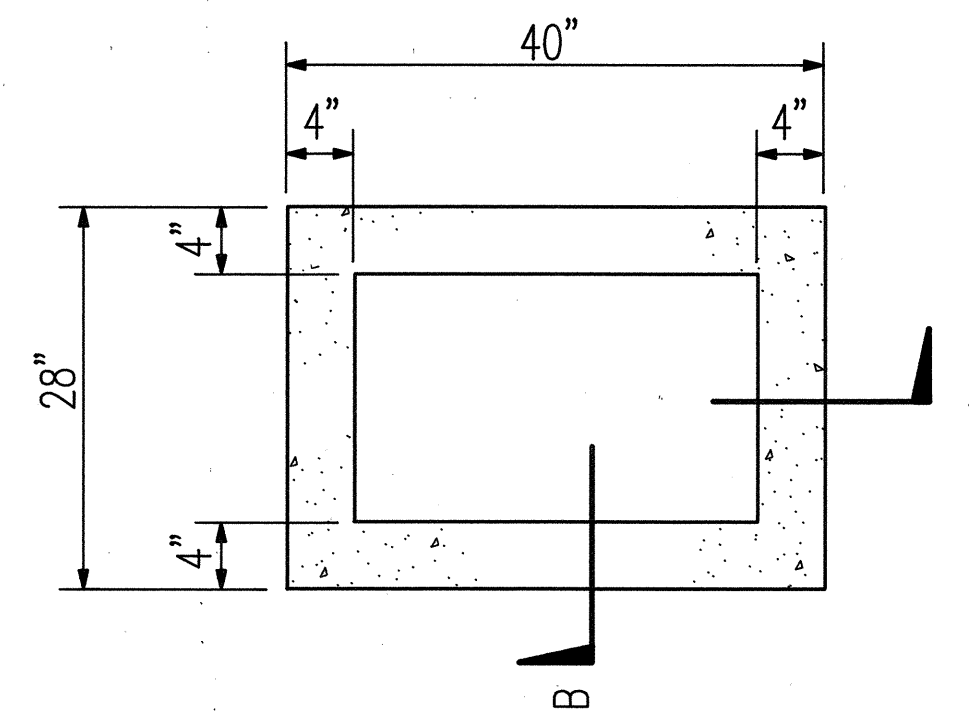
SECTION THROUGH COVER



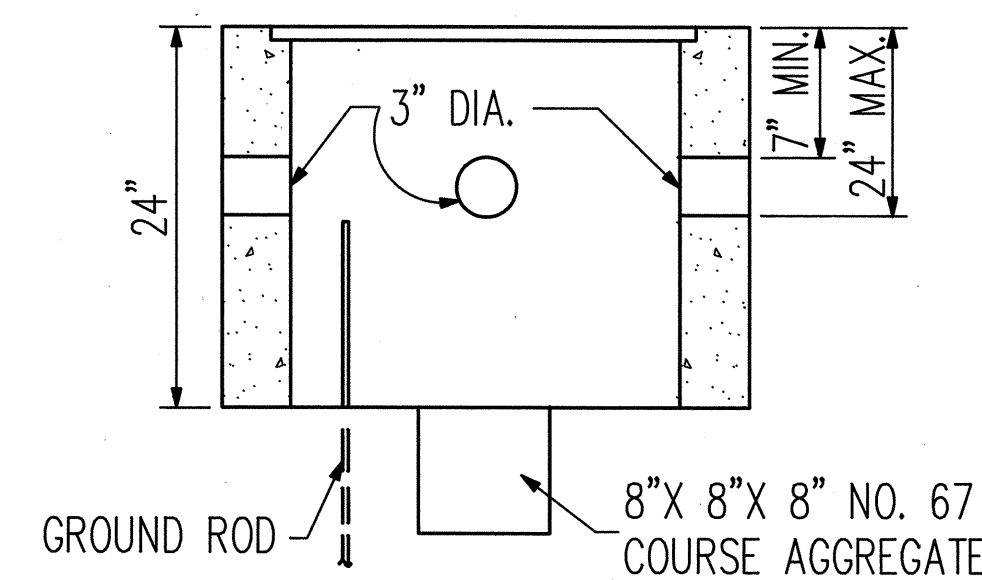
SECTION THROUGH FRAME



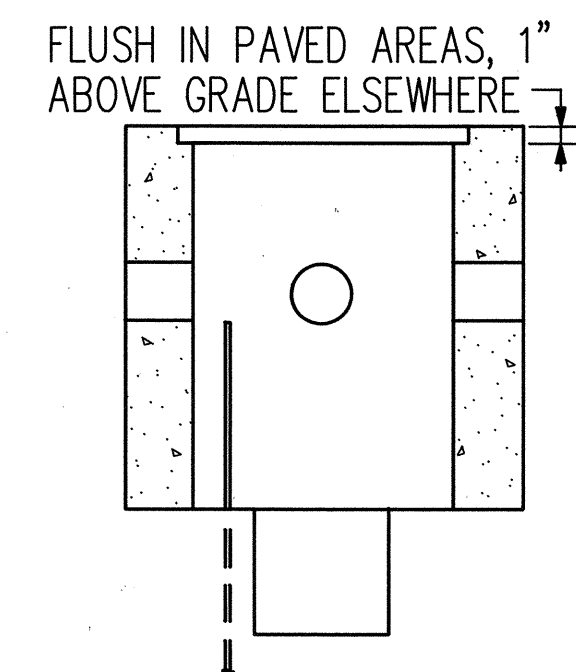
PLAN OF FRAME



PLAN OF PULLBOX

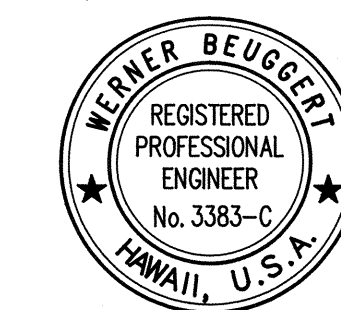


SECTION A-A



SECTION B-B

PULLBOX TYPE Z
NOT TO SCALE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Werner Beugert

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM
DETAILS**

KALANIANA'OLE HIGHWAY
Wailupe Circle to East Hind Drive
F.A. PROJECT NO. F-072-1(34)-A

SCALE: NOT TO SCALE DATE: June 30, 1990
SHEET No. F-6 OF 6 SHEETS