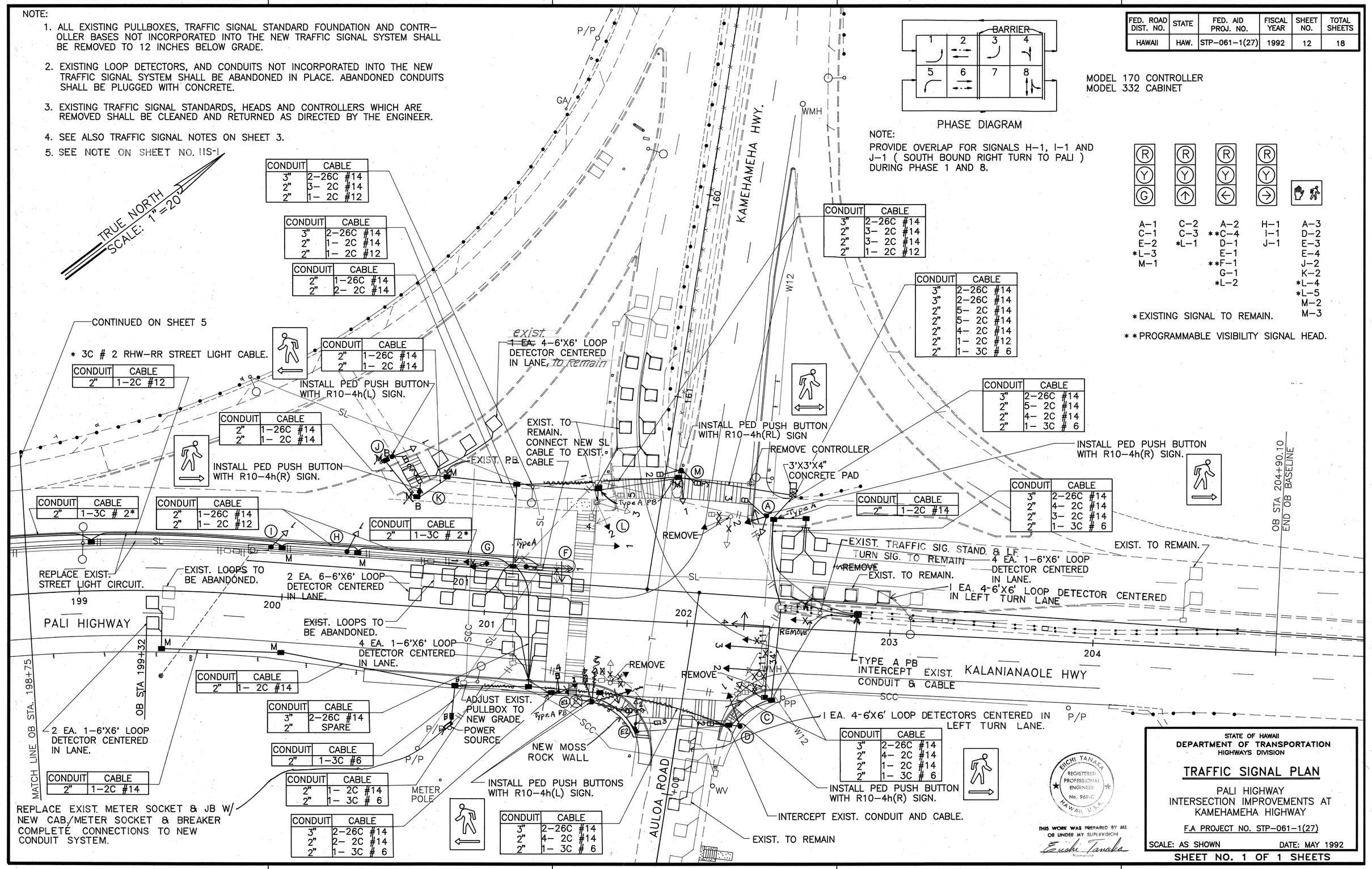
APPENDIX L: RECORD DRAWINGS FOR INTERSECTIONS WITH ATCS

NOTE: The record drawing information provided in this Appendix is for reference only and may not indicate the most current/actual field conditions. The use of such information shall constitute an assumption of all risk by the Offerer. HDOT does not verify all information provided nor guarantees its accuracy, and as such accepts no responsibility or liability.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-061-1(27)	1992	12	18

NOTE:

1. ALL EXISTING PULLBOXES, TRAFFIC SIGNAL STANDARD FOUNDATION AND CONTROLLER BASES NOT INCORPORATED INTO THE NEW TRAFFIC SIGNAL SYSTEM SHALL BE REMOVED TO 12 INCHES BELOW GRADE.
2. EXISTING LOOP DETECTORS, AND CONDUITS NOT INCORPORATED INTO THE NEW TRAFFIC SIGNAL SYSTEM SHALL BE ABANDONED IN PLACE. ABANDONED CONDUITS SHALL BE PLUGGED WITH CONCRETE.
3. EXISTING TRAFFIC SIGNAL STANDARDS, HEADS AND CONTROLLERS WHICH ARE REMOVED SHALL BE CLEANED AND RETURNED AS DIRECTED BY THE ENGINEER.
4. SEE ALSO TRAFFIC SIGNAL NOTES ON SHEET 3.
5. SEE NOTE ON SHEET NO. IIS-1



NOTE:
PROVIDE OVERLAP FOR SIGNALS H-1, I-1 AND J-1 (SOUTH BOUND RIGHT TURN TO PALI) DURING PHASE 1 AND 8.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

PALI HIGHWAY
INTERSECTION IMPROVEMENTS AT
KAMEHAMEHA HIGHWAY

F.A PROJECT NO. STP-061-1(27)

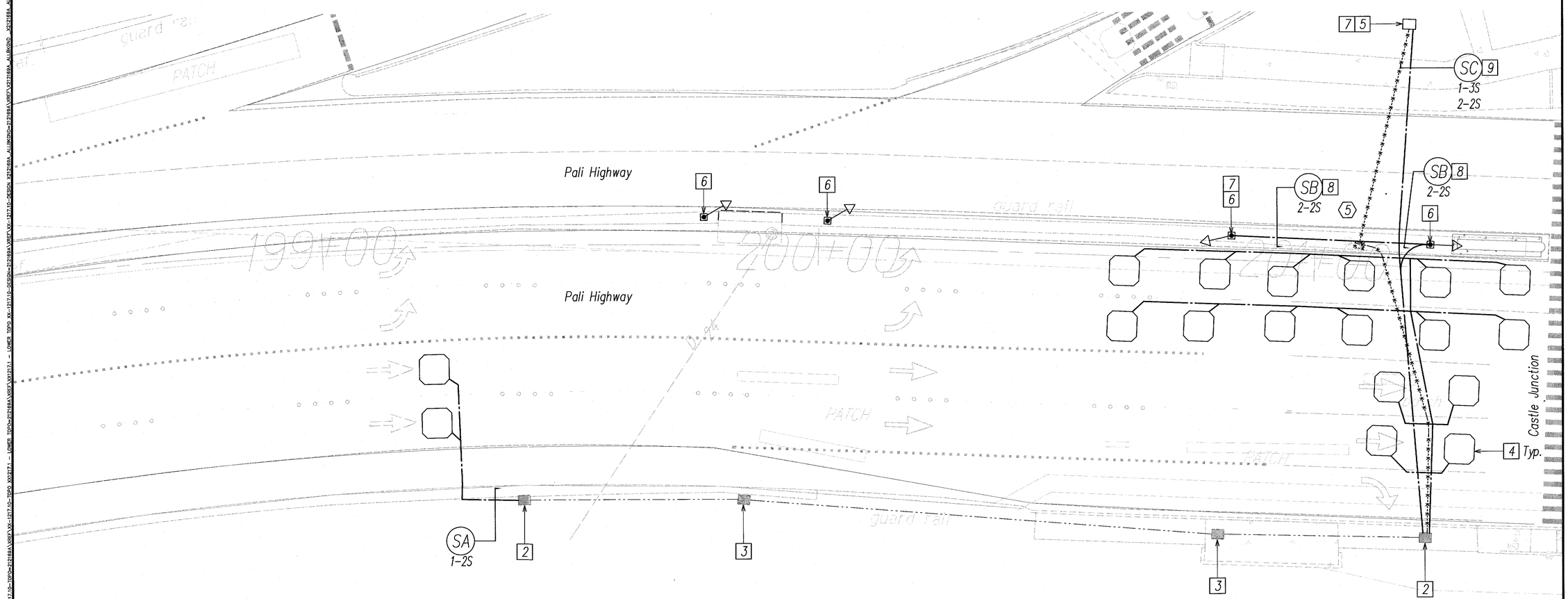
SCALE: AS SHOWN DATE: MAY 1992

SHEET NO. 1 OF 1 SHEETS

EICHI TANAKA REGISTERED PROFESSIONAL ENGINEER No. 969-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Eichi Tanaka
Signature

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-061-1(035)	2017	C.O.401	455



TRAFFIC SIGNAL PLAN 12 – PALI HIGHWAY AT KAMEHAMEHA HIGHWAY

SCALE: 1"=10'

Notes:

1. See Traffic Signal Details On Sheet Series EF.

2. Existing Type A Traffic Signal Pullbox To Be Replaced In Same Location.

3. Existing Traffic Signal Pullbox To Remain.

4. Existing Loop Detector To Be Replaced In Same Location.

5. Break and Patch Existing Pullbox To Accommodate Installation Of New Duct. (5)

6. Existing Traffic Signal Pole to be Removed. Provide New Type I–9 Standard on Top of New Concrete Median Barrier. See Sheet SB0 for Location, SB4 for Structural Details, and Sheet Series EF for Electrical Details. Extend Existing Traffic Signal Wiring to New Traffic Signal Head.

7. Splice New And Existing Conductors To Maintain Existing Traffic Signal Service. (5)

Notes (Cont'd): (5)

8. Provide 2"C, 1–26C #14, 1#8 Gnd; Provide 2"C, 1–2C #12, 1#8 Gnd.

9. Provide 3"C, 2–26C #14, 1#8 Gnd; Provide 2"C, 1–2C #14, 1#8 Gnd; Provide 2"C, 1–2C #12, 1#8 Gnd.

TRUE NORTH
SCALE: 1 IN = 20 FT

10' 5' 0 10' 20' 30'
SCALE: 1"=10'
GRAPHIC SCALE

Ronald N. S. Ho & Associates, Inc.
Electrical Engineers

KRAIG K. OTANI
LICENSED PROFESSIONAL ENGINEER
No. 14288-E
HAWAII, U.S.A.

This work was prepared by me or under my supervision.
Exp. 04-30-18

Signature 2018.03.14

DATE	DESCRIPTION
3/14/18	(5) Revised TS Work

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN 12

PALI HIGHWAY RESURFACING
Waokanaka Street to Kamehameha Highway
PALI HIGHWAY LIGHTING REPLACEMENT
Vineyard Boulevard to Kamehameha Highway
Federal Aid Project No. NH-061-1(035)

Scale: AS NOTED Date: February 2017

SHEET No. ED-12 OF 13 SHEETS

C.O. 401

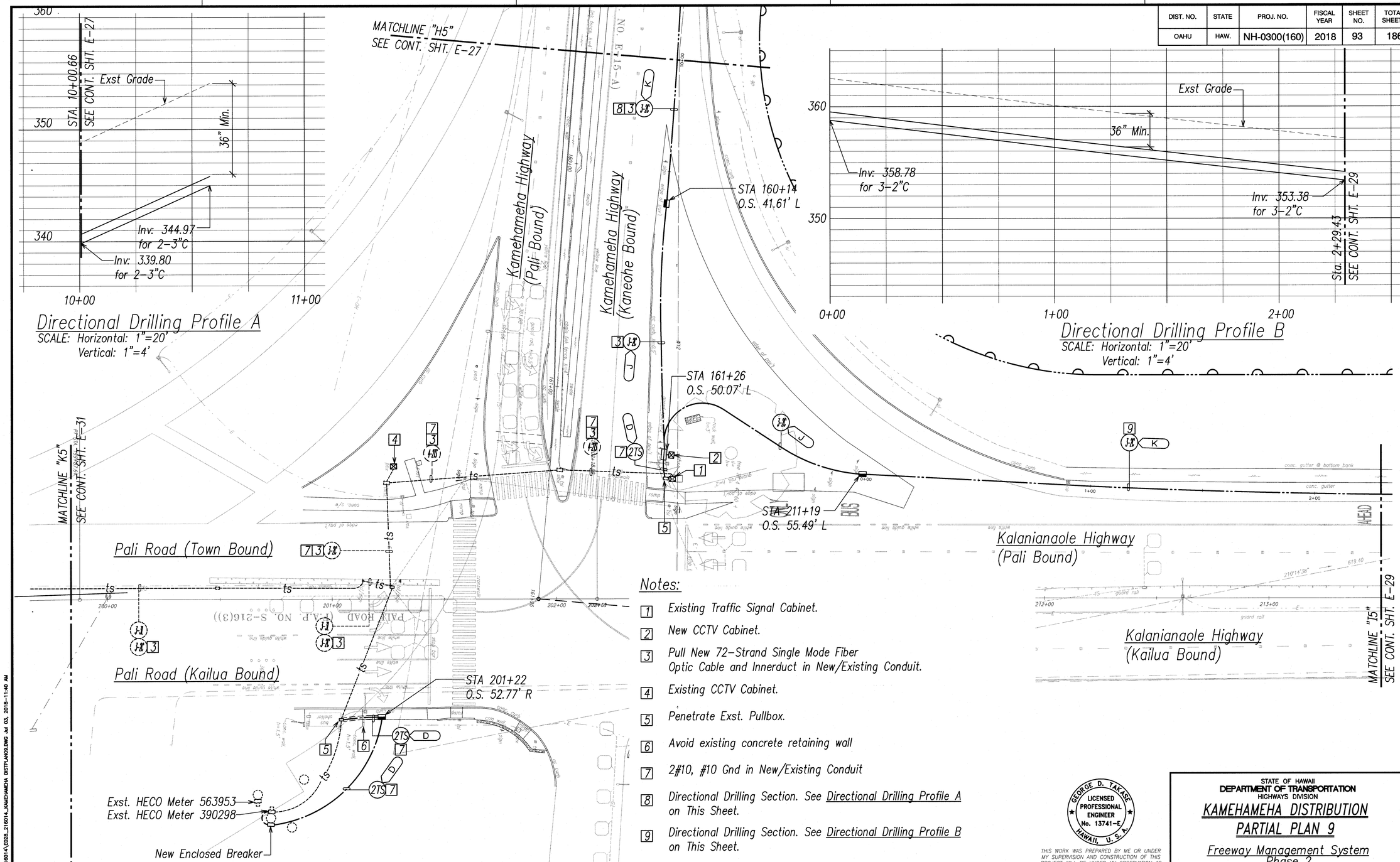
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | QUANTITIES BY | DATE
NOTE BOOK No.

LAST SAVE: 03/07/17 @ 10:40:31 BY: DAVID ROBERTS XX12171 – LOWER DESIGN: XX-1217-1D-TOPO-212169A\VREF\VXR12171 – LOWER TOPO XX-1217-1D-DESIGN-212169A\VREF\VXC-12171D-DESIGN_V212169A_ALIBGND-212169A\VREF\V212169A_ALIBGND_V212169A_ALL-EFC-212169A\VREF\V212169A_ALL

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	NH-0300(160)	2018	93	186

Directional Drilling Profile A
SCALE: Horizontal: 1"=20'
Vertical: 1"=4'

Directional Drilling Profile B
SCALE: Horizontal: 1"=20'
Vertical: 1"=4'



Kamehameha Distribution Partial Plan 9
SCALE: 1"=20'

Notes:

1. Existing Traffic Signal Cabinet.
2. New CCTV Cabinet.
3. Pull New 72-Strand Single Mode Fiber Optic Cable and Innerduct in New/Existing Conduit.
4. Existing CCTV Cabinet.
5. Penetrate Exst. Pullbox.
6. Avoid existing concrete retaining wall
7. 2#10, #10 Gnd in New/Existing Conduit
8. Directional Drilling Section. See Directional Drilling Profile A on This Sheet.
9. Directional Drilling Section. See Directional Drilling Profile B on This Sheet.

20' 10' 0 20' 40' 60'
SCALE: 1"=20'
GRAPHIC SCALE

GEORGE D. TAKASE
LICENSED PROFESSIONAL ENGINEER
No. 13741-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII

APRIL 30, 2020
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAMEHAMEHA DISTRIBUTION
PARTIAL PLAN 9

Freeway Management System
Phase 2
Federal Aid Project No.
NH-0300(160)

Scale: AS NOTED Date: JULY 6, 2018

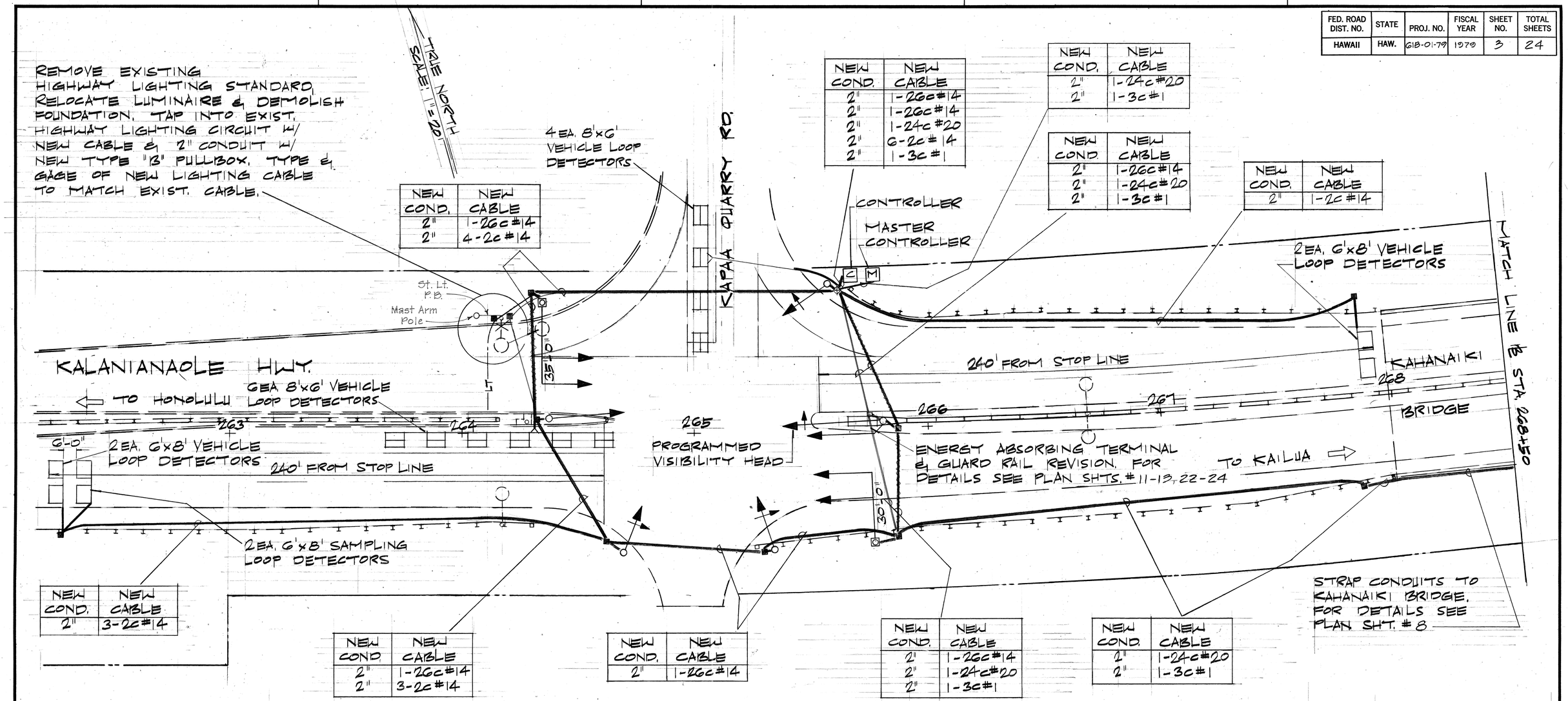
SHEET No. E-28 OF 186 SHEETS

ORIGINAL PLAN		
	NOTE BOOK	
	No.	

		DATE
SURVEY PLOTTED BY		
DRAWN BY		
TRACED BY		
DESIGNED BY		
QUANTITIES BY		
CHECKED BY		

R:\2-VCAD\PROJECTS\21601A\E028_21601A_KAMEHAMEHA DISTPLAN09.DWG Jul 03, 2018-11:40 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	G18-01-79	1979	3	24



NEW COND.	NEW CABLE
2"	1-26c #14
2"	4-2c #14

NEW COND.	NEW CABLE
2"	1-26c #14
2"	1-26c #14
2"	1-24c #20
2"	6-2c #14
2"	1-3c #1

NEW COND.	NEW CABLE
2"	1-24c #20
2"	1-3c #1

NEW COND.	NEW CABLE
2"	1-26c #14
2"	1-24c #20
2"	1-3c #1

NEW COND.	NEW CABLE
2"	1-2c #14

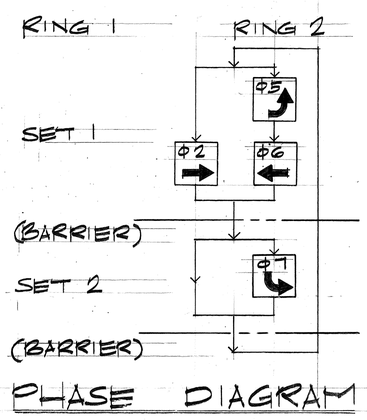
NEW COND.	NEW CABLE
2"	3-2c #14

NEW COND.	NEW CABLE
2"	1-26c #14
2"	3-2c #14

NEW COND.	NEW CABLE
2"	1-26c #14

NEW COND.	NEW CABLE
2"	1-26c #14
2"	1-24c #20
2"	1-3c #1

NEW COND.	NEW CABLE
2"	1-24c #20
2"	1-3c #1



PHASE DIAGRAM

DATE	REVISION
4-17-79	ADDED NEW CABLE FOR SAMPLING LOOP DETECTORS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TRAFFIC SIGNAL INSTALLATION
KALANIANAOLE HWY.
AT KAPAA QUARRY RD.

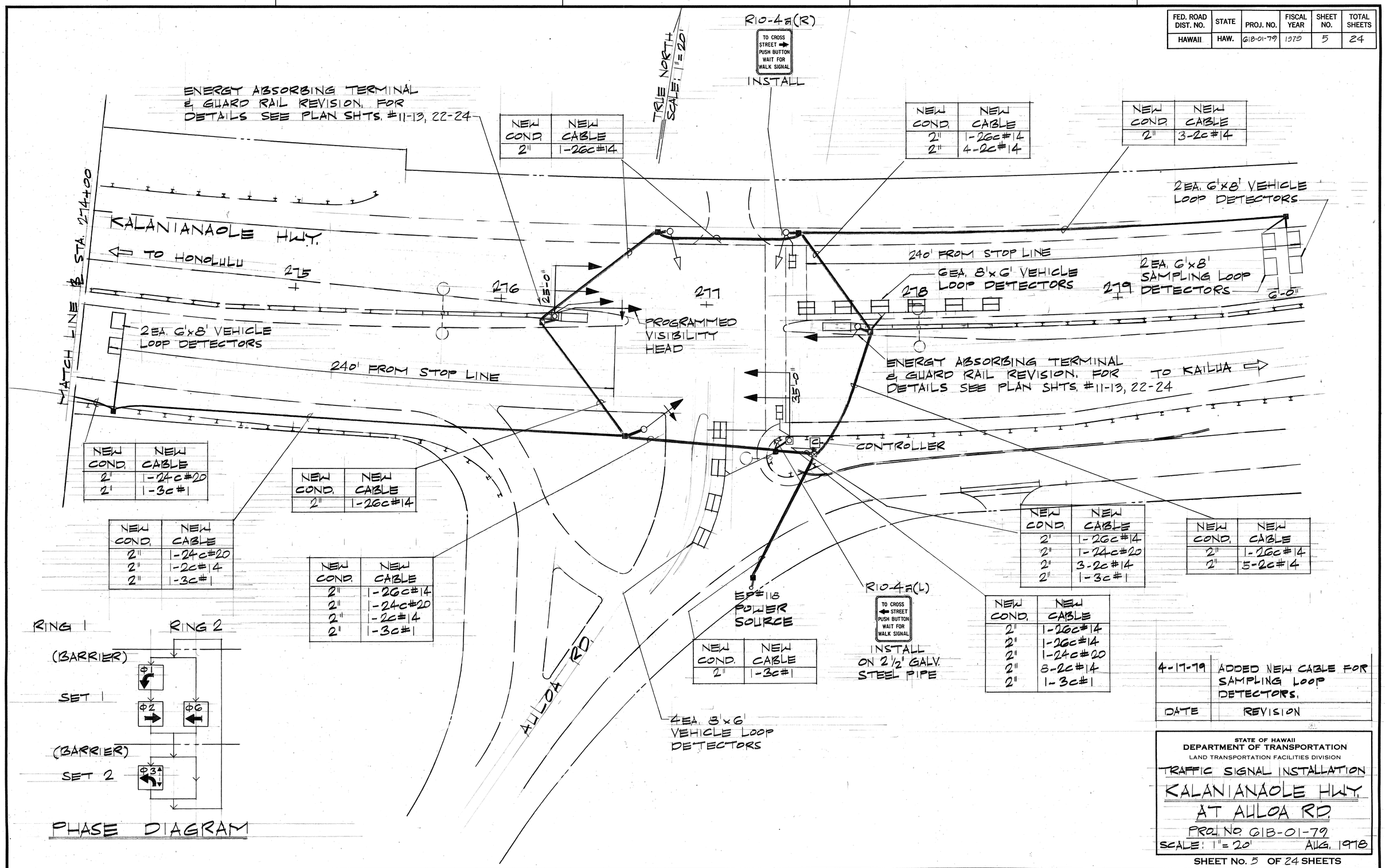
PROJ. NO. G18-01-79
SCALE: 1" = 20' AUG. 1978

SHEET No. 3 OF 24 SHEETS

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

C.O. 3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	G1B-01-79	1979	5	24



NEW COND.	NEW CABLE
2"	1-26c#14

NEW COND.	NEW CABLE
2"	1-26c#14
2"	4-2c#14

NEW COND.	NEW CABLE
2"	3-2c#14

NEW COND.	NEW CABLE
2'	1-24c#20
2'	1-3c#1

NEW COND.	NEW CABLE
2"	1-26c#14

NEW COND.	NEW CABLE
2"	1-24c#20
2"	1-2c#14
2"	1-3c#1

NEW COND.	NEW CABLE
2"	1-26c#14
2"	1-24c#20
2"	1-2c#14
2"	1-3c#1

NEW COND.	NEW CABLE
2'	1-26c#14
2"	1-24c#20
2"	3-2c#14
2"	1-3c#1

NEW COND.	NEW CABLE
2"	1-26c#14
2"	5-2c#14

NEW COND.	NEW CABLE
2"	1-3c#1

NEW COND.	NEW CABLE
2"	1-26c#14
2"	1-26c#14
2"	1-24c#20
2"	8-2c#14
2"	1-3c#1

DATE	REVISION
4-17-79	ADDED NEW CABLE FOR SAMPLING LOOP DETECTORS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TRAFFIC SIGNAL INSTALLATION

KALANIANAOLE HWY.
AT AULOA RD.

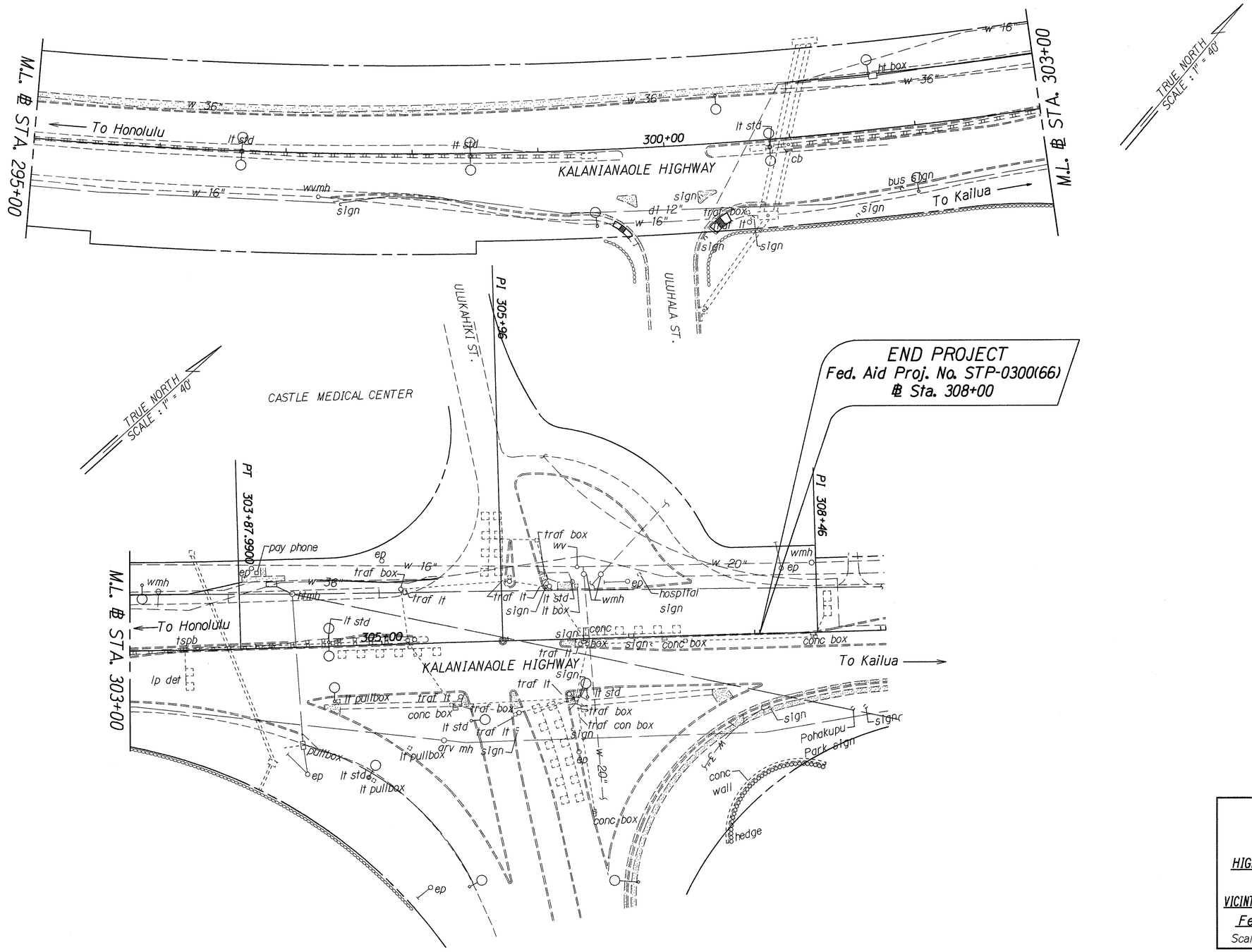
PROJ. NO. G1B-01-79
SCALE: 1" = 20' AUG. 1978

SHEET No. 5 OF 24 SHEETS

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

C.O. 5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(66)	1998	14	61



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 2-19-97
	DRAWN BY G. Kawamoto	
	TRACED BY	
NOTE BOOK	DESIGNED BY E. Kishimoto/J. Uyeyaki	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

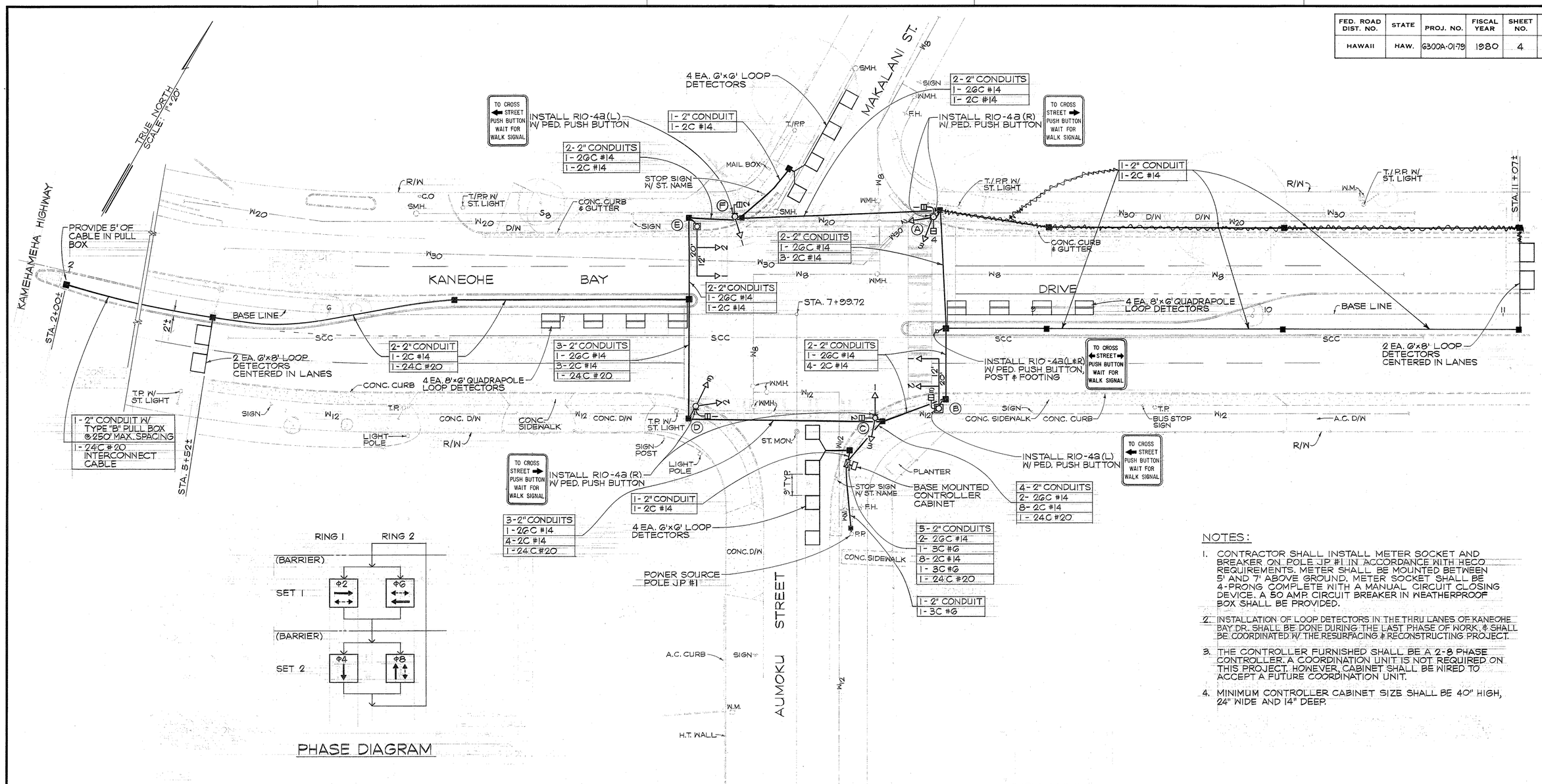
ROADWAY PLANS

HIGHWAY LIGHTING SAFETY IMPROVEMENTS
TO KALANIANAOLE HIGHWAY
VICINTY OF CASTLE JUNCTION TO WAIMANALO JUNCTION
Federal Aid Proj. No. STP-0300(66)

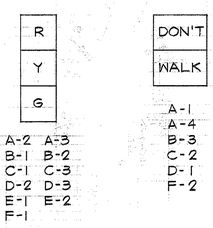
Scale: 1' = 40' Date: Apr., 1998

SHEET No. 6 OF 6 SHEETS

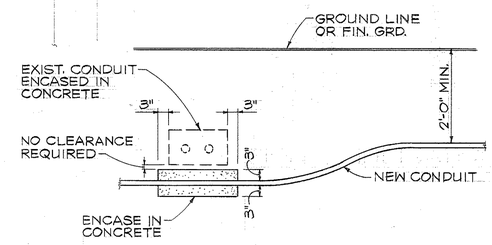
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	6300A-01-79	1980	4	20



PHASE DIAGRAM



SIGNAL INDICATIONS



CONDUIT BY-PASS DETAIL

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL INSTALL METER SOCKET AND BREAKER ON POLE JP #1 IN ACCORDANCE WITH HECO REQUIREMENTS. METER SHALL BE MOUNTED BETWEEN 5' AND 7' ABOVE GROUND. METER SOCKET SHALL BE 4-PRONG COMPLETE WITH A MANUAL CIRCUIT CLOSING DEVICE. A 50 AMP. CIRCUIT BREAKER IN WEATHERPROOF BOX SHALL BE PROVIDED.
2. INSTALLATION OF LOOP DETECTORS IN THE THRU LANES OF KANEOHE BAY DR. SHALL BE DONE DURING THE LAST PHASE OF WORK, & SHALL BE COORDINATED W/ THE RESURFACING & RECONSTRUCTING PROJECT.
3. THE CONTROLLER FURNISHED SHALL BE A 2-8 PHASE CONTROLLER. A COORDINATION UNIT IS NOT REQUIRED ON THIS PROJECT. HOWEVER, CABINET SHALL BE WIRED TO ACCEPT A FUTURE COORDINATION UNIT.
4. MINIMUM CONTROLLER CABINET SIZE SHALL BE 40" HIGH, 24" WIDE AND 14" DEEP.

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KANEOHE BAY DRIVE
TRAFFIC SIGNALS AT
MAKALANI STREET
PROJECT NO. 6300A-01-79

TRAFFIC SIGNAL PLAN

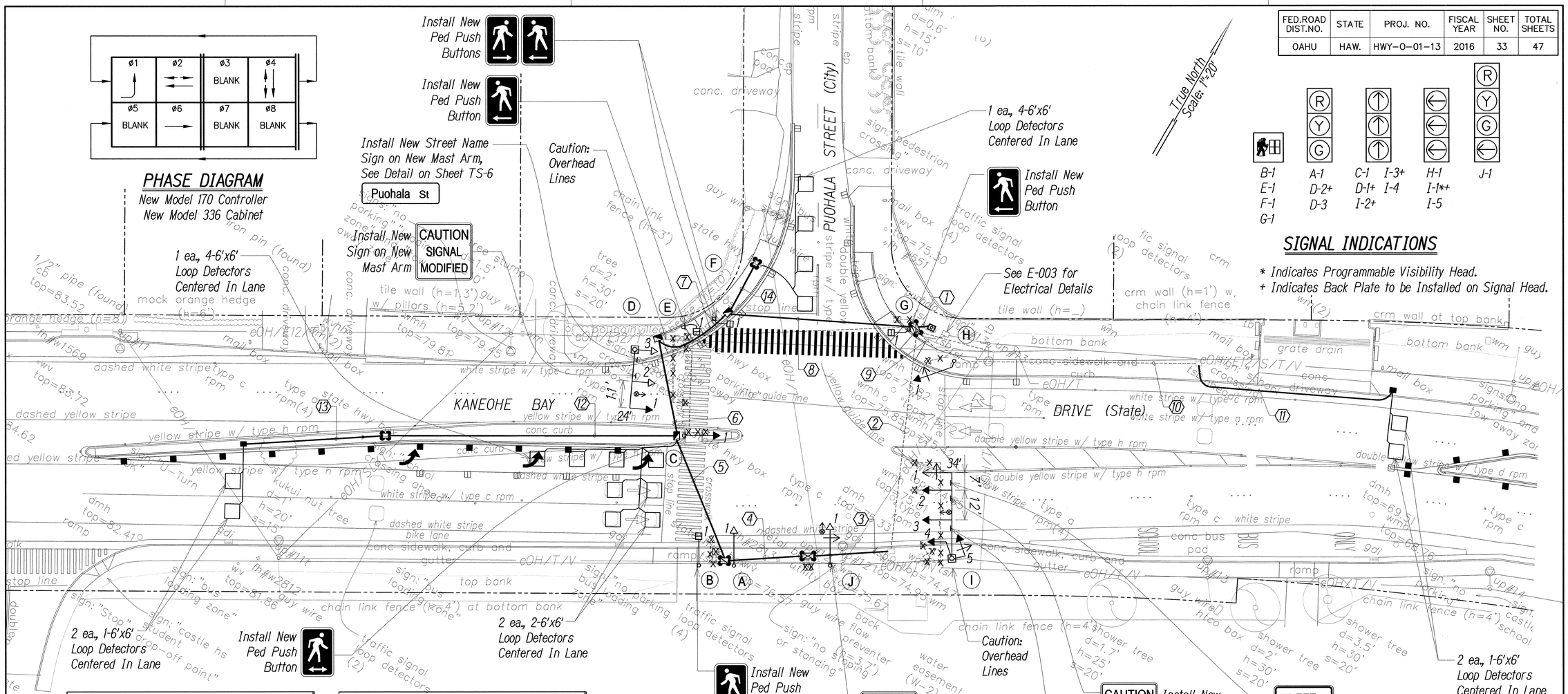
SCALE: AS SHOWN DATE: 6/21/79

SHEET No. 1 OF 1 SHEETS

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

JOB NO. 24011 E

FED.ROAD DIST.NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	HWY-0-01-13	2016	33	47



TRAFFIC SIGNAL PLAN

Scale: 1"=20'

Conduit and Cable Schedule		
Symbol	Conduit	Description
①	3" Conc.	2-26c#14
	2" Conc.	2-Existing Interconnect
	2" Conc.	6-2c#14
	2" Conc.	6-2c#14
	2" Conc.	3-EVP
	2" Conc.	1-3c#6
	2" Conc.	Spare
②	Exist.	1-26c#14
	Exist.	2-EVP
③	2" Conc.	1-26c#14
	2" Conc.	1-EVP
	2" Conc.	Spare
	2" Conc.	Spare
④	2" Conc.	1-26c#14
	2" Conc.	Spare
	2" Conc.	Spare
	2" Conc.	Spare

Conduit and Cable Schedule		
Symbol	Conduit	Description
⑤	2" Conc.	1-26c#14
	2" Conc.	1-2c#14
	2" Conc.	Spare
	2" Conc.	Spare
⑥	2" Conc.	1-26c#14
	2" Conc.	6-2c#14
	2" Conc.	Spare
	2" Conc.	Spare
⑦	2" Conc.	1-26c#14
	2" Conc.	6-2c#14
	2" Conc.	1-EVP
	2" Conc.	Spare
⑧	2" Conc.	1-26c#14
	2" Conc.	5-2c#14
	2" Conc.	4-2c#14
	2" Conc.	1-EVP
	2" Conc.	Spare

Conduit and Cable Schedule		
Symbol	Conduit	Description
⑨	Exist.	3-2c#14
		1-4c#14
⑩	Exist.	2-2c#14
⑪	2" Conc.	2-2c#14
⑫	2" Conc.	2-2c#14
⑬	2" Conc.	2-2c#14
⑭	2" Conc.	2-2c#14

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

LICENSED PROFESSIONAL ENGINEER
TERRANCE S. ARASHIRO
No. 6998-C
HAWAII, U.S.A.
EXP. 4/30/16

This work was prepared by me or under my supervision and construction of this project will be under my observation. (Observation of construction as defined in Chapter 16-115 Subchapter 1 Definitions of the Hawaii Administrative Rules "Professional Engineers, Architects, Surveyors, and Landscape Architects.")

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KANEOHE BAY DRIVE/PUOHALA STREET

TRAFFIC SIGNAL PLAN

TRAFFIC OPERATIONAL IMPROVEMENTS AT VARIOUS LOCATIONS
Project No. HWY-0-01-13

Scale: As Noted Date: Oct 2015

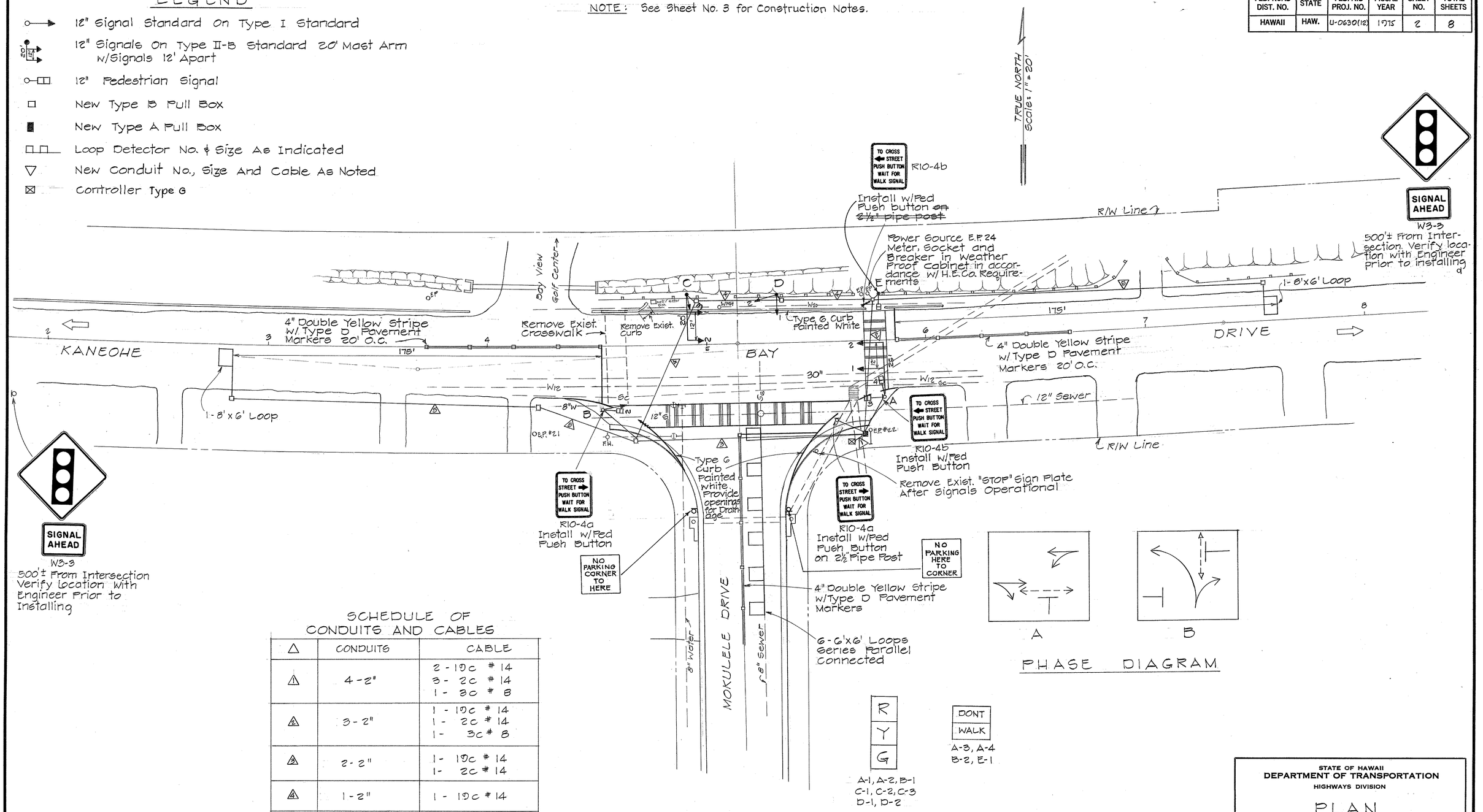
SHEET No. TS-5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-0630(12)	1975	2	8

LEGEND

- 12" Signal Standard On Type I Standard
- 12" Signals On Type II-B Standard 20' Mast Arm w/Signals 12' Apart
- 12" Pedestrian Signal
- New Type B Pull Box
- New Type A Pull Box
- Loop Detector No. & Size As Indicated
- New Conduit No., Size And Cable As Noted
- Controller Type G

NOTE: See Sheet No. 3 for Construction Notes.



SCHEDULE OF CONDUITS AND CABLES

△	CONDUITS	CABLE
1	4-2"	2-1Dc #14 3-2c #14 1-3c #8
2	3-2"	1-1Dc #14 1-2c #14 1-3c #8
3	2-2"	1-1Dc #14 1-2c #14
4	1-2"	1-1Dc #14
5	1-2"	1-2c #14

PHASE DIAGRAM

A-1, A-2, B-1
C-1, C-2, C-3
D-1, D-2

A-3, A-4
B-2, E-1

SIGNAL INDICATIONS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN

TRAFFIC SIGNAL SYSTEM
SIGNS, PAVEMENT MARKINGS

F.A.P. No. U-0630 (12)

Scale: As Shown Date June 1975

SHEET No. 1 OF 1 SHEETS

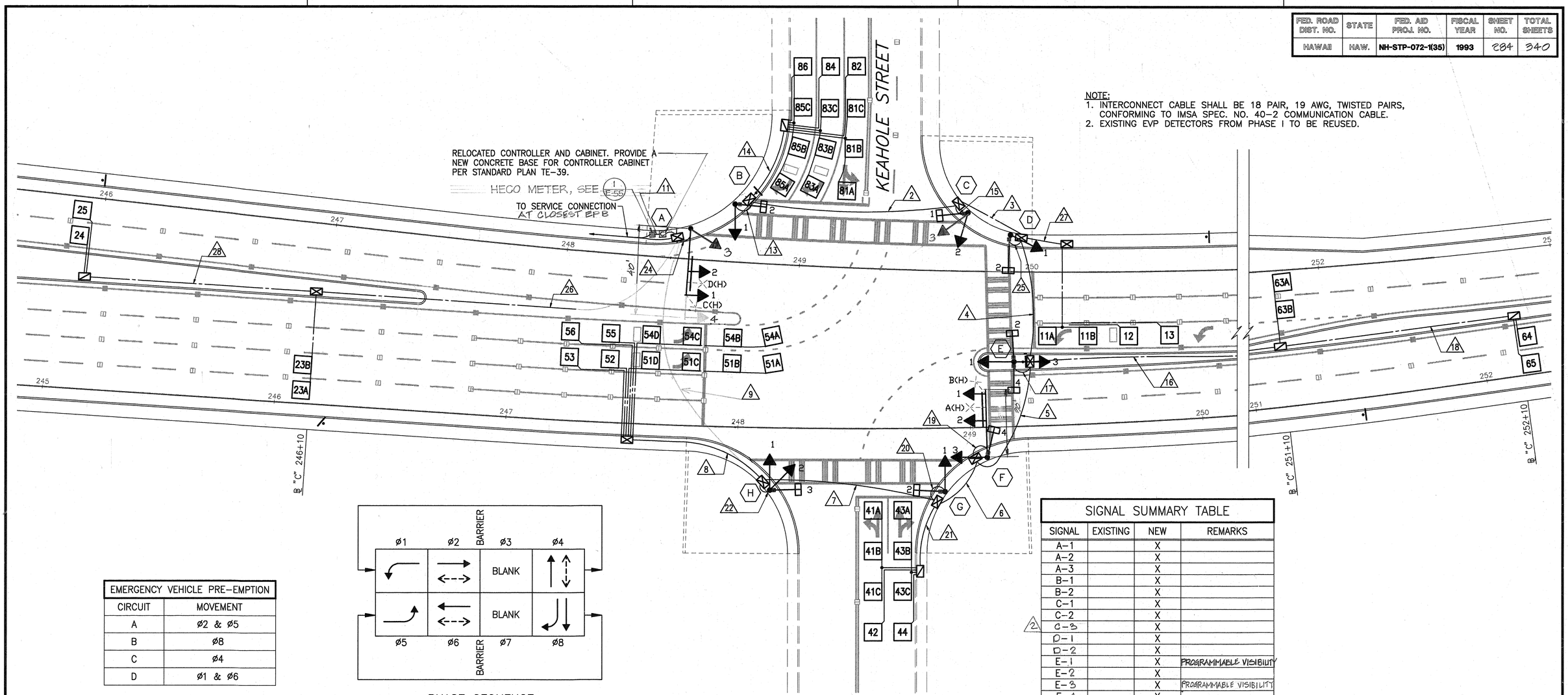
2

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

0-5-12

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	284	340

NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.
2. EXISTING EVP DETECTORS FROM PHASE I TO BE REUSED.



EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø8
C	ø4
D	ø1 & ø6

PHASE SEQUENCE

SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
A-1		X	
A-2		X	
A-3		X	
B-1		X	
B-2		X	
C-1		X	
C-2		X	
2 C-3		X	
D-1		X	
D-2		X	
E-1		X	PROGRAMMABLE VISIBILITY
E-2		X	
E-3		X	PROGRAMMABLE VISIBILITY
E-4		X	
F-1		X	
F-2		X	
F-3		X	
F-4		X	
2 F-5		X	
G-1		X	
G-2		X	
H-1		X	
H-2		X	PROGRAMMABLE VISIBILITY
H-3		X	
~~J-1~~ A-4		X	PROGRAMMABLE VISIBILITY

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT KEAHOLE STREET	DELTA ITEM NO. (△)																											
	1	2	3	4	5	6	7	8	9	~~10~~	11	12	13	14	15	16	17	18	19	20	21	22	~~23~~	24	25	26	27	28
QUANTITY OF 2"C, SEE NOTE NO. 2	5	5	5	5	3	3	3	1	3	~~2~~	8	1	2	1	2	1	2	1	3	2	1	2	~~1~~	6	2	1	1	1
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	2	2	2	2	2	2	2	2	2	~~2~~	2																	
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	15	8	7	6	1		5	6	13	~~13~~	13	2	1	6	1	3	2	2	1	1	4	1		3	1	3	3	
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE	2	2	2	2	2						2								2					2				
QUANTITY OF #14 SIGNAL HEAD CABLE													6		6		12		12	6		9	~~5~~	~~10~~ 15	6			
QUANTITY OF 3/C #4 POWER CABLE											1																	

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.

B-2
C-1
D-2
E-2
E-4
F-4
G-2
H-3

R Y G	R Y ↑	R Y ←
A-3	A-1	C-3
B-1	A-2	* E-1
C-2	F-1	H-2
D-1	F-2	J-1
F-3	* E-3	A-4
G-1	* F-5	
H-1		

NEW SIGNAL INDICATIONS

* PROGRAMMABLE VISIBILITY

SCALE IN FEET:

20' 10' 0' 20' 40'

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

DATE	REVISION
	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT KEAHOLE STREET

KALANIANAOLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.

F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1" = 20' DATE: 10/1/92

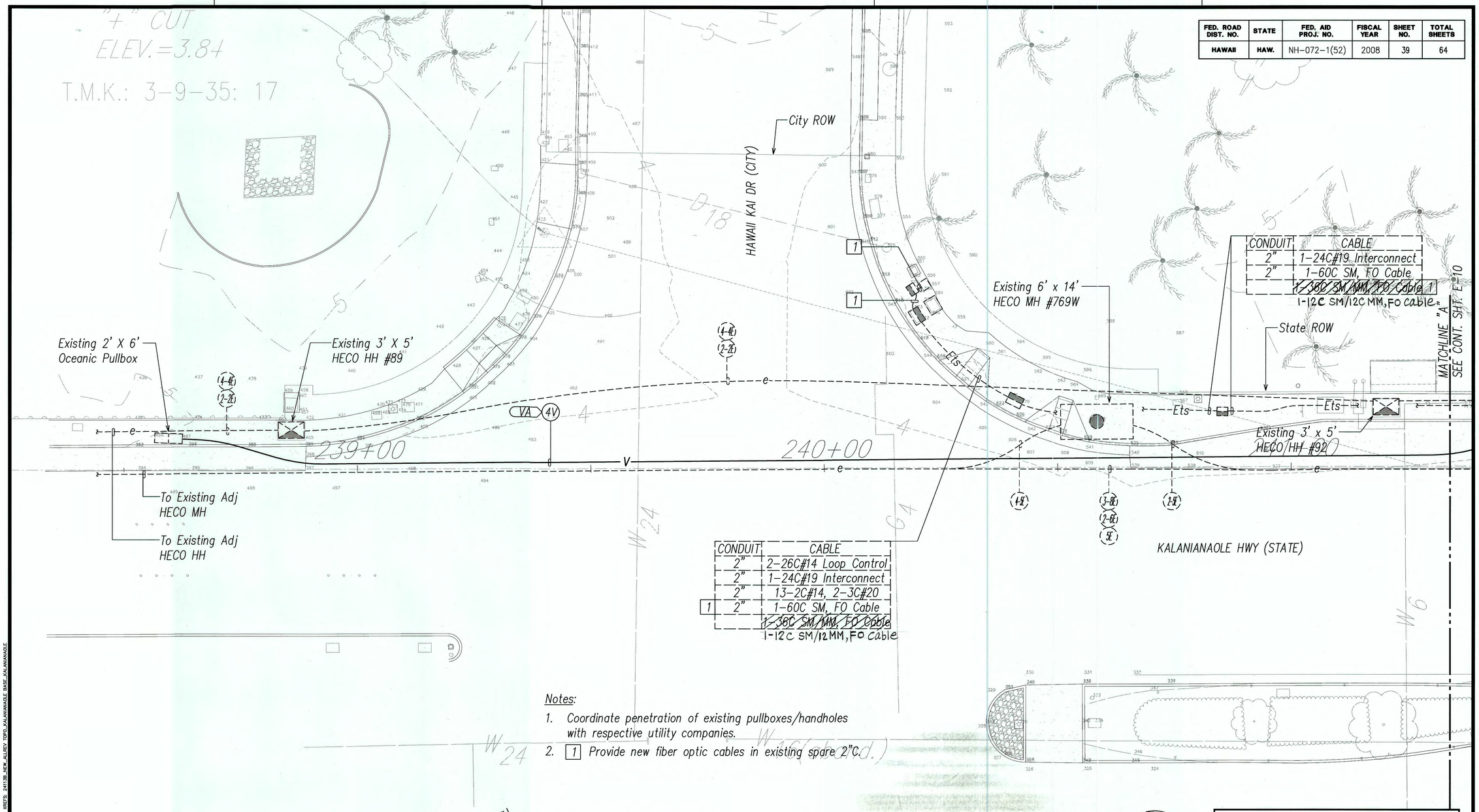
SHEET No. E-62 OF 62 SHEETS

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

"AS-BUILT"

C.O. ADD. 284

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	39	64



CONDUIT	CABLE
2"	1-24C#19 Interconnect
2"	1-60C SM, FO Cable
	~~1-36C SM/MM, FO Cable~~ 1
	1-12C SM/12C MM, FO cable

	CONDUIT	CABLE
	2"	2-26C#14 Loop Control
	2"	1-24C#19 Interconnect
	2"	13-2C#14, 2-3C#20
1	2"	1-60C SM, FO Cable
		~~1-36C SM/MM, FO Cable~~
		1-12C SM/12MM, FO cable

Notes:

1. Coordinate penetration of existing pullboxes/handholes with respective utility companies.
2. [1] Provide new fiber optic cables in existing spare 2"C.

NORTH

ELECTRICAL PLAN I

SCALE: 1"=10'

APPROVED BY:

OCEANIC TIME WARNER CABLE — DATE 02-18-09

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 2/18/09 By

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

SIGNATURE 2/17/09

APRIL 30, 2010
EXPIRATION DATE OF LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN I

KALANIANAOLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)

DATE: January 2009

SHEET No. E-9 OF 34 SHEETS

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

LAST SAVE: 01/20/09 @ 09:46:55 BY: RD PLOT: 2C 1=10
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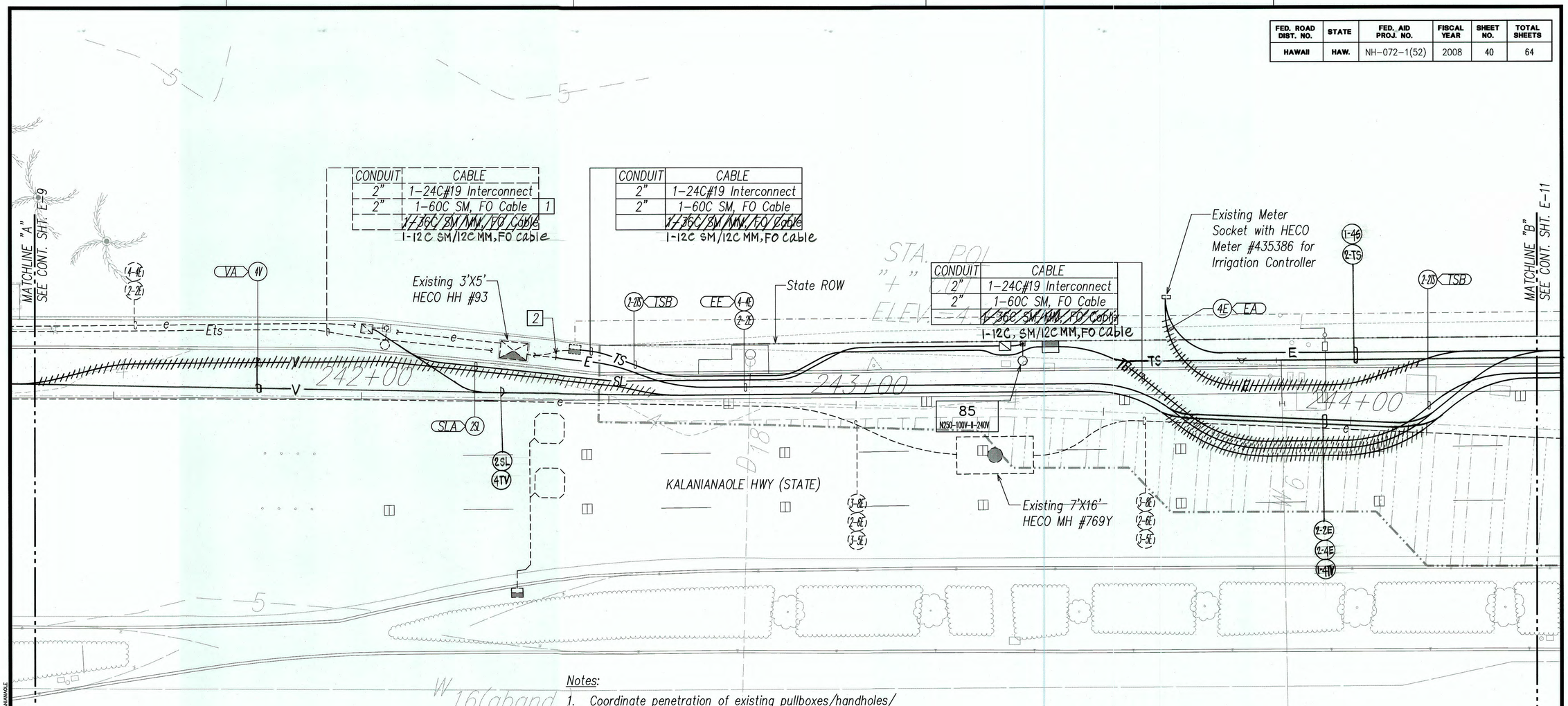
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	40	64



Notes:

1. Coordinate penetration of existing pullboxes/handholes/ manholes with respective utility companies.
2. [1] Provide new fiber optic cables in existing spare 2"C.
   [2] Provide conduit couplings to extend existing conduits to new 4' x 6' HECO HH #94. HECO to break into existing energized facilities and remove cables. Coordinate phasing with HECO.

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 2/19/09 By
Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVED BY:

HAWAIIAN ELECTRIC COMPANY, INC. DATE

OCEANIC TIME WARNER CABLE 02-18-09 DATE

NORTH

ELECTRICAL PLAN II
SCALE: 1"=10'

10' 5' 0 10' 20' 30'
SCALE: 1"=10'
GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

SIGNATURE 2/17/09
APRIL 30, 2010
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN II

KALANIANAOLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)
DATE: January 2009

SHEET No. E-10 OF 34 SHEETS

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

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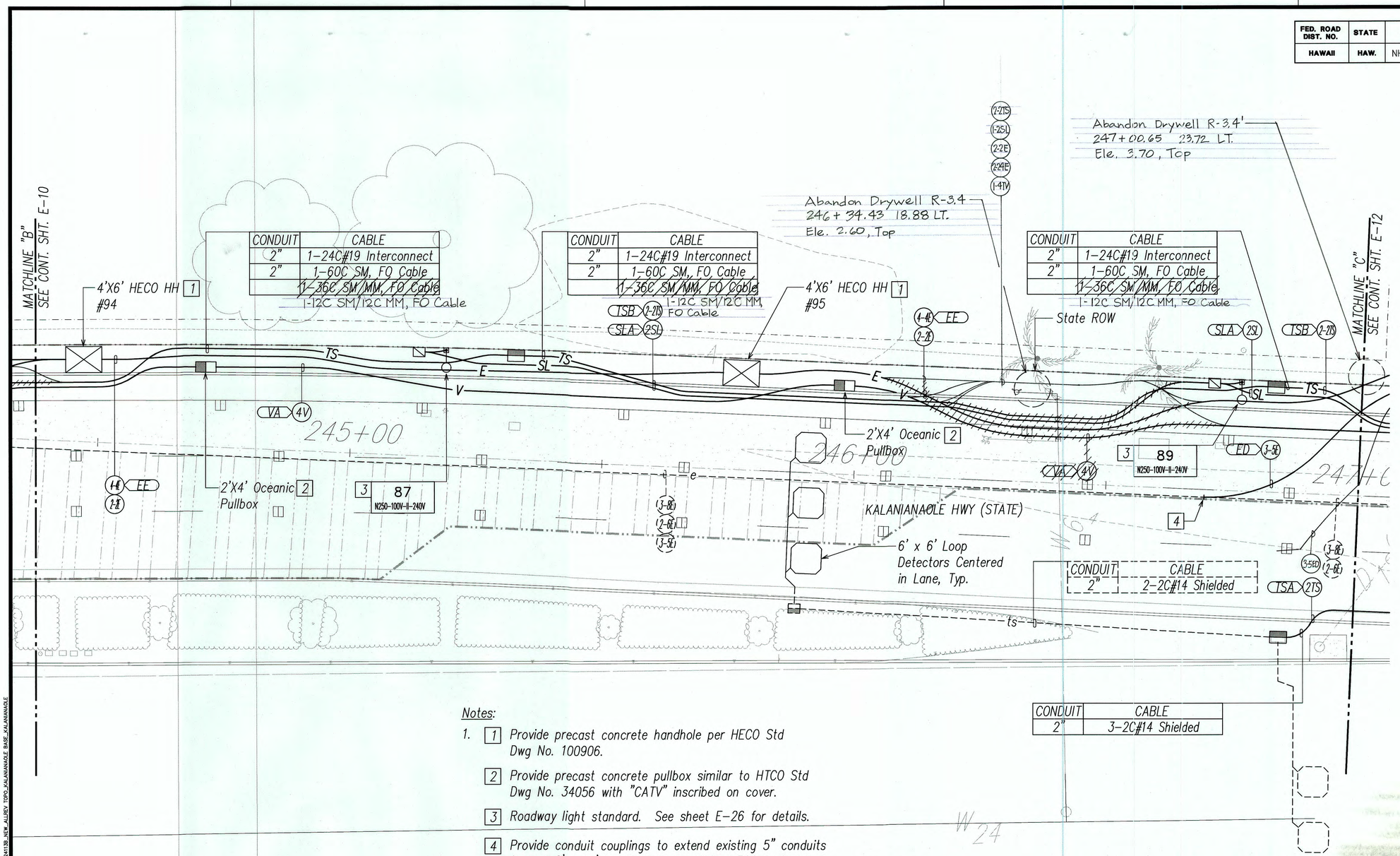
H:\cad\projects\24135\Waterside Hwy\E10_24135_new-Rev2.DGN, 24135_NEW_ALIREV TOPO_KALANIANAOLE BASE_KALANIANAOLE

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	41	64



Notes:

1. [1] Provide precast concrete handhole per HECO Std Dwg No. 100906.

   [2] Provide precast concrete pullbox similar to HTCO Std Dwg No. 34056 with "CATV" inscribed on cover.

   [3] Roadway light standard. See sheet E-26 for details.

   [4] Provide conduit couplings to extend existing 5" conduits to new 6' x 14' HECO handhole #97. HECO to break into existing energized facilities and remove cables. Coordinate phasing with HECO.

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 2/18/09 By Michael O.

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

NORTH

ELECTRICAL PLAN III
SCALE: 1"=10'

APPROVED BY:

HAWAIIAN ELECTRIC COMPANY, INC. DATE

OCEANIC TIME WARNER CABLE 02-18-09 DATE

10' 5' 0 10' 20' 30'
SCALE: 1"=10'
GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

2/18/09
SIGNATURE
APRIL 30, 2010
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN III

KALANIANAOLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)
DATE: January 2009

SHEET No. E-11 OF 34 SHEETS

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

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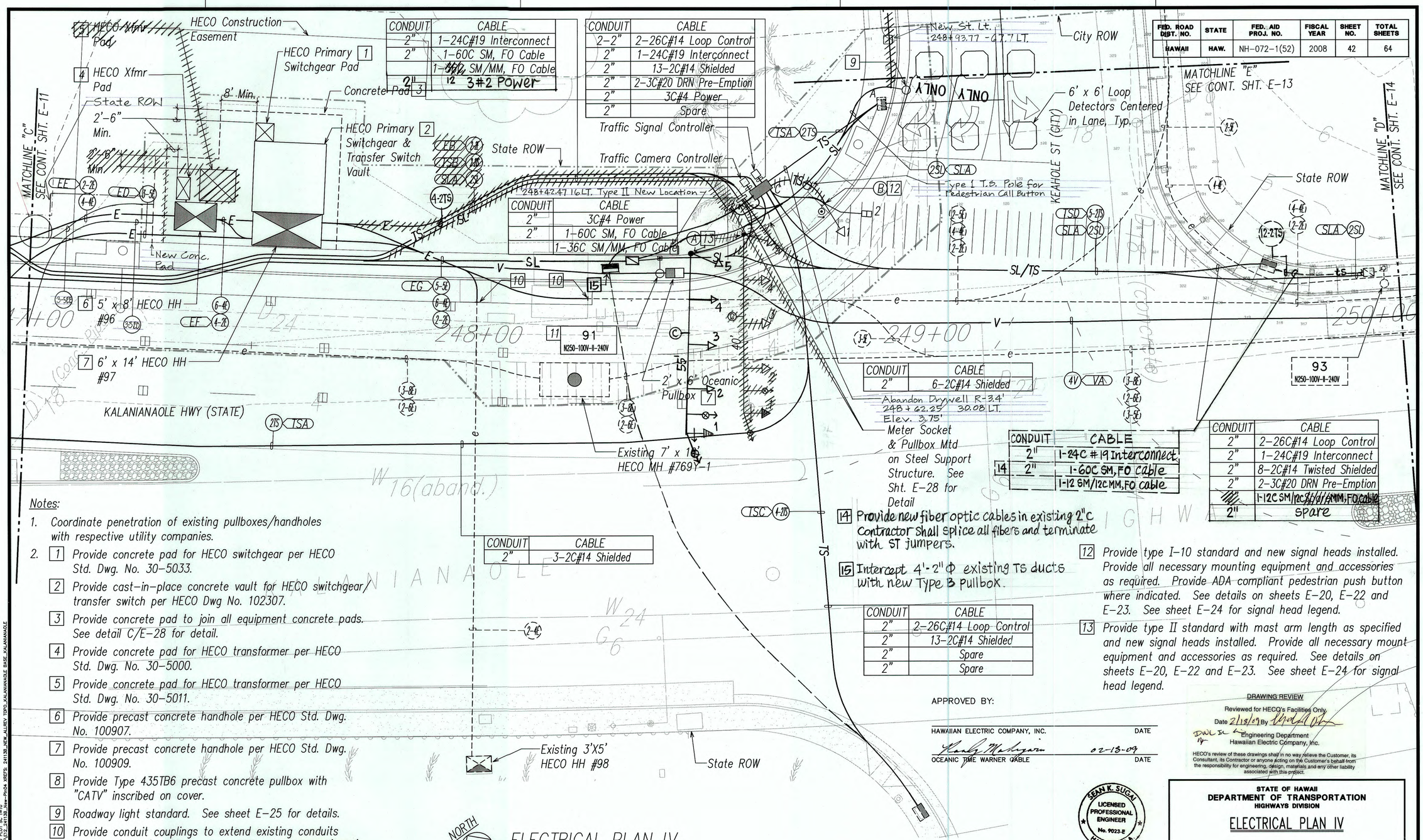
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(52)	2008	42	64



CONDUIT	CABLE
2"	1-24C#19 Interconnect
2"	1-60C SM, FO Cable
2"	1-~~36C~~ 12 SM/MM, FO Cable
2"	3#2 Power

CONDUIT	CABLE
2-2"	2-26C#14 Loop Control
2"	1-24C#19 Interconnect
2"	13-2C#14 Shielded
2"	2-3C#20 DRN Pre-Emption
2"	3C#4 Power
2"	Spare

CONDUIT	CABLE
2"	3C#4 Power
2"	1-60C SM, FO Cable
	1-36C SM/MM, FO Cable

CONDUIT	CABLE
2"	6-2C#14 Shielded

CONDUIT	CABLE
2"	1-24C #19 Interconnect
2"	1-60C SM, FO cable
	1-12 SM/12C MM, FO cable

CONDUIT	CABLE
2"	2-26C#14 Loop Control
2"	1-24C#19 Interconnect
2"	8-2C#14 Twisted Shielded
2"	2-3C#20 DRN Pre-Emption
	1-12C SM/12C MM, FO cable
2"	Spare

CONDUIT	CABLE
2"	3-2C#14 Shielded

CONDUIT	CABLE
2"	2-26C#14 Loop Control
2"	13-2C#14 Shielded
2"	Spare
2"	Spare

14 Provide new fiber optic cables in existing 2"c Contractor shall splice all fibers and terminate with ST jumpers.

15 Intercept 4'-2" ϕ existing TS ducts with new Type B pullbox.

Notes:

1. Coordinate penetration of existing pullboxes/handholes with respective utility companies.
2. 1 Provide concrete pad for HECO switchgear per HECO Std. Dwg. No. 30-5033.
   2 Provide cast-in-place concrete vault for HECO switchgear/transfer switch per HECO Dwg No. 102307.
   3 Provide concrete pad to join all equipment concrete pads. See detail C/E-28 for detail.
   4 Provide concrete pad for HECO transformer per HECO Std. Dwg. No. 30-5000.
   5 Provide concrete pad for HECO transformer per HECO Std. Dwg. No. 30-5011.
   6 Provide precast concrete handhole per HECO Std. Dwg. No. 100907.
   7 Provide precast concrete handhole per HECO Std. Dwg. No. 100909.
   8 Provide Type 435TB6 precast concrete pullbox with "CATV" inscribed on cover.
   9 Roadway light standard. See sheet E-25 for details.
   10 Provide conduit couplings to extend existing conduits to new 6' x 14' HECO handhole #97 and existing 3' x 5' HECO HH #98. HECO to break into existing energized facilities and remove cables. Coordinate phasing with HECO.
   11 Roadway light standard. See sheet E-26 for details.
   12 Provide type I-10 standard and new signal heads installed. Provide all necessary mounting equipment and accessories as required. Provide ADA compliant pedestrian push button where indicated. See details on sheets E-20, E-22 and E-23. See sheet E-24 for signal head legend.
   13 Provide type II standard with mast arm length as specified and new signal heads installed. Provide all necessary mount equipment and accessories as required. See details on sheets E-20, E-22 and E-23. See sheet E-24 for signal head legend.

NORTH

ELECTRICAL PLAN IV

SCALE: 1"=10'

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

APPROVED BY:

HAWAIIAN ELECTRIC COMPANY, INC. DATE

02-13-09

OCEANIC TIME WARNER CABLE DATE

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 2/13/09 By

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

2/17/09

SIGNATURE

APRIL 30, 2010

EXPIRATION DATE OF LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN IV

KALANIANAOLE HIGHWAY IMPROVEMENTS
VICINITY OF HAWAII KAI DRIVE
TO KEAHOLE STREET
FEDERAL-AID PROJECT NO. NH-072-1(52)

DATE: January 2009

SHEET No. E-12 OF 34 SHEETS

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

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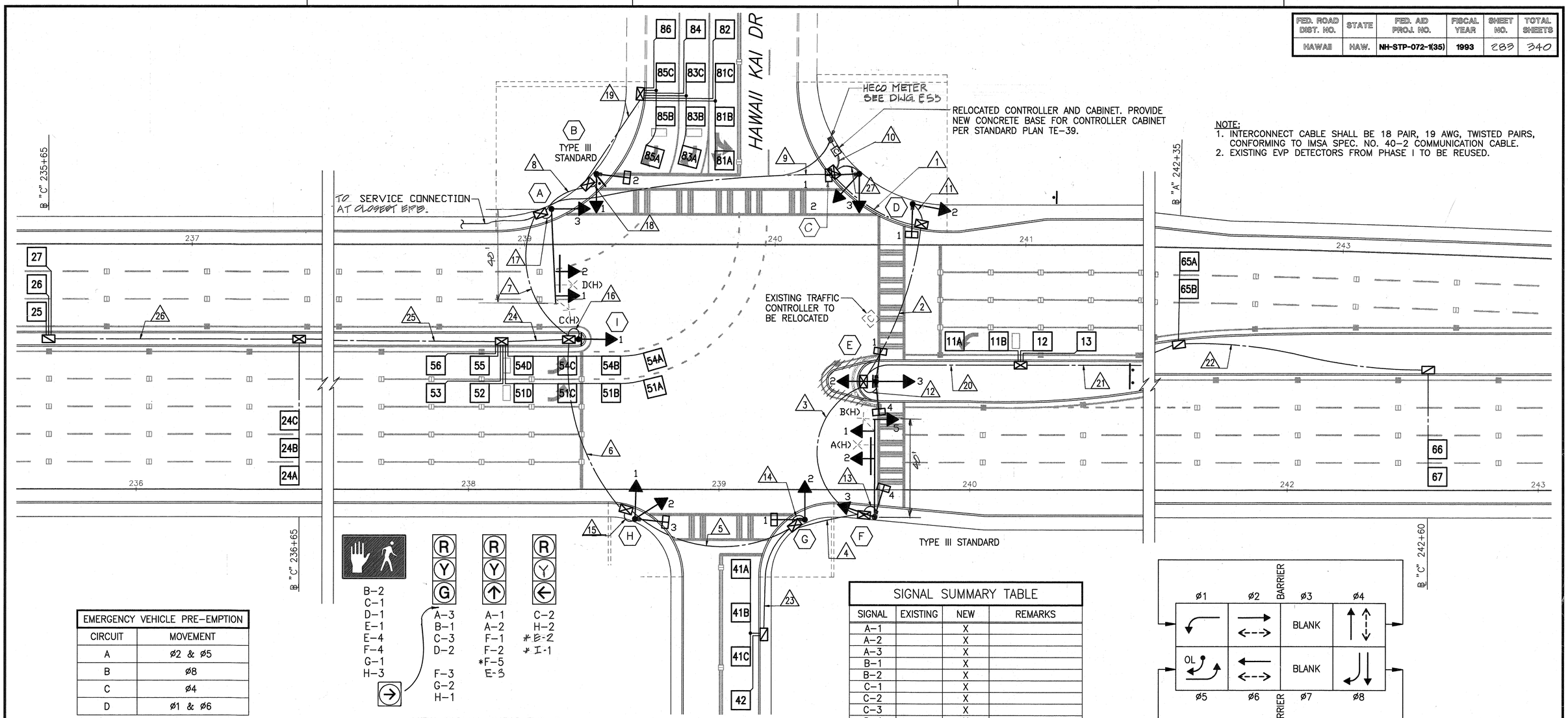
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	283	340

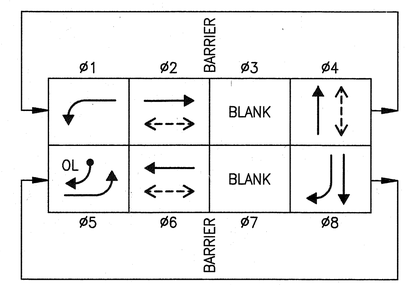


NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.
2. EXISTING EVP DETECTORS FROM PHASE I TO BE REUSED.

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø8
C	ø4
D	ø1 & ø6

NEW SIGNAL INDICATIONS
* PROGRAMMABLE VISIBILITY

SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
A-1		X	
A-2		X	
A-3		X	
B-1		X	
B-2		X	
C-1		X	
C-2		X	
C-3		X	
D-1		X	
D-2		X	
E-1		X	
E-2		X	PROGRAMMABLE VISIBILITY
E-3		X	PROGRAMMABLE VISIBILITY
E-4		X	
F-1		X	
F-2		X	
F-3		X	
F-4		X	
F-5		X	PROGRAMMABLE VISIBILITY
G-1		X	
G-2		X	
H-1		X	
H-2		X	
H-3		X	
I-1		X	PROGRAMMABLE VISIBILITY



• LOOPS 83A, 83B, 83C, 84, 85A, 85B, 85C & 86 WILL BE CONNECTED TO ø5.

PHASE SEQUENCE

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT HAWAII KAI DRIVE	DELTA ITEM NO. (△)																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
QUANTITY OF 2"C, SEE NOTE NO. 2	4	4	4	3	3	4	4	3	5	8	2	2	3	2	2	1	2	2	1	1	1	1	1	1	1	1	1
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	2	2	2	2	2	2	2		2	2																	
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	13	12	4	3		1	11	7	18	19	1	2	1	1	1			1	6	6	3	2	2	10	4	3	1
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE	2	2	2						2	2			2				2										
QUANTITY OF #14 SIGNAL HEAD CABLE											7	15	19	7	11	5	12	7									
QUANTITY OF 3/C #4 POWER CABLE									1	1																	

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.

SCALE IN FEET:
20' 10' 0' 20' 40'

DATE	REVISION
	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCN.

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT HAWAII KAI DRIVE

KALANIANAOLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.

F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

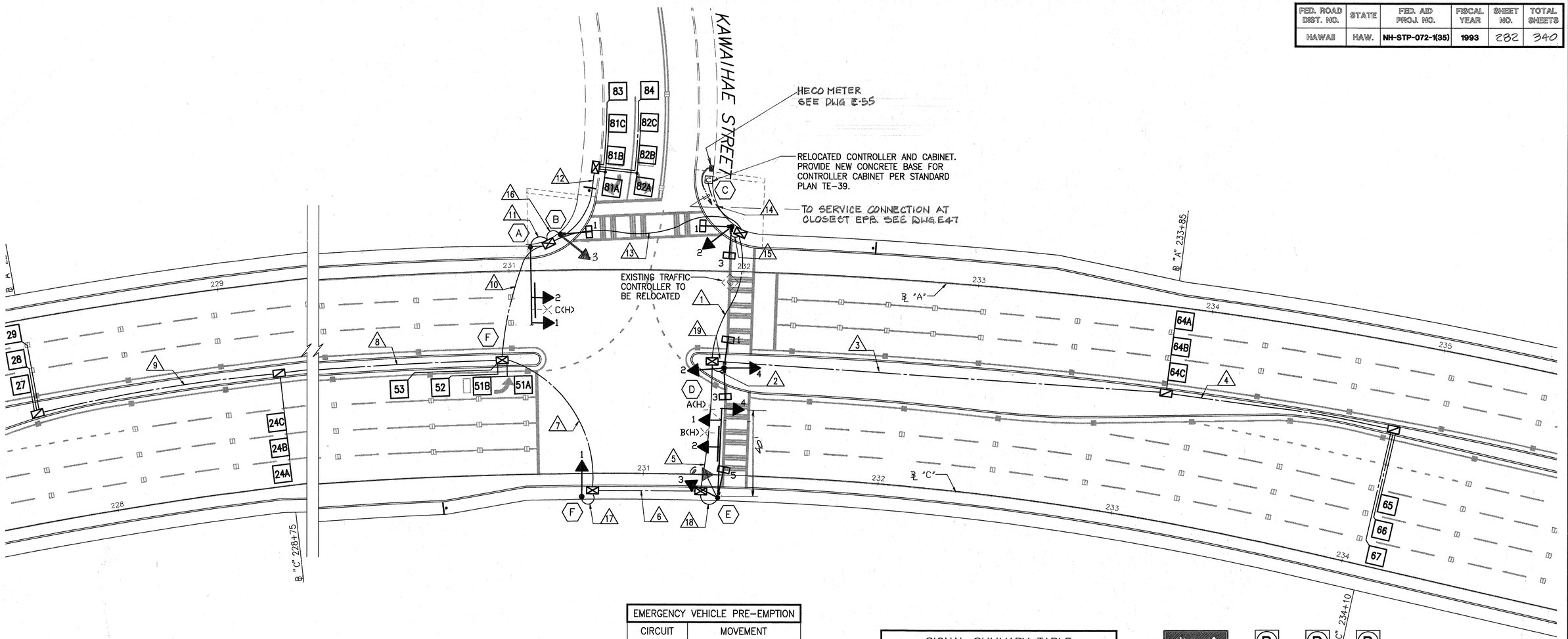
SHEET No. E-61 OF 62 SHEETS

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

"AS-BUILT"

C.O. ADD. 283

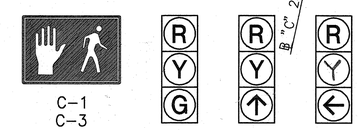
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	282	340



NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.
2. EXISTING EVP DETECTORS FROM PHASE I TO BE REUSED.

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

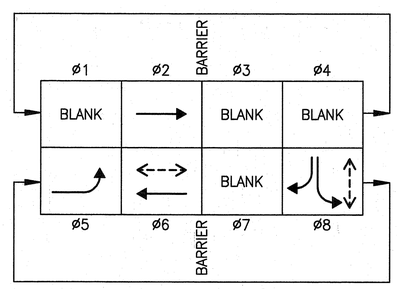
SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
~~A-1~~		~~X~~	
~~A-2~~		~~X~~	
~~A-3~~		~~X~~	
B-1		X	
C-1		X	
C-2		X	
C-3		X	
D-1		X	
D-2		X	PROGRAMMABLE VISIBILITY
D-3		X	
D-4		X	PROGRAMMABLE VISIBILITY
E-1		X	
E-2		X	
E-3		X	
E-4		X	PROGRAMMABLE VISIBILITY
E-5		X	
F-1		X	
A-3		X	



SIGNAL INDICATIONS
* PROGRAMMABLE VISIBILITY

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT KAWAIHAE STREET	DELTA ITEM NO. (△)																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
QUANTITY OF 2"C, SEE NOTE NO. 2	3	2	1	1	3	3	3	1	1	3	2	1	4	8	2	2	2	1
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	2				2	2	2			2			2	4				
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	7	2	4	3	1			4	3	7		4	12	21	2	1		
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE	2				2						1		1	3				2
QUANTITY OF #14 SIGNAL HEAD CABLE		12									7				8	3	4	21
QUANTITY OF 3/C #4 POWER CABLE													1	1				

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.



PHASE SEQUENCE

SCALE IN FEET:
20' 10' 0' 20' 40'

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

DATE	REVISION
	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT KAWAIHAE STREET

KALANIANAOLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.

F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

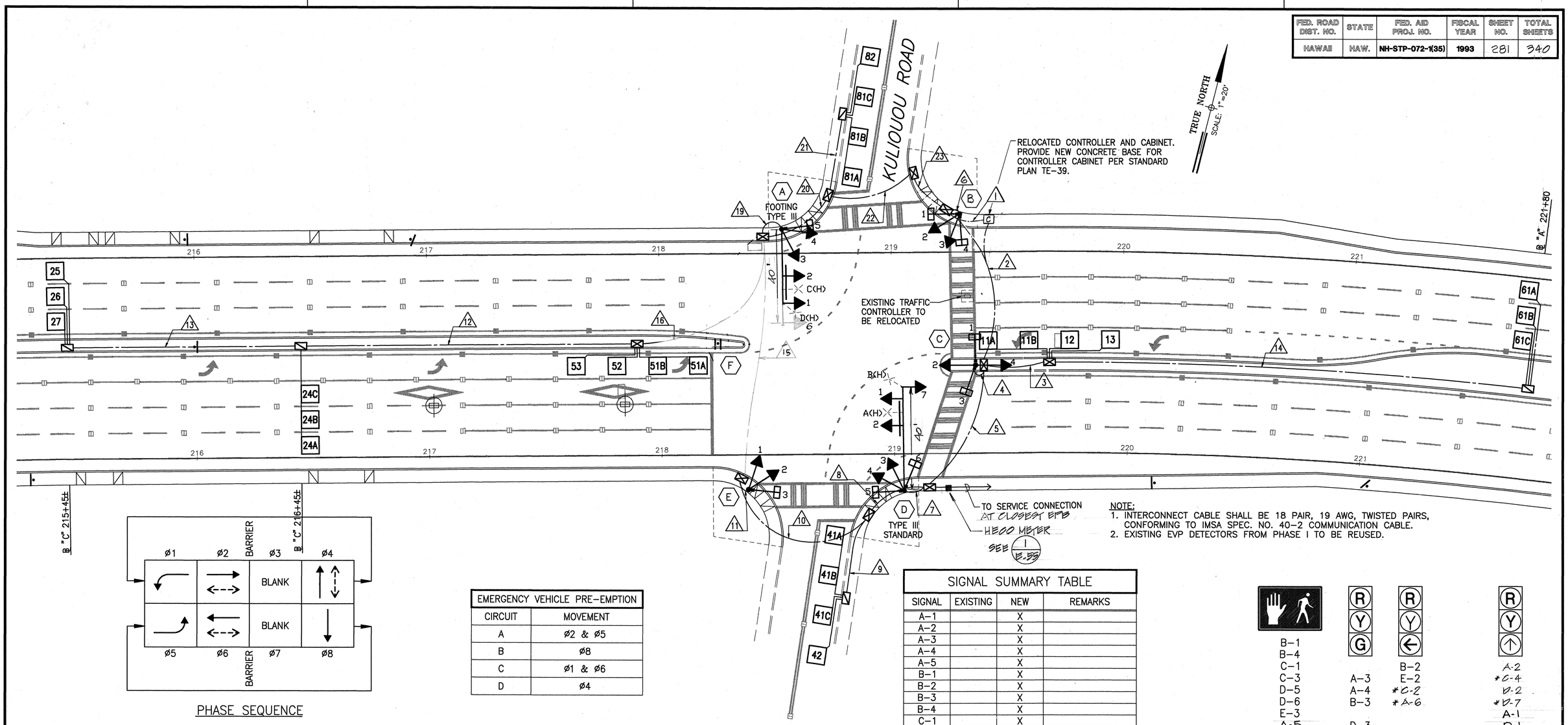
SHEET No. E-60 OF 62 SHEETS

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

"AS-BUILT"

C.O. ADD. 282

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	281	340

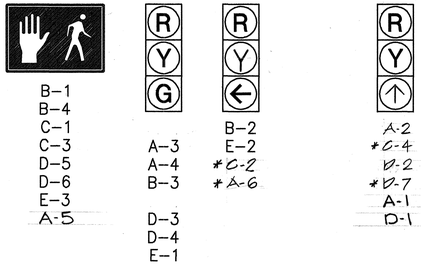


NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.
2. EXISTING EVP DETECTORS FROM PHASE I TO BE REUSED.

PHASE SEQUENCE

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø8
C	ø1 & ø6
D	ø4

SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
A-1		X	
A-2		X	
A-3		X	
A-4		X	
A-5		X	
B-1		X	
B-2		X	
B-3		X	
B-4		X	
C-1		X	
C-2		X	*PROGRAMMABLE VISIBILITY
C-3		X	
C-4		X	*PROGRAMMABLE VISIBILITY
D-1		X	
D-2		X	
D-3		X	
D-4		X	
D-5		X	
D-6		X	
D-7		X	*PROGRAMMABLE VISIBILITY
E-1		X	
E-2		X	
E-3		X	
A-6		X	*PROGRAMMABLE VISIBILITY



NEW SIGNAL INDICATIONS
*PROGRAMMABLE VISIBILITY

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT KULIOUOU ROAD	DELTA ITEM NO. (△)																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
QUANTITY OF 2"C, SEE NOTE NO. 2	4	4	1	2	4	2	3	3	1	3	2	1	1	1	3	1	2	5	2	3	1	3	3
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	4	2			2			2		2					2					2		2	2
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	28	9	3	2	4	2	2	2	2		1	4	3	1	8	3		11	2	12	2	14	14
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE	4	2			2		2												2	2		2	2
QUANTITY OF #14 SIGNAL HEAD CABLE				15		14	30				11								24				
QUANTITY OF 3/C #4 POWER CABLE	1	1			1																		

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.

DATE	REVISION
	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATION

SCALE IN FEET:
20' 10' 0' 20' 40'

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT KULIOUOU ROAD

KALANIANAOLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

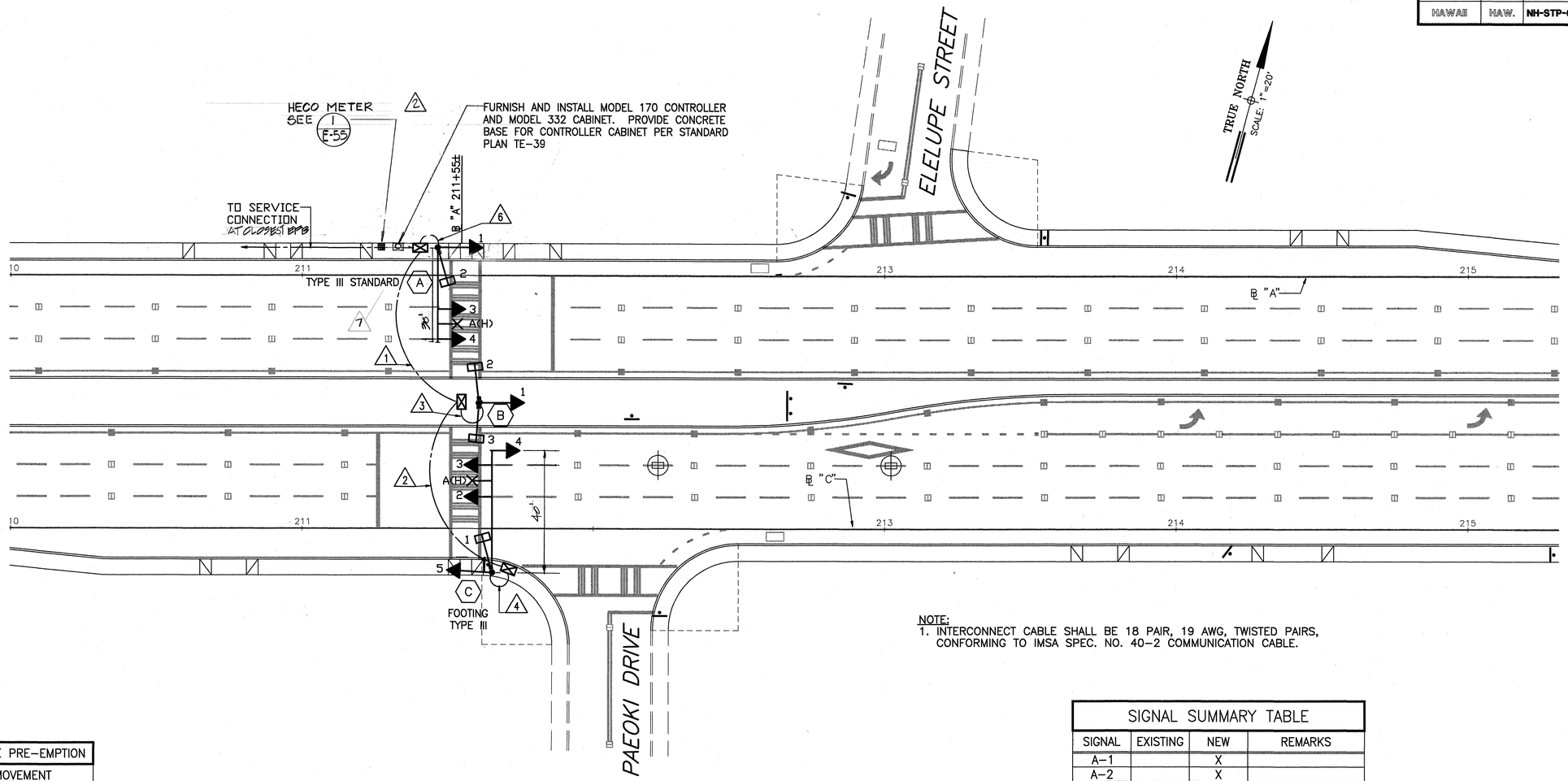
SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-59 OF 62 SHEETS

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

C.O. ADD. 281

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	280	340



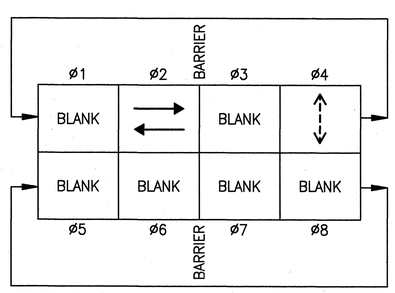
NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2

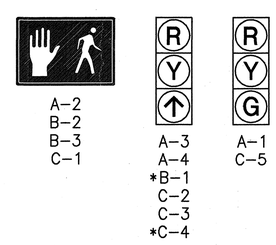
SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
A-1		X	
A-2		X	
A-3		X	
A-4		X	
B-1		X	*PROGRAMMABLE VISIBILITY
B-2		X	
B-3		X	
C-1		X	
C-2		X	
C-3		X	
C-4		X	*PROGRAMMABLE VISIBILITY
C-5		X	

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT PAEOKI PLACE	DELTA ITEM NO. (△)						
	1	2	3	4	5	6	7
QUANTITY OF 2"C, SEE NOTE NO. 2	3	3	3	3	3	3	5
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	1	1	1	1	1	1	1
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	5	1	4	1	6	1	
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMTPION CABLE			1	1	1	1	
QUANTITY OF #14 SIGNAL HEAD CABLE			10	19		15	
QUANTITY OF 3/C #4 POWER CABLE					1		

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.



PHASE SEQUENCE



NEW SIGNAL INDICATIONS
* PROGRAMMABLE VISIBILITY

SCALE IN FEET:
20' 10' 0' 20' 40'

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATION
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT PAEOKI PLACE

KALANIANAOLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.

F.A. PROJECT NO. NH-STP-072-1(35)

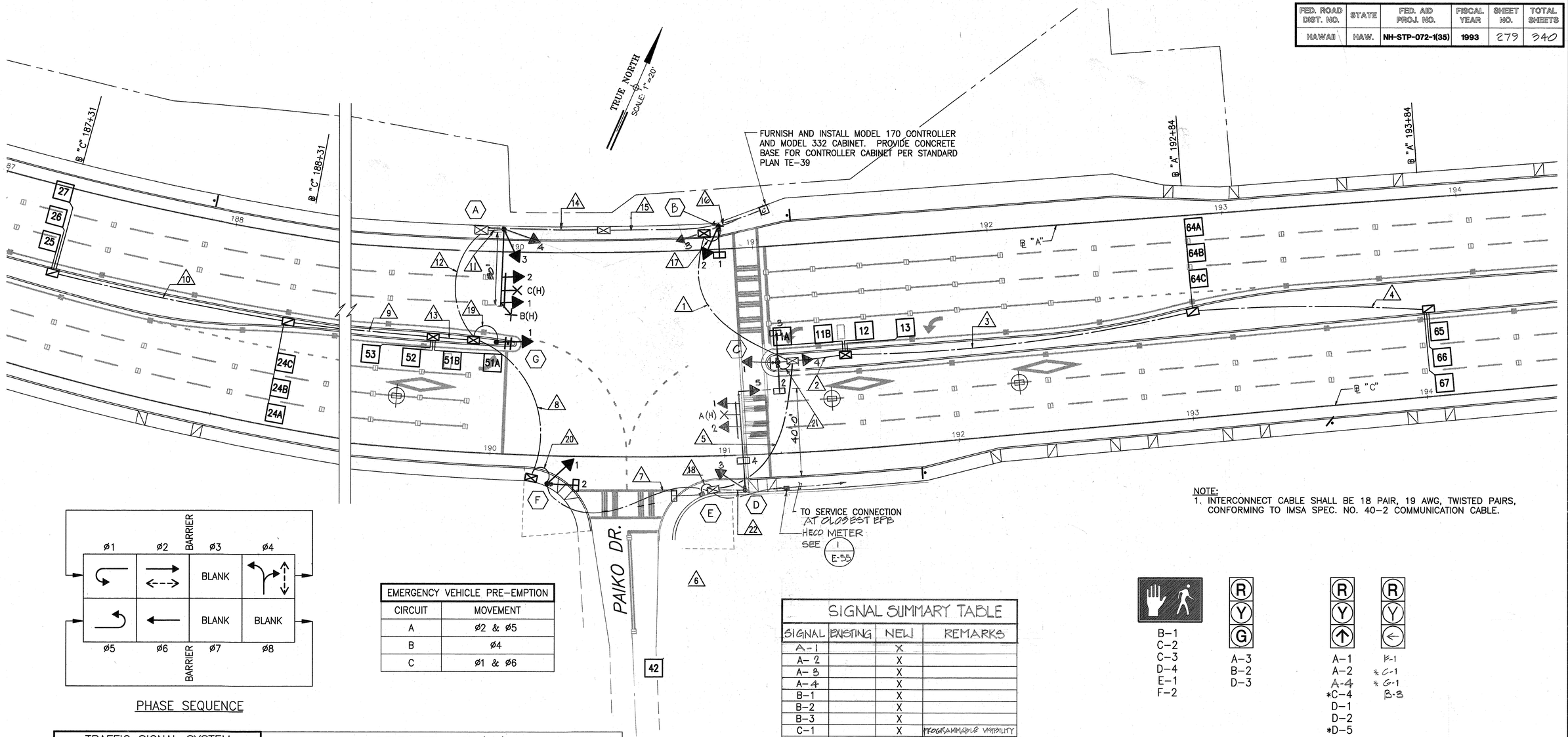
SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-58 OF 62 SHEETS

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

C.O. ADD. 280

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	279	340



NOTE:
1. INTERCONNECT CABLE SHALL BE 18 PAIR, 19 AWG, TWISTED PAIRS, CONFORMING TO IMSA SPEC. NO. 40-2 COMMUNICATION CABLE.

PHASE SEQUENCE

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø4
C	ø1 & ø6

SIGNAL SUMMARY TABLE			
SIGNAL	EXISTING	NEW	REMARKS
A-1		X	
A-2		X	
A-3		X	
A-4		X	
B-1		X	
B-2		X	
B-3		X	
C-1		X	PROGRAMMABLE VISIBILITY
C-2		X	
C-3		X	
C-4		X	PROGRAMMABLE VISIBILITY
D-1		X	
D-2		X	
D-3		X	
D-4		X	
D-5		X	PROGRAMMABLE VISIBILITY
E-1		X	
F-1		X	
F-2		X	PROGRAMMABLE VISIBILITY
G-1		X	
A-4		X	

NEW SIGNAL INDICATIONS
*PROGRAMMABLE VISIBILITY

DATE	REVISION
	C.O. #2
6/30/93	C.O. #1
1/20/93	REVISED TRAFFIC SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATION

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT PAIKO DRIVE	DELTA ITEM NO. (△)																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
QUANTITY OF 2"C, SEE NOTE NO. 2	5	1	1	1	5	1	2	3	1	1	2	3	1	3	3	5	2	2	1	1	2	3
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1	2				2		2	2				2		2	2	4						
QUANTITY OF 2/C #14 DETECTOR LEAD-IN AND PEDESTRIAN PB CABLE	13	7	4	3	4	2		1	4	3		8	7	8	8	14	1	1				1
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE	1				1						2			2	2	1						1
QUANTITY OF #14 SIGNAL HEAD CABLE											10						9	3	5	6	12	15
QUANTITY OF 3/C #4 POWER CABLE	1				1											1						

NOTES:
1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14.
2. ALL CONDUITS SHALL BE SCHEDULE 80.

SCALE IN FEET:
20' 10' 0' 20' 40'

DEXTER S. YEE
REGISTERED PROFESSIONAL ENGINEER
No. 5496-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN AT PAIKO DRIVE

KALANIANAOLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1" =20' DATE: 10/1/92

SHEET No. E-57 OF 62 SHEETS

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

"AS-BUILT"

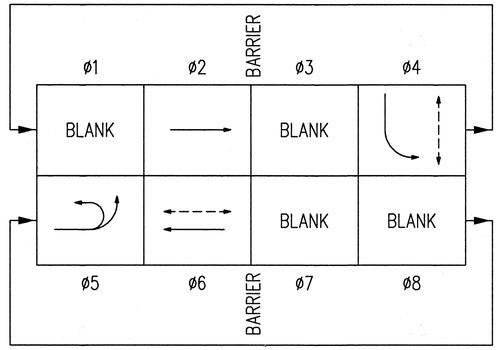
C.O. ADD. 279

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	163	193

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT EAST HALEMAUMAU ST.

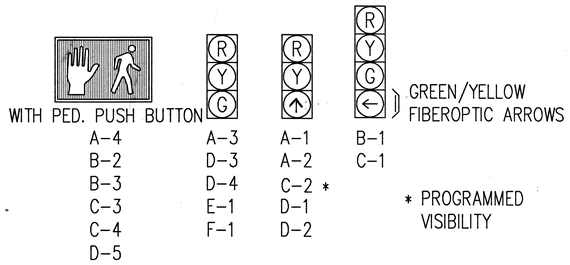
	DELTA ITEM NO. (△)																	
	1	3	4	5	13	16	19	22	28	29	33	34	40	46	47	48	49	50
QUANTITY OF 2"C, SEE NOTE NO. 2	1	1	1	1	1	2	3	2	2	2	4	4	4	2	4	5	3	3
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1						2	2				2	2	2		2	2	2	2
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	1	3	4	5			8	1	2	2	12	1	10	1	5	16	4	7
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE											2	2	2	2	2	2		
QUANTITY OF #14 SIGNAL HEAD CABLE QUANTITY OF #4 POWER CABLE					4			7	14	10				19				

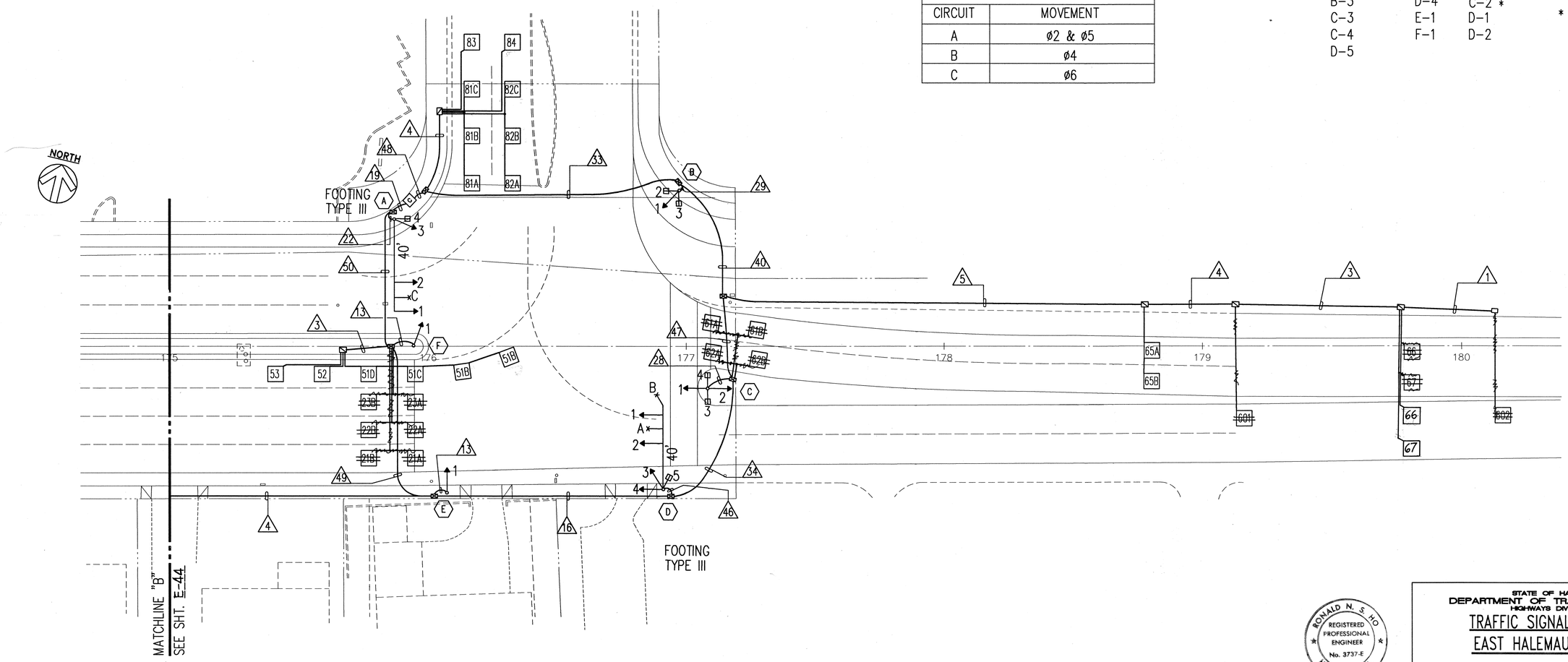
NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14
2. ALL CONDUITS SHALL BE SCHEDULE 80, UNLESS OTHERWISE NOTED



EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø4
C	ø6

SIGNAL INDICATIONS





TRAFFIC SIGNAL PLAN – EAST HALEMAUMAU ST.

SCALE: 1"=20'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN –
EAST HALEMAUMAU ST.

KALANIANAOLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

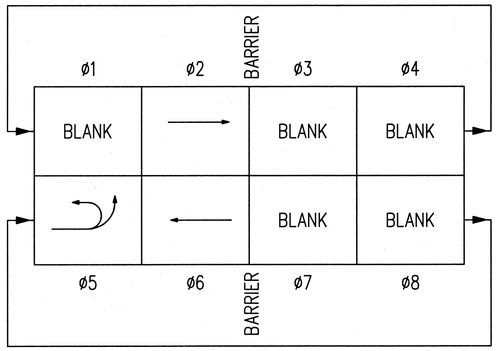
SCALE: 1"=20' DATE: 8/90

SHEET No. E-45 OF 45 SHEETS

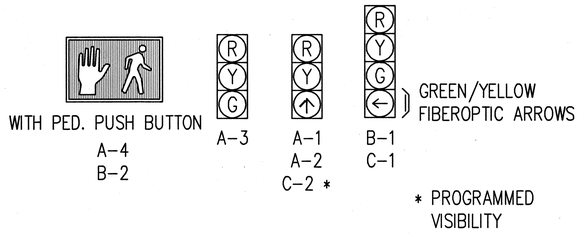
RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	162	193



SIGNAL INDICATIONS

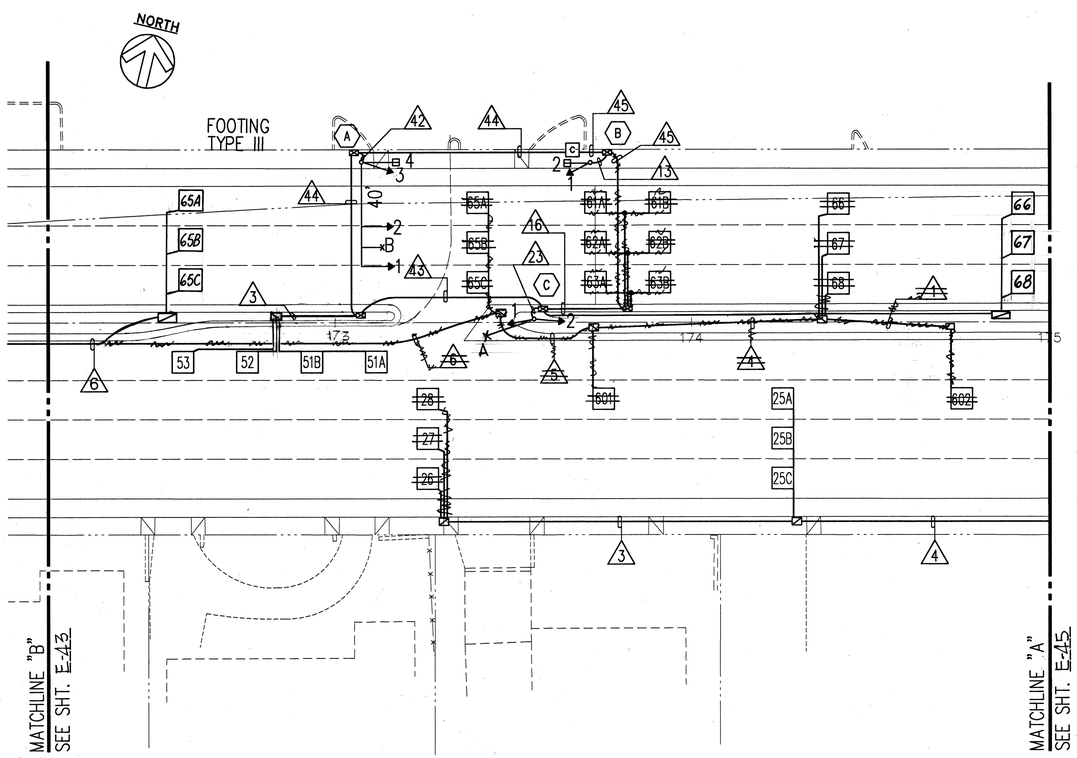


EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø6

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT NIU IKI CIRCLE AT NIU VALLEY SHOPPING CENTER

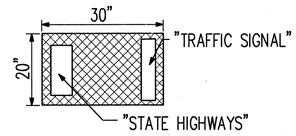
	DELTA ITEM NO. (△)							
	2	13	16	23	42	43	44	45
QUANTITY OF 2"C, SEE NOTE NO. 2	1	1	2	1	1	3	4	3
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1			2			2	2	2
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	2						3	3
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE				1	1	1	1	
QUANTITY OF #14 SIGNAL HEAD CABLE QUANTITY OF #4 POWER CABLE		4		8	12			

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14
2. ALL CONDUITS SHALL BE SCHEDULE 80, UNLESS OTHERWISE NOTED.

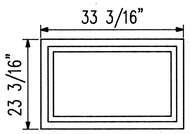


TRAFFIC SIGNAL PLAN – NIU VALLEY SHOPPING CENTER

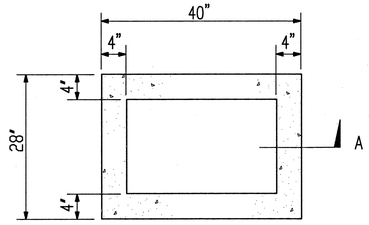
SCALE: 1"=20'-0"



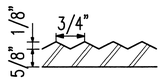
PLAN OF COVER



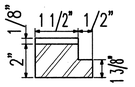
PLAN OF FRAME



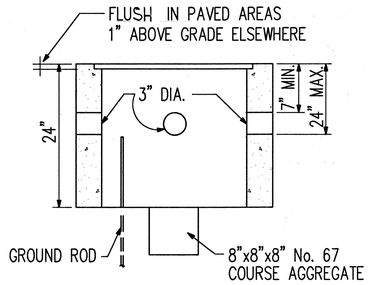
PLAN OF PULLBOX



SECTION THROUGH COVER



SECTION THROUGH FRAME



SECTION A–A

TYPICAL PULLBOX TYPE Z

NOT TO SCALE

RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
8/10/90

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN –
NIU VALLEY SHOPPING CENTER

KALANIANAOLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/90

SHEET No. E-44 OF 45 SHEETS

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

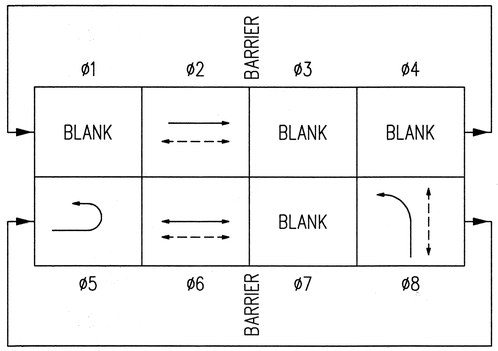
D:\SIGNSDATA\NIUIKI.DGN

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	161	193

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT NIU IKI CIRCLE

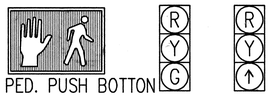
	DELTA ITEM NO. (△)																				
	1	2	3	4	5	6	7	12	16	18	20	22	23	26	28	36	37	38	39	40	41
QUANTITY OF 2"C, SEE NOTE NO. 2	1	1	1	1	1	1	1	2	2	3	5	2	1	1	2	2	5	3	3	4	4
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1									2	2	2						2	2	2	2	2
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	1	2	3	4	5	6	1			1	13	1		7	2	1	13	12		10	11
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE								2			1					1	2		2	2	2
QUANTITY OF #14 SIGNAL HEAD CABLE QUANTITY OF #4 POWER CABLE							3	16				7	8		14	23					

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14
2. ALL CONDUITS SHALL BE SCHEDULE 80, UNLESS OTHERWISE NOTED



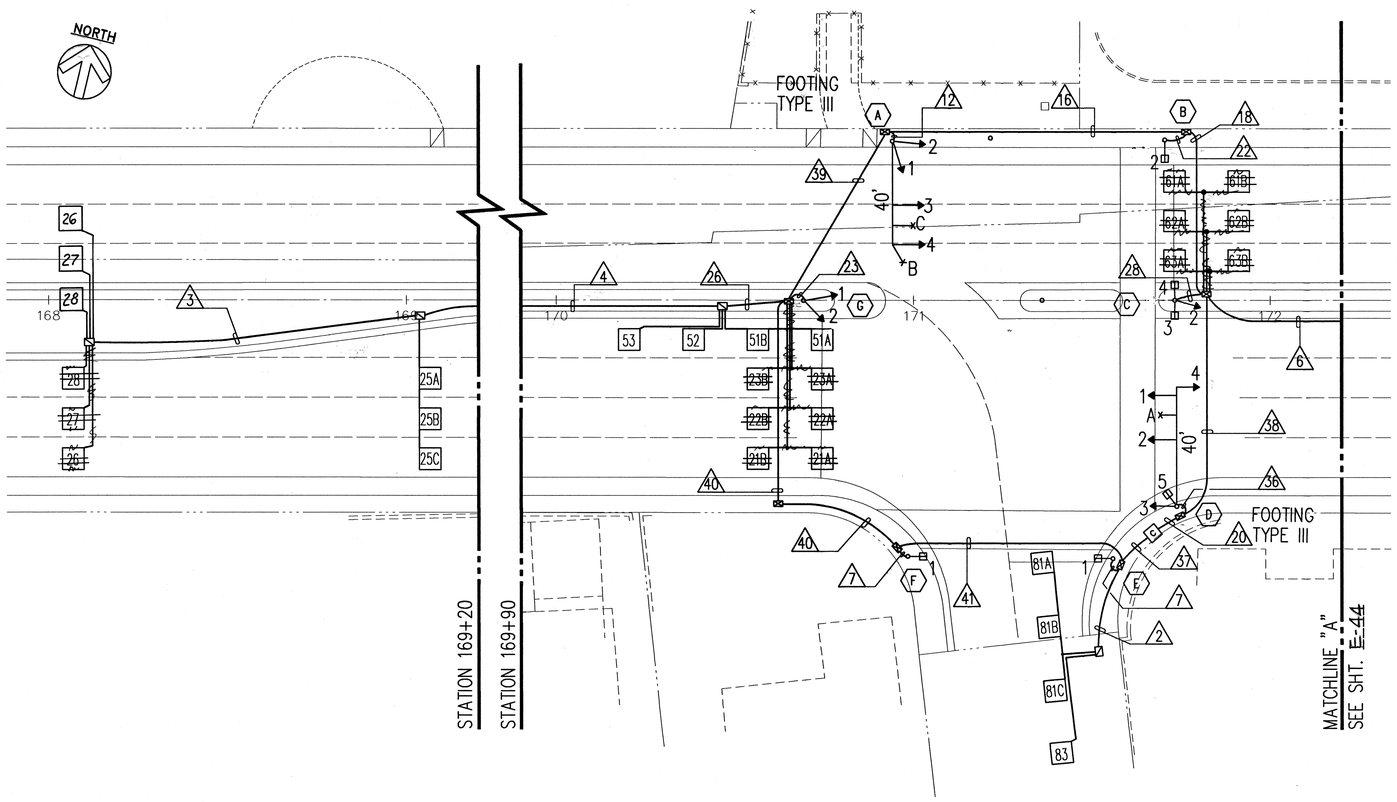
EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø8
C	ø6

SIGNAL INDICATIONS



WITH PED. PUSH BOTTON		
B-2	A-1	A-3
C-3	A-2	A-4
C-4	D-3	C-2 *
D-5	G-1	D-1
E-1	G-2	D-2
F-1		D-4 *

* PROGRAMMED VISIBILITY



TRAFFIC SIGNAL PLAN – NIU IKI CIRCLE
SCALE: 1"=20'-0"

RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
8/10/90

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN –
NIU IKI CIRCLE

KALANIANAOLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/90

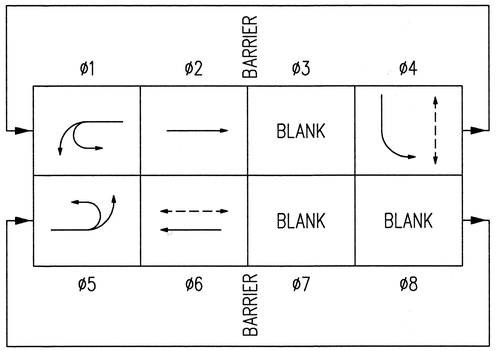
SHEET No. E-43 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	160	193

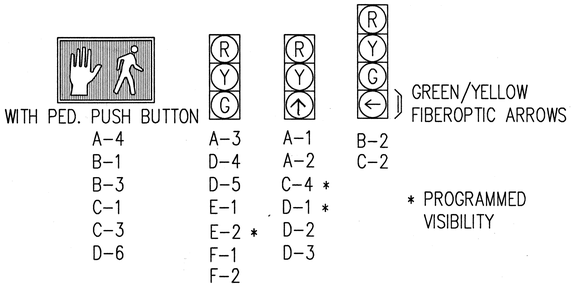
TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT WEST HALEMAUMAU ST.

	DELTA ITEM NO. (△)																	
	1	3	4	5	6	16	23	25	26	27	28	29	30	31	32	33	34	35
QUANTITY OF 2"C, SEE NOTE NO. 2	1	1	1	1	1	2	1	2	1	1	2	2	2	4	5	4	4	3
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1						2								2	2	2	2	2
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	1	3	4	5	6			1	7	9	2	2	1	12	14	12	1	10
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE								2					1	1	2	2	2	
QUANTITY OF #14 SIGNAL HEAD CABLE QUANTITY OF #4 POWER CABLE							8	20			14	10	12					

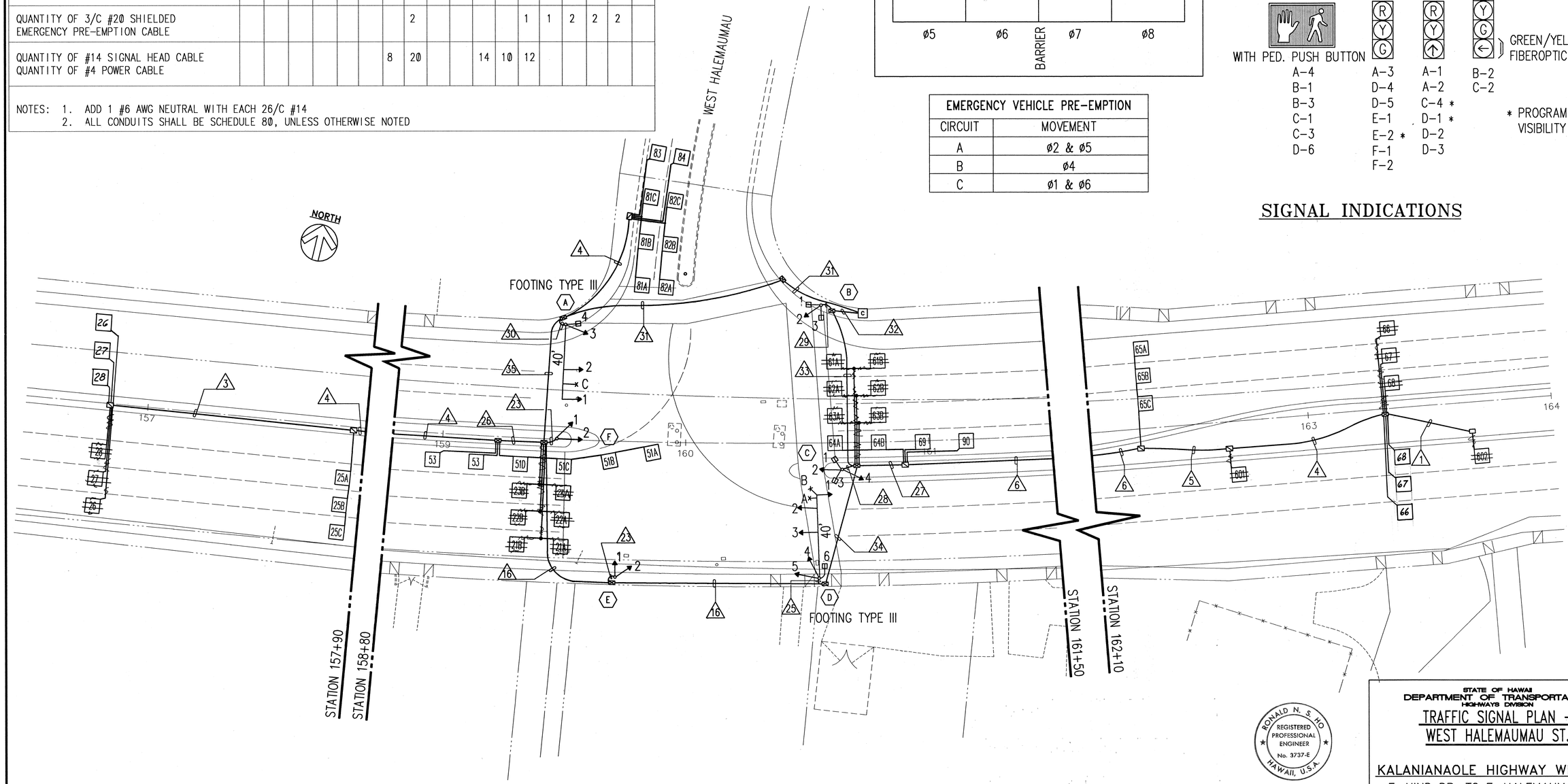
NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14
2. ALL CONDUITS SHALL BE SCHEDULE 80, UNLESS OTHERWISE NOTED



EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2 & ø5
B	ø4
C	ø1 & ø6



SIGNAL INDICATIONS



TRAFFIC SIGNAL PLAN – WEST HALEMAUMAU ST.

SCALE: 1"=20'-0"

RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
8/10/90

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN –
WEST HALEMAUMAU ST.

KALANIANAOLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/90

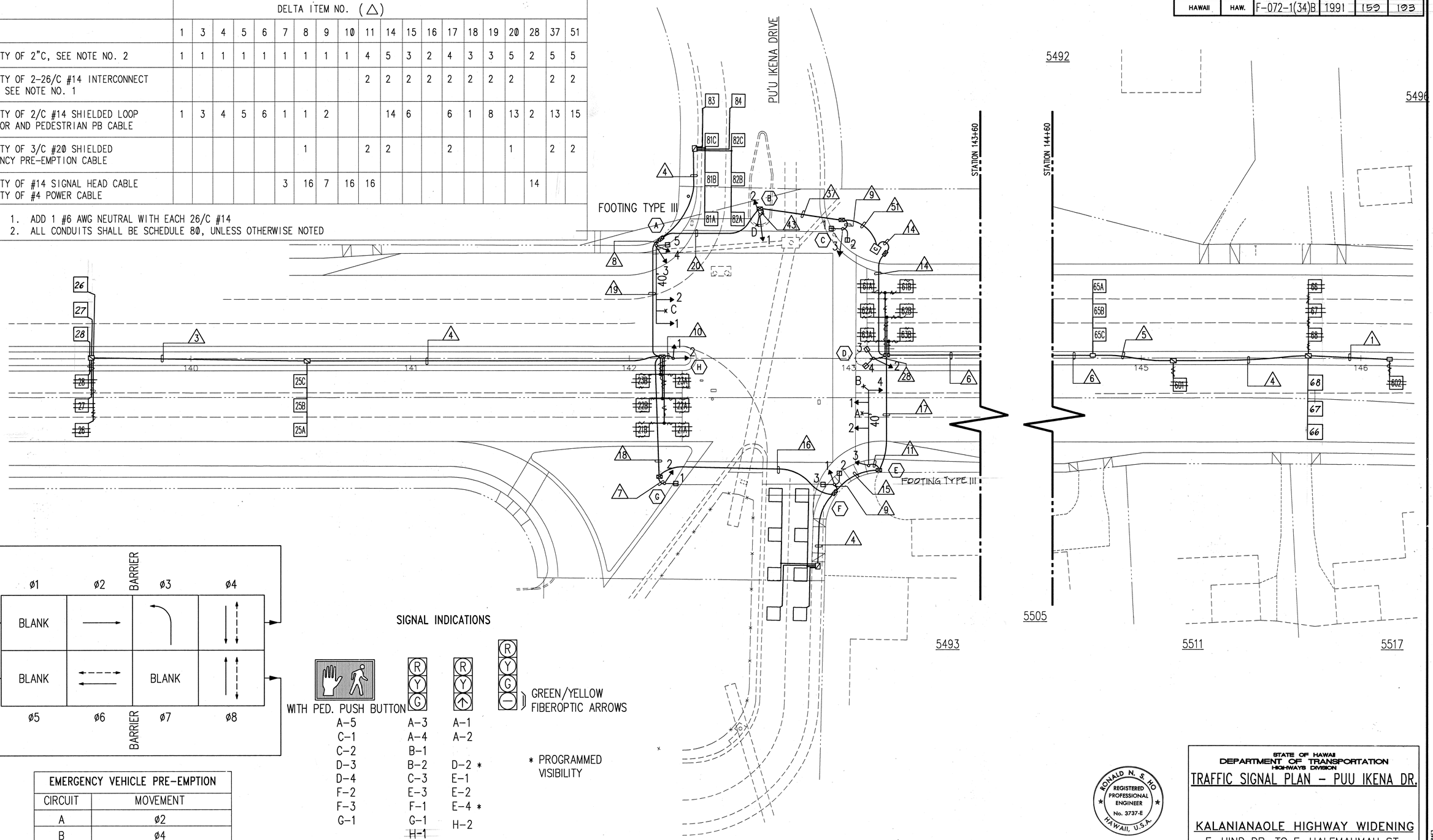
SHEET No. E-42 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	159	103

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE AT PUU IKENA DRIVE

	DELTA ITEM NO. (△)																			
	1	3	4	5	6	7	8	9	10	11	14	15	16	17	18	19	20	28	37	51
QUANTITY OF 2"C, SEE NOTE NO. 2	1	1	1	1	1	1	1	1	1	4	5	3	2	4	3	3	5	2	5	5
QUANTITY OF 2-26/C #14 INTERCONNECT CABLE, SEE NOTE NO. 1										2	2	2	2	2	2	2	2		2	2
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	1	3	4	5	6	1	1	2			14	6		6	1	8	13	2	13	15
QUANTITY OF 3/C #20 SHIELDED EMERGENCY PRE-EMPTION CABLE							1			2	2			2			1		2	2
QUANTITY OF #14 SIGNAL HEAD CABLE QUANTITY OF #4 POWER CABLE						3	16	7	16	16								14		

NOTES: 1. ADD 1 #6 AWG NEUTRAL WITH EACH 26/C #14
2. ALL CONDUITS SHALL BE SCHEDULE 80, UNLESS OTHERWISE NOTED



EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENT
A	ø2
B	ø4
C	ø6
D	ø3

TRAFFIC SIGNAL PLAN – PUU IKENA DRIVE

SCALE: 1"=20'-0"

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

RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
8/10/90

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN – PUU IKENA DR.

KALANIANAOLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/90

SHEET No. E-41 OF 45 SHEETS

D:\SIGBDY\VOLAN\VOITRK3

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

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

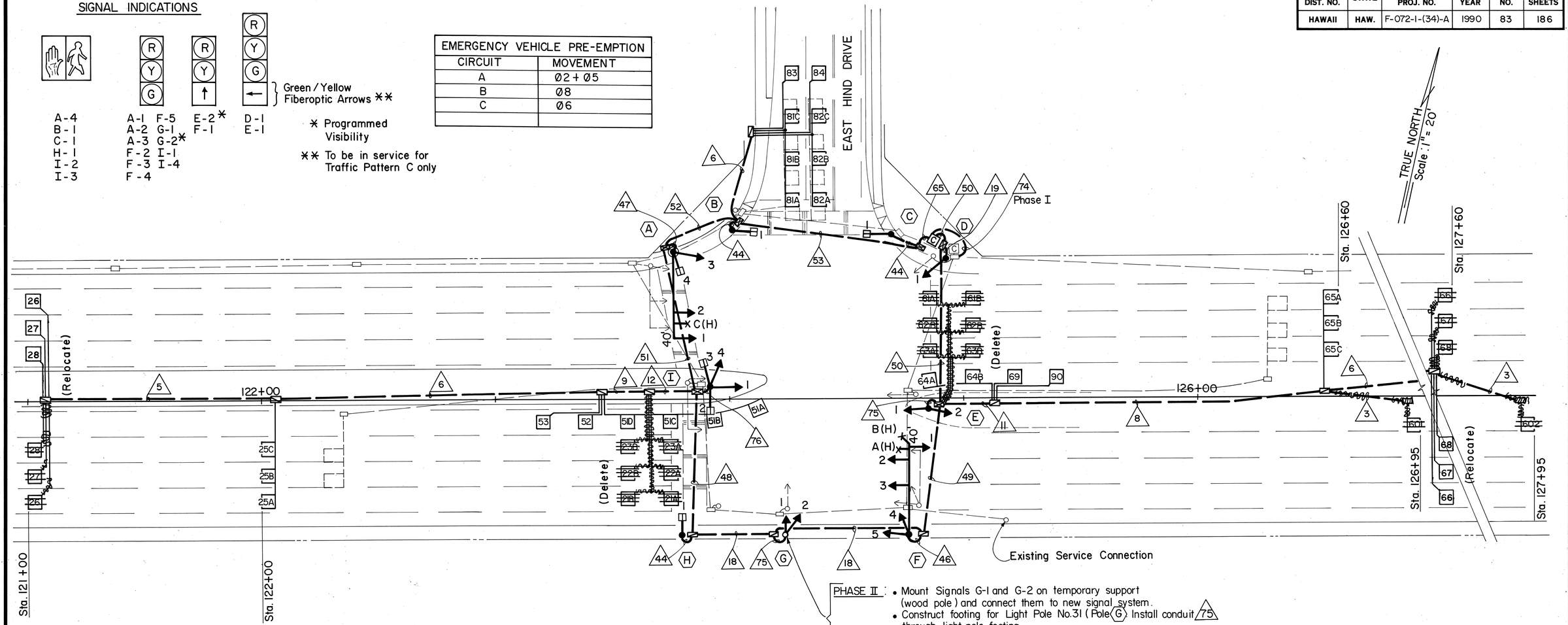
E-2*
F-1

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.

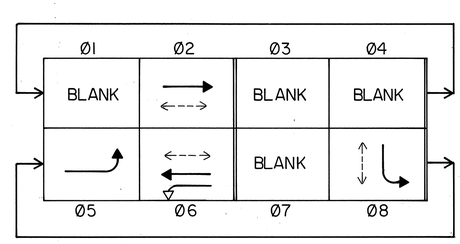
PHASE III:
- Relocate Signals G-1 and G-2 to Light Pole No. 31 (Pole (G))
- Remove wood pole and complete sidewalk pavement.

CONDUIT & CABLE SCHEDULE

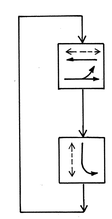
△	CONDUIT	CABLE	△	CONDUIT	CABLE
3	1-2" SCH 80	1-2c #14 SHLD	49	3-2" SCH 80	2-26c#14,△ 2-3c#14 SHLD
5	1-2" SCH 80	3-2c #14 SHLD	50	5-2" SCH 80	2-26c#14,△ 12-2c#14 SHLD, 2-3c#20 SHLD
6	1-2" SCH 80	4-2c#14 SHLD	51	5-2" SCH 80	2-26c#14,△ 12-2c#14 SHLD
8	1-2" SCH 80	6-2c#14 SHLD	52	5-2" SCH 80	2-26c#14,△ 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			

△ 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

WERNER BUGGERT
REGISTERED PROFESSIONAL ENGINEER
No. 3383-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
EAST HIND DRIVE

KALANIANAOLE HIGHWAY
Wailupe 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

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

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

SIGNAL INDICATIONS

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

D-3, A-2, D-4, A-3, D-5, A-4, E-1, B-2, E-2*, C-3, G-1, G-4

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

B-1, C-1

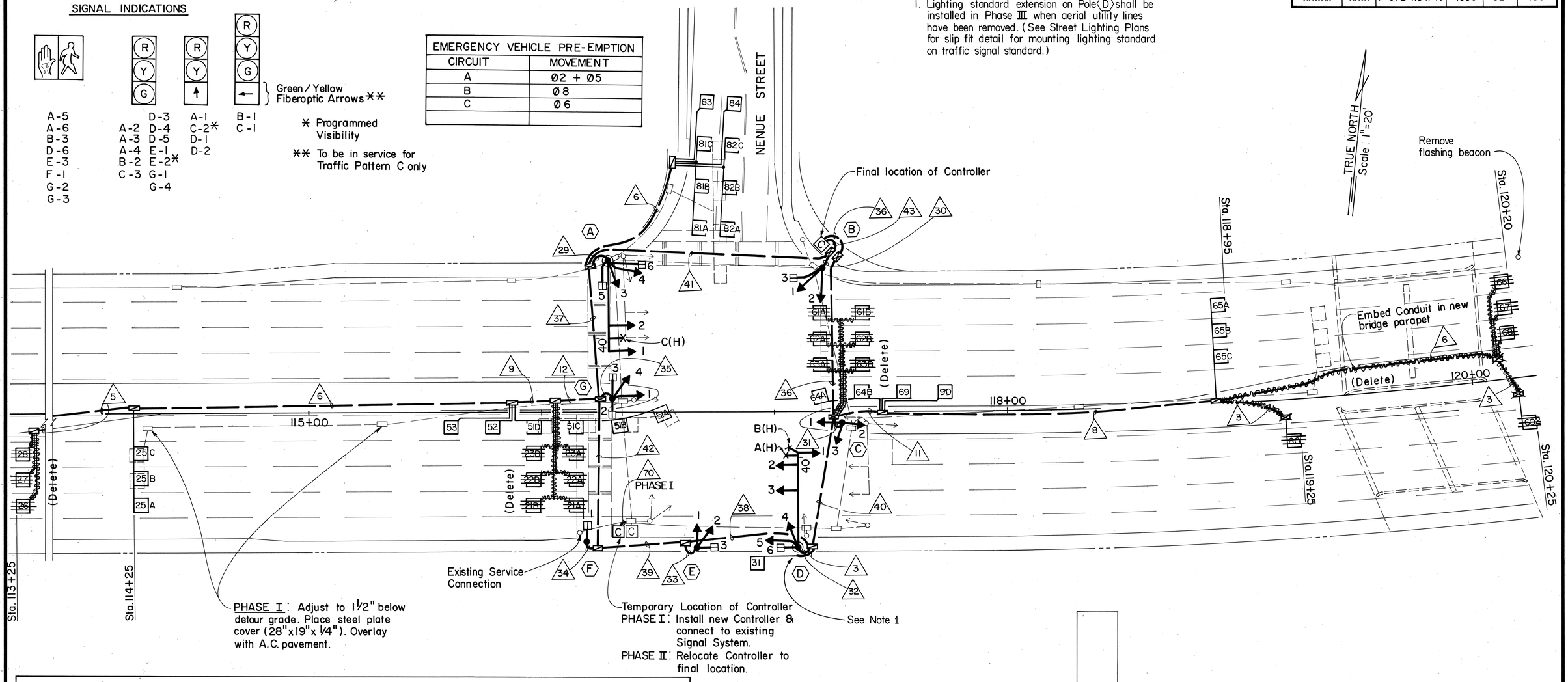
* Programmed Visibility

** To be in service for Traffic Pattern C only

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

NOTE:

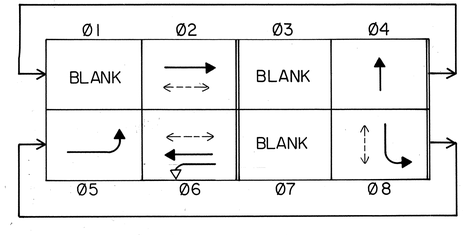
1. Lighting standard extension on Pole (D) shall be installed in Phase III when aerial utility lines have been removed. (See Street Lighting Plans for slip fit detail for mounting lighting standard on traffic signal standard.)



CONDUIT & CABLE SCHEDULE

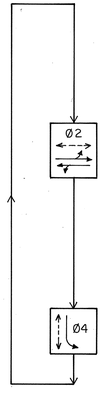
△	CONDUIT	CABLE	△	CONDUIT	CABLE
3	1-2" SCH 80	1-2c #14 SHLD	36	5-2" SCH 80	2-26c #14△, 14-2c #14 SHLD, 2-3c #20 SHLD
5	1-2" SCH 80	3-2c #14 SHLD	37	5-2" SCH 80	2-26c #14△, 13-2c #14 SHLD
6	1-2" SCH 80	4-2c #14 SHLD	38	2-2" SCH 80	2-26c #14△
8	1-2" SCH 80	6-2c #14 SHLD	39	2-2" SCH 80	2-26c #14△, 1-2c #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	△ 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))

WERNER BEUGGER REGISTERED PROFESSIONAL ENGINEER No. 3383-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
NENUE STREET

KALANIANAOLE HIGHWAY
Wailupe 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

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

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

A-2, B-5, B-6, C-2, C-3, D-3, F-4, G-4

C-1, D-2*, F-1*

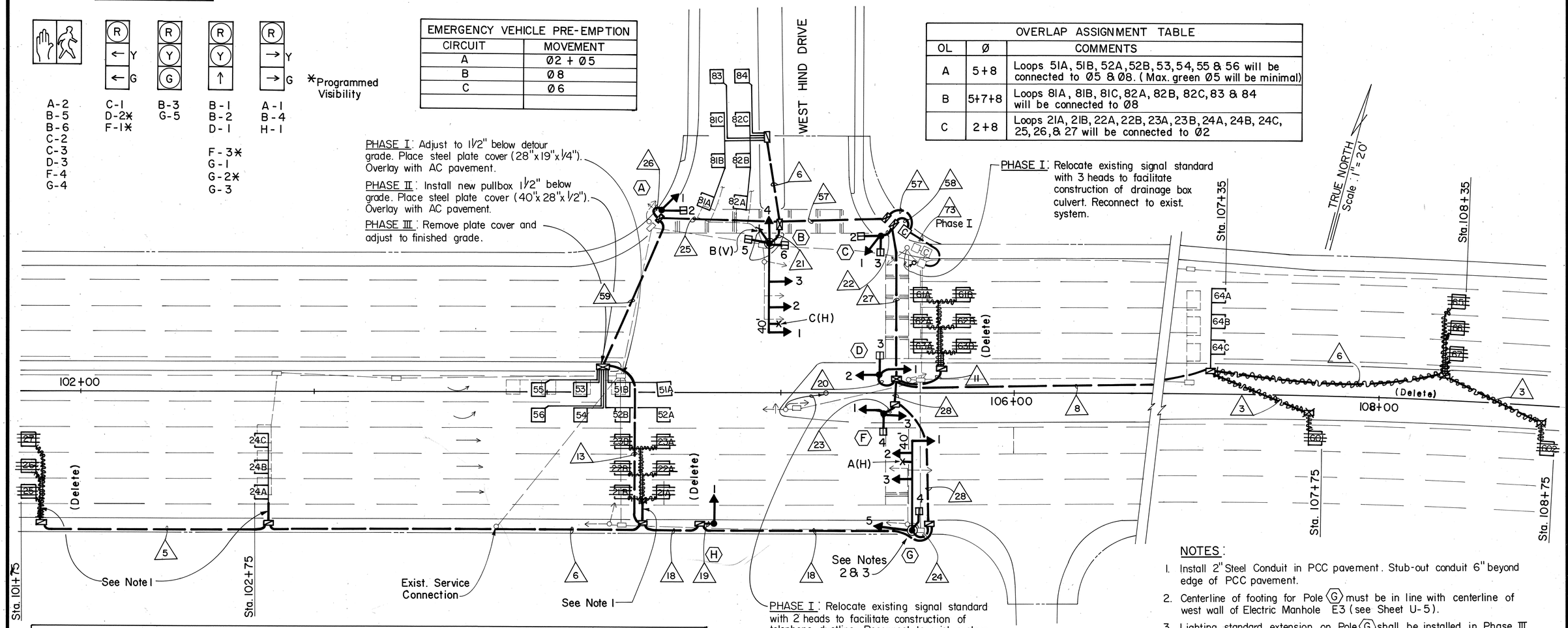
B-3, G-5

B-1, B-2, D-1, F-3*, G-1, G-2*, G-3

A-1, B-4, H-1

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

OVERLAP ASSIGNMENT TABLE		
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



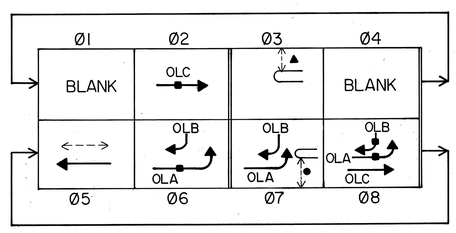
NOTES:

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

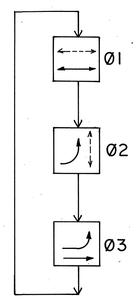
△	CONDUIT	CABLE	△	CONDUIT	CABLE
3	1-2" SCH 80	1-2c #14 SHLD	25	4-2" SCH 80	2-26c #14,△ 14-2c #14 SHLD
5	1-2" SCH 80	3-2c #14 SHLD	26	1-2" SCH 80	6-#14, 1-2c #14 SHLD
6	1-2" SCH 80	4-2c #14 SHLD	27	4-2" SCH 80	2-26c #14,△ 11-2c #14 SHLD, 1-3c #20 SHLD
8	1-2" SCH 80	6-2c #14 SHLD	28	3-2" SCH 80	2-26c #14,△ 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,△ 20-2c #14 SHLD, 2-3c #20 SHLD
13	4-2" SCH 80	2-26c #14,△ 7-2c #14 SHLD	58	4-2" SCH 80	2-26c #14,△ 4-#14, 13-2c #14 SHLD, 1-3c #20 SHLD
18	2-2" SCH 80	2-26c #14△	59	4-2" SCH 80	2-26c #14,△ 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	△ 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))

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

WERNER BEUGERT REGISTERED PROFESSIONAL ENGINEER No. 3383-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
WEST HIND DRIVE

KALANIANAOLE HIGHWAY
Wailupe Circle to East Hind Drive
F.A. Project No. F-072-1(34)-A

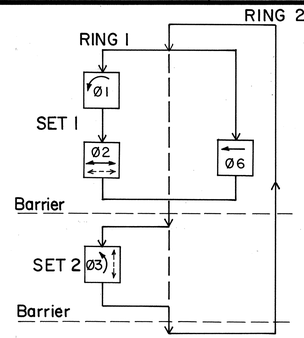
SCALE: As shown DATE: JUNE 30, 1990

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	80	186

SIGNAL INDICATIONS

E-1



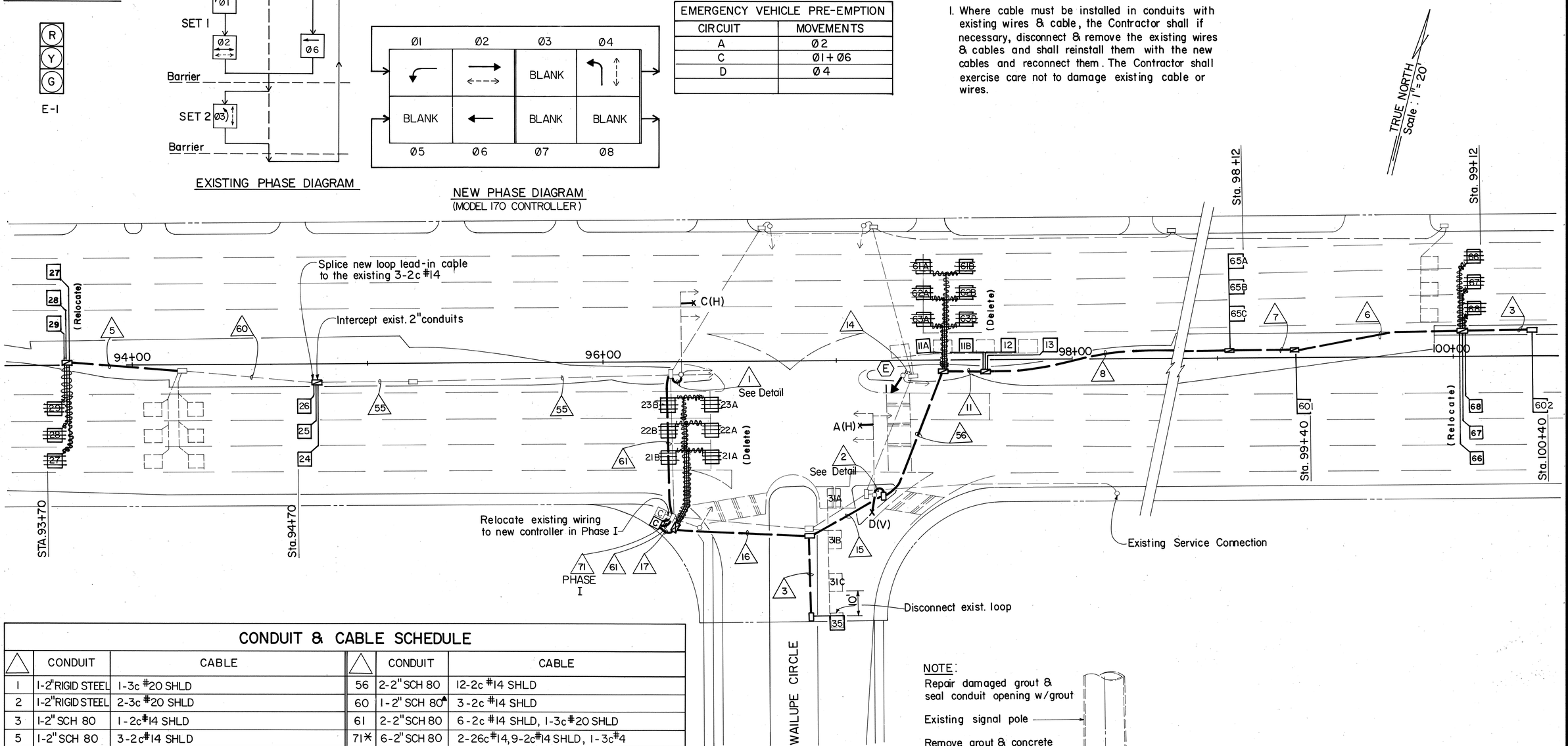
EXISTING PHASE DIAGRAM

NEW PHASE DIAGRAM
(MODEL 170 CONTROLLER)

EMERGENCY VEHICLE PRE-EMPTION	
CIRCUIT	MOVEMENTS
A	Ø2
C	Ø1 + Ø6
D	Ø4

NOTES:

1. 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.



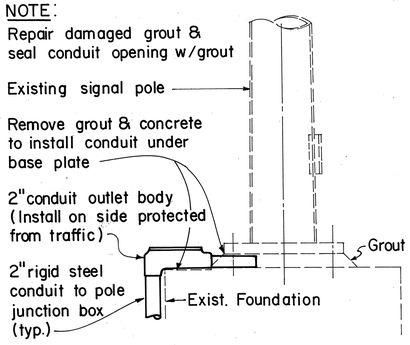
CONDUIT & CABLE SCHEDULE

△	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



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

WERNER BEUGGERT
REGISTERED PROFESSIONAL ENGINEER
No. 3383-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
WAILUPE CIRCLE

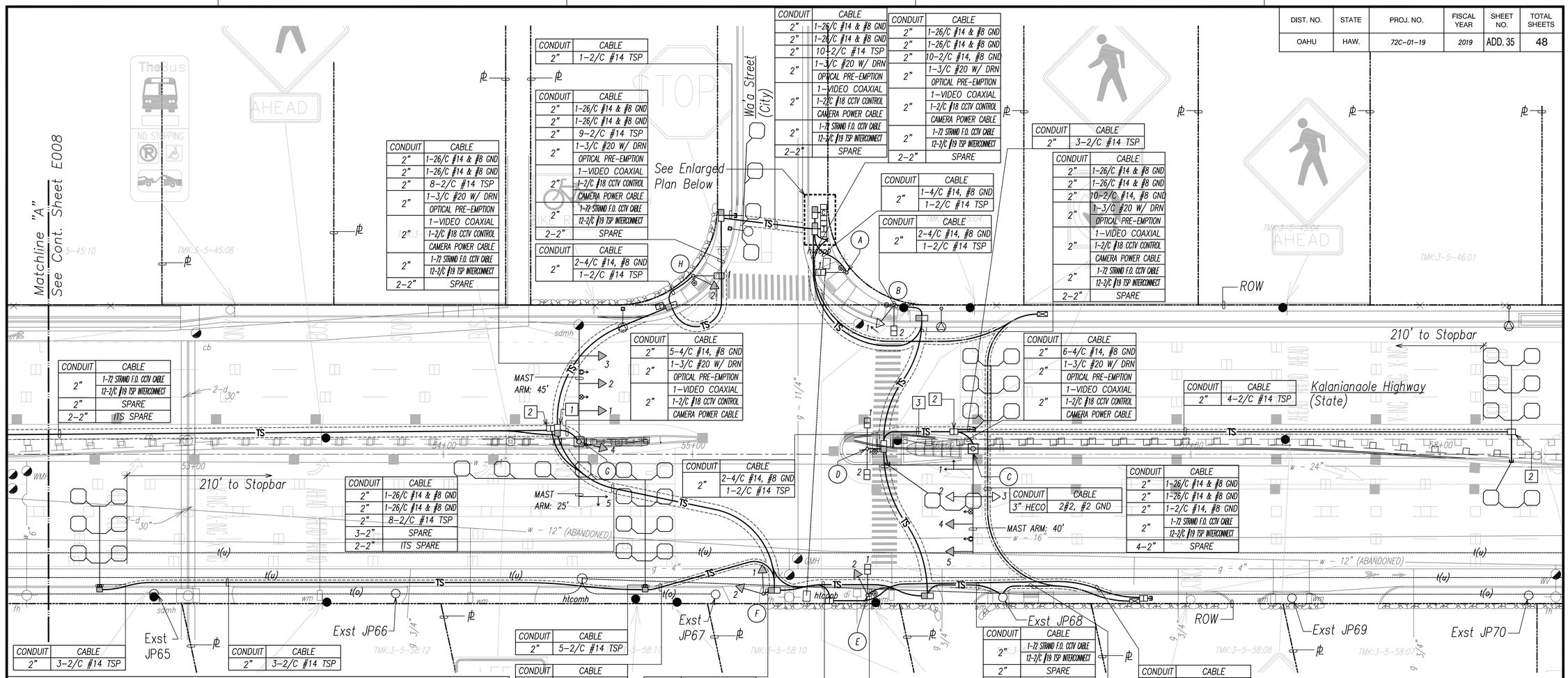
KALANIANAOLE HIGHWAY
Wailupe Circle to East Hind Drive
F.A. Project No. F-072-1(34)-A

SCALE: As shown DATE: JUNE 30, 1990

SHEET No. F-2 OF 6 SHEETS

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

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	72C-01-19	2019	ADD. 35	48



CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	8-2/C #14 TSP
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	1-2/C #14 TSP

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	9-2/C #14 TSP
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	2-4/C #14, #8 GND
	1-2/C #14 TSP

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	10-2/C #14 TSP
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	10-2/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	3-2/C #14 TSP

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	10-2/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	5-4/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE

CONDUIT	CABLE
2"	6-4/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE

CONDUIT	CABLE
2"	4-2/C #14 TSP

CONDUIT	CABLE
2"	2-4/C #14, #8 GND
	1-2/C #14 TSP

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	8-2/C #14 TSP
3-2"	SPARE
2-2"	ITS SPARE

CONDUIT	CABLE
3" HECO	2#2, #2 GND

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	1-2/C #14, #8 GND
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
4-2"	SPARE

CONDUIT	CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

CONDUIT	CABLE
2"	3-2/C #14 TSP

CONDUIT	CABLE
2"	3-2/C #14 TSP

CONDUIT	CABLE
2"	5-2/C #14 TSP

CONDUIT	CABLE
2"	8-2/C #14 TSP

CONDUIT	CABLE
2"	1-4/C #14, #8 GND

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
4-2"	SPARE
2-2"	ITS SPARE

CONDUIT	CABLE
2"	3-4/C #14, #8 GND
	1-2/C #14

CONDUIT	CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2"	SPARE
2-2"	ITS SPARE

CONDUIT	CABLE
3" HECO	2#2, #2 GND

CONDUIT	CABLE
2-2"	ITS SPARE

CONDUIT	CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE
2-2"	ITS SPARE

CONDUIT	CABLE
2"	2-4/C #14, #8 GND
	1-2/C #14 TSP

CONDUIT	CABLE
2"	3-2/C #14 TSP

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	2#6, #8 GND
2"	1-OUTDOOR CAT6
2"	2-VIDEO COAXIAL
	2-2/C #18 CCTV CONTROL
	2-CAMERA POWER CABLE
2-2"	SPARE

CONDUIT	CABLE
2-2"	1-26/C #14 & #8 GND
2"	10-2/C #14 TSP
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
2-2"	SPARE

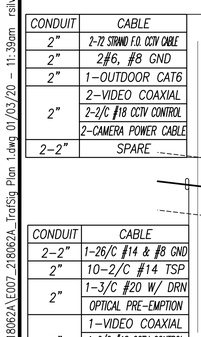
CONDUIT	CABLE
3"	2-26/C #14 & #8 GND
3"	2-26/C #14 & #8 GND
2"	10-2/C #14 TSP
2"	9-2/C #14 TSP
2"	(2) 12-2/C #19 TSP INTERCONNECT
2"	2#6, #8 GND
2"	1-OUTDOOR CAT6
2"	2-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION

CONDUIT	CABLE
2"	4#6, #8 GND
2"	SPARE

CONDUIT	CABLE
2"	1-26/C #14 & #8 GND
2"	1-26/C #14 & #8 GND
2"	8-2/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE
2"	1-72 STRAND F.O. CCTV CABLE
	12-2/C #19 TSP INTERCONNECT
4-2"	SPARE

CONDUIT	CABLE
3" HECO	2#2, #2 GND

CONDUIT	CABLE
2"	1-4/C #14, #8 GND
	1-2/C #14 TSP



North

Enlarged Plan

Scale: 1"=5'

Note:

1. Traffic Rated Type "C" Traffic Signal Pullbox.
2. Traffic Rated Type "B" Traffic Signal Pullbox.
3.

CONDUIT	CABLE
2"	5-4/C #14, #8 GND
	7-2/C #14, #8 GND
2"	1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
2"	1-VIDEO COAXIAL
	1-2/C #18 CCTV CONTROL
	CAMERA POWER CABLE

North

Traffic Signal Plan I

Scale: 1"=20'

Signal Indication	(LED)	(LED)	(LED)	(LED)
Description	12" RYG Traffic Signal Head	12" RYG (Left Arrow) Traffic Signal Head	12" RYG (Str. Arrow) Traffic Signal Head	Pedestrian Signal Head
Pole Letter-Signal Head Number	C-4 G-2 C-5 G-3 E-2 G-4 F-1 G-5* F-2 H-2 G-1	B-1 C-1*	C-2 C-3	A-1 B-2 D-1 D-2 E-1 H-1

* Indicates Programmed Visibility Signal Head (Non-LED)

SCALE: GRAPHIC SCALE 1"=20'

20' 10' 0 20' 40' 60'

DATE	REVISION
12/30/19	Addressed BWS Review Comments

GEORGE D. TAKASE
LICENSED PROFESSIONAL ENGINEER
No. 13741-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII

APRIL 30, 2020
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN I

KALANIANAOLE HIGHWAY
TRAFFIC SIGNAL INSTALLATION AT WAA ST.
Project No. 72C-01-19

Scale: AS NOTED Date: NOVEMBER 2019

E007 SHEET No. OF 48 SHEETS

ADD. 35

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

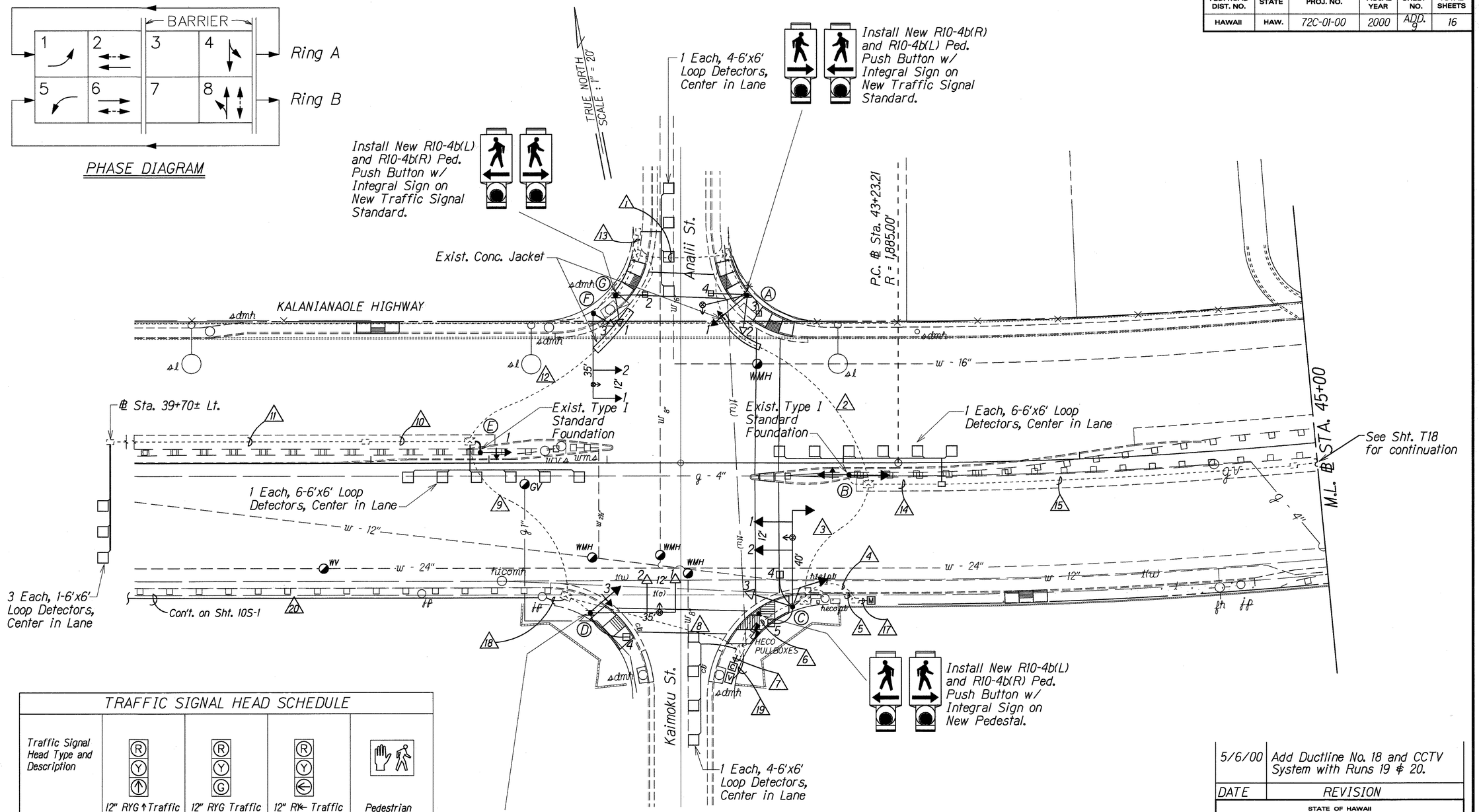
ORIGINAL PLAN
NOTE BOOK
No.

PW Z:\ACAD\PROJECTS\218062A\E007_218062A_TrafSig Plan 1.dwg 01/03/20 - 11:39am rsilva

1117

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-00	2000	ADD. 9	16

PHASE DIAGRAM



TRAFFIC SIGNAL HEAD SCHEDULE

Traffic Signal Head Type and Description	12" RYG ↑ Traffic Signal Head	12" RYG Traffic Signal Head	12" RY← Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	C-1 C-2 F-1 F-2	A-2 C-3 D-1 D-2 F-3 G-1	A-1 B-1 D-3 E-1	A-3 A-4 C-4 C-5 D-4 G-2

* With Programmed Visibility

DATE	REVISION
5/6/00	Add Ductline No. 18 and CCTV System with Runs 19 & 20.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KALANIANAOLE HIGHWAY

Installation of Traffic Signals at Analii Street

Project No. 72C-01-00

Scale: 1"=20' Date: Jan., 2000

SHEET No. 1 OF 2 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY M. Lindsay | TRACED BY | DESIGNED BY Steven Yoshida | NOTE BOOK | QUANTITIES BY | CHECKED BY | DATE

ADD. 9

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-00	2000	ADD. 11	16

1	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c #14 New
	2" Exist.	1-2c #14 New

2	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c #14 New
	2" Exist.	1-2c #14 New
	2" Exist.	1-3c #20 New

3	CONDUIT	CABLE
	2" Exist.	1-26c #14 New
	2" Exist.	1-26c #14 New
	2" Exist.	3-2c #14 New
	2" Exist.	1-3c #20 New

4	CONDUIT	CABLE
	2" Exist.	1-3c #6 New
	2" Exist.	1-12PR #19 New

5	CONDUIT	CABLE
	2" Exist.	1-3c #6 New
	2" Exist.	1-12PR #19 New

6	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c#14 New
	2" Exist.	1-3c#6 New
	2" Exist.	1-12PR #19 New
		1-Video Coaxial
		4-#22 Control
		3-#14 SVT Power
	2" Exist.	4-2c #14 New
	2" Exist.	2-3c #20 New

7	CONDUIT	CABLE
	2" New	1-26c#14 New
	2" New	1-26c#14 New
	2" New	1-26c #14 New
	2" New	1-26c #14 New
	2" New	1-3c #14 New
	2" New	2-12PR #19 New
		1-24 Strand Fiberoptic
	2" New	5-2c #14 New
	2" New	5-2c #14 New
	2" New	4-3c #20 New

8	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c #14 New
	2" Exist.	5-2c #14 New
	2" Exist.	2-3c #20 New
		1-12PR #19 New
		1-24 Strand Fiberoptic

9	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c #14 New
	2" Exist.	4-2c #14 New
	2" Exist.	1-3c #20 New

10	CONDUIT	CABLE
	2" Exist.	2-2c #14 New

11	CONDUIT	CABLE
	2" Exist.	2-2c #14 New

12	CONDUIT	CABLE
	2" Exist.	1-26c#14 New
	2" Exist.	1-26c#14 New
	2" Exist.	2-2c #14 New
	2" Exist.	1-3c #20 New

13	CONDUIT	CABLE
	2" Exist.	2-2c #14 New

14	CONDUIT	CABLE
	2" Exist.	2-2c #14 New
	2" Exist.	1-4c #14 New

15	CONDUIT	CABLE
	2" Exist.	1-2c #14 New
	2" Exist.	1-4c #14 New

16	CONDUIT	CABLE
	2" Exist.	1-4c #14 New

17	CONDUIT	CABLE
	2" New	1-3c #6 New
	2" New	1-3c #6 New

18	CONDUIT	CABLE
	2" New	1-12PR #19 Exist.*
		1-24 Strand Fiberoptic

19	CONDUIT	CABLE
	2" New	1-24 Strand Fiberoptic
	2" New	1-Video Coaxial
		4-#22 Control
		2-3-#14 SVT Power

20	CONDUIT	CABLE
		1-24 Strand Fiberoptic**

21	CONDUIT	CABLE
	2" Exist.	1-24 Strand Fiberoptic

*Note: Exist. 1-12PR #19 Interconnect Cable shall be dropped from the overhead system via installed risers at junction poles located at ℄ Sta. 41+70± o/s 55'± Rt. and 42+95± o/s 57'± Rt., respectively. This work shall be coordinated with the C&C DTS.

**Note: New 24 Strand Fiberoptic Cable shall be attached to the existing overhead Fiberoptic Cable per C&C DTS requirements.

DATE	REVISION
5/6/00	Add 26c #14 New to runs 1, 2, 3, 6, 7, 8, 9 & 12 and Add 12PR #19 to run 7 & 8 and Add Conduit/ Cable Runs #18, 19, 20 & 21 and Notes. Add 24 Strand Fiberoptic to Runs 7 & 8.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL CONDUIT & CABLE SCHEDULE

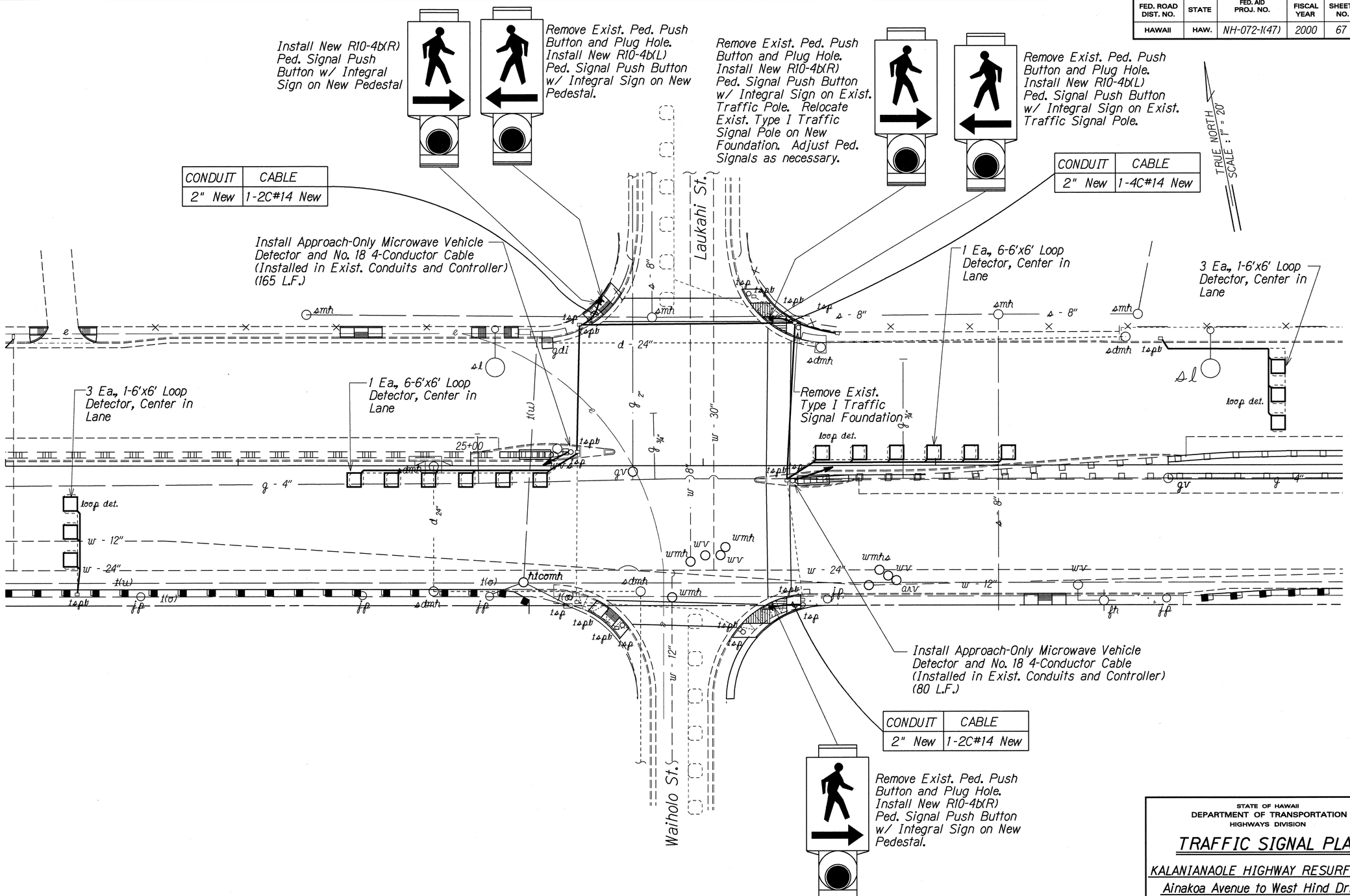
KALANIANAOLE HIGHWAY
Installation of Traffic Signals at Analii Street
Project No. 72C-01-00

Scale: 20 Date: Jan., 2000

SHEET No. 1 OF 1 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY M. Takaiji	
	TRACED BY	
NOTE BOOK	DESIGNED BY Steven Yoshida	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(47)	2000	67	91



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY M. Takafuji	X
	TRACED BY	
NOTE BOOK	DESIGNED BY Steven Yoshida	
rd2.may	QUANTITIES BY	
N. Ckellsp3	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

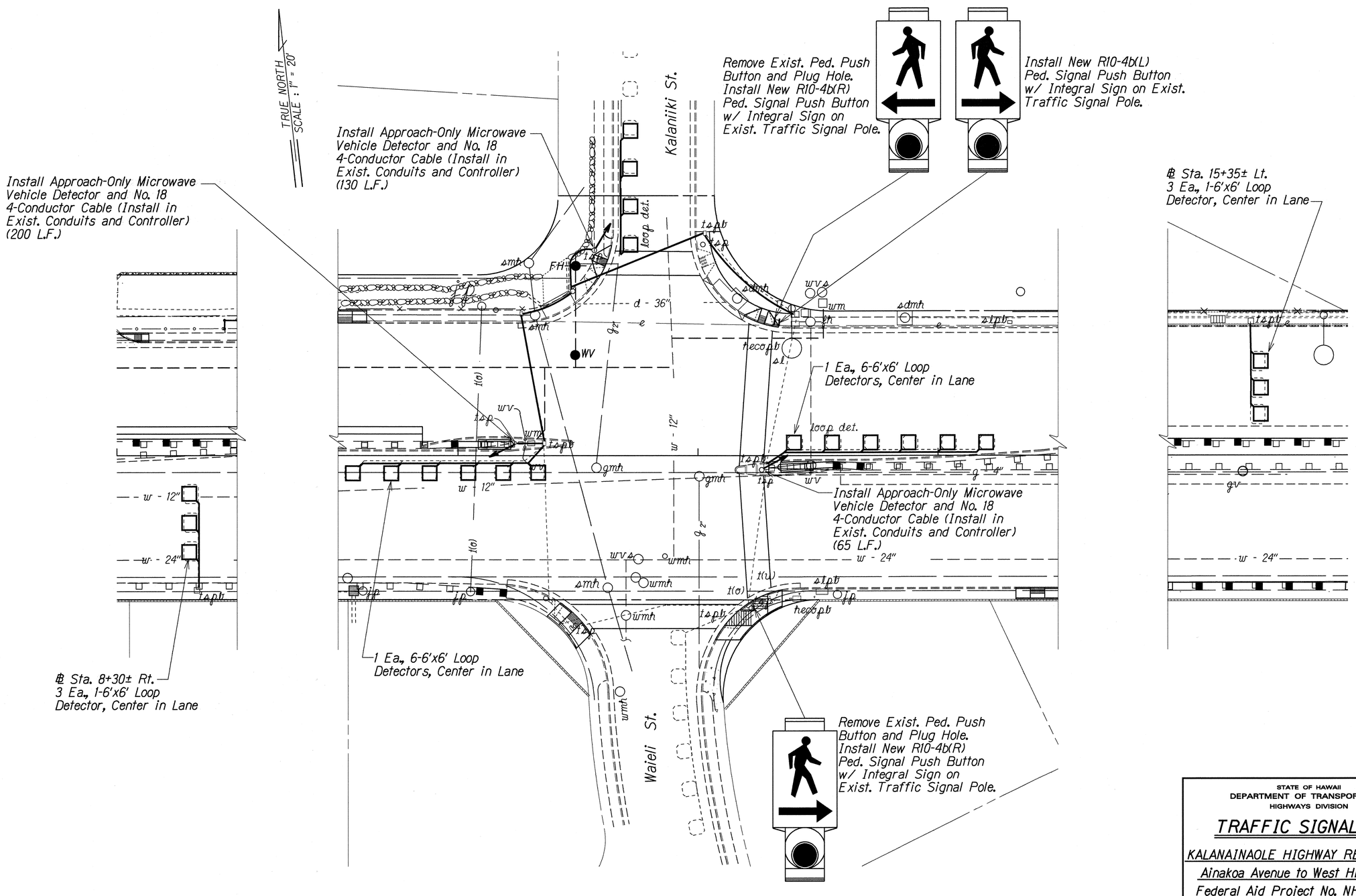
TRAFFIC SIGNAL PLAN

KALANIANAOLE HIGHWAY RESURFACING
Ainakoa Avenue to West Hind Drive
Federal Aid Project No. NH-072-1(47)

Scale: 1"=20' Date: June, 1999

SHEET No. T16 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(47)	2000	66	91



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE X
	DRAWN BY M. Takafuji	
	TRACED BY	
NOTE BOOK 142.nsy	DESIGNED BY Steven Yoshida	
N. 0881992	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

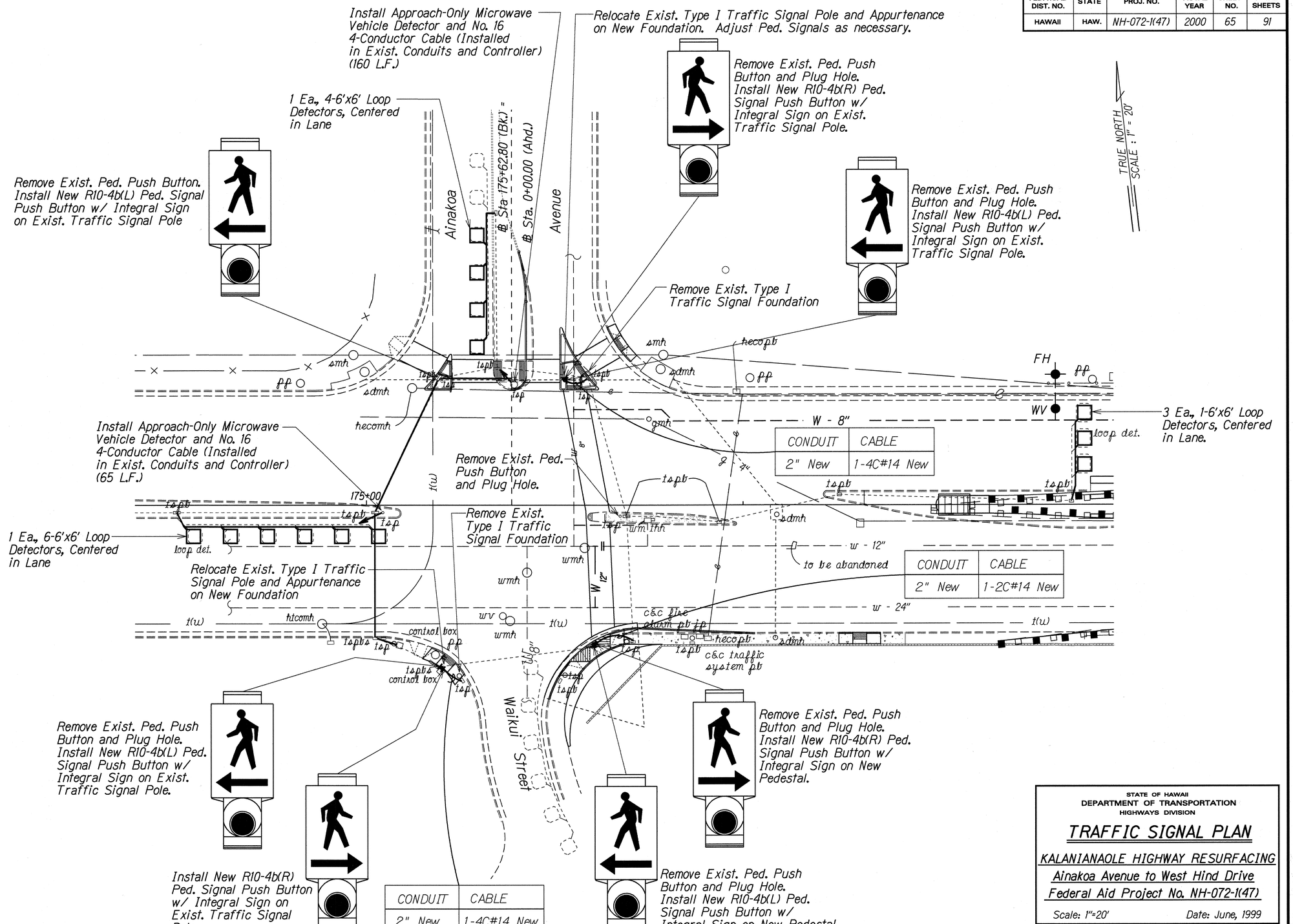
TRAFFIC SIGNAL PLAN

KALANAINAOLE HIGHWAY RESURFACING
Ainakoa Avenue to West Hind Drive
Federal Aid Project No. NH-072-1(47)

Scale: 1"=20' Date: June, 1999

SHEET No. T15 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-072-1(47)	2000	65	91



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY M. Takafuji	X
NOTE BOOK	TRACED BY Steven Yoshida	
No.	DESIGNED BY	
td2.may	QUANTITIES BY	
ck.ahfsgl	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

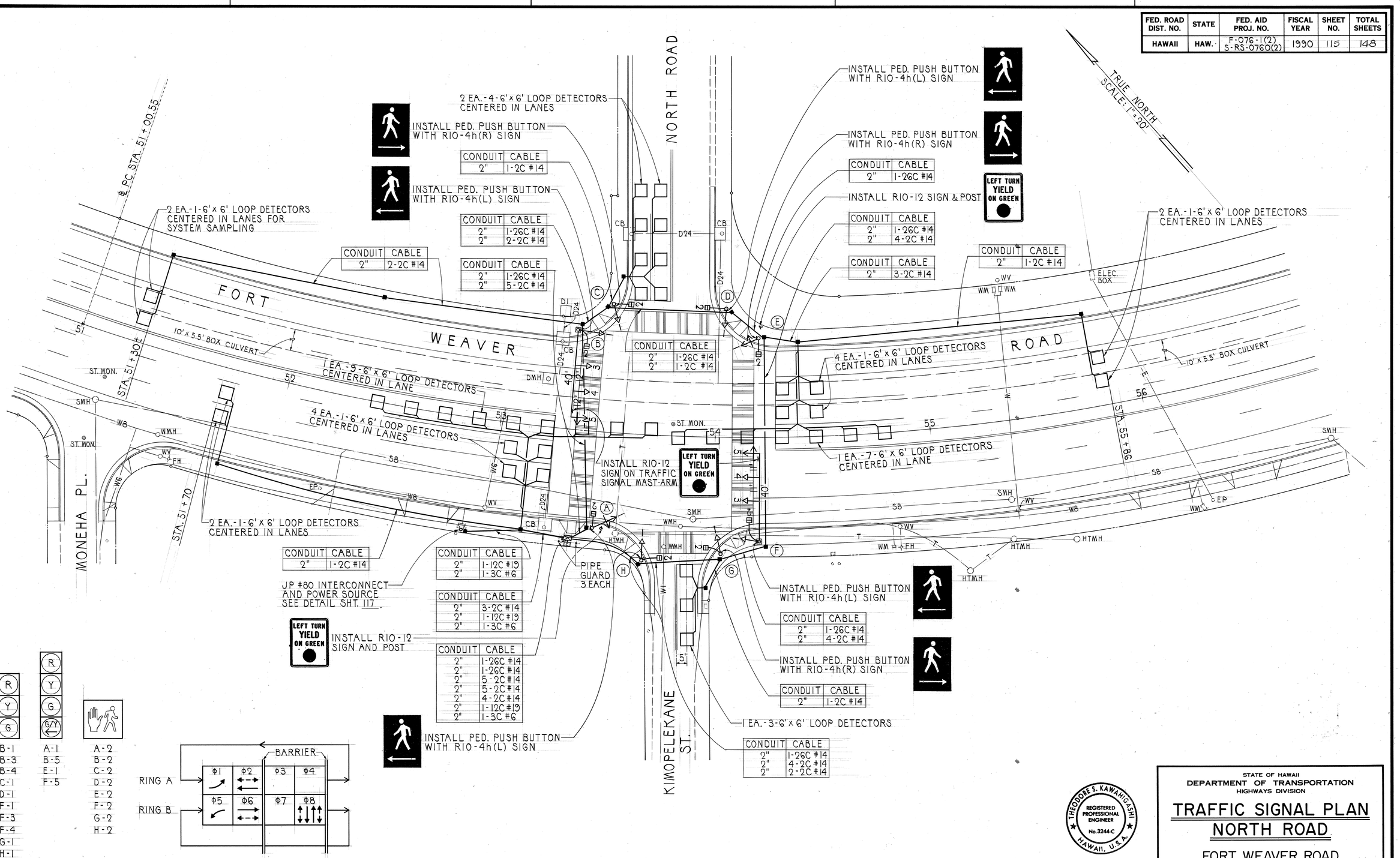
TRAFFIC SIGNAL PLAN

KALANIANAOLE HIGHWAY RESURFACING
Ainakoa Avenue to West Hind Drive
Federal Aid Project No. NH-072-1(47)

Scale: 1"=20' Date: June, 1999

SHEET No. T14 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(2) S-RS-0760(2)	1990	115	148



SIGNAL INDICATIONS

PHASE DIAGRAM

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

REGISTERED PROFESSIONAL ENGINEER No. 3244-C THEODORE S. KAWAHIGASHI HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

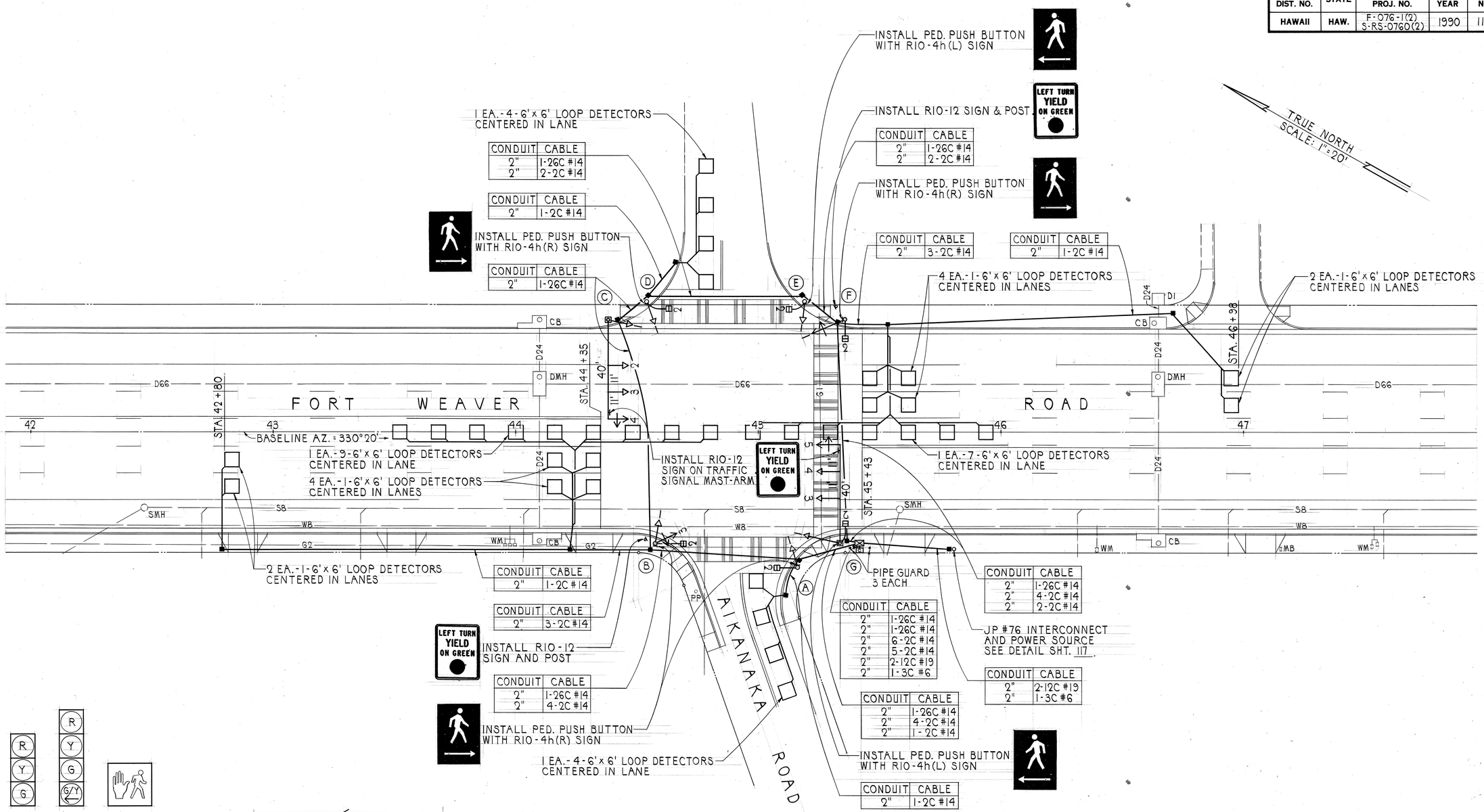
TRAFFIC SIGNAL PLAN
NORTH ROAD

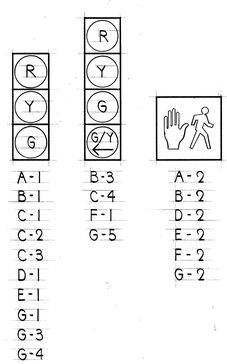
FORT WEAVER ROAD
HANAKAHI ST. TO EWA BEACH RD.

Scale: 1" = 20' Date: June 1989

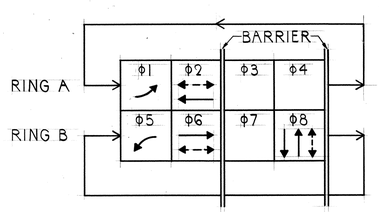
SHEET No. 5 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(2) S-RS-0760(2)	1990	114	148





SIGNAL INDICATIONS



PHASE DIAGRAM

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

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

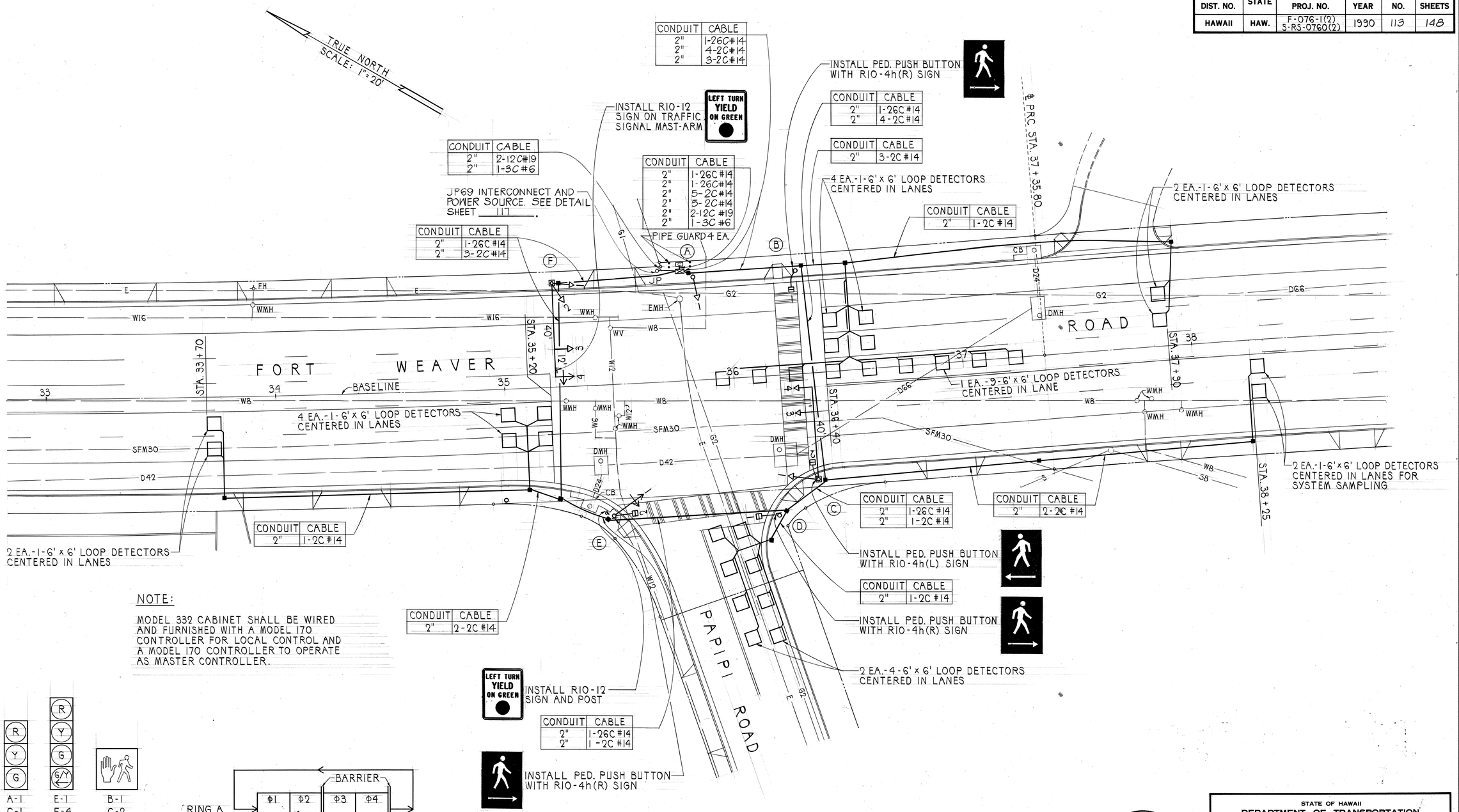
TRAFFIC SIGNAL PLAN
AIKANAKA ROAD

FORT WEAVER ROAD
HANAKAHI ST. TO EWA BEACH RD.

Scale: 1" = 20' Date: June 1989

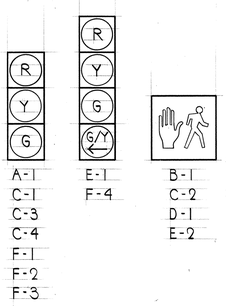
SHEET No. 4 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(2) S-RS-0760(2)	1990	113	148

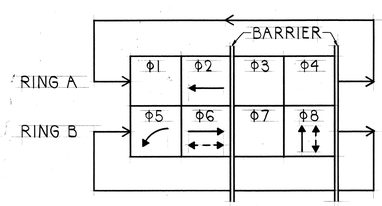


NOTE:

MODEL 332 CABINET SHALL BE WIRED AND FURNISHED WITH A MODEL 170 CONTROLLER FOR LOCAL CONTROL AND A MODEL 170 CONTROLLER TO OPERATE AS MASTER CONTROLLER.



SIGNAL INDICATIONS



PHASE DIAGRAM

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

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

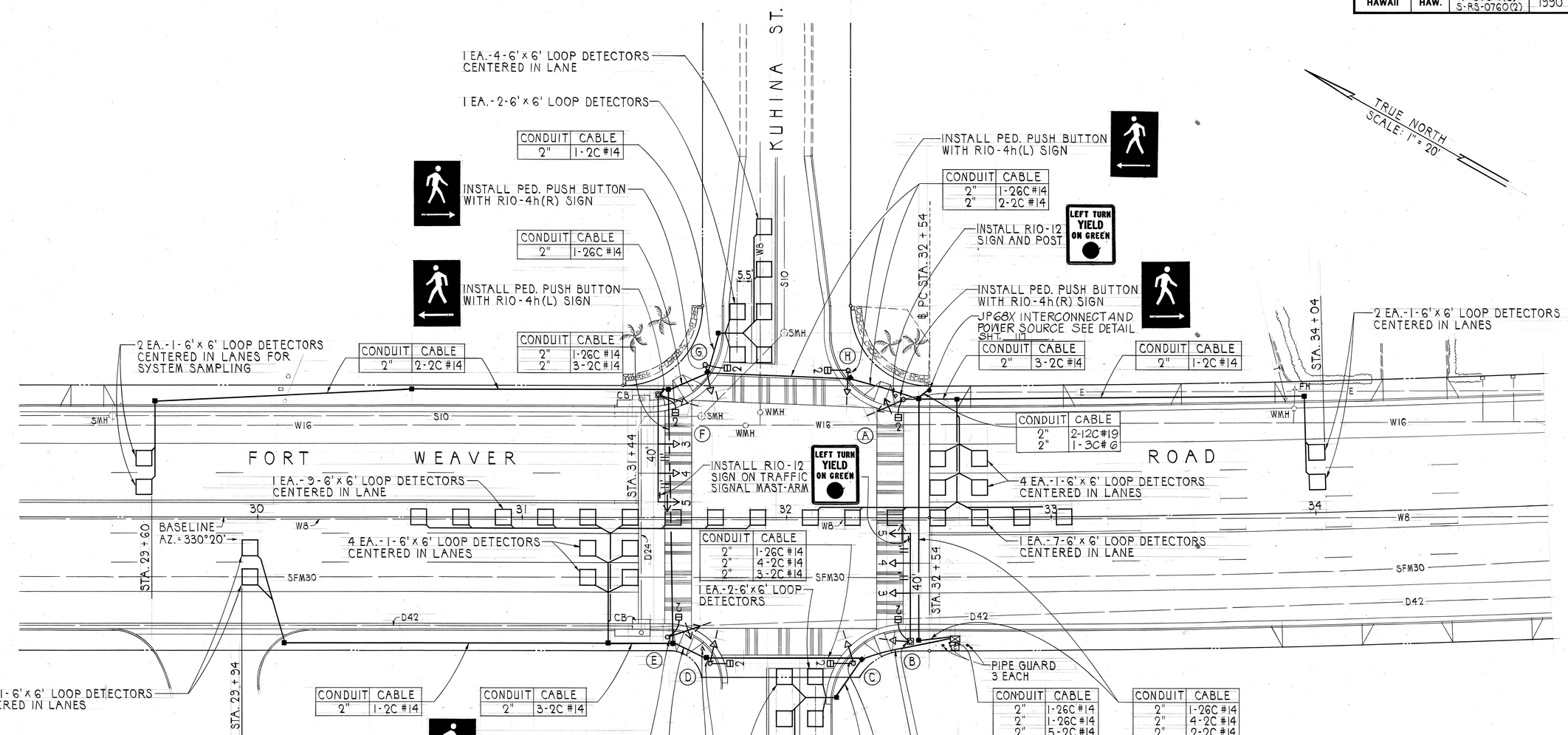
TRAFFIC SIGNAL PLAN
PAPIPI ROAD

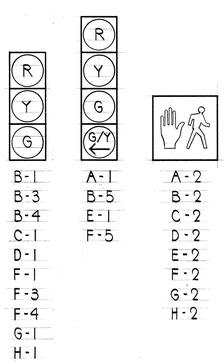
FORT WEAVER ROAD
HANAKAHI ST. TO EWA BEACH RD.

Scale: 1" = 20'
Date: June 1989

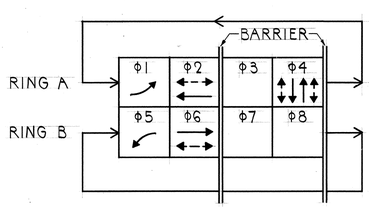
SHEET No. 3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(2) S-RS-0760(2)	1990	112	148





SIGNAL INDICATIONS



PHASE DIAGRAM

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

THEODORE S. KAWAHIGASHI REGISTERED PROFESSIONAL ENGINEER No. 3244-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi

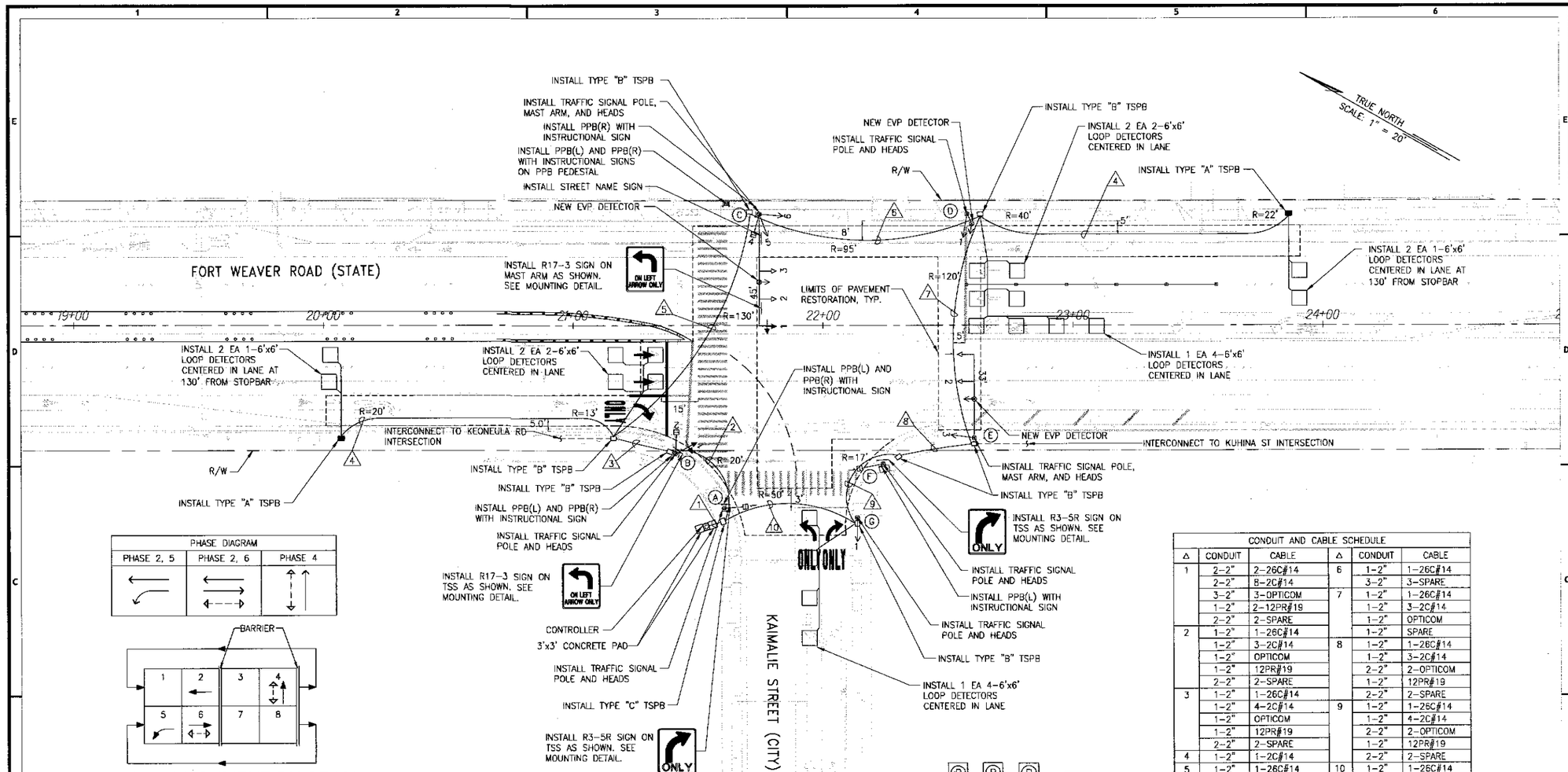
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
KUHINA STREET

FORT WEAVER ROAD
HANAKAHI ST. TO EWA BEACH RD.

Scale: 1" = 20' Date: June 1989

SHEET No. 2 OF 5 SHEETS



TRAFFIC SIGNAL PLAN

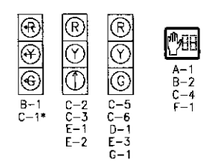
SCALE : 1"=20'-0"

PHASE DIAGRAM		
PHASE 2, 5	PHASE 2, 6	PHASE 4

PHASE ASSIGNMENT DIAGRAM

NOTES:

1. NEW CORRIDOR TIMING PLAN SHALL BE IMPLEMENTED DURING TRAFFIC SIGNAL INSTALLATION.
2. ALL PEDESTRIAN HEAD INDICATIONS SHALL CONSIST OF COUNTDOWN TYPE.
3. RUN INTERCONNECT TO KEONEULA RD. INTERSECTION. SPLICE TO OCCUR IN THE CONTROLLER.
4. FOR CONCRETE CURB AND GUTTER RESTORATION DETAIL AND CONCRETE SIDEWALK RESTORATION DETAIL, SEE SHEET C-18.
5. FOR TRENCH BACKFILL, SEE SHEET C-19.
6. FOR TRAFFIC SIGNAL POWER, SEE SHEET E-1.
7. SIGNAL RETIMING SHALL BE COORDINATED WITH REST OF SIGNALS ALONG FT. WEAVER AFTER CONSTRUCTION.



SIGNAL INDICATIONS

*PROGRAMMABLE VISIBILITY HEAD

CONDUIT AND CABLE SCHEDULE					
Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE
1	2-2"	2-26C#14	6	1-2"	1-26C#14
	2-2"	8-2C#14		3-2"	3-SPARE
	3-2"	3-OPTICOM	7	1-2"	1-26C#14
	1-2"	2-12PR#19		1-2"	3-2C#14
	2-2"	2-SPARE		1-2"	OPTICOM
2	1-2"	1-26C#14		1-2"	SPARE
	1-2"	3-2C#14	8	1-2"	1-26C#14
	1-2"	OPTICOM		1-2"	3-2C#14
	1-2"	12PR#19		2-2"	2-OPTICOM
	2-2"	2-SPARE		1-2"	12PR#19
3	1-2"	1-26C#14		2-2"	2-SPARE
	1-2"	4-2C#14	9	1-2"	1-26C#14
	1-2"	OPTICOM		1-2"	4-2C#14
	1-2"	12PR#19		2-2"	2-OPTICOM
	2-2"	2-SPARE		1-2"	12PR#19
4	1-2"	1-2C#14		2-2"	2-SPARE
5	1-2"	1-26C#14	10	1-2"	1-26C#14
	1-2"	1-2C#14		1-2"	5-2C#14
	1-2"	OPTICOM		2-2"	2-OPTICOM
	2-2"	2-SPARE		1-2"	12PR#19
				2-2"	2-SPARE

APPROVED:

CHIEF, TRAFFIC REVIEW BRANCH, D.P.P.
CITY & COUNTY OF HONOLULU
(FOR WORK IN CITY RIGHT-OF-WAY ONLY)

CHIEF, TRAFFIC SIGNALS AND TECHNOLOGY DIVISION
DEPARTMENT OF TRANSPORTATION SERVICES
CITY & COUNTY OF HONOLULU
(FOR WORK IN CITY RIGHT-OF-WAY ONLY)

GRAPHIC SCALE:
20 10 0 20 40
SCALE: 1" = 20'-0"

WILSON OKAMOTO CORPORATION
ENGINEERS | PLANNERS | CONSULTANTS
1907 South Beretania Street Suite 400
Honolulu, Hawaii, U.S.A. 96826
PH 808-946-2277 FX 808-946-2253
www.wilsonokamoto.com

PROJECT ID

FORT WEAVER ROAD & KAIMALIE ST INTERSECTION IMPROVEMENTS

HONOLULU, OAHU, HI
TMK: 09-01-012:087

OWNER:
HASEKO (Ewa), INC.

CONSULTANT

PETE G. PASCUA
LICENSED PROFESSIONAL ENGINEER
No. 7263-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION WILL BE UNDER MY OBSERVATION.

SIGNATURE — 04/30/16 EXP. DATE

DESIGNED BY: JY	SUPERVISED BY: PP
DRAWN BY: BC	CHECKED BY: PP
CAD FILE: C-03.dwg	PROJECT NO.: 8389-01
SCALE: AS NOTED	DATE: DECEMBER 2014

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DATE	DESCRIPTION

SHEET TITLE

TRAFFIC SIGNAL PLAN

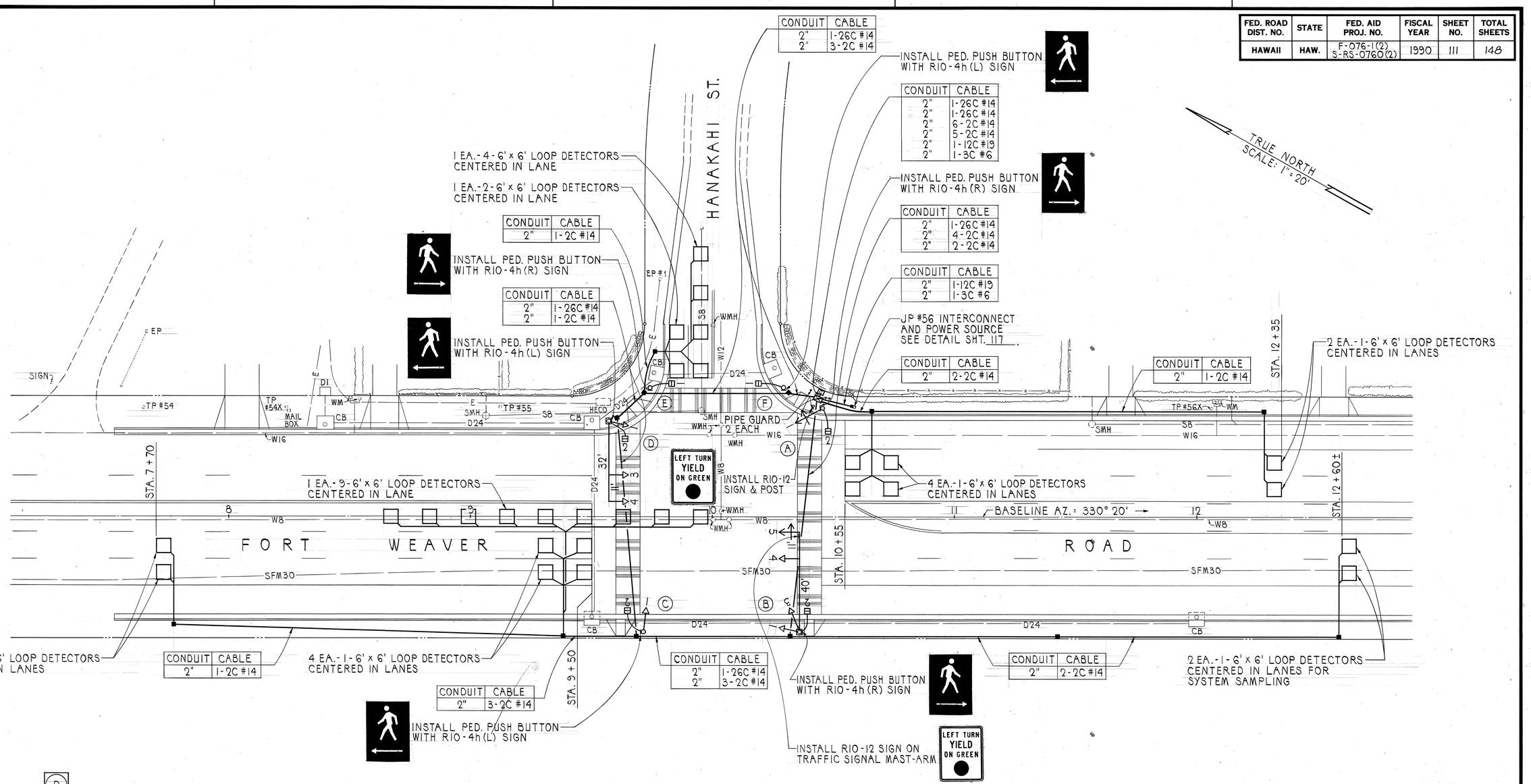
DRAWING NO.

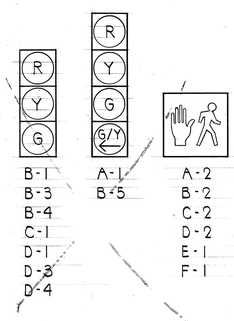
C-03

4 of 36 sheets

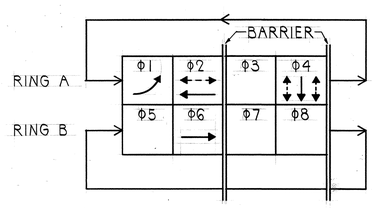
FILE PATH: W:\8389-01\dwg\C-03.dwg CAD USER: Jesus PLOT DATE: Mar 04, 2015 XREFS: | 2Nx36 OVERRD | Fort Weaver & Kaimalie Topo 2014-05-12 | WOC-SITE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-076-1(2) S-RS-0760(2)	1990	111	148





SIGNAL INDICATIONS



PHASE DIAGRAM

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
HANAKAHI STREET

FORT WEAVER ROAD
HANAKAHI ST. TO EWA BEACH RD.

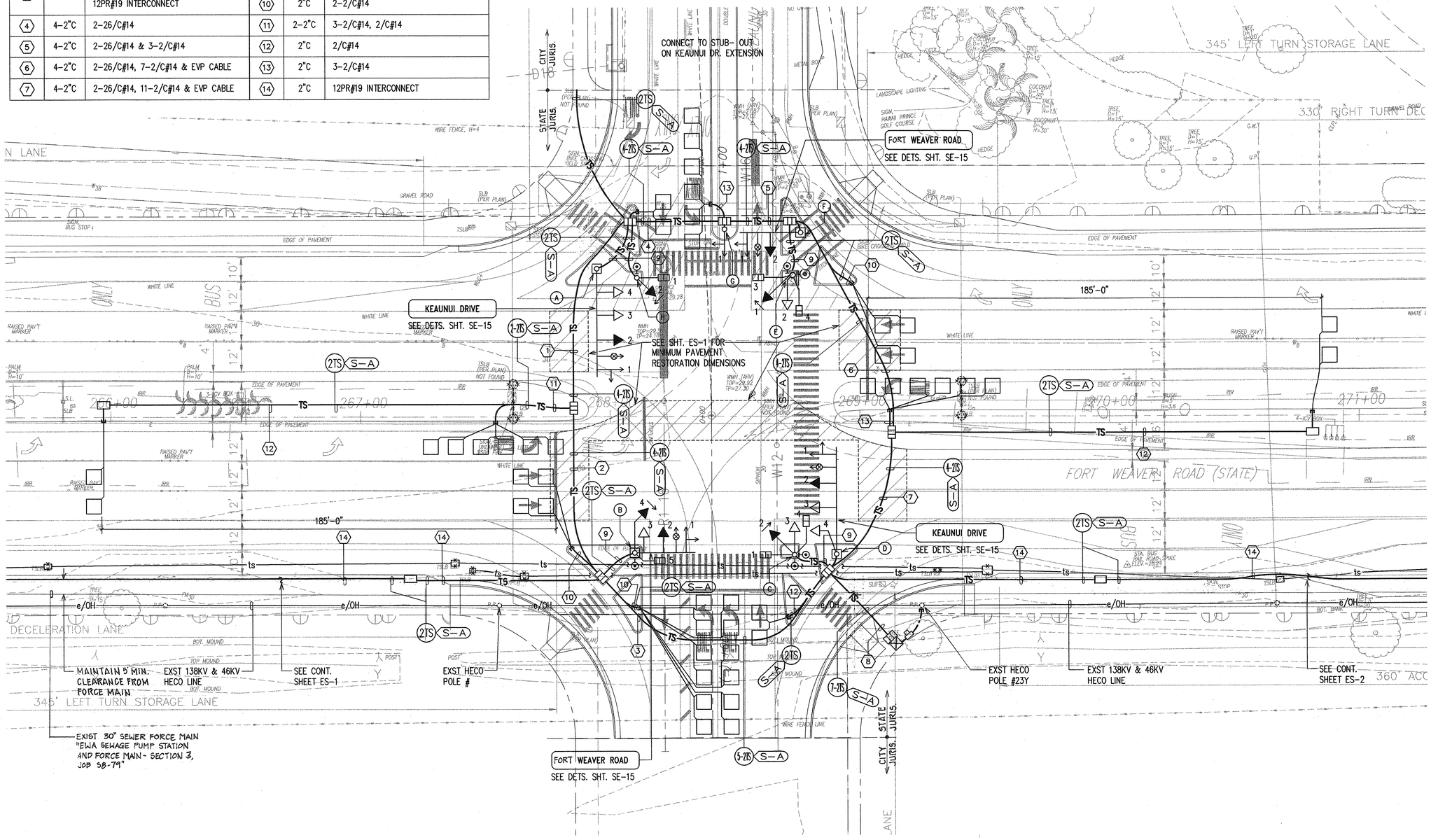
Scale: 1" = 20' Date: June 1989

SHEET No. 1 OF 5 SHEETS

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

TRAFFIC SIGNAL CONDUIT AND CABLE SCHEDULE

SYMBOL	CONDUITS	CABLES	SYMBOL	CONDUITS	CABLES
1	4-2"C	2-26/C#14, 2-2/C#14 & EVP CABLE	8	7-2"C	2-26/C#14, 9-2/C#14, 11-2/C#14, 4 EVP CABLES & 12PR#19 INTERCONNECT
2	4-2"C	2-26/C#14, 6-2/C#14 & EVP CABLE	9	2"C	SIGNAL HEAD CABLES & EVP CABLES
3	5-2"C	2-26/C#14, 9-2/C#14, 2 EVP CABLES 12PR#19 INTERCONNECT	10	2"C	2-2/C#14
4	4-2"C	2-26/C#14	11	2-2"C	3-2/C#14, 2/C#14
5	4-2"C	2-26/C#14 & 3-2/C#14	12	2"C	2/C#14
6	4-2"C	2-26/C#14, 7-2/C#14 & EVP CABLE	13	2"C	3-2/C#14
7	4-2"C	2-26/C#14, 11-2/C#14 & EVP CABLE	14	2"C	12PR#19 INTERCONNECT



TRAFFIC SIGNALS TO BE TEMPORARILY COVERED, THEN PUT INTO SERVICE AFTER KEAUNUI DRIVE WEST IMPROVEMENTS ARE COMPLETED.

FT. WEAVER ROAD/KEAUNUI DRIVE TRAFFIC SIGNAL PLAN

SCALE: 1"=20'

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

APPROVED:

CHIEF, TRAFFIC SIGNALS AND TECHNOLOGY — DATE 1/10/06
(FOR LOOP DETECTOR AND FOR INTERCONNECT WORK ONLY)
DEPT. OF TRANSPORTATION SERVICES
CITY & COUNTY OF HONOLULU

CHIEF, TRAFFIC REVIEW BRANCH — DATE 4-5-06
DEPT. OF PLANNING AND PERMITTING
CITY & COUNTY OF HONOLULU

Rev	Date	Description	Eng	App

STEVEN H. SAKAI
LICENSED PROFESSIONAL ENGINEER
No. 7637-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WAS UNDER MY OBSERVATION.
APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

BeltCollins
Planning • Civil Engineering
Landscape Architecture
Environmental Consulting
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819 USA
T/808 521 5361 • F/808 538 7819
www.beltcollins.com

Consultant:
RONALD N. S. HO & ASSOCIATES, INC.
Electrical Engineers
2138 Algaroba Street, Suite A Honolulu, Hawaii 96826
Phone: (808)941-0577 Fax: (808)945-2646

Client:
GENTRY HOMES LTD.
560 NORTH NIMITZ HIGHWAY, SUITE 210
HONOLULU, HAWAII 96819

EWA BY GENTRY
FORT WEAVER ROAD AND KEAUNUI DRIVE INTERSECTION IMPROVEMENTS
DPP SUBD. FILE NO. 2006/SUB-82

FT. WEAVER ROAD/KEAUNUI DRIVE TRAFFIC SIGNAL PLAN

Designed By: SS — Drawn By:
Project No. (BCH) 2003-33-3200 — Date: AUG 2006
Approved By:

FILE	POCKET	FOLDER	NO.

LAST SAVE: 10/19/05 @ 16:30:17 BY: TE PLOT SC 1=20
Z:\ACAD-PROJECTS\25055\ES03_traffic signal plan WEFS MASS_GRADE 37 UTILITIES KETOPO SITEPLAN ROW KEAUNUI_DRIVE_SITE XRH-ALL

Trim: 22"x36"

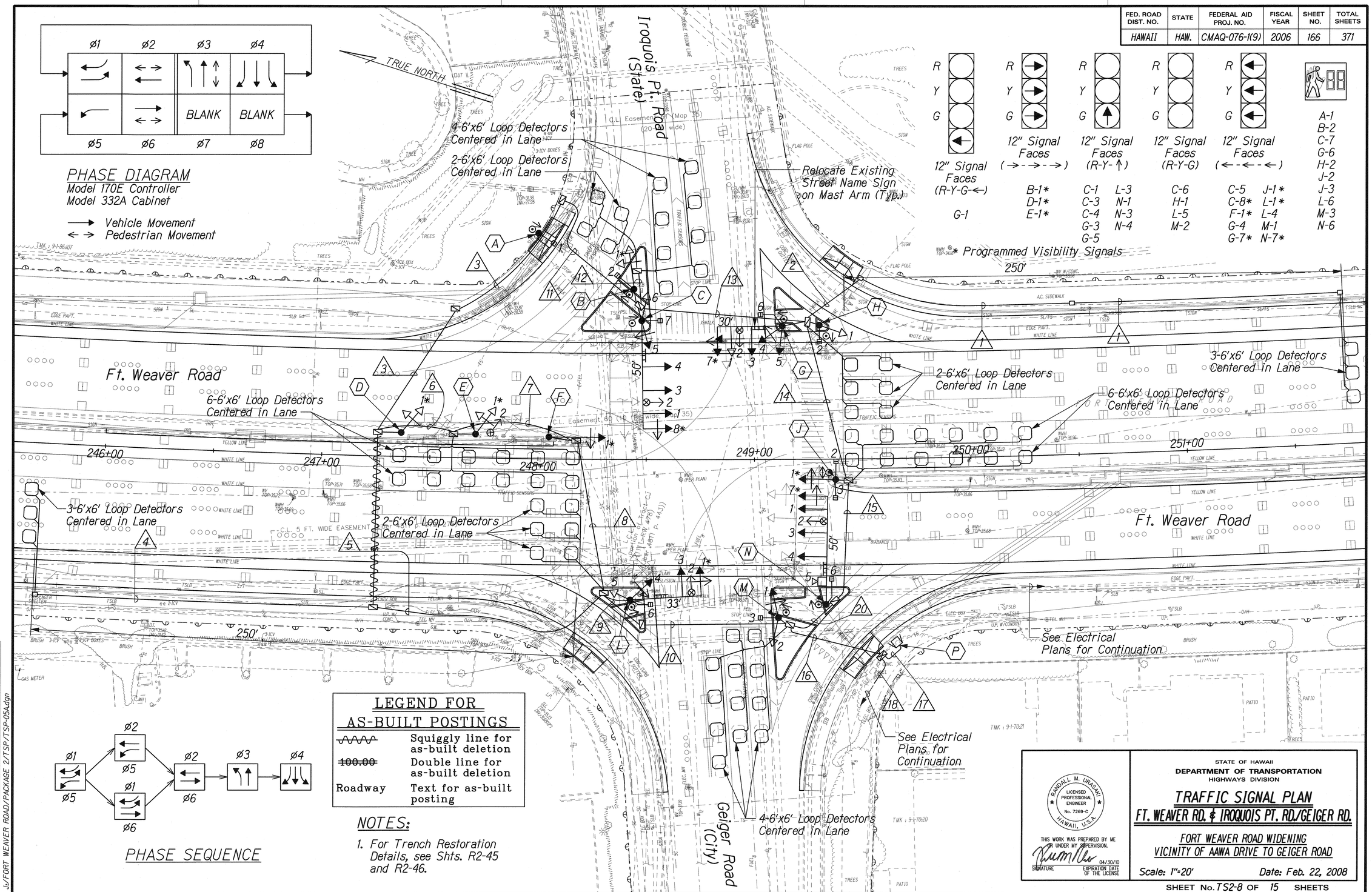
SHEET ES-3 of 70 Sheets

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	166	371

PHASE DIAGRAM

Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
↔ Pedestrian Movement



PHASE SEQUENCE

LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

NOTES:

1. For Trench Restoration Details, see Shts. R2-45 and R2-46.

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

J:/FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-05Adgn

LICENSED PROFESSIONAL ENGINEER No. 7269-C RANDALL M. URASAKI HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FT. WEAVER RD. & IROQUOIS PT. RD./GEIGER RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-8 OF 15 SHEETS

AS BUILT 166

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	167	371

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"		1				
2	2"		1				
3	2-2"	2					
	2-2"						Spare
4	2"		1				
5	2"		1				
	2"						Spare
6	2-2"	2					
	2"		1				
	2"						Spare
7	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
8	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
9	2-2"	2					
	2"		7				
	2"			2			
10	2-2"	2					
	2"		7				
	2"			2			
	2-2"						Spare
11	2-2"	2					
	2"		1				
	2"						Spare
12	2"		3				
13	2-2"	2					
	2"		5				
	2"			1			
	2-2"						Spare
14	2-2"	2					
	2"		9				
	2"			2			
	2-2"						Spare
15	2-2"	2					
	2-2"		12				
	2"			2			
	2"						Spare
16	4-2"	4					
	2-2"		22				
	3-2"			5			
	2"						Spare

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
17	4-2"	4					
	2-2"		22				
	3-2"			5			
	2"				1		
	2"					2	
	2"						Spare
18	2"				1		
	4"					1	
20	2-2"	2					
	2-2"		12				
	2-2"			3			

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	A	I-7	(1) TP-1W	1
B	A	I-10	(1) TP-1W	
			(2) B-1W	1
C	C	II-50	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5)(6) B-2W	
			(7) US-1W	1
			(8) MA-1W (I)	
D	A	I-10	(1) TP-1W	
E	A	I-10	(1) TP-1W	
			(2) Opticom (Vert)	
F	A	I-10	(1) TP-1W	
G	C	II-30	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4)(5) B-2W	
			(6) US-1W	1
			(7) MA-1W (I)	
H	A	I-10	(1) TP-1W	
			(2) B-1W	1
J	A	I-10	(1) TP-1W	
			(2)(3) B-2W	1
L	C	II-33	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4)(5) B-2W	
			(6) US-1W	1

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
M	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
N	C	II-50	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) Camera (Horiz)	
			(6) B-1W	1
			(7) MA-1W (I)	
P	D		170E Controller w/ Aux. output file	
			332A Cabinet	

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

J:/FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-05B.dgn

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

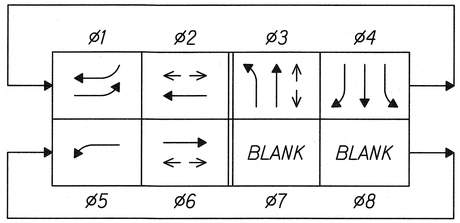
TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & IROQUOIS PT. RD./GEIGER RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None — Date: Feb. 22, 2008

SHEET No. TS2-9 OF 15 SHEETS

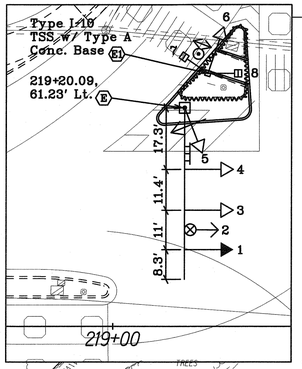
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	164	371



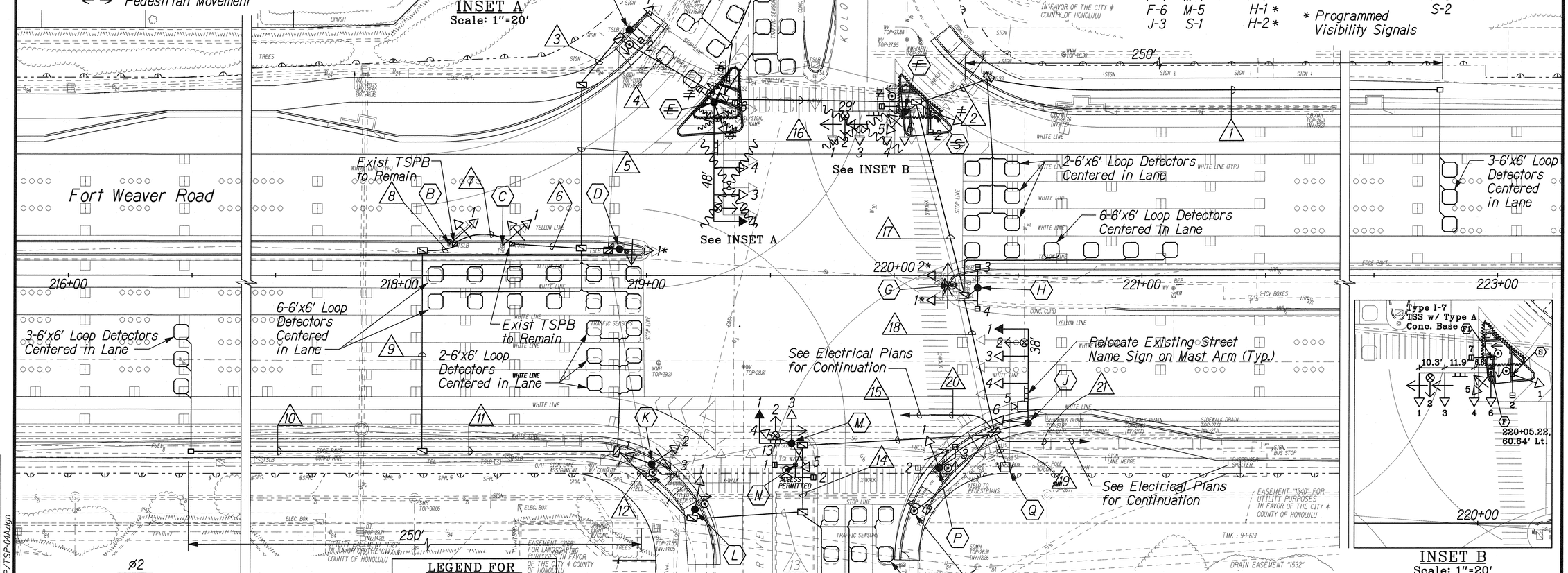
PHASE DIAGRAM

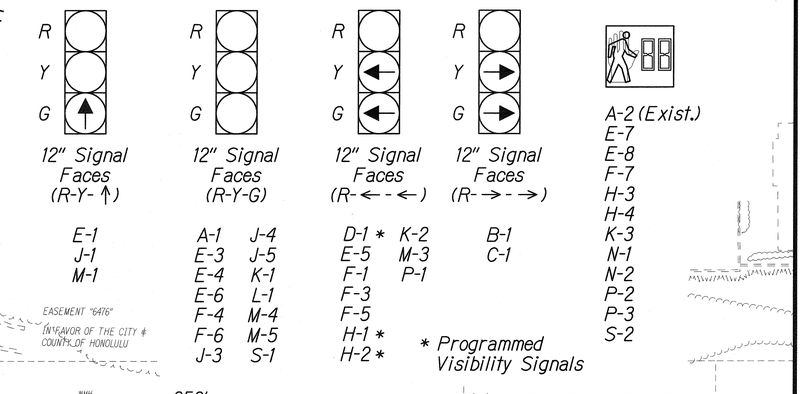
Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
← → Pedestrian Movement

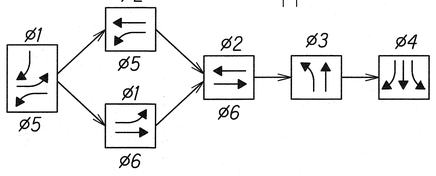


INSET A
Scale: 1"=20'





INSET B
Scale: 1"=20'



PHASE SEQUENCE

LEGEND FOR AS-BUILT POSTINGS

∿∿∿	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

NOTES:

1. For Trench Restoration Details, See Shts. R2-45 and R2-46.

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & KOLOWAKA DR.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-6 OF 15 SHEETS

AS BUILT 164

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	165	371

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"		1				
2	2"		3				
3	2-2"	2					
4	2-2"	2					
	2"		1				
	2"						Spare
5	2-2"	2					
	2-2"						Spare
6	2-2"	2					
	2"		3				
	2"						Spare
7	2-2"	2					
	2"		3				
	2"						Spare
8	2-2"	2					
	2"		3				
	2"						Spare
9	2-2"	2					
	2"		3				
	2"						Spare
10	2"		1				
11	2-2"	2					
	2"		4				
	2"						Spare
12	2-2"	2					
	2"		7				
	2"						Spare
13	2-2"	2					
	2"		7				
	2"						Spare
14	2-2"	2					
	2"		10				
	2"						Spare
15	2-2"	2					
	2-2"		10				
	2"			1			
	2"						Spare
16	2-2"	2					
	2"		7				
	2"			1			
	2-2"						Spare

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
17	2-2"	2					
	2-2"		11				
	2"			2			
	2"						Spare
18	2-2"	2					
	2-2"		13				
	2"			2			
	2"						Spare
19	2-3"	4					
	3-2"		23				
	2-2"			4			
	2"						1
	2-2"						Spare
20	2"				1		
	4"					1	
21	2"				1		
	4"					1	

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	A	I-10	(1) TP-1W	
			(2) B-1W	1
B	Exist.	Exist. I-10	(1) TP-1W	
C	Exist.	Exist. I-10	(1) TP-1W	
D	A	I-10	(1) TP-1W	
E	C	II-48	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) B-1W	
			(6) B-1W	
			(7) US-1W	1
			(8) US-1W	
F	C	II-29	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5)(6) B-2W	
			(7) US-1W	1
G	Exist.	Exist. I-3		1

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
H	A	I-10	(1)(2) TP-2W	
			(3) US-1W	
			(4) US-1W	
J	C	II-38	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) Camera (Horiz.)	
			(6) B-1W	
K	A	I-10	(1)(2) TP-2W	1
L	A	I-10	(3) US-1W	
			(1) TP-1W	1
M	C	II-13	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3)(4) B-2W	
			(5) B-1W	
N	Exist.	Exist. I-10	(1)(2) TP-2W	1
P	A	I-10	(1) TP-1W	
			(2)(3) B-2W	1
Q	D		170E Controller w/ Aux. Output File	
			332A Cabinet	
R	PPB	I-3		1
S	PPB	I-10	(1) TP-1W	
			(2) B-1W	1

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

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RANDALL M. URASAKI LICENSED PROFESSIONAL ENGINEER No. 7269-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 04/30/10 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

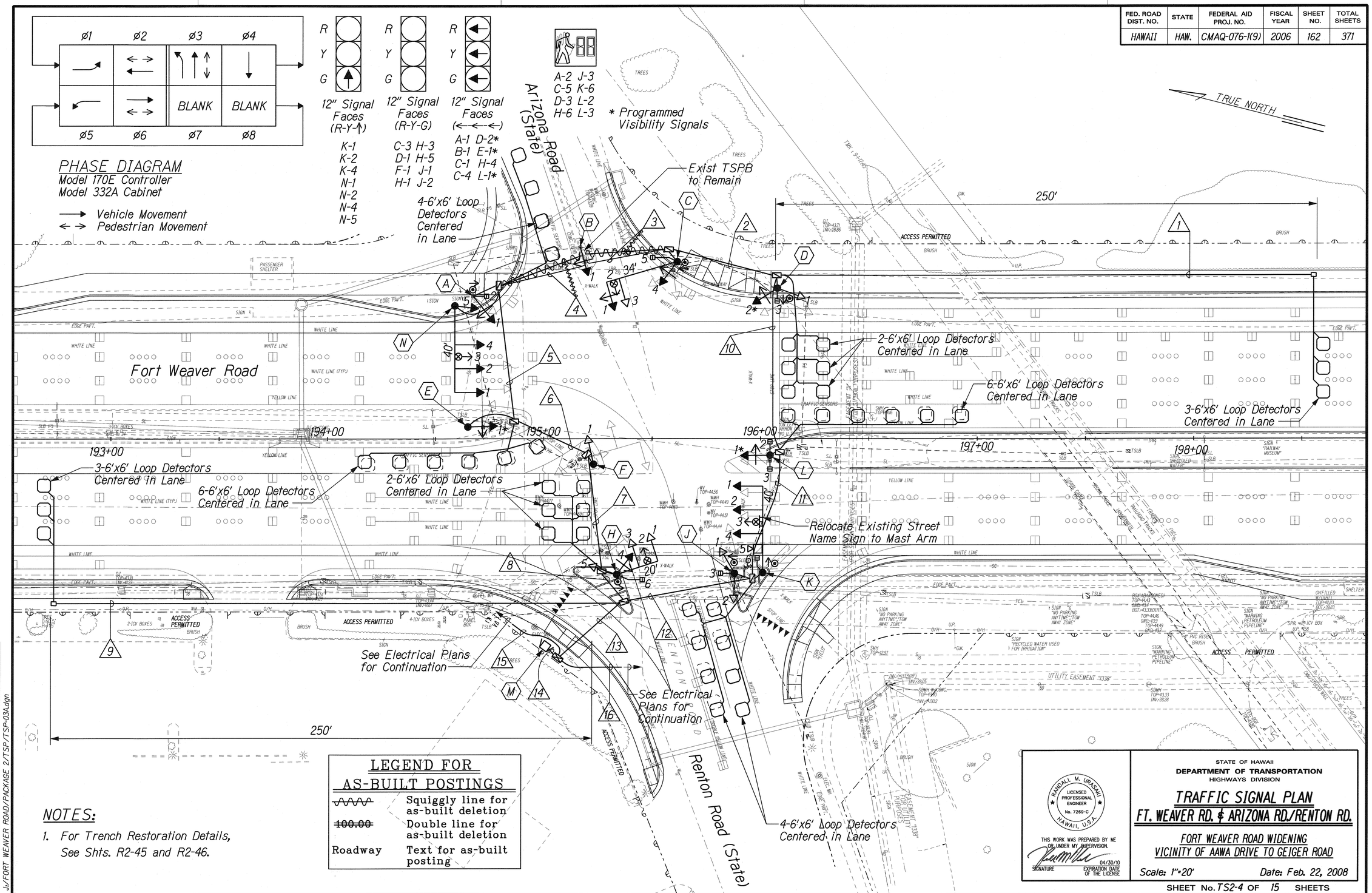
TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & KOLOWAKA DR.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None — Date: Feb. 22, 2008

SHEET No. TS2-7 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	162	371



LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

NOTES:

1. For Trench Restoration Details, See Shts. R2-45 and R2-46.

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

J:/FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-03A.dgn

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & ARIZONA RD./RENTON RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-4 OF 15 SHEETS

AS BUILT

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	163	371

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"		1				
2	2-2"	2					
	2"		1				
	2"						Spare
3	2-2"	2					
	2"		1				
	2"			1			
	2-2"						Spare
4	2-2"	2					
	2"		1				
	2"			1			
	2-2"						Spare
5	2-2"	2					
	2"		2				
	2"			2			
	2-2"						Spare
6	2-2"	2					
	2"		4				
	2"			2			
	2-2"						Spare
7	2-2"	2					
	2"		4				
	2"			2			
	2-2"						Spare
8	2-2"	2					
	2"		6				
	2-2"			3			
	2"						Spare
9	2"		1				
10	2-2"	2					
	2"		4				
	2"						Spare
11	2-2"	2					
	2"		6				
	2"						Spare
12	2-2"	2					
	2"		9				
	2"			1			
	2-2"						Spare
13	2-3"	4					
	2-2"		16				
	2-2"			4			
	2-2"						Spare

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
14	2-3"	4					
	2-2"		16				
	2-2"			4			
	2"				1		
	2"					2	
	2-2"						Spare
15	2"				1		
	4"					1	
16	2"				1		
	4"					1	

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	Exist.	Exist. I-10	(1) TP-1W	
			(2) B-1W	1
B	Exist.	Exist. I-10	(1) TP-1W	
C	C	II-34	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) B-1W	
			(5) US-1W	1
D	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
E	A	I-10	(1) TP-1W	
F	A	I-10	(1) TP-1W	
H	C	II-20	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4)(5) B-2W	
			(6) US-1W	1
J	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
K	C	II-40	(1) MA-1W (I)	
			(2) MA-1W (I)	
			(3) Opticom (Horiz)	
			(4) MA-1W (I)	
			(5) Camera (Horiz)	
			(6) B-1W	1
L	A	I-10	(1) TP-1W	
			(2)(3) B-2W	
M	D		170E Controller	
			332A Cabinet	
N	C	II-40	(1) MA-1W (I)	
			(2) MA-1W (I)	
			(3) Opticom (Horiz)	
			(4) MA-1W (I)	
			(5) B-1W	

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

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RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

04/30/10
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

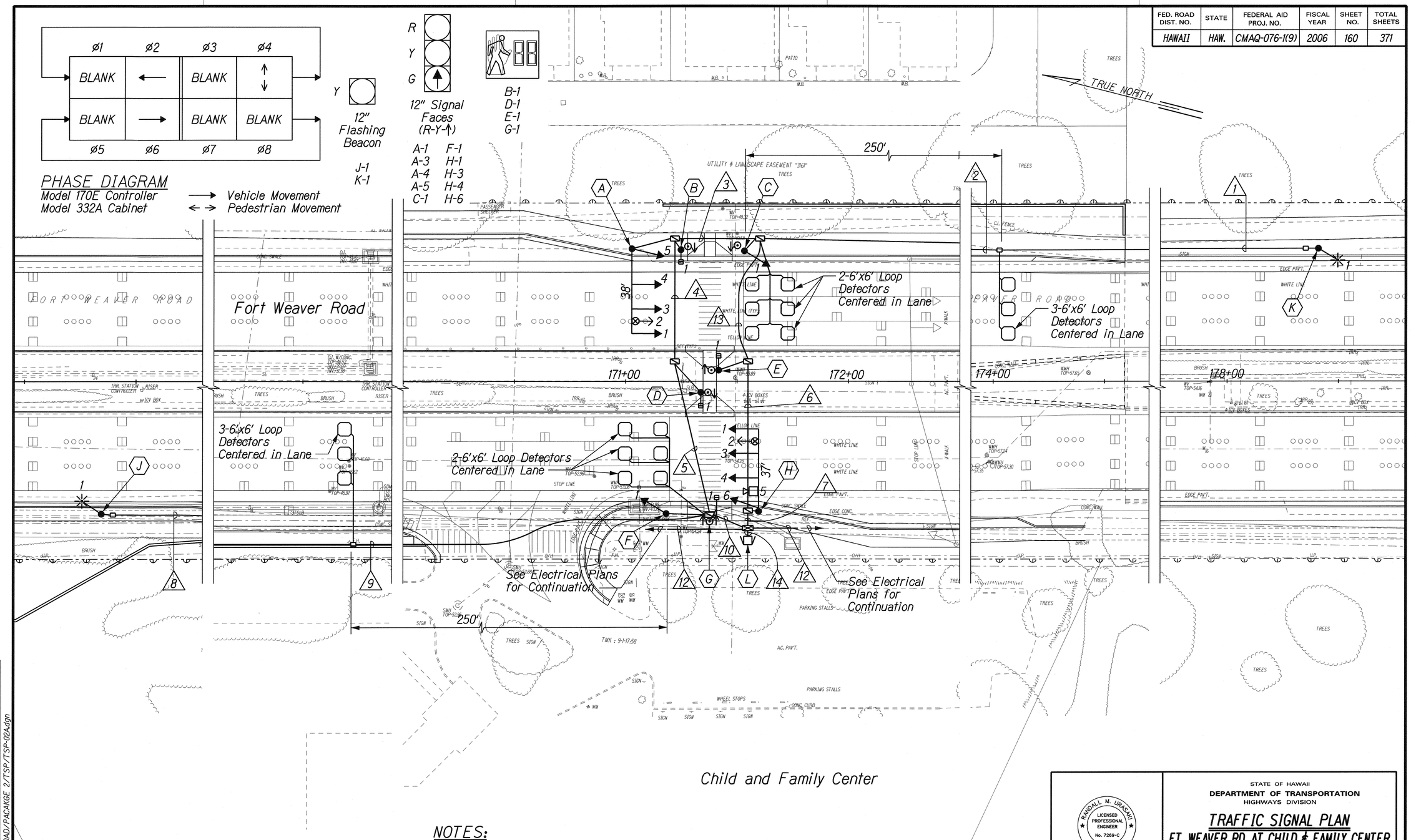
TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & ARIZONA RD./RENTON RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None Date: Feb. 22, 2008

SHEET No. TS2-5 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	160	371



NOTES:

1. For Trench Restoration Details, See Shts. R2-45 and R2-46.

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

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RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. AT CHILD & FAMILY CENTER

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' Date: Feb. 22, 2008

SHEET No. TS2-2 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	161	371

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"	1					
2	2"	1					
	2"		1				
3	2"	1					
	2"						Spare
4	2"	1					
	2"		1				
	2"			1			
	2"						Spare
5	2"	1					
	2"		1				
	2"			1			
	2"						Spare
6	2-2"	2					
	2"		4				
	2"						Spare
7	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
8	2"	1					
9	2"	1					
	2"		1				
10	2-2"	2					
	2"		4				
	2"			1			
	2-2"						Spare
12	2"				1		
	4"					1	
13	2-2"	2					
	2"		4				
	2"						Spare
14	2-2"	4					
	2"		8				
	2"			2			
	2"				1		
	2"					2	
	2-2"						Spare

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	C	II-38	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) B-1W	
B	A	I-7	(1) TP-1W	1
C	A	I-10	(1) TP-1W	1
D	A	I-7	(1) TP-1W	1
E	A	I-7	(1) TP-1W	1
F	A	I-10	(1) TP-1W	
G	*	SLP	(1) B-1W	2
H	C	II-37	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) Camera (Horiz)	
			(6) B-1W	
J	A	I-10	(1) TP-1W	
K	A	I-10	(1) TP-1W	
L	D		170E Controller	
			332A Cabinet	

* Signal to be mounted on SL Pole.
See Footing Detail on Sht. E2-25.

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

J:/FORT WEAVER ROAD/PACKAGE 2/TSP/TSP-02B.dgn

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. AT CHILD & FAMILY CENTER

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None — Date: Feb. 22, 2008

SHEET No. TS2-3 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	85	160

A-1
M-1

A-3
A-4
A-5
B-1
B-2
C-2

C-1
D-1*
E-1*
F-1

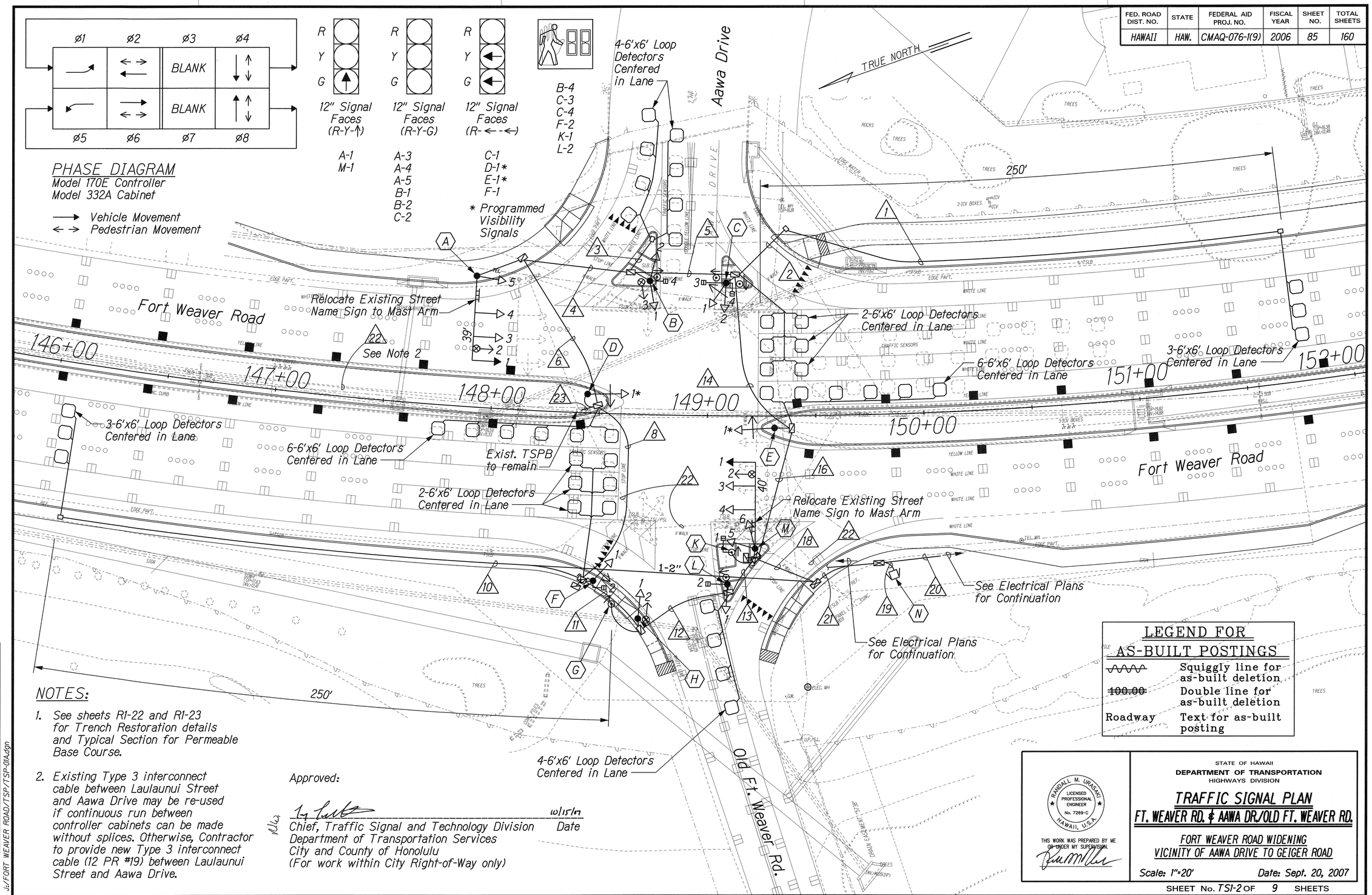
* Programmed Visibility Signals

B-4
C-3
C-4
F-2
K-1
L-2

PHASE DIAGRAM

Model 170E Controller
Model 332A Cabinet

→ Vehicle Movement
← → Pedestrian Movement



NOTES:

1. See sheets RI-22 and RI-23 for Trench Restoration details and Typical Section for Permeable Base Course.
2. Existing Type 3 interconnect cable between Laulaunui Street and Aawa Drive may be re-used if continuous run between controller cabinets can be made without splices. Otherwise, Contractor to provide new Type 3 interconnect cable (12 PR #19) between Laulaunui Street and Aawa Drive.

Approved:

10/15/07
Chief, Traffic Signal and Technology Division — Date
Department of Transportation Services
City and County of Honolulu
(For work within City Right-of-Way only)

LEGEND FOR AS-BUILT POSTINGS

∿∿∿	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

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

J:/FORT WEAVER ROAD/TSP/TSP-01A.dgn

RANDALL M. URASAKI — LICENSED PROFESSIONAL ENGINEER No. 7269-C — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & AAWA DR./OLD FT. WEAVER RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: 1"=20' — Date: Sept. 20, 2007

SHEET No. TSI-2 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	86	160

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
1	2"		1				
2	2"		1				
3	2"		2				
4	2"	1					
	3-2"			1			
5	2"	1					
	2"		3				
	2"			2			
	2"						Spare
6	2"	1					
	3-2"						Spare
8	2"	1					
	2"		2				
	2"					1	
	2"						Spare
10	2"						
11	2"	1					
	2"		6				
	2"					1	
	2"						Spare
12	2"	1					
	2"		6				
	2"			1			
	2"					1	
	2-2"						Spare
13	2"	1					
	2"		7				
	2"			1			
	2"					1	
	2-2"						Spare
14	2"	1					
	2"		7				
	2"			2			
	2"						Spare
16	2"	1					
	2"		9				
	2"			2			
	2"						Spare
18	2-2"	2					
	2-2"		16				
	2-2"			4			
	2"					1	
	2"						Spare
19	2-2"	2					
	2-2"		16				
	2-2"			4			
	2"				1		
	2"						Spare
	2-4"					2	

Cable and Conduit Schedule

Run △	Conduit Size	Signal Control 26C#14	PPB/ Loops 2C#14	Opticom 3C#20	Power 3C#6	Inter-connect 12PR#19	Other
20	4"					1	
21	2-2"	2					
	2-2"		16				
	2-2"			4			
	2"				1		
	2"						Spare
	4"					1	
22	Exist. 2"					1	
23	2"					1	

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A	C	II-39	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5) B-1W	
B	A	I-10	(1)(2) TP-2W	
			(3) Opticom (Vert)	
			(4) B-1W	1
C	A	I-10	(1)(2) TP-2W	
			(3) US-1W	1
			(4) US-1W	1
D	*	SLP	(1) B-1W	
E	*	SLP	(1) B-1W	
F	A	I-10	(1) TP-1W	
			(2) B-1W	
G	*	SLP		1
H	A	I-10	(1) TP-1W	
			(2) Opticom (Vert)	
K	A	I-10	(1) TP-1W	1
L	A	I-10	(1) TP-1W	
			(2) B-1W	1
M	C	II-40	(1) MA-1W (I)	
			(2) Opticom (Horiz)	
			(3) MA-1W (I)	
			(4) MA-1W (I)	
			(5)(6) B-2W	
N	D		170E Controller	
			332A Cabinet	

* Signal to be mounted on SL Pole.
See Footing Detail on Sht. E1-10.

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

J:/FORT WEAVER ROAD/TSP/TSP-01B.dgn

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FT. WEAVER RD. & AAWA DR./OLD FT. WEAVER RD.

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: None Date: Sept. 20, 2007

SHEET No. TSI-3 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(8)	2004	CO.72	127

TRAFFIC SIGNAL HEAD SCHEDULE

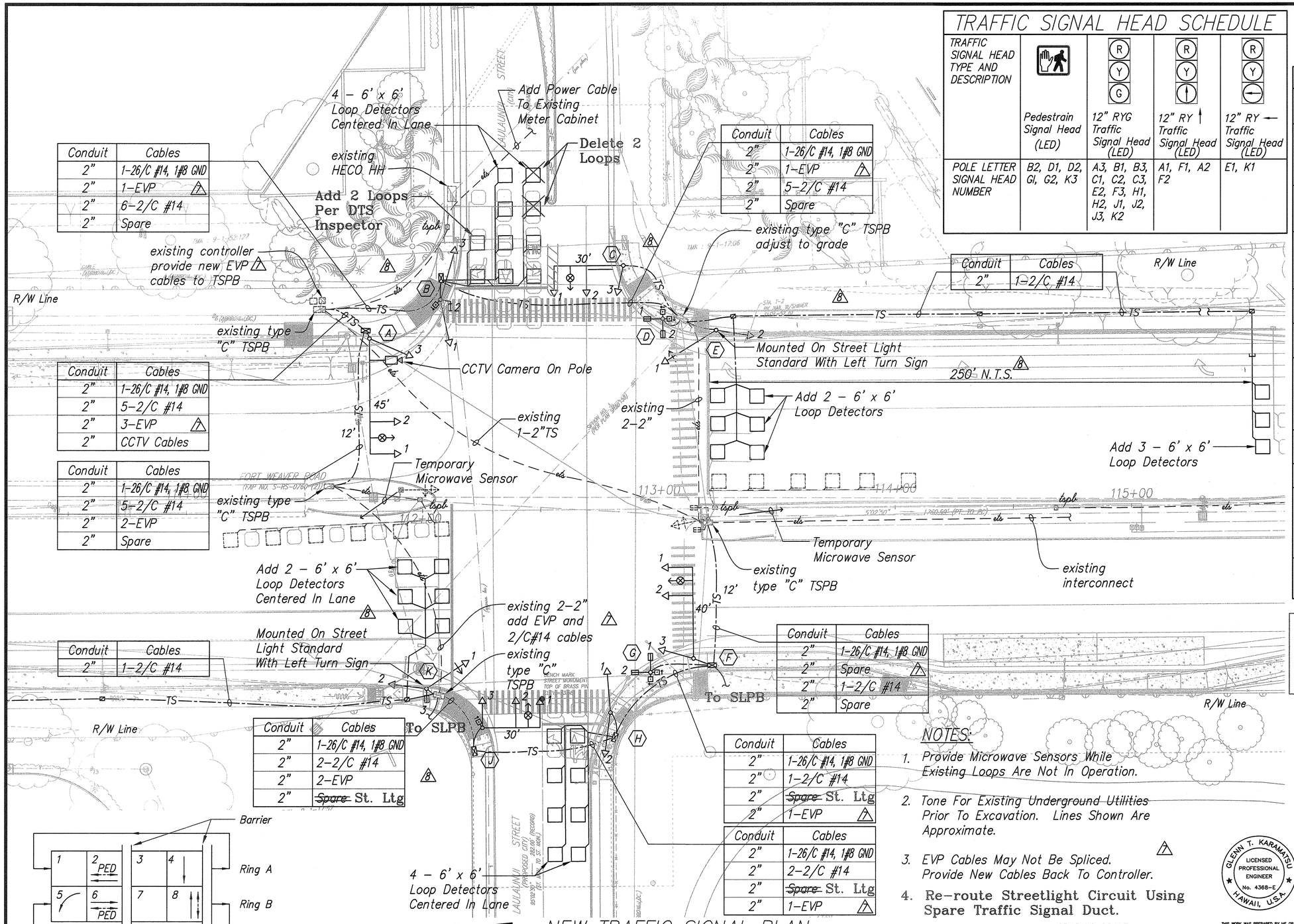
TRAFFIC SIGNAL HEAD TYPE AND DESCRIPTION	Pedestrain Signal Head (LED)	12" RYG Traffic Signal Head (LED)	12" RY ↑ Traffic Signal Head (LED)	12" RY ← Traffic Signal Head (LED)
POLE LETTER SIGNAL HEAD NUMBER	B2, D1, D2, G1, G2, K3	A3, B1, B3, C1, C2, C3, E2, F3, H1, H2, J1, J2, J3, K2	A1, F1, A2 F2	E1, K1

LIST OF MATERIALS

POLE LETTER	STANDARD TYPE	MOUNTING TYPE	
A	III-45	Mast Arm – One Way Mast Arm – One Way Bracket – One Way Mast Arm (Horiz)	RY ↑ RY ↑ 8 RYG Opticom
B	I-10 8	Slipfitter – Two Way Bracket – One Way Pole	RYG H-M Pushbutton
C	II-30 8	Bracket – One Way Mast Arm – One Way Mast Arm – One Way Mast Arm (Horiz)	RYG RYG RYG Opticom
D	I-8	Slipfitter – Two Way Pole	H-M Pushbutton
E	Mounted On Street Light	Bracket – One Way Bracket – One Way	RY ← RYG
F	III-40	Mast Arm – One Way Mast Arm – One Way Bracket – One Way Mast Arm (Horiz)	RY ↑ RY ↑ 8 RYG Opticom
G	I-8	Slipfitter – Two Way Pole	H-M Pushbutton
H	I-10	Slipfitter – Two Way	RYG
J	II-30 8	Mast Arm – One Way Mast Arm – One Way Bracket – One Way Mast Arm (Horiz) Pole	RYG RYG RYG Opticom Pushbutton
K	Mounted On Street Light	Bracket – One Way Bracket – One Way Bracket – One Way	RY ← RYG H-M

LEGEND FOR AS-BUILT POSTINGS

~~WWWW~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Lt. 0.2	Text for as-built posting



Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	1-EVP 7
2"	6-2/C #14
2"	Spare

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	5-2/C #14
2"	3-EVP 7
2"	CCTV Cables

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	5-2/C #14
2"	2-EVP
2"	Spare

Conduit	Cables
2"	1-2/C #14

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	2-2/C #14
2"	2-EVP
2"	~~Spare~~ St. Ltg

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	1-EVP 7
2"	5-2/C #14
2"	Spare

Conduit	Cables
2"	1-2/C #14

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	Spare 7
2"	1-2/C #14
2"	Spare

Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	1-2/C #14
2"	~~Spare~~ St. Ltg
2"	1-EVP 7

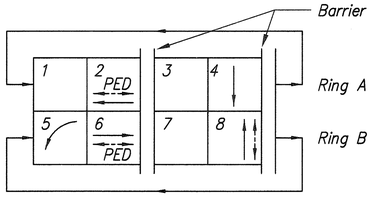
Conduit	Cables
2"	1-26/C #14, 1#8 GND
2"	2-2/C #14
2"	~~Spare~~ St. Ltg
2"	1-EVP 7

NOTES:

1. Provide Microwave Sensors While Existing Loops Are Not In Operation.
2. Tone For Existing Underground Utilities Prior To Excavation. Lines Shown Are Approximate.
3. EVP Cables May Not Be Spliced. Provide New Cables Back To Controller. 7
4. **Re-route Streetlight Circuit Using Spare Traffic Signal Duct.**

GRAPHIC SCALE

1" = 20' 20' 10' 0 20' 40'



EXISTING PHASE DIAGRAM

Taken from design drawings

NEW TRAFFIC SIGNAL PLAN

Scale: 1" = 20'-0"

NO	DATE	DESCRIPTION
8	8/4/04	DTS Review Comments
7	8/2/04	DTS Review Comments

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW TRAFFIC SIGNAL PLAN

FORT WEAVER ROAD WIDENING
NEAR LAULAUNUI STREET

FEDERAL AID PROJECT NO. CMAQ-076-1(8)

SCALE: AS NOTED DATE: OCTOBER 2003

GLENN T. KARAMATSU
LICENSED PROFESSIONAL ENGINEER
No. 4368-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SIGNATURE DATE

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

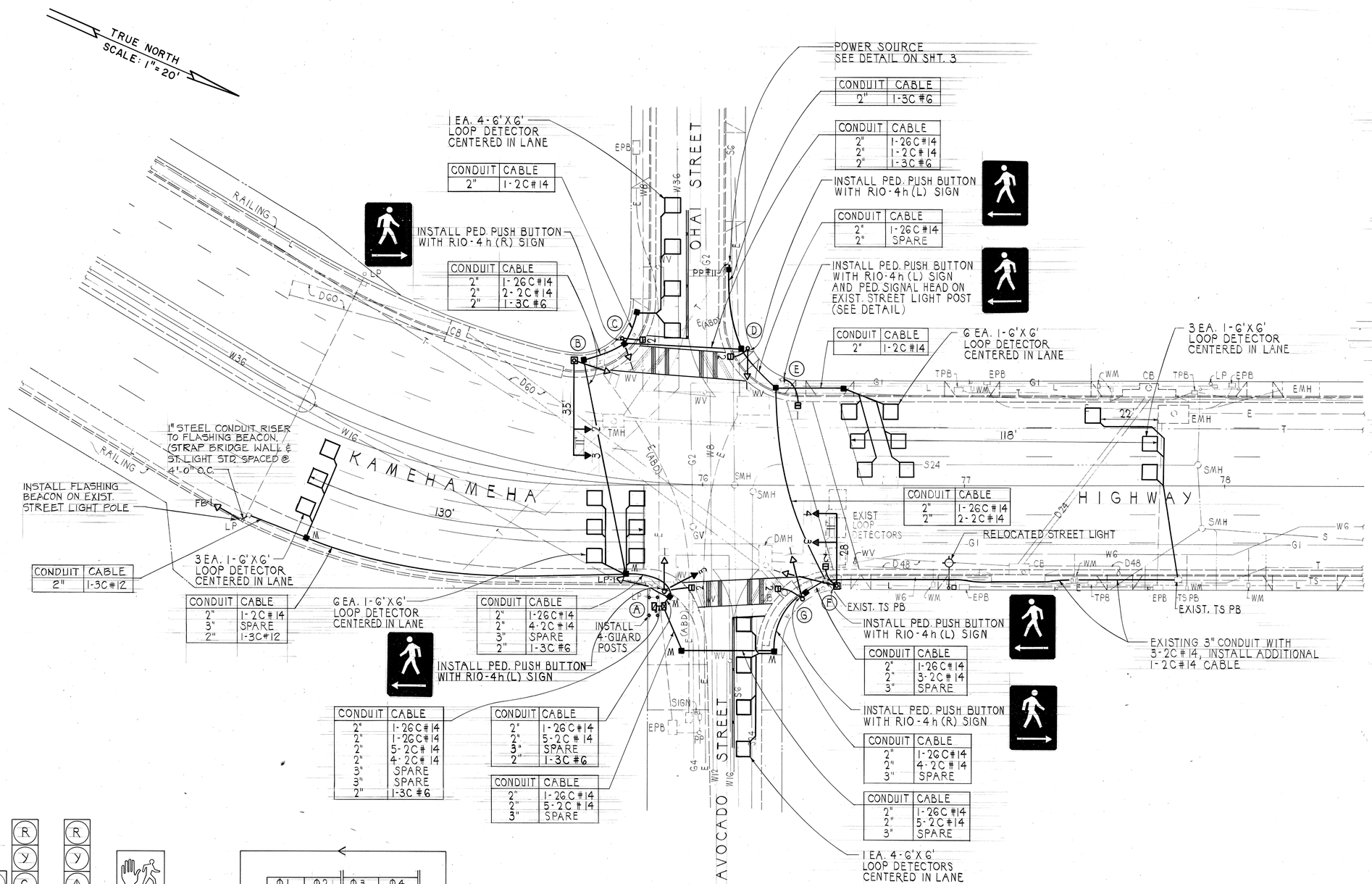
12/21/06-15:40 Y:\055\055.003\AS BUILT DWGS\55-3E11.S.CO.dwg

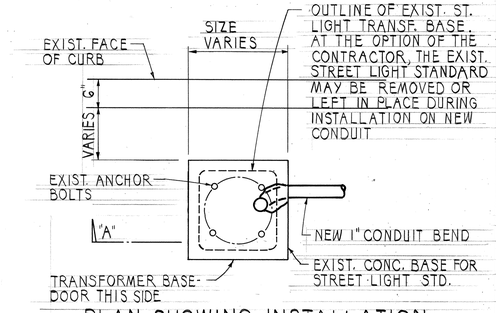
"AS-BUILT"

SHEET No. E-11 OF 23 SHEETS

CO.72

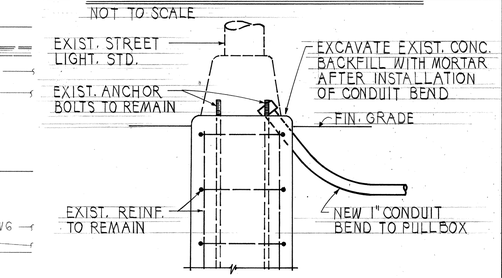
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-080-1(9)	1990	5	6





PLAN SHOWING INSTALLATION OF NEW CONDUIT BEND AT EXIST. STREET LIGHT BASE

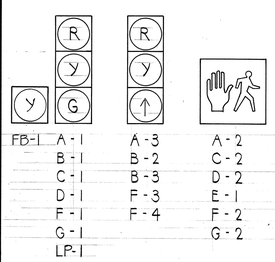
NOT TO SCALE



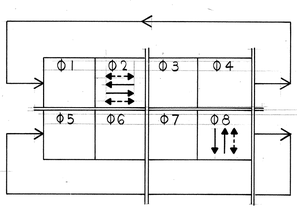
SECTION "A"

NOT TO SCALE

NOTE: THIS INSTALLATION SHALL BE USED ONLY WHEN SPECIFICALLY INDICATED ON THE PLANS.



SIGNAL INDICATIONS



PHASE DIAGRAM

MODEL 170 CONTROLLER
MODEL 336 CABINET

DATE	REVISION
10/15/90	Added Flashing Beacon, Traffic Signal Assembly & W3-4 Sign.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY TRAFFIC SIGNALS AT AVOCADO STREET / OHAI STREET

FED. AID PROJECT NO. HES-080-1(9)

SCALE: 1" = 20' DATE: APR. 1990

SHEET No. 1 OF 1 SHEETS

THEODORE S. KAWAHIGASHI — REGISTERED PROFESSIONAL ENGINEER No. 3244-C — HAWAII, U.S.A.

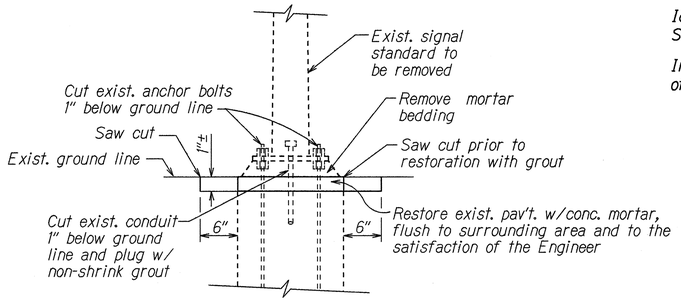
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

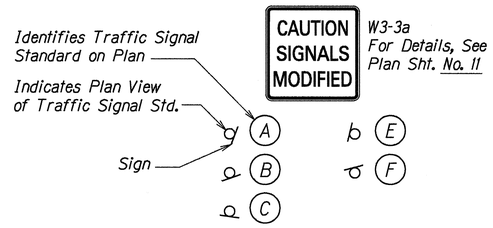
C.O. 5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-080-1(10)	1994	8	17



REMOVAL & RESTORATION DETAIL

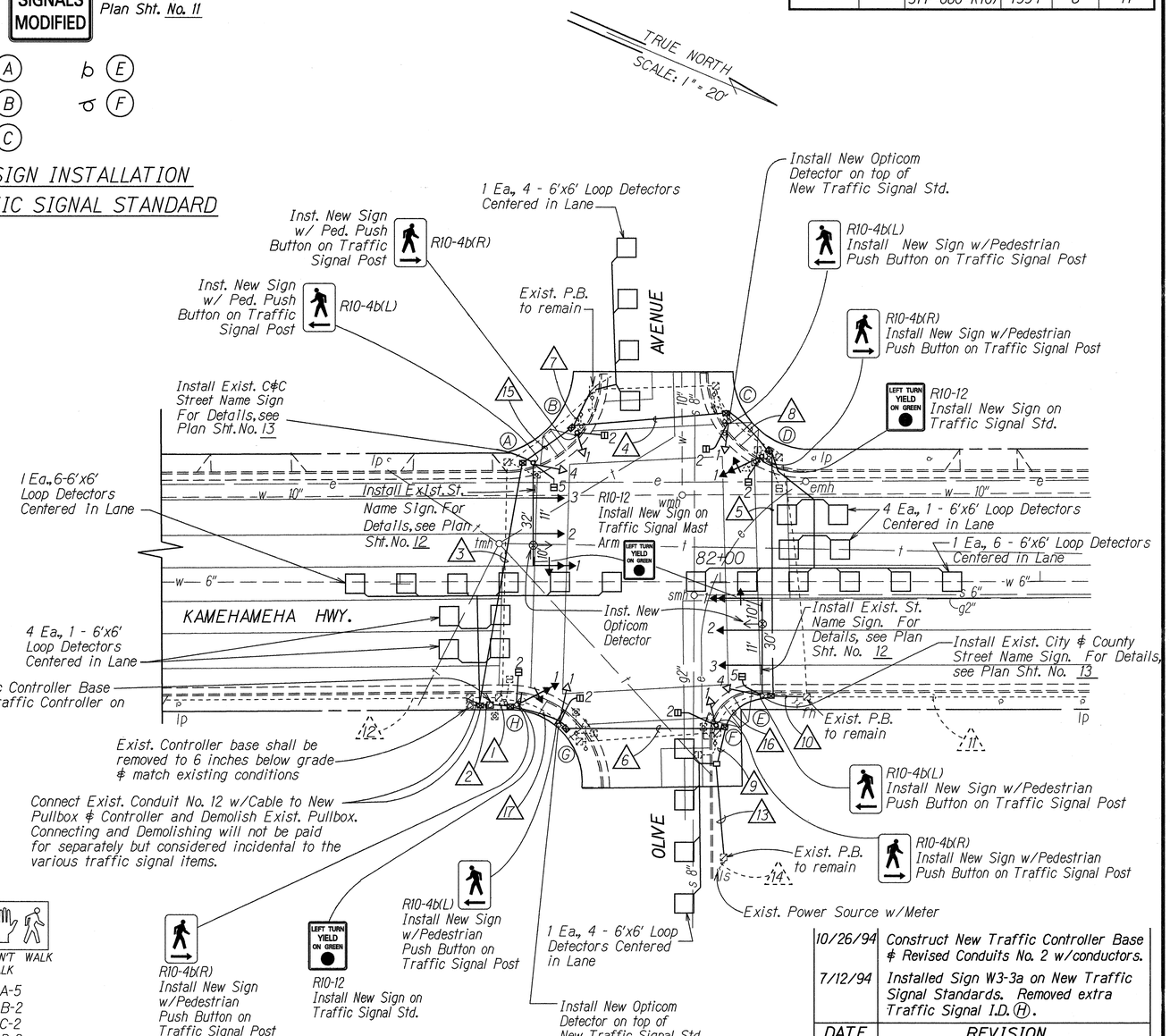
Not to Scale

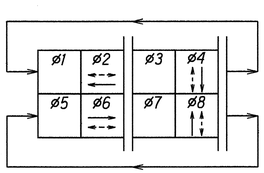


W3-3a SIGN INSTALLATION ON TRAFFIC SIGNAL STANDARD

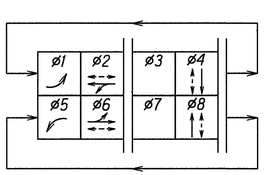
CONDUIT & CABLE SCHEDULE		
△	CONDUIT	CABLE
1	5-2"	2-26C#14, 1-3C#4, 4-2C#14, 2-3C#20, 1-12 Pairs #19
2	5-2"	2-26C#14, 8-2C#14, 4-3C#20, 1-12 Pairs #19
3	4-2"	2-26C#14, 5-2C#14, 2-3C#20
4	5-2"	2-26C#14, 4-2C#14, 1-3C#20
5	3-2"	2-26C#14
6	5-2"	2-26C#14, 1-3C#4, 3-2C#14, 1-3C#20, 1-12 Pairs #19
7	1-2"	1-2C#14
8	4-2"	2-26C#14, 3-2C#14
9	2-2"	1-3C#4, 1-2C#14
10	3-2"	1-12 Pairs #19
11	1-3"	1-12 Pairs #19
12	1-3"	3-2C#14
13	1-2"	1-3C#4
14	1-2"	1-3C#4
15	5-2"	2-26C#14, 5-2C#14, 1-3C#20
16	5-2"	2-26C#14, 1-2C#14, 1-3C#20, 1-12 Pairs #19
17	5-2"	2-26C#14, 1-3C#4, 3-2C#14, 2-3C#20, 1-12 Pairs #19

NOTE:
Conduit Nos. 11, 12, & 14 with Cables are existing to remain

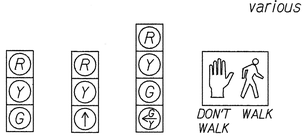




EXISTING PHASE DIAGRAM



NEW PHASE DIAGRAM



A-4	A-2	A-1*	A-5
B-1	A-3	D-1*	B-2
C-1	E-2	E-1*	C-2
E-4	E-3	H-1*	D-2
F-1			E-5
G-1			F-2
			G-2
			H-2

* Fiber Optic Signal Head

Note:
Signals A-1, A-2, A-3, E-1, E-2, & E-3 shall have back plates.

SIGNAL INDICATION

NOTE:
The Contractor shall notify Christina Asao of Marcus & Asso. at 839-7446 ext. 227 and the manager of the 2 for 1 Pizza Company at 622-3919, 2 weeks prior to constructing the new Traffic Signal Standards fronting the 2 for 1 Pizza Company. The Contractor shall repair the hole in the awning to the satisfaction of Marcus & Asso. (Christina Asao) after removing the existing Type II Traffic Signal Standard fronting the 2 for 1 Pizza Company. The restoration work of the awning shall not be paid for separately but considered incidental to the various contract items.

DATE	REVISION
10/26/94	Construct New Traffic Controller Base & Revised Conduits No. 2 w/conductors.
7/12/94	Installed Sign W3-3a on New Traffic Signal Standards. Removed extra Traffic Signal I.D. (H).

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY IMPROVEMENTS
Wilson Bridge to Kilani Ave.
FED. AID PROJECT NO. STP-080-1(10)

Scale: 1"=20' Date: Nov., 1993

SHEET No. 1 OF 3 SHEETS

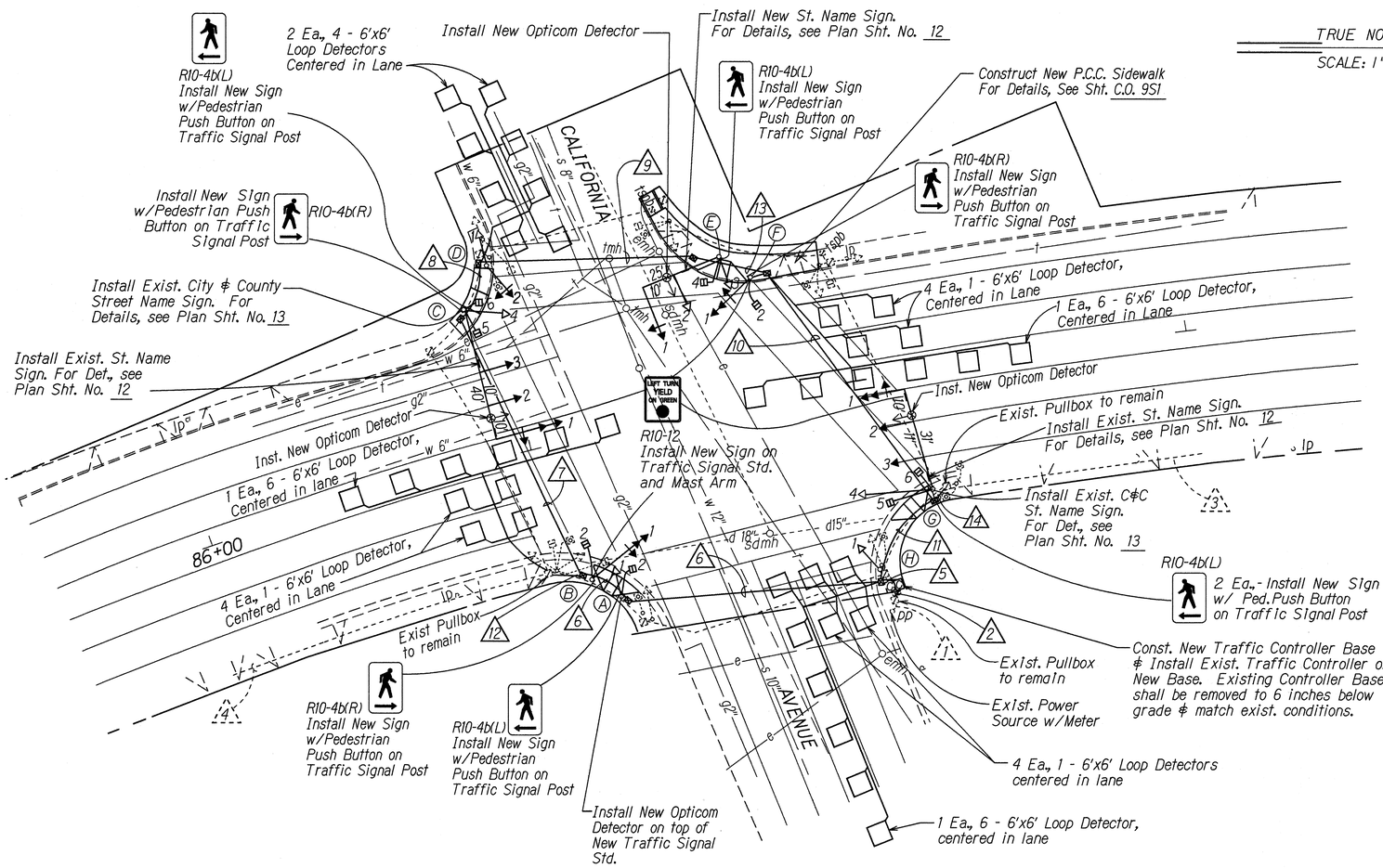
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY N. Homelis/R. Arill | TRACED BY C. Ako | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE 7/93 | NOTE BOOK | DESIGNED BY | QUANTITIES BY | CHECKED BY | N:\Tsmf\s2.dgn

C.O. 8

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-080-1(10)	1994	9	17

TRUE NORTH

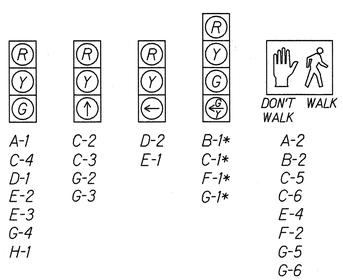
SCALE: 1" = 20'



CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE			
1	1-2"	1-3C#6			
2	1-2"	1-3C#6			
3	1-3"				1-12 Pairs #19
4	1-3"				1-12 Pairs #19
5	6-2"	2-26C#14,	12-2C#14,	4-3C#20,	1-12 Pairs #19
6	5-2"	2-26C#14,	6-2C#14,	2-3C#20,	1-12 Pairs #19
7	4-2"	2-26C#14,	3-2C#14,	1-3C#20	
8	3-2"	2-26C#14,	1-2C#14		
9	3-2"	2-26C#14			
10	5-2"	2-26C#14,	4-2C#14,	1-3C#20	
11	5-2"	2-26C#14,	5-2C#14,	2-3C#20,	1-12 Pairs #19
12	4-2"		2-2C#14,		1-12 Pairs #19
13	4-2"	2-26C#14,	1-2C#14,	1-3C#20	
14	2-2"				1-12 Pairs #19

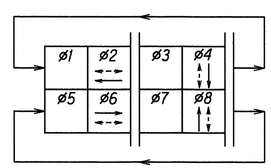
NOTE:
Conduit Nos. 1, 3, & 4 with Cables are existing to remain



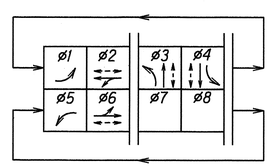
* Fiber Optic Signal Head

NOTE:
Signals C-1, C-2, C-3, E-1, E-2, G-1, G-2, & G-3, shall have back plates

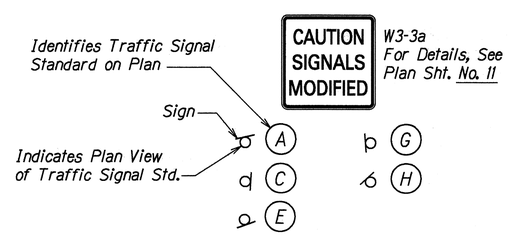
SIGNAL INDICATION



EXISTING PHASE DIAGRAM



NEW PHASE DIAGRAM



W3-3a SIGN INSTALLATION ON TRAFFIC SIGNAL STANDARD

DATE	REVISION
11/17/94	Revised Traffic Standard "E" & Construct New P.C.C. Sidewalk
10/26/94	Const. New Traffic Controller Base & New Conduit No. 2 w/conductor.
7/12/94	Installed Sign W3-3a on New Traffic Signal Standards.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY IMPROVEMENTS
Wilson Bridge to Kilani Ave.
FED. AID PROJECT NO. STP-080-1(10)

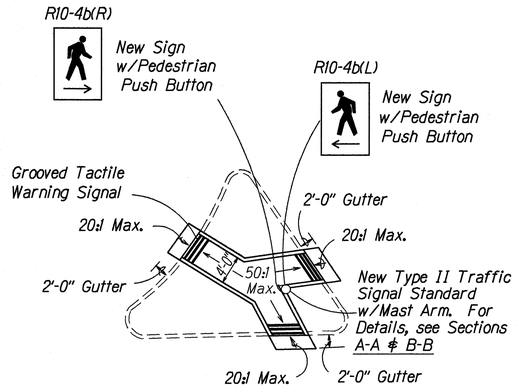
Scale: 1"=20' Date: Nov., 1993

SHEET No. 2 OF 3 SHEETS

C.O. 9

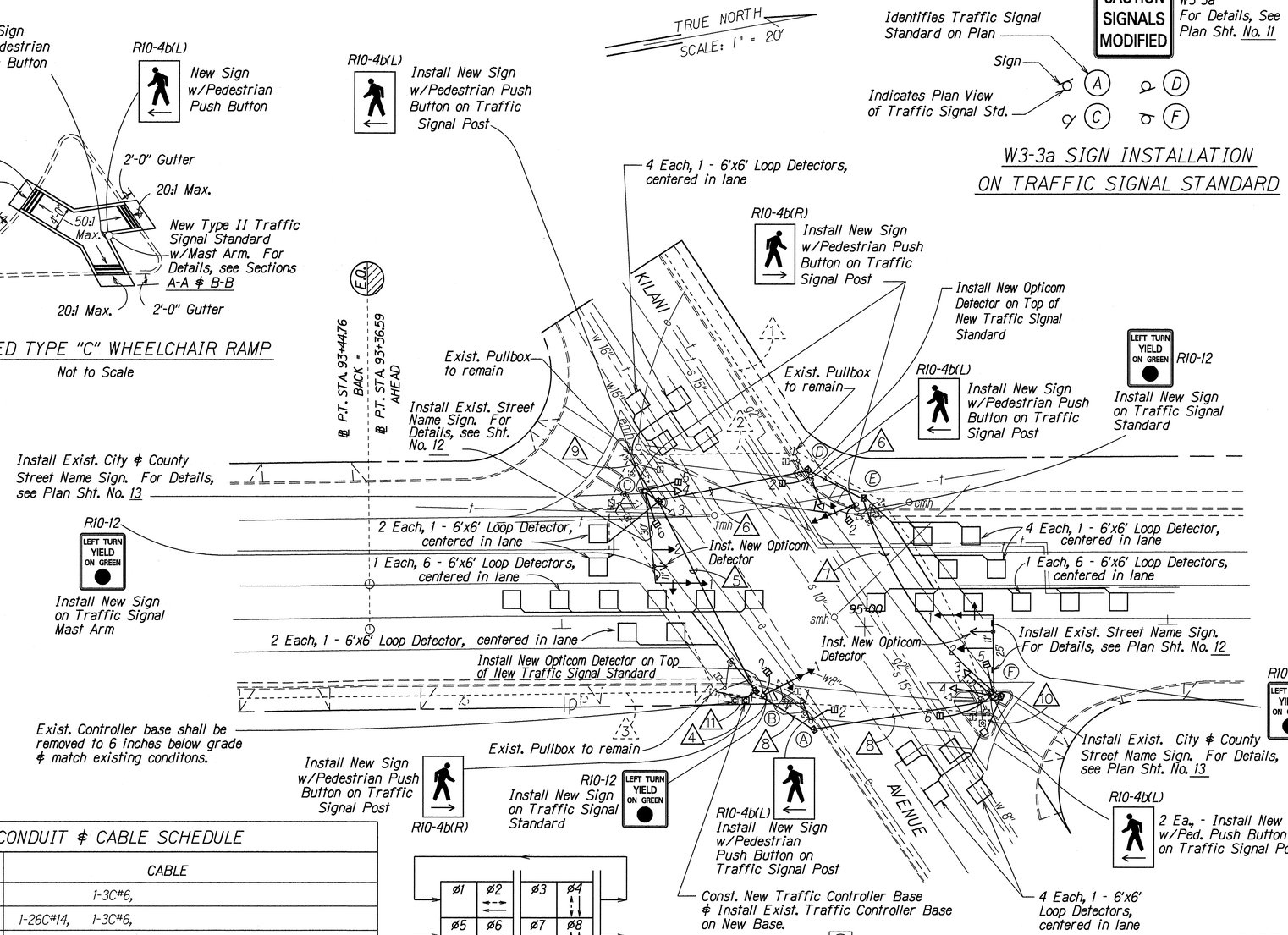
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY N. Howells | TRACED BY | DESIGNED BY C. Abe | QUANTITIES BY | CHECKED BY | NOTE BOOK Nakaire N. Tsumita | DATE 12/92

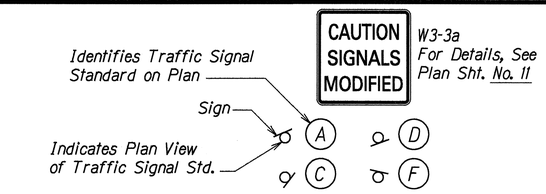
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-080-1(10)	1994	10	17



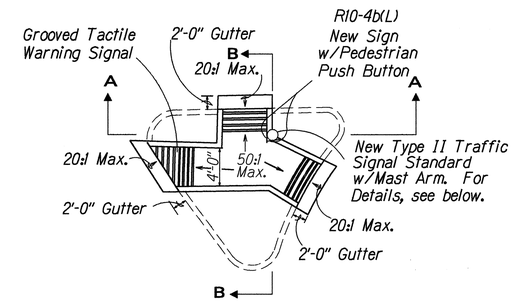
MODIFIED TYPE "C" WHEELCHAIR RAMP

Not to Scale



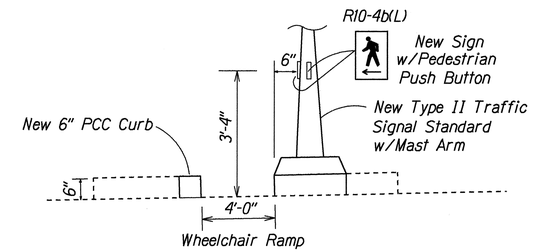


W3-3a SIGN INSTALLATION ON TRAFFIC SIGNAL STANDARD



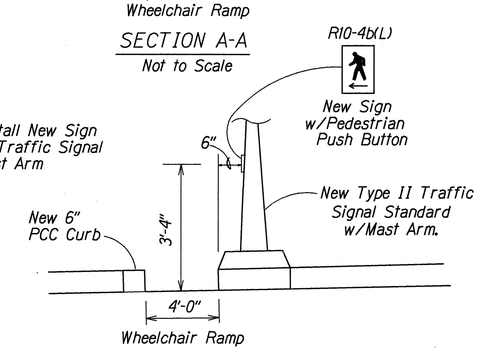
MODIFIED TYPE "C" WHEELCHAIR RAMP

Not to Scale



SECTION A-A

Not to Scale



SECTION B-B

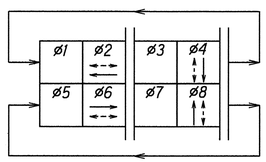
Not to Scale

TYPE II TRAFFIC SIGNAL WITH MAST ARM INSTALLATION AT MODIFIED TYPE "C" WHEELCHAIR RAMP

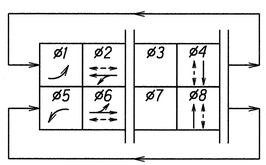
CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE			
1	1-2"		1-3C#6,		
2	1-3", 2-2"	1-26C#14,	1-3C#6,		
3	1-3"			2-2C#14,	1-12 Pairs #19
4	10-2"	2-26C#14,	1-3C#6,	11-2C#14,	4-3C#20
5	5-2"	2-26C#14,	1-3C#6,	4-2C#14,	2-3C#20
6	3-2"	2-26C#14,		1-2C#14,	1-3C#20
7	4-2"	2-26C#14,		3-2C#14,	1-3C#20
8	4-2"	2-26C#14,		5-2C#14,	1-3C#20
9	2-2"		1-3C#6,	1-2C#14	
10	1-2"			1-2C#14	
11	1-3"			2-2C#14	1-12 Pairs #19

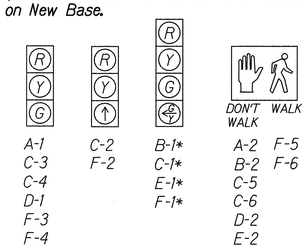
NOTE:
Conduit Nos. △1, △2 & △3 with cables are existing to remain



EXISTING PHASE DIAGRAM



NEW PHASE DIAGRAM



* Fiber Optic Signal Head

NOTE: Signals C-1, C-2, F-1, & F-2 shall have Back Plates

SIGNAL INDICATION

DATE	REVISION
10/26/94	Const. New Traffic Controller Base & New Conduit No. 11 w/conductors.
7/12/94	Installed Sign W3-3a on New Traffic Signal Standard.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY IMPROVEMENTS
Wilson Bridge to Kilani Ave.
FED. AID PROJECT NO. STP-080-1(10)

Scale: 1"=20' Date: Nov., 1993

SHEET No. 3 OF 3 SHEETS

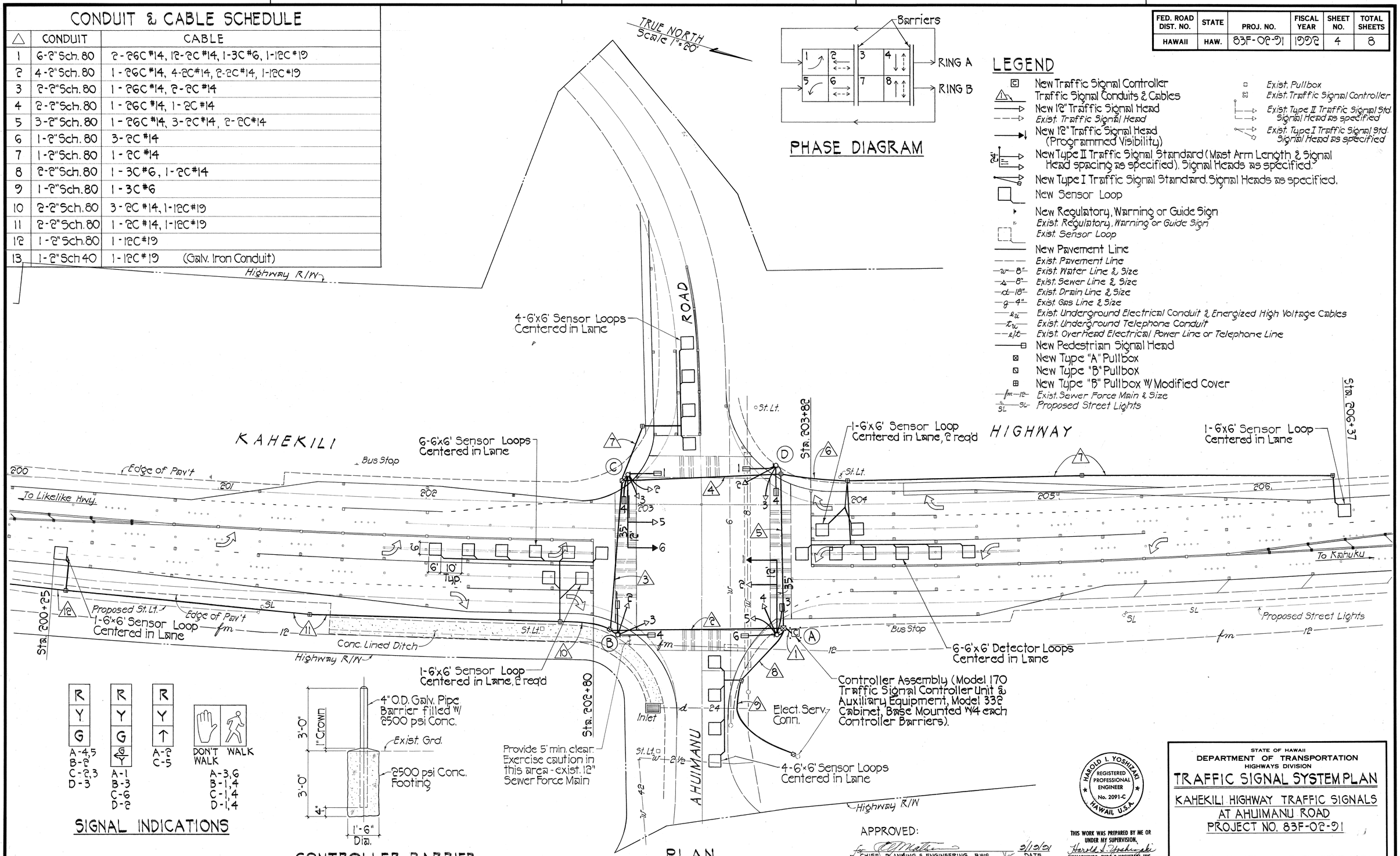
ORIGINAL PLAN | SURVEY PLOTTED BY | SHEARS BY Victor Howells/E. Isobe | TRACED BY | DESIGNED BY C. Ako | QUANTITIES BY | CHECKED BY | DATE 8/93 | NOTE BOOK 161 dsl/ne 76 ems/4-dgn

C.O. 10

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-02-01	1992	4	8

CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE
1	6-2" Sch. 80	2-26C #14, 12-2C #14, 1-3C #6, 1-12C #19
2	4-2" Sch. 80	1-26C #14, 4-2C #14, 2-2C #14, 1-12C #19
3	2-2" Sch. 80	1-26C #14, 2-2C #14
4	2-2" Sch. 80	1-26C #14, 1-2C #14
5	3-2" Sch. 80	1-26C #14, 3-2C #14, 2-2C #14
6	1-2" Sch. 80	3-2C #14
7	1-2" Sch. 80	1-2C #14
8	2-2" Sch. 80	1-3C #6, 1-2C #14
9	1-2" Sch. 80	1-3C #6
10	2-2" Sch. 80	3-2C #14, 1-12C #19
11	2-2" Sch. 80	1-2C #14, 1-12C #19
12	1-2" Sch. 80	1-12C #19
13	1-2" Sch 40	1-12C #19 (Galv. Iron Conduit)



APPROVED:

CHIEF, PLANNING & ENGINEERING, BWS — DATE 9/20/91

CHIEF, DIVISION OF WASTEWATER MANAGEMENT, C&C — DATE 10/2/91

HAROLD I. YOSHIZAKI REGISTERED PROFESSIONAL ENGINEER No. 2091-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM PLAN

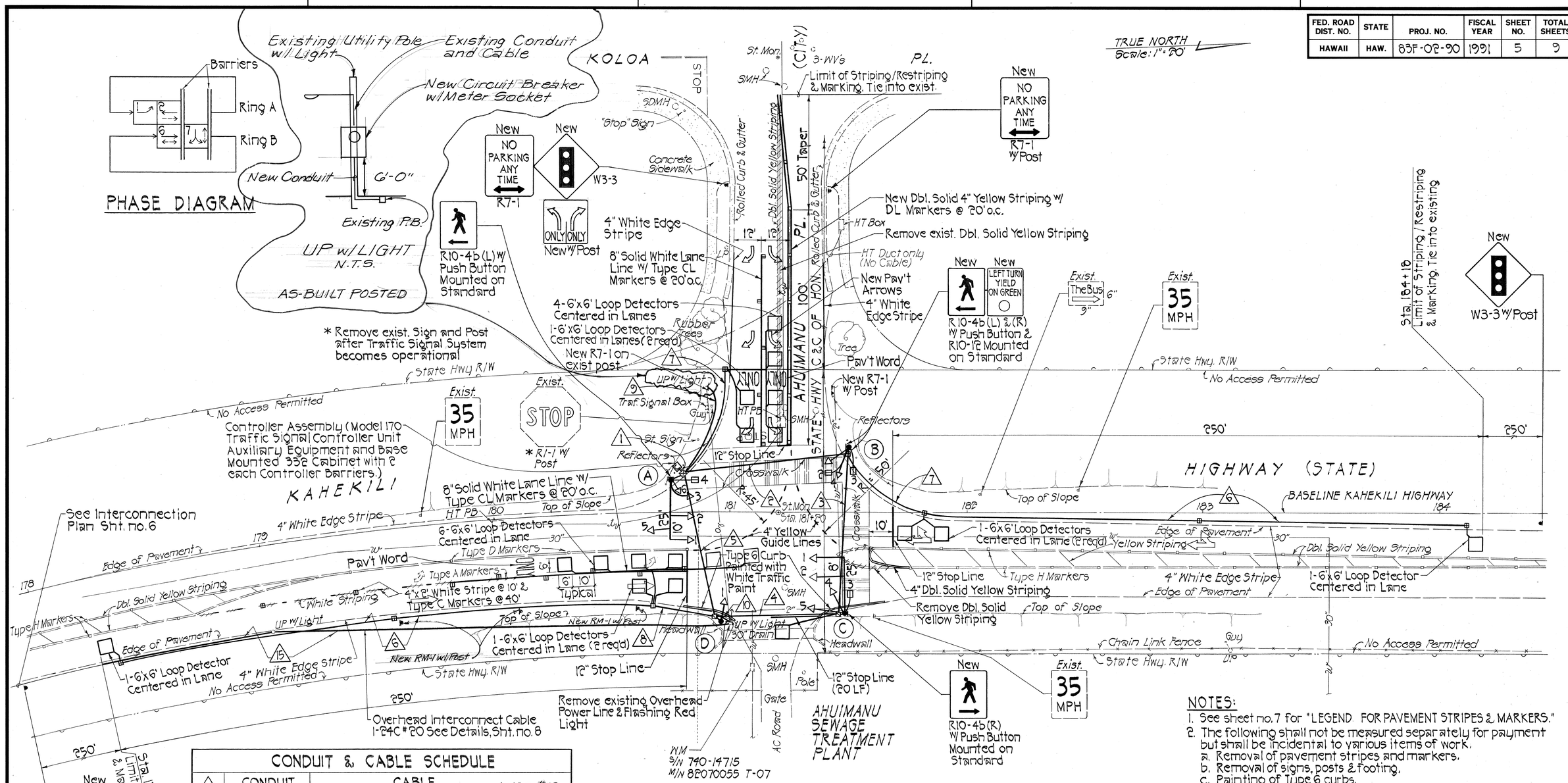
KAHEKILI HIGHWAY TRAFFIC SIGNALS AT AHUIMANU ROAD
PROJECT NO. 83F-02-01

SCALE: AS NOTED DATE: SEPT. 1991

SHEET No. 1 OF 1 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-02-90	1991	5	9



CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE
1	5-2" Sch. 80	2-2GC #14, 8-2C #14, 1-3C #6, ~~1-24C #20~~ 1-12C #19
2	2-2" Sch. 80	1-2GC #14, 5-2C #14
3	2-2" Sch. 80	1-2GC #14, 2-2C #14
4	1-2" Sch. 80	1-2GC #14
5	3-2" Sch. 80	1-2GC #14, 3-2C #14, ~~1-24C #20~~ 1-12C #19
6	1-2" Sch. 80	1-2C #14
7	1-2" Sch. 80	2-2C #14
8	1-2" Sch. 80	3-2C #14
9	1-2" Sch. 80	1-3C #6
10	1-2" Sch. 80	~~1-24C #20~~ 1-12C #19
15	Overhead	~~1-24C #20~~ W/ Messenger Cable 1-12C #19

SIGNAL INDICATIONS

R	R	R	DON'T WALK	WALK
Y	Y	Y		
G	G	↑		
	Y/G			
A-2,3,5,6 B-1,4 C-5 D-1	B-1 C-1	A-1 C-2	A-4 B-2,3 C-3	

NOTES:

1. See sheet no. 7 for "LEGEND FOR PAVEMENT STRIPES & MARKERS."
2. The following shall not be measured separately for payment but shall be incidental to various items of work.
   a. Removal of pavement stripes and markers.
   b. Removal of signs, posts & footing.
   c. Painting of Type 6 curbs.
   d. Removal of overhead power line & flashing light.

APPROVED:

For CHIEF, PLANNING AND ENGINEERING, BWS — 7/27/90 DATE

M. Fukagawa — 8/2/90 DATE
CHIEF, DIVISION OF ENGINEERING, DPW
(APPROVED FOR CONSTRUCTION W/IN CITY R/W ONLY)

SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

HAROLD I. YOSHIZAKI — REGISTERED PROFESSIONAL ENGINEER No. 2091-C — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Harold I. Yoshizaki

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL, STRIPING, MARKING & SIGNING PLAN

KAHEKILI HIGHWAY TRAFFIC SIGNALS AT AHUIMANU PLACE

PROJECT NO. 83F-02-90

SCALE: 1" = 20' DATE: OCTOBER 1990

SHEET No. 2 OF 3 SHEETS

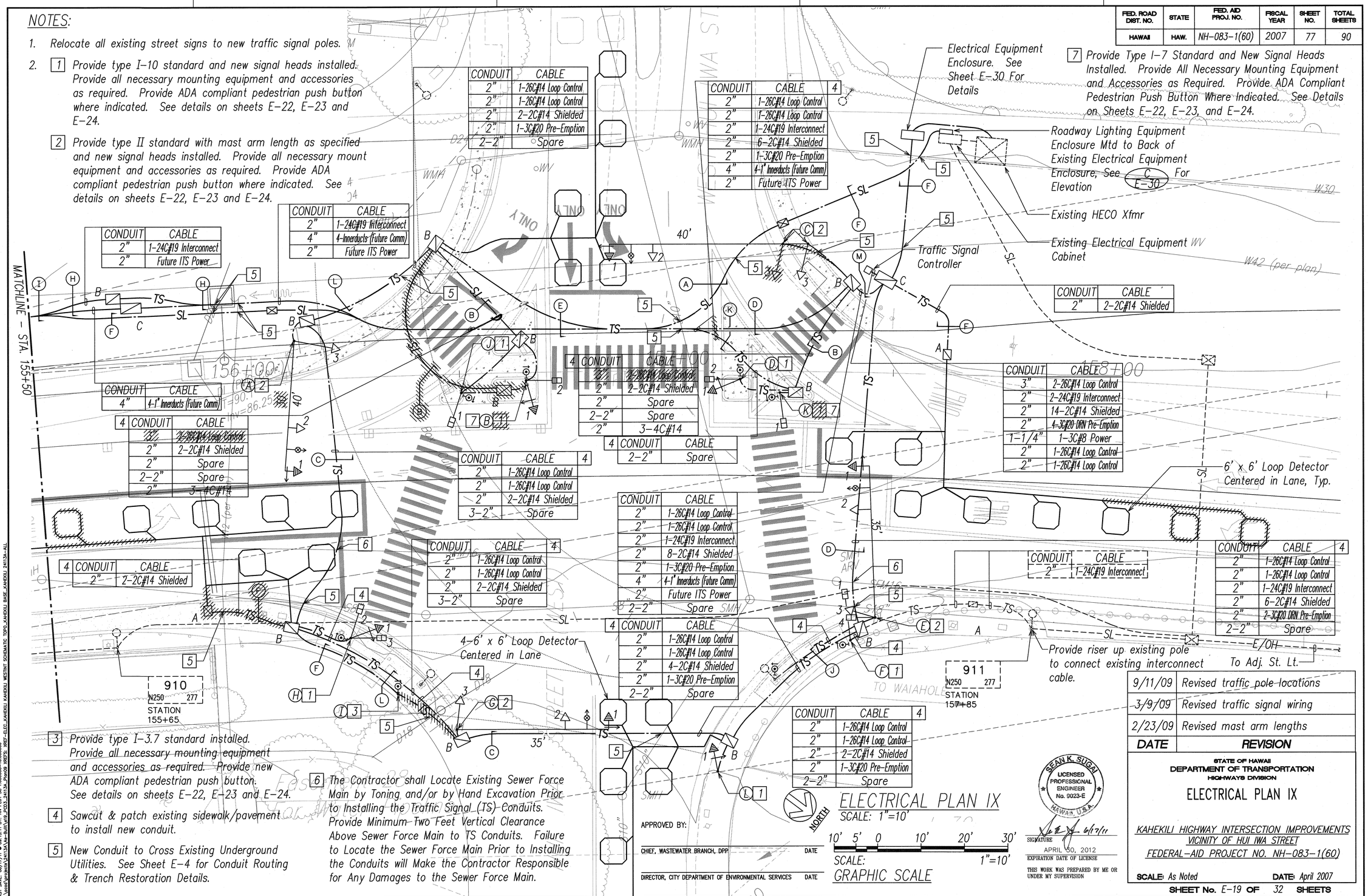
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(60)	2007	77	90

NOTES:

1. Relocate all existing street signs to new traffic signal poles.
2. [1] Provide type I-10 standard and new signal heads installed. Provide all necessary mounting equipment and accessories as required. Provide ADA compliant pedestrian push button where indicated. See details on sheets E-22, E-23 and E-24.

   [2] Provide type II standard with mast arm length as specified and new signal heads installed. Provide all necessary mount equipment and accessories as required. Provide ADA compliant pedestrian push button where indicated. See details on sheets E-22, E-23 and E-24.



CONDUIT	CABLE
2"	1-24C#19 Interconnect
2"	Future ITS Power

CONDUIT	CABLE
2"	1-24C#19 Interconnect
4"	4-Innerducts (Future Comm)
2"	Future ITS Power

CONDUIT	CABLE
4"	4-1" Innerducts (Future Comm)

4 CONDUIT	CABLE
3"	~~2-26C#14 Loop Control~~
2"	2-2C#14 Shielded
2"	Spare
2-2"	Spare
2"	~~3-4C#14~~

4 CONDUIT	CABLE
2"	2-2C#14 Shielded

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	1-26C#14 Loop Control
2"	2-2C#14 Shielded
3-2"	Spare

CONDUIT	CABLE	4
2"	1-26C#14 Loop Control	
2"	1-26C#14 Loop Control	
2"	2-2C#14 Shielded	
3-2"	Spare	

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	1-26C#14 Loop Control
2"	2-2C#14 Shielded
2"	1-3C#20 Pre-Emption
2-2"	Spare

CONDUIT	CABLE	4
2"	1-26C#14 Loop Control	
2"	1-26C#14 Loop Control	
2"	1-24C#19 Interconnect	
2"	6-2C#14 Shielded	
2"	1-3C#20 Pre-Emption	
4"	4-1" Innerducts (Future Comm)	
2"	Future ITS Power	

4 CONDUIT	CABLE
3"	~~2-26C#14 Loop Control~~
2"	2-2C#14 Shielded
2"	Spare
2-2"	Spare
2"	3-4C#14

4 CONDUIT	CABLE
2-2"	Spare

CONDUIT	CABLE
2"	2-2C#14 Shielded

CONDUIT	CABLE
3"	2-26C#14 Loop Control
2"	2-24C#19 Interconnect
2"	14-2C#14 Shielded
2"	4-3C#20 DRN Pre-Emption
1-1/4"	1-3C#8 Power
2"	1-26C#14 Loop Control
2"	1-26C#14 Loop Control

CONDUIT	CABLE	4
2"	1-26C#14 Loop Control	
2"	1-26C#14 Loop Control	
2"	1-24C#19 Interconnect	
2"	6-2C#14 Shielded	
2"	2-3C#20 DRN Pre-Emption	
2-2"	Spare	

CONDUIT	CABLE
2"	1-24C#19 Interconnect

4 CONDUIT	CABLE
2"	2-2C#14 Shielded

CONDUIT	CABLE	4
2"	1-26C#14 Loop Control	
2"	1-26C#14 Loop Control	
2"	2-2C#14 Shielded	
3-2"	Spare	

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	1-26C#14 Loop Control
2"	1-24C#19 Interconnect
2"	8-2C#14 Shielded
2"	1-3C#20 Pre-Emption
4"	4-1" Innerducts (Future Comm)
2"	Future ITS Power
2-2"	Spare

4 CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	1-26C#14 Loop Control
2"	4-2C#14 Shielded
2"	1-3C#20 Pre-Emption
2-2"	Spare

CONDUIT	CABLE	4
2"	1-26C#14 Loop Control	
2"	1-26C#14 Loop Control	
2"	2-2C#14 Shielded	
2"	1-3C#20 Pre-Emption	
2-2"	Spare	

[3] Provide type I-3.7 standard installed. Provide all necessary mounting equipment and accessories as required. Provide new ADA compliant pedestrian push button. See details on sheets E-22, E-23 and E-24.

[4] Sawcut & patch existing sidewalk/pavement to install new conduit.

[5] New Conduit to Cross Existing Underground Utilities. See Sheet E-4 for Conduit Routing & Trench Restoration Details.

[6] The Contractor shall Locate Existing Sewer Force Main by Toning and/or by Hand Excavation Prior to Installing the Traffic Signal (TS) Conduits. Provide Minimum Two Feet Vertical Clearance Above Sewer Force Main to TS Conduits. Failure to Locate the Sewer Force Main Prior to Installing the Conduits will Make the Contractor Responsible for Any Damages to the Sewer Force Main.

[7] Provide Type I-7 Standard and New Signal Heads Installed. Provide All Necessary Mounting Equipment and Accessories as Required. Provide ADA Compliant Pedestrian Push Button Where Indicated. See Details on Sheets E-22, E-23, and E-24.

DATE	REVISION
9/11/09	Revised traffic pole locations
3/9/09	Revised traffic signal wiring
2/23/09	Revised mast arm lengths

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN IX

KAHEKILI HIGHWAY INTERSECTION IMPROVEMENTS
VICINITY OF HUI IWA STREET
FEDERAL-AID PROJECT NO. NH-083-1(60)

SCALE: As Noted DATE: April 2007

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

SIGNATURE 6/17/11
APRIL 30, 2012
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

APPROVED BY:
CHIEF, WASTEWATER BRANCH, DPP DATE
DIRECTOR, CITY DEPARTMENT OF ENVIRONMENTAL SERVICES DATE

SHEET No. E-19 OF 32 SHEETS

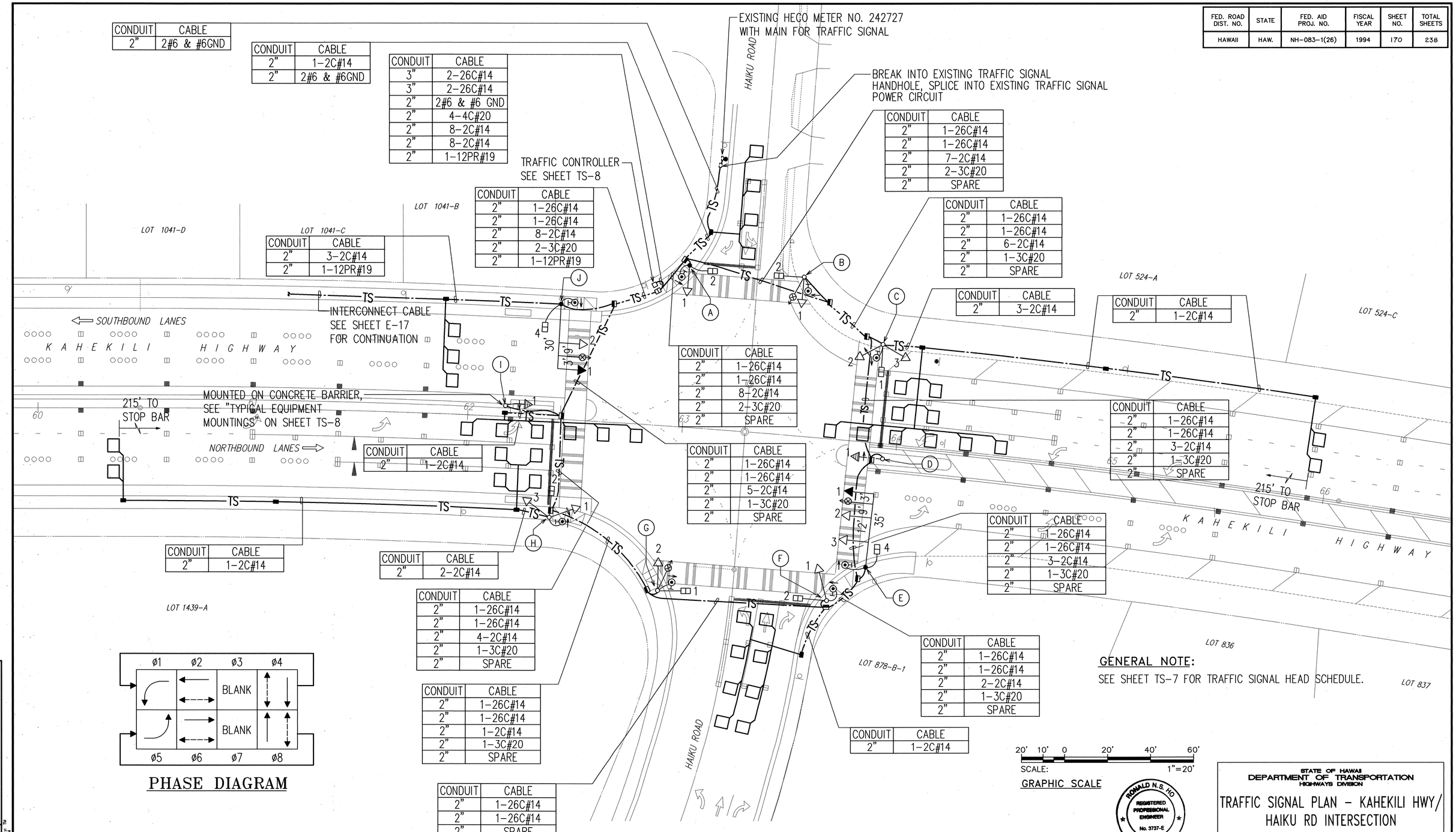
"AS-BUILT"

CO. 77

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

LAST SAVE: GR 07/17/09 09:51:11 BY: RICHARD.GRAHAM
Y:\Aloha\projects\2411\B Oahu\B-811\PS\CD\2-2411A_Plan09 XREFS: XREF-ELEC_KAHEKILI KAHEKILI WESTINT SCHEMATIC TOPO_KAHEKILI BASE_KAHEKILI 2411JA-ALL

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	170	238



CONDUIT	CABLE
2"	2#6 & #6GND

CONDUIT	CABLE
2"	1-2C#14
2"	2#6 & #6GND

CONDUIT	CABLE
3"	2-26C#14
3"	2-26C#14
2"	2#6 & #6 GND
2"	4-4C#20
2"	8-2C#14
2"	8-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14
2"	2-3C#20
2"	1-12PR#19

CONDUIT	CABLE
2"	3-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	7-2C#14
2"	2-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	3-2C#14

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14
2"	2-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	5-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	3-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	2-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	1-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	SPARE

PHASE DIAGRAM

TRAFFIC SIGNAL PLAN – KAHEKILI HWY / HAIKU RD INTERSECTION

SCALE: 1"=20'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN – KAHEKILI HWY/ HAIKU RD INTERSECTION

KAHEKILI HIGHWAY WIDENING

Likelike Hwy. to Vicinity of Haiku Road

PROJECT NO. NH-083-1(26)

SCALE: AS NOTED DATE: APRIL 1994

SHEET No. TS-6 OF TS-13 SHEETS

RONALD N.S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

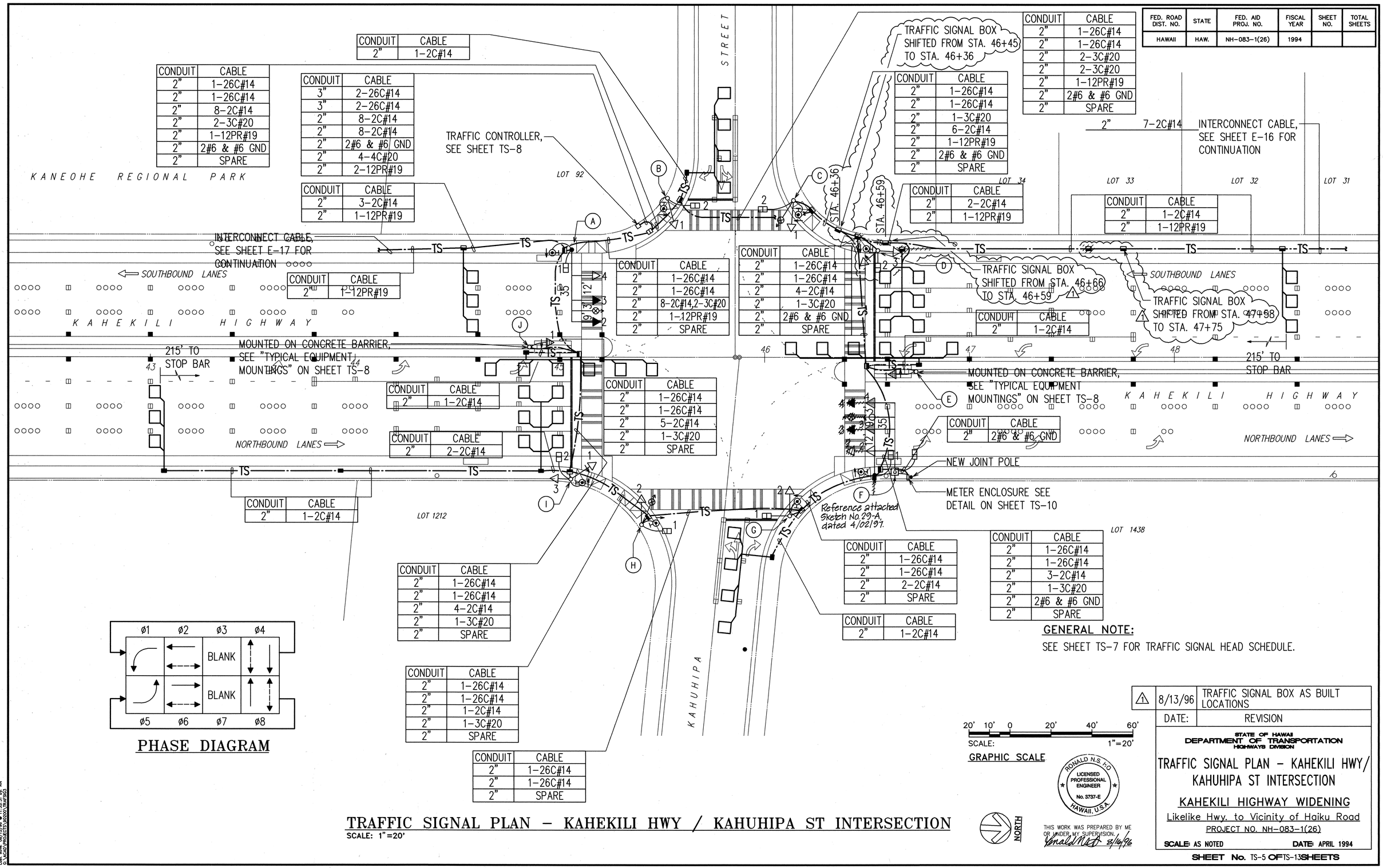
5/4/94

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | NOTE BOOK | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

Last save: 05/04/94 07:56:39 by: hh
H:\CADD\PROJECTS\96200\TRAFS04

AS-BUILT 170

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994		



CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
3"	2-26C#14
3"	2-26C#14
2"	8-2C#14
2"	8-2C#14
2"	2#6 & #6 GND
2"	4-4C#20
2"	2-12PR#19

CONDUIT	CABLE
2"	3-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14,2-3C#20
2"	1-12PR#19
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	5-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	1-3C#20
2"	6-2C#14
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	2-3C#20
2"	2-3C#20
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	7-2C#14

CONDUIT	CABLE
2"	1-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2#6 & #6 GND

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	3-2C#14
2"	1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	2-2C#14
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	1-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	SPARE

GENERAL NOTE:

SEE SHEET TS-7 FOR TRAFFIC SIGNAL HEAD SCHEDULE.

PHASE DIAGRAM

TRAFFIC SIGNAL PLAN – KAHEKILI HWY / KAHUHIPA ST INTERSECTION

SCALE: 1"=20'

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

NORTH

RONALD N.S. HO
LICENSED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
8/14/96

1	8/13/96	TRAFFIC SIGNAL BOX AS BUILT LOCATIONS
DATE:		REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN – KAHEKILI HWY/ KAHUHIPA ST INTERSECTION

KAHEKILI HIGHWAY WIDENING

Likelike Hwy. to Vicinity of Haiku Road

PROJECT NO. NH-083-1(26)

SCALE: AS NOTED DATE: APRIL 1994

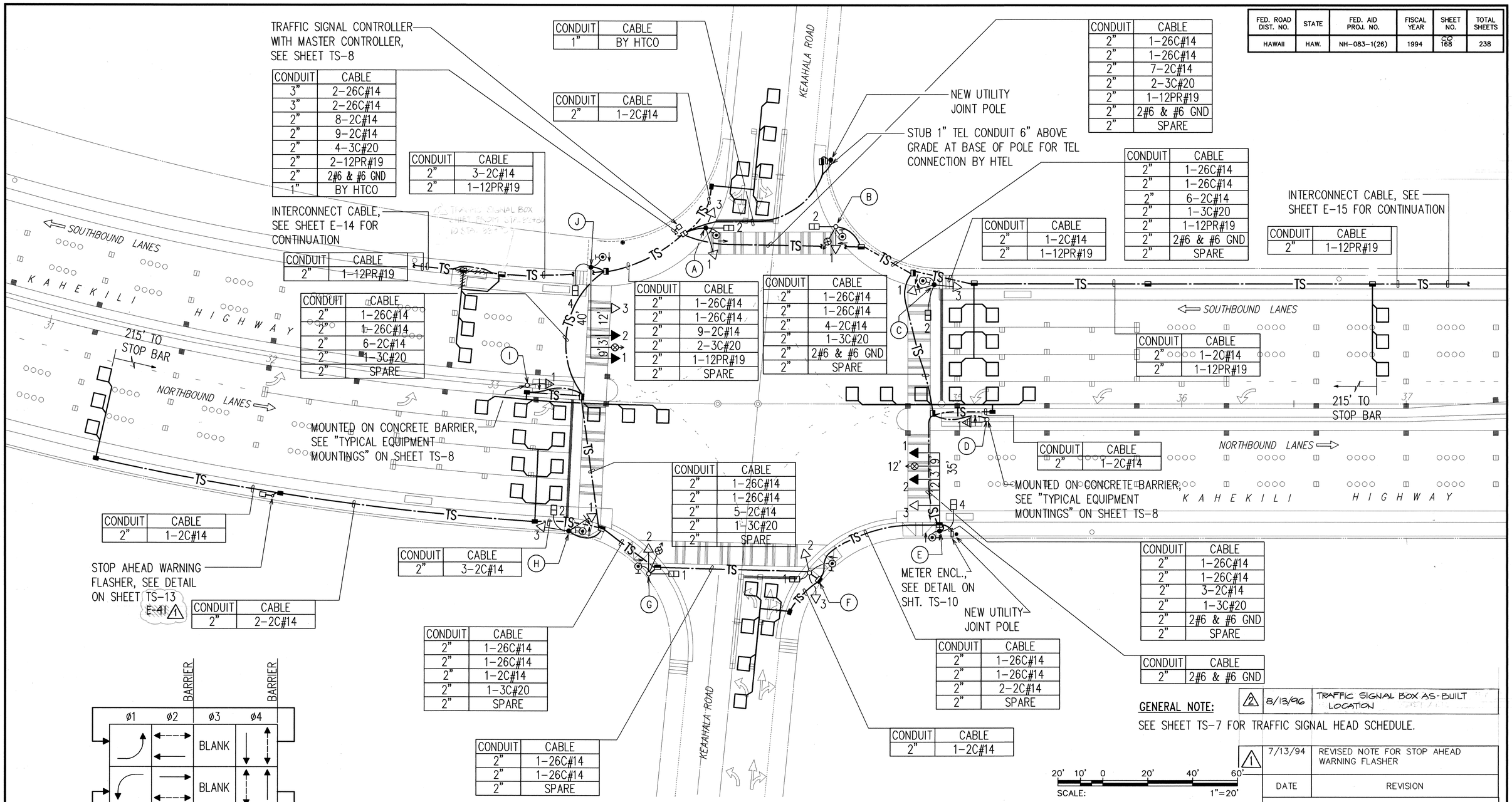
SHEET No. TS-5 OF TS-13 SHEETS

ORIGINAL PLAN — SURVEY PLOTTED BY ___ DATE ___; DRAWN BY ___; TRACED BY ___; DESIGNED BY ___; QUANTITIES BY ___; NOTE BOOK No. ___; CHECKED BY ___

Last save: 08/15/96 ● 11:35:31 by RN
G:\ACAD\PROJECTS\40000\TRAF\SIG

AS-BUILT 169

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	168	238



CONDUIT	CABLE
3"	2-26C#14
3"	2-26C#14
2"	8-2C#14
2"	9-2C#14
2"	4-3C#20
2"	2-12PR#19
2"	2#6 & #6 GND
1"	BY HTCO

CONDUIT	CABLE
1"	BY HTCO

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	3-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	9-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	7-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-12PR#19

CONDUIT	CABLE
2"	1-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	3-2C#14

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	5-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	1-2C#14
2"	1-3C#20
2"	SPARE

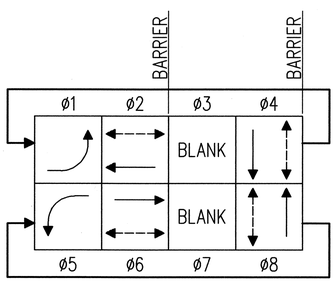
CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	2-2C#14
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	3-2C#14
2"	1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	2#6 & #6 GND



PHASE DIAGRAM

GENERAL NOTE:

SEE SHEET TS-7 FOR TRAFFIC SIGNAL HEAD SCHEDULE.

2	8/13/96	TRAFFIC SIGNAL BOX AS-BUILT LOCATION
1	7/13/94	REVISED NOTE FOR STOP AHEAD WARNING FLASHER
	DATE	REVISION

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

NORTH

RONALD N.S. HO REGISTERED PROFESSIONAL ENGINEER No. 9737-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

9/20/94

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - KAHEKILI HWY/ KEAAHALA RD INTERSECTION

KAHEKILI HIGHWAY WIDENING

Likelike Hwy. to Vicinity of Haiku Road

PROJECT NO. NH-083-1(26)

SCALE: AS NOTED DATE: APRIL 1994

SHEET No. TS-4 OF TS-13 SHEETS

TRAFFIC SIGNAL PLAN - KAHEKILI HWY / KEAAHALA RD INTERSECTION

SCALE: 1"=20'

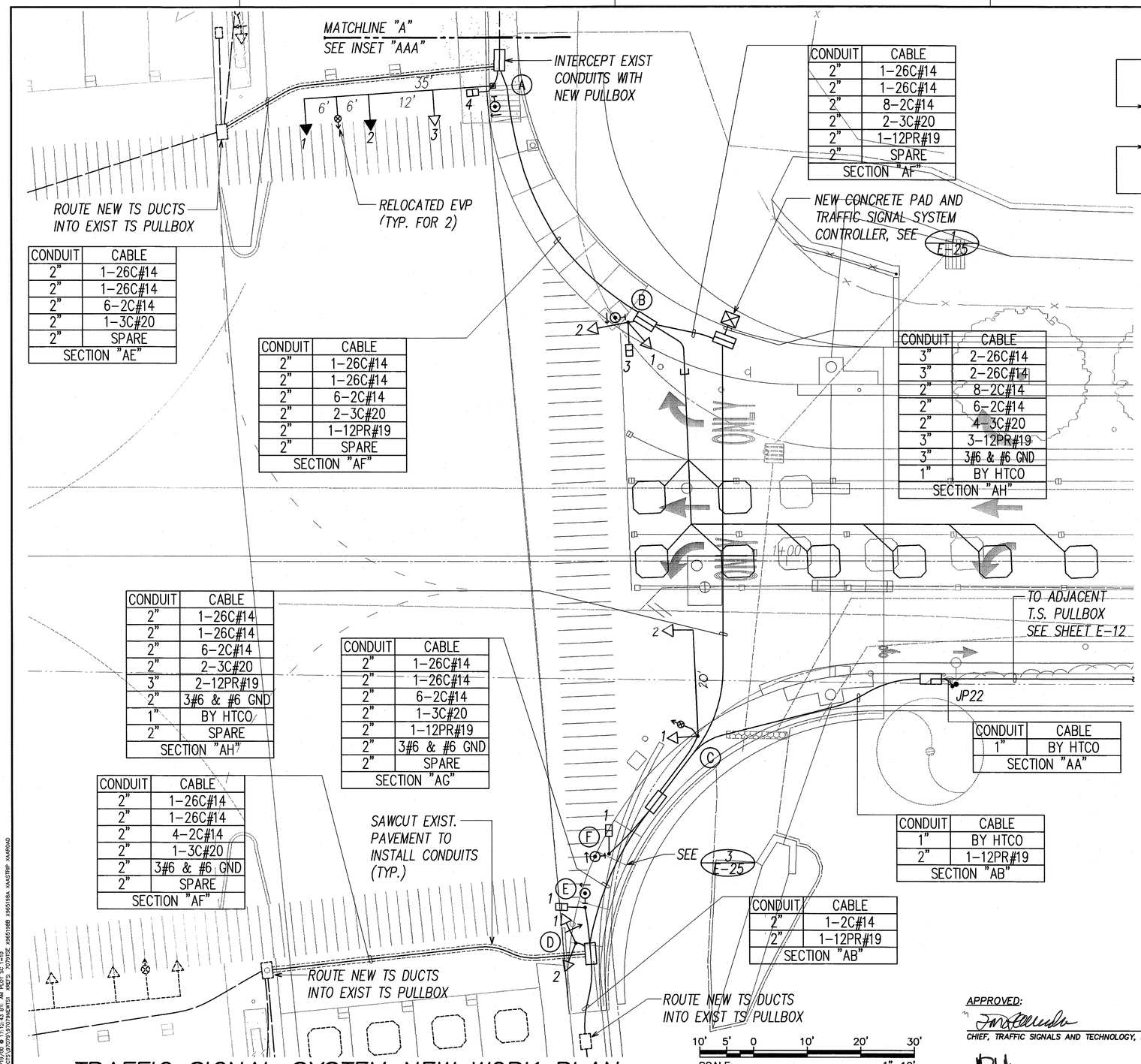
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

NOTE BOOK No.

Last save: 08/01/96 ● 15:49:06 by LM
H:\ACAD\PROJECTS\96060\TRAFS02

AS-BUILT CO 168

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-03-97	2000	95	110



CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	SPARE
SECTION "AE"	

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	SPARE
SECTION "AF"	

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	SPARE
SECTION "AF"	

CONDUIT	CABLE
3"	2-26C#14
3"	2-26C#14
2"	8-2C#14
2"	6-2C#14
2"	4-3C#20
3"	3-12PR#19
3"	3#6 & #6 GND
1"	BY HTCO
SECTION "AH"	

CONDUIT	CABLE
EX 2"	3-2C#14
EX 2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	2-3C#20
3"	2-12PR#19
2"	3#6 & #6 GND
1"	BY HTCO
2"	SPARE
SECTION "AH"	

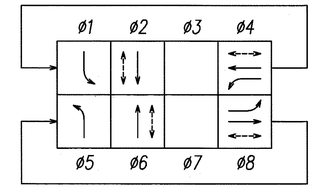
CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	1-12PR#19
2"	3#6 & #6 GND
2"	SPARE
SECTION "AG"	

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	3#6 & #6 GND
2"	SPARE
SECTION "AF"	

CONDUIT	CABLE
1"	BY HTCO
SECTION "AA"	

CONDUIT	CABLE
1"	BY HTCO
2"	1-12PR#19
SECTION "AB"	

CONDUIT	CABLE
2"	1-2C#14
2"	1-12PR#19
SECTION "AB"	



EXIST PHASE DIAGRAM

TRAFFIC SIGNAL HEAD SCHEDULE

TRAFFIC SIGNAL HEAD TYPE AND DESCRIPTION	POLE LETTER-SIGNAL HEAD NUMBER
(R) (Y) (G) 12" RYG TRAFFIC SIGNAL HEAD	A-3 B-1 B-2 C-1 C-2 D-2
(R) (Y) (G) 12" RYGA TRAFFIC SIGNAL HEAD	D-1
(R) (Y) (G↑) 12" RYGA TRAFFIC SIGNAL HEAD	A-1 A-2
PEDESTRIAN SIGNAL HEAD	A-4 B-3 E-1 F-1

INSET "AAA"

SCALE: 1"=10'

TRAFFIC SIGNAL SYSTEM NEW WORK PLAN

SCALE: 1"=10'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	
NOTE BOOK		

LAST SAVE: 04/10/00 10:00 AM PLOTTED: 04/10/00 10:00 AM
Z:\CADD\PROJECTS\0779\0779EWTS1.DGN PRFS: 0779SE X9551988 Y9551984 XAASTRIP XAARAND

APPROVED:

CHIEF, TRAFFIC SIGNALS AND TECHNOLOGY, DTS — DATE 5/2/00

CHIEF, TRAFFIC REVIEW BRANCH DEPARTMENT OF PLANNING AND PERMITTING — DATE 5/5/00

ANDREW I. MIYASATO LICENSED PROFESSIONAL ENGINEER No. 4340-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
5/2/00
RONALD N. S. HO & ASSOC., INC.
ELECTRICAL ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

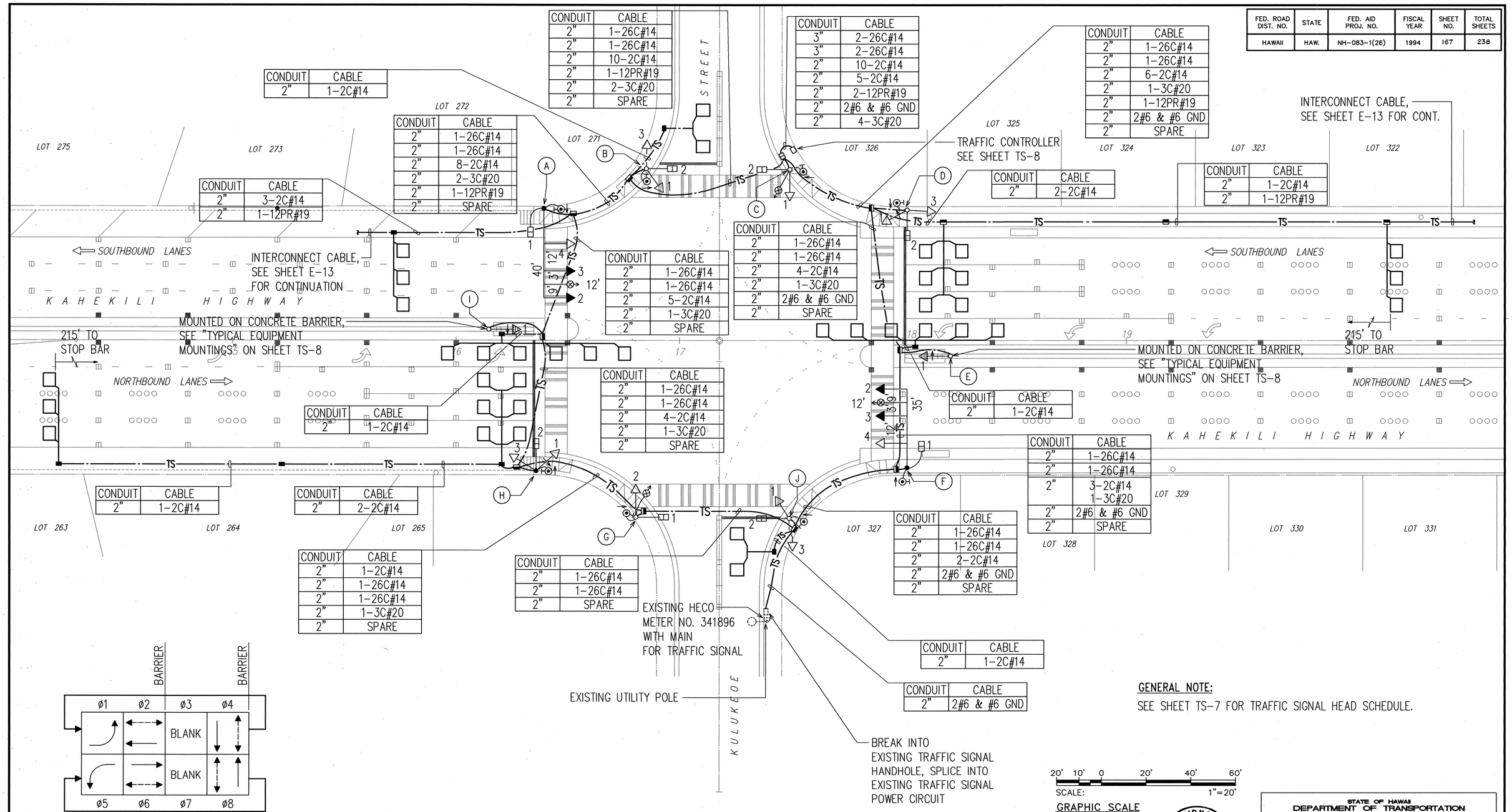
TRAFFIC SIGNAL SYSTEM NEW WORK PLAN

KEA'AHALA ROAD WIDENING
KAHEKILI HIGHWAY TO PO'OKELA STREET
State Project No. HWY-0-03-97

SCALE: AS NOTED — DATE: APRIL 2000

SHEET No. E-22.1 OF E-42 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	167	238



CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	10-2C#14
2"	1-12PR#19
2"	2-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	8-2C#14
2"	2-3C#20
2"	1-12PR#19
2"	SPARE

CONDUIT	CABLE
2"	3-2C#14
2"	1-12PR#19

CONDUIT	CABLE
3"	2-26C#14
3"	2-26C#14
2"	10-2C#14
2"	5-2C#14
2"	2-12PR#19
2"	2#6 & #6 GND
2"	4-3C#20

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	6-2C#14
2"	1-3C#20
2"	1-12PR#19
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14
2"	1-12PR#19

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	5-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	4-2C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	3-2C#14 1-3C#20
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2-2C#14

CONDUIT	CABLE
2"	1-2C#14
2"	1-26C#14
2"	1-26C#14
2"	1-3C#20
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	SPARE

CONDUIT	CABLE
2"	1-26C#14
2"	1-26C#14
2"	2-2C#14
2"	2#6 & #6 GND
2"	SPARE

CONDUIT	CABLE
2"	1-2C#14

CONDUIT	CABLE
2"	2#6 & #6 GND

PHASE DIAGRAM

GENERAL NOTE:

SEE SHEET TS-7 FOR TRAFFIC SIGNAL HEAD SCHEDULE.

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

NORTH

RONALD N. S. HO
REGISTERED PROFESSIONAL ENGINEER
No. 3737-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

5/4/94

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - KAHEKILI HWY/ KULUKEOE ST INTERSECTION

KAHEKILI HIGHWAY WIDENING

Likelike Hwy. to Vicinity of Haiku Road

PROJECT NO. NH-083-1(26)

SCALE: AS NOTED DATE: APRIL 1994

SHEET No. TS-3 OF TS-13 SHEETS

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

Last save: 05/04/94 @ 08:14:44 by: N
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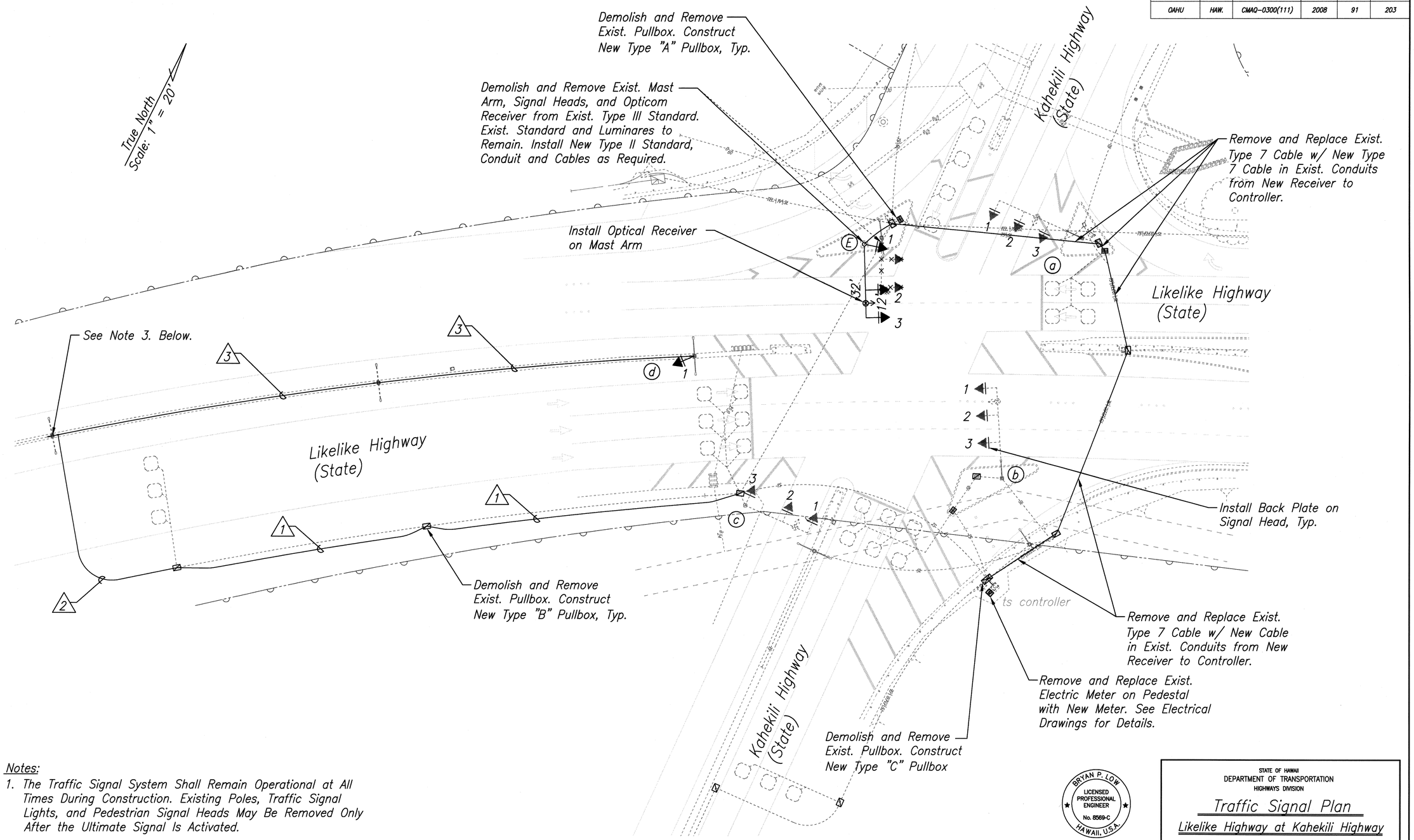
TRAFFIC SIGNAL PLAN - KAHEKILI HWY / KULUKEOE ST INTERSECTION

SCALE: 1"=20'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	91	203



Notes:

1. The Traffic Signal System Shall Remain Operational at All Times During Construction. Existing Poles, Traffic Signal Lights, and Pedestrian Signal Heads May Be Removed Only After the Ultimate Signal Is Activated.
2. See Sheet 92 for List of Materials.
3. Route Type 1 Cable through Existing SL to Existing SL box in Existing Type 4G Concrete Barrier.

Traffic Signal Plan
Scale: 1"=20'

BRYAN P. LOW
LICENSED PROFESSIONAL ENGINEER
No. 8569-C
HAWAII, U.S.A.

LICENSE EXPIRATION DATE 04/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126-12TH Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Traffic Signal Plan

Likelike Highway at Kahekili Highway

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

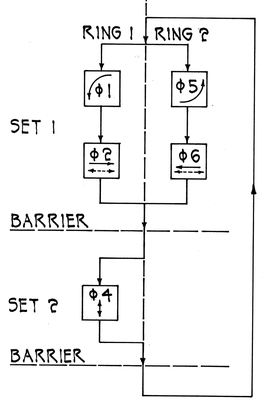
Date: July, 2008

SHEET No. 1 OF 2 SHEETS

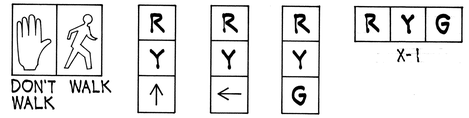
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY ENGR.	
NOTE BOOK	TRACED BY B.L.	
	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

Plot Date: Jul 30 2008 Plot Time: 9:04 am
File: S:\Bpl\DOT Oahu Various TSM\arrow\Lgp-likelike02.dwg

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83G-02-82	1982	3	16



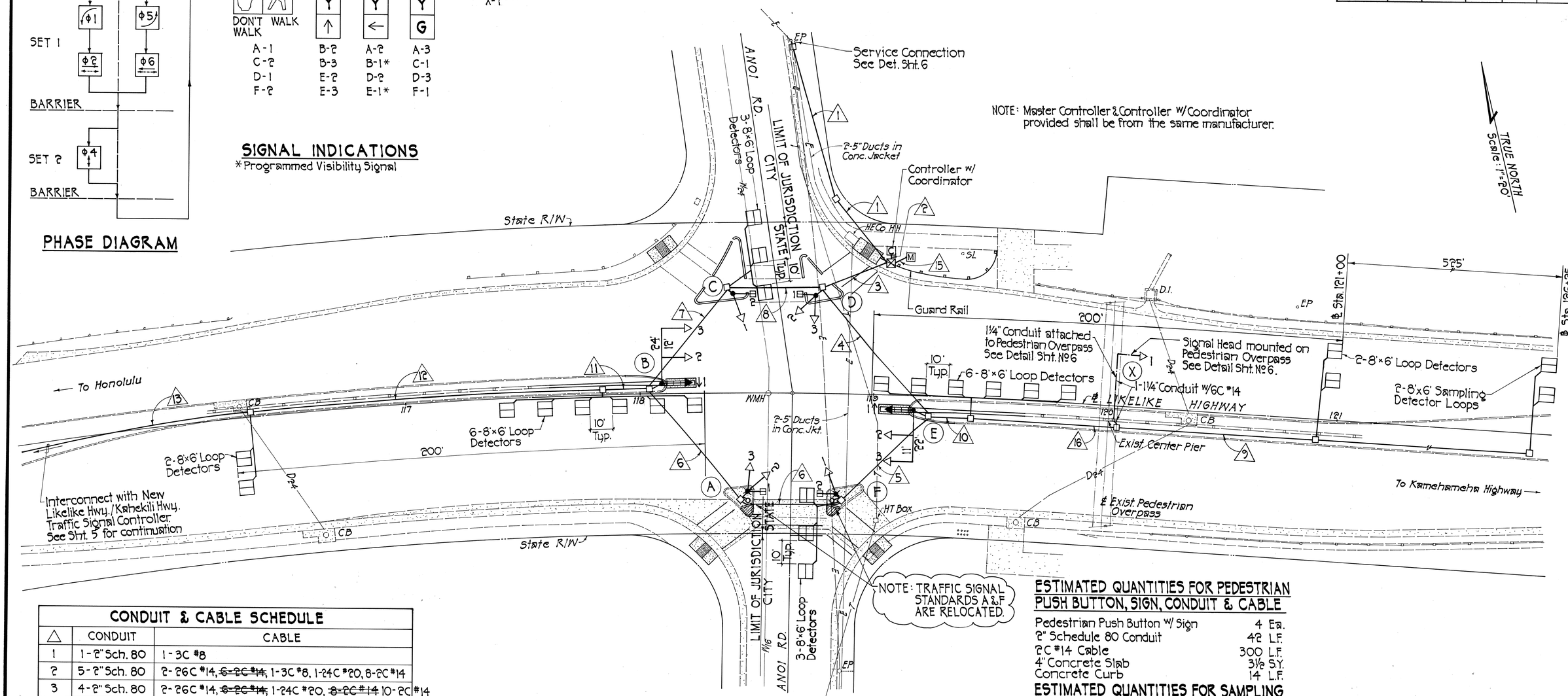
PHASE DIAGRAM



A-1	B-2	A-2	A-3
C-2	B-3	B-1*	C-1
D-1	E-2	D-2	D-3
F-2	E-3	E-1*	F-1

SIGNAL INDICATIONS

*Programmed Visibility Signal



PLAN

Scale: 1"=20'

CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE
1	1-2" Sch. 80	1-3C #8
2	5-2" Sch. 80	2-26C #14, ~~6-2C #14~~, 1-3C #8, 1-24C #20, 8-2C #14
3	4-2" Sch. 80	2-26C #14, ~~6-2C #14~~, 1-24C #20, ~~8-2C #14~~ 10-2C #14
4	2-2" Sch. 80	1-26C #14, ~~3-2C #14~~, ~~5-2C #14~~ 6-2C #14
5	2-2" Sch. 80	1-26C #14, ~~1-2C #14~~ 2-2C #14
6	2-2" Sch. 80	1-26C #14, 1-2C #14
7	3-2" Sch. 80	1-26C #14, 2-2C #14, 1-24C #20
8	3-2" Sch. 80	1-26C #14, ~~3-2C #14~~, 1-24C #20, 4-2C #14
9	1-2" Sch. 80	~~1-2C #14~~ 3-2C #14
10	2-2" Sch. 80	~~2-2C #14~~, 1-6C #14 4-2C #14
11	2-2" Sch. 80	1-24C #20, 2-2C #14
12	2-2" Sch. 80	1-24C #20, 1-2C #14
13	1-2" Sch. 80	1-24C #20
14	5-2" Sch. 80	1-3C #8, 1-2C #10, 4-2C #14, 2-19C #14, 1-24C #20
15	2-2" Sch. 80	1-3C #8, 1-24C #20, 2-2C #14
16	2-2" Sch. 80	~~1-2C #14~~, 1-6C #14, 3-2C #14

ESTIMATED QUANTITIES FOR PEDESTRIAN PUSH BUTTON, SIGN, CONDUIT & CABLE

Pedestrian Push Button w/ Sign	4 Ea.
2" Schedule 80 Conduit	42 L.F.
2C #14 Cable	300 L.F.
4" Concrete Slab	3½ S.Y.
Concrete Curb	14 L.F.

ESTIMATED QUANTITIES FOR SAMPLING DETECTOR LOOPS AT ℄ STA. 126+25

Sampling Detector Loops	2 Ea.
2" Schedule 80 Conduit	525 L.F.
2C #14 Cable	1620 L.F.
Type B Pullbox	4 Ea.

APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW — DATE 4/26/83
(APPROVED FOR CONSTRUCTION W/IN CITY R/W ONLY)

for CHIEF, PLANNING & ENGINEERING, BWS — DATE 3-11-83

HAROLD I. YOSHIZAKI — REGISTERED PROFESSIONAL ENGINEER No. 2091 — HAWAII, U.S.A.

DATE	REVISION
3-8-83	Added Pedestrian Push Button, Sign, Conduit, Cable, Relocated Std. A & F & Reconstr. Conc. Curb & Slab.
8-26-82	Added Sampling Detector Loops at ℄ Sta. 126+25 including Conduits, Cables & Pullboxes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNALS ON LIKELIKE HIGHWAY AT ANOI ROAD

PLAN - TRAFFIC SIGNAL SYSTEM

PROJECT NO. 83G-02-82
SCALE: 1"=20'

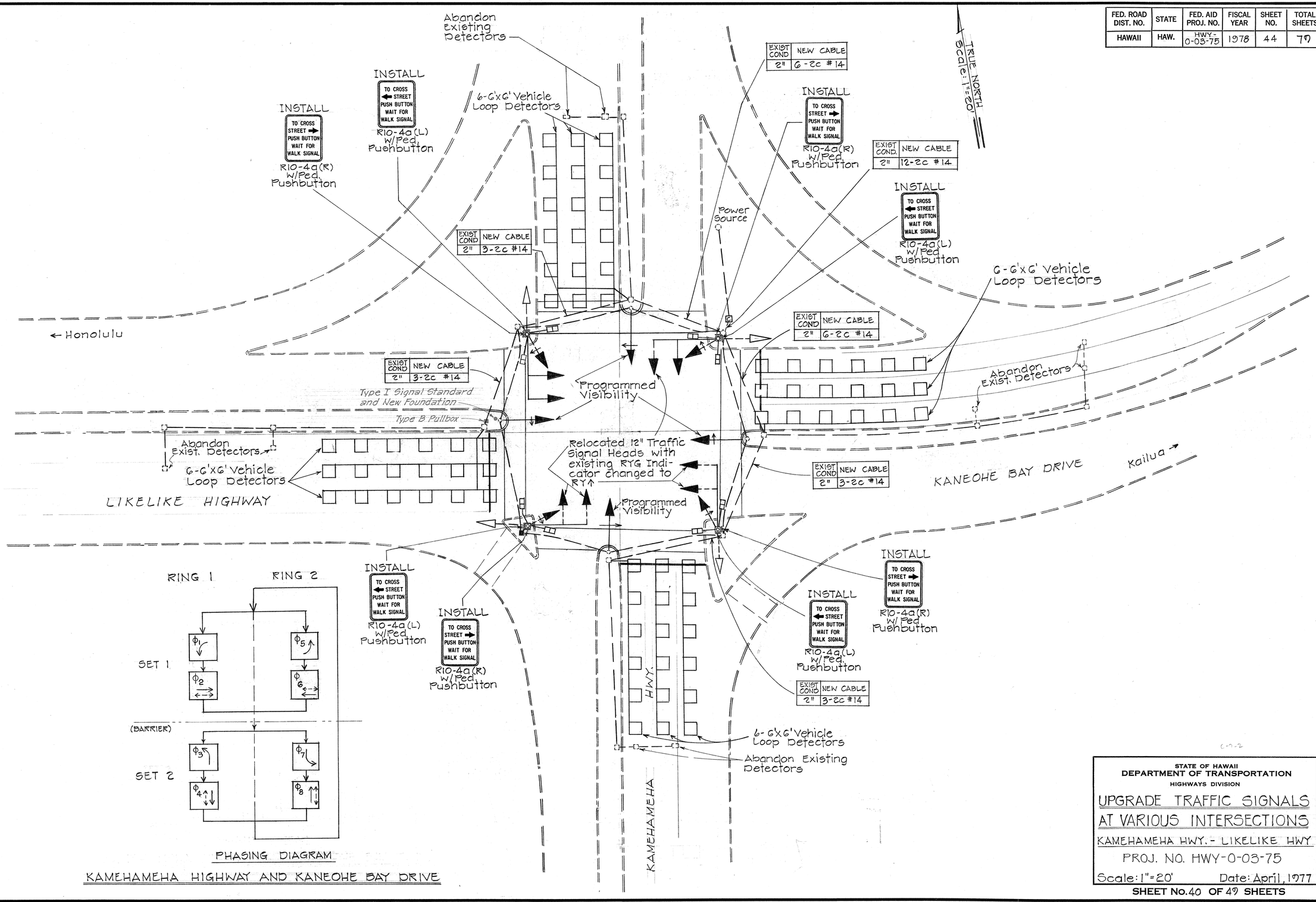
SHEET No. 3 OF 16 SHEETS

C.O. 3

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

File No. DD-0-5-5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-0-03-75	1978	44	79



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UPGRADE TRAFFIC SIGNALS AT VARIOUS INTERSECTIONS

KAMEHAMEHA HWY. - LIKELIKE HWY

PROJ. NO. HWY-0-03-75

Scale: 1"=20' Date: April, 1977

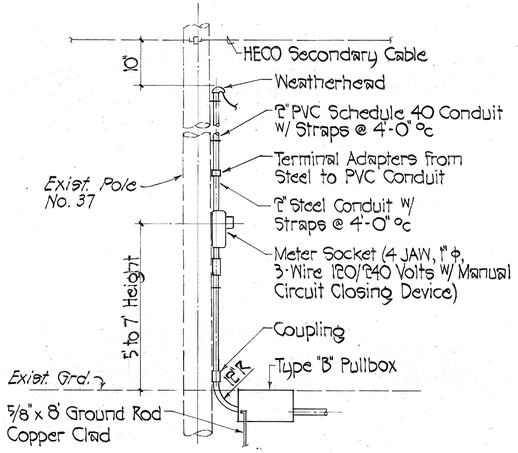
SHEET No. 40 OF 79 SHEETS

44

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

5-5-0

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83G-01-89	1989	4	6

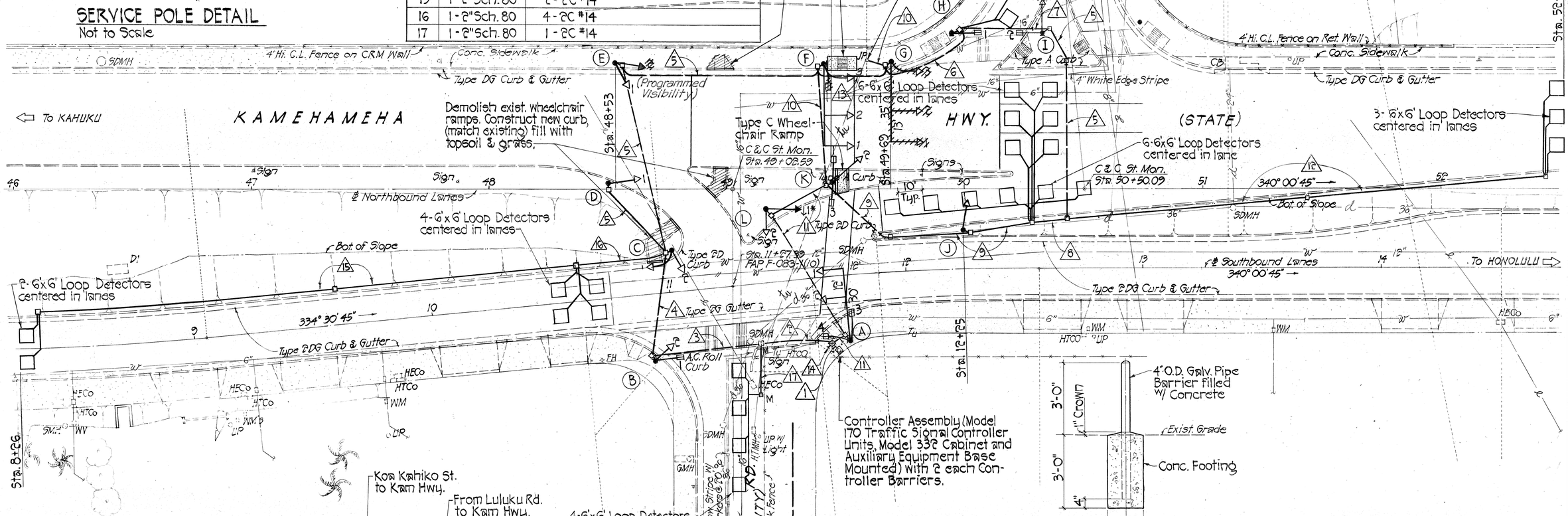


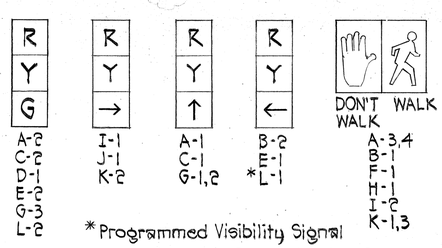
SERVICE POLE DETAIL

Not to Scale

CONDUIT & CABLE SCHEDULE

△	CONDUIT	CABLE
1	6-2" Sch. 80	2-2GC #14, 1-3C #4, 16-2C #14
2	2-2" Sch. 80	1-2GC #14, 6-2C #14
3	2-2" Sch. 80	1-2GC #14, 5-2C #14
4	2-2" Sch. 80	1-2GC #14, 4-2C #14
5	1-2" Sch. 80	1-2GC #14
6	2-2" Sch. 80	1-2GC #14, 2-2C #14
7	2-2" Sch. 80	1-2GC #14, 1-2C #14
8	2-2" Sch. 80	1-2GC #14, 3-2C #14
9	3-2" Sch. 80	1-2GC #14, 7-2C #14
10	2-2" Sch. 80	1-3C #4, 3-2C #14
11	4-2" Sch. 80	1-2GC #14, 1-3C #4, 10-2C #14
12	1-2" Sch. 80	3-2C #14
13	3-2" Sch. 80	1-2GC #14, 2-2C #14, 1-3C #4
14	1-2" Sch. 80	Provide 1'-0" long stub-out w/cap
15	1-2" Sch. 80	2-2C #14
16	1-2" Sch. 80	4-2C #14
17	1-2" Sch. 80	1-2C #14



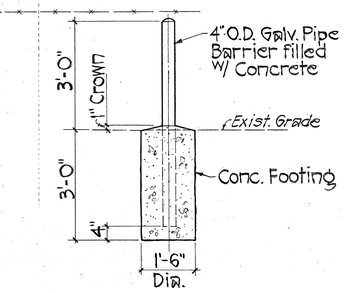


* Programmed Visibility Signal

SIGNAL INDICATIONS

PHASE DIAGRAM

NOTE:
Signals D-1 & E-2 shall display the green signal in Phase 1 in addition to I-1, J-1 & K-2. D-1 & E-2 shall remain green in Phase 2.



CONTROLLER BARRIER

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

APPROVED:

M. Fukuyama 8/16/88
CHIEF, DIVISION OF ENGINEERING, DPW C&C OF HONOLULU (FOR CONSTRUCTION WITHIN CITY R/W ONLY) — DATE

R. Nagato 9-1-88
for CHIEF, PLANNING & ENGINEERING, BWS — DATE

HAROLD I. YOSHIZAKI REGISTERED PROFESSIONAL ENGINEER No. 2091-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Harold I. Yoshizaki

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY TRAFFIC SIGNALS AT LULUKU ROAD

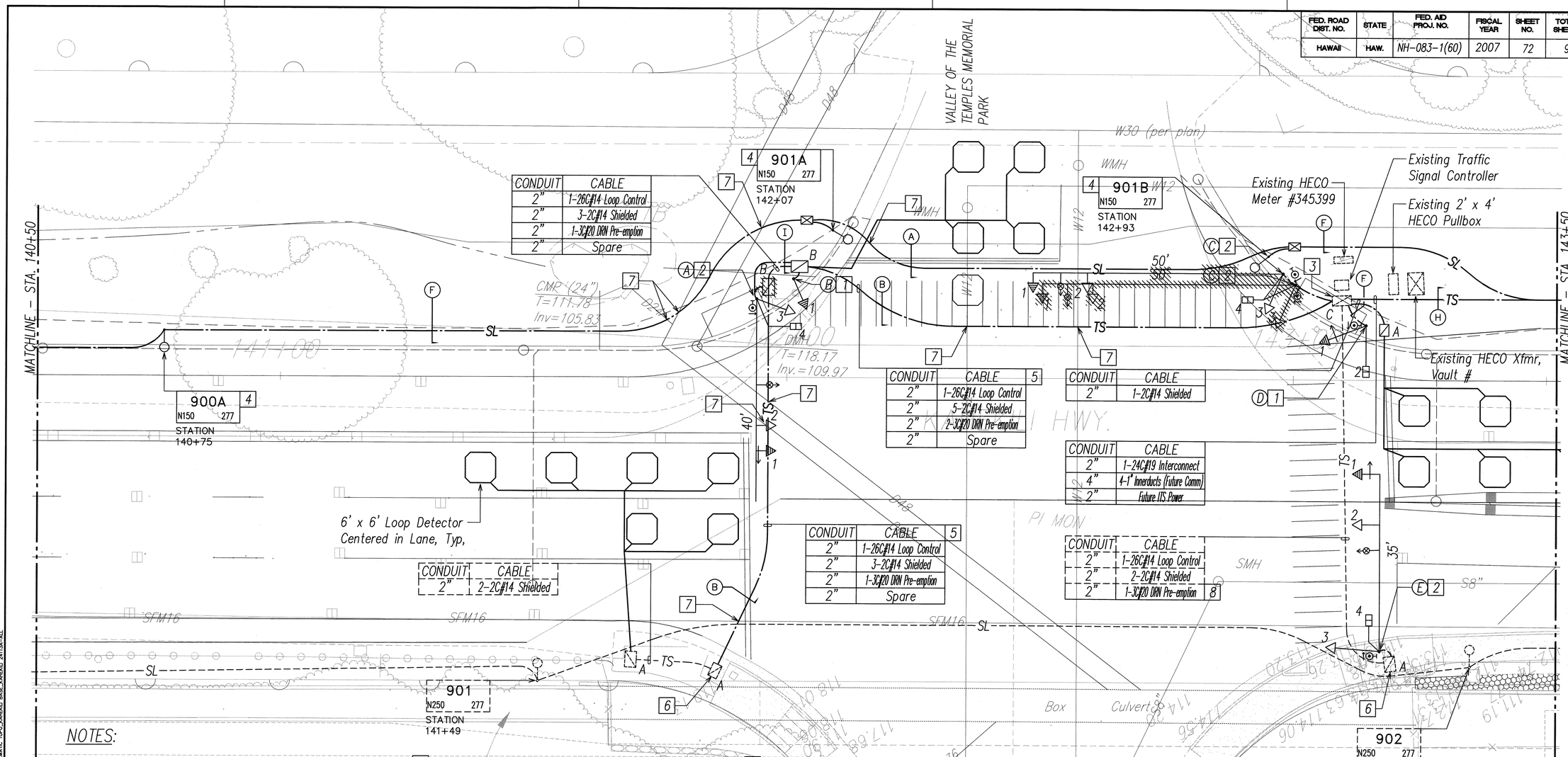
PROJECT NO. 83G-01-89

SCALE: As Noted DATE: OCT. 1988

SHEET No. 1 OF 1 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(60)	2007	72	90



CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	3-2C#14 Shielded
2"	1-3C#20 DRN Pre-emption
2"	Spare

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	5-2C#14 Shielded
2"	2-3C#20 DRN Pre-emption
2"	Spare

CONDUIT	CABLE
2"	1-2C#14 Shielded

CONDUIT	CABLE
2"	1-24C#19 Interconnect
4"	4-1" Innerducts (Future Comm)
2"	Future ITS Power

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	3-2C#14 Shielded
2"	1-3C#20 DRN Pre-emption
2"	Spare

CONDUIT	CABLE
2"	2-2C#14 Shielded

CONDUIT	CABLE
2"	1-26C#14 Loop Control
2"	2-2C#14 Shielded
2"	1-3C#20 DRN Pre-emption

NOTES:

1. Relocate all existing street signs to new traffic signal poles.
2. [1] Provide type I-10 standard and new signal heads installed. Provide all necessary mounting equipment and accessories as required. Provide ADA compliant pedestrian push button where indicated. See details on sheets E-22, E-23 and E-24.

[2] Provide type II standard with mast arm length as specified and new signal heads installed. Provide all necessary mounting equipment and accessories as required. Provide ADA compliant pedestrian push button where indicated. See details on sheets E-22, E-23 and E-24.

[3] Adjust height of existing traffic signal pullbox to level with new concrete landing.

[4] Setback Condition No. 2. See sheet E-29 for detail.

[5] Sawcut & patch existing A/C pavement to install new conduit(s).

[6] Splice existing & new traffic signal conductors in existing pullbox.

[7] New conduit to cross existing underground utilities. See sheet E-4 for conduit routing & Trench Restoration Details.

[8] Pull new traffic signal cable in existing conduit.

NORTH

ELECTRICAL PLAN IV
SCALE: 1"=10'

APPROVED BY:

CHIEF, WASTEWATER BRANCH, DPP — DATE

DIRECTOR, CITY DEPARTMENT OF ENVIRONMENTAL SERVICES — DATE

10' 5' 0 10' 20' 30'
SCALE: 1"=10'
GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

SIGNATURE
APRIL 30, 2012
EXPIRATION DATE OF LICENSE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

DATE	REVISION
3/9/09	Revised traffic signal wiring
2/23/09	Revised mast arm lengths

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN IV

KAHEKILI HIGHWAY INTERSECTION IMPROVEMENTS
VICINITY OF HUI IWA STREET
FEDERAL-AID PROJECT NO. NH-083-1(60)

SCALE: As Noted — DATE: April 2007

SHEET No. E-14 OF 32 SHEETS

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

LAST SAVE: 06/17/11 @ 09:09:40 BY: RN PLOT SC 1=10
Y:\Local\projects\24113A\As-Built\e14_PG22_24113A_Plan04.XREFS: XREF-ELEC_KAHEKILI KANEKILI WESTINT SCHEMATIC TOPO_KANEKILI BASE_KANEKILI 24113A-ALL

"AS-BUILT"

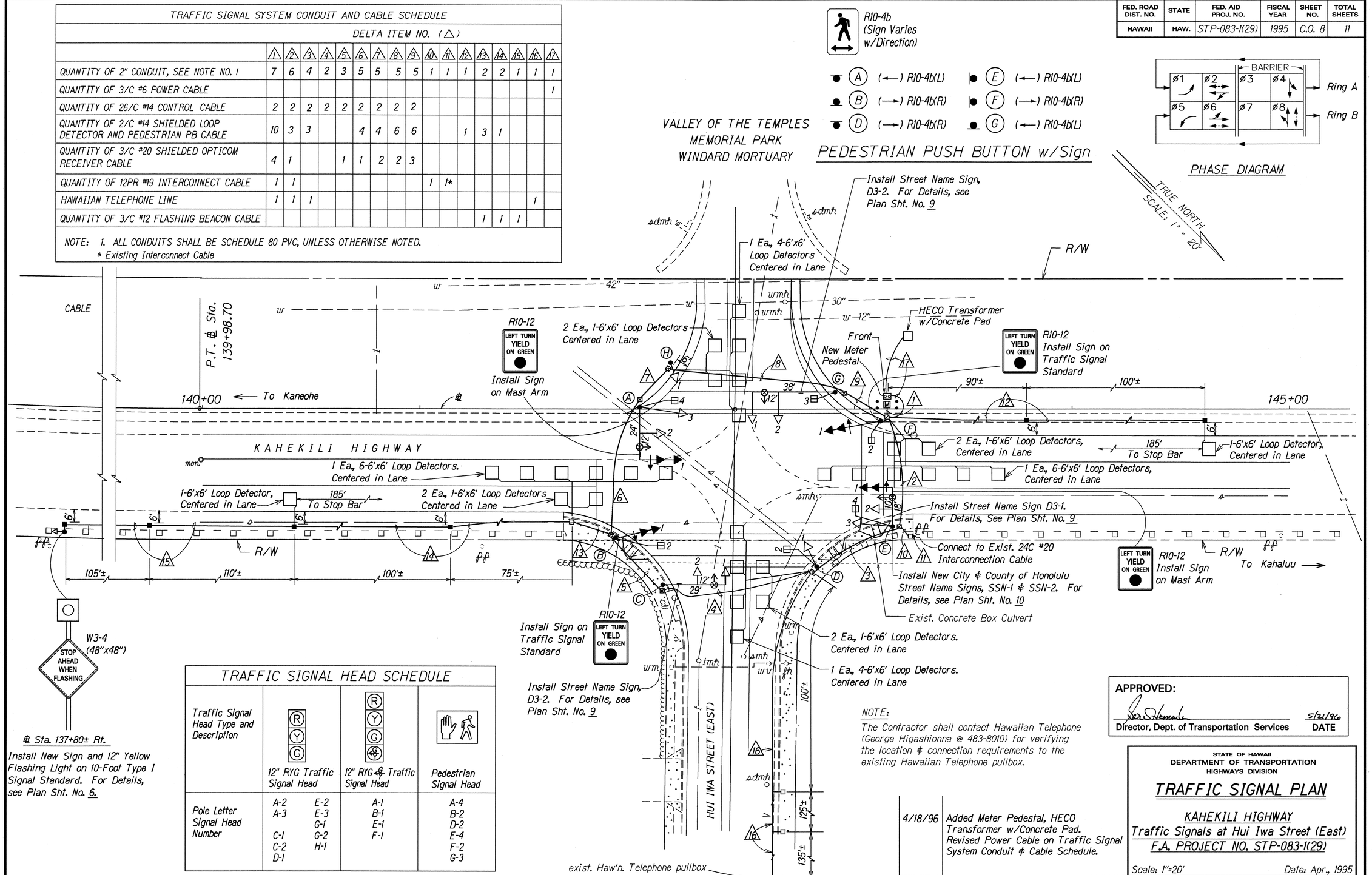
CO. 72

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-083-1(29)	1995	C.O. 8	11

TRAFFIC SIGNAL SYSTEM CONDUIT AND CABLE SCHEDULE

	DELTA ITEM NO. (△)																
	△1	△2	△3	△4	△5	△6	△7	△8	△9	△10	△11	△12	△13	△14	△15	△16	△17
QUANTITY OF 2" CONDUIT, SEE NOTE NO. 1	7	6	4	2	3	5	5	5	5	1	1	1	2	2	1	1	1
QUANTITY OF 3/C #6 POWER CABLE																	1
QUANTITY OF 26/C #14 CONTROL CABLE	2	2	2	2	2	2	2	2	2								
QUANTITY OF 2/C #14 SHIELDED LOOP DETECTOR AND PEDESTRIAN PB CABLE	10	3	3			4	4	6	6			1	3	1			
QUANTITY OF 3/C #20 SHIELDED OPTICOM RECEIVER CABLE	4	1			1	1	2	2	3								
QUANTITY OF 12PR #19 INTERCONNECT CABLE	1	1								1	1*						
HAWAIIAN TELEPHONE LINE	1	1	1													1	
QUANTITY OF 3/C #12 FLASHING BEACON CABLE													1	1	1		

NOTE: 1. ALL CONDUITS SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED.
* Existing Interconnect Cable



TRAFFIC SIGNAL HEAD SCHEDULE

Traffic Signal Head Type and Description	12" RYG Traffic Signal Head		12" RYG & Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	A-2 A-3 C-1 C-2 D-1	E-2 E-3 G-1 G-2 H-1	A-1 B-1 E-1 F-1	A-4 B-2 D-2 E-4 F-2 G-3

NOTE:
The Contractor shall contact Hawaiian Telephone (George Higashionna @ 483-8010) for verifying the location & connection requirements to the existing Hawaiian Telephone pullbox.

DATE	REVISION
4/18/96	Added Meter Pedestal, HECO Transformer w/Concrete Pad. Revised Power Cable on Traffic Signal System Conduit & Cable Schedule.

APPROVED:
Director, Dept. of Transportation Services — DATE 5/21/96

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAHEKILI HIGHWAY
Traffic Signals at Hui Iwa Street (East)
F.A. PROJECT NO. STP-083-1(29)

Scale: 1"=20' Date: Apr., 1995

SHEET No. 1 OF 1 SHEETS

ORIGINAL PLAN — SURVEY PLOTTED BY / DRAWN BY E.Bailo 10/96 / TRACED BY Casey Abe / DESIGNED BY / NOTE BOOK Tolentino, Wilkinson / QUANTITIES BY / CHECKED BY / DATE 3/94

C.O. 8

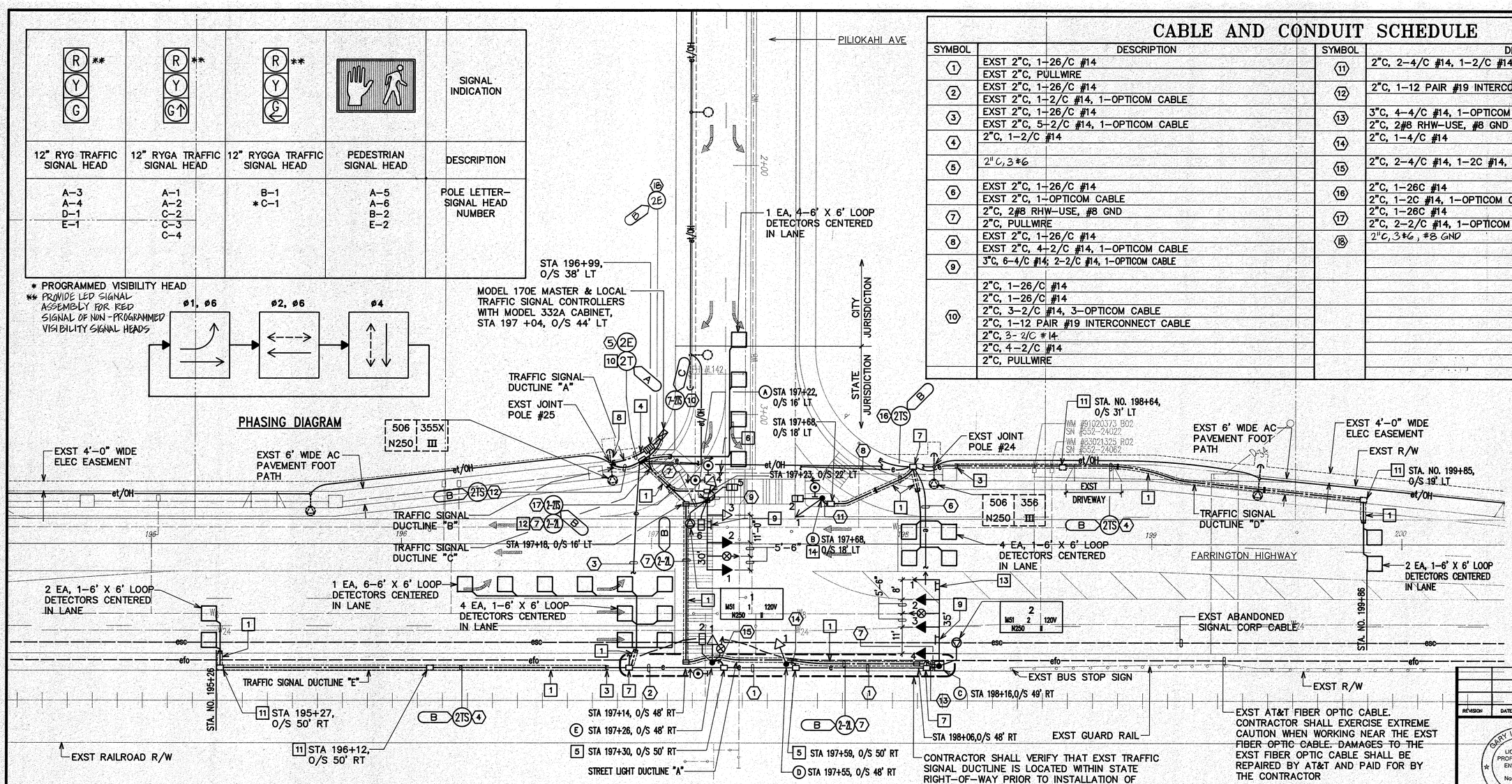
12" RYG TRAFFIC SIGNAL HEAD	12" RYGA TRAFFIC SIGNAL HEAD	12" RYGGA TRAFFIC SIGNAL HEAD	PEDESTRIAN SIGNAL HEAD	SIGNAL INDICATION
A–3 A–4 D–1 E–1	A–1 A–2 C–2 C–3 C–4	B–1 * C–1	A–5 A–6 B–2 E–2	POLE LETTER–SIGNAL HEAD NUMBER

* PROGRAMMED VISIBILITY HEAD
** PROVIDE LED SIGNAL ASSEMBLY FOR RED SIGNAL OF NON-PROGRAMMED VISIBILITY SIGNAL HEADS

PHASING DIAGRAM

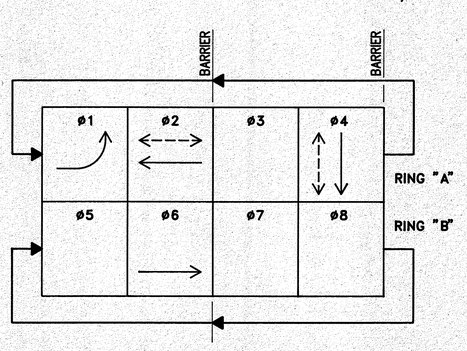
CABLE AND CONDUIT SCHEDULE

SYMBOL	DESCRIPTION
1	EXST 2"C, 1–26/C #14 EXST 2"C, PULLWIRE
2	EXST 2"C, 1–26/C #14 EXST 2"C, 1–2/C #14, 1–OPTICOM CABLE
3	EXST 2"C, 1–26/C #14 EXST 2"C, 5–2/C #14, 1–OPTICOM CABLE
4	2"C, 1–2/C #14
5	2"C, 3#6
6	EXST 2"C, 1–26/C #14 EXST 2"C, 1–OPTICOM CABLE
7	2"C, 2#8 RHW–USE, #8 GND 2"C, PULLWIRE
8	EXST 2"C, 1–26/C #14 EXST 2"C, 4–2/C #14, 1–OPTICOM CABLE
9	3"C, 6–4/C #14; 2–2/C #14, 1–OPTICOM CABLE
10	2"C, 1–26/C #14 2"C, 1–26/C #14 2"C, 3–2/C #14, 3–OPTICOM CABLE 2"C, 1–12 PAIR #19 INTERCONNECT CABLE 2"C, 3- 2/C #14 2"C, 4–2/C #14 2"C, PULLWIRE
11	2"C, 2–4/C #14, 1–2/C #14
12	2"C, 1–12 PAIR #19 INTERCONNECT CABLE
13	3"C, 4–4/C #14, 1–OPTICOM CABLE 2"C, 2#8 RHW–USE, #8 GND
14	2"C, 1–4/C #14
15	2"C, 2–4/C #14, 1–2C #14, 1–OPTICOM CABLE
16	2"C, 1–26C #14 2"C, 1–2C #14, 1–OPTICOM CABLE
17	2"C, 1–26C #14 2"C, 2–2/C #14, 1–OPTICOM CABLE
18	2"C, 3#6, #8 GND



NOTES: CONTINUED

14 PROVIDE "ON LEFT ARROW ONLY" (30"x36") & "NO U TURN" (30"x18") SIGNS SIMILAR TO R17-3



PHASE ASSIGNMENT DIAGRAM

NORTH

TRAFFIC SIGNAL PARTIAL PLAN "IV"

SCALE: 1"=20'

CONTRACTOR SHALL VERIFY THAT EXST TRAFFIC SIGNAL DUCTLINE IS LOCATED WITHIN STATE RIGHT–OF–WAY PRIOR TO INSTALLATION OF TRAFFIC SIGNAL SYSTEM. CONTRACTOR SHALL INSTALL WITHIN STATE RIGHT–OF–WAY A TRAFFIC SIGNAL DUCTLINE TO REPLACE PORTION OF EXST TRAFFIC SIGNAL DUCTLINE THAT IS LOCATED OUT–SIDE THE STATE RIGHT–OF–WAY. THE EXST TRAFFIC SIGNAL DUCTLINE LOCATED OUTSIDE THE STATE RIGHT–OF–WAY SHALL BE CAPPED & ABANDONED IN PLACE.

NOTES:

1. SAWCUT EXST AC PAVEMENT FOR DUCTLINE/EQUIP INSTALLATION. REPAIR TO MATCH EXST, SEE SHEET E–8.
2. SAWCUT EXST CONC SIDEWALK FOR DUCTLINE/EQUIP INSTALLATION. REPAIR TO MATCH EXST, SEE SHEET E–8.
3. PROVIDE COUPLING(S) & EXTEND CONDUIT(S).
4. REPLACE EXST TYPE "B" PULLBOX WITH TYPE "D" C&C TYPE PULL–BOX. RELOCATE EXST TYPE "B" PULLBOX AS INDICATED
5. INTERCEPT EXST DUCTLINE WITH TYPE "C" C&C TYPE PULLBOX WITH MODIFIED COVER.
6. REMOVE EXST STOP SIGN & DELIVER TO DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION MAINT BASEYARD AFTER TRAFFIC SIGNAL SYSTEM IS OPERATIONAL.
7. REPLACE EXST TYPE "B" PULLBOX WITH TYPE "C" PULLBOX. RELOCATE EXST TYPE "B" PULLBOX AS INDICATED
8. STUB 2"C UP POLE +27'–0" FOR HECO SERVICE; 2"C UP POLE +1'–0" FOR FUTURE HTCO SERVICE; 2"C UP POLE +25'–0" FOR TRAFFIC SIGNAL INTERCONNECT.
9. PROVIDE STREET NAME SIGN ON MAST ARM, SEE SHEET E–10.
10. ROUTE "2T" DUCTLINE DIRECTLY TO CONTROLLER CAB
11. RELOCATED EXST TYPE "B" PULLBOX.
12. ROUTE "1–2L" TO TRAFFIC SIGNAL 2' X 4' PULLBOX
13. PROVIDE "LEFT ON ARROW ONLY" R10–5 SIGN

20' 10' 0 20' 40' 60'
SCALE: 1"=20'
GRAPHIC SCALE

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

GARY I. FUNASAKI, LICENSED PROFESSIONAL ENGINEER, No. 4195-E, HAWAII, U.S.A.
8 Jan 1997
PRINCIPAL-IN-CHARGE
RONALD N.S. HO & ASSOCIATES, INC

STEVEN H. SAKAI, LICENSED PROFESSIONAL ENGINEER, No. 7637-E, HAWAII, U.S.A.
1-8-97
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

RONALD N. S. HO & ASSOCIATES, INC.
Electrical Engineers
2138 Algaroba Street, Suite A Honolulu, Hawaii 96826
Phone: (808)941–0577 Fax: (808)945–2646

DEPARTMENT OF HAWAIIAN HOME LANDS
FARRINGTON HIGHWAY – PILIOKAHI AVENUE
TRAFFIC SIGNALIZATION
NANAKULI RESIDENCE LOTS, SERIES 7
NANAKULI, WAIANAE, OAHU, HAWAII TMK: 8–9–06

TRAFFIC SIGNAL PARTIAL PLAN "IV"

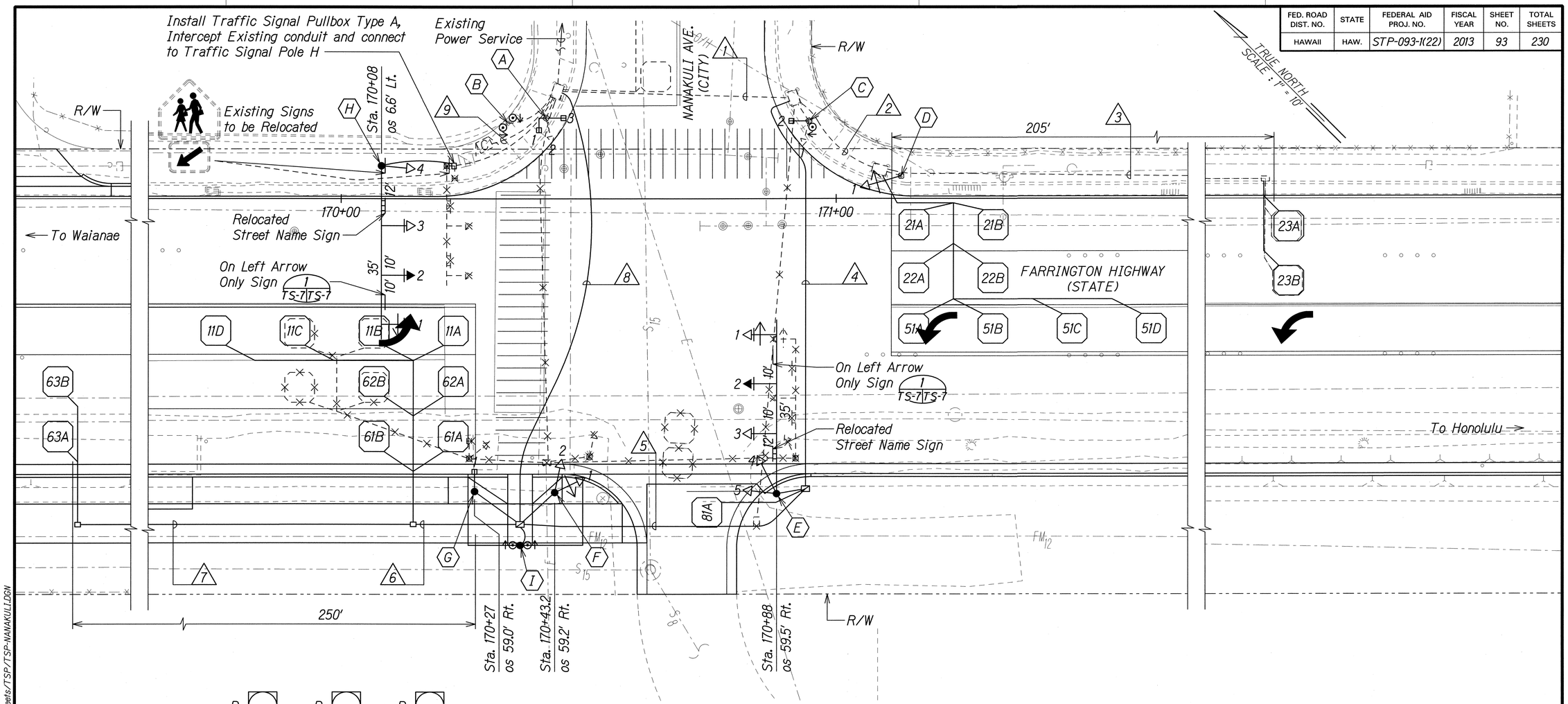
APPROVED
CHIEF, PLANNING AND ENGINEERING DIV., DHS, C&C OF HONOLULU — DATE 1/10/97

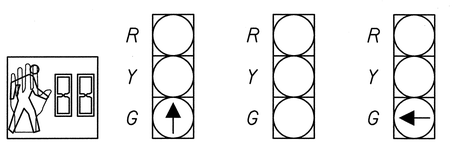
APPROVED

FILE	POCKET	FOLDER	NO.

LAST SAVE: 01/07/97 @ 11:13:47 PLOT SC 1=20'
H:\CAD\PROJECTS\9806\9806PH1B

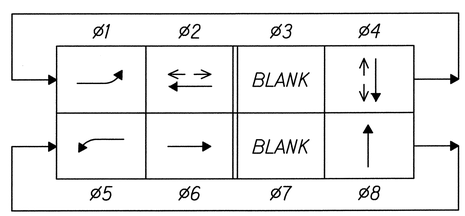
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	93	230





A-1 A-3 C-2 G-1	12" Signal Faces (R-Y-↑)	12" Signal Faces (R-Y-G)	12" Signal Faces (R-Y-←)
	E-2 + H-2 +	A-2 (E) C-1 (E) E-3 + E-4 E-5 F-2 H-3 + H-4	D-1 E-1 *+ F-1 H-1 *+

* Programmed Visibility Signals
\+ Signal Head w/ Back Plate



PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet

⟶ Vehicle Movement
⟷ Pedestrian Movement

R17-3
30"X36"

ON LEFT ARROW ONLY SIGN (1 / TS-7 TS-7)
Not to Scale

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

T:/DOT-FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/Sheets/TSP/TSP-NANAKULI.DGN

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/14

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FARRINGTON AND NANAKULI

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS
AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: 1"=10' Date: April 2013

SHEET No. TS-7 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	94	230

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A(E)	exist	I-exist	(1)(3) Type IV (ped head)	
			(2) Type I (exist)	
B(E)	exist	I-exist		2
C(E)	exist	I-exist	(1) Type I (exist)	
			(2) Type IV (ped head)	1
D(E)	exist	I-exist	(1) Type I (exist)	
E	*	II-35	(1) Type VI	
			(2) Type VI	
			(3) Type VI	
			(4)(5) Type V	
F	*	I-10	(1)(2) Type II	
G	*	I-8	(1) Type I (ped head)	1
H	*	II-35	(1) Type VI	
			(2) Type VI	
			(3) Type VI	
			(4) Type IV	
I	*	I-3		2

* For Traffic Signal Pole Base, See Std. Plan TE-32, TE-33, TE-33A.1 and TE-33A.2.

Cable and Conduit Schedule

Run △	Conduit Size	Type 1 Signal Control 26C#14	Type 2 PPB/ Loops 2C#14	Type 6 Power 3C#6	Other
1	2"(E)	1			
	2"(E)		5		
2	2"(E)		4		
3	2"(E)		1		
4	2"	1			
	2"	Spare			
5	2"	1			
	2"	Spare			
6	2"		4		
7	2"		1		
8	2"	1			
	2"		5		
	2-2"	Spare			
9	2-2"(E)	2			
	2"(E)		10		
			1(E)		

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

T:/DOT - FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/SHEETS/TSP/TSP-03B-NANAKULI.DGN

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE 04/30/14

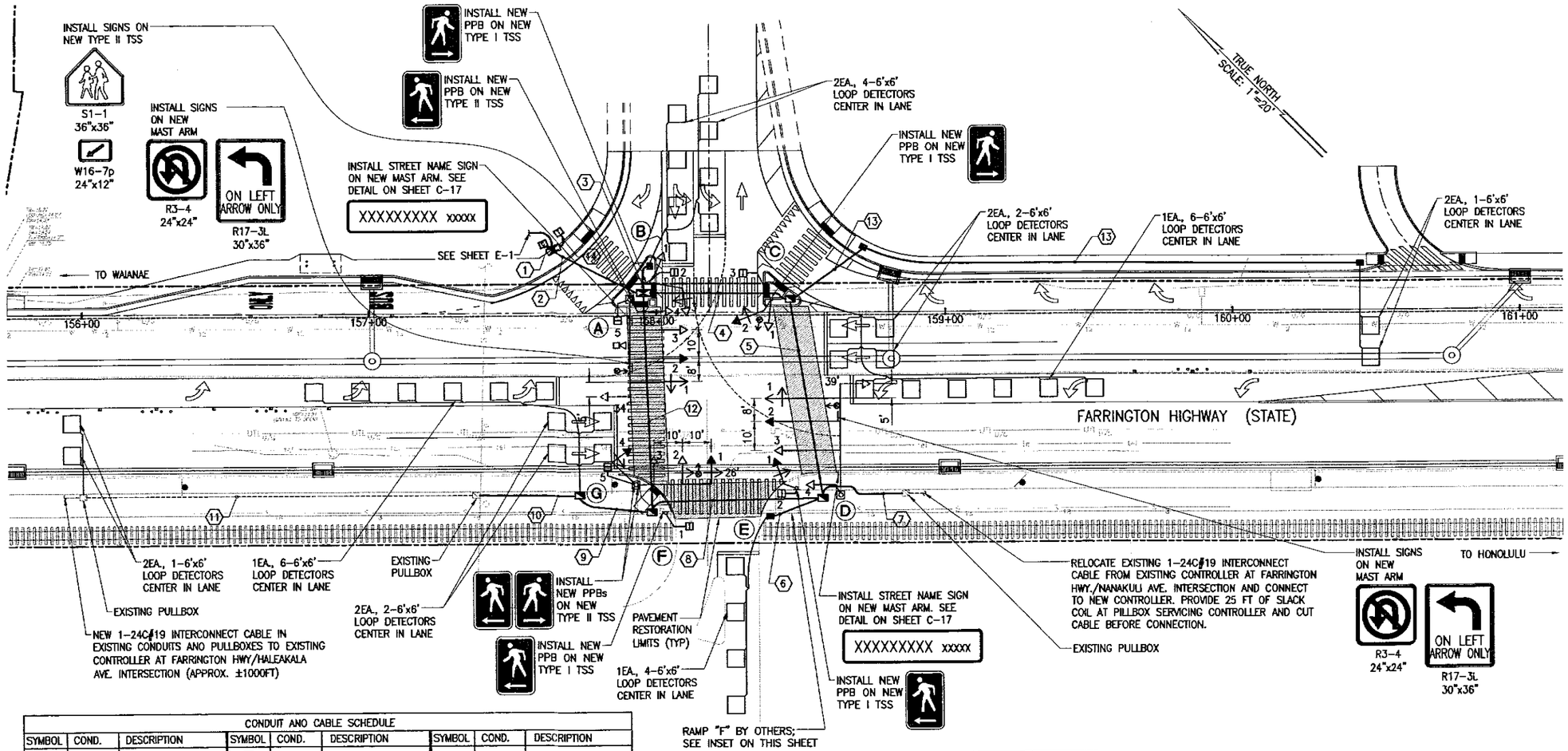
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

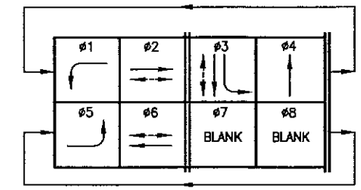
MATERIAL LIST AND CABLE AND CONDUIT SCHEDULE

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS
AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None — Date: April 2013

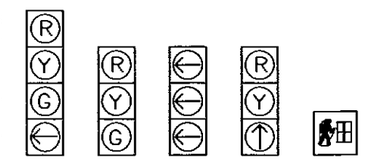
SHEET No. TS-8 OF 11 SHEETS





PHASE DIAGRAM

NEW MODEL 170 CONTROLLER
NEW 332 CABINET



SIGNAL INDICATIONS

* PROGRAMMABLE VISIBILITY HEAD
\+ INDICATES BACK PLATE W/ RETRO REFLECTIVE BORDER

NOTES:

1. MAST ARMS "A" AND "O" SHALL BE DESIGNED BY MANUFACTERER TO ACCOMMODATE FUTURE TRAFFIC SIGNAL HEADS (BY OTHERS). ASSUME FUTURE TRAFFIC SIGNAL HEADS ARE PROGRAMMED VISIBILITY TYPE.
2. INSTALL CCTV CAMERA AND CCTV CABINET. HDOT TO PROVIDE FIBER OPTIC CONNECTION TO CCTV CABINET AND COMMISSION CCTV CAMERA AS PART OF THE "FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NALEAKALA AVENUE" PROJECT. COORDINATE WITH HDOT.

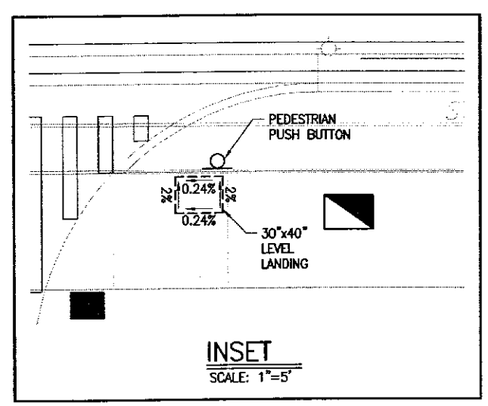
CONDUIT AND CABLE SCHEDULE

SYMBOL	COND.	DESCRIPTION
1	3" CONC.	2-26C#14
	3" CONC.	2-26C#14
	3" CONC.	21-2C#14
	2" CONC.	2-3C#4
	2" CONC.	*1-24C#19
	2" CONC.	*EXIST. 1-24C#19
	2" CONC.	4-EVP
	2" CONC.	SPARE
2	3" CONC.	2-26C#14
	3" CONC.	2-26C#14
	3" CONC.	21-2C#14
	2" CONC.	*1-24C#19
	2" CONC.	*EXIST. 1-24C#19
	2" CONC.	4-EVP
	2" CONC.	CAMERA CABLES
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
3	2" CONC.	4-2C#14
4	2" CONC.	1-26C#14
	2" CONC.	1-26C#14
	2" CONC.	7-2C#14
	2" CONC.	2-EVP
	2" CONC.	SPARE
5	2" CONC.	1-26C#14
	2" CONC.	1-26C#14
	2" CONC.	1-EVP
	2" CONC.	SPARE
6	2" CONC.	2-2C#14
	2" CONC.	SPARE
7	2" CONC.	*EXIST. 1-24C#19
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
8	2" CONC.	1-26C#14
	2" CONC.	1-26C#14
	2" CONC.	3-2C#14
	2" CONC.	*EXIST. 1-24C#19
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
9	2" CONC.	*1-24C#19
	2" CONC.	6-2C#14
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
10	2" CONC.	*1-24C#19
	2" CONC.	2-2C#14
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
11	EXIST.	*1-24C#19
		2-2C#14
12	2" CONC.	1-26C#14
	2" CONC.	1-26C#14
	2" CONC.	5-2C#14
	2" CONC.	5-2C#14
	2" CONC.	*1-24C#19
		*EXIST. 1-24C#19
	2" CONC.	1-EVP
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
	2" CONC.	SPARE
13	2" CONC.	2-2C#14
14	3" CONC.	1-3C#4
	3" CONC.	CAMERA CABLES
	3" CONC.	SPARE

*INSTALLED WITH FABRIC INNER DUCT

TRAFFIC SIGNAL PLAN

SCALE: 1"=20'



INSET

SCALE: 1"=5'

REVISION	DATE	BRIEF	MADE BY	APPROVED

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
ENGINEERS, SURVEYORS • HONOLULU, HAWAII

NANAKULI HAWAIIAN HOMESTEAD COMMUNITY ASSOCIATION
NANAKULI, OAHU, HAWAI'I
NANAKULI VILLAGE CENTER-
OFFSITE IMPROVEMENTS ON FARRINGTON HWY.

TRAFFIC SIGNAL PLAN

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 8998-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

EXP. 4/30/18

DWG. NO. C-35
SHEET 36 OF 58

LINE IS 2 INCHES AT FULL SIZE
(IF NOT 2-inches : Scale Accordingly)

DESIGNED BY KS | DRAWN BY DK | CHECKED BY DH

APPROVED BY
N/A
MANAGER AND CHIEF ENGINEER, BWS DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE ROW AND BWS ELEMENTS ONLY)

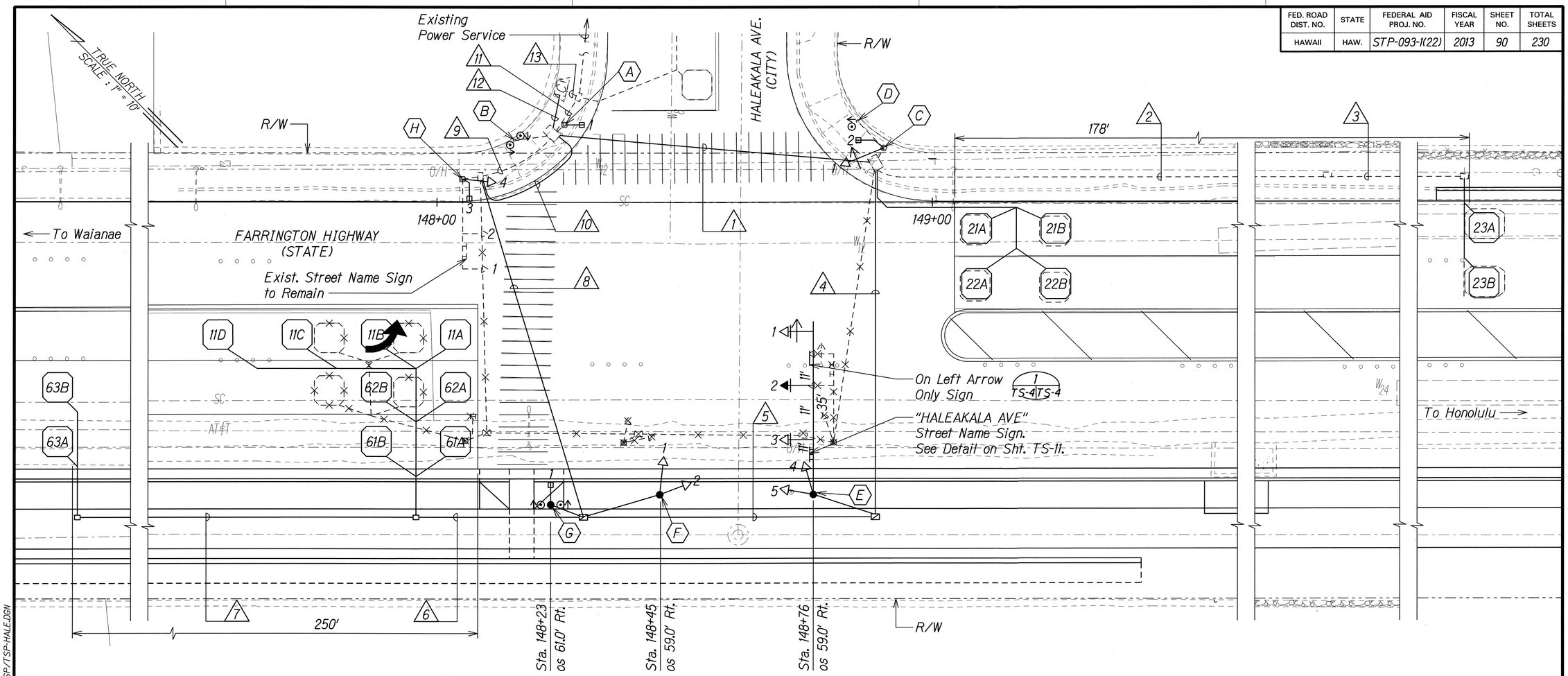
DATE: SEPTEMBER 2016

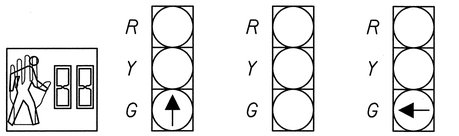
FILE	POCKET	FOLDER	NO.

Y:\2015\15-002\DWG\C-35 TRAFFIC SIGNAL PLAN.DWG Sep 05, 2017-10:07 AM

JOB NO. 15-002.05

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	90	230





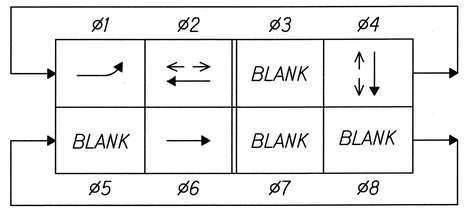
A-1
C-2
G-1
H-3

E-2 +

E-3 +
E-4
E-5
F-1
F-2
H-1 (E)
H-2 (E)
H-4

C-1
E-1 *+

* Programmed Visibility Signals
\+ Signal Head w/ Back Plate



PHASE DIAGRAM

Model 170E Controller
Model 332A Cabinet

⟶ Vehicle Movement
⟷ Pedestrian Movement

R17-3
30"X36"

ON LEFT ARROW ONLY SIGN

1 TS-4 TS-4

Not to Scale

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

T:/DOT-FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/Sheets/TSP/TSP-HALE.DGN

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FARRINGTON AND HALEAKALA

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS
AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: 1"=10' Date: April 2013

SHEET No. TS-4 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	91	230

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A(E)	exist	I-exist	(1) Type I (ped head)	
B(E)	exist	I-exist		2
C(E)	exist	I-exist	(1) Type I (exist)	
			(2) Type III (ped head)	
D(E)	exist	I-exist		1
E	*	II-35	(1) Type VI	
			(2) Type VI	
			(3) Type VI	
			(4)(5) Type V	
F	*	I-10	(1)(2) Type II	
G	*	I-8	(1) Type I (ped head)	1
H(E)	exist	II-exist	(1) Type VI (exist)	
			(2) Type VI (exist)	
			(3) Type VI (ped head)	
			(4) Type IV	

* For Traffic Signal Pole Base, See Std. Plan TE-32, TE-33, TE-33A.1 and TE-33A.2.

Cable and Conduit Schedule

Run △	Conduit Size	Type 1 Signal Control 26C#14	Type 2 PPB/ Loops 2C#14	Type 6 Power 3C#6	Other
1	2"(E)	1			
	2"		4		
	2-2"	Spare			
2	2"(E)		1		
3	2"(E)		1		
4	2"	1			
	2"	Spare			
5	2"	1			
	2"	Spare			
6	2"		4		
7	2"		1		
8	2"	1			
	2"		5		
	2-2"	Spare			
9	2"(E)	1(E)			
10	2"		5		
11	2"(E)	1(E)			
12	2"	1			
	2"		9		
13	2"(E)	1(E)			
	2"(E)		1(E)		

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
N.	CHECKED BY	

T:/DOT - FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/SHEETS/TSP/TSP-02B-HALE.DGN

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

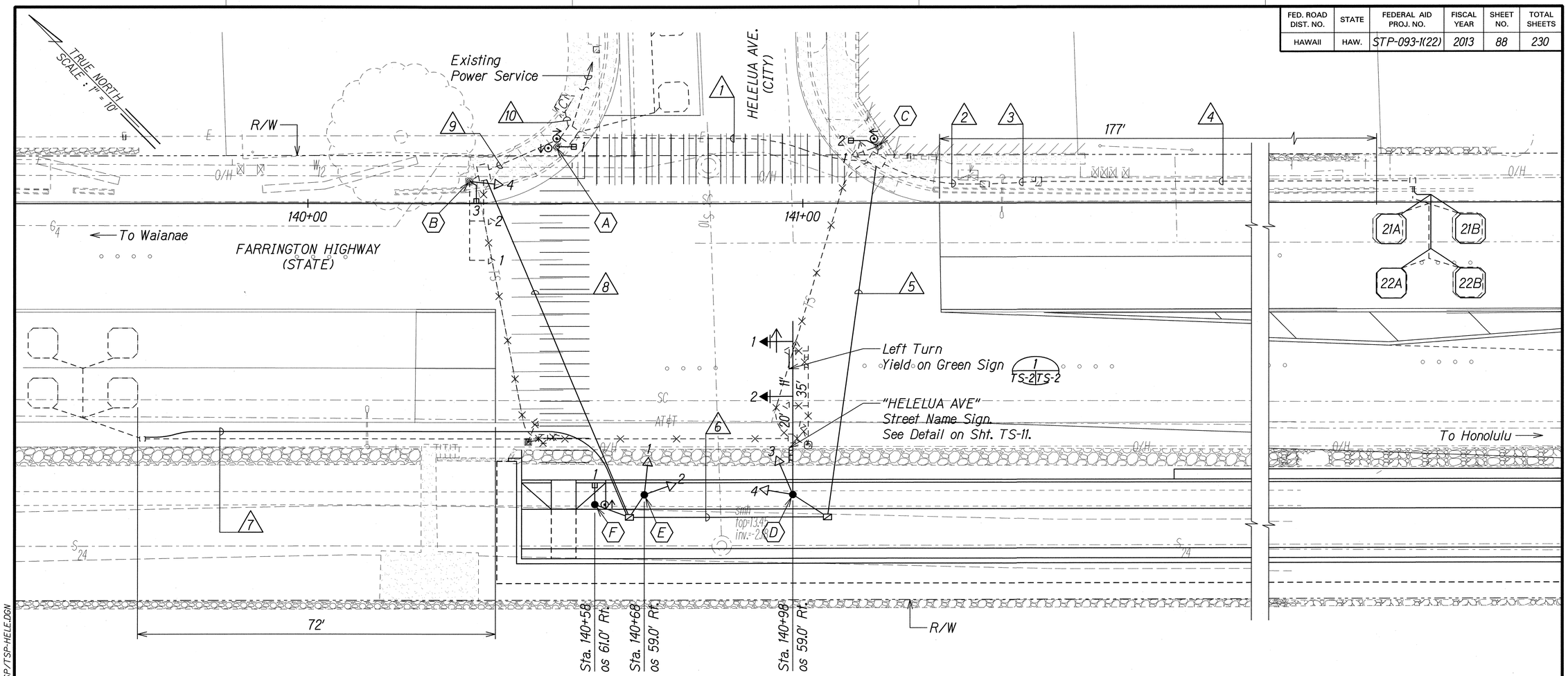
MATERIAL LIST AND CABLE AND CONDUIT SCHEDULE

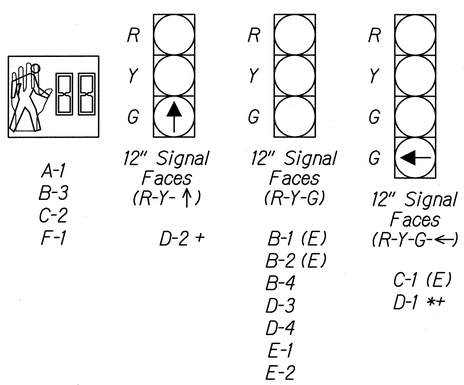
FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None — Date: April 2013

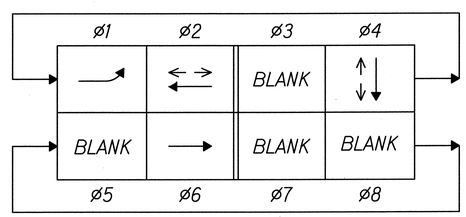
SHEET No. TS-5 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	88	230

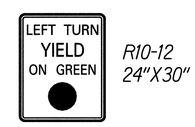




* Programmed Visibility Signals
\+ Signal Head w/ Back Plate



PHASE DIAGRAM
Model 170E Controller
Model 332A Cabinet
⟶ Vehicle Movement
← → Pedestrian Movement



R10-12
24"X30"

LEFT TURN YIELD ON GREEN SIGN
Not to Scale
1 TS-2 TS-2

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
FARRINGTON AND HELELUA

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: 1"=10' Date: April 2013

SHEET No. TS-2 OF 13 SHEETS

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

T:/DOT-FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/Sheets/TSP/TSP-HELE.DGN

Material List

Pole ⬡	Base Type	Standard Type	Mounting Type	PPB Assembly
A(E)	exist	I-exist	(1) Type I (ped head)	2
B(E)	exist	II-exist	(1) Type VI (exist)	
			(2) Type VI (exist)	
			(3) Type VI (ped head)	
			(4) Type IV	
C(E)	exist	I-exist	(1) Type I (exist)	
			(2) Type III (ped head)	1
D	*	II-35	(1) Type VI	
			(2) Type VI	
			(3)(4) Type V	
E	*	I-10	(1)(2) Type II	
F	*	I-8	(1) Type I (ped head)	1

* For Traffic Signal Pole Base, See Std. Plan TE-32, TE-33, TE-33A.1 and TE-33A.2.

Cable and Conduit Schedule

Run △	Conduit Size	Type 1 Signal Control 26C#14	Type 2 PPB/ Loops 2C#14	Type 6 Power 3C#6	Other
1	2"(E)	1			
	2"(E)		3		
2	2"(E)		2		
3	2"(E)		2		
4	2"(E)		2		
5	2"	1			
	2"	Spare			
6	2"	1			
	2"	Spare			
7	2"		2		
8	2"	1			
	2"		3		
	2-2"	Spare			
9	2"(E)	1			
	2"(E)		3		
10	2-2"(E)	2			
	2"(E)		6		
			1(E)		

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

T:/DOT - FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/SHEETS/TSP/TSP-01B-HELE.DGN

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MATERIAL LIST AND CABLE AND CONDUIT SCHEDULE

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

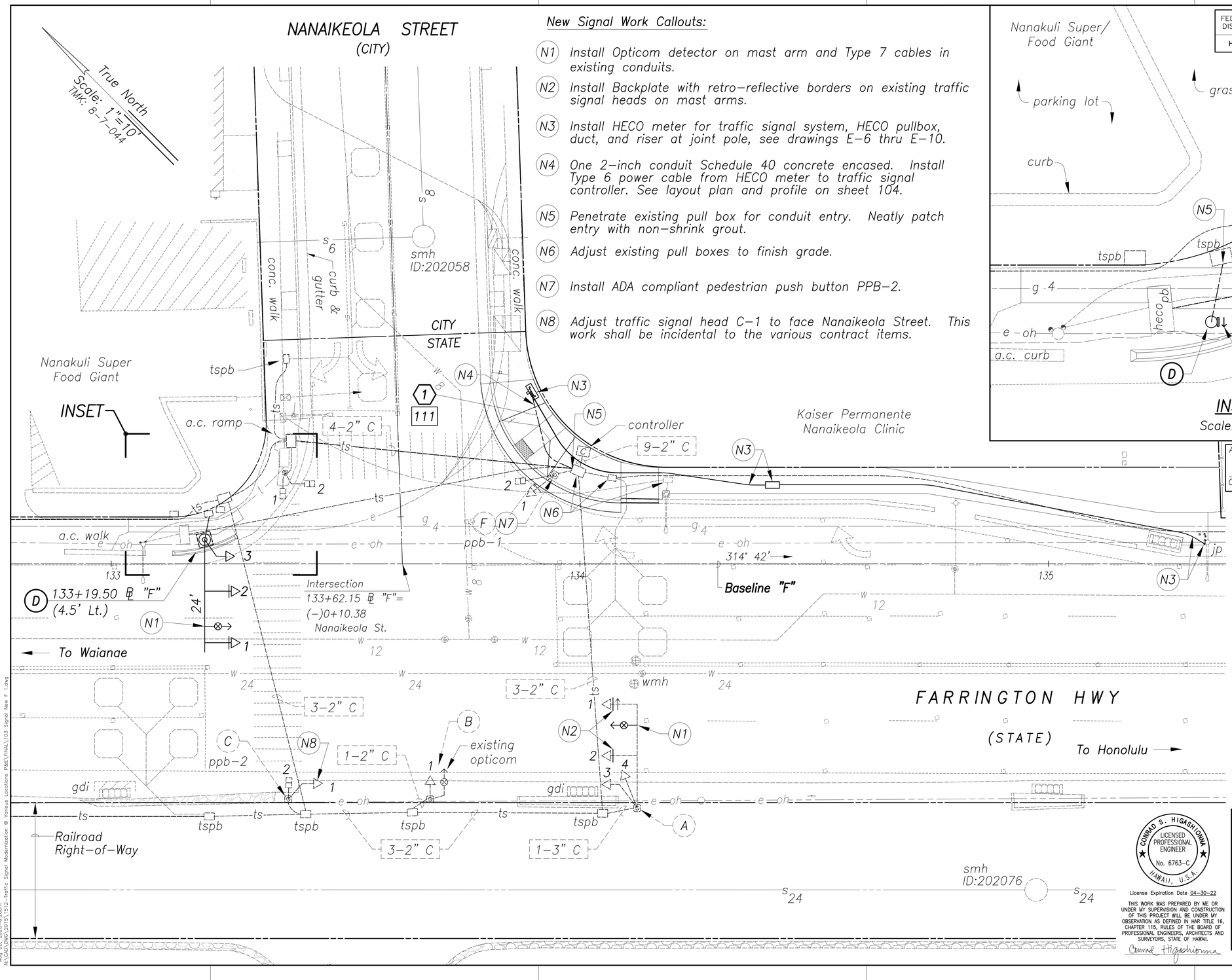
Scale: None — Date: April 2013

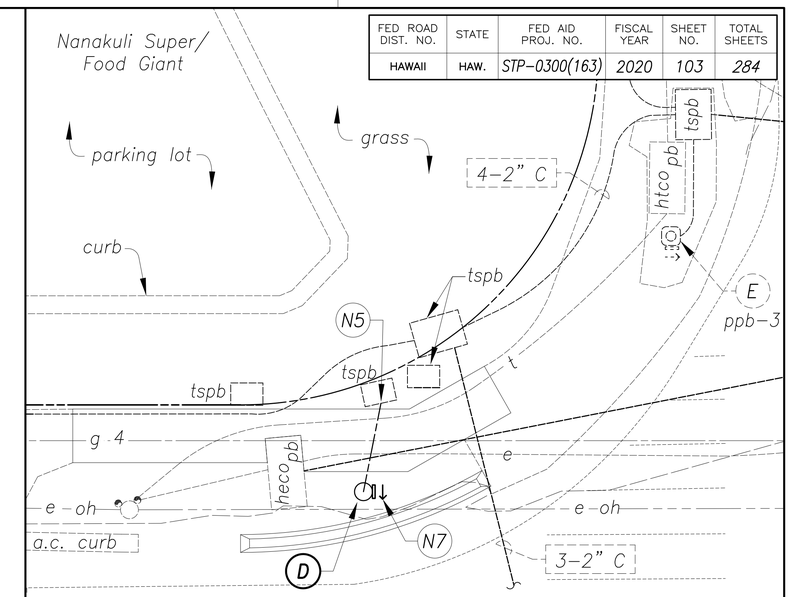
SHEET No. TS-3 OF 13 SHEETS

FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	103	284

New Signal Work Callouts:

- (N1) Install Opticom detector on mast arm and Type 7 cables in existing conduits.
- (N2) Install Backplate with retro-reflective borders on existing traffic signal heads on mast arms.
- (N3) Install HECO meter for traffic signal system, HECO pullbox, duct, and riser at joint pole, see drawings E-6 thru E-10.
- (N4) One 2-inch conduit Schedule 40 concrete encased. Install Type 6 power cable from HECO meter to traffic signal controller. See layout plan and profile on sheet 104.
- (N5) Penetrate existing pull box for conduit entry. Neatly patch entry with non-shrink grout.
- (N6) Adjust existing pull boxes to finish grade.
- (N7) Install ADA compliant pedestrian push button PPB-2.
- (N8) Adjust traffic signal head C-1 to face Nanaikeola Street. This work shall be incidental to the various contract items.





INSET
Scale: 1"=4'

Approved By:

Chief, Traffic Signals & Technology, DTS Date

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

Aug 28, 2020-6:26am
N:\Contracts\2019\1912-Traffic Signal Modernization @ Various Locations R&E\FINAL\103 Signal New F 1.dgn

CONRAD S. HIGASHIONA
LICENSED PROFESSIONAL ENGINEER
No. 6763-C
HAWAII, U.S.A.

License Expiration Date 04-30-22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Conrad Higashiona

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK

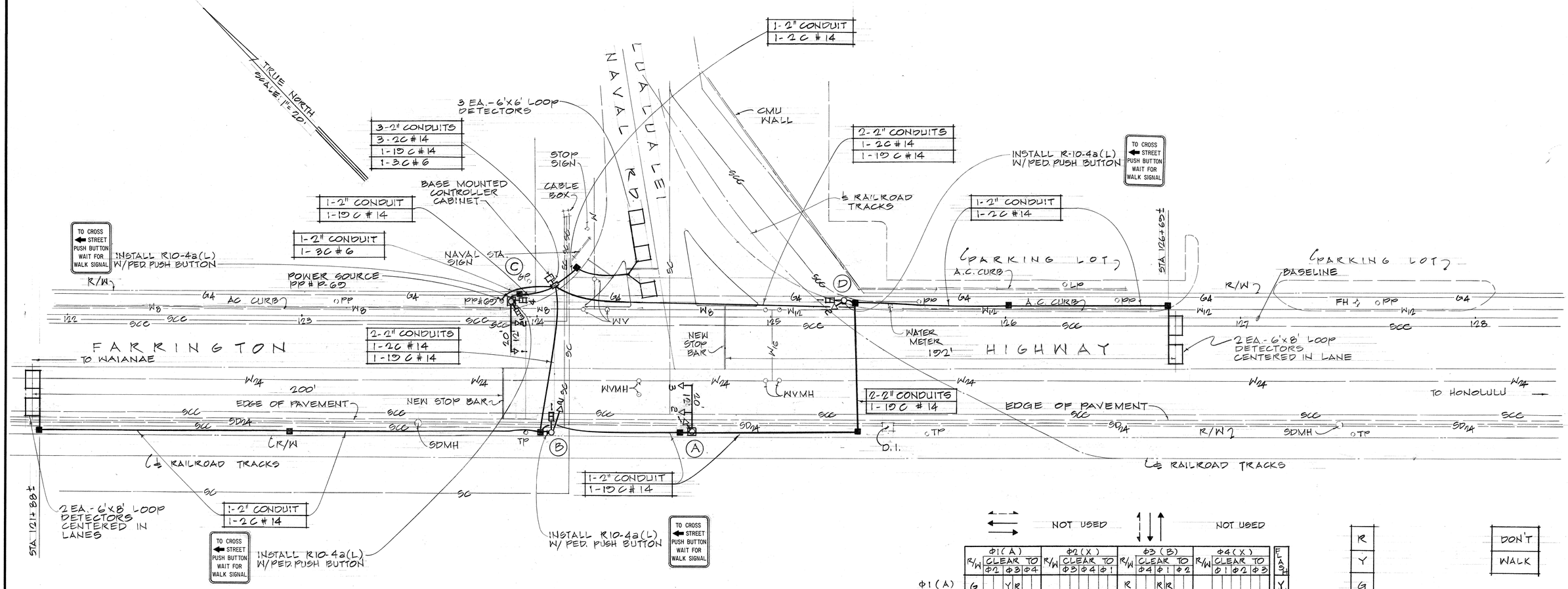
Farrington Hwy & Nanaikeola St

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: 1"=10' Date: July 2020

SHEET No. TS-8 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-093-1(5) F-093-1(4)	1977	4	12



NOTE:

1- CONTRACTOR SHALL INSTALL METER SOCKET AND BREAKER ON PP #60 IN ACCORDANCE WITH HECO REQUIREMENTS. METER SHALL BE MOUNTED BETWEEN 5' AND 7' ABOVE GROUND. METER SOCKET SHALL BE 4-PRONG COMPLETE WITH A MANUAL CIRCUIT CLOSING DEVICE.

2- A COORDINATION UNIT SHALL BE FURNISHED AND WIRED IN THE CABINET.

3- A 3-PHASE CONTROLLER SHALL BE FURNISHED, COMPLETE AND READY FOR OPERATION BY CONNECTING DETECTOR INPUT TO PHASE MODULE AND OUTPUT TO TRAFFIC SIGNAL HEAD.

NOT USED — NOT USED

	Φ1 (A) R/W	Φ1 (A) CLEAR TO Φ2	Φ1 (A) CLEAR TO Φ3	Φ1 (A) CLEAR TO Φ4	Φ2 (X) R/W	Φ2 (X) CLEAR TO Φ3	Φ2 (X) CLEAR TO Φ4	Φ2 (X) CLEAR TO Φ1	Φ3 (B) R/W	Φ3 (B) CLEAR TO Φ4	Φ3 (B) CLEAR TO Φ1	Φ3 (B) CLEAR TO Φ2	Φ4 (X) R/W	Φ4 (X) CLEAR TO Φ1	Φ4 (X) CLEAR TO Φ2	Φ4 (X) CLEAR TO Φ3	FLASH
Φ1 (A)	G		Y	R					R		R	R					Y
Φ2 (X)																	
Φ3 (B)	R		R	R					G		Y	R					R
Φ1P (AP)	*		FD	D					D		D	D					
Φ3P (BP)	D		D	D					*		FD	D					

R	DON'T
Y	WALK
G	

A-1
A-2
A-3
B-2
C-1
C-2
D-2

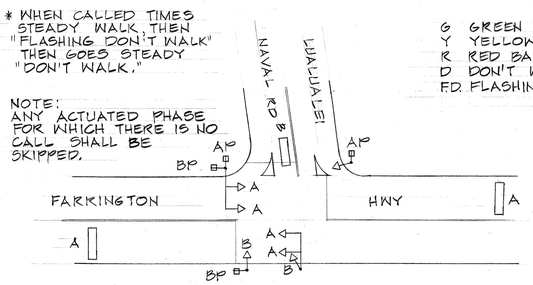
B-1
C-3
C-4
D-1

SIGNAL INDICATIONS

* WHEN CALLED TIMES STEADY WALK, THEN "FLASHING DON'T WALK" THEN GOES STEADY "DON'T WALK."

NOTE:
ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.

G GREEN BALL
Y YELLOW BALL
R RED BALL
D DON'T WALK
FD FLASHING DON'T WALK



CONTROLLER SEQUENCE DIAGRAM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi
Signature

THEODORE S. KAWAHIGASHI REGISTERED PROFESSIONAL ENGINEER No. 3244-E HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FARRINGTON HIGHWAY
TRAFFIC SIGNALS AT
LUALUALEI NAVAL ROAD
FED. AID. PROJ. NO. F-093-1(4)

PLAN

SCALE: AS SHOWN DATE: APRIL 11, 1977

SHEET No. 2 OF 2 SHEETS

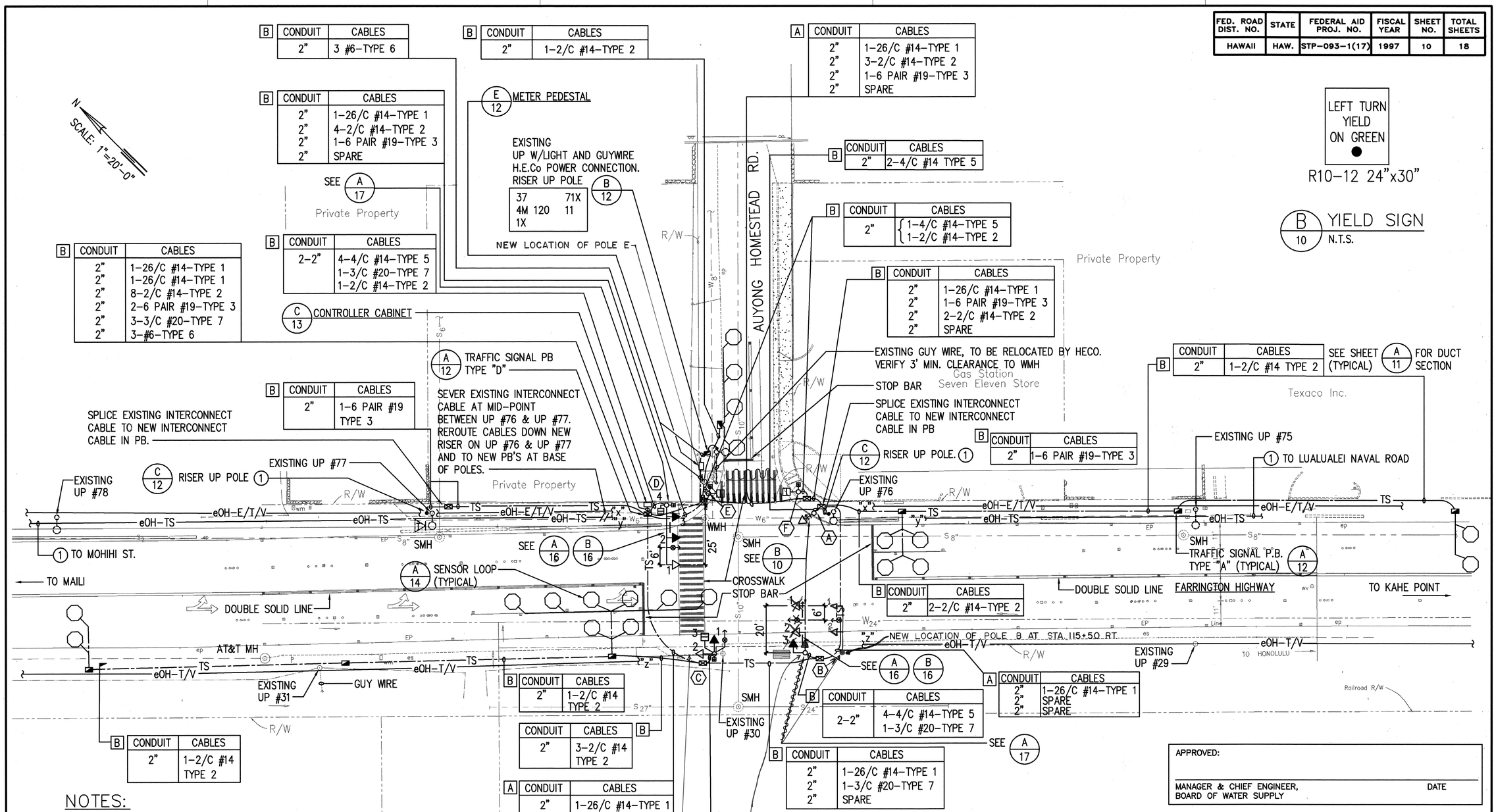
ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

PRINTED ON NO. 1000H CLEARPRINT

C-3-9

4

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(17)	1997	10	18



LEFT TURN YIELD ON GREEN

R10-12 24"x30"

B 10 YIELD SIGN N.T.S.

NOTES:

1. OVERHEAD INTERCONNECT CABLES TO ADJACENT SIGNALIZED INTERSECTION NORTH AND SOUTH OF AUYONG HOMESTEAD ROAD.
2. SEE SHEET 18 FOR ENLARGED ELECTRICAL PLAN. SCALE 1"=5'-0" DRAWING FOR PARTIAL ELECTRICAL EQUIPMENT LOCATION.
3. PROVIDE 3' HORIZONTAL CLEARANCE BETWEEN ELECTRICAL DUCTLINE AND WATER LINES.

A 12 TRAFFIC SIGNAL PLAN–
FARRINGTON HWY & AUYONG HOMESTEAD ROAD – STATION 112+10 TO STATION 117+83
SCALE: 1"=20'

ORIGINAL PLAN | SURVEY PLOTTED BY | TRACING BY | TRACED BY | NOTE BOOK | DESIGNED BY | QUANTITIES BY | CHECKED BY | No. | DATE

APPROVED:

MANAGER & CHIEF ENGINEER, BOARD OF WATER SUPPLY — DATE

GLENN T. KARAMATSU LICENSED PROFESSIONAL ENGINEER No. 4368-E HAWAII, U.S.A.

This work was prepared by me or under my supervision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY

Intersection Improvements at Auyong Homestead Road

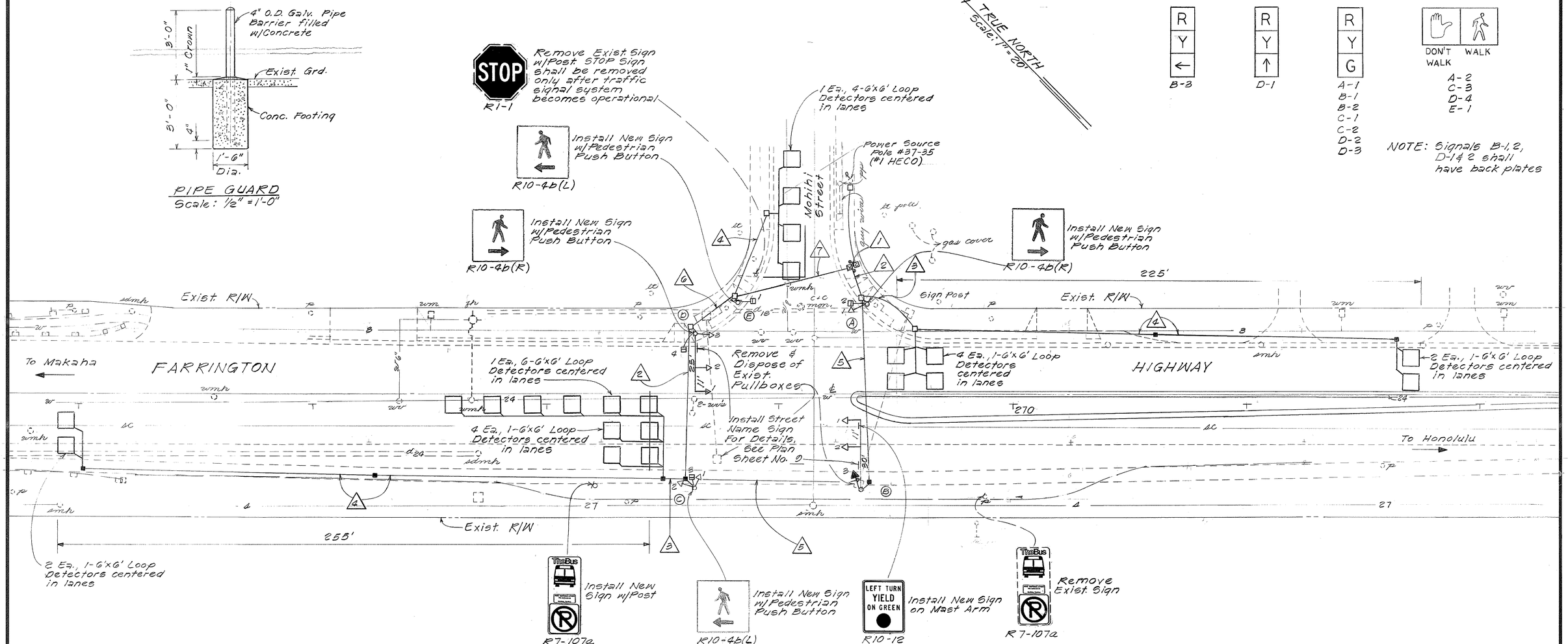
Fed. Aid Project No. STP-093-1(17)

Date: March 1997

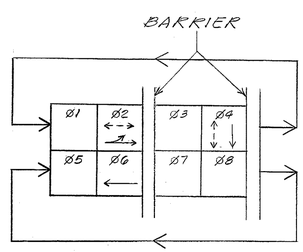
SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	03A-02-00	1002	8	11

PIPE GUARD
Scale: 1/2" = 1'-0"



CONDUIT & CABLE SCHEDULE		
△	CONDUIT	CABLE
1	5-2" Sch. 80	2-2GC #14, 1-3C #6, 7-2C #14
2	2-2" Sch. 80	1-2GC #14, 3-2C #14
3	1-2" Sch. 80	2-2C #14
4	1-2" Sch. 80	1-2C #14
5	2-2" Sch. 80	1-2GC #14, Spare
6	2-2" Sch. 80	1-2GC #14, 4-2C #14
7	2-2" Sch. 80	1-2GC #14, 4-2C #14



PHASE DIAGRAM

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY
Traffic Signal at Mohihi St.
PROJECT NO 03A-02-00

Scale: 1" = 20' Date: Mar, 1002

SHEET No. 1 OF 1 SHEETS

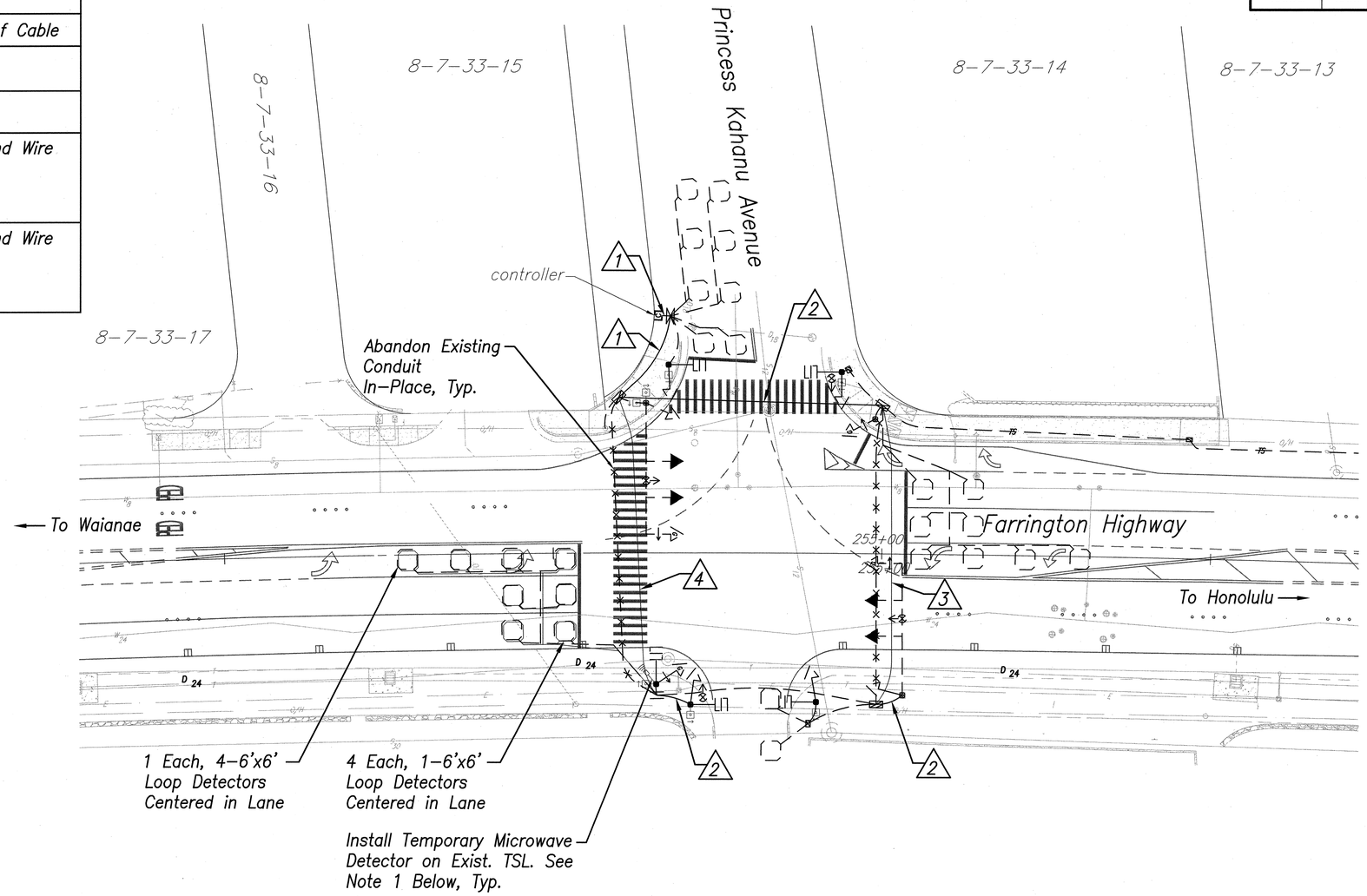
8

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-01-12	2016	28	29

CONDUIT & CABLE SCHEDULE

Description	PVC Conduits	Quantity & Type of Cable
1	Existing	* 2–Type 7
2	Existing	* 1–Type 7
3	New 4–2" (Conc. Enc.)	1 – Type 1, Ground Wire 2 – Type 2 1 – Type 7 1 – Spare
4	New 4–2" (Conc. Enc.)	1 – Type 1, Ground Wire 4 – Type 2 1 – Type 7 1 – Spare

* Remove exist. Type 7 Cables. Install new Type 7 cables in exist. conduit. Cable runs shall be continuous between controller and optical receivers.



NOTES:

1. The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after the ultimate signal is activated. All equipment and materials removed with the exception of existing temporary microwave detectors shall become the property of the Contractor unless otherwise specified.
2. See Sheet 27 for Notes for Traffic Signal Standard Requirements.

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

BRYAN P. LOW
LICENSED PROFESSIONAL ENGINEER
No. 8569-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SIGNATURE

4/30/16
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLANS

FARRINGTON HIGHWAY DRAINAGE IMPROVEMENTS
Vicinity of Princess Kahanu Avenue
Project No. 93A-01-12

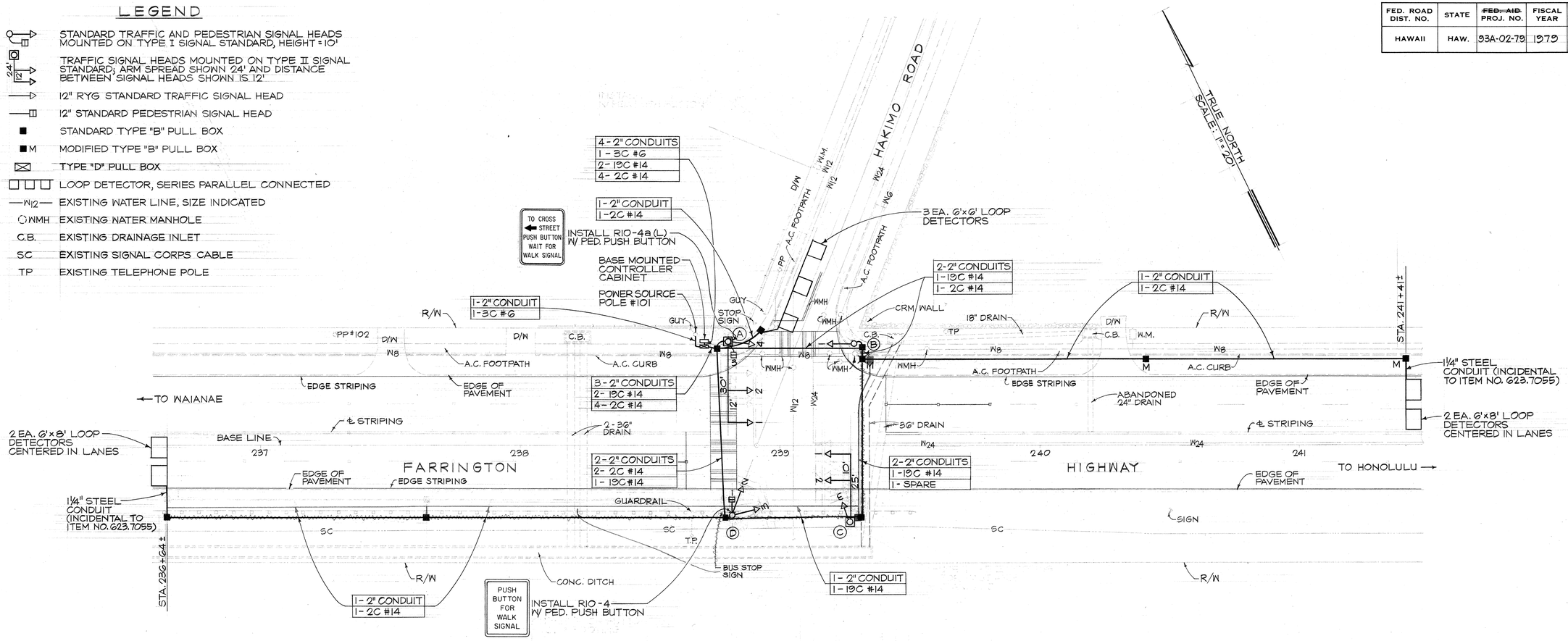
Scale: 1" = 20' Date: Oct. 2015

SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-02-79	1979	2	16

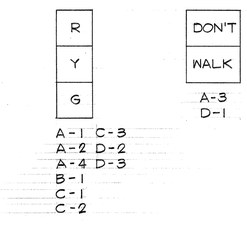
LEGEND

- STANDARD TRAFFIC AND PEDESTRIAN SIGNAL HEADS MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'
- 24' 12' TRAFFIC SIGNAL HEADS MOUNTED ON TYPE II SIGNAL STANDARD; ARM SPREAD SHOWN 24' AND DISTANCE BETWEEN SIGNAL HEADS SHOWN IS 12'
- 12" RYG STANDARD TRAFFIC SIGNAL HEAD
- 12" STANDARD PEDESTRIAN SIGNAL HEAD
- STANDARD TYPE "B" PULL BOX
- M MODIFIED TYPE "B" PULL BOX
- TYPE "D" PULL BOX
- LOOP DETECTOR, SERIES PARALLEL CONNECTED
- W12 EXISTING WATER LINE, SIZE INDICATED
- WMH EXISTING WATER MANHOLE
- C.B. EXISTING DRAINAGE INLET
- SC EXISTING SIGNAL CORPS CABLE
- TP EXISTING TELEPHONE POLE

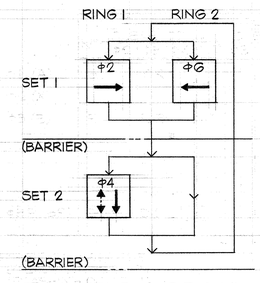


NOTES:

1. CONTRACTOR SHALL INSTALL METER SOCKET AND BREAKER ON PP #101 IN ACCORDANCE WITH HECO REQUIREMENTS. METER SHALL BE MOUNTED BETWEEN 5' AND 7' ABOVE GROUND. METER SOCKET SHALL BE 4-PRONG COMPLETE WITH A MANUAL CIRCUIT CLOSING DEVICE. A 30 AMP CIRCUIT BREAKER IN WEATHER PROOF BOX SHALL BE PROVIDED.
2. A 2-8 PHASE CONTROLLER SHALL BE FURNISHED, COMPLETE AND READY FOR OPERATION. A COORDINATING UNIT IS NOT REQUIRED FOR THIS PROJECT.
3. A SOLID #8 BARE COPPER WIRE SHALL BE PULLED WITH THE 19C #14 CONTROL CABLE FOR EQUIPMENT GROUND. COST SHALL BE INCIDENTAL TO THE INSTALLATION OF THE 19C #14 CABLE.
4. MINIMUM CONTROLLER CABINET SIZE SHALL BE 40" HIGH (EXCLUDING BASE CASTING), 24" WIDE AND 14" DEEP.



SIGNAL INDICATIONS



PHASE DIAGRAM

TRAFFIC SIGNAL NOTES

1. ALL TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL BE COMPLETELY WIRED IN THE CABINET AND SHALL CONTROL THE TRAFFIC SIGNALS AS CALLED FOR IN THE PLANS.
2. SIGNAL INDICATIONS DURING CLEARANCE INTERVAL:
   a. IF A SIGNAL IS G OR ~~↺G~~ AND WILL REMAIN G OR ~~↺G~~ DURING THE NEXT PHASE, IT SHALL BE G OR ~~↺G~~ DURING THE CLEARANCE INTERVAL.
   b. IF A SIGNAL IS G OR ~~↺G~~ AND WILL BECOME R OR EXTINGUISHED DURING THE NEXT PHASE, IT SHALL BE Y OR ~~↺Y~~ DURING THE CLEARANCE INTERVAL.
   c. IF A SIGNAL IS R AND WILL REMAIN R OR BECOME G DURING THE NEXT PHASE, IT SHALL REMAIN R DURING THE CLEARANCE INTERVAL.

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

THEODORE S. KAWAMOTO REGISTERED PROFESSIONAL ENGINEER No. 3244-E HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

FARRINGTON HIGHWAY
TRAFFIC SIGNALS AT
HAKIMO ROAD
PROJECT NO. 93A-02-79

TRAFFIC SIGNAL PLAN

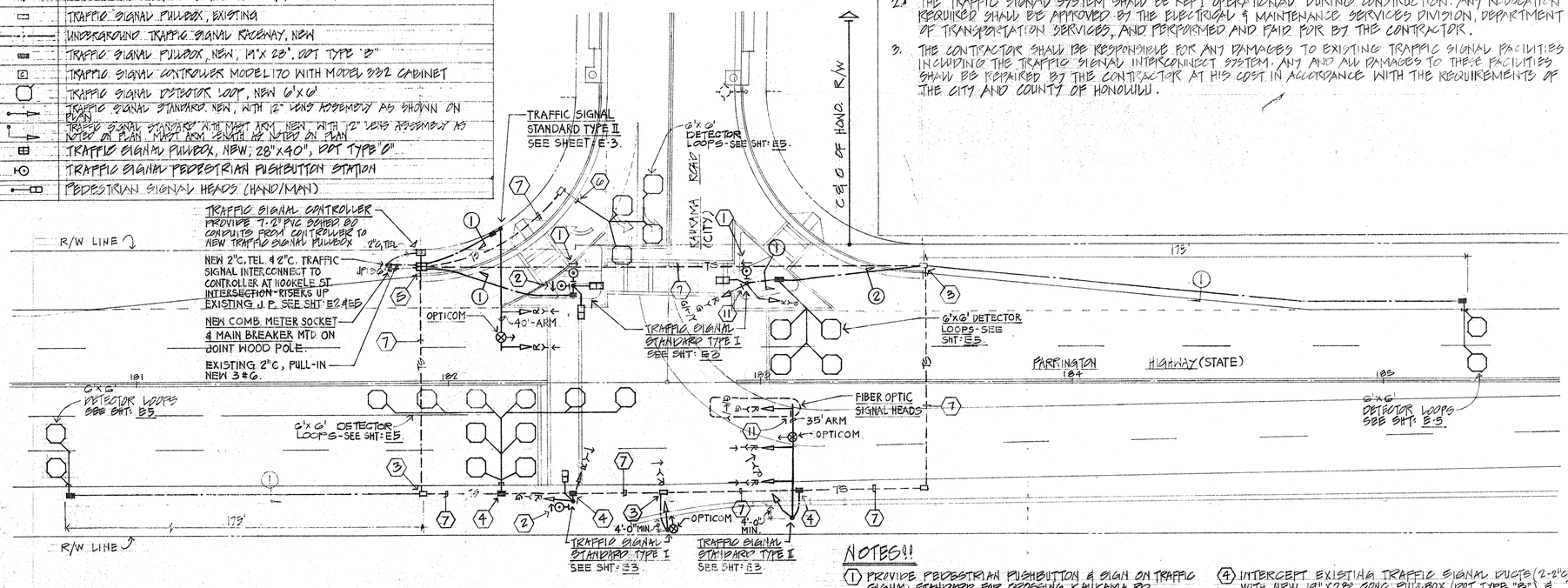
SCALE: AS SHOWN DATE: 4-20-79

SHEET No. 1 OF 1 SHEETS

JOB NO. 2401.1E

SYMBOL LIST

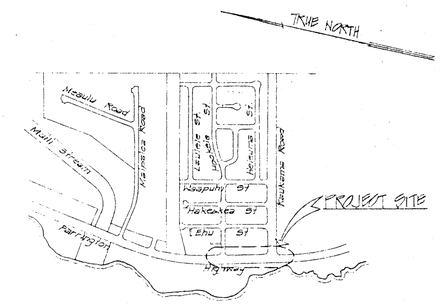
	JOINT UTILITY WOOD POLE, EXISTING
	UNDERGROUND TRAFFIC SIGNAL RACEWAY, EXISTING
	TRAFFIC SIGNAL PULLBOX, EXISTING
	UNDERGROUND TRAFFIC SIGNAL RACEWAY, NEW
	TRAFFIC SIGNAL PULLBOX, NEW, 19"X 28", DOT TYPE "B"
	TRAFFIC SIGNAL CONTROLLER MODEL 170 WITH MODEL 332 CABINET
	TRAFFIC SIGNAL DETECTOR LOOP, NEW 6'X 6'
	TRAFFIC SIGNAL STANDARD, NEW, WITH 12" LENS ASSEMBLY AS SHOWN ON PLAN
	TRAFFIC SIGNAL STANDARD WITH MAST ARM, NEW, WITH 12" LENS ASSEMBLY AS NOTED ON PLAN. MAST ARM LENGTH AS NOTED ON PLAN
	TRAFFIC SIGNAL PULLBOX, NEW, 28"X40", DOT TYPE "D"
	TRAFFIC SIGNAL PEDESTRIAN PUSHBUTTON STATION
	PEDESTRIAN SIGNAL HEADS (HAND/MAN)



1/E1 TRAFFIC SIGNAL PLAN
SCALE: 1" = 20'

ELECTRICAL & MAINTENANCE SERVICES DIVISION NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK ON THE TRAFFIC SIGNAL SYSTEM (PHONE 527-5007).
2. THE TRAFFIC SIGNAL SYSTEM SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. ANY REVOCATION REQUIRED SHALL BE APPROVED BY THE ELECTRICAL & MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, AND PERFORMED AND PAID FOR BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING TRAFFIC SIGNAL FACILITIES INCLUDING THE TRAFFIC SIGNAL INTERCONNECT SYSTEM. ANY AND ALL DAMAGES TO THESE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS COST IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND COUNTY OF HONOLULU.



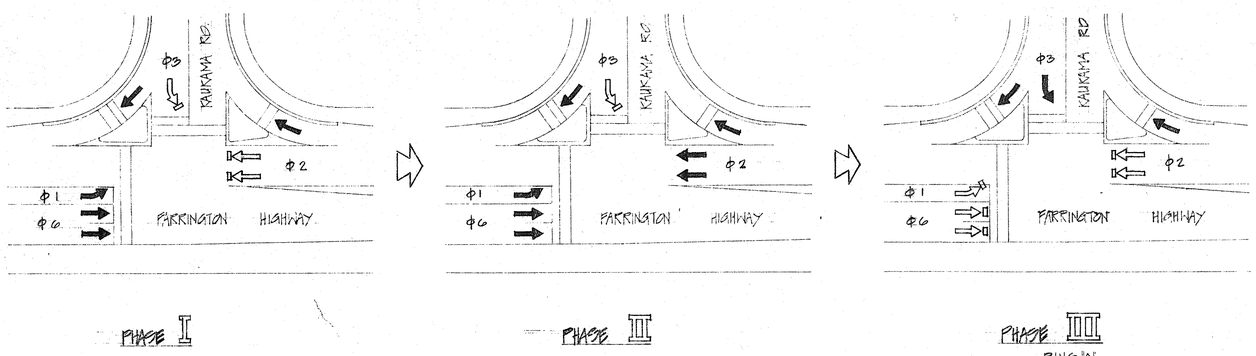
LOCATION MAP
NOT TO SCALE

TRAFFIC SIGNAL NOTES:

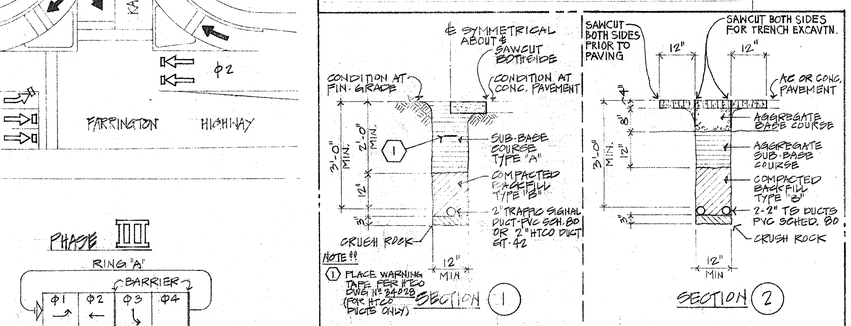
1. LOCATIONS OF UNDERGROUND STRUCTURES SUCH AS PIPE LINES, CONDUITS, CABLES, ETC. AS SHOWN ON THE PLAN ARE ONLY APPROXIMATE IN LOCATION. IT IS NOT THE INTENT OF THIS PLAN TO SHOW THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING UTILITIES WITH THE RESPECTIVE OWNERS. EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNERS.
2. THE LOCATIONS OF THE TRAFFIC SIGNAL STANDARDS, TRAFFIC CONTROLLER, PULLBOXES AND CONDUITS SHALL BE STAKED OUT IN THE FIELD AND APPROVAL OF THE LOCATIONS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTING THEM IN THE FIELD.
3. REGULATORY SIGNS
   a. THE SHAPE, COLOR, PLATE DETAILS, LETTERING AND REFLECTORIZATION OF REGULATORY SIGNS (PREFIX "R") SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", DATED 1971 AND THE MANUAL FOR "STANDARD HIGHWAY SIGNS" DATED 1972.
   b. ALL REGULATORY SIGNS FOR THIS PROJECT SHALL BE REFLECTORIZED, UNLESS SPECIFICALLY NOTED OTHERWISE.
   c. ALL REGULATORY SIGNS SHALL BE PROVIDED WITH 3/8" BOLT HOLES DRILLED AT THE APPROPRIATE LOCATIONS FOR THE PROPER MOUNTING ON THE POST.
   d. PEDESTRIAN PUSH BUTTON SHALL BE PROVIDED WITH TYPE R10-4 SIGN.
4. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE DEPT. OF TRANSPORTATION, STATE OF HAWAII AND THE DEPT. OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, CONSTRUCTION STANDARD.
5. FINAL ADJUSTMENT OF TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL BE MADE BY DEPT. OF TRANSPORTATION SERVICES, CITY & COUNTY OF HONOLULU.

NOTES!!

1. PROVIDE PEDESTRIAN PUSHBUTTON & SIGN ON TRAFFIC SIGNAL STANDARD FOR CROSSING KAUKAMA RD.
2. PROVIDE PEDESTRIAN PUSHBUTTON & SIGN ON TRAFFIC SIGNAL STANDARD FOR CROSSING FARRINGTON HIGHWAY.
3. PENETRATE EXISTING TRAFFIC SIGNAL PULLBOX & CONNECT NEW DUCTS AS REQUIRED.
4. INTERCEPT EXISTING TRAFFIC SIGNAL DUCTS (2-2"Ø) WITH NEW 19" X 28" CONC PULLBOX (DOT TYPE "B") & CONNECT NEW DUCTS AS REQUIRED.
5. REMOVE EXISTING 12" X 20" TRAFFIC SIGNAL PULLBOX & IN ITS PLACE PROVIDE NEW 28" X 40" CONC PULLBOX (DOT TYPE "C"). RECONNECT EXISTING DUCTS & CONNECT NEW DUCTS AS REQUIRED.
6. ROUTE DETECTOR LOOP WIRING VIA EXISTING STUBOUT
7. EXISTING 2-2" TRAFFIC SIGNAL DUCTS TO REMAIN.
8. 6' x 6' DETECTOR LOOPS - CONSTRUCT PER DTS REQUIREMENTS SEE DETAIL: 1 ; SHEET: E5.
9. TRAFFIC SIGNAL STANDARD TYPE I & II - CONSTRUCT PER STATE HDOT STANDARD DWG TE-90, 91 & SHT: E3.
10. TRAFFIC SIGNAL PULLBOX TYPE "B" & "C" - CONSTRUCT PER STATE HDOT STANDARD DWG TE-41 & SHT: E4.
11. TRAFFIC SIGNAL SIGN. SEE DETAIL: 2 ; SHEET: E2.



2/E1 TRAFFIC SIGNAL PHASING PLAN
NOT TO SCALE



3/E1 TYPICAL DUCT SECTIONS
NOT TO SCALE

APPROVED BY:

HAWAIIAN TELEPHONE CO. — DATE 5/30/95

DRAWING REVIEW:
Reviewed for HECO's Facilities Only
Date 6/14/95 By
Distribution Engineering Department
Hawaiian Electric Company, Inc.
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on Customer's behalf from the responsibility for engineering, design, materials and any liability associated with this project.

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

COMMUNITY PLANNING INCORPORATED
CIVIL ENGINEERS SURVEYORS CONSULTANT PLANNERS

FARRINGTON HWY & KAUKAMA RD
TRAFFIC SIGNAL
MAILI, WAIANAE, OAHU, HAWAII

TRAFFIC SIGNAL PLAN & PHASING DIAGRAM

ENGINEER	SM	DATE	AUG '95
DRAFTSMAN	RK	CHECKED BY	SM
SCALE	AS SHOWN	TRACER	RK

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THE PRODUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION

W. S.	PROFILE	C. B.	
CR. SEC.	F. B.	S. B.	
W. L. BY:	F. W. BY:	S. BY:	

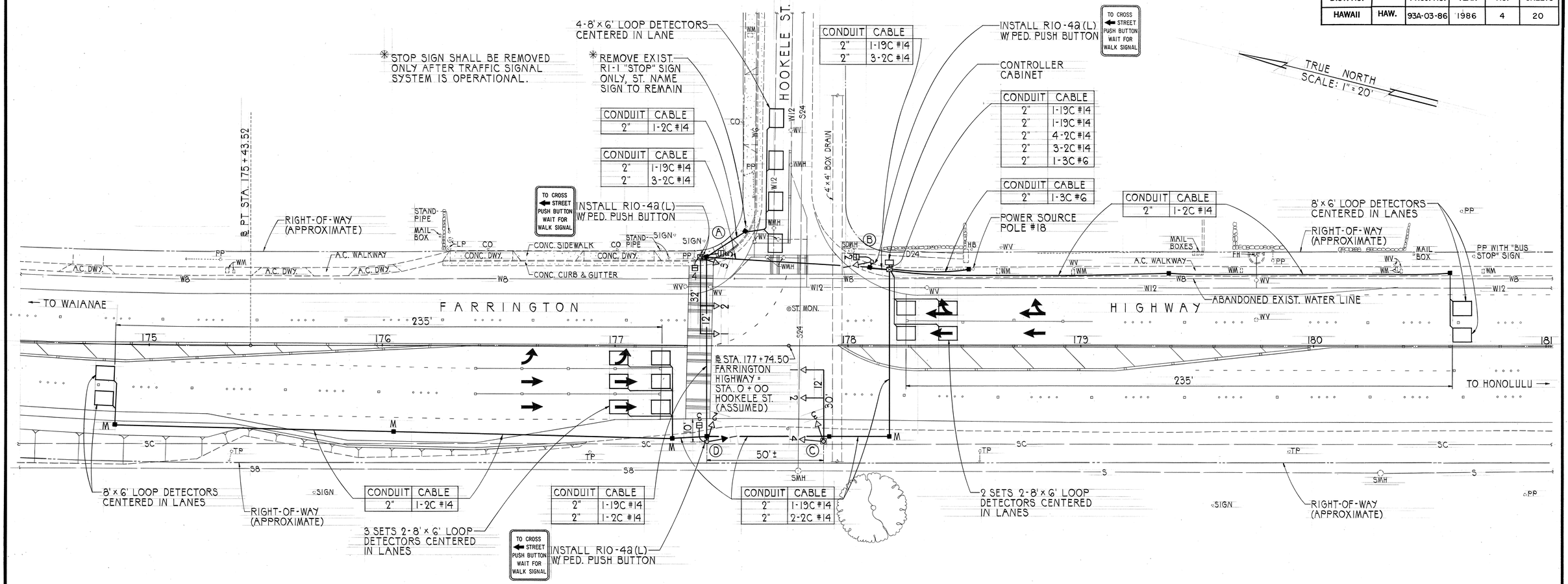
APPROVED — REG. ENGR. CERT. NO. 470-E

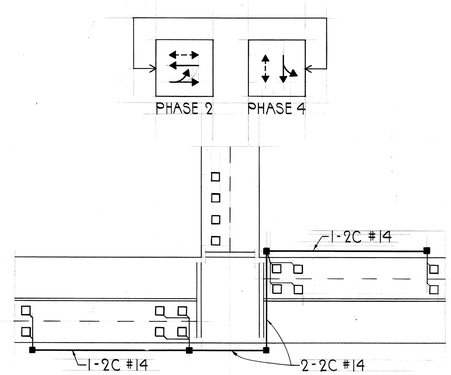
FILE	PROJ.	FOLDER	NO.

SHEET E1 OF 7 SHEETS

52-229

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-86	1986	4	20

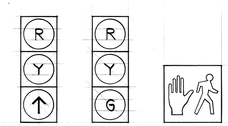




NOTE:

DETECTOR ASSIGNMENT SHALL BE PER CALIFORNIA DEPT. OF TRANSPORTATION "TRAFFIC SIGNAL CONTROL LOCAL INTERSECTION PROGRAM", JULY 1978.

PHASE DIAGRAM
2-PHASE OPERATION



D-1 | A-1, A-2, A-3, B-1, C-1, C-2, C-3, C-4, D-2 | A-4, A-5, B-2, D-3

SIGNAL INDICATIONS

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

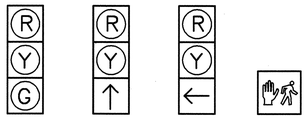
FARRINGTON HIGHWAY
TRAFFIC SIGNALS AT
HOOKELE STREET
PROJECT NO. 93A-03-86

SCALE: 1" = 20' DATE: MAY 16, 1986

SHEET No. 1 OF 1 SHEETS

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

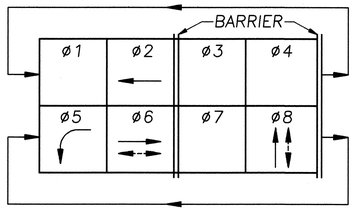
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(16)	1995	11	16



A-3 B-2 C-1 D-2 D-3 | A-2 D-1 | A-1* B-1 E-1 | C-2 D-4 D-5 E-2

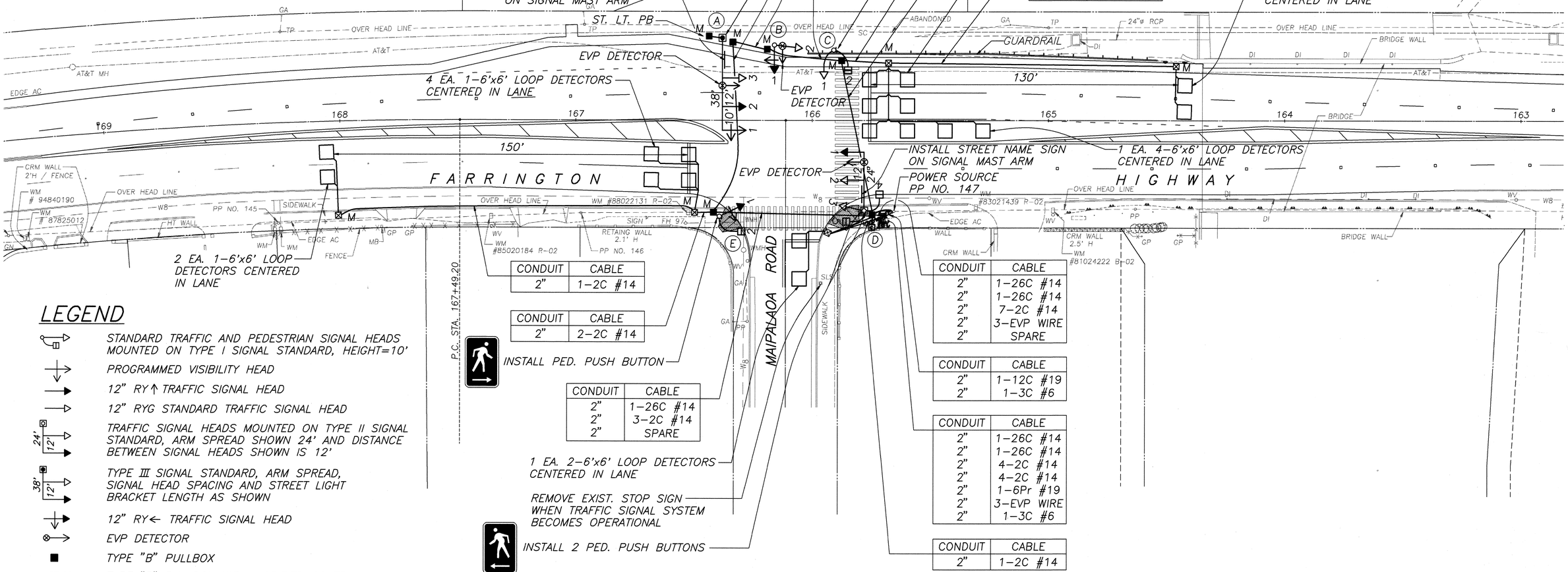
*PROGRAMMABLE VISIBILITY HEAD

SIGNAL INDICATIONS



PHASE ASSIGNMENT DIAGRAM

MODEL 170 CONTROLLER
MODEL 332 CABINET



CONDUIT	CABLE
2"	1-26C #14
2"	1-EVP WIRE
2"	SPARE

CONDUIT	CABLE
2"	1-26C #14
2"	SPARE
2"	SPARE

CONDUIT	CABLE
2"	1-26C #14
2"	2-EVP WIRE
2"	SPARE

CONDUIT	CABLE
2"	3-2C #14

CONDUIT	CABLE
2"	1-26C #14
2"	4-2C #14
2"	2-EVP WIRE
2"	SPARE

CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	2-2C #14

CONDUIT	CABLE
2"	1-26C #14
2"	3-2C #14
2"	SPARE

CONDUIT	CABLE
2"	1-26C #14
2"	1-26C #14
2"	7-2C #14
2"	3-EVP WIRE
2"	SPARE

CONDUIT	CABLE
2"	1-12C #19
2"	1-3C #6

CONDUIT	CABLE
2"	1-26C #14
2"	1-26C #14
2"	4-2C #14
2"	4-2C #14
2"	1-6Pr #19
2"	3-EVP WIRE
2"	1-3C #6

CONDUIT	CABLE
2"	1-2C #14

LEGEND

- STANDARD TRAFFIC AND PEDESTRIAN SIGNAL HEADS MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT=10'
- PROGRAMMED VISIBILITY HEAD
- 12" RY↑ TRAFFIC SIGNAL HEAD
- 12" RYG STANDARD TRAFFIC SIGNAL HEAD
- 24' / 12' — TRAFFIC SIGNAL HEADS MOUNTED ON TYPE II SIGNAL STANDARD, ARM SPREAD SHOWN 24' AND DISTANCE BETWEEN SIGNAL HEADS SHOWN IS 12'
- 38' / 12' — TYPE III SIGNAL STANDARD, ARM SPREAD, SIGNAL HEAD SPACING AND STREET LIGHT BRACKET LENGTH AS SHOWN
- 12" RY← TRAFFIC SIGNAL HEAD
- EVP DETECTOR
- TYPE "B" PULLBOX
- M — TYPE "B" PULLBOX WITH MODIFIED COVER
- TYPE "A" PULLBOX
- M — TYPE "A" PULLBOX WITH MODIFIED COVER
- TYPE "C" PULLBOX (2'x4')
- C — CONTROLLER
- TSS — NEW TRAFFIC SIGNAL STANDARD
- LOOP DETECTOR, SERIES-PARALLEL CONNECTED
- LOOP DETECTOR, SERIES CONNECTED

—W12— EXISTING UTILITY LINES AND SIZES AS INDICATED
W = WATER
S = SEWER
D = DRAIN
SL = STREET LIGHT
E = ELECTRIC
T = TELEPHONE

TRAFFIC SIGNAL PLAN

SCALE: 1"=20'

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

HOWARD H. W. MAU
LICENSED PROFESSIONAL ENGINEER
No. 1594-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Howard H. W. Mau
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT MAIPALAOA ROAD
F.A.P. NO. STP-093-1(16)

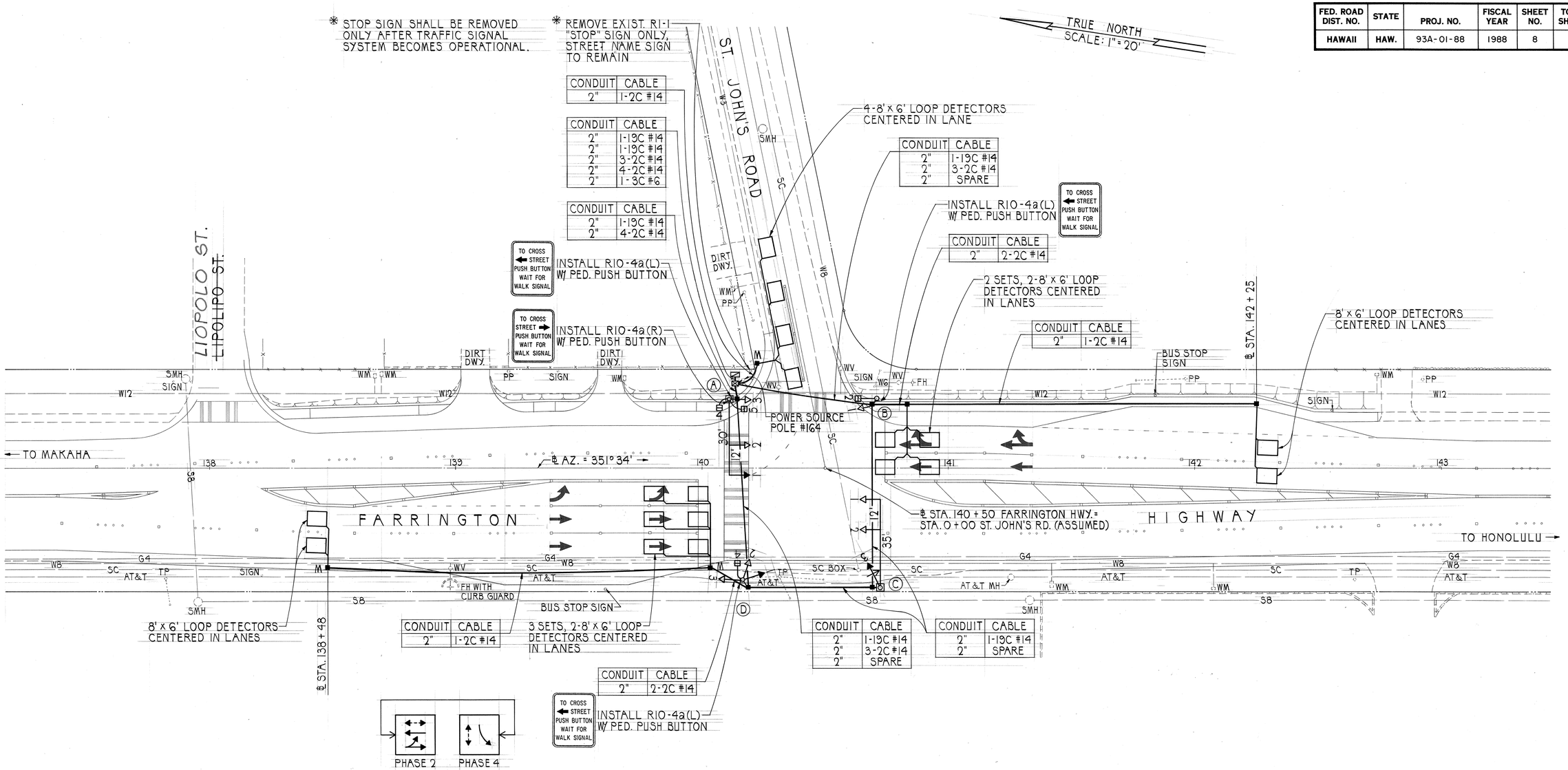
SCALE: AS NOTED DATE: APRIL 1996

SHEET No. 3 OF 6 SHEETS

AS-BUILT

FN: TSIGNAL.DWG
050396

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-01-88	1988	8	10



CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	1-19C #14
2"	1-19C #14
2"	3-2C #14
2"	4-2C #14
2"	1-3C #6

CONDUIT	CABLE
2"	1-19C #14
2"	4-2C #14

CONDUIT	CABLE
2"	1-19C #14
2"	3-2C #14
2"	SPARE

CONDUIT	CABLE
2"	2-2C #14

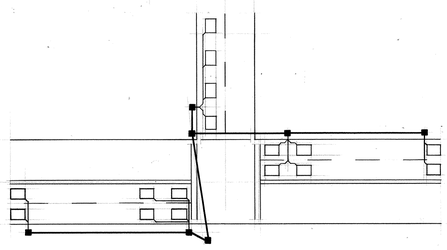
CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	1-19C #14
2"	3-2C #14
2"	SPARE

CONDUIT	CABLE
2"	1-19C #14
2"	SPARE

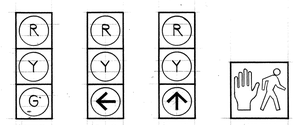
CONDUIT	CABLE
2"	2-2C #14



NOTE:

DETECTOR ASSIGNMENT SHALL BE PER CALIFORNIA DEPT. OF TRANSPORTATION "TRAFFIC SIGNAL CONTROL LOCAL INTERSECTION PROGRAM", JULY 1978.

PHASE DIAGRAM
2-PHASE OPERATION



SIGNAL INDICATIONS

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

THEODORE S. KAWAHIGASHI REGISTERED PROFESSIONAL ENGINEER No. 3244-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
ST. JOHN'S ROAD

FARRINGTON HWY., TRAFFIC SIGNALS AT KAUKAMANA STREET AND AT ST. JOHN'S ROAD
PROJECT NO. 93A-01-88

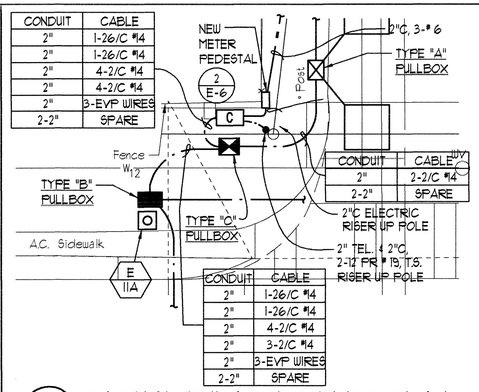
SCALE: 1" = 20' DATE: JUN 25, 1987

SHEET No. 2 OF 2 SHEETS

DATE	REVISION
6/9/98	REVISED SIGNAL ASSEMBLY INDICATIONS.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-97	1998	14	18

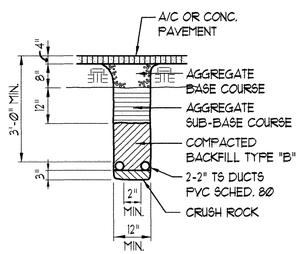
CONDUIT	CABLE
2"	1-26/C #4
2"	1-26/C #4
2"	4-2/C #4
2"	4-2/C #4
2"	3-EVP WIRES
2-2"	SPARE



CONDUIT	CABLE
2"	2-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	1-26/C #4
2"	1-26/C #4
2"	4-2/C #4
2"	3-2/C #4
2"	3-EVP WIRES
2-2"	SPARE

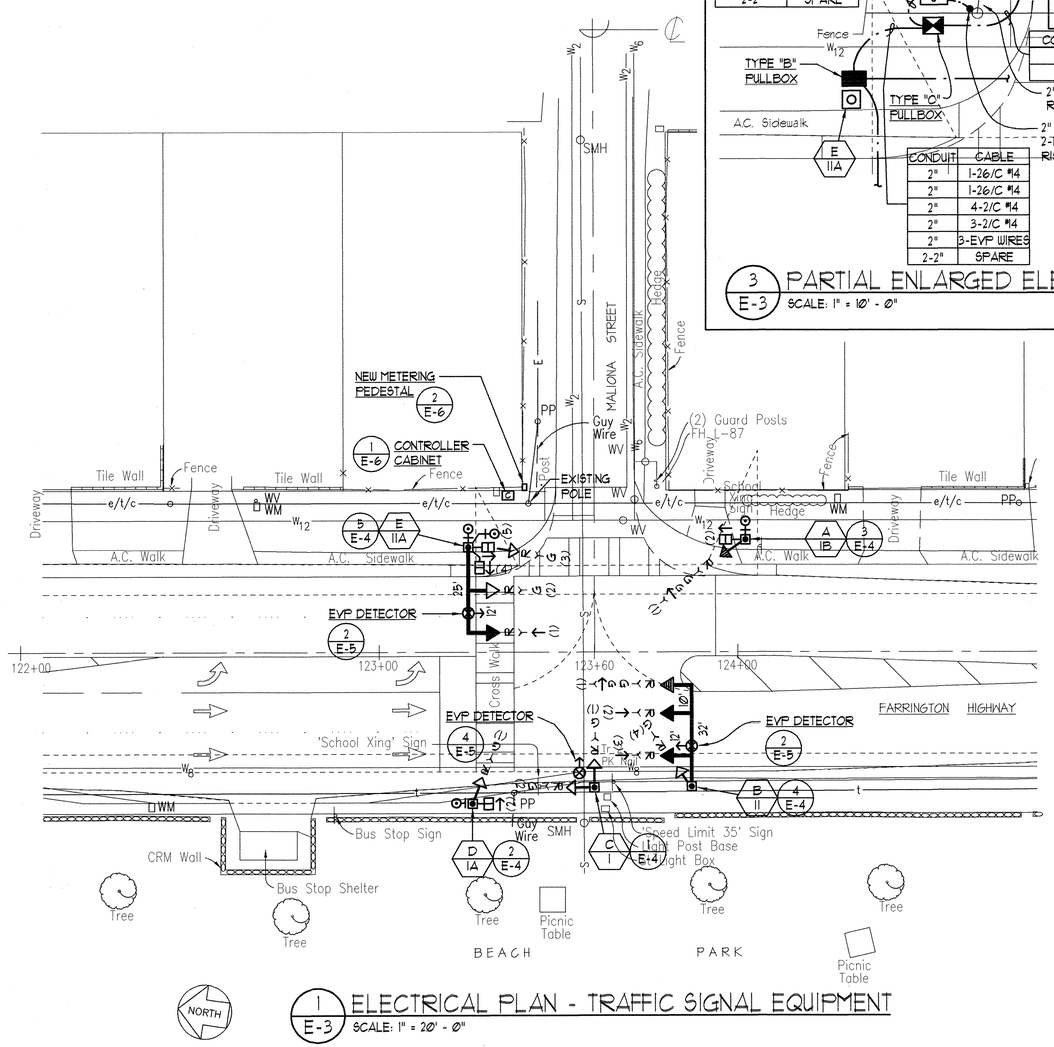
3/E-3 PARTIAL ENLARGED ELEC. PLAN
SCALE: 1" = 10' - 0"



5/E-3 TYPICAL DUCT SECTIONS
NOT TO SCALE

ELECTRICAL NOTES:

1. EXISTING UNDERGROUND SERVICE.
2. INTERCEPT EXISTING 2"C WITH NEW 2"C.



1/E-3 ELECTRICAL PLAN - TRAFFIC SIGNAL EQUIPMENT
SCALE: 1" = 20' - 0"

CONDUIT	CABLE
2"	1-26/C #4
2"	1-26/C #4
2"	4-2/C #4
2"	3-2/C #4
2"	3-EVP WIRES
2-2"	SPARE

CONDUIT	CABLE
2"	1-26/C #4
2"	1-26/C #4
2"	4-2/C #4
2"	4-2/C #4
2"	3-EVP WIRES
2-2"	SPARE

CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	3-2/C #4
2"	1-26/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	4-2/C #4
2"	1-26/C #4
2"	2-EVP WIRES
2-2"	SPARE

CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	1-26/C #4
2-2"	SPARE

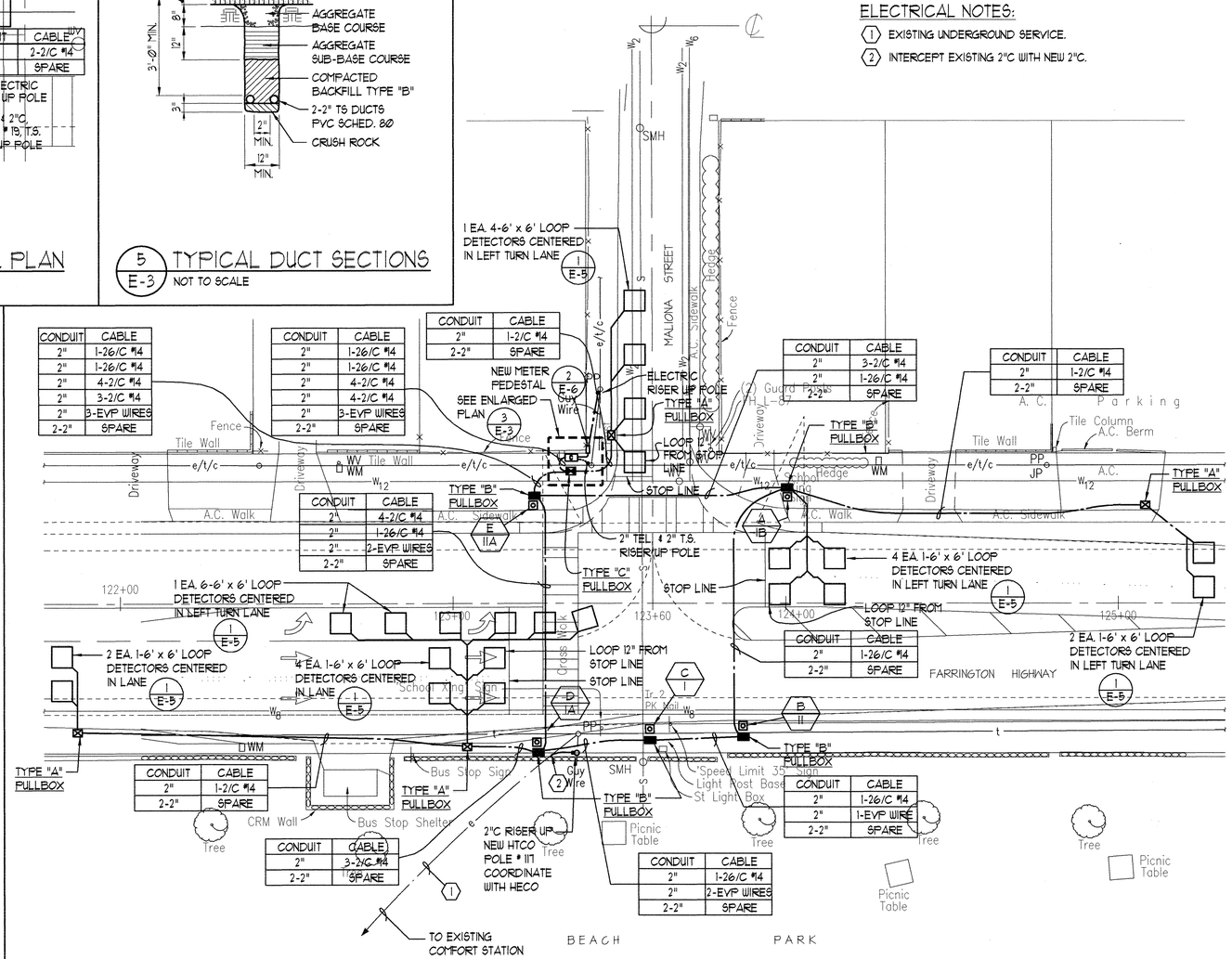
CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	1-26/C #4
2"	1-26/C #4
2-2"	SPARE

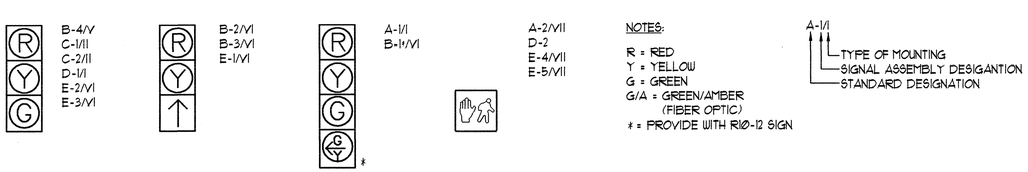
CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE

CONDUIT	CABLE
2"	3-2/C #4
2"	1-26/C #4
2-2"	SPARE

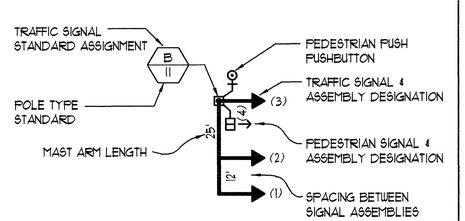
CONDUIT	CABLE
2"	1-2/C #4
2-2"	SPARE



2/E-3 ELECTRICAL PLAN - HANDHOLE/DUCTLINES
SCALE: 1" = 20' - 0"



4/E-3 SIGNAL ASSEMBLY ARRANGEMENT/ TYPE OF MOUNTING
NOT TO SCALE



PLAN - SYMBOL LEGEND

RICHARD Y. OKITA
LICENSED PROFESSIONAL ENGINEER
No. 1390-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELEC. PLAN-TRAFFIC SIGNAL EQUIP. AND HANDHOLE/DUCTLINES

FARRINGTON HIGHWAY
Intersection Improvements at Maliona St.
Project No. 93A-03-97

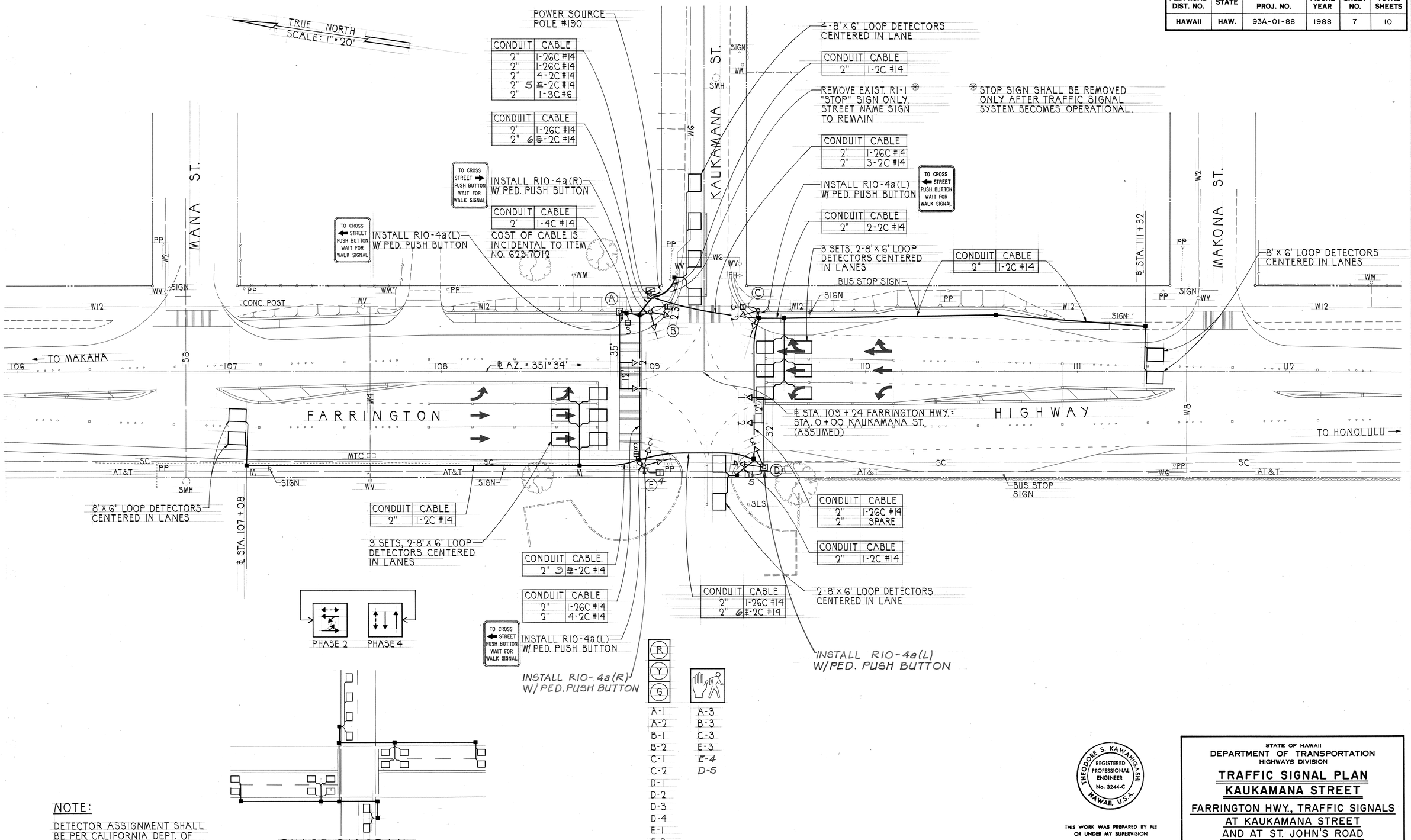
SCALE: AS SHOWN DATE: MAY 1998

E-3

SHEET No. 3 OF 7 SHEETS

ATT. 14

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-01-88	1988	7	10



NOTE:

DETECTOR ASSIGNMENT SHALL BE PER CALIFORNIA DEPT. OF TRANSPORTATION "TRAFFIC SIGNAL CONTROL LOCAL INTERSECTION PROGRAM", JULY 1978.

PHASE DIAGRAM
2-PHASE OPERATION

SIGNAL INDICATIONS

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

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

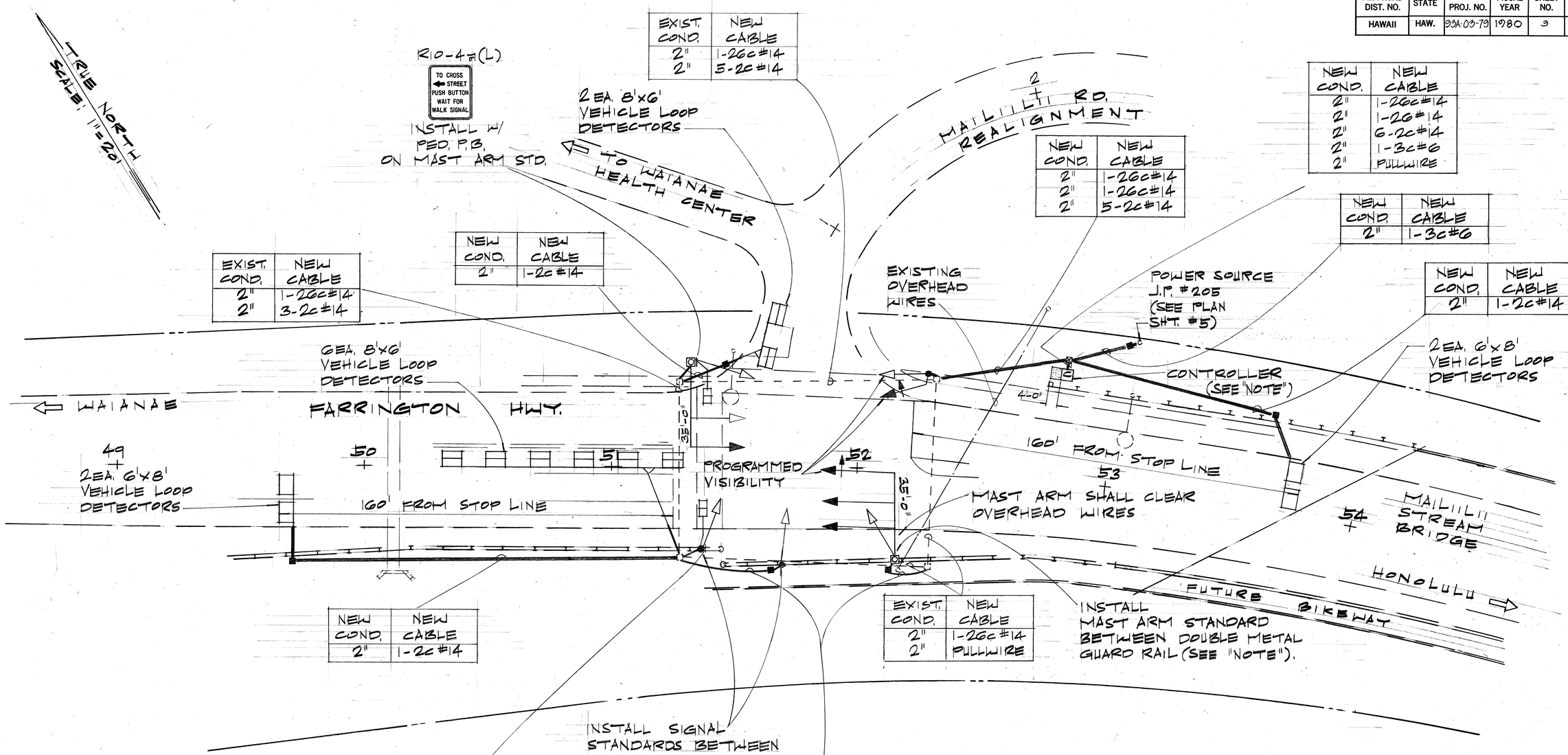
TRAFFIC SIGNAL PLAN
KAUKAMANA STREET

FARRINGTON HWY., TRAFFIC SIGNALS AT KAUKAMANA STREET AND AT ST. JOHN'S ROAD
PROJECT NO. 93A-01-88

SCALE: 1" = 20' DATE: JUN 25, 1987

SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-03-79	1980	3	15



NOTE:

1. CABINET & CONTROLLER SHALL BE WIRED TO ACCEPT A FUTURE COORDINATING UNIT & INSTALLATION SPACE LEFT IN THE CABINET TO ACCOMODATE THE REQUIRED FUTURE EQUIPMENT.
2. PROVIDE 4" THICK CONCRETE LANDING ACROSS ENTIRE WIDTH IN FRONT OF CONTROLLER. COST SHALL BE INCIDENTAL TO CONTROLLER.
3. GUARD RAIL MAY BE REMOVED TO FACILITATE INSTALLATION OF TRAFFIC SIGNAL STANDARDS, BUT SHALL BE REPLACED DURING NON-WORKING HOURS.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL INSTALLATION
FARRINGTON HWY.
AT MAILILI RD

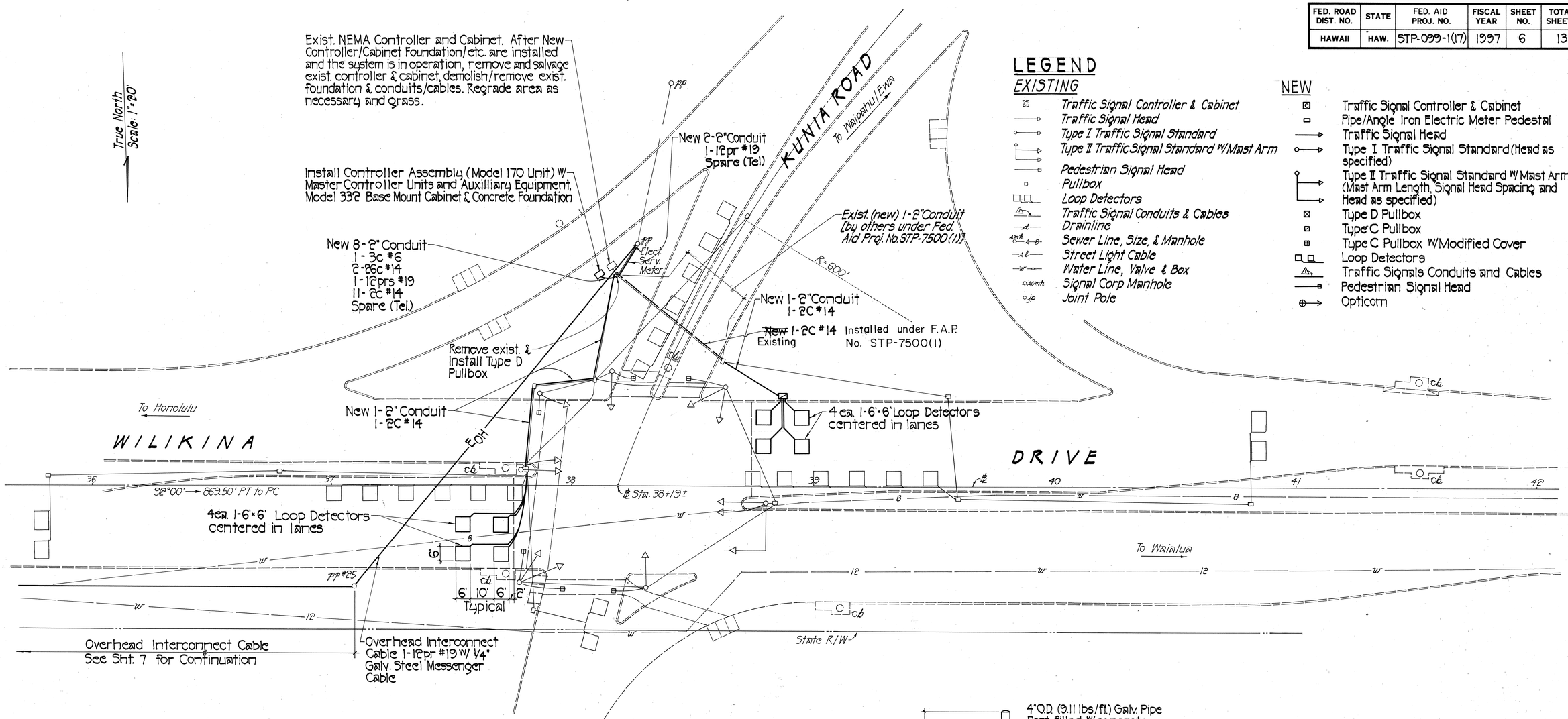
PROJ. NO. 93A-03-79
SCALE: 1" = 20' DEC. 1978

SHEET No. 3 OF 15 SHEETS

3

D-C-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-099-1(17)	1997	6	13



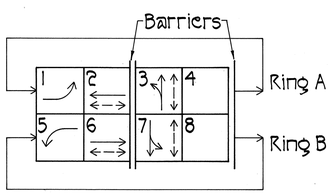
LEGEND

EXISTING

- Traffic Signal Controller & Cabinet
- Traffic Signal Head
- Type I Traffic Signal Standard
- Type II Traffic Signal Standard w/ Mast Arm
- Pedestrian Signal Head
- Pullbox
- Loop Detectors
- Traffic Signal Conduits & Cables
- Drainline
- Sewer Line, Size, & Manhole
- Street Light Cable
- Water Line, Valve & Box
- Signal Corp Manhole
- Joint Pole

NEW

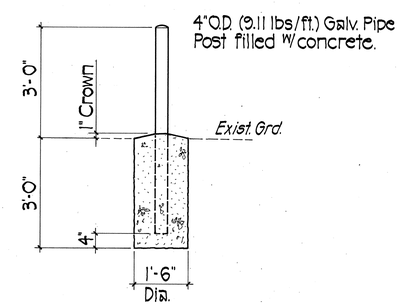
- Traffic Signal Controller & Cabinet
- Pipe/Angle Iron Electric Meter Pedestal
- Traffic Signal Head
- Type I Traffic Signal Standard (Head as specified)
- Type II Traffic Signal Standard w/ Mast Arm (Mast Arm Length, Signal Head Spacing and Head as specified)
- Type D Pullbox
- Type C Pullbox
- Type C Pullbox w/ Modified Cover
- Loop Detectors
- Traffic Signals Conduits and Cables
- Pedestrian Signal Head
- Opticom



PHASE DIAGRAM

PLAN ~ WILIKINA DRIVE, TRAFFIC SIGNAL MODERNIZATION @ KUNIA ROAD

Scale: 1" = 20'



PIPE POST (A/6)

Not to Scale

HAROLD I. YOSHIZAKI LICENSED PROFESSIONAL ENGINEER No. 2091-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Harold I. Yoshizaki

SHIMABUKURO, BISO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WILIKINA DRIVE TRAFFIC SIGNAL MODERNIZATION @ KUNIA ROAD

WILIKINA DRIVE
TRAFFIC SIGNALS AT LAKEVIEW CIRCLE
FED. AID PROJECT NO. STP-099-1(17)

SCALE: AS SHOWN DATE: JAN. 1997

SHEET No. 2 OF 3 SHEETS

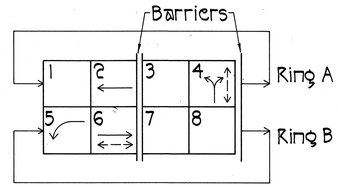
ORIGINAL PLAN — SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY — DATE — NOTE BOOK No.

137218

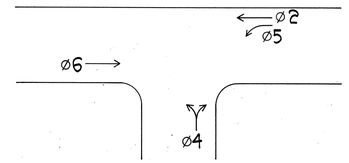
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-099-1(17)	1997	5	13

TRAFFIC SIGNAL STANDARD SCHEDULE

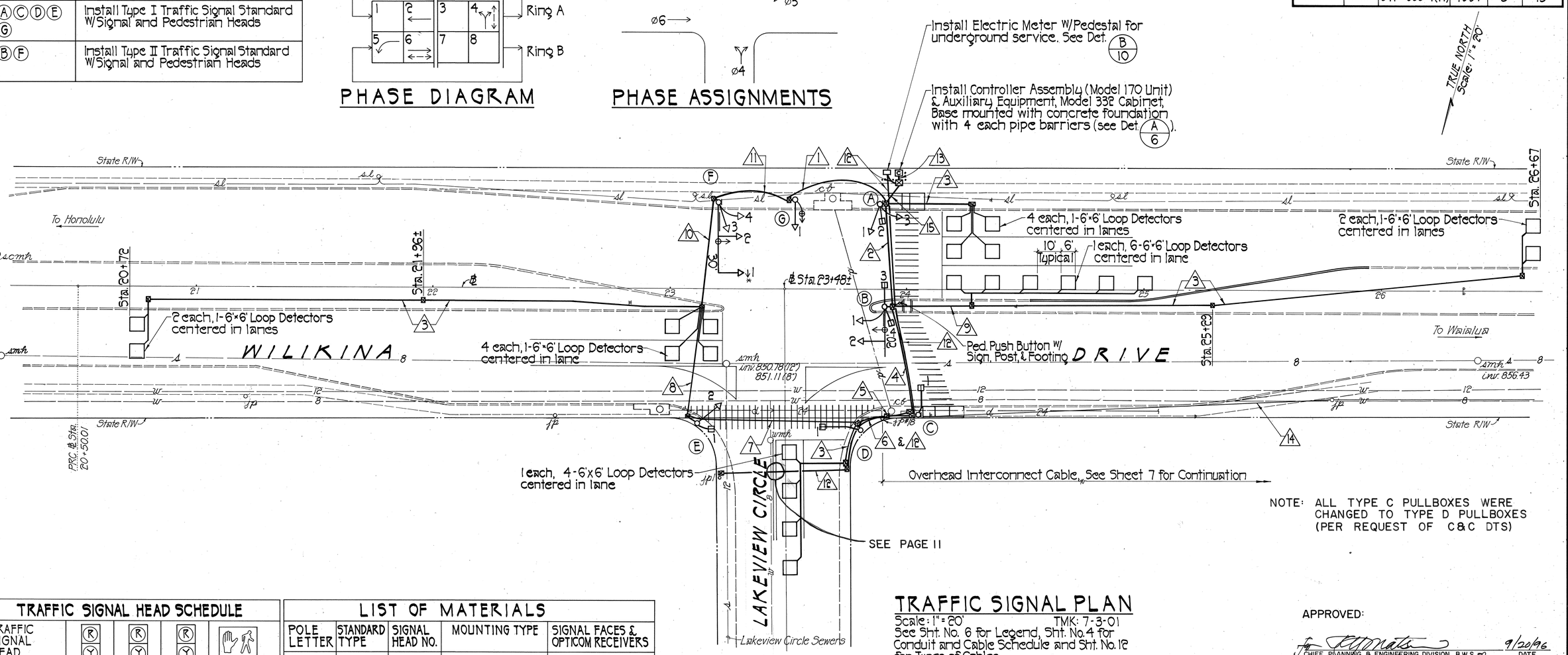
POLE LETTER	DESCRIPTION
(A)(C)(D)(E)(G)	Install Type I Traffic Signal Standard W/Signal and Pedestrian Heads
(B)(F)	Install Type II Traffic Signal Standard W/Signal and Pedestrian Heads



PHASE DIAGRAM



PHASE ASSIGNMENTS



NOTE: ALL TYPE C PULLBOXES WERE CHANGED TO TYPE D PULLBOXES (PER REQUEST OF C&C DTS)

TRAFFIC SIGNAL PLAN

Scale: 1" = 20' TMK: 7-3-01

See Sht. No. 6 for Legend, Sht. No. 4 for Conduit and Cable Schedule and Sht. No. 12 for Types of Cables.

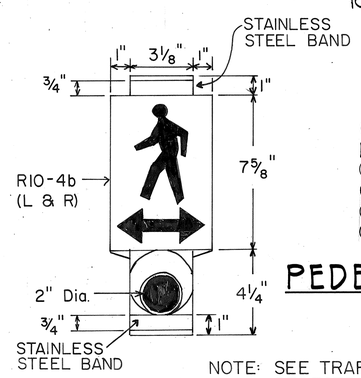
TRAFFIC SIGNAL HEAD SCHEDULE

TRAFFIC SIGNAL HEAD TYPE AND DESCRIPTION	12" RYG TRAFFIC SIGNAL HEAD	12" RY↑ TRAFFIC SIGNAL HEAD	12" RY← TRAFFIC SIGNAL HEAD	PEDESTRIAN SIGNAL HEAD
POLE LETTER AND SIGNAL HEAD NUMBER	A-1 F-3 G-1	A-3 B-1&2(BP) F-2(BP) F-4	E-2 *F-1	A-2 B-3 & 4 C-1 D-1 E-1

BP = Back Plate
* = Programmable Visibility
All Red Signal Indications shall be LED Lamp.

LIST OF MATERIALS

POLE LETTER	STANDARD TYPE	SIGNAL HEAD NO.	MOUNTING TYPE	SIGNAL FACES & OPTICOM RECEIVERS
A	I-10	1 & 3 2	Slipfitter, Two-Way Cantilever, One-Way	RYG, RY↑ H-M
B	II-20	1 2 3 & 4	Pole Bracket, One-Way Mast Arm, One-Way Pole Bracket, Two-Way Mast Arm (Hor.)	RY↑ RY↑ H-M Opticom
C	I-8	1	Slipfitter, One-Way	H-M
D	I-8	1	Slipfitter, One-Way	H-M
E	I-10	1 2	Cantilever, One-Way Slipfitter, One-Way	H-M RY←
F	II-30	1 2 3 & 4	Mast Arm, One-Way Mast Arm, One-Way Mast Arm (Hor.) Pole Bracket, Two-Way	RY←* RY↑ Opticom RYG, RY↑
G	I-10	1	Slipfitter, One-Way TPIW-EVP, One-Way	RY← Opticom



R10-4B (Sign Varies w/Direction)

Ped. Push Button/Post
(A) ↔ (←→) R10-4B (L)
(B) ↔ (←→) R10-4B (L&R)
(C) ↔ (→) R10-4B (R)
(D) ↔ (→) R10-4B (R)
(E) ↔ (←) R10-4B (L)

THE COLOR SCHEME SHALL BE:
WHITE: MAN, ARROW & PUSHBUTTON
BLACK: BACKGROUND

PEDESTRIAN PUSH BUTTON W/ SIGN

NOTE: SEE TRAFFIC SIGNAL PLAN FOR PEDESTRIAN WALK ARROW

APPROVED:

CHIEF, PLANNING & ENGINEERING DIVISION, B.W.S. — DATE 9/20/96

CHIEF, DIVISION OF PLANNING & SERVICE CONTROL, D.W.W.M. (FOR SEWER WORK WITHIN PUBLIC R/W ONLY) — DATE 9/16/96

HAROLD I. YOSHIZAKI LICENSED PROFESSIONAL ENGINEER No. 2091-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Harold I. Yoshizaki
SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

WILIKINA DRIVE
TRAFFIC SIGNALS AT LAKEVIEW CIRCLE
FED. AID PROJECT NO. STP-099-1(17)

SCALE: AS SHOWN DATE: JAN. 1997

SHEET No. 1 OF 3 SHEETS

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

137218

FED.ROAD DIST. NO.	STATE	FED.AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-099-1(17)	1997	4	13

WATER NOTES

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "WATER SYSTEM STANDARDS," VOLUME 1, dated 1985, the "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION," VOLUME 2, dated 1985, the "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS," VOLUME 3, dated 1991, and all subsequent amendments and additions.
2. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. All other features of the water system, such as lines, grades, fittings, drainage, etc., and other features of improvements shall not be the responsibility of the Board of Water Supply.
3. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but are not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.
4. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees, and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.
5. Re-approval shall be required if this project is not under construction within a period of two years.
6. At the electrical/signal ductline water crossings, adjust all electrical/signal ductline elevations to maintain 6" vertical clear separation from all water lines (12" clear for all electrical/signal ductline structures larger than 16") at no cost to the Board of Water Supply.
7. Maintain 3'-0" min. horizontal clear separation between all water line systems and nearest electrical/signal ductlines paralleling the water system at no cost to the Board of Water Supply.
8. Maintain 3'-0" min. horizontal clear separation between street light/traffic signal, standards (including any modular units) and the nearest water system. Contractor shall field verify for any conflicts at each street light/traffic signal standard location. Where conflicts occur, the Contractor shall coordinate with the project engineer to revise the street light/traffic signal standard to provide the required clearances at no cost to the BWS.
9. The Contractor shall notify BWS Planning and Engineering Division, Construction Section, one week prior to commencing work on the water system.
10. The Contractor shall verify all existing service lateral locations whether shown or not shown on plans prior to commencing with any of the work and shall not assume that where no services are shown none exist.
11. Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.

SEWER NOTES

1. All sewer construction shall be performed in accordance with the City's Standard Specifications, September 1986, the Department of Public Works Standard Details, September 1984, current city practices and Revised Ordinances of Honolulu, 1990, as amended, and the Design Standards of the Department of Wastewater Management, Vol. 1, July 1993.
2. The Contractor shall notify the Construction Section, Department of Wastewater Management, at 527-5820 or 523-4345 to arrange for inspection services and submit four sets of approved construction plans seven days prior to commencement of sewer work. The Contractor shall pay for all inspection costs.
3. The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the Plans. The Contractor shall verify the location and depth of the facilities and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.
4. The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.
5. The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notification and press releases.

CONSTRUCTION NOTES

1. All construction work shall be done in accordance with these plans, all applicable sections of the Standard Specifications for Road and Bridge Construction, dated 1994 as amended, of the State Highways Division, Department of Transportation, and the project's Special Provisions, unless otherwise specified.
2. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, temporary guardrails, barricades, markers, cones, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Rules and Regulations Governing the Use of Trafffic Control Devices at Work Sites On or Adjacent to Public Streets and Highways" adopted by the Highway Coordinator and the U.S. Federal Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI – Traffic Controls for Highway Construction and Maintenance Operations," dated 1988, and amendments.
3. Full compensation for all additional materials and labor, not specifically shown or called for which are necessary to complete the construction of the project, shall be considered incidental to the various contract items in the Proposal and no additional compensation will be allowed therefor.
4. The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the Plans. The Contractor shall verify the location and depth of the facilities and exercise proper care in excavating in the area.
5. The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways, and other areas. The costs incurred for any necessary remedial action by the Engineer shall be payable by the Contractor.
6. The Contractor, at his own expense, shall keep the project area and surrounding area from dust nuisance. The work shall be in conformance with the Air Pollution Control Standards and Regulations of the State Department of Health.
7. All saw cutting work shall be considered incidental to other items of work in the Proposal.
8. Pedestrian walkways shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
9. Driveways shall be kept open unless the owner(s) of the property using these rights-of-way are otherwise provided for satisfactorily.
10. No material and/or equipment shall be stockpiled or otherwise stored within roadway right-of-way except at locations desginated and approved in writing by the Engineer.
11. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

PUBLIC WORKS NOTES (CITY & COUNTY OF HONOLULU)

1. All construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986, and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
2. The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
3. No Contractor shall perform any construction activity so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the costs incurred for any remedial action by the Chief Engineer shall be payable by the Contractor.
4. The Contractor shall be responsible for conformance with the applicable provisions of Chapter 54, Water Quality Standards, and Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health.
5. The Contractor shall notify the Construction Section, Division of Engineering, Department of Public Works at 527-6311 to arrange for inspectional services and submit three (3) sets of approved Construction Plans seven (7) days prior to commencement of construction work.

HECO NOTES

1. The location of HECO's overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown. The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines and shall maintain adequate clearance when operating equipment within or under any overhead lines.
2. The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Law (DOSH).
3. The Contractor shall obtain an excavation permit from HECO's Mapping and Records Division located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number __________.
4. For verification of underground lines or for assistance in supporting and protecting these lines, the Contractor shall call HECO's Underground Division at 543-7345 a minimum of 72 hours in advance.
5. When trench excavation is adjacent to or beneath our existing structures or facilities, the Contractor is responsible for:
   a. Sheeting and bracing the excvation to prevent slides, caveins, and settlements.
   b. Protecting existing structures or facilities with beams, struts, or under-pinnings.
6. For pole bracing instructions, the Contractor shall call the HECO District Superintendent at (Koolau/261-6085, Waiau/543-4223, Ward/543-7745) a minimum of 72 hours in advance.
7. Any work required to relocate HECO facilities shall be done by HECO and the Contractor shall be responsible for all coordination, and for possible costs if applicable.
8. Should it become necessary to temporarily relocate any of HECO facilities to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations, these temporary relocations will be done by HECO, or by the Contractor under HECO's supervision, with all costs borne by the Contractor.
9. Any unforeseen conflict that would result in the redesign or relocation (either temporary or permanent) of HECO's electrical facilities may be cause for lengthy delays. To avoid such delays, the Contractor must notify HECO of the conflict a minimum of 30 days prior to the start of construction.
10. Any damage to HECO's facilities will be reported immediately to HECO's Trouble Dispatcher at 543-7874.
11. All HECO overhead and underground facilities shall be protected at all times by the Contractor during construction. Costs for damages to HECO facilities shall be borne by the Contractor. This repair work shall be done by HECO, or by the Contractor under HECO's supervision.
12. The Contractor shall indemnify, defend, and hold harmless HECO from and against all losses, damages, claims, and actions, all expenses incidental to such losses, damages, claims or action, based upon or arising out of damage to property or injuries to persons, or other tortious acts caused or contributed to by Contractor or anyone acting under its direction or control or on its behalf; provided Contractor's indemnity shall not be applicable to any liability upon the sole negligence of HECO.

NOTES:

1. All cables and elements of grounding system shall be new.
2. All conduits shall be new except where noted otherwise.
3. Type 2 and Type 5 cables between signal face and TSPB are not called out on the intersection plan, but shall be furnished and installed in sufficient numbers and lengths as required.
4. Type 5 cables shall be incidental to installation of signal faces.

CONDUIT AND CABLE SCHEDULE

Designation	PVC Conduits	Cables
△1	3 - 2"	1 – Type 1, Ground Wire 2 – Type 2 2 – Type 7
△2	5 - 2"	1 – Type 1, Ground Wire 5 – Type 2 1 – Type 3 1 – Type 7
△3	1 - 2"	1 – Type 2
△4	3 - 2"	1 – Type 1, Ground Wire 3 – Type 2 1 – Type 3
△5	3 - 2"	1 – Type 1, Ground Wire 2 – Type 2 1 – Type 3
△6	3 - 2"	1 - Type 1, Ground Wire 2 - Type 2 Spare
△7	3 - 2"	1 - Type 1, Ground Wire 1 - Type 2 Spare
△8	2 - 2"	1 – Type 1, Ground Wire Spare
△9	1 - 2"	2 – Type 2
△10	3 - 2"	1 – Type 1, Ground Wire 2 – Type 2 Spare
△11	3 - 2"	1 – Type 1, Ground Wire 2 – Type 2 1 – Type 7
△12	1 - 2"	1 – Type 6 (3 # 6), Ground Wire
△13	7 - 2"	1 – Type 1, Ground Wire 1 – Type 1 7 – Type 2 1 – Type 3 1 – Type 6 (3 # 6) 3 – Type 7 Spare
△14		1 – Type 3, Overhead Construction Messenger Cable
△15	6 - 2"	1-Type 1, Ground Wire 1-Type 1 7-Type 2 1-Type 3 3-Type 7 Spare

APPROVED:

for [signature] 9/20/96
CHIEF, PLANNING & ENGINEERING, DIVISION, B.W.S. — DATE

[signature] 9/10/96
CHIEF, DIVISION OF PLANNING & SERVICE CONTROL, D.W.W.M. — DATE
(FOR SEWER WORK WITHIN PUBLIC R/W ONLY)

HAROLD I. YOSHIZAKI
LICENSED PROFESSIONAL ENGINEER
No. 2001-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Harold I. Yoshizaki

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES

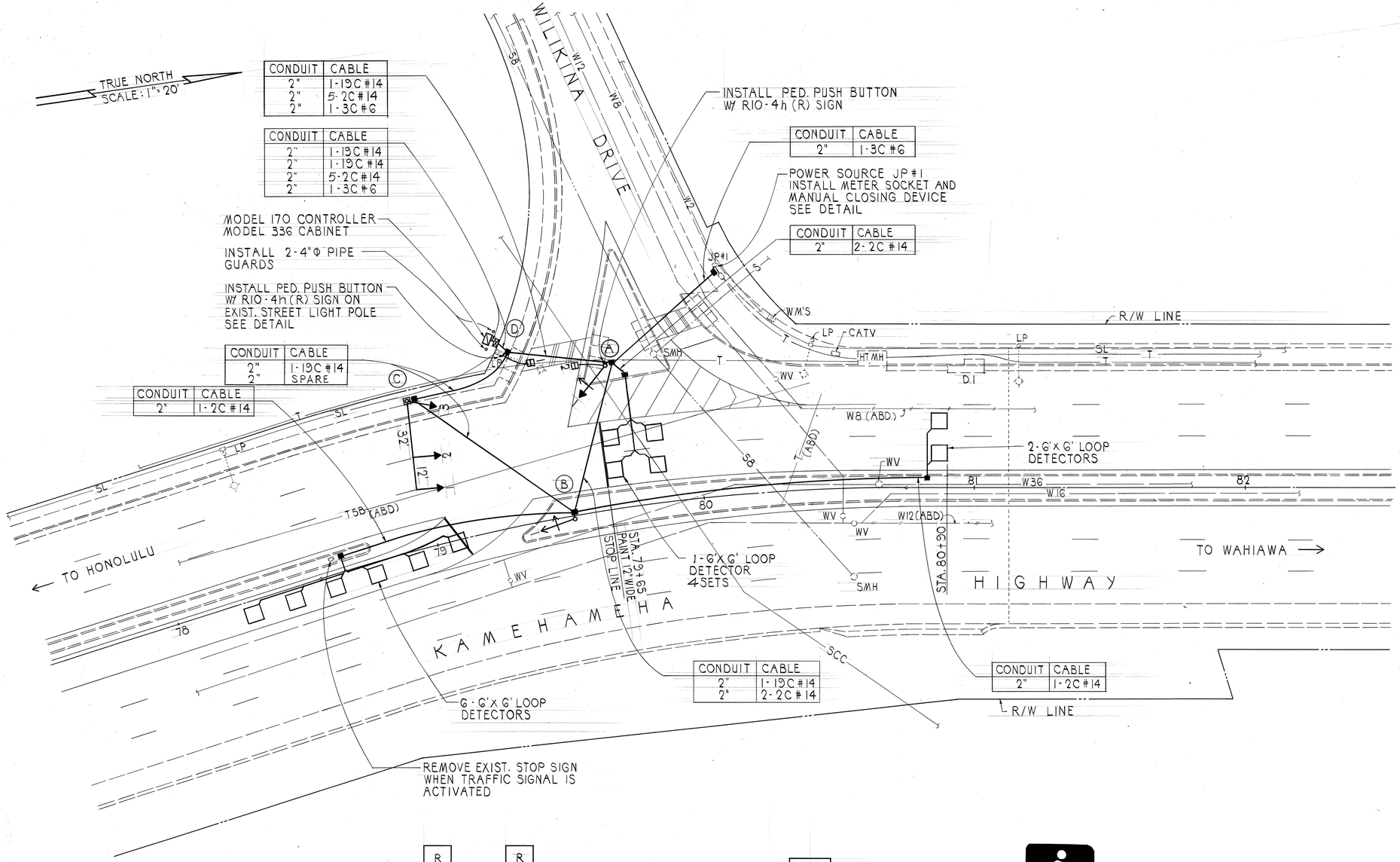
WILIKINA DRIVE
TRAFFIC SIGNALS AT LAKEVIEW CIRCLE
FED. AID PROJECT NO. STP-099-1(17)

SCALE: DATE: JAN., 1997

SHEET NO. 2 OF 2 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	99C-01-89	1989	4	5



CONDUIT	CABLE
2"	1-19C #14
2"	5-2C #14
2"	1-3C #6

CONDUIT	CABLE
2"	1-19C #14
2"	1-19C #14
2"	5-2C #14
2"	1-3C #6

CONDUIT	CABLE
2"	1-3C #6

CONDUIT	CABLE
2"	2-2C #14

CONDUIT	CABLE
2"	1-19C #14
2"	SPARE

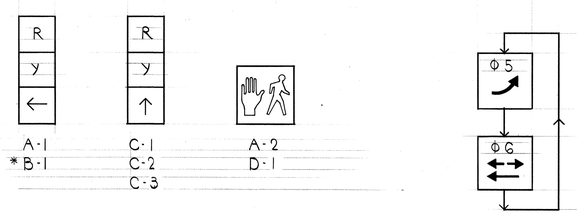
CONDUIT	CABLE
2"	1-2C #14

CONDUIT	CABLE
2"	1-19C #14
2"	2-2C #14

CONDUIT	CABLE
2"	1-2C #14

NOTES:

1. DETECTOR ASSIGNMENT SHALL BE PER CALIFORNIA DEPARTMENT OF TRANSPORTATION "TRAFFIC SIGNAL CONTROL LOCAL INTERSECTION PROGRAM", JULY 1978.
2. PEDESTRIAN SIGNAL HEADS SHALL BE SOLID STATE NEON TYPE.



* PROGRAMMABLE VISIBILITY HEAD

SIGNAL INDICATIONS

PHASE DIAGRAM

R10-4h(R)
5" × 7"

THEODORE S. KAWAHIGASHI
REGISTERED PROFESSIONAL ENGINEER
No. 3244-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Theodore S. Kawahigashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

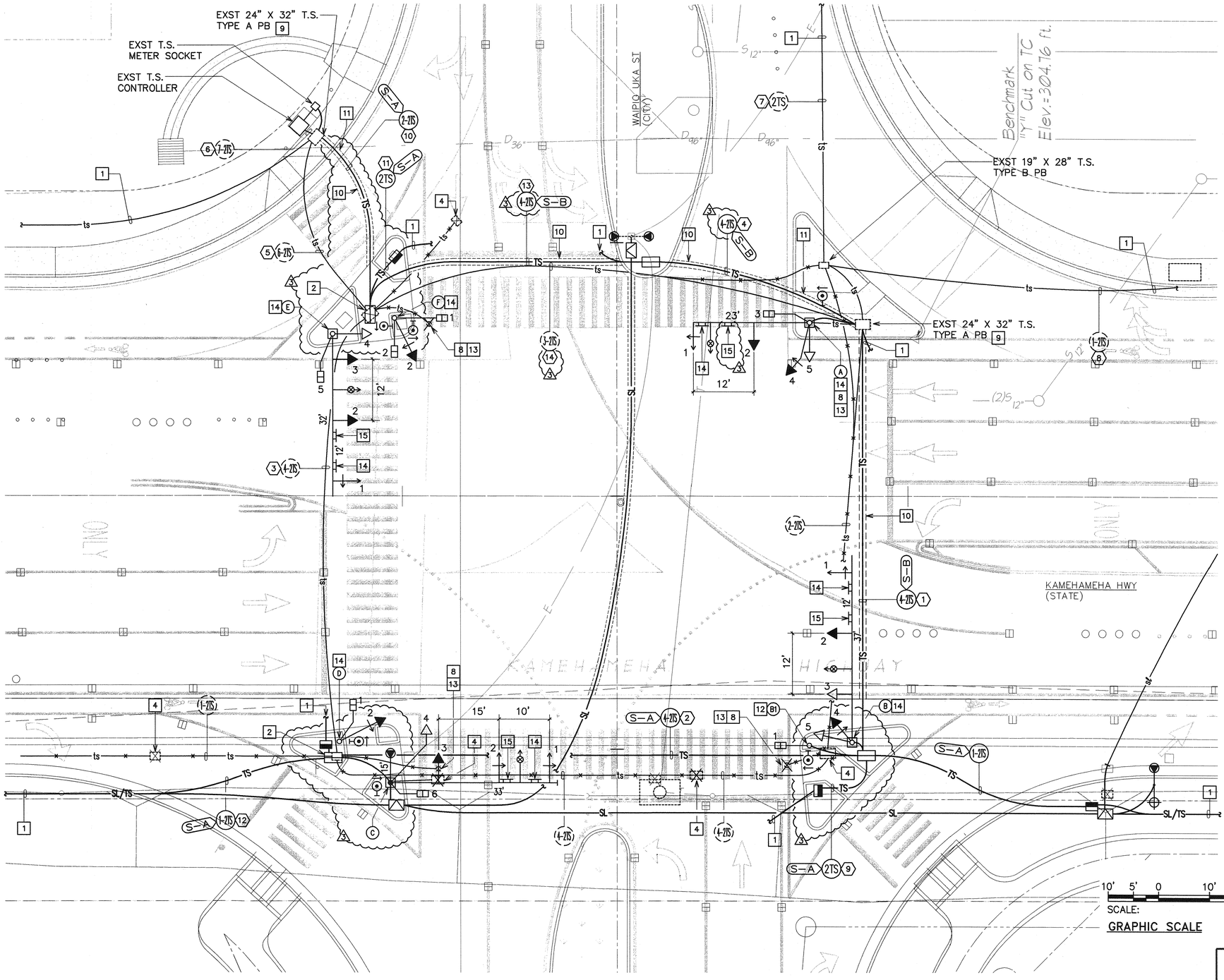
TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY
TRAFFIC SIGNALS AT WILIKINA DRIVE
PROJECT NO. 99C-01-89

SCALE: AS NOTED DATE: OCT. 1988

SHEET No. 4 OF 5 SHEETS

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



GENERAL NOTES:

CONTRACTOR SHALL KEEP EXST TRAFFIC SIGNAL SYSTEM OPERATIONAL AT ALL TIMES. CONTRACTOR SHALL PROVIDE TEMPORARY TRAFFIC SIGNAL SYSTEM (INCLUDING MICROWAVE VEHICLE DETECTORS) AS REQUIRED IF THE EXST TRAFFIC SIGNAL EQUIPMENT ARE REMOVED BEFORE THE NEW TRAFFIC SIGNAL EQUIPMENT ARE OPERATIONAL. TEMPORARY WORK SHALL BE COORDINATED WITH & SHALL BE ACCEPTABLE TO THE INSPECTORS FROM THE STATE D.O.T. – HWYS DIVISION & TRAFFIC SIGNALS & TECHNOLOGY DIVISION, D.T.S.

NOTES:

1. SEE STREET LIGHTING & TRAFFIC SIGNAL PLAN, SHT E-6 FOR CONT
2. REPLACE EXST PULLBOX WITH TYPE "C" PULLBOX
3. INTERCEPT EXST DUCTLINE WITH TYPE "C" PULLBOX
4. REMOVE EXST PULLBOX & CAP EXST CONDUITS. COMPACT BACKFILL @ 95% DENSITY TO MATCH ADJACENT.
5. REMOVE EXST CABLES, CHIP EXST CONC ENCASEMENT & CUT EXST CONDUITS. PROVIDE COUPLINGS & EXTEND CONDUITS TO PULLBOX. PROVIDE CABLES AS INDICATED
6. PULL EXST CABLES INTO EXST PULLBOX AS NEEDED TO INTERCEPT EXST CONDUITS. CHIP EXST CONC ENCASEMENT & CUT EXST CONDUITS. PROVIDE COUPLINGS & EXTEND CONDUITS TO PULLBOX. REPULL EXST CABLES
7. REMOVE EXST CABLES & PULLBOX. PROVIDE COUPLINGS, CONDUITS & 3" CONC ENCASEMENT. COMPACT BACKFILL @ 95% DENSITY TO MATCH EXST.
8. REMOVE EXST TRAFFIC SIGNAL STANDARD. DEMOLISH CONC BASE, +24" BELOW FIN GRADE. COMPACT BACKFILL @ 95% DENSITY TO MATCH EXST.
9. PENETRATE EXST PULLBOX & EXTEND CONDUITS TO EXST PULLBOX. REPAIR TO MATCH EXST.
10. SAWCUT EXST A.C. PAVEMENT PRIOR TO TRENCHING & REPAVING. REPAIR TO MATCH EXST, SEE DET A/EW-11
11. SAWCUT EXST CONC SIDEWALK @ SCORELINES PRIOR TO TRENCHING. REPAIR TO MATCH EXST, SEE DET A/EW-11
12. 7'-0" TYPE I STD
13. DELIVER EXST EQUIP TO CITY DEPT OF TRANSP SERVICES, TRAFFIC SIGNAL BASEYARD AT 160 KOULA ST. COORDINATE DELIVERY WITH CITY INSPECTOR
14. PROVIDE "LEFT ON ARROW ONLY" R10-5 SIGN.
15. PROVIDE "CAUTION SIGNALS MODIFIED" WARNING SIGN.

NOTE: SEE SHEET EW-14 FOR SIGNAL HEAD LEGEND, CONDUIT & WIRING SCHEDULE & PHASE DRAWINGS; SEE SHEET EW-7 FOR LOOP DETECTORS.

NORTH

KAMEHAMEHA HWY/WAIPIO UKA ST TRAFFIC SIGNAL PLAN △3

SCALE: 1"=10'

REVISION	DATE		NO. OF SHT.	APPROVED
3	2/16/00	P.C.D. NO. 2 – REVISED T.S. STANDARD & PULLBOX LOCATIONS, DUCTLINE ROUTE, WIRING	73	
2	12/1/99	P.C.D. NO. 1 – REVISED T.S. STANDARD & PULLBOX LOCATIONS, NOTES, DUCTLINE ROUTE	182	
1	10/21/99	ADDENDUM NO. 2 – GENERAL REVISION	174	

APPROVED BY:

TRAFFIC SIGNALS AND TECHNOLOGY DIVISION, DTS (FOR WORK WITHIN CITY & COUNTY R/W) — DATE 3-24-00

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

STEVEN H. SAKAI LICENSED PROFESSIONAL ENGINEER No. 7637-E HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation. Supervision and Observation of this project is as defined in Section 1.2 of the Hawaii Administrative Rules, Title 16, Chapter 115, Professional Engineers, Architects, Land Surveyors, and Landscape Architects.

DEPARTMENT OF DESIGN & CONSTRUCTION
CITY & COUNTY OF HONOLULU

CENTRAL OAHU REGIONAL PARK, PHASE 1
WAIPIO, OAHU, HAWAII
TMK: 1-9-4-05:74

SHEET TITLE: KAMEHAMEHA HWY/WAIPIO UKA ST TRAFFIC SIGNAL PLAN

DESIGN: SI
DRAWN: TE
CHECKED: SS
DATE: 9/30/99

landscape architecture
1148 Third Avenue
Honolulu, Hawaii 96816
Telephone (808) 739-5591
Fax (808) 739-5595

EW-10 R-3
SHEET 257 OF 331 SHEETS

PROJECT NO. I-7-00-C | FILE | DRAW | FOLDER

CENTRAL OAHU REGIONAL PARK, PHASE 1

LAST SAVE: 02/14/00 @ 11:10:28 BY: TM PLOT SC: 1=10'
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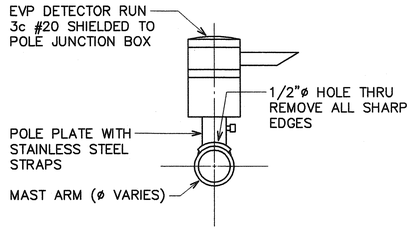
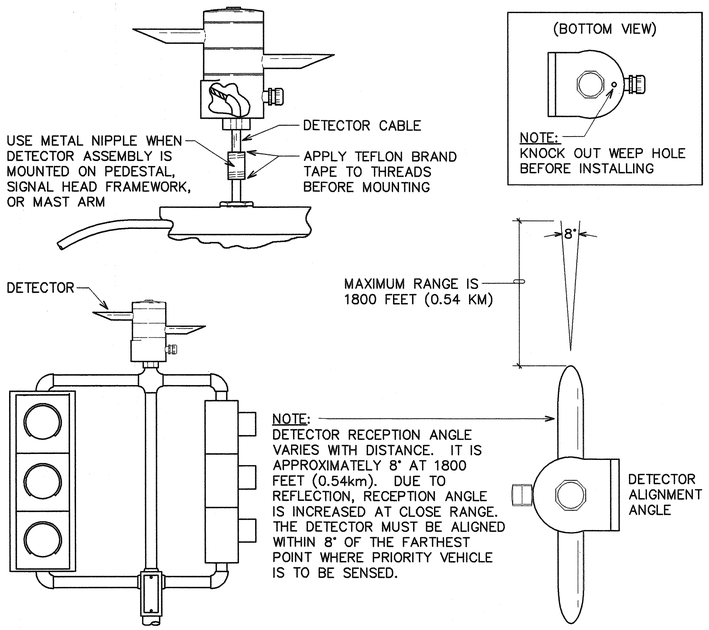


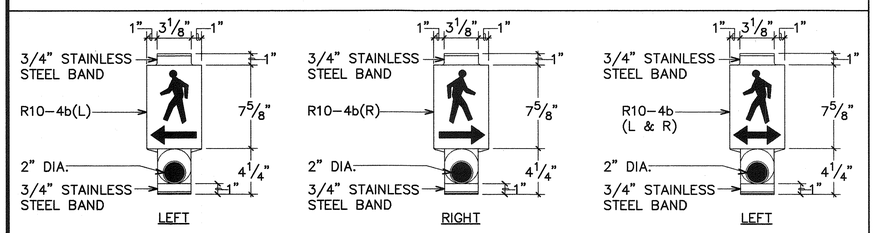
A EW-14 TYPICAL HORIZONTAL MOUNT OF EVP DETECTOR

NOT TO SCALE



B EW-14 TYPICAL PEDESTAL/MAST ARM INSTALLATION OF EVP DETECTOR

NOT TO SCALE



THE COLOR SCHEME SHALL BE:
WHITE-MAN, ARROW AND PUSH BUTTON
BLACK-BACKGROUND

NOTE(S):

1. ON PLAN SHEET, USE APPLICABLE DETAIL
2. ADA APPROVED

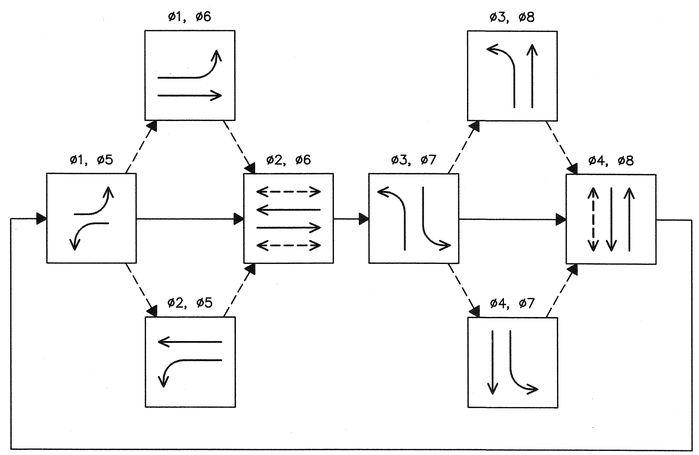
C EW-14 PEDESTRIAN PUSH BUTTON

NOT TO SCALE

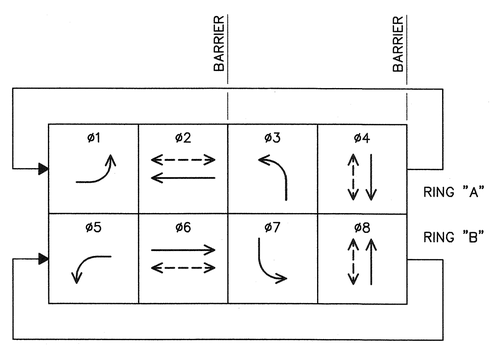
R Y G	R Y G↑	R Y G		SIGNAL INDICATION
12" RYG TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY) △2	12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	PEDESTRIAN SIGNAL HEAD △3	DESCRIPTION
A-5 C-4 B-3 E-4 B-5	A-2 B-2 C-3 E-2 E-3	* A-1 * E-1 A-4 F-2 * B-1 B-4 * C-1 * C-2 D-2	A-3 F-1 B1-1 F-2 C-6 D-1	POLE LETTER-SIGNAL HEAD NUMBER

△1

* PROGRAMMED VISIBILITY HEAD



PHASING DIAGRAM



PHASING ASSIGNMENT DIAGRAM

APPROVED BY:

3-24-00

TRAFFIC SIGNALS AND TECHNOLOGY DIVISION, DTS (FOR WORK WITHIN CITY & COUNTY R/W) — DATE

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

△ CONDUIT AND WIRING SCHEDULE

SYMBOL	CONDUIT	CABLE
1	2"C	1-26/C #14, #8 GND
	2"C	1-26/C #14, #8 GND
	2-2"C	SPARE
2	2"C	1-26/C #14, #8 GND
	2"C	1-26/C #14, #8 GND
	2"C	4-2/C #14
	2"C	1-OPTICOM CABLE
3	EXST 2"C	REMOVE EXST CABLES; PROVIDE 1-26/C #14, #8 GND
	EXST 2"C	REMOVE EXST CABLES; PROVIDE 8-2/C #14
	EXST 2"C	REMOVE EXST CABLES; PROVIDE 2-OPTICOM CABLE, 1-2/C #14
	EXST 2"C	1-26/C #14, #8 GND
4	2"C	1-26/C #14, #8 GND
	2"C	1-26/C #14, #8 GND
	2"C	SPARE
	2"C	5-2/C #14, 1-OPTICOM CABLE
5	EXST 2"C	EXST 1-26/C #14, #8 GND
	EXST 2"C	EXST 1-26/C #14, #8 GND
	EXST 2"C	EXST 3#2
	EXST 2"C	~~EXST~~ 9-2/C #14 △4
	EXST 2"C	REMOVE EXST OPTICOM CABLES; PROVIDE 2-2/C #14, 4-OPTICOM CABLE
	EXST 2"C	8-2/C #14
6	EXST 2"C	EXST 1-26/C #14, #8 GND
	EXST 2"C	EXST 1-26/C #14, #8 GND
	EXST 2"C	~~EXST~~ 9-2/C #14 △4
	EXST 2"C	REMOVE EXST OPTICOM CABLES; PROVIDE 2-2/C #14, 4-OPTICOM CABLE
	EXST 2"C	8-2/C #14
	EXST 2"C	1-26/C #14, #8 GND
	EXST 2"C	1-26/C #14, #8 GND
7	EXST 2"C	EXST 3#2
8	EXST 2"C	EXST 2/C #14
9	2"C	3-2/C #14
10	2"C	1-26/C #14, #8 GND
	2"C	1-26/C #14, #8 GND
11	2"C	1-2/C #14
12	2"C	2/C #14
13	2"C	1-26/C #14, #8 GND
	2"C	1-26/C #14, #8 GND
	2"C	1-OPTICOM
	2"C	9-2/C #14
14	EXST 2"C	EXST 3#2
	EXST 2"C	REMOVE EXST CABLES
	EXST 2"C	SPARE

△3

CONDUIT AND WIRING SCHEDULE NOTES:

1 COORDINATE DEENERGIZATION OF EXST CABLE & ENERGIZATION OF NEW CABLE WITH HECO.

REVISION	DATE		NO. OF SHT.	APPROVED
4	6/14/00	P.C.D. NO. 3 - REVISED WIRING	41	
3	2/10/00	P.C.D. NO. 2 - REVISED CONDUIT & WIRING, SIGNAL HEAD SCHEDULE	79	
2	12/1/99	P.C.D. NO. 1 - REVISED SIGNAL HEAD DESCRIPTION	182	
1	10/21/99	ADDENDUM NO. 2 - REVISED CONDUIT & WIRING SCHEDULE, SIGNAL HEAD SCHEDULE	174	

STEVEN H. SAKAI
LICENSED PROFESSIONAL ENGINEER
No. 7637-E
HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation.
Supervision and Observation of this project is as defined in Section 1.2 of the Hawaii Administrative Rules, Title 16, Chapter 115, Professional Engineers, Architects, Land Surveyors, and Landscape Architects.

DEPARTMENT OF DESIGN & CONSTRUCTION
CITY & COUNTY OF HONOLULU

CENTRAL OAHU REGIONAL PARK, PHASE 1
WAIPIO, OAHU, HAWAII
TMK: 1-9-4-05:74

SHEET TITLE: **TRAFFIC SIGNAL DETAILS I**

DESIGN: SI
DRAWN: LRA
CHECKED: SS
DATE: 9/30/99

Walters Kimura Motoda
landscape architecture
1148 Third Avenue
Honolulu, Hawaii 96816
Telephone (808) 739-5591
Fax (808) 739-5595

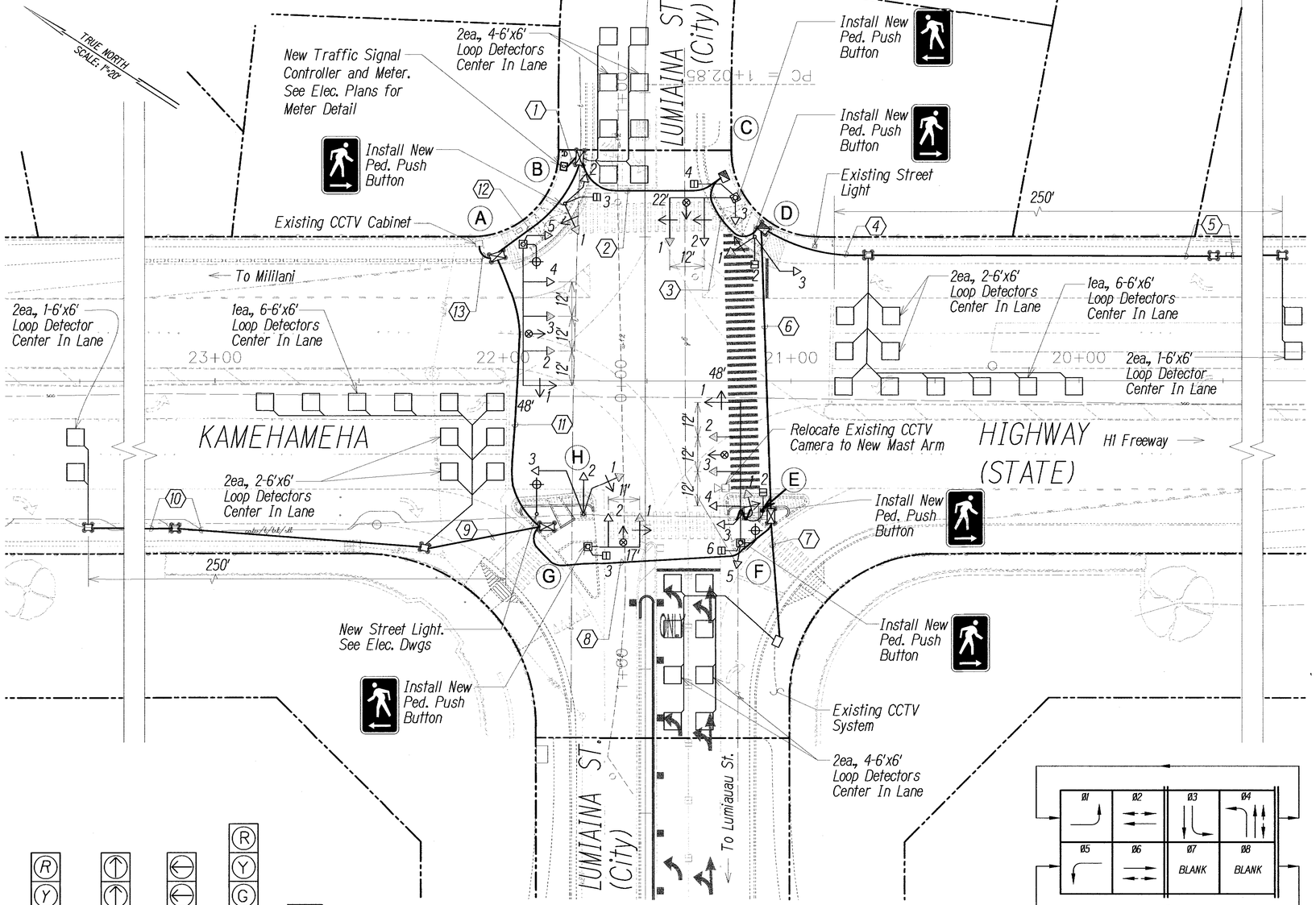
EW-14
R-4
SHEET 261
OF 331 SHEETS

PROJECT NO. I-7-00-C | FILE | DRAW | FOLDER

CENTRAL OAHU REGIONAL PARK, PHASE 1

LAST SAVE: 02/14/00 @ 11:26:34 BY: TM PLOT SC: 1'=0"=1'
L:\KAHU\PROJECTS\WAIPIO\13700\

FED.ROAD DIST.NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	99C-01-13	2014	30	41

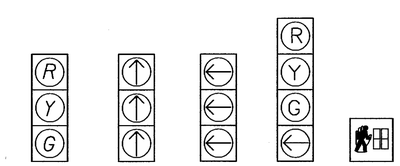


TRAFFIC SIGNAL PLAN

Scale: 1"=20'

PHASE DIAGRAM

New 170E Controller with Software
New 332A Cabinet



SIGNAL INDICATIONS

* Programmable Visibility Heads
\+ Indicates Back Plate w/ Retro Reflective Border

CONDUIT AND CABLE SCHEDULE

Symbol	Cond.	Description
1	3" Conc.	2-26C#14
	3" Conc.	2-26C#14
	3" Conc.	10-2C#14
	3" Conc.	9-2C#14
	2" Conc.	Exist 2-12C#19
		*Comm. Cable
	2" Conc.	4-evp
	2" Conc.	Spare
2	2" Conc.	1-26C#14
	2" Conc.	1-26C#14
	2" Conc.	5-2C#14
	2" Conc.	5-2C#14
	2" Conc.	2-evp
	2" Conc.	Spare
3	2" Conc.	1-26C#14
	2" Conc.	1-26C#14
	2" Conc.	5-2C#14
	2" Conc.	4-2C#14
	2" Conc.	1-evp
	2" Conc.	Spare
4	2" Exist. ~~Conc.~~	5-2C#14
5	2" Exist. ~~Conc.~~	2-2C#14
6	2" Conc.	1-26C#14
	2" Conc.	1-26C#14
	2" Conc.	4-2C#14
	2" Conc.	1-evp
	2" Conc.	Spare
7	3" Exist.	Exist. FOC
		Exist 1-24C#19
	3" Exist.	3-2C#14
8	3" Exist.	Exist. FOC
	3" Exist.	Exist. CCTV
		Exist 1-12C#19
	2" Exist. ~~Conc.~~	1-26C#14
	2" Exist. ~~Conc.~~	1-26C#14
	2" Exist. ~~Conc.~~	1-2C#14
	2" Exist. ~~Conc.~~	Spare
9	2" Exist. ~~Conc.~~	5-2C#14
10	2" Exist. ~~Conc.~~	2-2C#14
11	3" Exist.	Exist. FOC
	3" Exist.	Exist. FOC
	3" Exist.	Exist. CCTV
		Exist 1-12C#19
	2" Exist. ~~Conc.~~	1-26C#14
	2" Exist. ~~Conc.~~	1-26C#14
	2" Exist. ~~Conc.~~	1-evp
	2" Exist. ~~Conc.~~	6-2C#14
	2" Exist. ~~Conc.~~	Spare
12	2" Conc.	1-26C#14
	2" Conc.	1-26C#14
	2" Conc.	2-evp
	2" Conc.	6-2C#14
	2" Conc.	Exist 2-12C#19
		*Comm. Cable
	2" Conc.	Spare
13	Exist.	*Comm. Cable

*Communication Cable. Cost Shall be Considered Incidental to the Various Traffic Signal Items, See TS-1 Note #23.

KEITH K. NIIYA
LICENSED PROFESSIONAL ENGINEER
No. 8226-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2014
AUSTIN, TSUTSUMI & ASSOC. INC. LIC. EXP. DATE

NOTES:

1. For Traffic Signal System References, See Standard Plans Summary Sheet 2.
2. Contractor to Locate all Existing Conduits and Verify the Location of the Traffic Signal Standards and Length of Mast Arms Prior to Ordering.
3. Foundation for Type II Traffic Signal Standards with Mast Arms less than 40 feet in Length Shall be Constructed in Accordance with Hawaii State Department of Transportation Standard Plans, 2008 as Amended.
4. The Contractor Shall be Responsible to Coordinate the Foundation with the Traffic Signal Standard Provided; any Changes Required to the Foundation due to the Traffic Signal Standard Provided Shall be Designed by a Licensed Structural Engineer. All Design and Construction Cost for These Changes will be Borne by the Contractor.
5. The Contractor Shall Ensure that Minimum Accessible Clearance is Provided from the Base of the Type II and Type III Traffic Signal Standard.
6. For Traffic Signal Controller and CCTV Cabinet Power, see Electrical Plans.

LEGEND FOR AS-BUILT POSTINGS

^^^^^^	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

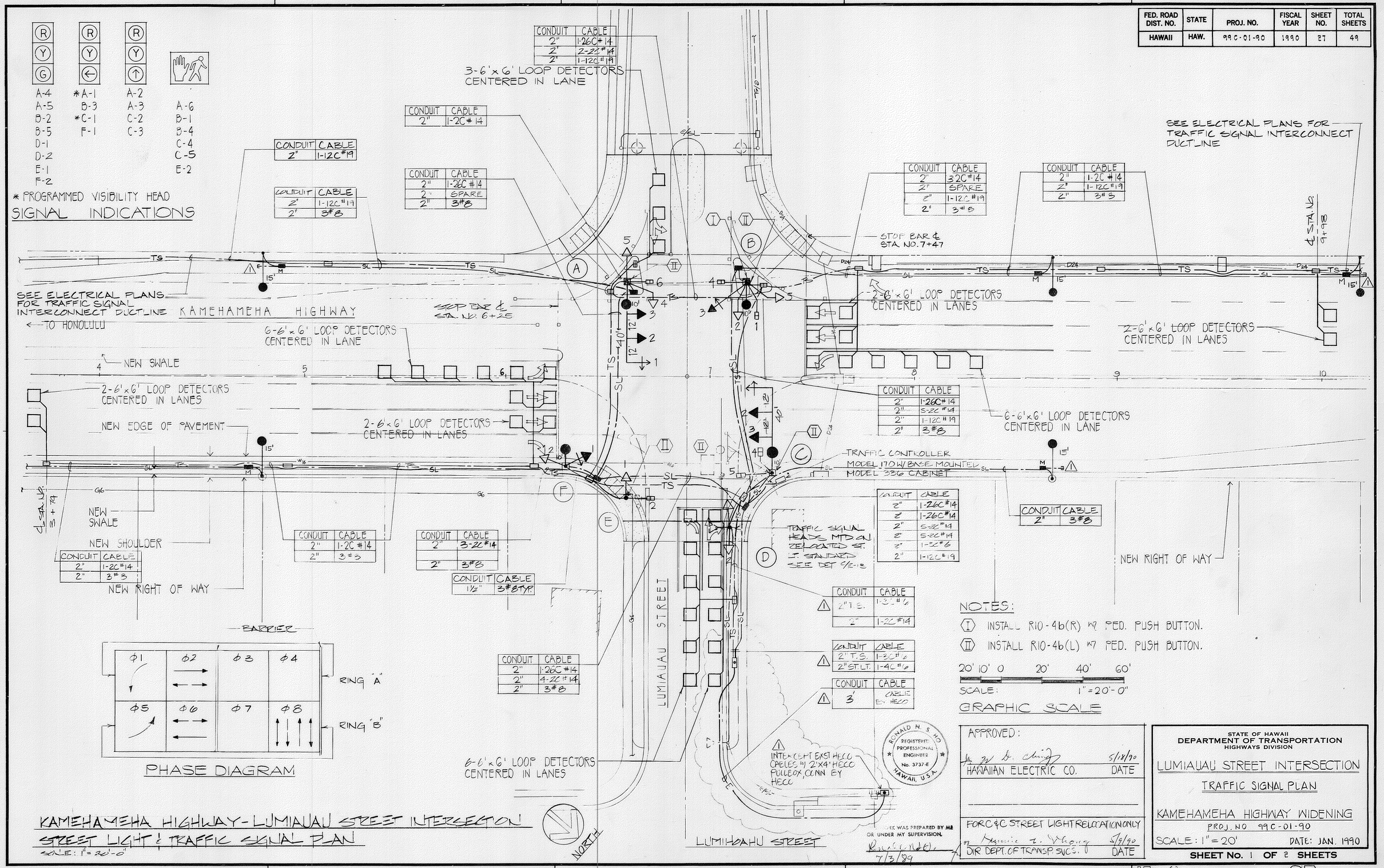
TRAFFIC OPERATIONAL IMPROVEMENTS AT VARIOUS LOCATIONS
Vicinity of Kamehameha Highway and Lumiaina Street
Project No. 99C-01-13

Scale: As Noted Date: Jan 2014

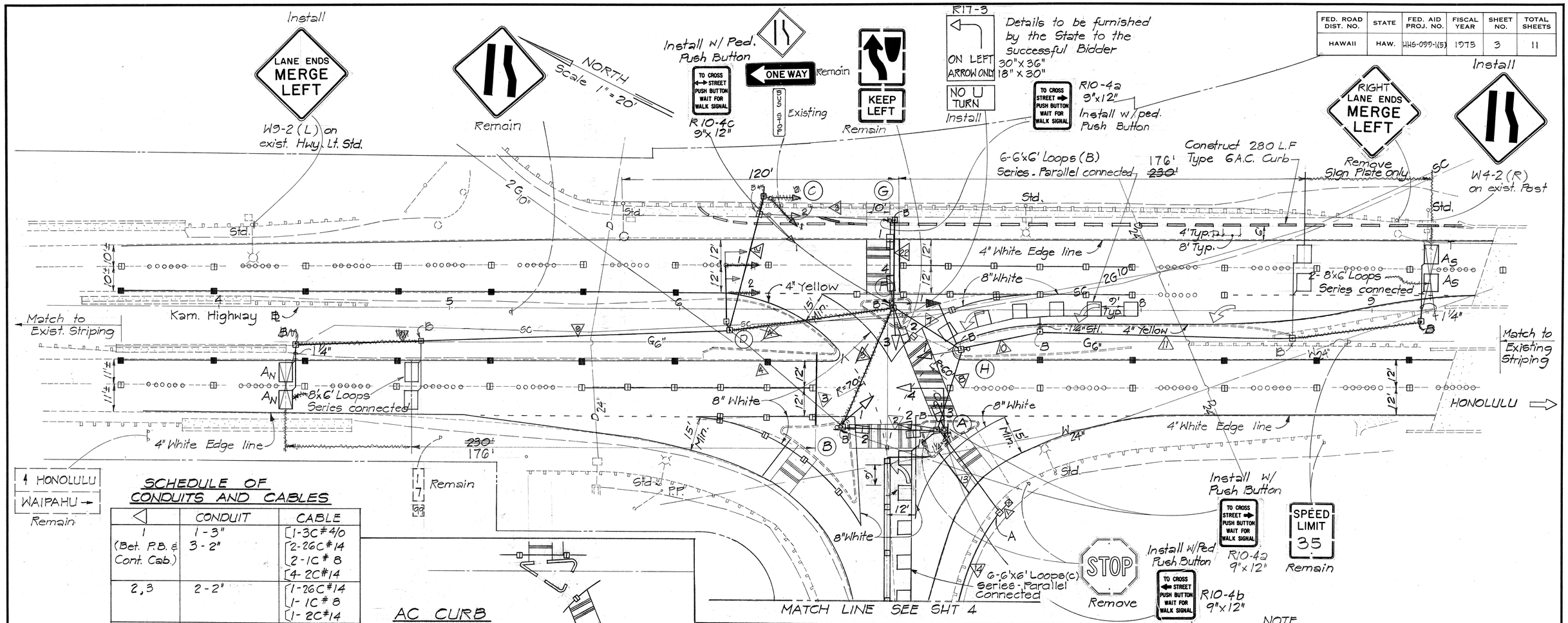
SHEET No. TS-4 OF 6 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	99C-01-90	1990	27	49



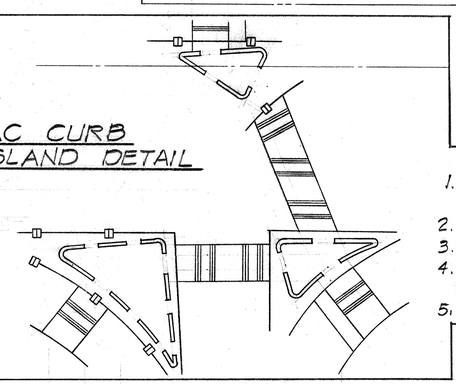
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-000-1(5)	1975	3	11



SCHEDULE OF CONDUITS AND CABLES

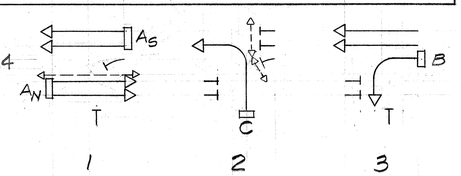
◁	CONDUIT	CABLE
1 (Bet. P.B. & Cont. Cab.)	1-3" 3-2"	1-3C #4/0 2-2C #14 2-1C #8 4-2C #14
2,3	2-2"	1-2C #14 1-1C #8 1-2C #14
4	2-2"	~~8-1C #14~~ 1-2C #14 1-1C #8 1-2C #14
22	~~1-2"~~ 2-2"	~~4-1C #14~~ 1-2C #14 1-1C #8
7	1-2"	1-2C #14 1-1C #8
8	2-2"	1-2C #14 1-1C #8 2-2C #14
9	1-2"	1-2C #14
10	1-2"	2-2C #14
11	1-2"	1-2C #14
12	~~1-2"~~ 2-2"	~~8-1C #14~~ 1-2C #14 1-1C #8
16,20 21,23 14,15,18,19	1-3"	1-3C #4/0
17 (Att. to Struct.)	1-3"	1-3C #4/0
13	3-2"	2-2C #14 2-1C #8 4-2C #14

AC CURB ISLAND DETAIL

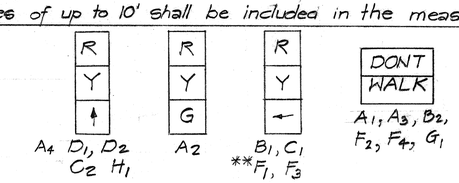


NOTES

1. Remove exist. A.C. islands w/concrete curbs & Construct Type 6A.C. Curb as shown to approximately the same shape as the existing islands
2. Repave with A.C. as shown
3. Paint new curb white.
4. Payment for the removal of existing islands w/Concrete curbs & repaving shall be incidental to Item No. 609.600 Curb, Type 6
5. Spaces of up to 10' shall be included in the measurement



PHASE DIAGRAM



** F_1 Programmed Visibility Signal Head

SIGNAL INDICATIONS

NOTE

Traffic Signal Controller shall be digital timed, Multi-phase, designed for 3 traffic phases, full-actuated. Auxiliary Equipment include, but not limited to:

4 ea. Loop Amplifiers
6 ea. Solid State Light Control Units
1 ea. Solid State Signal Monitor Unit
1 ea. Coordinating Unit (Future interconnect)

TYPICAL SECTION
Repaving Existing Islands

Date	Revision
3/29/76	Relocate Signals and Standards

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN

TRAFFIC SIGNAL SYSTEM, SIGNS, PAVEMENT MARKINGS

FED. AID PROJ. NO. HHS-000-1 (5)

Scale: As shown Date:

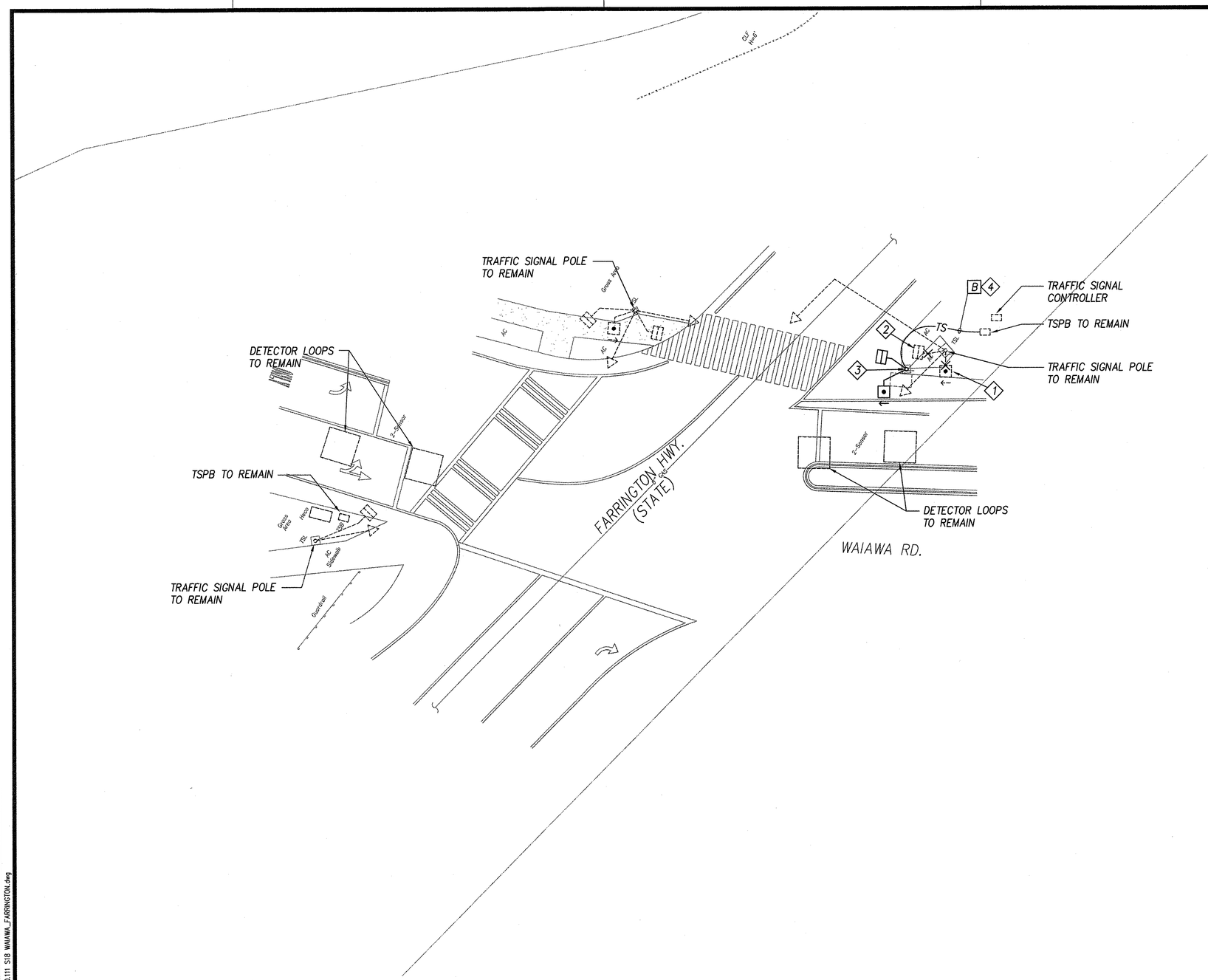
SHEET No. 1 OF 2 SHEETS

C.O. 3

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

PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-0300(96)	2004	142	153



NOTES:

1. REMOVE EXISTING PUSH BUTTON ASSOCIATED WIRING. PLUG ANY HOLES IN EXISTING POLE.
2. REMOVE EXISTING PEDESTRIAN SIGNAL ASSEMBLY AND ASSOCIATED WIRING. PLUG ANY HOLES IN EXISTING POLE.
3. NEW I-7 STANDARD WITH TP-1W PEDESTRIAN SIGNAL HEAD AND PUSH BUTTON. CONNECT TO EXISTING CIRCUITS IN TSPB. SEE 1/E-28
4. TRENCH TO INSTALL NEW CONDUIT. 1-2"C WITH 1-2/C#14, 1-4/C#14

TRAFFIC SIGNAL PLAN – WAIAWA RD. & FARRINGTON HWY.
INTERS. ID NO. 99-121888
SCALE: 1" = 10'-0"

GRAPHIC SCALE
10' 5' 0' 10' 20' 30'
1" = 10'

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE — DATE 7/07/04

"OBSERVATION OF CONSTRUCTION" IS DEFINED IN CHAPTER 16-115, HAWAII ADMINISTRATIVE RULES ENTITLED "PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS AND LANDSCAPE ARCHITECTS".

LENNOX K. NISHIMURA — LICENSED PROFESSIONAL ENGINEER No. 3880-E — HAWAII, U.S.A.

DTS, C&C HONOLULU | DRAWING REVIEWED 7/8/04

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIAWA RD. & FARRINGTON HWY.

Pedestrian Facilities & ADA Compliance at Various Locations on Oahu, Unit 5
Fed. Aid Proj. No. CMAQ-0300(96)

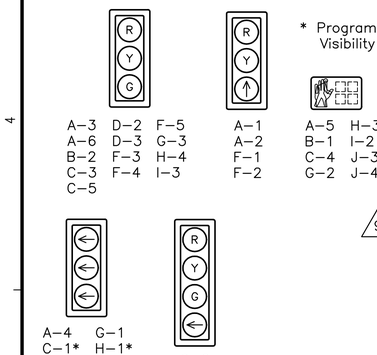
1" = 10'-0" Date: July 2004

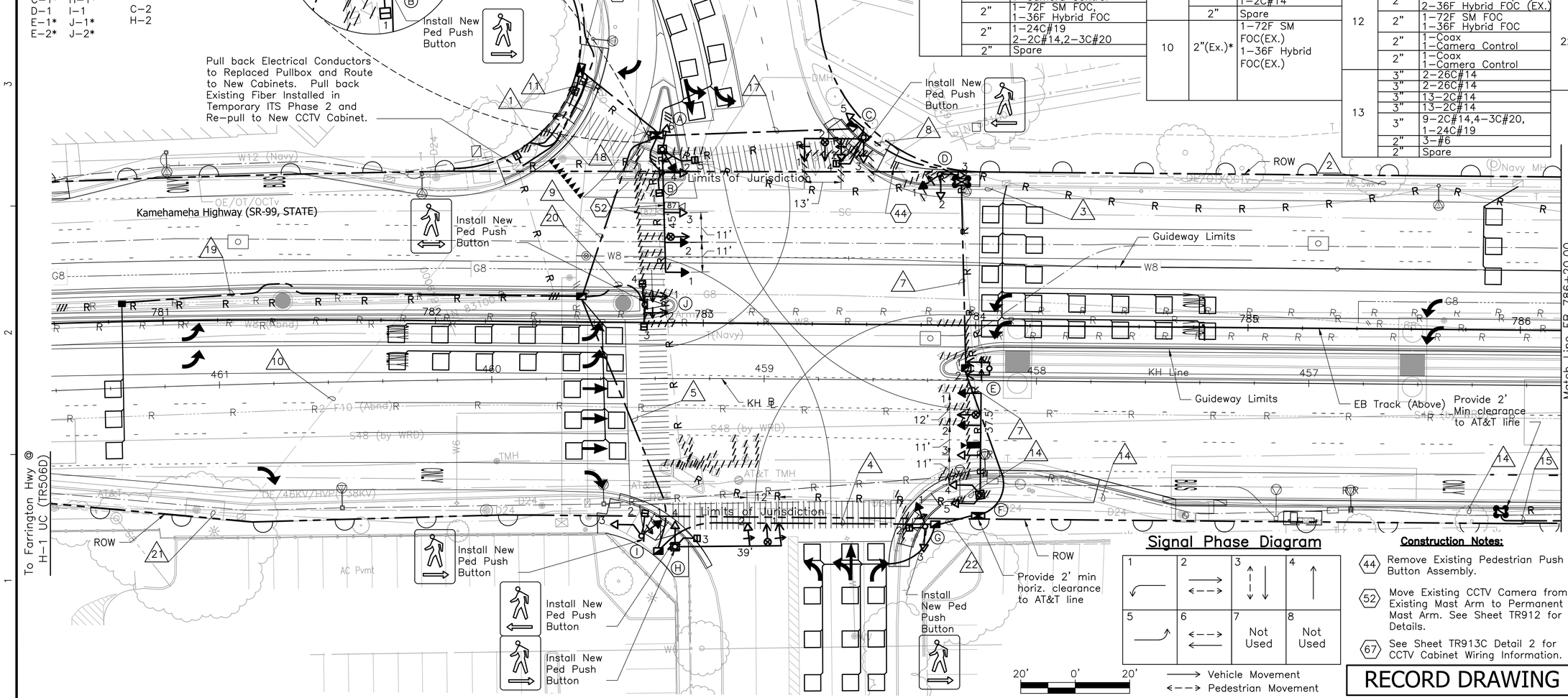
SHEET No. E-19 OF 153 SHEETS

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

7/7/04-21:53 Y:\060\060.111\060.111 S18 WAIAWA_FARRINGTON.dwg

Signal Indications





Conduit & Cable Schedule											
# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"(EX.)*	1-36F Hybrid FOC (EX.)* *Includes Existing FOC Riser	7	2"	1-26C#14	11	2"	1-26C#14	14	2" (Ex.)	1-72F SM FOC, 1-36F Hybrid FOC
				2"	1-26C#14		2"	1-26C#14		2" (Ex.)	1-24C#19
				2"	6-2C#14		2"	1-26C#14	15	2"	1-72F SM FOC, 1-36F Hybrid FOC
				2"	Spare		2"	1-26C#14		2"	1-24C#19
2	2" (Ex.)	3-2C#14	8	2"	1-26C#14		2"	6-#14	17	2"	1-26C#14
3	2" (Ex.)	6-2C#14		2"	1-26C#14		2"	1-Coax, 1-Camera Control		2"	1-26C#14
	2" (Ex.)	5-2C#14		2"	6-2C#14		2"	1-Coax, 1-Camera Control		2"	6-2C#14
4	2"	1-26C#14		2"	6-2C#14		2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	6-2C#14
	2"	1-26C#14		2"	5-2C#14		2"	4-2C#14		2"	6-2C#14
	2"	3-#14		2"	Spare		2"	6-2C#14		2"	1-3C#20
	2"	1-72F SM FOC 1-36F Hybrid FOC	9	2"	1-26C#14		2"	6-2C#14		2"	Spare
	2"	1-Coax, 1-Camera Control		2"	1-26C#14		2"	6-2C#14	18	O/H (Ex.)	1-36F Hybrid FOC (EX.)
	2"	1-24C#19,1-2C#14 1-3C#20		2"	3-#14		2"	6-2C#14	19	2"	3-2C#14
	2"	Spare		2"	1-Coax, 1-Camera Control		2"	6-2C#14,	20	2"	1-2C#14, 4-4C#14
5	2"	1-26C#14		2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	1-24C#19,4-3C#20 1-2C#14	21	2" (Ex.)	(1) 72F SM FOC(EX.) (1) 36F Hybrid FOC (EX.)
	2"	1-26C#14		2"	6-2C#14		2"	Spare	22	2"	1-26C#14
	2"	3-#14		2"	6-2C#14	12	2"	3-#6, 6-#14		2"	1-26C#14
	2"	1-Coax, 1-Camera Control		2"	1-24C#19, 2-3C#20 1-2C#14		2"	1-72F SM FOC (EX.) 2-36F Hybrid FOC (EX.)		2"	3-#14
	2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	Spare		2"	1-72F SM FOC 1-36F Hybrid FOC		2"	1-72F SM FOC 1-36F Hybrid FOC
	2"	1-24C#19 2-2C#14,2-3C#20	10	2"(Ex.)*	1-72F SM FOC(EX.) 1-36F Hybrid FOC(EX.)		2"	1-Coax 1-Camera Control		2"	1-Coax, 1-Camera Control
	2"	Spare					2"	1-Coax 1-Camera Control		2"	1-24C#19,1-3C#20
						13	3"	2-26C#14		2"	Spare
							3"	2-26C#14			
							3"	13-2C#14			
							3"	13-2C#14			
							3"	9-2C#14,4-3C#20, 1-24C#19			
							2"	3-#6			
							2"	Spare			

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Civil Roadway Package Sheets CD001 and CD002 for Curb and Gutter Tie-in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the New Mast Arms.
5. Integrate existing CCTV camera 87 and new camera into the new IP based network. Use the existing 36F Hybrid FOC within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Signal Phase Diagram

1	2	3	4
5	6	7	8
		Not Used	Not Used

→ Vehicle Movement
<- - -> Pedestrian Movement

Construction Notes:

44 Remove Existing Pedestrian Push Button Assembly.

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

67 See Sheet TR913C Detail 2 for CCTV Cabinet Wiring Information.

RECORD DRAWING

Rev	By	Date	Description
3	EY	10-06-17	Record Drawing
2	EY	10-06-17	Revised per RFI 146 & RFI 301
1	EA	05-03-16	Revised per FDC 131 & FDC 228
0	EA	10-14-14	Final Design

Designed: E Anders
Drawn: E Anders
Checked: G Thiebaut
Approved: G Thiebaut
Date: 10-06-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT ACACIA RD

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR506
Drawing No: TR506
Rev. 3
Scale: 1"=20'
Page No. of

Conduit & Cable Schedule

# No.	Conduit Size	Description
1	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	4-2C#14, 2-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare
2	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	5-2C#14
	2"	1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	Spare
3	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	3-2C#14, 1-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare
4	2"	1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC

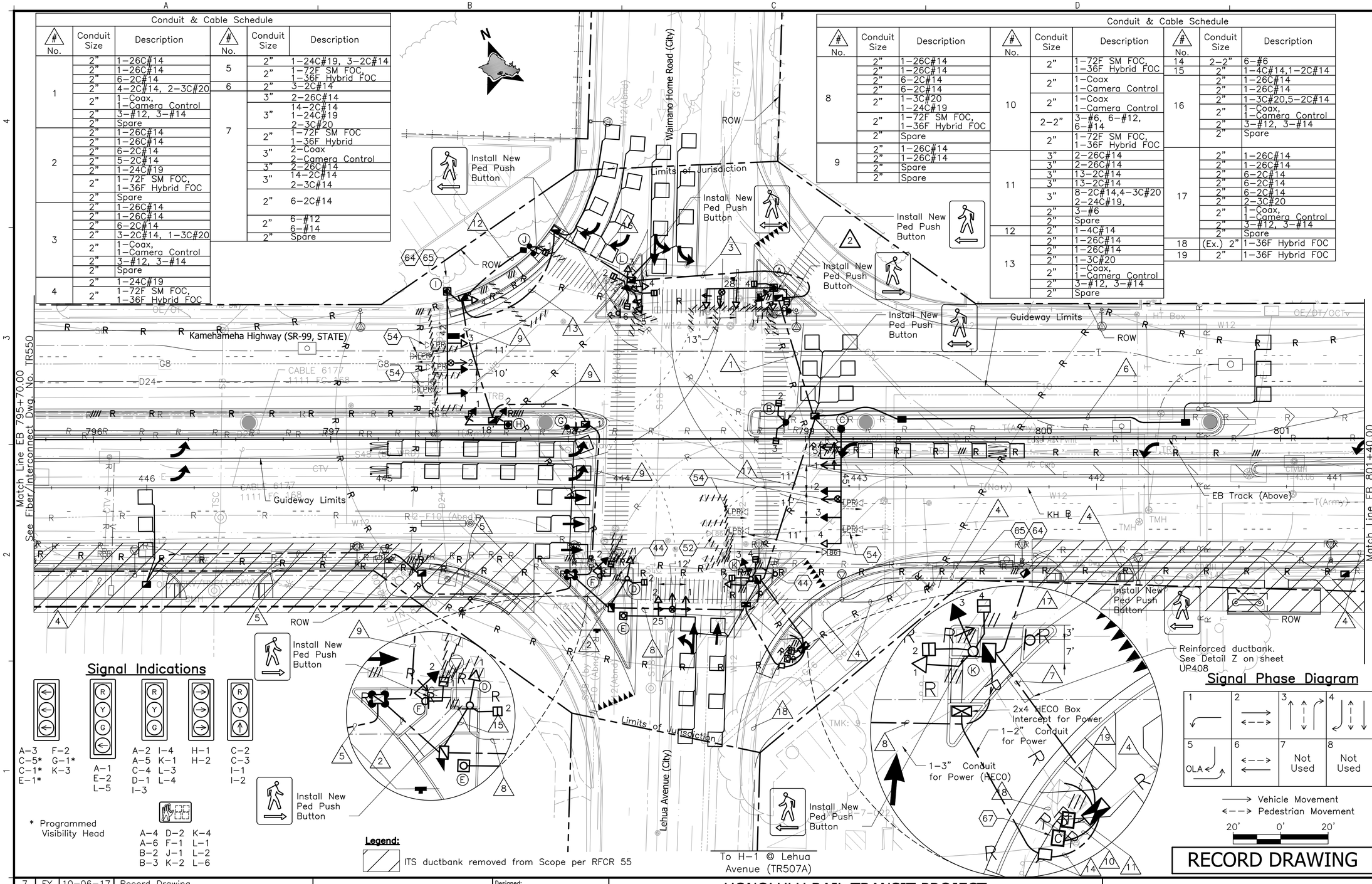
# No.	Conduit Size	Description
5	2"	1-24C#19, 3-2C#14
	2"	1-72F SM FOC, 1-36F Hybrid FOC
6	2"	3-2C#14
7	3"	2-26C#14
	3"	14-2C#14, 1-24C#19, 2-3C#20
	2"	1-72F SM FOC, 1-36F Hybrid
	3"	2-Coax, 2-Camera Control
	3"	2-26C#14
	3"	14-2C#14, 2-3C#14
	2"	6-2C#14
	2"	6-#12, 6-#14
	2"	Spare

Conduit & Cable Schedule

# No.	Conduit Size	Description
8	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	1-3C#20, 1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	Spare
9	2"	1-26C#14
	2"	1-26C#14
	2"	Spare
	2"	Spare

# No.	Conduit Size	Description
10	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-Coax, 1-Camera Control
	2"	1-Coax, 1-Camera Control
	2-2"	3-#6, 6-#12, 6-#14
	2"	1-72F SM FOC, 1-36F Hybrid FOC
11	3"	2-26C#14
	3"	2-26C#14
	3"	13-2C#14
	3"	13-2C#14
	3"	8-2C#14,4-3C#20 2-24C#19,
	2"	3-#6
	2"	Spare
12	2"	1-4C#14
13	2"	1-26C#14
	2"	1-26C#14
	2"	1-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare

# No.	Conduit Size	Description
14	2-2"	6-#6
15	2"	1-4C#14,1-2C#14
16	2"	1-26C#14
	2"	1-26C#14
	2"	1-3C#20,5-2C#14
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare
17	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	2-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare
18	(Ex.) 2"	1-36F Hybrid FOC
19	2"	1-36F Hybrid FOC



Signal Indications

A-3 F-2 C-5* G-1* C-1* K-3 E-1*

A-1 E-2 L-5

A-2 I-4 A-5 K-1 C-4 L-3 D-1 L-4 I-3

H-1 H-2

C-2 C-3 I-1 I-2

* Programmed Visibility Head

A-4 D-2 K-4 A-6 F-1 L-1 B-2 J-1 L-2 B-3 K-2 L-6

Legend:

ITS ductbank removed from Scope per RFCR 55

Signal Phase Diagram

1	2	3	4
5	**6**	**7**	**8**
OLA		Not Used	Not Used

Vehicle Movement

Pedestrian Movement

20' 0' 20'

RECORD DRAWING

Construction Notes:

44 Remove Existing Pedestrian Push Button Assembly.

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

54 Move LPR from Existing Mast Arm to Permanent Mast Arm and Re-aim. Relocate Interface Box. See Sheet TR914 for Details.

64 LPR Interface Box with Cellular Modem Within.

65 LPR's are Powered by the LPR Interface Box Via the Composite Cable.

67 See Sheet TR913C Detail 2 for CCTV Cabinet Wiring Information.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Civil Roadway Package Sheets CD001 and CD002 for Curb and Gutter Tie-in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
5. Integrate existing CCTV camera 86 and new camera into the new IP based network. Use the existing 36F Hybrid FOC within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Rev	By	Date	Description
7	EY	10-06-17	Record Drawing
6	EY	10-06-17	Revised per RFCR 55
5	EY	10-06-17	RFI 147, 163, 187, 211, 262, 263, and 264
4	EY	10-06-17	Revised per FDC 81
3	GT	03-02-17	Updated per FDC 364
2	EA	02-09-16	Updated per NDC 74 (RFI 358)
1	EA	08-24-15	Updated per FDC 149
0	EA	03-13-15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: G Thiebaut
Approved: G Thiebaut
Date: 10-06-17

HONOLULU RAIL TRANSIT PROJECT

HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB

Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT WAIMANO HOME RD

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR507
Drawing No: TR507
Rev. 7
Scale: 1"=20'
Page No. of

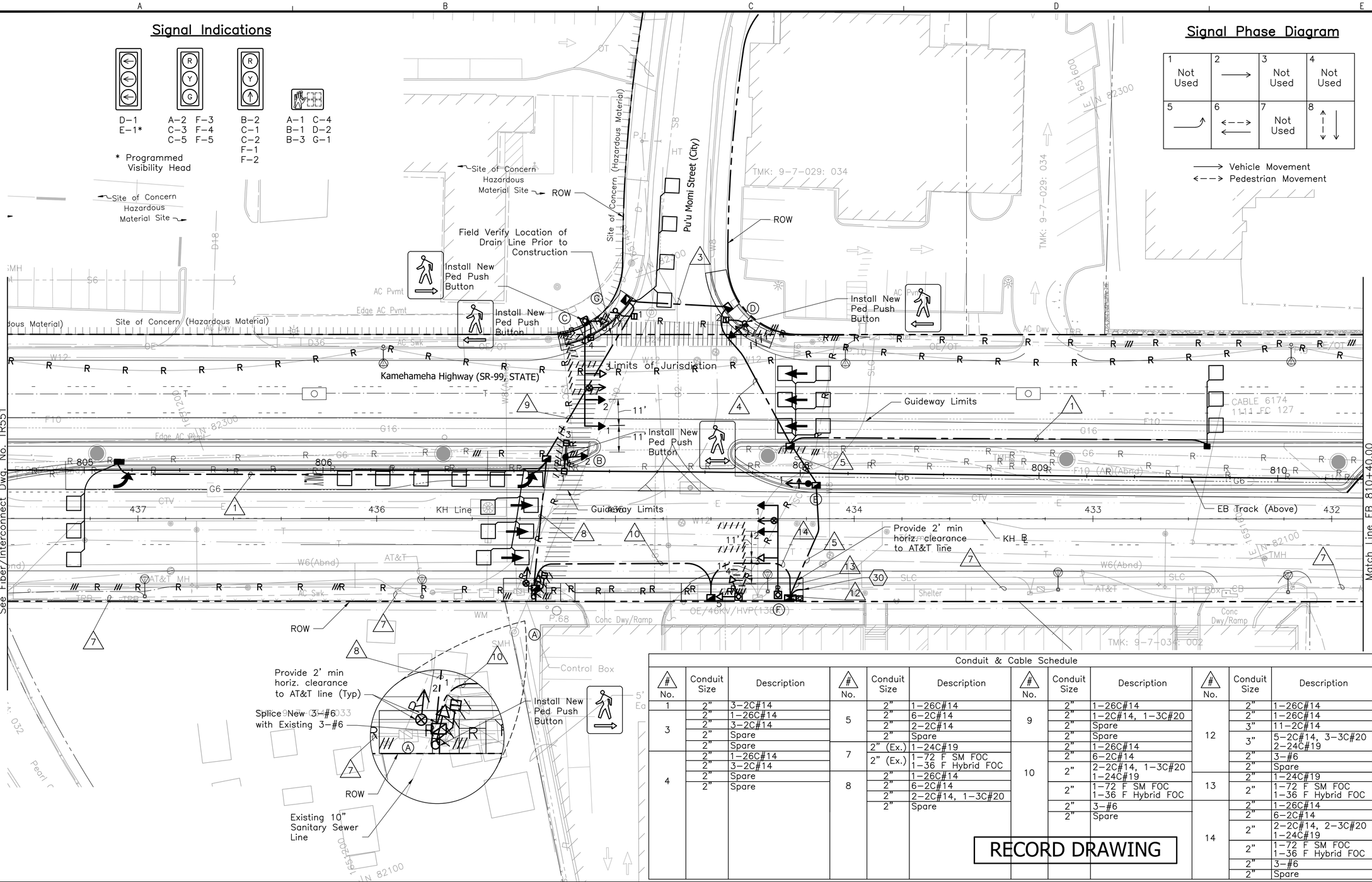
Signal Indications

* Programmed Visibility Head

Signal Phase Diagram

1 Not Used	2 →	3 Not Used	4 Not Used
5 ↱	6 ←– –→ ←	7 Not Used	8 ↑ ↓

→ Vehicle Movement
←– –→ Pedestrian Movement



Construction Notes:

(30) Intercept and Extend Existing Conduit. Route Conduit to Proposed Pullbox.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Remove ADSS cable, replace with Permanent cable.

Conduit & Cable Schedule

# No.	Conduit Size	Description
1	2"	3–2C#14
3	2"	1–26C#14
	2"	3–2C#14
	2"	Spare
	2"	Spare
4	2"	1–26C#14
	2"	3–2C#14
	2"	Spare
	2"	Spare
5	2"	1–26C#14
	2"	6–2C#14
	2"	2–2C#14
	2"	Spare
7	2" (Ex.)	1–24C#19
	2" (Ex.)	1–72 F SM FOC 1–36 F Hybrid FOC
8	2"	1–26C#14
	2"	6–2C#14
	2"	2–2C#14, 1–3C#20
	2"	Spare
9	2"	1–26C#14
	2"	1–2C#14, 1–3C#20
	2"	Spare
	2"	Spare
10	2"	1–26C#14
	2"	6–2C#14
	2"	2–2C#14, 1–3C#20 1–24C#19
	2"	1–72 F SM FOC 1–36 F Hybrid FOC
	2"	3–#6
	2"	Spare
12	2"	1–26C#14
	2"	1–26C#14
	3"	11–2C#14
	3"	5–2C#14, 3–3C#20 2–24C#19
	2"	3–#6
	2"	Spare
13	2"	1–24C#19
	2"	1–72 F SM FOC 1–36 F Hybrid FOC
14	2"	1–26C#14
	2"	6–2C#14
	2"	2–2C#14, 2–3C#20 1–24C#19
	2"	1–72 F SM FOC 1–36 F Hybrid FOC
	2"	3–#6
	2"	Spare

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
5	EY	10–06–17	Record Drawing
4	EY	10–06–17	Revised per RFCR 55
3	EY	10–06–17	Revised per RFI 400
2	EY	10–06–17	Revised per FDC 340
1	EA	11–02–15	Updated Per NDC 71
0	EA	02–25–15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: G Thiebaut / M Durning
Approved: G Thiebaut
Date: 10–06–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

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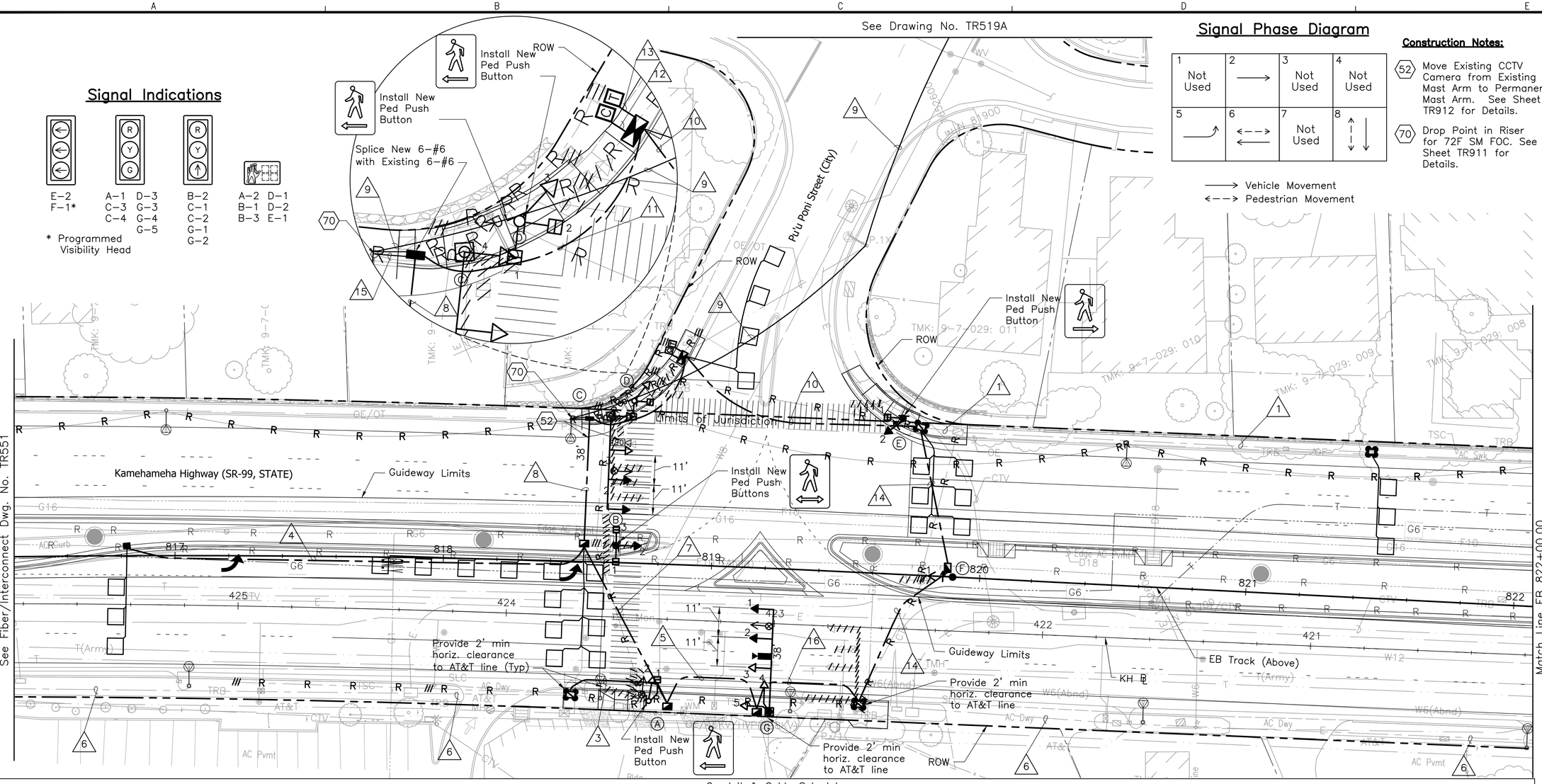
KAMEHAMEHA HIGHWAY GUIDWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT PU'U MOMI ST

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR508
Drawing No: TR508
Rev. 5
Scale: 1"=20'
Page No. of

Signal Indications

* Programmed Visibility Head



Signal Phase Diagram

1 Not Used	2 →	3 Not Used	4 Not Used
5 ↗	6 ←→	7 Not Used	8 ↑↓

→ Vehicle Movement
←→ Pedestrian Movement

Construction Notes:

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

70 Drop Point in Riser for 72F SM FOC. See Sheet TR911 for Details.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Integrate existing CCTV camera 190 and new camera into the new IP based network. Furnish and install network equipment at the cabinet to allow for integration into new IP based network.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Conduit & Cable Schedule

# No.	Conduit Size	Description
1	2"(Ex.)	3–2C#14
3	2"	1–24C#19
	2"	1–36F Hybrid FOC, 1–72F SM FOC
4	2"	3–2C#14
5	2"	1–26C#14
	2"	Spare
	2"	Spare
	2"	Spare
6	2"(Ex.)	1–24C#19
	2"(Ex.)	1–36F Hybrid FOC, 1–72F SM FOC

# No.	Conduit Size	Description
7	2"	1–26C#14
	2"	1–2C#14, 1–3C#20
	2"	1–24C#19
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	Spare
8	2"	1–26C#14
	2"	6–2C#14
	2"	2–2C#14, 1–3C#20
	2"	1–24C#19
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	Spare

# No.	Conduit Size	Description	Remarks
9	Overhead	1–72F SM FOC	See Note 7
10	2"	1–26C#14	
	2"	6–2C#14	
	2"	1–24C#19, 1–3C#20	
	2"	1–36F Hybrid FOC, 1–72F SM FOC	
	2"	1–Coax, 1–Camera Control	
	2"	3–#14	
	2"	Spare	

# No.	Conduit Size	Description
11	2"	1–26C#14
	2"	6–2C#14
	2"	3–2C#14, 2–3C#20, 1–24C#19
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–Coax, 1–Camera Control
	2"	3–#14, 6–#6
	2"	1–72F SM FOC
	2"	Spare
12	2"	1–26C#14
	2"	1–26C#14
	3"	12–2C#14
	3"	4–2C#14, 2–24C#19, 3–3C#20
	2"	3–#6
	2"	Spare

# No.	Conduit Size	Description
13	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–Coax, 1–Camera Control
	2"	3–#14, 3–#6
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–Coax, 1–Camera Control
	2"	1–72F SM FOC

# No.	Conduit Size	Description
14	2"	1–26C#14
	2"	1–24C#19, 1–3C#20
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	Spare

# No.	Conduit Size	Description
15	4"	1–72F SM FOC
16	2"	1–26C#14
	2"	1–3C#20
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	Spare

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
4	EY	10–06–17	Record Drawing
3	EY	10–06–17	Revised per RFCR 55
2	EY	10–06–17	Revised per FDC 229
1	EA	11–02–15	Updated Per NDC 71
0	EA	02–25–15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: G Thiebaut / M Durning
Approved: G Thiebaut
Date: 10–06–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

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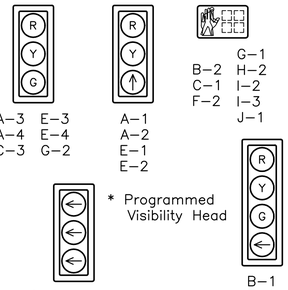
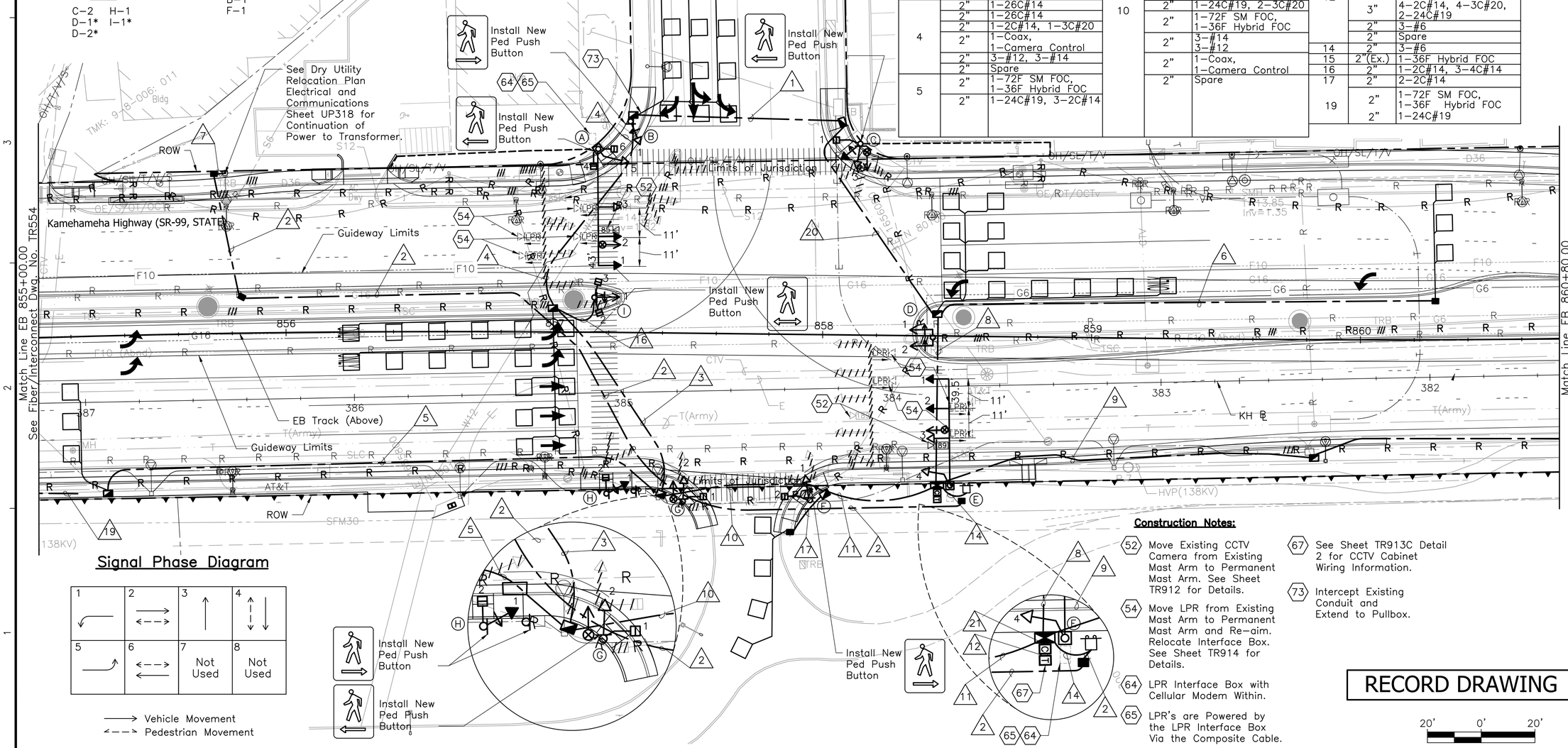
KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT PU'U PONI ST

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR509
Drawing No: TR509
Rev. 4
Scale: 1"=20'
Page No. of

Signal Indications





Conduit & Cable Schedule											
# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"	1–26C#14	6	2"	3–2C#14	11	2"	1–26C#14	20	2"	1–26C#14
	2"	1–26C#14	7	Riser	3–#6		2"	1–26C#14		2"	1–26C#14
	2"	6–2C#14	8	2"	1–26C#14		2"	6–2C#14		2"	6–2C#14
	2"	1–2C#14		2"	1–26C#14		2"	6–2C#14		2"	1–2C#14, 1–3C#20
	2"	1–36F Hybrid FOC		2"	6–2C#14		2"	2–2C#14, 1–24C#19, 2–3C#20		2"	1–36F Hybrid FOC
	2"	Spare		2"	6–2C#14					2"	Spare
2	2"	3–#6		2"	2–2C#14, 1–3C#20		2"	1–72F SM FOC, 1–36F Hybrid FOC	21	2"	1–144F SM FOC
3	2"	1–26C#14		2"	1–36F Hybrid FOC					2"	1–72F SM FOC, 1–36F Hybrid FOC
	2"	1–26C#14		2"	Spare						
	2"	6–2C#14	9	2"	1–144F SM FOC,		2"	3–#14, 3–#12			
	2"	3–2C#14, 1–3C#20		2"	1–24C#19, 1–36F Hybrid FOC,		2"	1–Coax, 1–Camera Control		2"	1–Coax, 1–Camera Control
	2"	1–Coax, 1–Camera Control	10	2"	1–26C#14		2"	Spare			
	2"	3–#14 3–#12		2"	1–26C#14	12	3"	2–26C#14		2"	1–Coax, 1–Camera Control
				2"	6–2C#14		3"	2–26C#14		2"	3–#6, 6–#14, 6–#12
	2"	Spare		2"	6–2C#14		3"	13–2C#14		2"	2–36F Hybrid FOC
4	2"	1–26C#14		2"	1–24C#19, 2–3C#20		3"	13–2C#14			
	2"	1–26C#14		2"	1–72F SM FOC, 1–36F Hybrid FOC		3"	4–2C#14, 4–3C#20, 2–24C#19			
	2"	1–2C#14, 1–3C#20		2"	3–#14 3–#12		2"	3–#6			
	2"	1–Coax, 1–Camera Control		2"	1–Coax, 1–Camera Control		2"	Spare			
	2"	3–#12, 3–#14				14	2"	3–#6			
	2"	Spare		2"	Spare	15	2"(Ex.)	1–36F Hybrid FOC			
5	2"	1–72F SM FOC, 1–36F Hybrid FOC				16	2"	1–2C#14, 3–4C#14			
	2"	1–24C#19, 3–2C#14				17	2"	2–2C#14			
						19	2"	1–72F SM FOC, 1–36F Hybrid FOC			
							2"	1–24C#19			

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Civil Roadway Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Not not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
5. Integrate existing CCTV cameras 85 and 189 into the new IP based network. Use the existing 36F Hybrid FOC within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Signal Phase Diagram

1	2	3	4
5	6	7 Not Used	8 Not Used

Vehicle Movement
Pedestrian Movement

Construction Notes:

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

54 Move LPR from Existing Mast Arm to Permanent Mast Arm and Re–aim. Relocate Interface Box. See Sheet TR914 for Details.

64 LPR Interface Box with Cellular Modem Within.

65 LPR's are Powered by the LPR Interface Box Via the Composite Cable.

67 See Sheet TR913C Detail 2 for CCTV Cabinet Wiring Information.

73 Intercept Existing Conduit and Extend to Pullbox.

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
7	EY	09–15–17	Record Drawing
6	EY	09–15–17	Revised per RFCR 55
5	EY	09–15–17	Revised per 164 & RFI 525
4	EY	09–15–17	Revised per FDC 142
3	EY	06–13–17	Revised per FDC 402
2	EY	05–02–17	Revised per FDC 384
1	EA	12–11–15	NDC 80 – DTS Comments Update
0	EA	10–14–14	Final Design

Designed: E Anders
Drawn: E Anders
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 09–15–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB

Subconsultant:

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KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT KA'AHUMANU ST

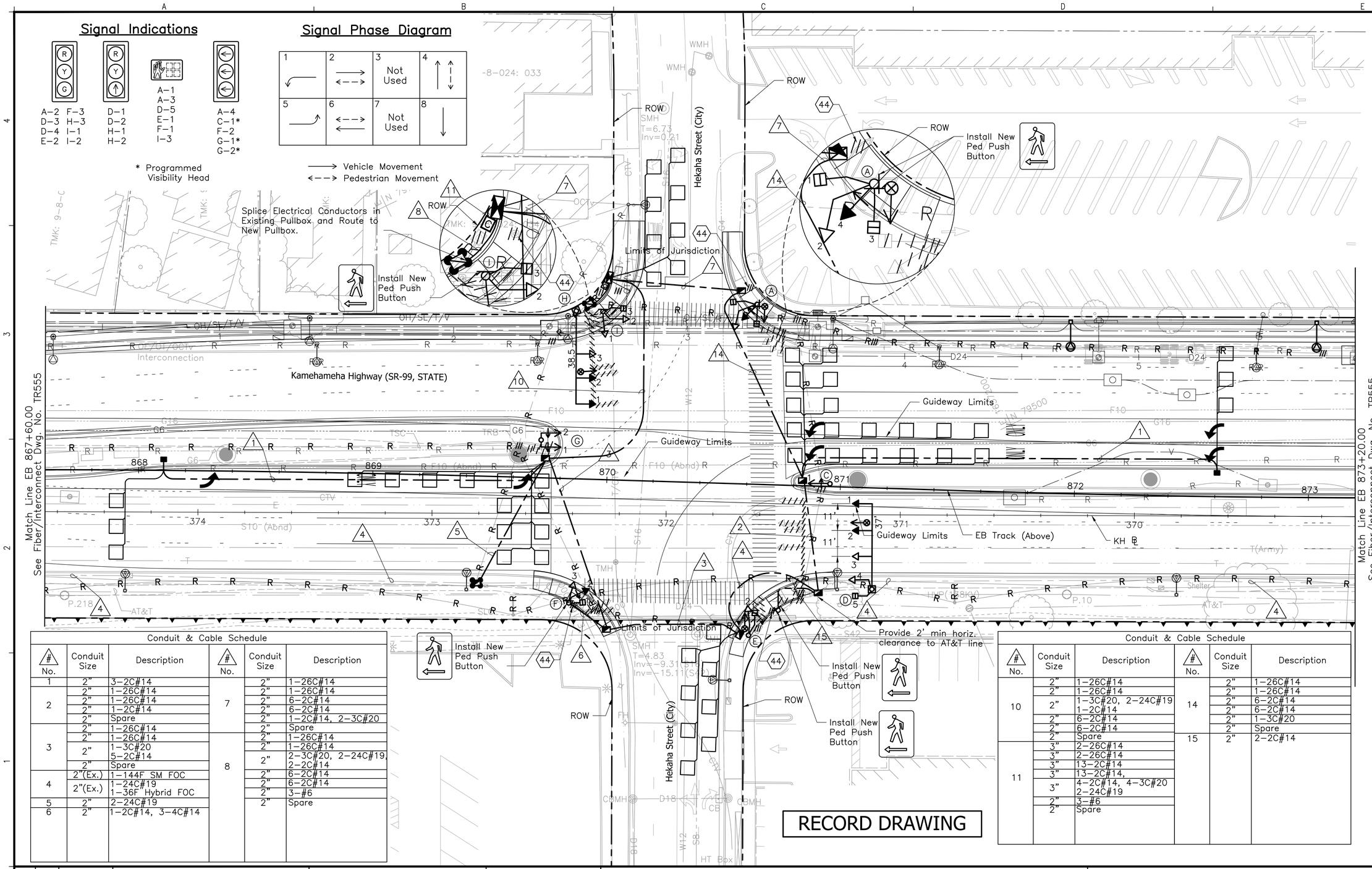
Contract No.: CT–HRT–11H0195
File: KHG22–C04–TR510
Drawing No: TR510
Rev. 7
Scale: 1"=20'
Page No. of

Signal Indications

* Programmed Visibility Head

Signal Phase Diagram

⟶ Vehicle Movement
⟷ Pedestrian Movement



Construction Notes:

(44) Remove Existing Pedestrian Push Button Assembly.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Civil Roadway Package Sheets CD001 and CD002 for Curb and Gutter Tie-in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
5. Remove ADSS cable, replace with Permanent cable.

20' 0' 20'

Conduit & Cable Schedule

# No.	Conduit Size	Description
1	2"	3-2C#14
2	2"	1-26C#14
	2"	1-26C#14
	2"	1-2C#14
	2"	Spare
3	2"	1-26C#14
	2"	1-26C#14
	2"	1-3C#20 5-2C#14
	2"	Spare
4	2"(Ex.)	1-144F SM FOC
	2"(Ex.)	1-24C#19 1-36F Hybrid FOC
5	2"	2-24C#19
6	2"	1-2C#14, 3-4C#14
7	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	1-2C#14, 2-3C#20
	2"	Spare
8	2"	1-26C#14
	2"	1-26C#14
	2"	2-3C#20, 2-24C#19, 2-2C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	3-#6
	2"	Spare

Conduit & Cable Schedule

# No.	Conduit Size	Description
10	2"	1-26C#14
	2"	1-26C#14
	2"	1-3C#20, 2-24C#19 1-2C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	Spare
11	3"	2-26C#14
	3"	2-26C#14
	3"	13-2C#14
	3"	13-2C#14,
	3"	4-2C#14, 4-3C#20 2-24C#19
	2"	3-#6
	2"	Spare
14	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	1-3C#20
	2"	Spare
15	2"	2-2C#14

Rev	By	Date	Description
3	EY	09-15-17	Record Drawing
2	EY	09-15-17	Revised per RFCR 55
1	EY	09-15-17	Revised per RFI 165 & RFI 278
0	EA	03-13-15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: N Ching
Approved: N Ching
Date: 09-15-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN KAMEHAMEHA HWY AT HEKAHA ST

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR511
Drawing No: TR511
Rev. 3
Scale: 1"=20'
Page No. of

Conduit & Cable Schedule					
# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"	1–26C#14	8	2"	1–26C#14
	2"	1–26C#14		2"	1–26C#14
	2"	5–2C#14		2"	6–2C#14
	2"	Spare		2"	2–2C#14,1–3C#20
2	2"	4–2C#14		2"	Spare
3	2"	1–26C#14	9	2"	1–26C#14
	2"	1–26C#14		2"	1–26C#14
	2"	1–2C#14,1–3C#20		2"	1–Coax, 1–Camera Control
	2"	1–Coax, 1–Camera Control		2"	6–2C#14
	2"	3–#14		2"	4–2C#14,1–3C#20 1–24C#19
	2"	Spare		2"	3–#14
4	2"(Ex.)	1–24C#19, 1–36F Hybrid FOC		2"	1–36F Hybrid FOC
	2"(Ex.)	1–144F SM FOC		2"	1–144F SM FOC
5	2"	1–26C#14		2"	Spare
	2"	1–26C#14	10	2"	1–72F SM FOC
	2"	6–2C#14		2"	2–36F Hybrid FOC,
	2"	4–2C#14,1–3C#20		2"	1–144F SM FOC
	2"	1–Coax, 1–Camera Control		2"	1–Coax, 1–Camera Control
	2"	3–#14		2"	1–Coax, 1–Camera Control
	2"	Spare		2"	6–#14, 3–#6
6	2"	3–2C#14			
7	2"	1–26C#14			
	2"	1–26C#14			
	2"	6–2C#14			
	2"	6–2C#14			
	2"	1–2C#14,1–3C#20			
	2"	Spare			

Conduit & Cable Schedule					
# No.	Conduit Size	Description	# No.	Conduit Size	Description
11	3"	2–26C#14	15	2"	4–2C#14
	3"	2–26C#14	16	2"	1–26C#14
	3"	13–2C#14		2"	1–26C#14
	3"	13–2C#14		2"	1–Coax, 1–Camera Control
	3"	2–2C#14,4–3C#20 2–24C#19		2"	6–2C#14
	2"	3–#6		2"	6–2C#14
	2"	Spare		2"	3–2C#14,2–3C#20 1–24C#19
12	2"	1–26C#14		2"	3–#14
	2"	1–26C#14		2"	1–36F Hybrid FOC,
	2"	1–Coax, 1–Camera Control		2"	1–144F SM FOC
	2"	6–2C#14		2"	Spare
	2"	5–2C#14			
	2"	2–3C#20, 1–24C#19			
	2"	3–#14			
	2"	1–36F Hybrid FOC			
	2"	1–144F SM FOC			
	2"	Spare			
13	2"(Ex.)	1–72F SM FOC, 1–36F Hybrid FOC			
	2"(Ex.)	1–24C#19			
14	2"	1–72F SM FOC, 1–36F Hybrid FOC			
	2"	1–24C#19			
	2"	6–#6			

Construction Notes:

(44) Remove Existing Pedestrian Push Button Assembly.

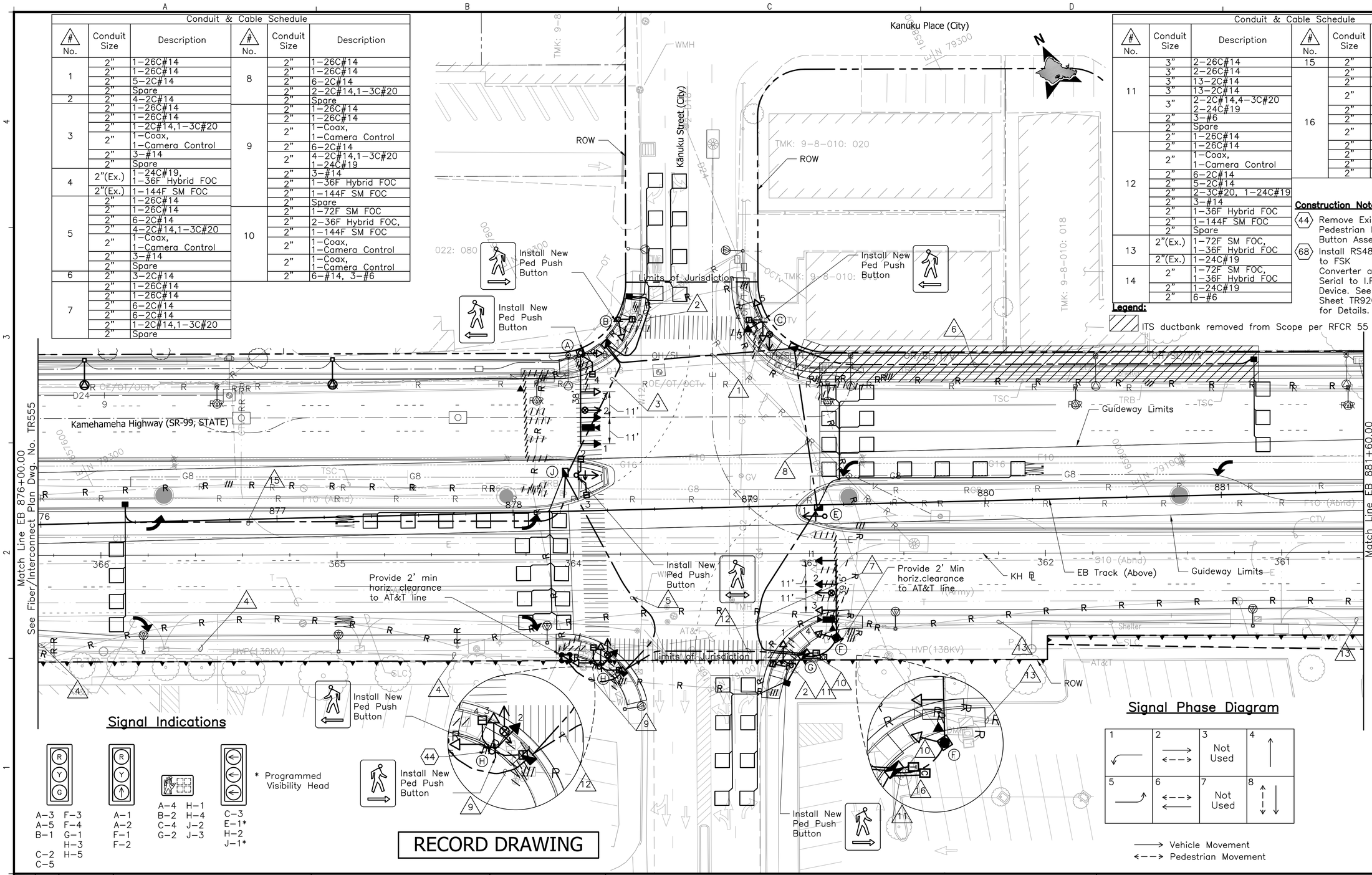
(68) Install RS485 to FSK Converter and Serial to I.P. Device. See Sheet TR920 for Details.

Legend:

ITS ductbank removed from Scope per RFCR 55

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Civil Roadway Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
5. Integrate 2 new CCTV cameras into the new IP based network. Use the 36F Hybrid and 72F SM FOC cable within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.



Signal Indications

A–3 F–3 A–5 F–4 B–1 G–1 H–3 C–2 H–5 C–5

A–1 A–2 F–1 F–2

A–4 H–1 B–2 H–4 C–4 J–2 G–2 J–3

C–3 E–1* H–2 J–1*

Signal Phase Diagram

1	2	3 Not Used	4
5	6	7 Not Used	8

Vehicle Movement

Pedestrian Movement

20' 0' 20'

Rev	By	Date	Description
6	EY	09–15–17	Record Drawing
5	EY	09–15–17	Revised per RFCR 55
4	EY	09–15–17	Revised per RFI 526
3	EY	09–15–17	Revised per FDC 169
2	EY	04–11–17	Revised per FDC 385
1	EY	05–31–16	Revised PB Location
0	EA	03–13–15	Final Design

Designed: E Anders
Drawn: E Yang
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 09–15–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB

Subconsultant:

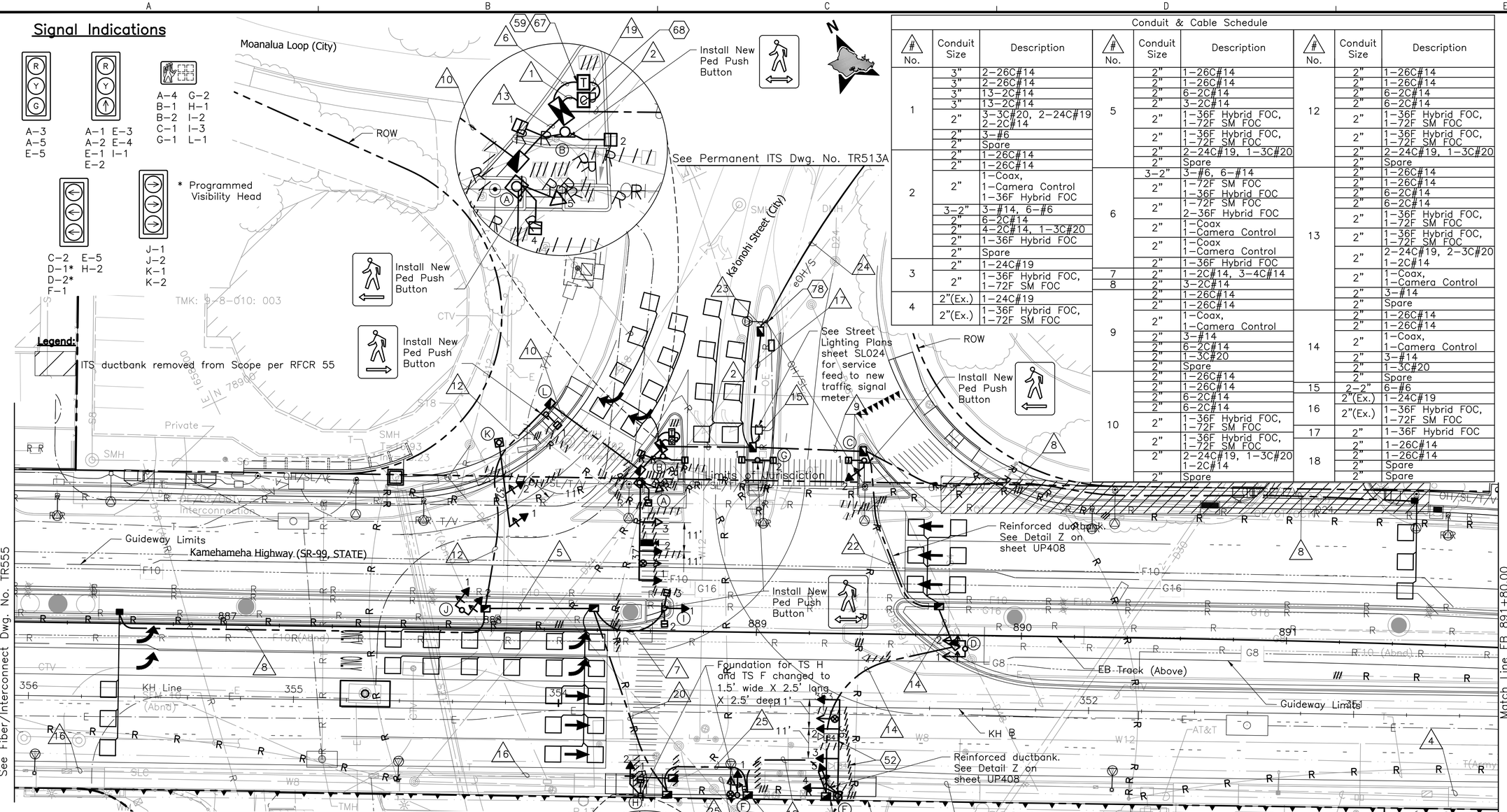
For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT KĀNUKU ST

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR512
Drawing No: TR512
Rev. 6
Scale: 1"=20'
Page No. of

Signal Indications



Conduit & Cable Schedule

# No.	Conduit Size	Description
1	3"	2–26C#14
	3"	2–26C#14
	3"	13–2C#14
	3"	13–2C#14
	2"	3–3C#20, 2–24C#19 2–2C#14
	2"	3–#6
	2"	Spare
2	2"	1–26C#14
	2"	1–26C#14
	2"	1–Coax, 1–Camera Control 1–36F Hybrid FOC
	3–2"	3–#14, 6–#6
	2"	6–2C#14
	2"	4–2C#14, 1–3C#20
	2"	1–36F Hybrid FOC
	2"	Spare
3	2"	1–24C#19
	2"	1–36F Hybrid FOC, 1–72F SM FOC
4	2"(Ex.)	1–24C#19
	2"(Ex.)	1–36F Hybrid FOC, 1–72F SM FOC

# No.	Conduit Size	Description
5	2"	1–26C#14
	2"	1–26C#14
	2"	6–2C#14
	2"	3–2C#14
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19, 1–3C#20
	2"	Spare
6	3–2"	3–#6, 6–#14
	2"	1–72F SM FOC 1–36F Hybrid FOC
	2"	1–72F SM FOC 2–36F Hybrid FOC
	2"	1–Coax 1–Camera Control
	2"	1–Coax 1–Camera Control
	2"	1–36F Hybrid FOC
7	2"	1–2C#14, 3–4C#14
8	2"	3–2C#14
9	2"	1–26C#14
	2"	1–26C#14
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	6–2C#14
	2"	1–3C#20
	2"	Spare
10	2"	1–26C#14
	2"	1–26C#14
	2"	6–2C#14
	2"	6–2C#14
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19, 1–3C#20 1–2C#14
	2"	Spare

# No.	Conduit Size	Description
12	2"	1–26C#14
	2"	1–26C#14
	2"	6–2C#14
	2"	6–2C#14
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19, 1–3C#20
	2"	Spare
13	2"	1–26C#14
	2"	1–26C#14
	2"	6–2C#14
	2"	6–2C#14
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19, 2–3C#20 1–2C#14
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	Spare
14	2"	1–26C#14
	2"	1–26C#14
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	1–3C#20
	2"	Spare
15	2–2"	6–#6
16	2"(Ex.)	1–24C#19
	2"(Ex.)	1–36F Hybrid FOC, 1–72F SM FOC
17	2"	1–36F Hybrid FOC
18	2"	1–26C#14
	2"	1–26C#14
	2"	Spare
	2"	Spare

Conduit & Cable Schedule

# No.	Conduit Size	Description
19	2"	1–Cat5e
20	2"	1–26C#14
	2"	1–26C#14
	2"	1–2C#14, 1–3C#20
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19
	2"	Spare

# No.	Conduit Size	Description
22	2"	1–26C#14
	2"	1–26C#14
	2"	1–Coax, 1–Camera Control
	2"	3–#14
	2"	2–2C#14, 1–3C#20
	2"	Spare
23	2"	1–36F Hybrid FOC
24	Overhead (Ex.)	1–36F Hybrid FOC

# No.	Conduit Size	Description
25	2"	1–26C#14
	2"	1–26C#14
	2"	1–3C#20
	2"	Spare
27	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	1–36F Hybrid FOC, 1–72F SM FOC
	2"	2–24C#19
	2"	Spare

Signal Phase Diagram

1 Not Used	2 →	3 Not Used	4 Not Used
5 ↗	6 ←– –→	7 Not Used	8 ↑ ↓

→ Vehicle Movement
←– –→ Pedestrian Movement

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Integrate existing CCTV camera 84 and new camera into the new IP based network. Use 36F Hybrid and 72F SM FOC within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Construction Notes:

30 Intercept and Extend Existing Conduit. Route Conduit to Proposed Pullbox.

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

59 (1) Hardened Layer 2 Ethernet Switch Meeting Contract Specification 27 60 02, 144 Fiber FDU, and All Required Appurtenances for a Fully Operational CCTV/Fiber Hub Location.

67 See Sheet TR913C Detail 2 for CCTV Cabinet Wiring Information.

78 Drop Point in New Riser for New FOC on Joint Use Pole. See Sheet TR911 for Details.

81 See Street Lighting Plans Sheet SL024 for Continuation of Power to Transformer.

20' 0' 20'

RECORD DRAWING

Rev	By	Date	Description
6	EY	10–06–17	Record Drawing
5	EY	10–06–17	Revised per RFCR 55
4	EY	10–06–17	Revised per RFI 248 & RFI 258
3	EY	10–06–17	FDC 125, FDC 174, FDC 227, FDC 390, & FDC 407
2	GT	06–13–17	Updated per FDC 403
1	EA	07–15–15	Updated per NDC 37
0	EA	02–25–15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: G Thiebaut/M Durning
Approved: G Thiebaut
Date: 10–06–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

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KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT KA'ONOHI ST

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR513
Drawing No: TR513
Rev. 6
Scale: 1"=20'
Page No. of

Signal Indications

B–1
C–2
E–3
E–4

A–1 D–2
A–2 E–1
A–3 E–2
A–5

A–4
C–1*
G–1

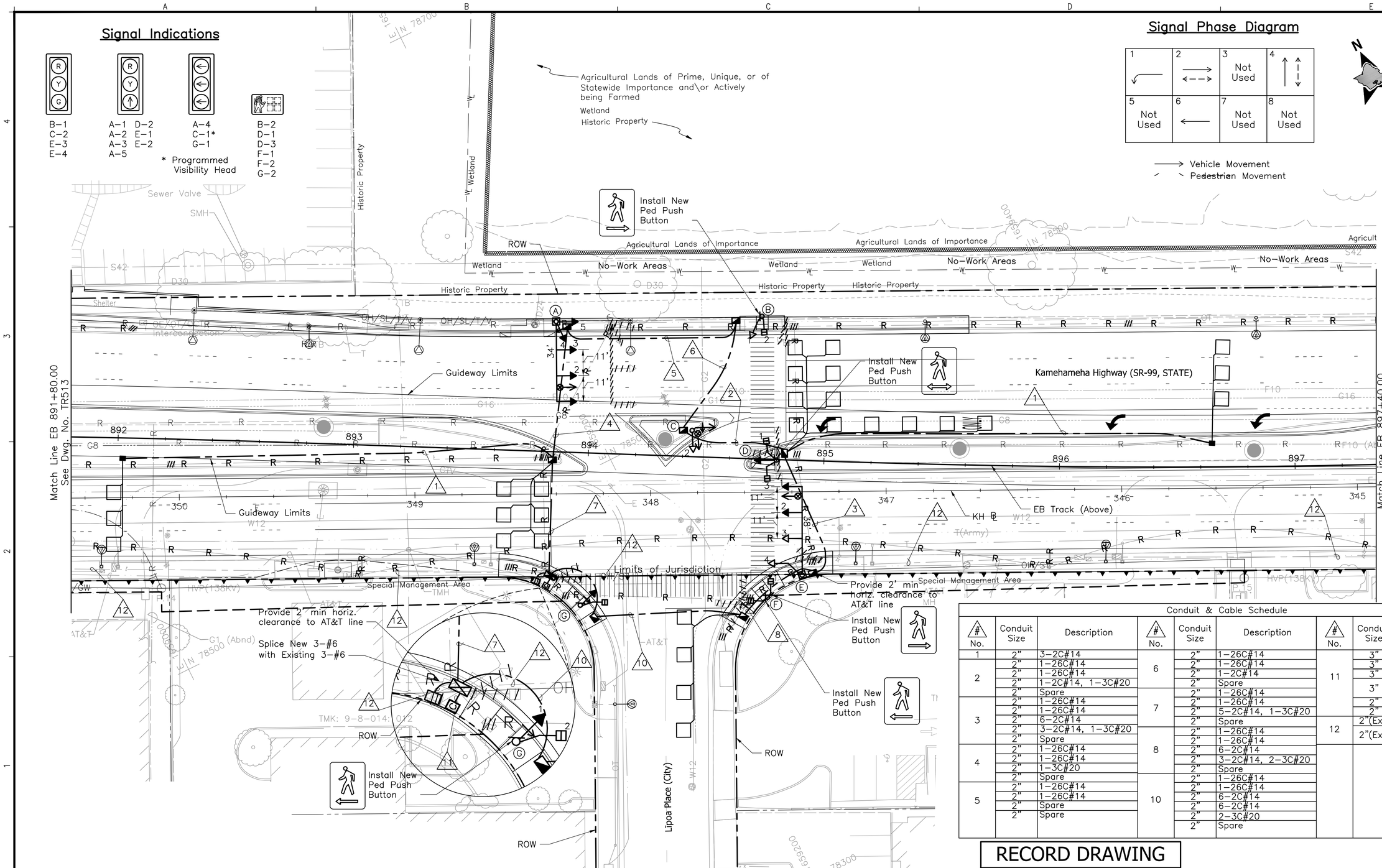
* Programmed Visibility Head

B–2
D–1
D–3
F–1
F–2
G–2

Signal Phase Diagram

1	2	3 Not Used	4
5 Not Used	6	7 Not Used	8 Not Used

Vehicle Movement
Pedestrian Movement



Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402. Note not valid for areas that have been removed from scope per RFCR 55.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans. Note not valid for areas that have been removed from scope per RFCR 55.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Remove ADSS cable, replace with Permanent cable.

Conduit & Cable Schedule

# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"	3–2C#14	6	2"	1–26C#14	11	3"	2–26C#14
2	2"	1–26C#14		2"	1–26C#14		3"	2–26C#14
	2"	1–26C#14		2"	1–2C#14		3"	12–2C#14
	2"	1–2C#14, 1–3C#20		2"	Spare		3"	2–24C#19 3–3C#20, 5–2C#14
	2"	Spare	7	2"	1–26C#14		2"	3–#6
3	2"	1–26C#14		2"	1–26C#14		2"	Spare
	2"	1–26C#14		2"	5–2C#14, 1–3C#20	12	2"(Ex.)	1–24C#19
	2"	6–2C#14		2"	Spare		2"(Ex.)	1–72F SM FOC, 1–36F Hybrid FOC
	2"	3–2C#14, 1–3C#20	8	2"	1–26C#14			
	2"	Spare		2"	1–26C#14			
4	2"	1–26C#14		2"	6–2C#14			
	2"	1–26C#14		2"	3–2C#14, 2–3C#20			
	2"	1–3C#20		2"	Spare			
	2"	Spare	10	2"	1–26C#14			
5	2"	1–26C#14		2"	1–26C#14			
	2"	1–26C#14		2"	6–2C#14			
	2"	Spare		2"	6–2C#14			
	2"	Spare		2"	2–3C#20			
				2"	Spare			

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
2	EY	09–15–17	Record Drawing
1	EY	09–15–17	Revised per RFCR 55
0	EA	02–25–15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: N Ching / M Durning
Approved: N Ching
Date: 09–15–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: AKG Kiewit HNTB
Subconsultant:

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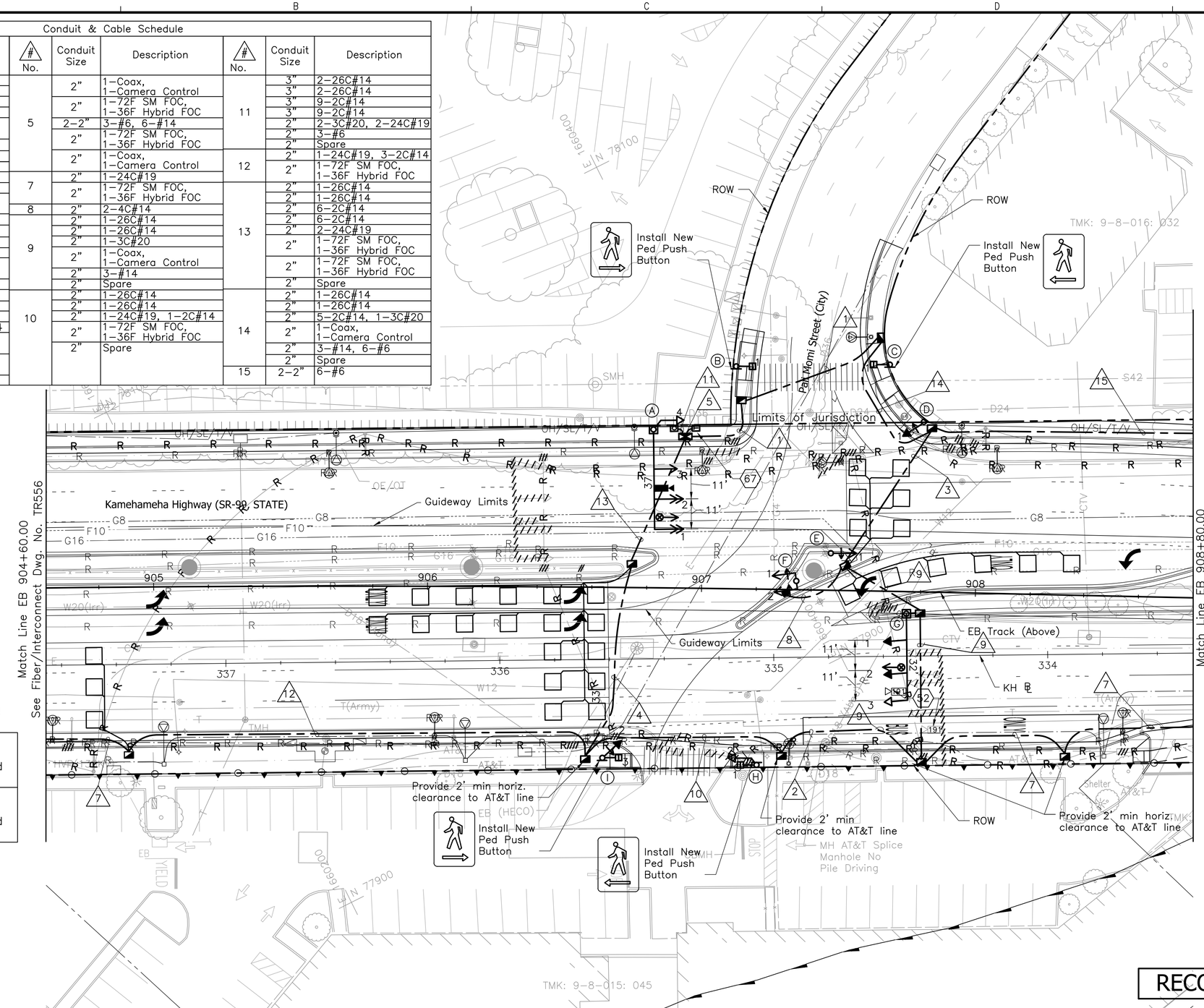
KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT LĪPOA PL

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR514
Drawing No: TR514
Rev. 2
Scale: 1"=20'
Page No. of

Conduit & Cable Schedule								
# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"	1-26C#14	5	2"	1-Coax, 1-Camera Control	11	3"	2-26C#14
	2"	1-26C#14					3"	2-26C#14
	2"	6-2C#14		2"	1-72F SM FOC, 1-36F Hybrid FOC		3"	9-2C#14
	2"	1-3C#20					3"	9-2C#14
	2"	1-Coax, 1-Camera Control		2-2"	3-#6, 6-#14		2"	2-3C#20, 2-24C#19
				2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	3-#6
	2-2"	6-#6, 3-#14					2"	Spare
	2"	Spare		2"	1-Coax, 1-Camera Control	12	2"	1-24C#19, 3-2C#14
2	2"	1-26C#14					2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-26C#14	7	2"	1-24C#19	13	2"	1-26C#14
	2"	1-24C#19		2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	1-26C#14
	2"	1-72F SM FOC, 1-36F Hybrid FOC	8	2"	2-4C#14		2"	6-2C#14
							2"	6-2C#14
	2"	Spare	9	2"	1-26C#14		2"	2-24C#19
3	2"	1-26C#14		2"	1-26C#14		2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-26C#14		2"	1-3C#20			
	2"	5-2C#14, 1-3C#20		2"	1-Coax, 1-Camera Control		2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-Coax, 1-Camera Control						
				2"	3-#14			
	2"	3-#14		2"	Spare		2"	Spare
	2"	Spare	10	2"	1-26C#14	14	2"	1-26C#14
4	2"	1-26C#14		2"	1-26C#14		2"	1-26C#14
	2"	1-26C#14		2"	1-24C#19, 1-2C#14		2"	5-2C#14, 1-3C#20
	2"	2-24C#19, 4-2C#14		2"	1-72F SM FOC, 1-36F Hybrid FOC		2"	1-Coax, 1-Camera Control
	2"	1-72F SM FOC, 1-36F Hybrid FOC						
				2"	Spare		2"	3-#14, 6-#6
	2"	1-72F SM FOC, 1-36F Hybrid FOC					2"	Spare
						15	2-2"	6-#6
	2"	Spare						



Signal Phase Diagram

1	2	3 Not Used	4 Not Used
5	6	7 Not Used	8 Not Used

Vehicle Movement
Pedestrian Movement

Construction Notes:

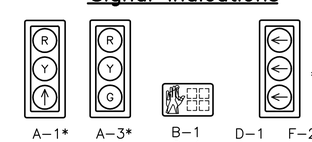
52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for details.

67 See Sheet TR913 Detail 2 for CCTV Cabinet Wiring Information.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie-in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Integrate existing CCTV camera 191 and new camera into the new IP based network. Use 36F Hybrid and 72F SM FOC within the cabinet and as network cable system backbone among the network nodes.
6. Furnish and install a managed Ethernet PoE switch and two H.264 video encoders within cabinet to allow existing system's integration into the new IP based network.
7. Remove ADSS cable, replace with Permanent cable.

Signal Indications



A-1* A-2* G-1 G-2 | A-3* A-4 G-3 H-2 | B-1 C-1 H-1 I-3 | D-1 E-1* F-1* | F-2* I-2

* Programmed Visibility Head

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
3	EY	09-15-17	Record Drawing
2	EY	02-22-17	Updated per FDC 374
1	EY	01-20-17	Updated per NDC 88
0	EA	02-25-15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: J Przychodzen
Approved: G Thiebaut
Date: 09-15-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

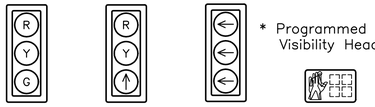
For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

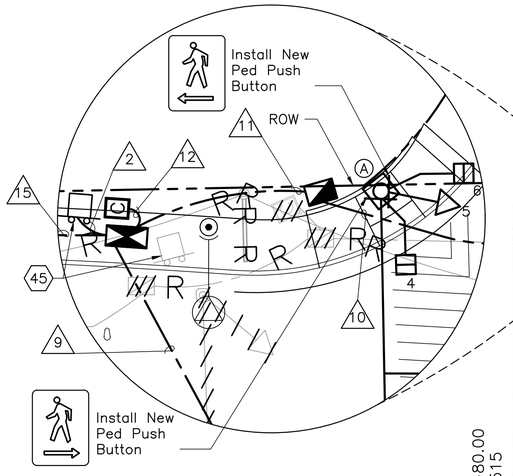
PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT PALI MOMI ST (WEST)

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR515
Drawing No: TR515
Rev. 3
Scale: 1"=20'
Page No. of

Signal Indications



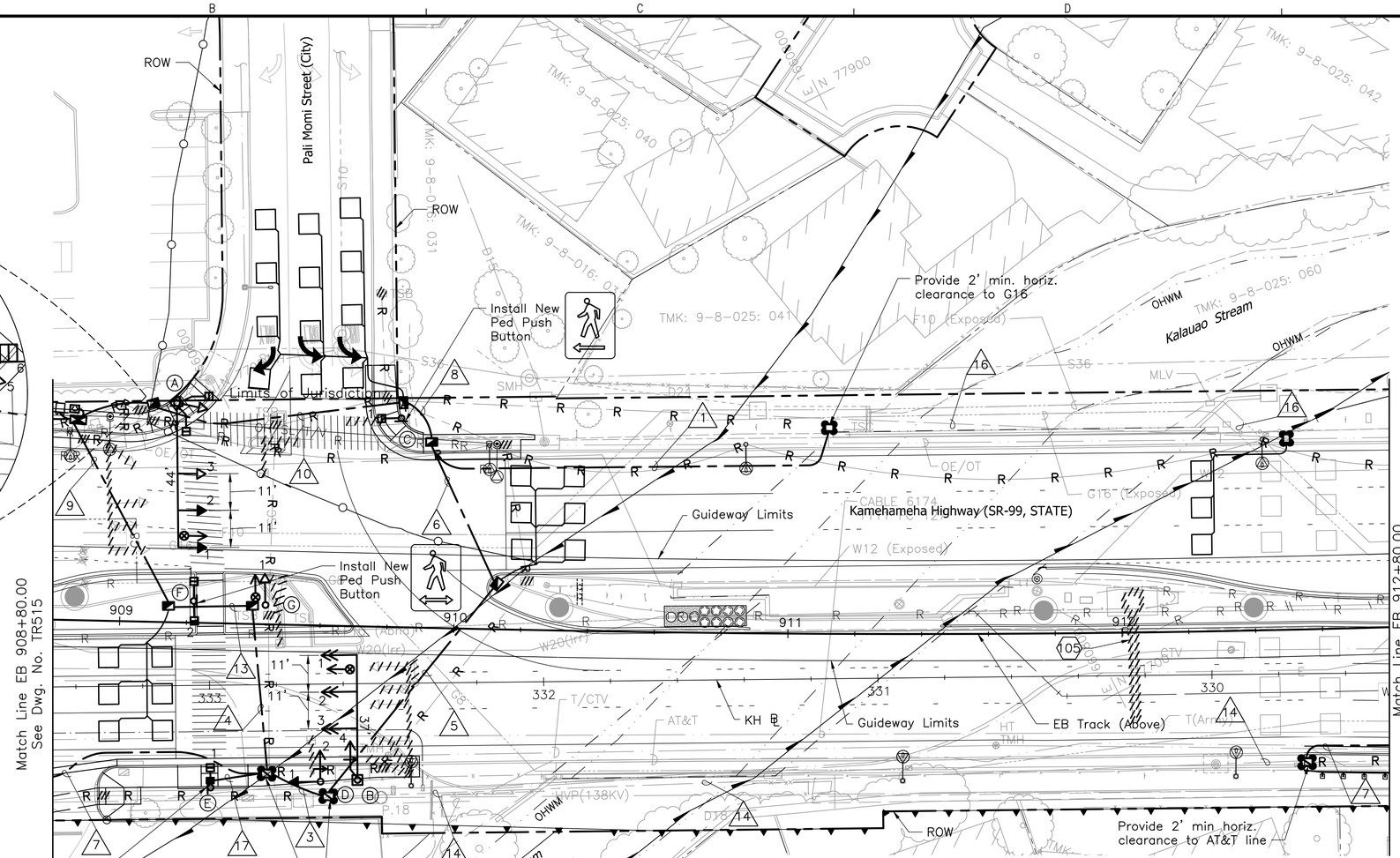
A–3	A–1 B–2*	B–4*	A–4 E–1
A–5	A–2 B–3*	D–2*	A–6 F–1
G–1	B–1* D–1		C–1 F–2



Signal Phase Diagram

1 Not Used	2 →	3 Not Used	4 Not Used
5 Not Used	6 ←– –→	7 Not Used	8 ↑ ↓

→ Vehicle Movement
←– –→ Pedestrian Movement



Construction Notes:

45 Relocate Existing Disconnect Panel.

105 Existing DMS Sign to be Removed, See Dry Utility Package 11 for Details. Coordinate with HDOT Prior to Existing DMS Removal.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie–in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Remove ADSS cable, replace with Permanent cable.

Conduit & Cable Schedule

# No.	Conduit Size	Description	# No.	Conduit Size	Description	# No.	Conduit Size	Description
1	2"	3–2C#14	7	2"	1–24C#19	12	3"	2–26C#14
2	3–2"	9–#6		2"	1–72F SM FOC, 1–36F Hybrid FOC		3"	2–26C#14
3	2"	1–26C#14					3"	12–2C#14
	2"	1–26C#14	8	2"	1–26C#14		3"	2–24C#19, 3–3C#20 4–2C#14
	2"	1–3C#20		2"	1–26C#14		2"	3–#6
	2"	1–24C#19		2"	5–2C#14		2"	Spare
	2"	1–72F SM FOC, 1–36F Hybrid FOC		2"	Spare	13	2"	1–26C#14
	2"	Spare	9	2"	1–26C#14		2"	1–26C#14
4	2"	1–26C#14		2"	1–26C#14		2"	1–2C#14, 1–3C#20, 2–24C#19
	2"	1–26C#14		2"	3–2C#14, 2–3C#20, 2–24C#19		2"	Spare
	2"	1–2C#14, 1–3C#20, 2–24C#19		2"	Spare	14	2"(Ex.)	1–24C#19
	2"	Spare	10	2"	1–26C#14		2"(Ex.)	1–72F SM FOC, 1–36F Hybrid FOC
5	2"	1–26C#14		2"	1–26C#14	15	2–2"	6–#6
	2"	1–26C#14		2"	6–2C#14	16	2"(Ex.)	3–2C#14
	2"	Spare		2"	6–2C#14	17	2"	1–4C#14, 1–2C#14
	2"	Spare		2"	Spare			
6	2"	1–26C#14	11	2"	1–26C#14			
	2"	1–26C#14		2"	1–26C#14			
	2"	2–2C#14		2"	6–2C#14			
	2"	Spare		2"	6–2C#14			
				2"	1–3C#20			
				2"	Spare			

RECORD DRAWING

20' 0' 20'

Rev	By	Date	Description
1	EY	10–06–17	Record Drawing
0	EA	02–25–15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: N Ching / M Durning
Approved: N Ching
Date: 10–06–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT PALI MOMI ST (EAST)

Contract No.: CT–HRT–11H0195
File: KHGP–C04–TR516
Drawing No: TR516
Rev. 1
Scale: 1"=20'
Page No. of

Conduit & Cable Schedule

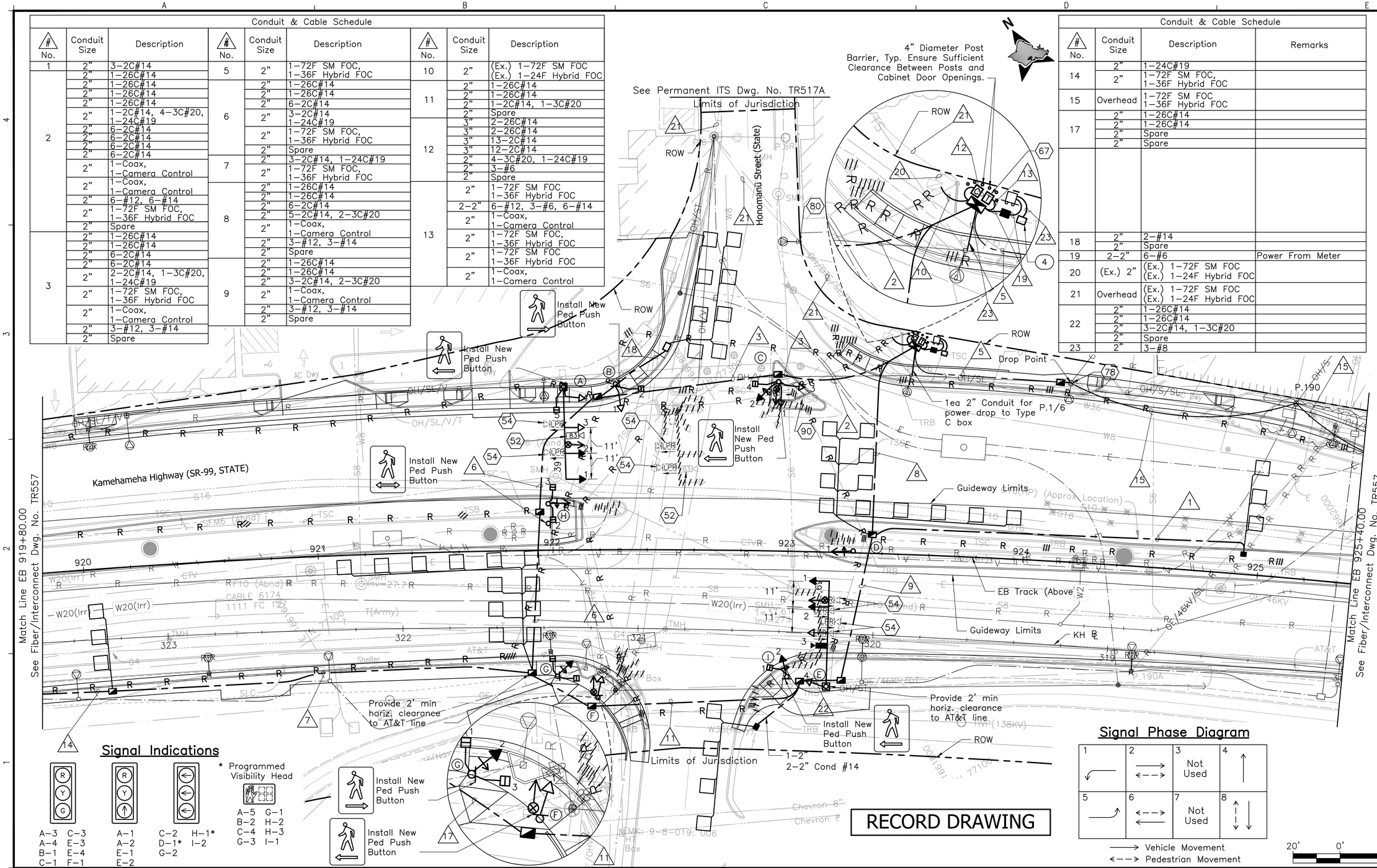
# No.	Conduit Size	Description
1	2"	3-2C#14
	2"	1-26C#14
2	2"	1-26C#14
	2"	1-26C#14
	2"	1-26C#14
	2"	1-2C#14, 4-3C#20, 1-24C#19
	2"	6-2C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	1-Coax, 1-Camera Control
	2"	1-Coax, 1-Camera Control
	2"	6-#12, 6-#14
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	Spare
3	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	6-2C#14
	2"	2-2C#14, 1-3C#20, 1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare

# No.	Conduit Size	Description
5	2"	1-72F SM FOC, 1-36F Hybrid FOC
6	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	3-2C#14 1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	Spare
7	2"	3-2C#14, 1-24C#19
	2"	1-72F SM FOC, 1-36F Hybrid FOC
8	2"	1-26C#14
	2"	1-26C#14
	2"	6-2C#14
	2"	5-2C#14, 2-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare
9	2"	1-26C#14
	2"	1-26C#14
	2"	3-2C#14, 2-3C#20
	2"	1-Coax, 1-Camera Control
	2"	3-#12, 3-#14
	2"	Spare

# No.	Conduit Size	Description
10	2"	(Ex.) 1-72F SM FOC (Ex.) 1-24F Hybrid FOC
11	2"	1-26C#14
	2"	1-26C#14
	2"	1-2C#14, 1-3C#20
	2"	Spare
12	3"	2-26C#14
	3"	2-26C#14
	3"	13-2C#14
	3"	12-2C#14
	2"	4-3C#20, 1-24C#19
	2"	3-#6
	2"	Spare
13	2"	1-72F SM FOC 1-36F Hybrid FOC
	2-2"	6-#12, 3-#6, 6-#14
	2"	1-Coax, 1-Camera Control
	2"	1-72F SM FOC, 1-36F Hybrid FOC
	2"	1-72F SM FOC 1-36F Hybrid FOC
	2"	1-Coax, 1-Camera Control

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
14	2"	1-24C#19	
	2"	1-72F SM FOC, 1-36F Hybrid FOC	
15	Overhead	1-72F SM FOC 1-36F Hybrid FOC	
17	2"	1-26C#14	
	2"	1-26C#14	
	2"	Spare	
	2"	Spare	
18	2"	2-#14	
	2"	Spare	
19	2-2"	6-#6	Power From Meter
20	(Ex.) 2"	(Ex.) 1-72F SM FOC (Ex.) 1-24F Hybrid FOC	
21	Overhead	(Ex.) 1-72F SM FOC (Ex.) 1-24F Hybrid FOC	
22	2"	1-26C#14	
	2"	1-26C#14	
	2"	3-2C#14, 1-3C#20	
	2"	Spare	
23	2"	3-#8	



Construction Notes:

52 Move Existing CCTV Camera from Existing Mast Arm to Permanent Mast Arm. See Sheet TR912 for Details.

54 Move LPR from Existing Mast Arm to Permanent Mast Arm. Relocate Interface Box. See Sheet TR914 for Details.

67 See Sheet TR913C Detail 2 for CCTV Cabinet Wiring Information.

78 Drop Point in New Riser for New FOC on Joint Use Pole. See Sheet TR911 for Details.

80 Remove Existing Pole Mounted Meter Socket and Circuit Breaker.

90 See Dry Utility Relocation Plan Electrical and Communications Sheet UP331 for Continuation of Power to Meter.

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg No. TG009 and TG010.
2. Sawcut and Patch Sidewalks, Curbs and Gutters and Restore to Original Conditions for New Conduit Installation. See Roadway Civil Package Sheets CD001 and CD002 for Curb and Gutter Tie-in Connection Details. For Trench Restoration Details, See Sheets UP401 and UP402.
3. Restore Roadway Pavement Structure and Pavement Markings to Original Conditions. See Details on Roadway Paving Plans.
4. Install Back Plates for All Traffic Signal Assemblies Mounted On the Mast Arm of Type II Traffic Signal Standards.
5. Integrate existing CCTV camera 83 and new camera into the new IP based network. Furnish and Install network equipment at the cabinet to allow for integration into new IP based network.

Signal Indications

A-3 C-3
A-4 E-3
B-1 E-4
C-1 F-1

A-1
A-2
E-1
E-2

C-2 H-1*
D-1* I-2
G-2

* Programmed Visibility Head

A-5 G-1
B-2 H-2
C-4 H-3
G-3 I-1

Signal Phase Diagram

1	2	3	4
		Not Used	
5	6	7	8
		Not Used	

→ Vehicle Movement
←-→ Pedestrian Movement

20' 0' 20'

RECORD DRAWING

Rev	By	Date	Description
2	EY	10-06-17	Record Drawing
1	EY	03-02-17	Revised per FDC 124, FDC 182, FDC 191, & FDC 404
0	EA	02-25-15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: N Ching / M Durning
Approved: N Ching
Date: 10-06-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

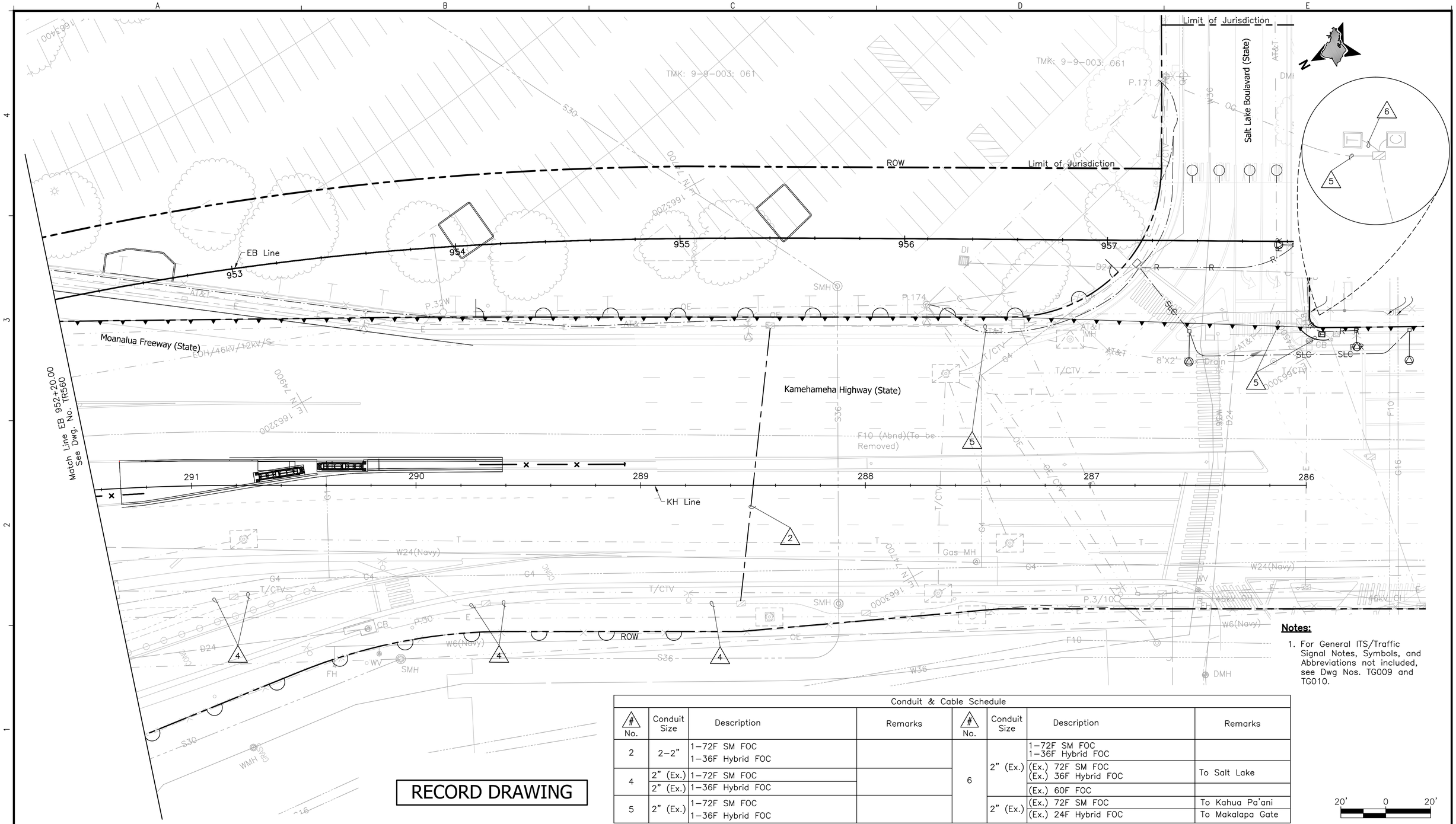
Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

PERMANENT ITS/TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT HONOMANŪ ST

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR517
Drawing No: TR517
Rev. 2
Scale: 1"=20'
Page No. of



RECORD DRAWING

Notes:

1. For General ITS/Traffic Signal Notes, Symbols, and Abbreviations not included, see Dwg Nos. TG009 and TG010.

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks
2	2-2"	1-72F SM FOC 1-36F Hybrid FOC		6	2" (Ex.)	1-72F SM FOC 1-36F Hybrid FOC	
4	2" (Ex.)	1-72F SM FOC				(Ex.) 72F SM FOC (Ex.) 36F Hybrid FOC	To Salt Lake
	2" (Ex.)	1-36F Hybrid FOC				(Ex.) 60F FOC	
5	2" (Ex.)	1-72F SM FOC 1-36F Hybrid FOC			2" (Ex.)	(Ex.) 72F SM FOC	To Kahua Pa'ani
						(Ex.) 24F Hybrid FOC	To Makalapa Gate

20' 0 20'

Rev	By	Date	Description
1	EY	10-06-17	Record Drawing
0	EA	02-25-15	Final Design

Designed: E Anders
Drawn: E Anders
Checked: N Ching / M Durning
Approved: N Ching
Date: 10-06-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

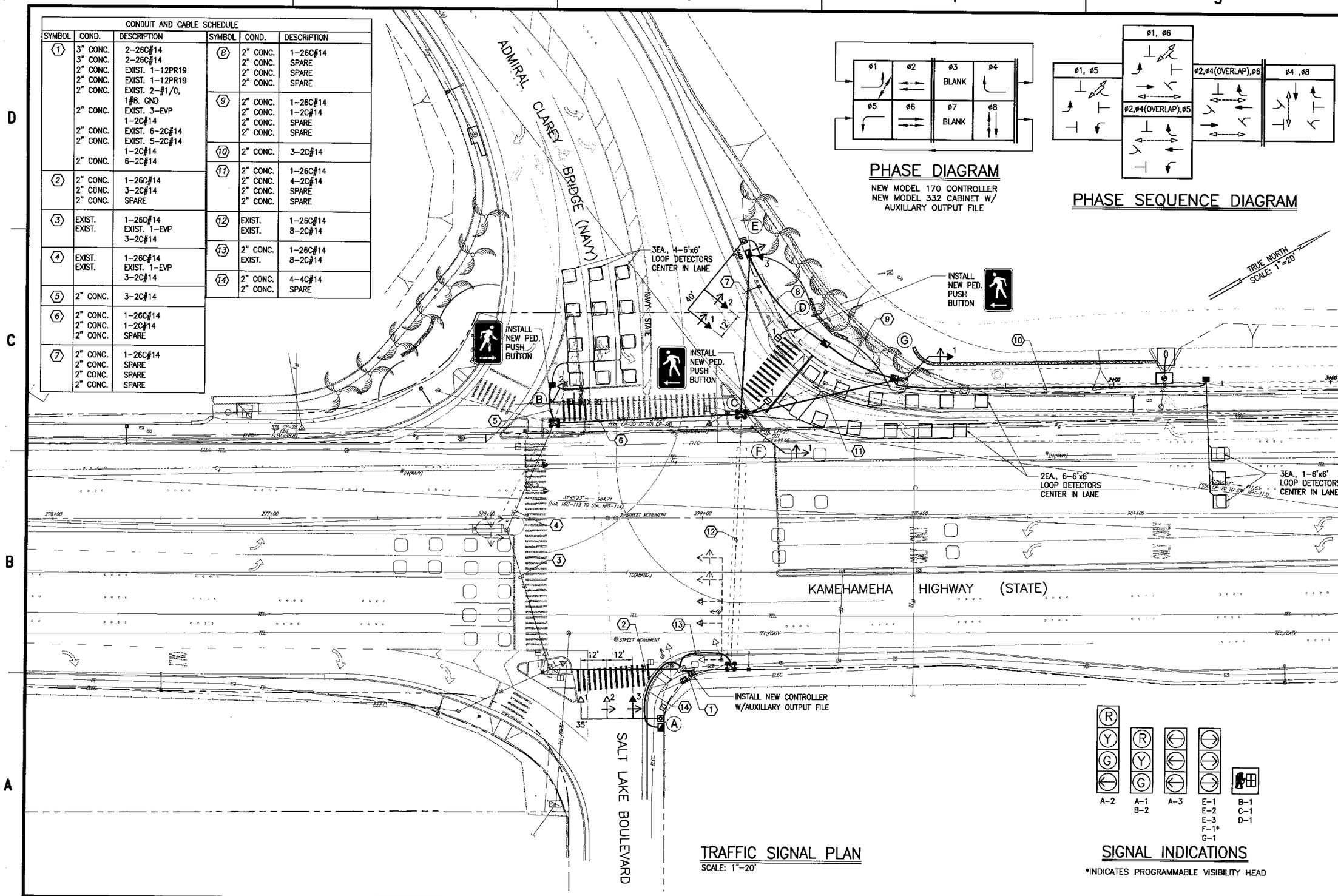
KAMEHAMEHA HIGHWAY GUIDEWAY DESIGN-BUILD

FIBER/INTERCONNECT PLAN

EB 952+20.00 - EB 957+60.00

Contract No.: CT-HRT-11H0195
File: KHGP-C04-TR561
Drawing No: TR561
Rev. 1
Scale: 1"=20'
Page No. of

CONDUIT AND CABLE SCHEDULE					
SYMBOL	COND.	DESCRIPTION	SYMBOL	COND.	DESCRIPTION
1	3" CONC. 3" CONC. 2" CONC. 2" CONC. 2" CONC. 2" CONC. 2" CONC. 2" CONC. 2" CONC.	2-26C#14 2-26C#14 EXIST. 1-12PR19 EXIST. 1-12PR19 EXIST. 2-#1/0, 1#8. GND EXIST. 3-EVP 1-2C#14 EXIST. 6-2C#14 EXIST. 5-2C#14 1-2C#14 6-2C#14	8	2" CONC. 2" CONC. 2" CONC. 2" CONC.	1-26C#14 SPARE SPARE SPARE
2	2" CONC. 2" CONC. 2" CONC.	1-26C#14 3-2C#14 SPARE	9	2" CONC. 2" CONC. 2" CONC. 2" CONC.	1-26C#14 1-2C#14 SPARE SPARE
3	EXIST. EXIST.	1-26C#14 EXIST. 1-EVP 3-2C#14	10	2" CONC.	3-2C#14
4	EXIST. EXIST.	1-26C#14 EXIST. 1-EVP 3-2C#14	11	2" CONC. 2" CONC. 2" CONC. 2" CONC.	1-26C#14 4-2C#14 SPARE SPARE
5	2" CONC.	3-2C#14	12	EXIST. EXIST.	1-26C#14 8-2C#14
6	2" CONC. 2" CONC. 2" CONC.	1-26C#14 1-2C#14 SPARE	13	2" CONC. EXIST.	1-26C#14 8-2C#14
7	2" CONC. 2" CONC. 2" CONC. 2" CONC.	1-26C#14 SPARE SPARE SPARE	14	2" CONC. 2" CONC.	4-4C#14 SPARE



PHASE DIAGRAM

NEW MODEL 170 CONTROLLER
NEW MODEL 332 CABINET W/
AUXILLARY OUTPUT FILE

PHASE SEQUENCE DIAGRAM

SIGNAL INDICATIONS

*INDICATES PROGRAMMABLE VISIBILITY HEAD

TRAFFIC SIGNAL PLAN

SCALE: 1"=20'

AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS — ENVIRONMENTAL SCIENTISTS

KEITH K. NIIYA
LICENSED PROFESSIONAL ENGINEER
No. 8226-C
HAWAII, U.S.A.

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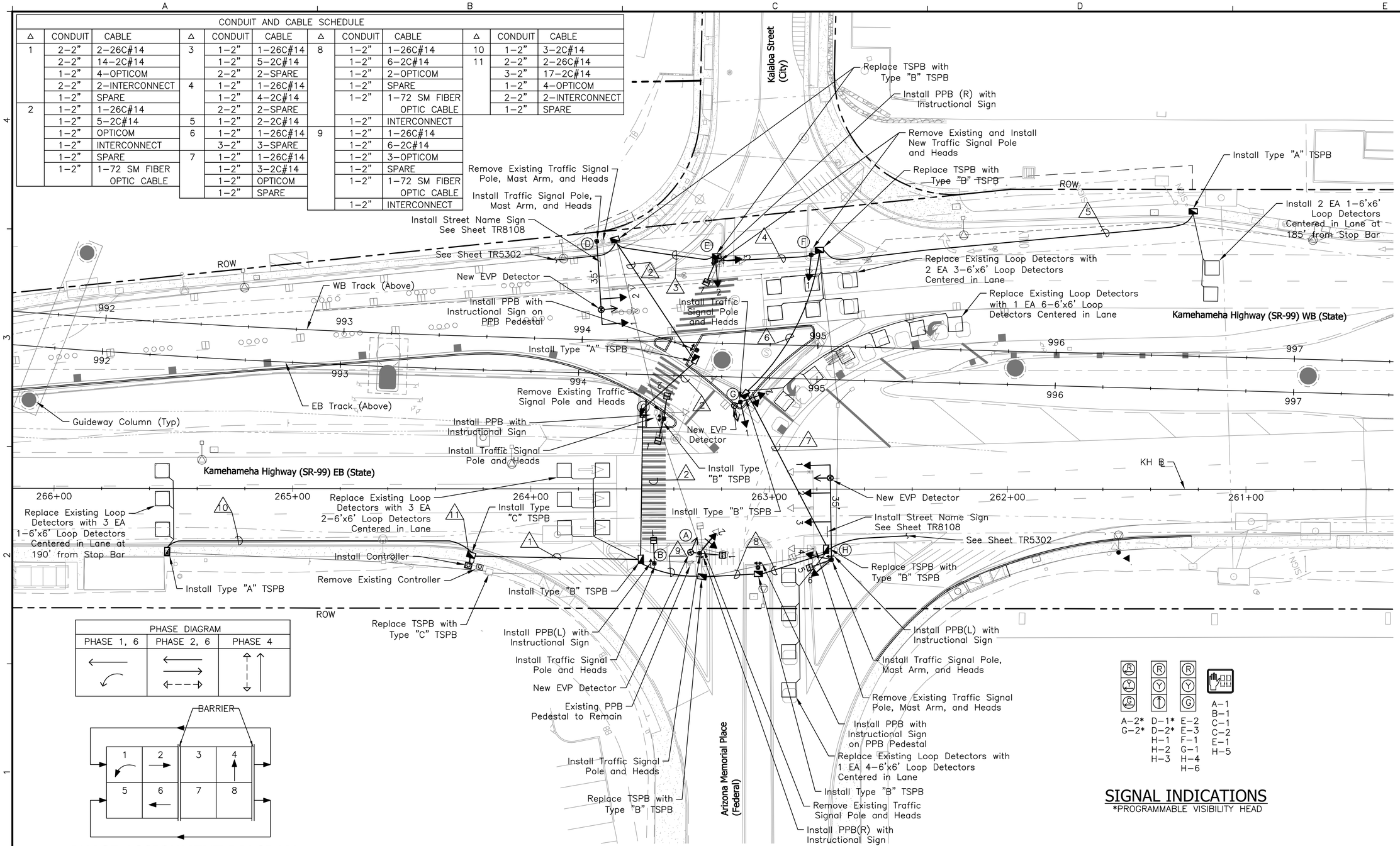
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVFAC PACIFIC
PEARL HARBOR, HAWAII
NAVSTA PEARL HARBOR
HAWAII
FORD ISLAND/KAMEHAMEHA HIGHWAY INTERSECTION IMPROVEMENTS
TRAFFIC SIGNAL PLAN

CODE ID. NO. 80091 | SIZE D
SCALE: AS SHOWN
CONST. CONTR. NO. –
WON 525784
NAVFAC DRAWING NO. 0000000
SHEET 35 OF 41
TS-2

IF SHEET IS LESS THAN 22" X 34"

PRFFINAL

CONDUIT AND CABLE SCHEDULE											
Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE
1	2–2"	2–26C#14	3	1–2"	1–26C#14	8	1–2"	1–26C#14	10	1–2"	3–2C#14
	2–2"	14–2C#14		1–2"	5–2C#14		1–2"	6–2C#14	11	2–2"	2–26C#14
	1–2"	4–OPTICOM		2–2"	2–SPARE		1–2"	2–OPTICOM		3–2"	17–2C#14
	2–2"	2–INTERCONNECT	4	1–2"	1–26C#14		1–2"	SPARE		1–2"	4–OPTICOM
	1–2"	SPARE		1–2"	4–2C#14		1–2"	1–72 SM FIBER OPTIC CABLE		2–2"	2–INTERCONNECT
2	1–2"	1–26C#14		2–2"	2–SPARE					1–2"	SPARE
	1–2"	5–2C#14	5	1–2"	2–2C#14		1–2"	INTERCONNECT			
	1–2"	OPTICOM	6	1–2"	1–26C#14	9	1–2"	1–26C#14			
	1–2"	INTERCONNECT		3–2"	3–SPARE		1–2"	6–2C#14			
	1–2"	SPARE	7	1–2"	1–26C#14		1–2"	3–OPTICOM			
	1–2"	1–72 SM FIBER OPTIC CABLE		1–2"	3–2C#14		1–2"	SPARE			
				1–2"	OPTICOM		1–2"	1–72 SM FIBER OPTIC CABLE			
				1–2"	SPARE						
							1–2"	INTERCONNECT			



NOTES:

1. For General Traffic Signal Notes, Symbols, and Abbreviations, see Dwg No. TG0006.
2. For Roadway Construction Plan Notes and Legend, see Dwg No. CG0003.
3. For Interconnect Conduit and Cable see Dwg No. TR5301–TR5354.
4. Install Backplates on Mast Arm Mounted Traffic Signal Heads on horizontal portion of mast arm only. Backplates shall be 5" with slots to reduce wind load with 1" Retro–Reflective Border.
5. Refer to Sheet TR8204 for Permanent CCTV Installation Details, Sheet TR8205 for Permanent CCTV Cabinet Details, and Sheet TR8206 for Permanent CCTV Wiring Details.
6. Fiber Optic Cable to Have a Continuous Run From Cabinet to Cabinet.
7. For Traffic Signal Pole Foundations see HDOT Standard Plans No. TE–32 thru TE–33A.2.
8. For Mounting EVP Detector Detail see Dwg No. TR8107.
9. During relocation, reconstruction or other improvements of existing traffic signal systems, keep existing system operational until reconstructed or new traffic signal system is in service. Arrange work accordingly and provide temporary relocations and wiring as necessary.

20' 0 20'

PHASE DIAGRAM		
PHASE 1, 6	PHASE 2, 6	PHASE 4

PHASE ASSIGNMENT DIAGRAM

SIGNAL INDICATIONS

*PROGRAMMABLE VISIBILITY HEAD

Rev	By	Date	Description
A		07–01–15	Request for Proposals – Part 2

NOT FOR CONSTRUCTION

Designed: N/A
Drawn: N/A
Checked: N/A
Approved: N/A
Date: 07–01–15

HONOLULU RAIL TRANSIT PROJECT

HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: AECOM, 1001 Bishop Street, Suite 1600 – Honolulu, HI 96813

HART, HONOLULU AUTHORITY for RAPID TRANSPORTATION, 1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

For reduced prints, original page size in inches: 0 1 2 3 4

AIRPORT GUIDEWAY & STATIONS

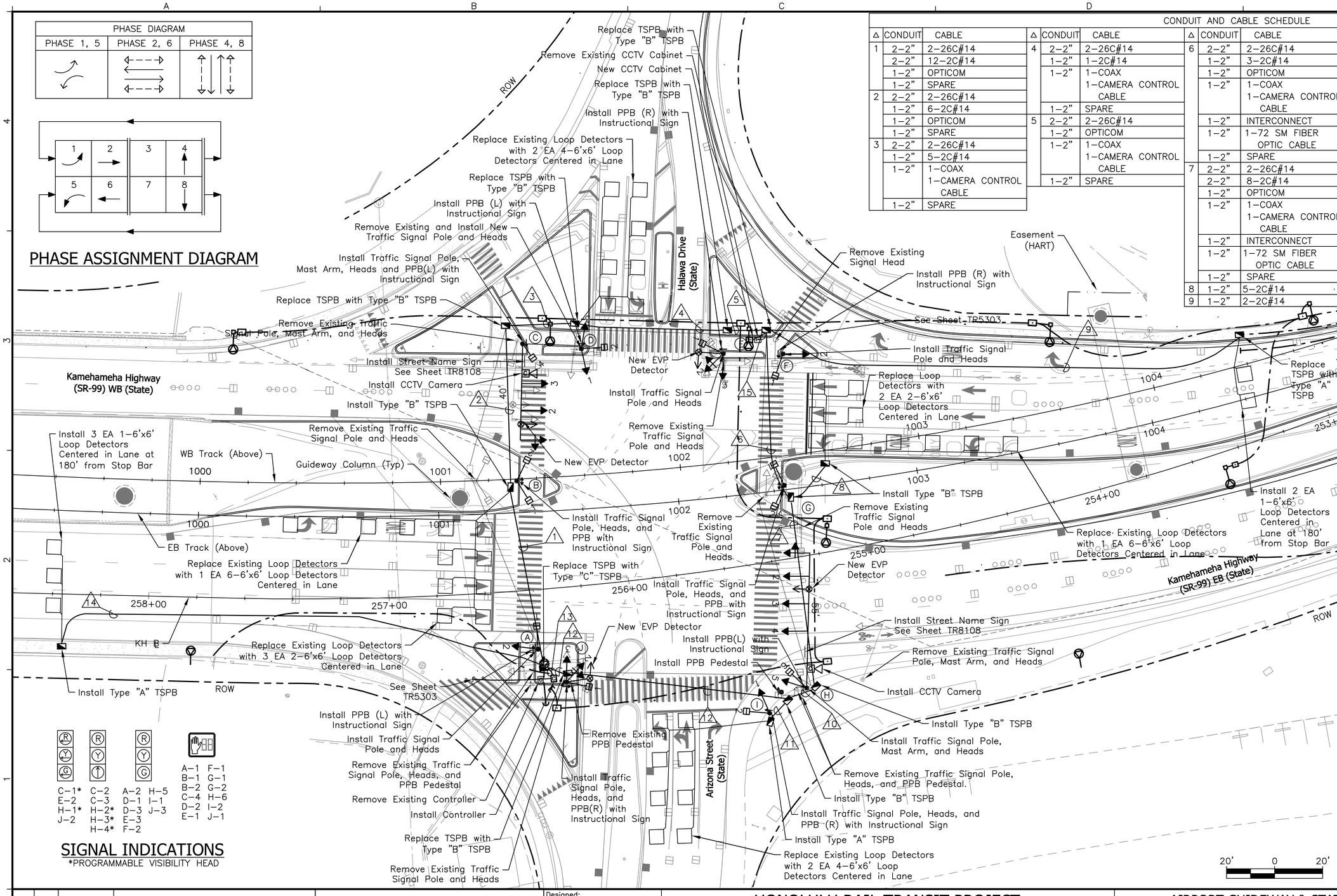
TRAFFIC SIGNAL PLAN KAMEHAMEHA HWY AT KALALOA ST

Contract No.: RFP–HRT–858431
File: ACG–C04–TR5001
Drawing No: TR5001 Rev. A
Scale: 1" = 20'
Page No. 870 of 956

2015–04–30 11:34 AM P:\USIG\Civil\Oahu\60225194–HRTP\400 Design\DWG\Sheets\RFP Volume 1\1H TRAFFIC FIBER ITS\ACG–C04–TR5001.dwg

PHASE DIAGRAM		
PHASE 1, 5	PHASE 2, 6	PHASE 4, 8

PHASE ASSIGNMENT DIAGRAM



CONDUIT AND CABLE SCHEDULE											
△	CONDUIT	CABLE	△	CONDUIT	CABLE	△	CONDUIT	CABLE	△	CONDUIT	CABLE
1	2-2"	2-26C#14	4	2-2"	2-26C#14	6	2-2"	2-26C#14	10	2-2"	2-26C#14
	2-2"	12-2C#14		1-2"	1-2C#14		1-2"	3-2C#14		2-2"	8-2C#14
	1-2"	OPTICOM		1-2"	1-COAX		1-2"	OPTICOM		1-2"	2-OPTICOM
	1-2"	SPARE			1-CAMERA CONTROL CABLE		1-2"	1-COAX 1-CAMERA CONTROL CABLE		1-2"	INTERCONNECT
2	2-2"	2-26C#14		1-2"	SPARE		1-2"	INTERCONNECT		1-2"	SPARE
	1-2"	6-2C#14	5	2-2"	2-26C#14		1-2"	1-72 SM FIBER OPTIC CABLE	11	1-2"	4-2C#14
	1-2"	OPTICOM		1-2"	OPTICOM		1-2"	SPARE	12	2-2"	2-26C#14
	1-2"	SPARE		1-2"	1-COAX 1-CAMERA CONTROL CABLE	7	2-2"	2-26C#14		3-2"	14-2C#14
3	2-2"	2-26C#14		1-2"	SPARE		2-2"	8-2C#14		1-2"	3-OPTICOM
	1-2"	5-2C#14					1-2"	OPTICOM		1-2"	INTERCONNECT
	1-2"	1-COAX 1-CAMERA CONTROL CABLE					1-2"	1-COAX 1-CAMERA CONTROL CABLE		1-2"	1-72 SM FIBER OPTIC CABLE
	1-2"	SPARE					1-2"	INTERCONNECT		1-2"	SPARE
							1-2"	1-72 SM FIBER OPTIC CABLE	13	4-2"	2-26C#14
							1-2"	SPARE		5-2"	29-2C#14
						8	1-2"	5-2C#14		2-2"	2-INTERCONNECT
						9	1-2"	2-2C#14		1-2"	SPARE
										1-2"	4-OPTICOM
									14	1-2"	3-2C#14
									15	2-2"	2-COAX 2-CAMERA CONTROL CABLE
										2-2"	1-72 SM FIBER OPTIC CABLE

SIGNAL INDICATIONS

*PROGRAMMABLE VISIBILITY HEAD

C-1*	C-2	A-2	H-5
E-2	C-3	D-1	I-1
H-1*	H-2*	D-3	J-3
J-2	H-3*	E-3	
	H-4*	F-2	

A-1	F-1
B-1	G-1
B-2	G-2
C-4	H-6
D-2	I-2
E-1	J-1

NOTES:

1. For General Traffic Signal Notes, Symbols, and Abbreviations, see Dwg No. TG0006.
2. For Roadway Construction Plan Notes and Legend, see Dwg No. CG0003.
3. For Interconnect Conduit and Cable see Dwg No. TR5301–TR5354.
4. Install Backplates on Mast Arm Mounted Traffic Signal Heads on horizontal portion of mast arm only. Backplates shall be 5" with slots to reduce wind load with 1" Retro-Reflective Border.
5. Refer to Sheet TR8204 for Permanent CCTV Installation Details, Sheet TR8205 for Permanent CCTV Cabinet Details, and Sheet TR8206 for CCTV System Design.
6. Fiber Optic Cable to Have a Continuous Run From Cabinet to Cabinet.
7. For the 40' Mast Arm Traffic Signal Pole Foundation see HDOT Standard Plan No. TE-32 thru TE-33.A.2. For the 55' Mast Arm Traffic Signal Pole Foundation Refer to Sheets TR9152.
8. For Mounting EVP Detector Detail see Dwg. No. TR8107.
9. During relocation, reconstruction or other improvements of existing traffic signal systems, keep existing system operational until reconstructed or new traffic signal system is in service. Arrange work accordingly and provide temporary relocations and wiring as necessary.

Rev	By	Date	Description
A		07-01-15	Request for Proposals – Part 2

NOT FOR CONSTRUCTION

Designed: N/A
Drawn: N/A
Checked: N/A
Approved: N/A
Date: 07-01-15

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: AECOM
1001 Bishop Street, Suite 1600 – Honolulu, HI 96813

HART
HONOLULU AUTHORITY ~ RAPID TRANSPORTATION
1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

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AIRPORT GUIDEWAY & STATIONS

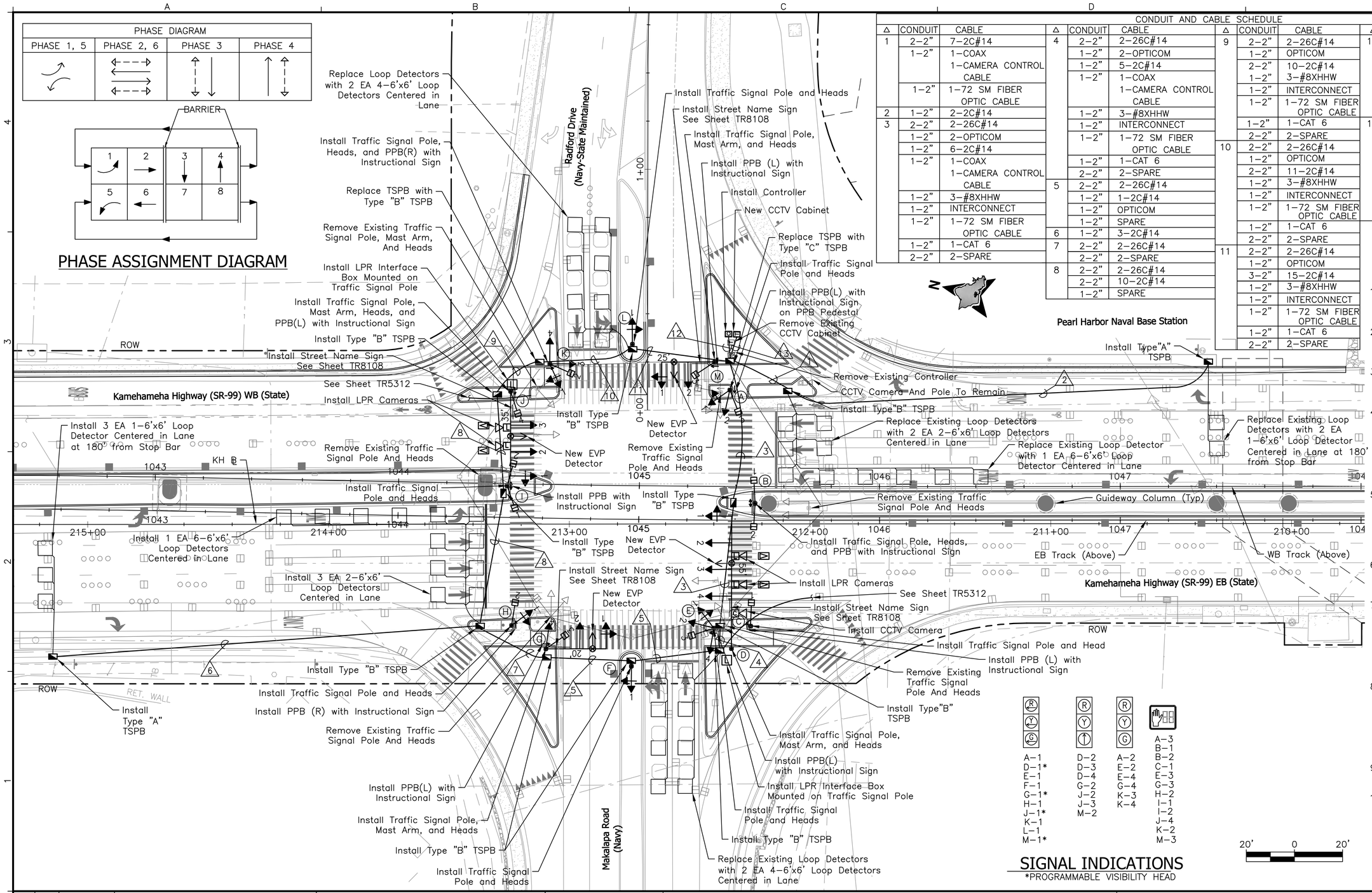
TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT ARIZONA ST

Contract No.: RFP-HRT-858431
File: ACG-C04-TR5002
Drawing No: TR5002
Rev. A
Scale: 1" = 20'
Page No. 871 of 956

2015-04-30 11:46 AM P:\USIG\Civil\Oahu\60225194-HRTP\400 Design\DWG\Sheets\RFP Volume 1\1H TRAFFIC FIBER ITS\ACG-C04-TR5002.dwg

PHASE DIAGRAM			
PHASE 1, 5	PHASE 2, 6	PHASE 3	PHASE 4

PHASE ASSIGNMENT DIAGRAM



CONDUIT AND CABLE SCHEDULE											
Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE
1	2–2"	7–2C#14	4	2–2"	2–26C#14	9	2–2"	2–26C#14	12	4–2"	4–26C#14
	1–2"	1–COAX		1–2"	2–OPTICOM		1–2"	OPTICOM		1–2"	4–OPTICOM
		1–CAMERA CONTROL CABLE		1–2"	5–2C#14		2–2"	10–2C#14		5–2"	28–2C#14
	1–2"	1–72 SM FIBER OPTIC CABLE		1–2"	1–COAX		1–2"	3–#8XHHW		2–2"	2–INTERCONNECT
2	1–2"	2–2C#14			1–CAMERA CONTROL CABLE		1–2"	INTERCONNECT		1–2"	SPARE
3	2–2"	2–26C#14		1–2"	3–#8XHHW		1–2"	1–72 SM FIBER OPTIC CABLE		1–2"	2#6 1#8 GND
	1–2"	2–OPTICOM		1–2"	INTERCONNECT		1–2"	1–CAT 6	13	1–2"	2–COAX 2–CAMERA CONTROL CABLE
	1–2"	6–2C#14		1–2"	1–72 SM FIBER OPTIC CABLE		2–2"	2–SPARE		1–2"	6–#8XHHW
	1–2"	1–COAX 1–CAMERA CONTROL CABLE		1–2"	1–CAT 6	10	2–2"	2–26C#14		1–2"	3–72 SM FIBER OPTIC CABLE
	1–2"	3–#8XHHW		2–2"	2–SPARE		1–2"	OPTICOM		1–2"	SPARE
	1–2"	INTERCONNECT	5	2–2"	2–26C#14		2–2"	11–2C#14		1–2"	2#6 1#8 GND
	1–2"	1–72 SM FIBER OPTIC CABLE		1–2"	1–2C#14		1–2"	3–#8XHHW			
	1–2"	1–CAT 6		1–2"	OPTICOM		1–2"	INTERCONNECT			
	2–2"	2–SPARE		1–2"	SPARE		1–2"	1–72 SM FIBER OPTIC CABLE			
			6	1–2"	3–2C#14		1–2"	1–CAT 6			
			7	2–2"	2–26C#14		2–2"	2–SPARE			
				2–2"	2–SPARE	11	2–2"	2–26C#14			
			8	2–2"	2–26C#14		1–2"	OPTICOM			
				2–2"	10–2C#14		3–2"	15–2C#14			
				1–2"	SPARE		1–2"	3–#8XHHW			
							1–2"	INTERCONNECT			
							1–2"	1–72 SM FIBER OPTIC CABLE			
							1–2"	1–CAT 6			
							2–2"	2–SPARE			

SIGNAL INDICATIONS

*PROGRAMMABLE VISIBILITY HEAD

R	Y	G	
A–1	D–2	A–2	A–3
D–1*	D–3	E–2	B–1
E–1	D–4	E–4	B–2
F–1	G–2	G–4	C–1
G–1*	J–2	K–3	E–3
H–1	J–3	K–4	G–3
J–1*	M–2		H–2
K–1			I–1
L–1			I–2
M–1*			J–4
			K–2
			M–3

20' 0 20'

NOTES:

1. For General Traffic Signal Notes, Symbols, and Abbreviations, see Dwg No. TG0006.
2. For Roadway Construction Plan Notes and Legend, see Dwg No. CG0003.
3. For Interconnect Conduit and Cable see Dwg No. TR5301–TR5354.
4. Install Backplates on Mast Arm Mounted Traffic Signal Heads on horizontal portion of mast arm only. Backplates shall be 5" with slots to reduce wind load with 1" Retro–Reflective Border.
5. Refer to Sheet TR8204 for Permanent CCTV Installation Details, Sheet TR8205 for Permanent CCTV Cabinet Details, and Sheet TR8206 for CCTV Wiring Details System Design.
6. Fiber Optic Cable to Have a Continuous Run From Cabinet to Cabinet.
7. Refer to Sheet TR8201 for Permanent LPR Installation Details and Sheet TR8203 for Permanent LPR Wiring Details. Install Modem and Ethernet Extender at EB LPR Interface Box.
8. For the 20', 25' and 35' Mast Arm Traffic Signal Pole Foundations see HDOT Standard Plan No. TE–32 thru TE–33.A.2. For the 55' Mast Arm Traffic Signal Pole Foundation see Dwg No. TR9152.
9. For Mounting EVP Detector Detail see Dwg. No. TR8107.
10. During relocation, reconstruction or other improvements of existing traffic signal systems, keep existing system operational until reconstructed or new traffic signal system is in service. Arrange work accordingly and provide temporary relocations and wiring as necessary.

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AIRPORT GUIDEWAY & STATIONS

TRAFFIC SIGNAL PLAN
KAMEHAMEHA HWY AT RADFORD DR

Contract No.: RFP–HRT–858431
File: ACG–C04–TR5003
Drawing No: TR5003
Rev. A
Scale: 1" = 20'
Page No. 872 of 956

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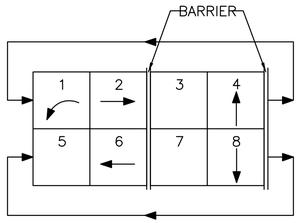
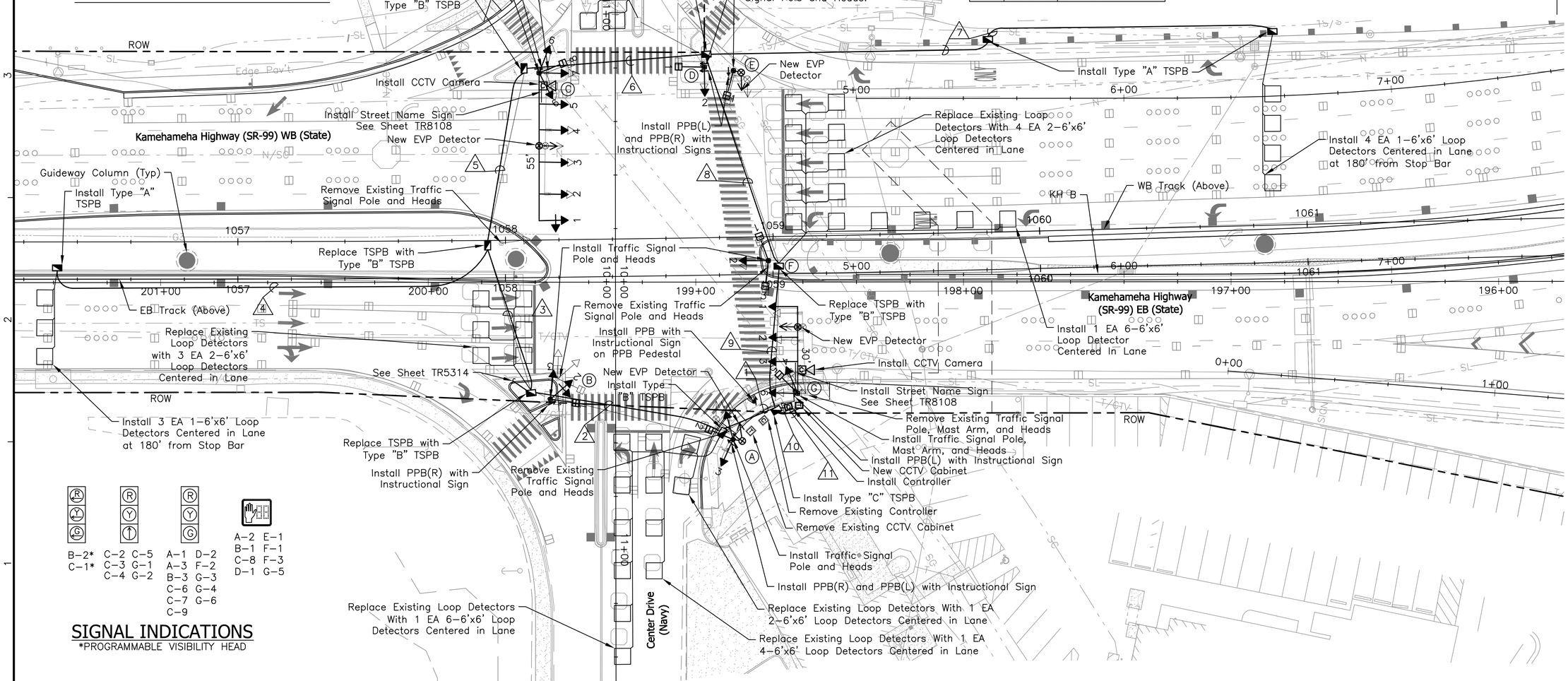
PHASE DIAGRAM		
PHASE 1, 6	PHASE 2, 6	PHASE 4, 8



PHASE ASSIGNMENT DIAGRAM

CONDUIT AND CABLE SCHEDULE											
Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE
1	1–2"	1–26C#14	2	1–2"	1–26C#14	4	1–2"	3–2C#14	8	1–2"	1–26C#14
	1–2"	2–OPTICOM		1–2"	OPTICOM		1–2"	SPARE		1–2"	OPTICOM
	3–2"	13–2C#14		2–2"	7–2C#14	5	1–2"	1–26C#14		2–2"	10–2C#14
	1–2"	1–COAX 1–CAMERA CONTROL CABLE		1–2"	1–COAX 1–CAMERA CONTROL CABLE		1–2"	OPTICOM		1–2"	SPARE
	1–2"	INTERCONNECT		1–2"	INTERCONNECT		1–2"	1–COAX 1–CAMERA CONTROL CABLE	9	1–2"	1–26C#14
	1–2"	2–72 SM FIBER OPTIC CABLE		1–2"	2–72 SM FIBER OPTIC CABLE		1–2"	1–72 SM FIBER OPTIC CABLE		1–2"	OPTICOM
	1–2"	SPARE		1–2"	SPARE		1–2"	SPARE		3–2"	17–2C#14
			3	1–2"	1–26C#14	6	1–2"	1–26C#14		1–2"	SPARE
				1–2"	3–2C#14		1–2"	1–2C#14	10	2–2"	2–26C#14
				1–2"	OPTICOM		1–2"	2–72 SM FIBER OPTIC CABLE		1–2"	3–OPTICOM
				1–2"	1–COAX 1–CAMERA CONTROL CABLE		1–2"	SPARE		5–2"	30–2C#14
						7	1–2"	4–2C#14		2–2"	2–INTERCONNECT
				1–2"	1–72 SM FIBER OPTIC CABLE					1–2"	SPARE
				1–2"	SPARE				11	2–2"	2–COAX 2–CAMERA CONTROL CABLE
										1–2"	2–72 SM FIBER OPTIC CABLE



SIGNAL INDICATIONS

*PROGRAMMABLE VISIBILITY HEAD

NOTES:

1. For General Traffic Signal Notes, Symbols, and Abbreviations, see Dwg No. TG0006.
2. For Roadway Construction Plan Notes and Legend, see Dwg No. CG0003.
3. For Interconnect Conduit and Cable see Dwg No. TR5301–TR5354.
4. Install Backplates on Mast Arm Mounted Traffic Signal Heads on horizontal portion of mast arm only. Backplates shall be 5" with slots to reduce wind load with 1" Retro–Reflective Border.
5. Refer to Sheet TR8204 for Permanent CCTV Installation Details, Sheet TR8205 for Permanent CCTV Cabinet Details, and Sheet TR8206 for CCTV System Design.
6. For the 30' Mast Arm Traffic Signal Pole Foundation see HDOT Standard Plan No. TE–32 thru TE–33.A.2. For the 55' Mast Arm Traffic Signal Pole Foundation see Dwg No. TR9152.
7. For Mounting EVP Detector Detail see Dwg. No. TR8107.
8. During relocation, reconstruction or other improvements of existing traffic signal systems, keep existing system operational until reconstructed or new traffic signal system is in service. Arrange work accordingly and provide temporary relocations and wiring as necessary.

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AIRPORT GUIDEWAY & STATIONS

TRAFFIC SIGNAL PLAN KAMEHAMEHA HWY AT CENTER DR

Contract No.: RFP–HRT–858431
File: ACG–C04–TR5004
Drawing No: TR5004
Rev. A
Scale: 1" = 20'
Page No. 873 of 956

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SEE DUCT SECTION "E"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	2-3/C#20 WITH #20 DRAIN
2"	4-2/C#14 TWISTED SHIELDED
2"	3/C #12

SEE DUCT SECTION "E"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	2-3/C#20 WITH #20 DRAIN
2"	4-2/C#14 TWISTED SHIELDED
2"	3/C #12

SEE DUCT SECTION "B"	
CONDUIT	CABLE
2"	2-2/C#14 TWISTED SHIELDED
2"	12-2/C#19 INTERCONNECT

(c)

SEE DUCT SECTION "F"	
CONDUIT	CABLE
3"	2-26/C#14 & #8 GND
3"	2-26/C#14 & #8 GND
2"	13-2/C#14 TWISTED SHIELDED
2"	4-3/C#20 & #20 DRAIN
2"	3-#6 RHW-USE & #10 GND
2"	2-(3-#12) RHW-USE & #12 GND
2"	12-2/C#19 INTERCONNECT

(c)

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	4-#4 RHW-USE & #6 GND

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	2/C#14 TWISTED SHIELDED

(c) TRAFFIC SIGNAL MASTER CONTROLLER, SEE A E-9|E-15

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	3-#6 RHW-USE & #10 GND

TRAFFIC SIGNAL HEAD SCHEDULE

R Y ←G	R Y G	R Y G↑	(pedestrian hand / walking figure)	SIGNAL INDICATION
12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLIES EXCEPT FOR PROGRAMMED VISIBILITY HEAD)	12" RYG TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLIES EXCEPT FOR PROGRAMMED VISIBILITY HEAD)	12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLIES EXCEPT FOR PROGRAMMED VISIBILITY HEAD)	PEDESTRIAN SIGNAL HEAD (NEON) (a)	DESCRIPTION
(C1) (D1) * (a) (F2) (H1) * (A5) (E4) * (F4) (C4) *	(A1) (A3) (C2) (E1) (E2) (F1)	(A4) (E3) (C3) (F3)	(c) (I1) (G1)	POLE LETTER-SIGNAL HEAD NUMBER

* – PROGRAMMED VISIBILITY SIGNAL HEAD

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2" (SL)	4-#4 RHW-USE & #6 GND

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	4-#4 RHW-USE & #6 GND

SEE CONTINUATION SHEET E-5

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	3/C#20 & #20 DRAIN
2"	7-2/C#14 TWISTED SHIELDED

(c)

SEE DUCT SECTION "B"	
CONDUIT	CABLE
2"	3/C #12
2"	1-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	2-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 TWISTED SHIELDED
2"	1-26/C#14 TWISTED SHIELDED
2"	3/C#20 WITH #20 DRAIN
2"	2-2/C#14 TWISTED SHIELDED

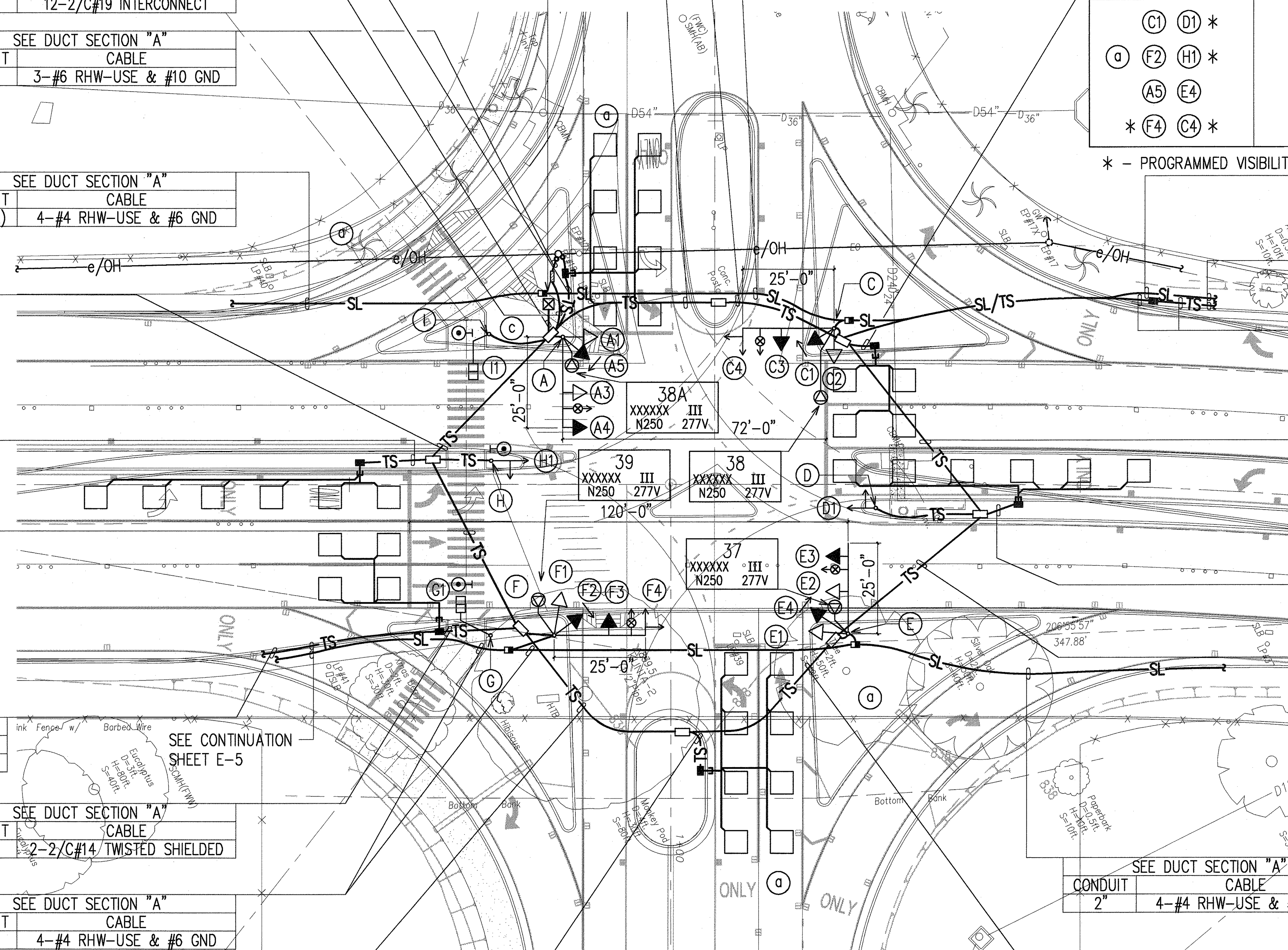
(c)

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	3/C#20 & #20 DRAIN
2"	5-2/C#14 TWISTED SHIELDED

(c)

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	2-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	3/C#20 WITH #20 DRAIN
2"	SPARE



SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	2-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	2-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	4-#4 RHW-USE & #6 GND

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	4-#4 RHW-USE & #6 GND

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	SPARE
2"	1-3/C#14 TWISTED SHIELDED

(c)

SEE DUCT SECTION "A"	
CONDUIT	CABLE
2"	1-2/C#14 TWISTED SHIELDED

SEE DUCT SECTION "D"	
CONDUIT	CABLE
2"	1-26/C#14 & #8 GND
2"	1-26/C#14 & #8 GND
2"	SPARE
2"	SPARE

NORTH

KUNIA ROAD – LYMAN/KUNIA GATE TRAFFIC SIGNAL PLAN

SCALE: 1"=20'

SEE SHEET E-31 TRAFFIC SIGNAL INTERCONNECT PLANS FOR ADDITIONAL WORK

GRAPHIC SCALE

1=20' 25' 0 25' 50' 75'

US Army Corps of Engineers

LTR	ZONE	DESCRIPTION	DATE	BY	CHKD	APVD
c9	A3, A4, B1, B5, B6, C6, D4, G3, H5	ADDED TYPE I STANDARD, REVISED CABLES PER C&C DTS COMMENTS	5/2/02	SL	SS	
d6	D4, D5, F5, H6, C4, E3	ADDED DETECTORS, REV SIGNAL HEAD, REV PED SIGNAL HEAD TYPE TO NEON, REVISED R-O-W	12/21/01	SL	SS	

DATE: JUNE 2001
FILENAME:
DRAWN BY:
CHECKED BY: SL
REVIEWED BY: SS

U.S. ARMY ENGINEERS DIVISION
PACIFIC OCEAN
HONOLULU, HAWAII

BELT COLLINS HAWAII — ENGINEERING, PLANNING, LANDSCAPE ARCHITECTURE, ENVIRONMENTAL CONSULTING

DESIGN OF FY01 UMMCA PN 52070
KUNIA GATE REALIGNMENT, WHEELER ARMY AIRFIELD
WHEELER ARMY AIRFIELD, OAHU, HAWAII

KUNIA ROAD – LYMAN/KUNIA GATE TRAFFIC SIGNAL PLAN

LOCATION CODE: 7990-08
DRAWING NO: 851-90-05
SHEET NO: E-9

LAST SAVE: 05/02/02 @ 08:02:10 BY: SL PLOT SC 1=20
Z:\ACAD\PROJECTS\21026A\21026Atsplan3 XREFS: EXGRIDX 010521T2 N-RDALGN N-RDWY WRBLSTATXT N-UTY N-RDSS N-GRADE EXRDWY1 EXBLSTATXT C-ELEC 010521T N-BASE XKUNIA_ALL EXSITE2 EXBLPL

CUT LINE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0750 (4)	1977	2	12

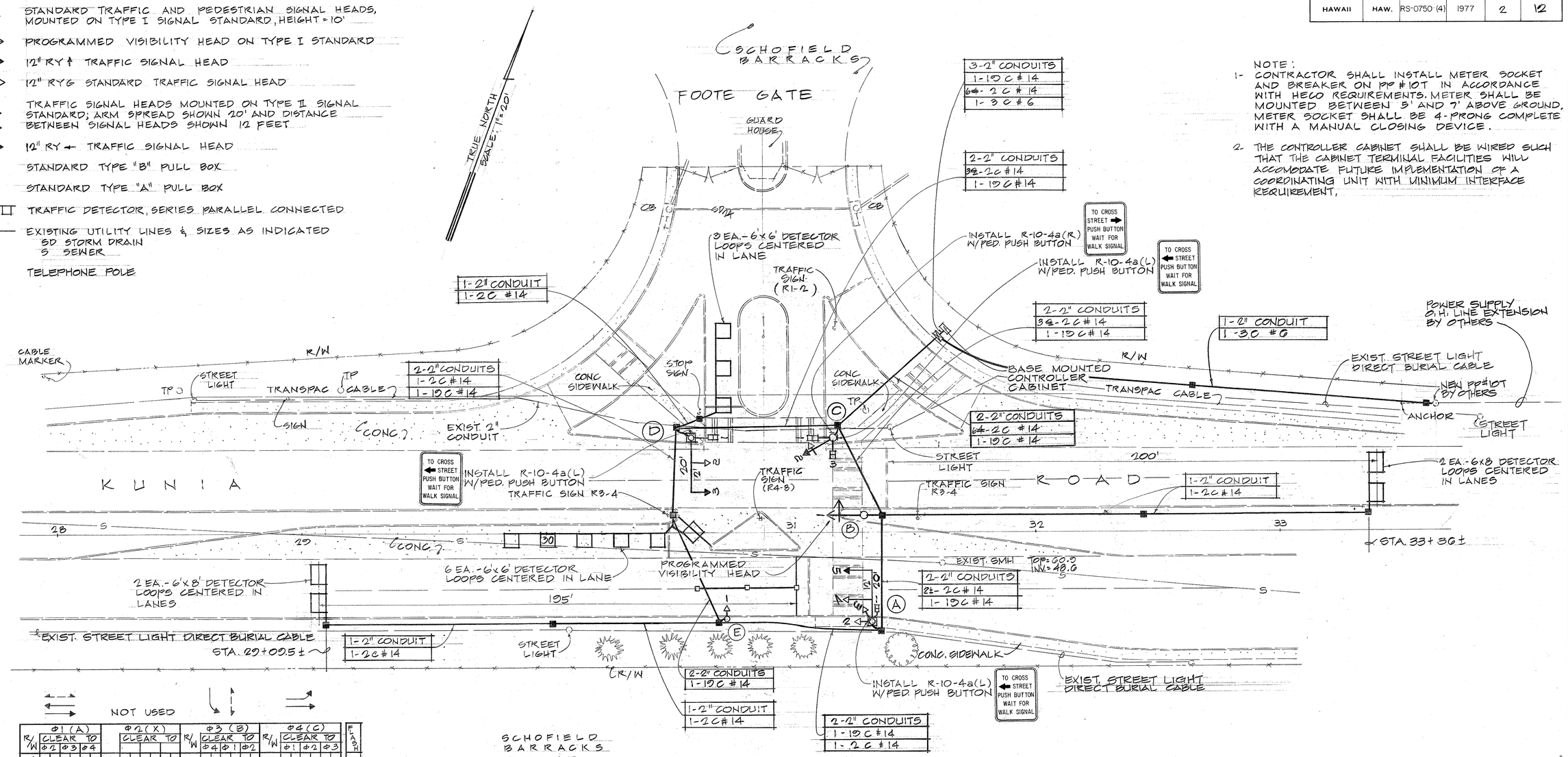
LEGEND

- STANDARD TRAFFIC AND PEDESTRIAN SIGNAL HEADS, MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'
- PROGRAMMED VISIBILITY HEAD ON TYPE I STANDARD
- 12" RYG STANDARD TRAFFIC SIGNAL HEAD
- 12" RYG STANDARD TRAFFIC SIGNAL HEAD
- TRAFFIC SIGNAL HEADS MOUNTED ON TYPE II SIGNAL STANDARD; ARM SPREAD SHOWN 20' AND DISTANCE BETWEEN SIGNAL HEADS SHOWN 12 FEET
- 12" RY ← TRAFFIC SIGNAL HEAD
- STANDARD TYPE "B" PULL BOX
- STANDARD TYPE "A" PULL BOX
- TRAFFIC DETECTOR, SERIES PARALLEL CONNECTED
- SD/24 — EXISTING UTILITY LINES & SIZES AS INDICATED
  - SD STORM DRAIN
  - S SEWER
- OTP — TELEPHONE POLE

NOTE:

1- CONTRACTOR SHALL INSTALL METER SOCKET AND BREAKER ON PP #10T IN ACCORDANCE WITH HECO REQUIREMENTS. METER SHALL BE MOUNTED BETWEEN 5' AND 7' ABOVE GROUND. METER SOCKET SHALL BE 4-PRONG COMPLETE WITH A MANUAL CLOSING DEVICE.

2- THE CONTROLLER CABINET SHALL BE WIRED SUCH THAT THE CABINET TERMINAL FACILITIES WILL ACCOMODATE FUTURE IMPLEMENTATION OF A COORDINATING UNIT WITH MINIMUM INTERFACE REQUIREMENT.



NOT USED

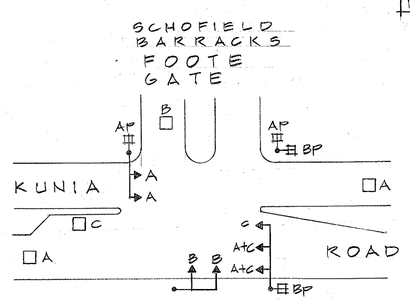
	Φ1 (A) R/W	Φ1 (A) CLEAR TO Φ2	Φ1 (A) CLEAR TO Φ3	Φ1 (A) CLEAR TO Φ4	Φ2 (X) R/W	Φ2 (X) CLEAR TO Φ4	Φ2 (X) CLEAR TO Φ1	Φ2 (X) CLEAR TO Φ3	Φ3 (B) R/W	Φ3 (B) CLEAR TO Φ4	Φ3 (B) CLEAR TO Φ1	Φ3 (B) CLEAR TO Φ2	Φ4 (C) R/W	Φ4 (C) CLEAR TO Φ1	Φ4 (C) CLEAR TO Φ2	Φ4 (C) CLEAR TO Φ3	FLASH
Φ1 (A)	G ↑G		Y	R	Y	R			R	R	R	R	R	R	R	R	Y
Φ2 (X)																	
Φ3 (B)	R		R	R	R	R			G	Y	R	Y	R	R	R	R	R
Φ4 (C)	R		R	R	R	R			R	R	R	R	←G	Y	R	Y	R
Φ1+4(A+C)	G		Y	R	G	G			R	R	R	R	G	G	G	Y	R
Φ1P(AP)	*		FD	D	FD	D			D	D	D	D	D	D	D	D	-
Φ3P(BP)	D		D	D	D	D			*	FD	D	FD	D	D	D	D	-

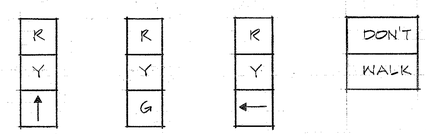
* WHEN CALLED, TIMES STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES STEADY DON'T WALK.

↑G GREEN ARROW
←G GREEN ARROW
G GREEN BALL
Y YELLOW BALL
R RED BALL
D DON'T WALK
FD FLASHING DON'T WALK

NOTE:
1- ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.

CONTROLLER SEQUENCE DIAGRAM





A-5 D-3 | A-4 A-2 A-3 D-2 E-1 | * B-1 C-2 | A-1 C-1 C-3 D-1

SIGNAL INDICATIONS

* PROGRAMMED VISIBILITY HEAD

THEODORE S. KAWAHIGASHI REGISTERED PROFESSIONAL ENGINEER No. 3244-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KUNIA ROAD
TRAFFIC SIGNALS
AT FOOTE GATE

FED. AID PROJ. NO. RS-0750 (4)

PLAN

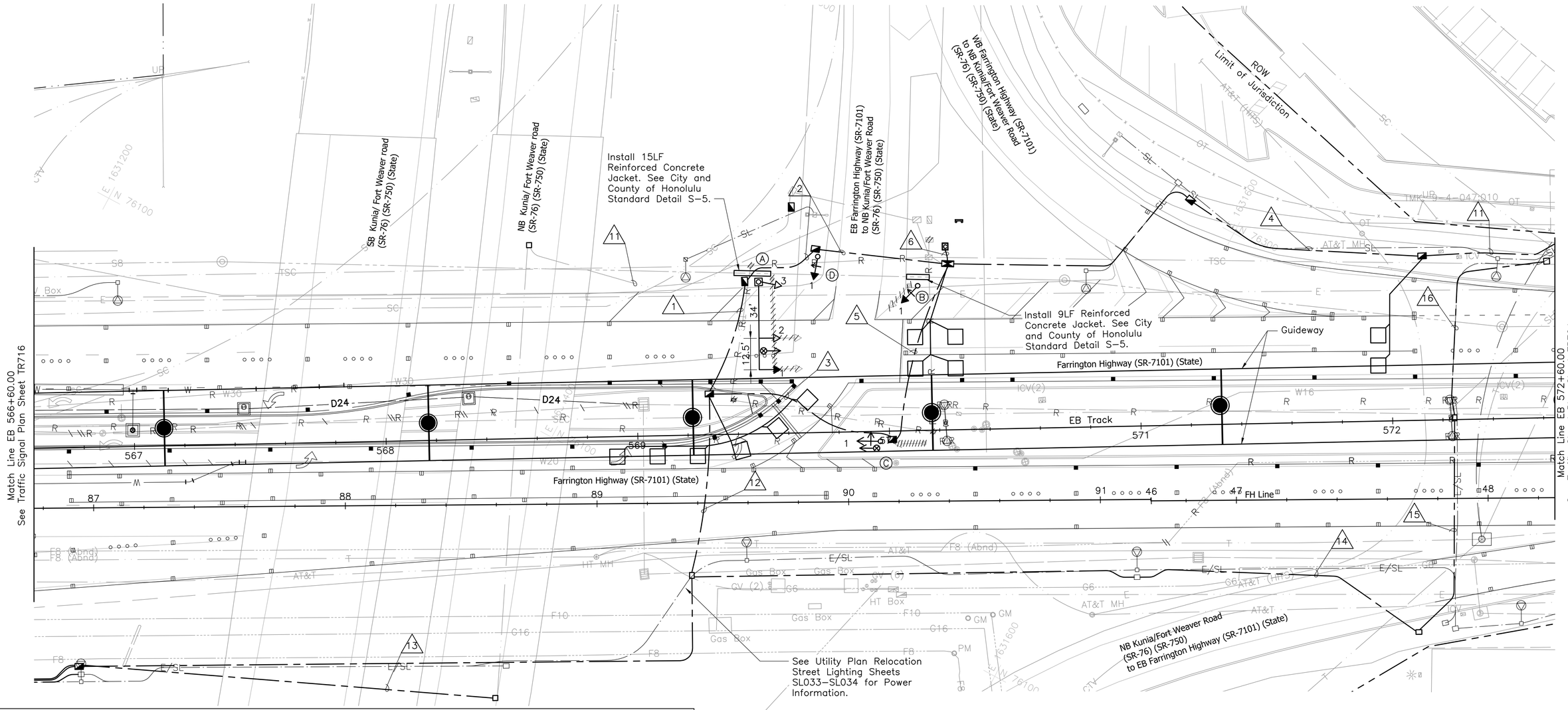
SCALE: AS SHOWN DATE: JUNE 15, 1977

SHEET No. 1 OF 1 SHEETS

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

PRINTED ON NO. 1000H CLEARPRINT

Kunia Rd



Conduit & Cable Schedule											
# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks
1	2"	1-26C#14		4	2"	2-2C#14		11	2"	1-24C#19	
	2"	Spare				1-24C#19		12	2"	3-#6	
	2"	Spare			2"	Spare		13	2"	1-24C#19	
	2"	Spare		5	2"	1-26C#14			2"	Spare	
2	2"	1-26C#14			2"	3-2C#14		14	2"	3-#2	
	2"	1-3C#20				1-3C#20				1-#4	
	2"	1-24C#19			2"	3-#6		15	2"	3-#2	
	2"	Spare			2"	Spare				1-#4	
3	2"	1-26C#14		6	3"	2-26C#14		16	2"	3-#2	
	2"	3-2C#14			3"	6-2C#14				1-#4	
	2"	3-#6				2-3C#20					
	2"	Spare				2-24C#19					
					2"	3-#6					
					3"	Spare					

Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Reconstruction Details.
2. Install New Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.

RECORD DRAWING

Signal Phase Diagram

1	2	3	4
Not Used	Not Used	Not Used	Not Used
5 ↗	6 ←	7 Not Used	8 Not Used

→ Vehicle Movement

Signal Indications

R Y G — A-2, A-3

R Y ↑ — A-1

← ← ← — B-1, C-1*, D-1

* Programmed Visibility Head

N

20' 0 20'

Rev	By	Date	Description
2	TP	01-20-22	Revised TS Interconnect Ducts, Boxes and Cabinets Per HART Fieldcheck
1	EY	01-17-17	Record Drawing
0	NC	10-13-14	Final Design

Designed: E. Anders
Drawn: T. Severson
Checked: N. Ching
Approved: G. Sanchez
Date: 12-13-21

HONOLULU RAIL TRANSIT PROJECT

HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant:

HART — HONOLULU AUTHORITY for RAPID TRANSPORTATION
1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT KUNIA ROAD PERMANENT

TRAFFIC SIGNAL PLAN

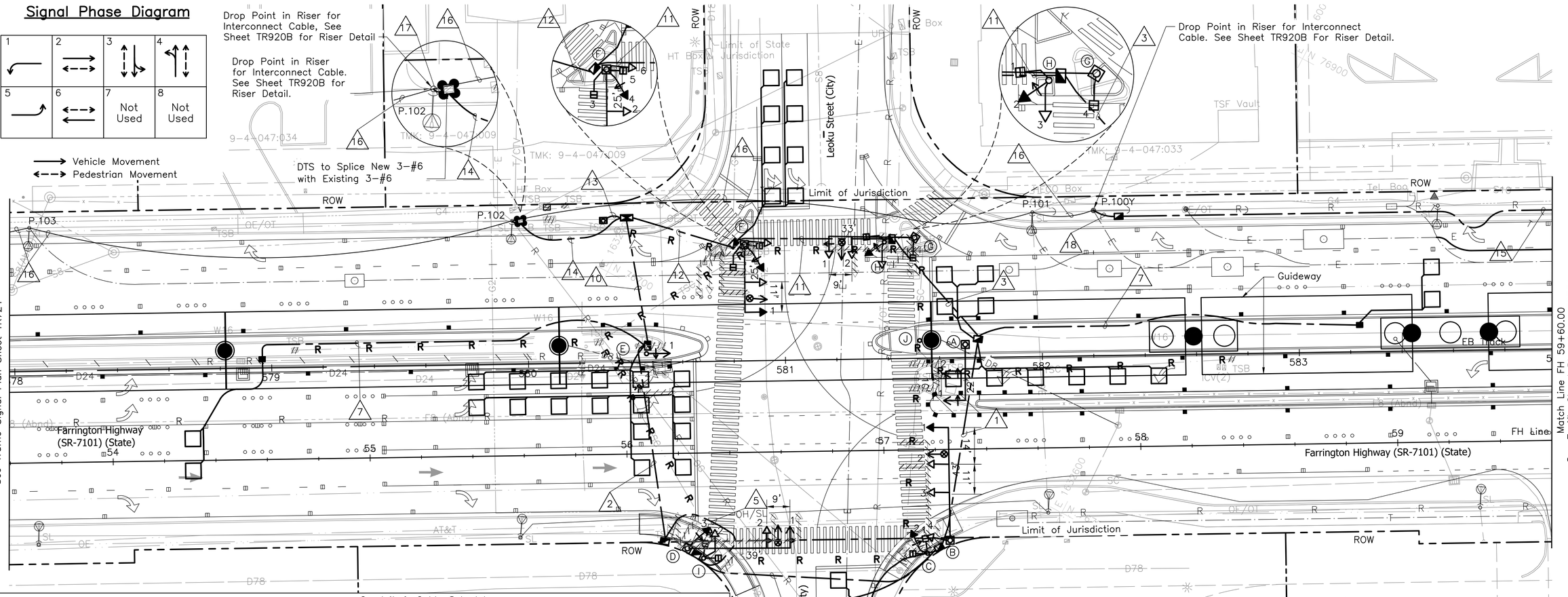
Contract No.: CT-HRT-10H0137
File: WOFH-C04-TR723
Drawing No: TR723
Rev. 2
Scale: 1"=20'
Page No. of

1/24/2022 3:25 PM L:\DCS\Projects\HART\60627993_WOFH_II\900-CAD_GIS\911 WOFHG CAD\10 WOFHG Traffic TR 122\WOFH-C04-TR723.dwg

Signal Phase Diagram

1	2	3	4
5	**6**	**7**	**8**
		Not Used	Not Used

Vehicle Movement
Pedestrian Movement



Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2"	1-26C#14	
	2"	1-26C#14	
	2"	1-2C#14	
		1-3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
2	2"	1-26C#14	
	2"	1-26C#14	
	2"	4-2C#14	
		1-3C#20	
	2"	Spare	
3	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	1-3C#20	
		1-2C#14	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
4	2"	1-26C#14	
	2"	1-26C#14	
	2"	3-2C#14	
	2"	Spare	
5	2"	1-26C#14	
	2"	1-26C#14	
	2"	4-2C#14	
	2"	Spare	

# No.	Conduit Size	Description	Remarks
7	2"	2-2C#14	
10	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	6-2C#14	
	2"	1-3C#20	
		1-2C#14	
11	2"	Spare	
	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	2-3C#20	
		2-2C#14	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
12	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	3-3C#20	
	2"	6-2C#14	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set

# No.	Conduit Size	Description	Remarks
13	3"	4-26C#14	
	3"	9-2C#14	
	3"	9-2C#14	
	3"	7-2C#14	
		2-24C#19	
		4-3C#20	
	2"	3-#6	
	3"	Spare	
14	2"	2-24C#19	
	2"	3-#6*	*See ITS Plan Set for Additional Conductors
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
15	2"	1-24C#19	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
16	Overhead	1-24C#19	
17	2"	2-24C#19	Riser
	2"	3-#6*	Riser-*See ITS Plan Set for Additional Conductors
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
18	2"	1-24C#19	Riser
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set

Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Reconstruction Details.
2. Install New Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.

Pedestrian Push Button Schedule

R10-4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓒ σ	R10-4B(R)
Ⓒ ϸ	R10-4B(L)
Ⓕ σ	R10-4B(L)
Ⓕ ϸ	R10-4B(R)
Ⓖ ϸ	R10-4B(R)
Ⓗ σ	R10-4B(R)
Ⓘ σ	R10-4B(L)
Ⓘ ϸ	R10-4B(R)
Ⓙ ϸ	R10-4B

Signal Indications

D-2 G-1 | B-2 F-6 B-3 G-2 B-4 H-3 F-2 I-2 | B-1 F-1 | A-1* D-3 A-2* E-1* C-2 F-4 D-1* H-2 | C-1 F-3 C-3 F-5 G-4 H-1 I-1 I-3

* Programmed Visibility Head

RECORD DRAWING

N

20' 0 20'

Rev	By	Date	Description
3	EY	10-20-17	Record Drawing
2	EY	10-20-17	Revised per RFI 745
1	EA	12-04-15	Updated Per NDC 108 and NDC 145
0	NC	10-13-14	Final Design

Designed: E. Anders
Drawn: E. Anders
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 10-20-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT LEOKŪ STREET/LEO'OLE STREET PERMANENT

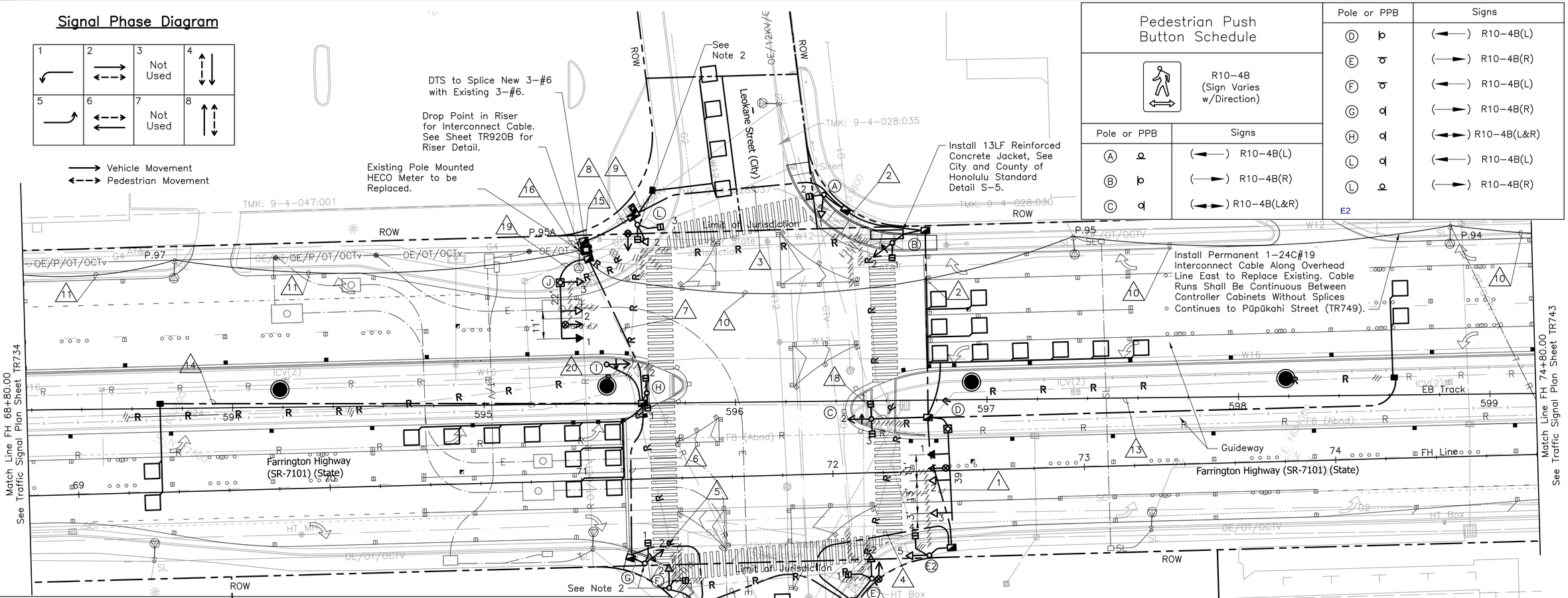
TRAFFIC SIGNAL PLAN

Contract No.: CT-HRT-10H0137
File: WOFH-C04-TR733
Drawing No: TR733 Rev. 3
Scale: 1"=20'
Page No. 478 of 2313

Signal Phase Diagram

1	2	3	4
		Not Used	
5	6	7	8
		Not Used	

Vehicle Movement
Pedestrian Movement



Pedestrian Push Button Schedule

R10–4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓐ	(←) R10–4B(L)
Ⓑ	(→) R10–4B(R)
Ⓒ	(↔) R10–4B(L&R)

Pole or PPB	Signs
Ⓓ	(←) R10–4B(L)
Ⓔ	(→) R10–4B(R)
Ⓕ	(←) R10–4B(L)
Ⓖ	(→) R10–4B(R)
Ⓗ	(↔) R10–4B(L&R)
Ⓛ	(←) R10–4B(L)
Ⓛ	(→) R10–4B(R)

E2

Conduit & Cable Schedule

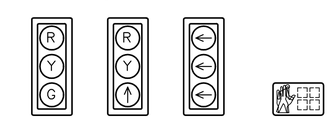
# No.	Conduit Size	Description	Remarks
1	2”	1–26C#14	
	2”	1–26C#14	
	2”	1–2C#14	
		1–3C#20	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
2	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	1–3C#20	
		1–2C#14	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
3	2”	1–26C#14	
	2”	1–26C#14	
	2”	1–3C#20	
		2–2C#14	
	2”	6–2C#14	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
4	2”	1–26C#14	
	2”	1–26C#14	
	2”	Spare	
	2”	Spare	
5	2”	1–26C#14	
	2”	1–26C#14	
	2”	3–2C#14	
		1–3C#20	
	2”	Spare	
6	2”	1–26C#14	
	2”	1–26C#14	
	2”	4–2C#14	
		1–3C#20	
	2”	Spare	
7	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	4–2C#14	
		1–3C#20	
	2”	Spare	
8	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	4–2C#14	
	2”	2–3C#20	
		2–24C#19	
	2”	3–#6*	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
9	3”	2–26C#14	
	3”	2–26C#14	
	3”	4–3C#20	
		2–24C#19	
	3”	12–2C#14	
	3”	10–2C#14	
	2”	3–#6	
	3”	Spare	
10	Overhead	1–24C#19	
11	Overhead	1–24C#19	
13	2”	2–2C#14	
14	2”	2–2C#14	
15	2”	3–#6*	
16	2”	2–24C#19	Riser
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
17	2”	2–4C#14	
		1–2C#14	
18	2”	3–4C#14	
		1–2C#14	
19	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	4–2C#14	
	2”	2–3C#20	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set

* See ITS Plan Set for Additional conduits

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
20	2”	1–4C#14	
21	2”	2–4C#14	
		1–3C#20	
		1–2C#14	
22	2”	3–4C#14	
		1–3C#20	
	2”	Spare	
	2”	Spare	

Signal Indications



* Programmed Visibility Head

Notes:

1. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
2. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.
3. When drilling for new foundations of proposed traffic signal poles, provide support to existing traffic signal poles.

RECORD DRAWING

N

20’ 0 20’

Rev	By	Date	Description
2	EY	01–17–17	Record Drawing
1	EY	01–17–17	Revised per FDC 174
0	EA	12–12–14	Final Design

Designed: E. Anders
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01–17–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

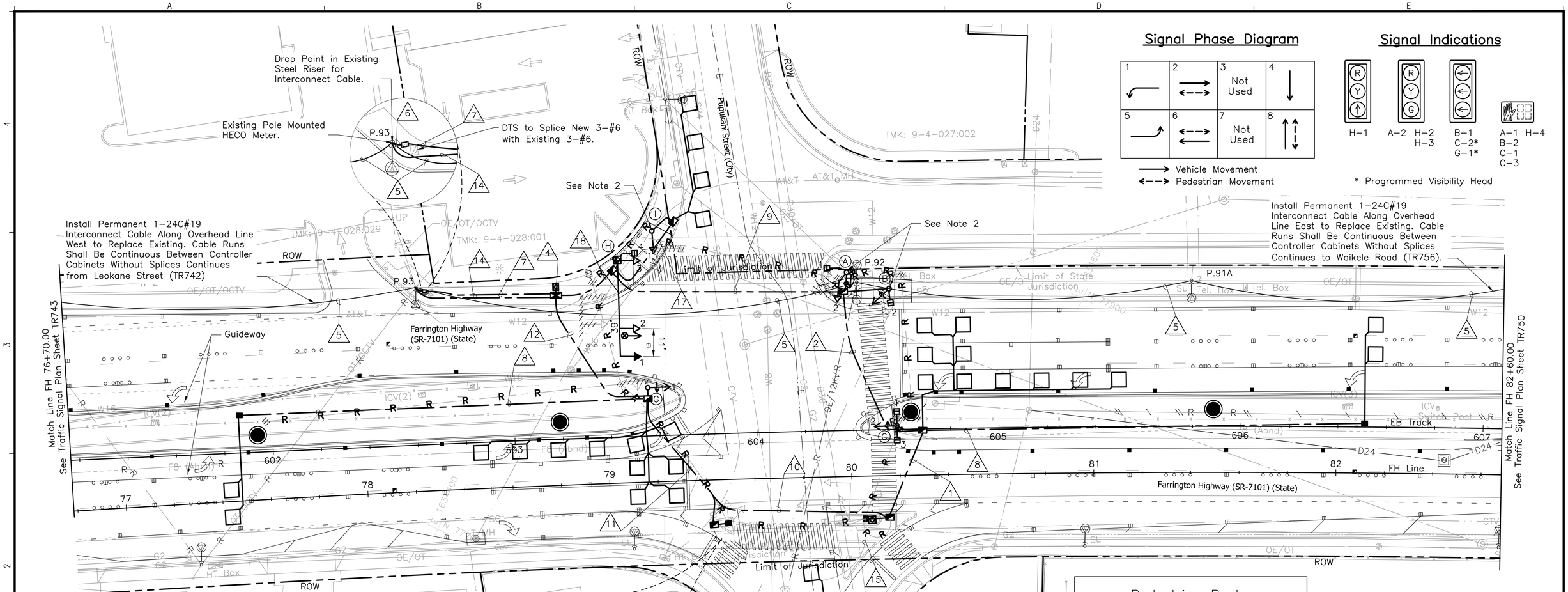
For reduced prints, original page size in inches: 0 1 2 3 4

WEST O’AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT LEOKĀNE STREET PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR742
Drawing No: TR742
Rev. 2
Scale: 1”=20’
Page No. 481 of 2313



Conduit & Cable Schedule							
# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks
1	2"	1–26C#14		8	2"	2–2C#14	
	2"	1–26C#14		9	2"	1–26C#14	
	2"	3–2C#14			2"	1–26C#14	
		1–3C#20			2"	5–2C#14	
	2"	Spare			2"	5–2C#14	
2	2"	1–26C#14				2–3C#20	
	2"	1–26C#14			2"	Spare	
	2"	4–2C#14		10	2"	1–26C#14	
	2"	5–2C#14			2"	1–26C#14	
		1–3C#20			2"	1–2C#14	
	2"	Spare			2"	Spare	
4	3"	2–26C#14		11	2"	1–26C#14	
	3"	2–26C#14			2"	1–26C#14	
	3"	12–2C#14			2"	1–2C#14	
	3"	7–2C#14				1–3C#20	
		4–3C#20			2"	Spare	
		2–24C#19		12	2"	1–26C#14	
	2"	3–#6			2"	1–26C#14	
	2"	Spare			2"	6–2C#14	
5	Overhead	1–24C#19			2"	1–2C#14	
6	2" (Ex.)	2–24C#19	Riser			1–3C#20	
7	2"	2–24C#19			2"	Spare	
				14	2"	3–#6	
				15	1¼" (Ex.)	3–#6	Steel Riser

Conduit & Cable Schedule			
# No.	Conduit Size	Description	Remarks
17	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	6–2C#14	
	2"	2–3C#20	
	2"	Spare	
18	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	6–2C#14	
	2"	3–3C#20	
	2"	Spare	

Pedestrian Push Button Schedule

R10–4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓐ	R10–4B(R)
Ⓑ	R10–4B(L)
Ⓒ	R10–4B(L&R)
Ⓗ	R10–4B(R)

Notes:

1. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
2. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.

RECORD DRAWING

20' 0 20'

Rev	By	Date	Description
1	EY	01–17–17	Record Drawing
0	EA	12–12–14	Final Design

Designed: E. Anders
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01–17–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB

Subconsultant:

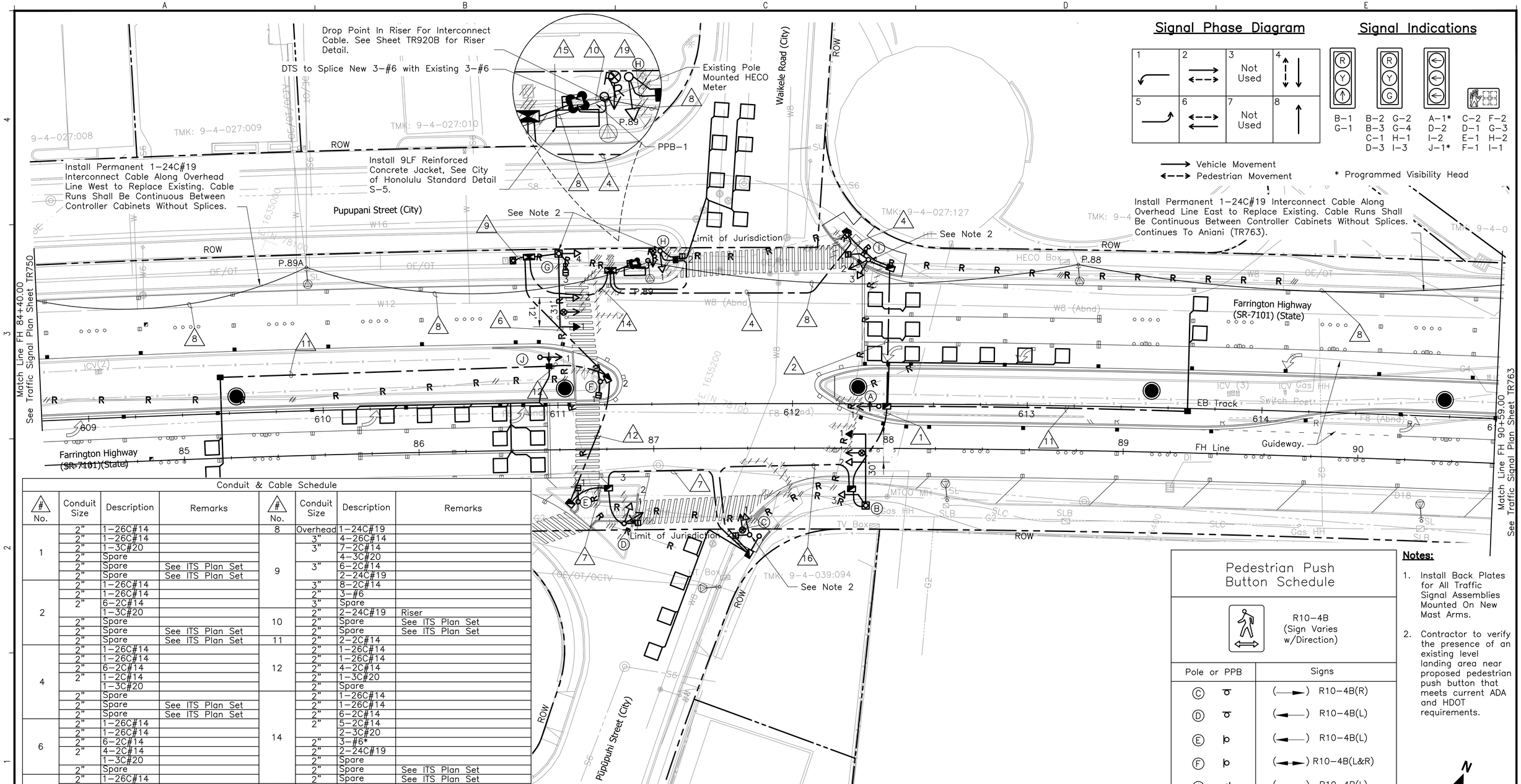
For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT PŪPŪKAHI STREET PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR749
Drawing No: TR749
Rev. 1
Scale: 1"=20'
Page No. 483 of 2313



Signal Phase Diagram

1	2	3	4
		Not Used	
5	6	7	8
		Not Used	

Signal Indications

B-1	B-2	A-1*	C-2
G-1	B-3	D-2	D-1
	C-1	I-2	E-1
	D-3	J-1*	F-1
	G-2		F-2
	G-4		G-3
	H-1		H-2
	I-3		I-1

Vehicle Movement
Pedestrian Movement

* Programmed Visibility Head

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2"	1-26C#14	
	2"	1-26C#14	
	2"	1-3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
2	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
		1-3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
4	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	1-2C#14	
		1-3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
6	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	4-2C#14	
		1-3C#20	
	2"	Spare	
7	2"	1-26C#14	
	2"	1-26C#14	
	2"	3-2C#14	
		1-3C#20	
	2"	Spare	

# No.	Conduit Size	Description	Remarks
8	Overhead	1-24C#19	
9	3"	4-26C#14	
	3"	7-2C#14	
		4-3C#20	
	3"	6-2C#14	
		2-24C#19	
	3"	8-2C#14	
	2"	3-#6	
	3"	Spare	
10	2"	2-24C#19	Riser
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
11	2"	2-2C#14	
12	2"	1-26C#14	
	2"	1-26C#14	
	2"	4-2C#14	
	2"	1-3C#20	
	2"	Spare	
14	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	5-2C#14	
		2-3C#20	
	2"	3-#6*	
	2"	2-24C#19	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
15	2"	3-#6*	
16	2"	1-26C#14	
	2"	1-26C#14	
	2"	Spare	
	2"	Spare	
19	2"	1-2C#14	
		2-4C#14	

* See ITS Plans for Additional Conduits

Pedestrian Push Button Schedule

R10-4B (Sign Varies w/Direction)

Pole or PPB		Signs
C	d	R10-4B(R)
D	d	R10-4B(L)
E	p	R10-4B(L)
F	p	R10-4B(L&R)
G	d	R10-4B(L)
H	p	R10-4B(R)
I	d	R10-4B(R)

Notes:

1. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
2. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.

N

20' 0 20'

RECORD DRAWING

Rev	By	Date	Description
2	EY	01-17-17	Record Drawing
1	EY	05-27-16	Revised per FDC 262
0	EA	12-12-14	Final Design

Designed: E. Anders
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01-17-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

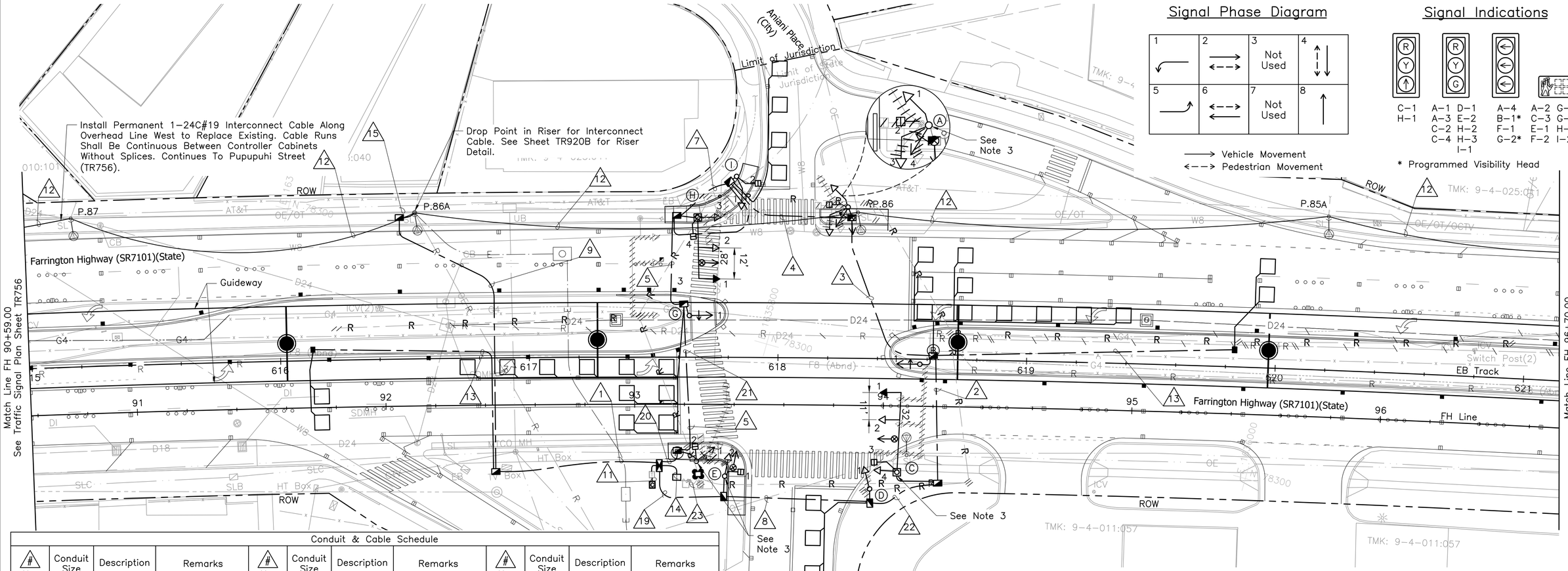
For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT WAIKELE ROAD/PŪPŪPUHI STREET
PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT-HRT-10H0137
File: WOFH-C04-TR756
Drawing No: TR756
Rev. 2
Scale: 1"=20'
Page No. 485 of 2313



Signal Phase Diagram

1	2	3	4
		Not Used	
5	6	7	8
		Not Used	

Vehicle Movement
Pedestrian Movement

Signal Indications

C–1 H–1 | A–1 D–1 A–3 E–2 C–2 H–2 C–4 H–3 I–1 | A–4 B–1* F–1 G–2* | A–2 G–1 C–3 G–3 E–1 H–4 F–2 I–2

* Programmed Visibility Head

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2"	2–24C#19	
		2–2C#14	
	2"	Spare	
	2"	Spare	
	2"	Spare	See ITS Plan Set
2	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
3	2"	Spare	
	2"	1–26C#14	
	2"	1–26C#14	
	2"	Spare	
4	2"	Spare	
	2"	1–26C#14	
	2"	1–26C#14	
	2"	1–2C#14	
		1–3C#20	
	2"	Spare	
5	2"	1–26C#14	
	2"	1–26C#14	
	2"	4–2C#14	
		2–3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
7	2"	1–26C#14	
	2"	1–26C#14	
	2"	3–2C#14	
		1–3C#20	
	2"	Spare	
	2"	Spare	
	2"	Spare	

# No.	Conduit Size	Description	Remarks
8	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	3–2C#14	
		1–3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
9	2"	2–24C#19	
	2"	Spare	
	2"	Spare	
	2"	Spare	See ITS Plan Set
11	3"	4–26C#14	
	3"	4–3C#20	
		6–2C#14	
	3"	7–2C#14	
	3"	6–2C#14	
		2–24C#19	
	2"	3–#6	
	3"	Spare	
12	Overhead	1–24C#19	
13	2"	2–2C#14	
14	2"	3–#6	
	2"	Spare	See ITS Plan Set
	2"	Spare	
15	2"	Spare	
	2"	2–24C#19	Riser
	2"	Spare	See ITS Plan Set

# No.	Conduit Size	Description	Remarks
19	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	3–2C#14	
		2–3C#20	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
20	2"	1–26C#14	
	2"	1–26C#14	
	2"	2–2C#14	
		2–3C#20	
	2"	6–2C#14	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
21	2"	1–2C#14	
		3–4C#14	
22	2"	1–26C#14	
	2"	1–26C#14	
	2"	1–2C#14	
		1–3C#20	
		6–2C#14	
	2"	Spare	
	2"	Spare	See ITS Plan Set
	2"		See ITS Plan Set
	2"	Spare	
23	2" (EX)	3–#6	See ITS Plan for Additional Conduits

Pedestrian Push Button Schedule

R10–4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓐ	R10–4B(L)
Ⓒ	R10–4B(R)
Ⓔ	R10–4B(L)
Ⓕ	R10–4B(R)
Ⓖ	R10–4B(L&R)
Ⓗ	R10–4B(L)
Ⓘ	R10–4B(R)

RECORD DRAWING

Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Restoration Details.
2. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
3. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.

N

20' 0 20'

Rev	By	Date	Description
2	TP	10–01–21	Rec Dwg Revised per HDOT Comments
			Pole H Location adjusted to
			Constructed Location
1	EY	01–17–17	Record Drawing
0	LB	12–12–14	Final Design

Designed: L. Barta
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01–17–17

HONOLULU RAIL TRANSIT PROJECT

HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant:

HART HONOLULU AUTHORITY for RAPID TRANSPORTATION
1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

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WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT ANIANI PLACE/WAIKELE ROAD PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR763
Drawing No: TR763
Rev. 2
Scale: 1"=20'
Page No. of

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Signal Phase Diagram

1	2	3	4
		Not Used	
5	6	7	8
		Not Used	

Vehicle Movement
Pedestrian Movement

Signal Indications

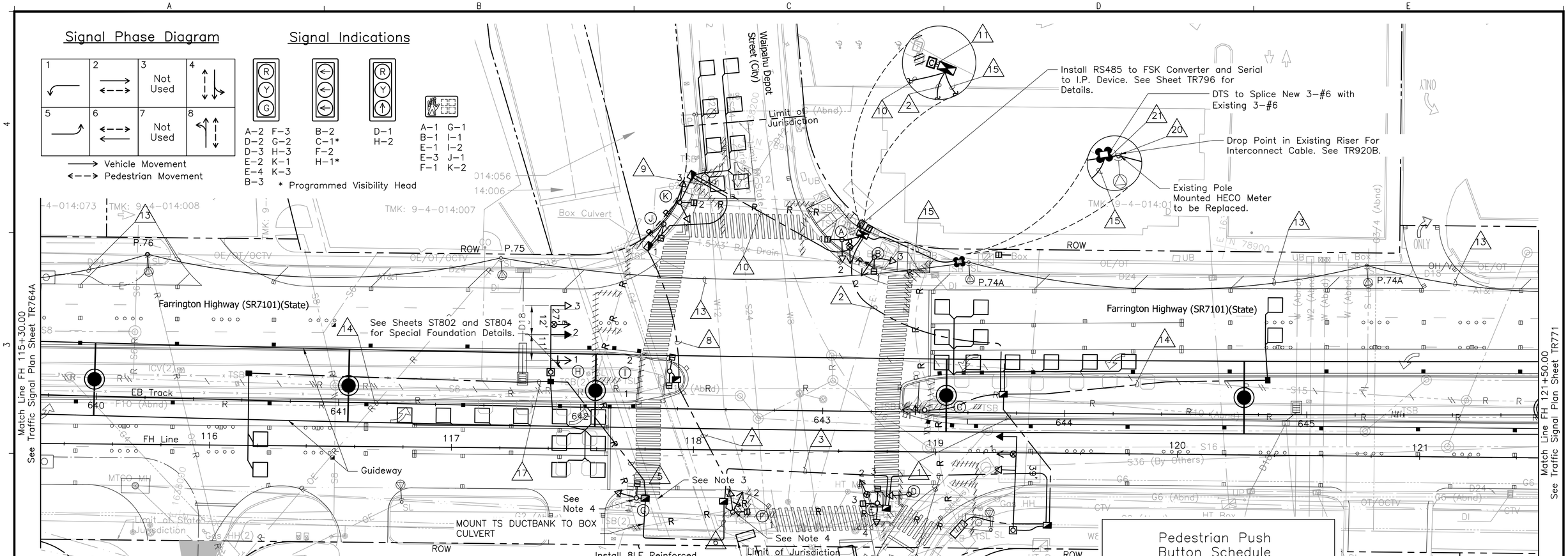
A–2 F–3
D–2 G–2
D–3 H–3
E–2 K–1
E–4 K–3
B–3

B–2
C–1*
F–2
H–1*

D–1
H–2

A–1 G–1
B–1 I–1
E–1 I–2
E–3 J–1
F–1 K–2

* Programmed Visibility Head



Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2”	1–26C#14	
	2”	1–26C#14	
	2”	4–2C#14	
		2–3C#20	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	
2	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	4–2C#14	
		2–3C#20	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	
3	2”	1–26C#14	
	2”	1–26C#14	
	2”	1–2C#14	
	2”	Spare	
4	2”	1–26C#14	
	2”	1–26C#14	
	2”	4–2C#14	
		1–3C#20	
	2”	Spare	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
5	2”	1–26C#14	
	2”	1–26C#14	
	2”	Spare	
	2”	Spare	

# No.	Conduit Size	Description	Remarks
6	2”	3–4C#14	
		1–2C#14	
7	2”	1–26C#14	
	2”	1–26C#14	
	2”	1–2C#14	
	2”	Spare	
	2”	1–26C#14	
	2”	1–26C#14	
8	2”	6–2C#14	
	2”	1–2C#14	
		1–3C#20	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	
9	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	2–2C#14	
		1–3C#20	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	
10	2”	1–26C#14	
	2”	1–26C#14	
	2”	6–2C#14	
	2”	6–2C#14	
		1–3C#20	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	

# No.	Conduit Size	Description	Remarks
11	3”	4–26C#14	
	3”	12–2C#14	
	3”	10–2C#14	
		4–3C#20	
		2–24C#19	
	2”	3–#6	
	3”	Spare	
	2”	Spare	See ITS Plan Set
13	Overhead	1–24C#19	
14	2”	2–2C#14	
15	2”	2–24C#19	
	2”	3–#6	See ITS Plan for Additional Conduits
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	Spare	
17	2”	2–2C#14	
		1–3C#20	
		3–4C#14	
	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
	2”	2–24C#19	Riser
20	2”	Spare	See ITS Plan Set
	2”	Spare	See ITS Plan Set
21	2” (Ex.)	3–#6	Existing Cables

Pedestrian Push Button Schedule

R10–4B (Sign Varies w/Direction)

Pole or PPB	Signs
A	R10–4B(R)
B	R10–4B(L)
D	R10–4B(R)
D	R10–4B(L)
F	R10–4B(L)
G	R10–4B(R)
I	R10–4B(L&R)
J	R10–4B(L)
K	R10–4B(R)

Notes:

1. See Sheet UP301 for Sidewalk Reconstruction Details.
2. Install Back Plates for All Traffic Signal Assemblies Mounted on New Mast Arms.
3. Contractor to provide 2’ clearance between pullbox and edge of box culvert.
4. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.

N

20’ 0 20’

RECORD DRAWING

Rev	By	Date	Description
3	TP	11–19–21	Revised Loop Detector Cables and TSP Location, per Field Check
2	EY	01–17–17	Record Drawing
1	EY	01–17–17	Revised per FDC 285
0	LB	12–14–14	Final Design

Designed: L. Barta
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 11–19–21

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant:

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION
1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

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WEST O’AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT WAIPAHU DEPOT STREET PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR770
Drawing No: TR770
Rev. 3
Scale: 1”=20’
Page No. of

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Pedestrian Push Button Schedule

Pole or PPB	Signs
Ⓐ	(←) R10-4B(L)

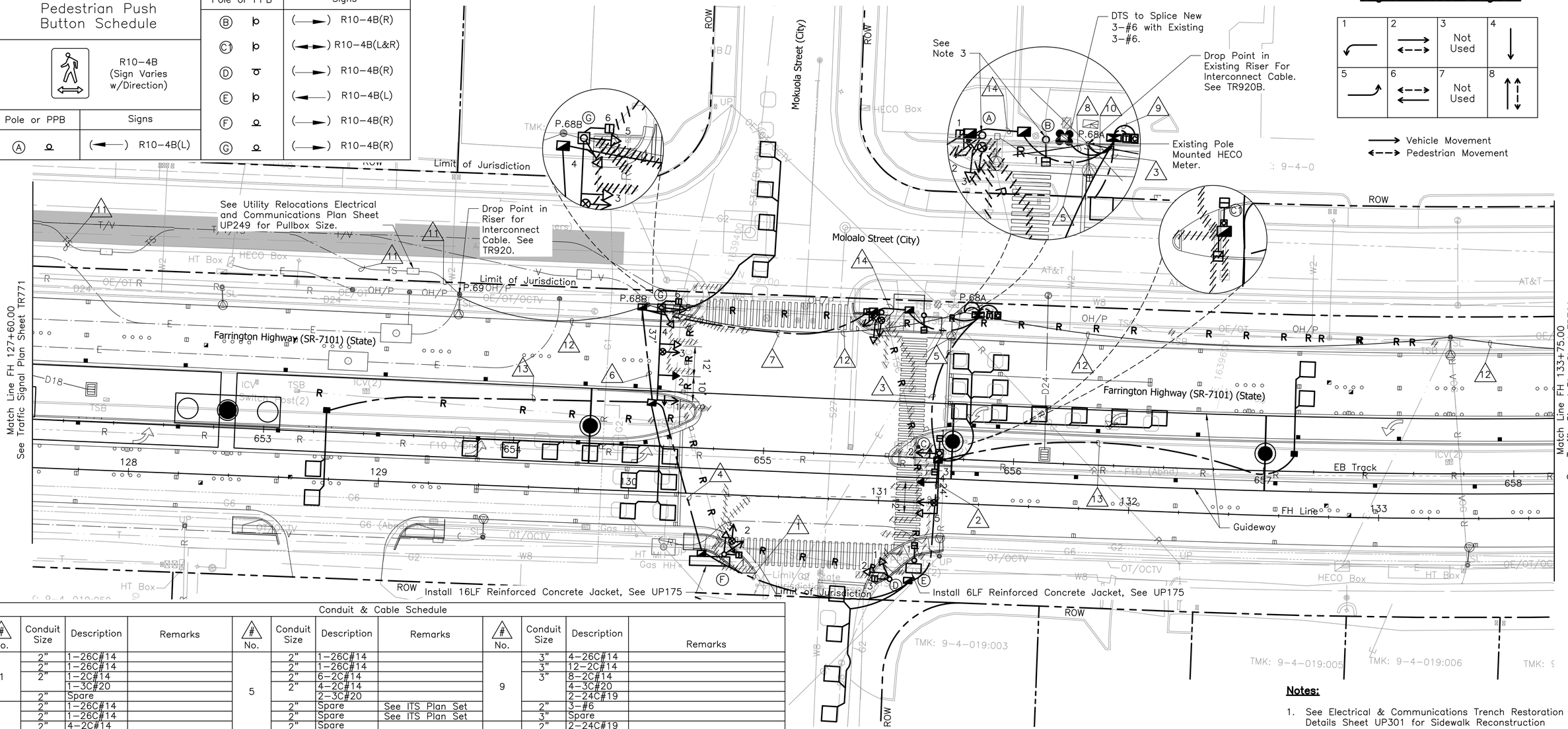
R10-4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓑ	(→) R10-4B(R)
Ⓒ1	(↔) R10-4B(L&R)
Ⓓ	(→) R10-4B(R)
Ⓔ	(←) R10-4B(L)
Ⓕ	(→) R10-4B(R)
Ⓖ	(→) R10-4B(R)

Signal Phase Diagram

1	2	3	4
↙	↔	Not Used	↓
5	6	7	8
↗	⇄	Not Used	↑↓

→ Vehicle Movement
⇢ Pedestrian Movement



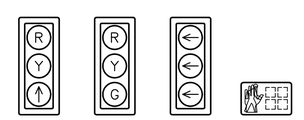
Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2"	1-26C#14	
	2"	1-26C#14	
	2"	1-2C#14	
		1-3C#20	
	2"	Spare	
2	2"	1-26C#14	
	2"	1-26C#14	
	2"	4-2C#14	
		1-3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
3	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	4-2C#14	
		2-3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
4	2"	1-26C#14	
	2"	1-26C#14	
	2"	Spare	
	2"	Spare	

# No.	Conduit Size	Description	Remarks
5	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	4-2C#14	
		2-3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
6	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	Spare	
7	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	3-2C#14	
		1-3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
8	2"	3-#6	

# No.	Conduit Size	Description	Remarks
9	3"	4-26C#14	
	3"	12-2C#14	
	3"	8-2C#14	
		4-3C#20	
		2-24C#19	
	2"	3-#6	
	3"	Spare	
	2"	2-24C#19	
10	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
11	2"	1-24C#19	See Utility Relocation Electrical and Communications Plan Sheet UP249
12	Overhead	1-24C#19	
13	2"	2-2C#14	
14	2"	1-26C#14	
	2"	1-26C#14	
	2"	6-2C#14	
	2"	3-2C#14	
		2-3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	

Signal Indications



C-4 G-2 | A-3 F-3 C-5 G-3 D-1 G-4 D-2 G-5 | A-2 C-2* F-2 G-1* | A-1 D-3 B-1 E-1 C-1 F-1 C-3 G-6

* Programmed Visibility Head

Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Reconstruction Details.
2. Install Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.
3. Contractor to verify the presence of an existing level landing area near proposed pedestrian push button that meets current ADA and HDOT requirements.

RECORD DRAWING

N

20' 0 20'

Rev	By	Date	Description
1	EY	01-17-17	Record Drawing
0	LB	12-12-14	Final Design

Designed: L. Barta
Drawn: T. Severson
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01-17-17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT MOKUOLA STREET PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT-HRT-10H0137
File: WOFH-C04-TR779
Drawing No: TR779
Rev. 1
Scale: 1"=20'
Page No. 492 of 2313

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Signal Phase Diagram

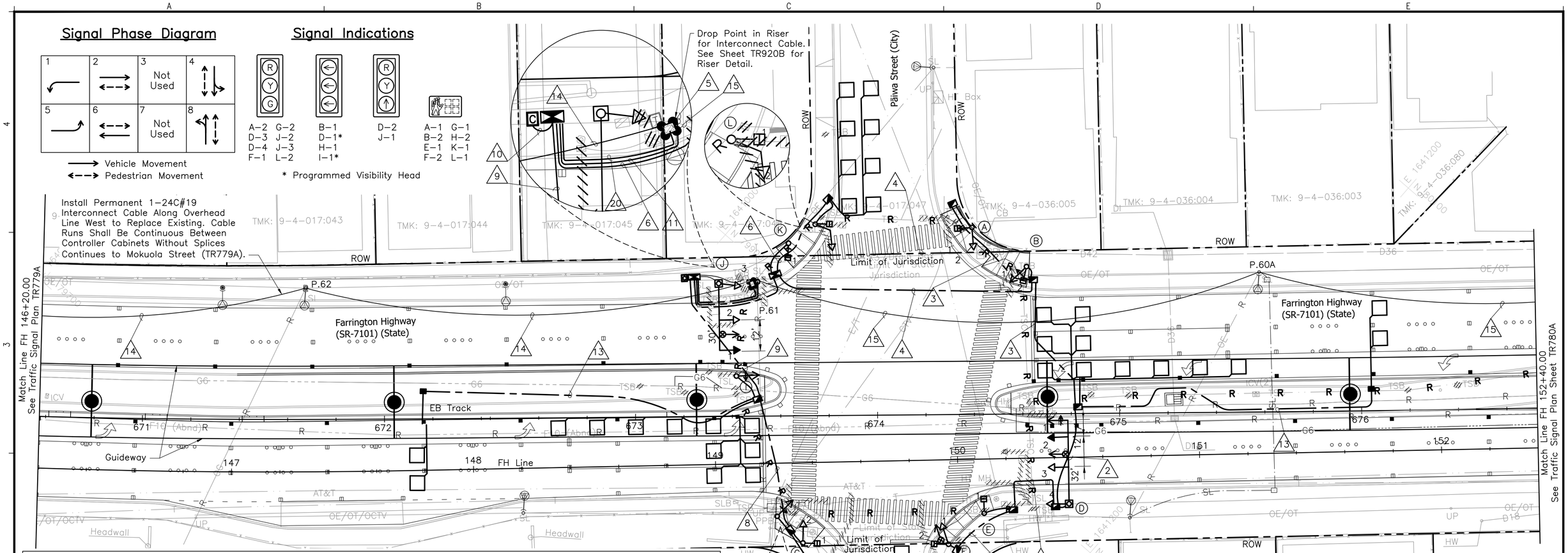
1	2	3	4
		Not Used	
5	**6**	**7**	**8**
		Not Used	

Vehicle Movement
Pedestrian Movement

Signal Indications

A–2	G–2	B–1	D–2	A–1	G–1
D–3	J–2	D–1*	J–1	B–2	H–2
D–4	J–3	H–1		E–1	K–1
F–1	L–2	I–1*		F–2	L–1

* Programmed Visibility Head



Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks
1	2"	1–26C#14	
	2"	1–26C#14	
	2"	Spare	
	2"	Spare	
2	2"	1–26C#14	
	2"	1–26C#14	
	2"	1–2C#14	
		1–3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
3	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	1–2C#14	
		1–3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	
4	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	2–2C#14	
		2–3C#20	
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
	2"	Spare	

# No.	Conduit Size	Description	Remarks
5	2"	1–24C#19	Riser
		1–24C#19 (Ex.)	
	2"	Spare	Risers–See ITS Plan Set
	2"	Spare	
6	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	6–2C#14	
	2"	1–2C#14	
	2"	2–3C#20	
	2"	Spare	See ITS Plans
	2"	Spare	See ITS Plans
	2"	Spare	
7	2"	1–26C#14	
	2"	1–26C#14	
	2"	3–2C#14	
		1–3C#20	
	2"	Spare	
8	2"	1–26C#14	
	2"	1–26C#14	
	2"	4–2C#14	
		1–3C#20	
	2"	Spare	
9	2"	1–26C#14	
	2"	1–26C#14	
	2"	6–2C#14	
	2"	4–2C#14	
		1–3C#20	
	2"	Spare	

# No.	Conduit Size	Description	Remarks
10	3"	4–26C#14	
	3"	1–24C#19	
		1–24C#19 (Ex.)	Aerial Cable– See Traffic Signal Plans for Kahuali'i Intersection
		3–#6	
	3"	12–2C#14	
	3"	10–2C#14	
		4–3C#20	
	3"	Spare	
11	2"	1–24C#19	
		1–24C#19 (Ex.)	Aerial Cable– See Traffic Signal Plans for Kahuali'i Intersection
	2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set
13	2"	2–2C#14	
14	Overhead	1–24C#19	
15	Overhead (Ex.)	1–24C#19 (Ex.)	Aerial Cable– See Traffic Signal Plans for Kahuali'i Intersection
17	2"	1–26C#14	
	2"	1–26C#14	
	2"	1–2C#14	
	2"	Spare	
20	2"	3–#6*	*See ITS Plans for Additional Conductors

Pedestrian Push Button Schedule

R10–4B (Sign Varies w/Direction)

Pole or PPB	Signs
Ⓐ	(→) R10–4B(R)
Ⓑ	(→) R10–4B(R)
Ⓔ	(←) R10–4B(L)
Ⓕ	(→) R10–4B(R)
Ⓖ	(←) R10–4B(L)
Ⓗ	(←) R10–4B(L)
Ⓗ	(→) R10–4B(R)
Ⓚ	(←) R10–4B(L)
Ⓛ	(←) R10–4B(L)
Ⓛ	(→) R10–4B(R)

RECORD DRAWING

Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Reconstruction Details.
2. Install Back Plates for All Traffic Signal Assemblies Mounted on New Mast Arms.

20' 0 20'

Rev	By	Date	Description
3	EY	01–17–17	Record Drawing
2	EY	01–17–17	Revised per RFI 253
1	EA	12–04–15	Updated Per NDC 108 and NDC 145
0	LB	10–15–14	Final Design

Designed: E. Anders
Drawn: E. Anders
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 01–17–17

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: Kiewit HNTB
Subconsultant:

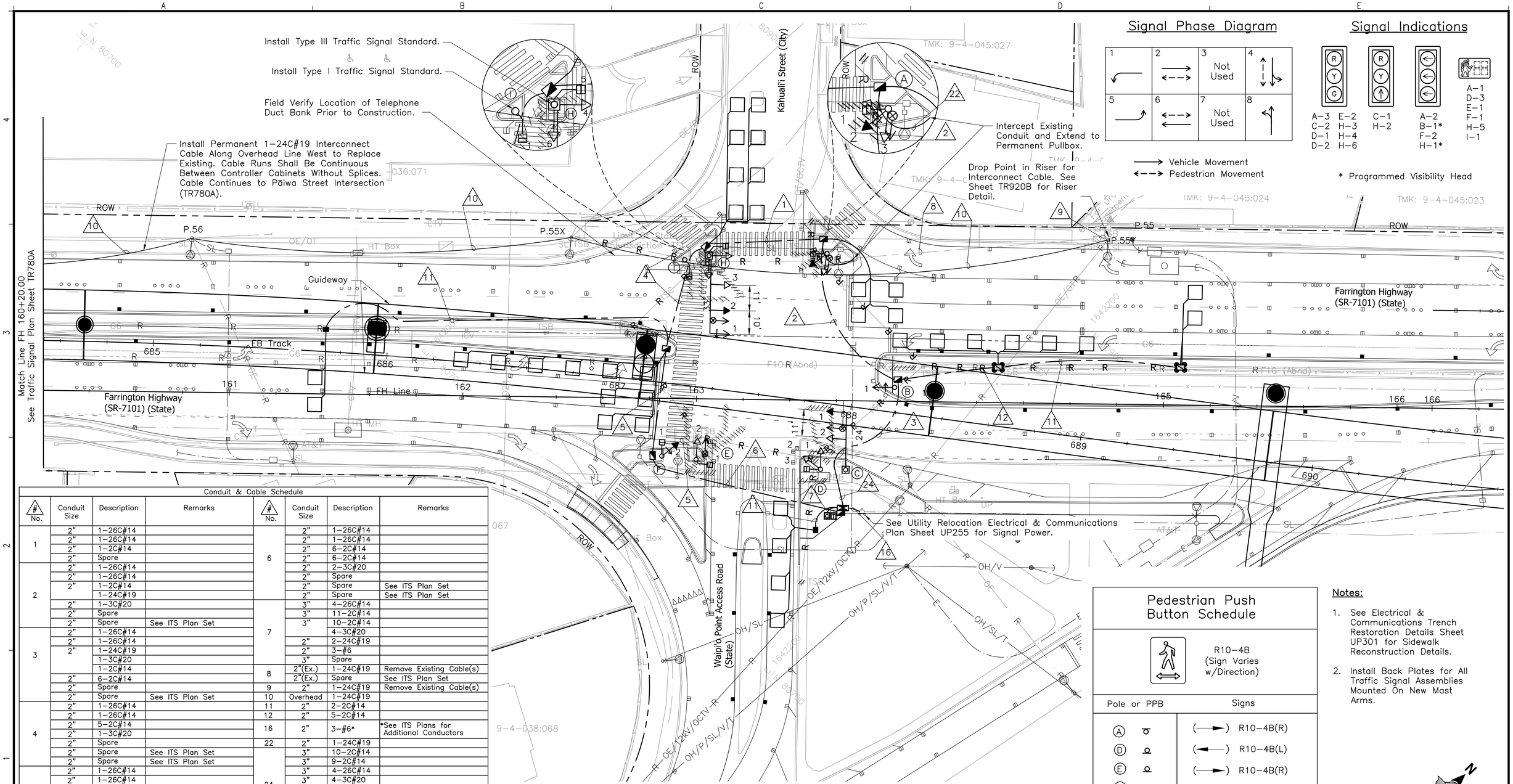
For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT PĀIWA STREET PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR786
Drawing No: TR786
Rev. 3
Scale: 1"=20'
Page No. 496 of 2313



Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks
1	2"	1-26C#14		6	2"	1-26C#14	
	2"	1-26C#14			2"	1-26C#14	
	2"	1-2C#14			2"	6-2C#14	
	2"	Spare			2"	6-2C#14	
2	2"	1-26C#14			2"	2-3C#20	
	2"	1-26C#14			2"	Spare	
	2"	1-2C#14			2"	Spare	See ITS Plan Set
		1-24C#19			2"	Spare	See ITS Plan Set
	2"	1-3C#20		7	3"	4-26C#14	
	2"	Spare			3"	11-2C#14	
	2"	Spare	See ITS Plan Set		3"	10-2C#14	
3	2"	1-26C#14				4-3C#20	
	2"	1-26C#14			2"	2-24C#19	
	2"	1-24C#19			2"	3-#6	
		1-3C#20			3"	Spare	
		1-2C#14		8	2"(Ex.)	1-24C#19	Remove Existing Cable(s)
	2"	6-2C#14			2"(Ex.)	Spare	See ITS Plan Set
	2"	Spare		9	2"	1-24C#19	Remove Existing Cable(s)
	2"	Spare	See ITS Plan Set	10	Overhead	1-24C#19	
4	2"	1-26C#14		11	2"	2-2C#14	
	2"	1-26C#14		12	2"	5-2C#14	
	2"	5-2C#14		16	2"	3-#6*	*See ITS Plans for Additional Conductors
	2"	1-3C#20					
	2"	Spare		22	2"	1-24C#19	
	2"	Spare	See ITS Plan Set	24	3"	10-2C#14	
	2"	Spare	See ITS Plan Set		3"	9-2C#14	
5	2"	1-26C#14			3"	4-26C#14	
	2"	1-26C#14			3"	4-3C#20	
	2"	6-2C#14				2-24C#19	
	2"	5-2C#14			3"	Spare	
	2"	1-3C#20			2"	Spare	See ITS Plan Set
	2"	Spare			2"	Spare	See ITS Plan Set
	2"	Spare	See ITS Plan Set				
	2"	Spare	See ITS Plan Set				

Rev	By	Date	Description
3	TP	12-13-21	Revised TS Interconnect Ducts, Boxes, and Cabinets
2	EY	01-17-17	Record Drawing
1	EA	12-04-15	Updated Per NDC 108 and NDC 145
0	LB	10-10-14	Final Design

Designed: E. Anders
Drawn: E. Anders
Checked: J. Przychodzen
Approved: G. Thiebaut
Date: 12-13-21

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant:

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION
1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

For reduced prints, original page size in inches: 0 1 2 3 4

WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT KAHUALI'I STREET PERMANENT

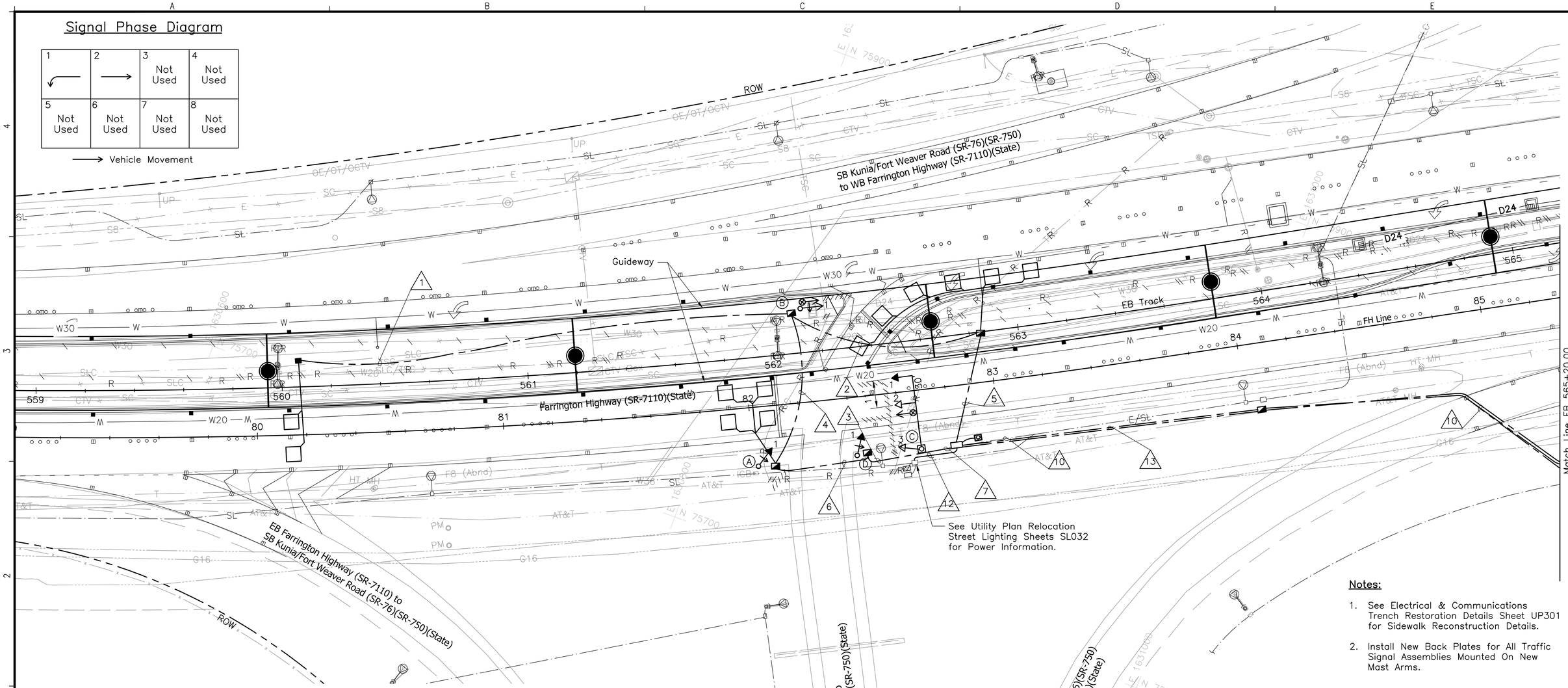
TRAFFIC SIGNAL PLAN

Contract No.: CT-HRT-10H0137
File: WOFH-C04-TR792
Drawing No: TR792
Rev. 3
Scale: 1"=20'
Page No. of

Signal Phase Diagram

1	2	3	4
↙	→	Not Used	Not Used
5	**6**	**7**	**8**
Not Used	Not Used	Not Used	Not Used

→ Vehicle Movement



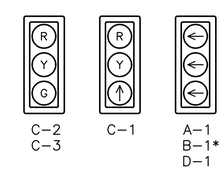
Notes:

1. See Electrical & Communications Trench Restoration Details Sheet UP301 for Sidewalk Reconstruction Details.
2. Install New Back Plates for All Traffic Signal Assemblies Mounted On New Mast Arms.

Conduit & Cable Schedule

# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks	# No.	Conduit Size	Description	Remarks
1	2"	2–2C#14		5	2"	1–26C#14		10	2"	1–24C#19	
2	2"	1–26C#14			2"	3–2C#14			2"	Spare	
	2"	Spare			2"	1–24C#19			2"	3–#2	
	2"	Spare			2"	Spare				1–#4	
	2"	Spare		6	2"	1–26C#14		12	2"	3–#6	
3	2"	1–26C#14			2"	3–2C#14		13	2"	1–24C#19	
	2"	3–2C#14			2"	1–3C#20			2"	Spare	
	2"	1–3C#20			2"	Spare			2"	3–#2	
	2"	Spare		7	3"	2–26C#14				1–#4	
4	2"	1–26C#14			3"	6–2C#14					
	2"	2–2C#14				2–3C#20					
	2"	1–3C#20				1–24C#19					
	2"	Spare			2"	3–#6					
					3"	Spare					

Signal Indications



* Programmed Visibility Head

RECORD DRAWING

N

20' 0 20'

Rev	By	Date	Description
2	TP	01–20–22	Revised TS Interconnect Ducts, Boxes, and Cabinets Per HART Fieldcheck
1	EY	01–17–17	Record Drawing
0	NC	10–13–14	Final Design

Designed: E. Anders
Drawn: T. Severson
Checked: N. Ching
Approved: G. Sanchez
Date: 12–13–21

HONOLULU RAIL TRANSIT PROJECT

HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

Prime Consultant: HART HONOLULU AUTHORITY for RAPID TRANSPORTATION, 1099 Alakea Street, Suite 1700 – Honolulu, HI 96813

For reduced prints, original page size in inches: 0 1 2 3 4

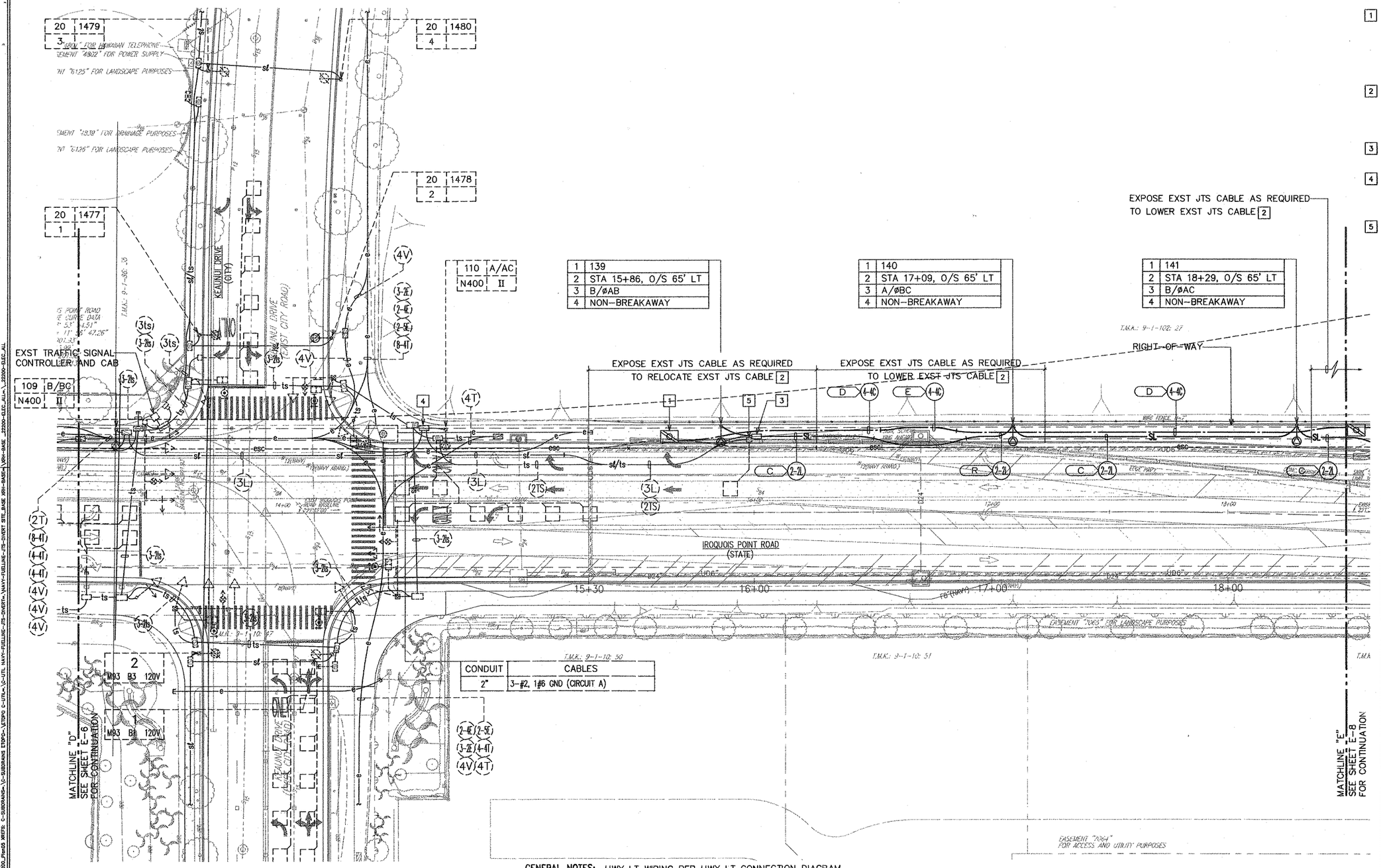
WEST O'AHU/FARRINGTON DESIGN BUILD

FARRINGTON HWY AT FORT WEAVER ROAD PERMANENT

TRAFFIC SIGNAL PLAN

Contract No.: CT–HRT–10H0137
File: WOFH–C04–TR715
Drawing No: TR715 Rev. 2
Scale: 1"=20'
Page No. of

1/24/2022 3:20 PM L:\DCS\Projects\HART\60627993_WOFH_II\900–CAD_GIS\911 WOFHG CAD\10 WOFHG Traffic TR 122\WOFH–C04–TR715.dwg



1	139
2	STA 15+86, O/S 65' LT
3	B/ØAB
4	NON-BREAKAWAY

1	140
2	STA 17+09, O/S 65' LT
3	A/ØBC
4	NON-BREAKAWAY

1	141
2	STA 18+29, O/S 65' LT
3	B/ØAC
4	NON-BREAKAWAY

CONDUIT	CABLES
2"	3-#2, 1#6 GND (CIRCUIT A)

NOTES:

1. EXCAVATE AND EXPOSE EXST JTS CABLES AND CONSTRUCT MANHOLE OVER EXSTING CABLES. PROVIDE 5'-0" CONCRETE ENCASED SPLIT DUCT FOR EXST CABLE ENTRY INTO MANHOLE. COORDINATE WORK WITH U.S. ARMY SIGNAL CORPS (30TH SIGNAL BATTALION NETWORK ENTERPRISE CENTER. COMPACT BACKFILL TO MATCH EXSTING.
2. FIELD LOCATE EXISTING JTS CABLE AND CAREFULLY EXCAVATE IN THE VICINITY OF EXISTING CABLE. EXPOSE EXISTING JTS CABLE BY MANUAL EXCAVATION ONLY. CAREFULLY RELOCATE EXISTING JTS CABLE.
3. EXCAVATE, EXPOSE, AND INTERCEPT EXST CONDUIT STUB OUT WITH NEW HIGHWAY LIGHTING PULLBOX.
4. EXISTING HIGHWAY LIGHTING PULLBOX. SPLICE EXISTING WIRING TO NEW WIRING TO EXISTING HIGHWAY LIGHTING CIRCUIT A. SEE SHEET E-3 FOR LOCATION OF EXISTING HIGHWAY LIGHTING METER.
5. RAISE EXISTING TS TYPE "A" PULLBOX TO FINISHED GRADE.

GENERAL NOTES: HWY LT WIRING PER HWY LT CONNECTION DIAGRAM.

NORTH

ELECTRICAL PARTIAL PLAN V

SCALE: 1"=20'

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

Rev	Date	Description	Eng	App
△				
△				

STEVEN H. SAKAI LICENSED PROFESSIONAL ENGINEER No. 7637-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2014
EXPIRATION DATE OF THE LICENSE

BELTCOLLINS
PLANNING• CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL CONSULTING
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554 USA
T: 808.521.5361 F: 808.538.7819
www.beltcollins.com

Consultant:
RONALD N. S. HO & ASSOCIATES, INC.
Electrical Engineers
2138 Algaroba Street, Suite A Honolulu, Hawaii 96826
Phone: (808)941-0577 Fax: (808)945-2646

Client:
GENTRY HOMES LTD.
560 NORTH NIMITZ HIGHWAY, SUITE 210
HONOLULU, HAWAII 96819

EWA BY GENTRY
IROQUOIS POINT ROAD IMPROVEMENTS
DPP SUBD. FILE NO. 2005/SUB-

ELECTRICAL PARTIAL PLAN V

Designed By: GTN Drawn By: CAD
Project No. (BCH) 2002-33-4700 Date: JULY 2012
Approved By:

Date
Date
Date
Date

FILE	POCKET	FOLDER	NO.

Trim: 22"x36"

SHEET E-7 of ____ Sheets

LAST SAVE: 11/10/11 @ 08:00:58 BY: JM PLOT SC 1=20
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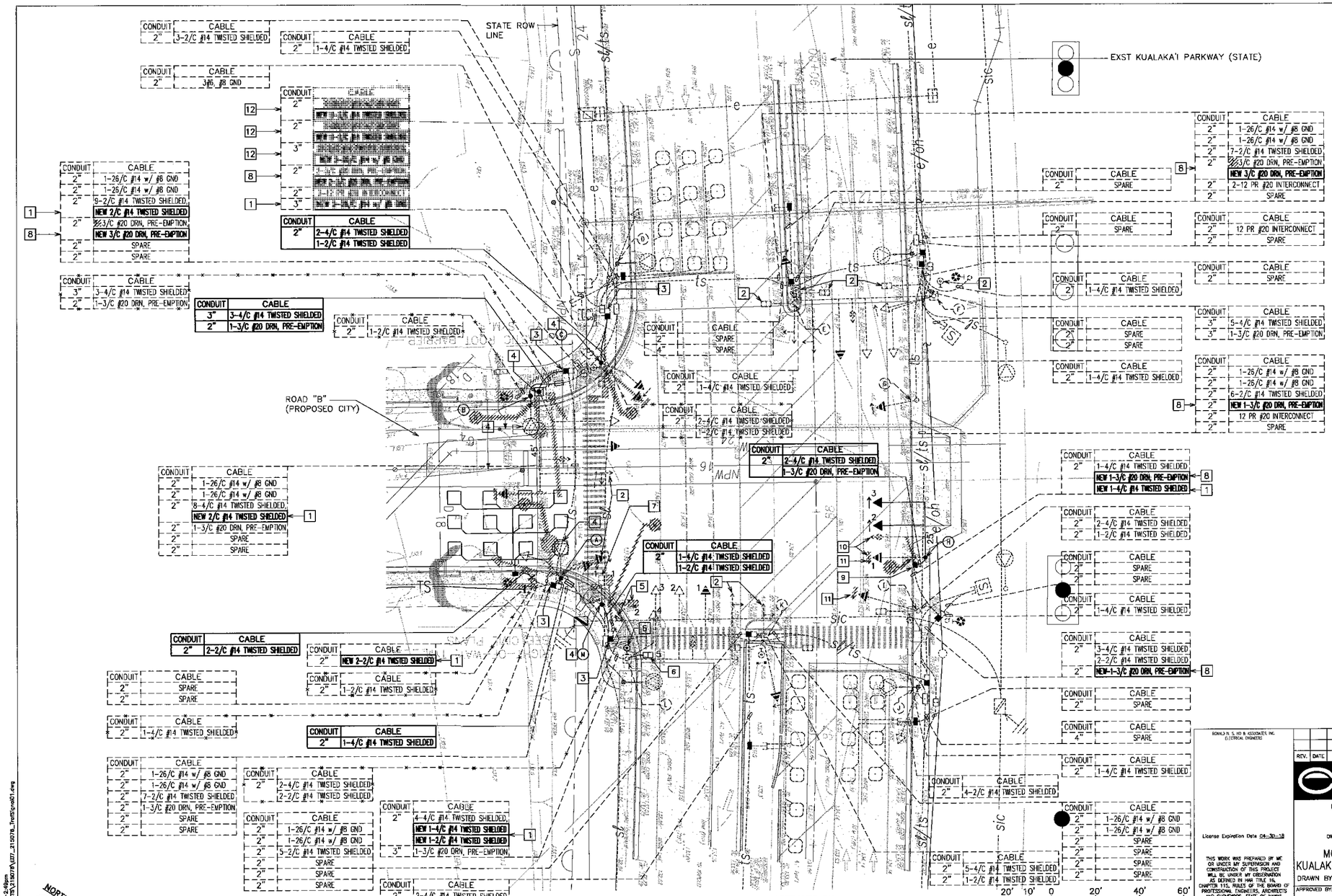


MODIFIED TRAFFIC SIGNAL PLAN – KUALAKA'I PARKWAY/ROAD "B" INTERSECTION

SCALE: 1"=20'

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

NOTES:

1. PROVIDE NEW/ADDITIONAL CABLE IN EXST. CONDUIT.
2. FUTURE TRAFFIC SIGNAL EQUIP.
3. EXCAVATE TO EXPOSE HANDHOLE WALL, BREAK WALL & PROVIDE CONDUIT ENTRY; REPAIR TO MATCH EXST.
4. PROVIDE NEW CONCRETE FOUNDATION, RELOCATE TRAFFIC SIGNAL/STREET LIGHT STANDARD & APPURTENANCES, & RECONNECT. SEE STRUCTURAL DWGS FOR CONCRETE FOUNDATION.
5. DISCONNECT & REMOVE TRAFFIC SIGNAL/PED PUSHBUTTON. PLUG HOLE(S) IN SHAFT.
6. DRILL 3/4" HOLE IN POLE & PROVIDE NEW TRAFFIC SIGNAL & PEDESTRIAN PUSHBUTTON.
7. PROVIDE MOUNTING BRACKET & RELOCATE PEDESTRIAN SIGNAL HEAD.
8. REMOVE PRE-EMPTION CABLE(S) FROM TRAFFIC STANDARD & & PROVIDE NEW PRE-EMPTION CABLE FROM DETECTOR ON RELOCATED/NEW TYPE II STANDARD TO EXST. TRAFFIC SIGNAL CONTROLLER
9. REMOVE CABLES, EXCAVATE TO EXPOSE & BREAK CONCRETE ENCASEMENT, CUT CONDUIT & INTERCEPT WITH NEW TRAFFIC SIGNAL PULLBOX. REPAIR TO MATCH EXISTING
10. DISCONNECT & REMOVE TRAFFIC SIGNAL HEAD, OPTICON DETECTOR & APPURTENANCES; PROVIDE MOUNTING BRACKET(S), RELOCATE TO NEW TYPE II STANDARD, PROVIDE CABLES & RECONNECT.
11. REMOVE DIRECTIONAL ARROW FACEPLATE & REPLACE WITH SOLID COLOR FACE PLATE.
12. DISCONNECT & REMOVE EXST. CABLES, & PROVIDE NEW CABLES IN EXST. CONDUIT.
13. SEE TRAFFIC PHASING DIAGRAM ON SHEET E-18.
14. SEE SHEET E-5 FOR NOTES ON PLACING BEDDING BENEATH BOXES.

RONALD N. S. HO & ASSOCIATES, INC.
ELECTRICAL ENGINEERS

License Expiration Date 04-30-18

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAR TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

Signature

REV.	DATE	BRIEF	BY	TRB	WWB	CCB	BWS

Engineering Concepts, Inc
1150 S. King Street
Suite 700
Honolulu, Hawaii
96814

UNIVERSITY OF HAWAII WEST OAHU
ROAD "B"
HONOULIULI, EWA, OAHU, HAWAII
TMK: (1)9-1-16: 220 & 223
OWNER & DEVELOPER: UNIVERSITY OF HAWAII – WEST OAHU
(PROPOSED PUBLIC STREET)

MODIFIED TRAFFIC SIGNAL PLAN –
KUALAKA'I PARKWAY/ROAD "B" INTERSECTION

DRAWN BY CAD ENGINEER CF

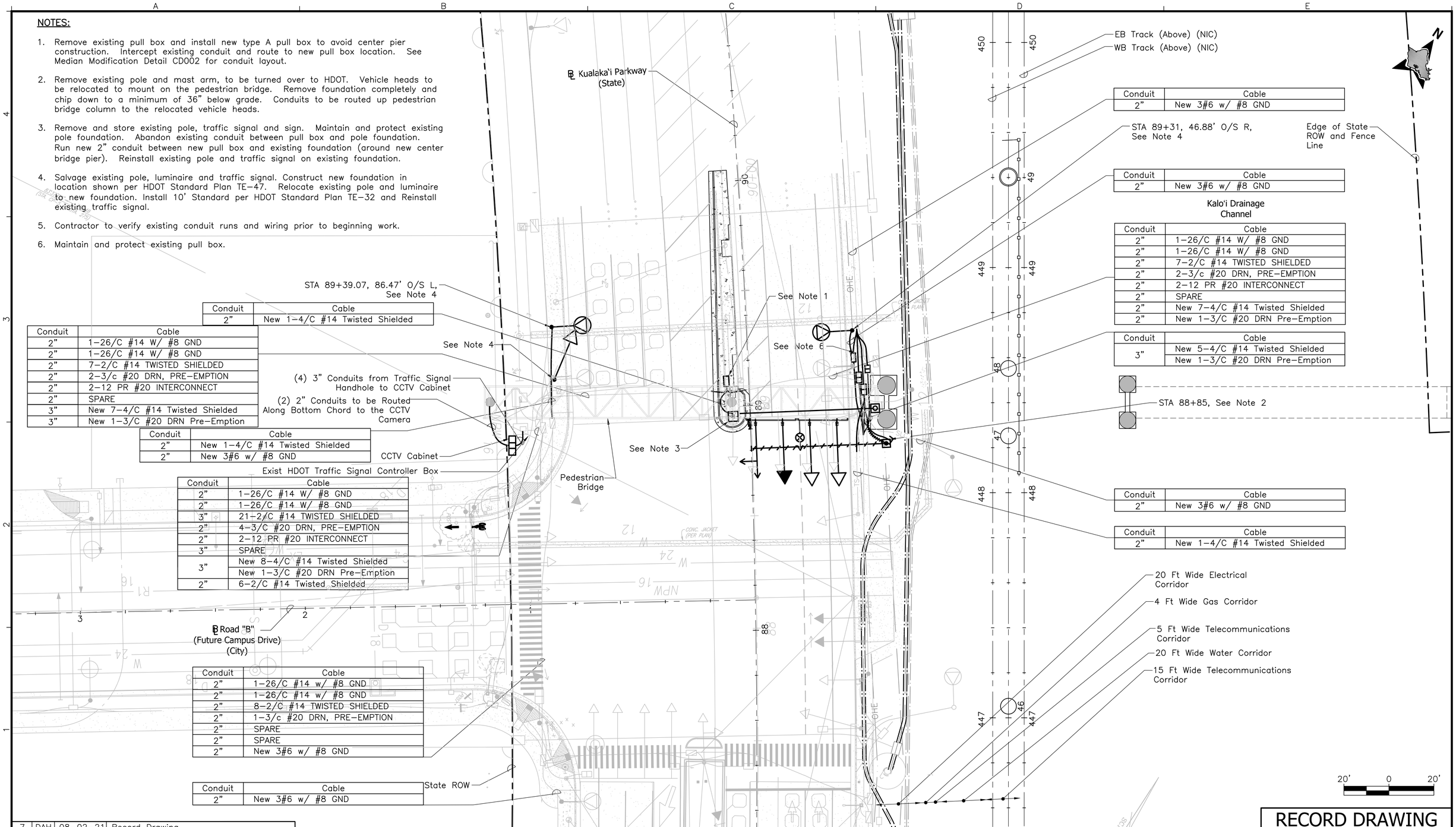
APPROVED BY:
CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE
CITY AND COUNTY OF HONOLULU
CHIEF, TRAFFIC SIGNAL AND TECHNOLOGY, DTS — DATE
CITY AND COUNTY OF HONOLULU

FILE	POCKET	FOLDER	NO.

Mar 31, 2016-2:49pm
Z:\Acad\PROJECTS\31807B\237_21507B_TrafficSignal01.dwg
LAST SAVE: 03/30/16 @ 13:26:47 BY: RN PLOT SC 1=20.000000

NOTES:

1. Remove existing pull box and install new type A pull box to avoid center pier construction. Intercept existing conduit and route to new pull box location. See Median Modification Detail CD002 for conduit layout.
2. Remove existing pole and mast arm, to be turned over to HDOT. Vehicle heads to be relocated to mount on the pedestrian bridge. Remove foundation completely and chip down to a minimum of 36" below grade. Conduits to be routed up pedestrian bridge column to the relocated vehicle heads.
3. Remove and store existing pole, traffic signal and sign. Maintain and protect existing pole foundation. Abandon existing conduit between pull box and pole foundation. Run new 2" conduit between new pull box and existing foundation (around new center bridge pier). Reinstall existing pole and traffic signal on existing foundation.
4. Salvage existing pole, luminaire and traffic signal. Construct new foundation in location shown per HDOT Standard Plan TE-47. Relocate existing pole and luminaire to new foundation. Install 10' Standard per HDOT Standard Plan TE-32 and Reinstall existing traffic signal.
5. Contractor to verify existing conduit runs and wiring prior to beginning work.
6. Maintain and protect existing pull box.



Conduit	Cable
2"	New 3#6 w/ #8 GND

Conduit	Cable
2"	New 3#6 w/ #8 GND

Conduit	Cable
2"	1-26/C #14 W/ #8 GND
2"	1-26/C #14 W/ #8 GND
2"	7-2/C #14 TWISTED SHIELDED
2"	2-3/c #20 DRN, PRE-EMPTION
2"	2-12 PR #20 INTERCONNECT
2"	SPARE
2"	New 7-4/C #14 Twisted Shielded
2"	New 1-3/C #20 DRN Pre-Emption

Conduit	Cable
3"	New 5-4/C #14 Twisted Shielded
	New 1-3/C #20 DRN Pre-Emption

Conduit	Cable
2"	New 3#6 w/ #8 GND

Conduit	Cable
2"	New 1-4/C #14 Twisted Shielded

Conduit	Cable
2"	New 1-4/C #14 Twisted Shielded

Conduit	Cable
2"	1-26/C #14 W/ #8 GND
2"	1-26/C #14 W/ #8 GND
2"	7-2/C #14 TWISTED SHIELDED
2"	2-3/c #20 DRN, PRE-EMPTION
2"	2-12 PR #20 INTERCONNECT
2"	SPARE
3"	New 7-4/C #14 Twisted Shielded
3"	New 1-3/C #20 DRN Pre-Emption

Conduit	Cable
2"	New 1-4/C #14 Twisted Shielded
2"	New 3#6 w/ #8 GND

Conduit	Cable
2"	1-26/C #14 W/ #8 GND
2"	1-26/C #14 W/ #8 GND
3"	21-2/C #14 TWISTED SHIELDED
2"	4-3/C #20 DRN, PRE-EMPTION
2"	2-12 PR #20 INTERCONNECT
3"	SPARE
3"	New 8-4/C #14 Twisted Shielded
	New 1-3/C #20 DRN Pre-Emption
2"	6-2/C #14 Twisted Shielded

Conduit	Cable
2"	1-26/C #14 w/ #8 GND
2"	1-26/C #14 w/ #8 GND
2"	8-2/C #14 TWISTED SHIELDED
2"	1-3/c #20 DRN, PRE-EMPTION
2"	SPARE
2"	SPARE
2"	New 3#6 w/ #8 GND

Conduit	Cable
2"	New 3#6 w/ #8 GND

RECORD DRAWING

Rev	By	Date	Description
7	DAH	08-02-21	Record Drawing
6	DAH	–	Not Issued
5	DAH	–	Not Issued
4	DAH	–	Not Issued
3	DAH	–	Not Issued
2	DAH	–	Not Issued
1	MAH	02-04-16	Issued for Construction
0	MAH	11-20-15	Conformed
0	PS	04-10-15	Issued for Bid

Designed: D Mills
Drawn: R Tlehhema
Checked: A Cleven
Approved: Y Kaplan
Date: 04-10-15

HONOLULU RAIL TRANSIT PROJECT
HONOLULU AUTHORITY FOR RAPID TRANSPORTATION

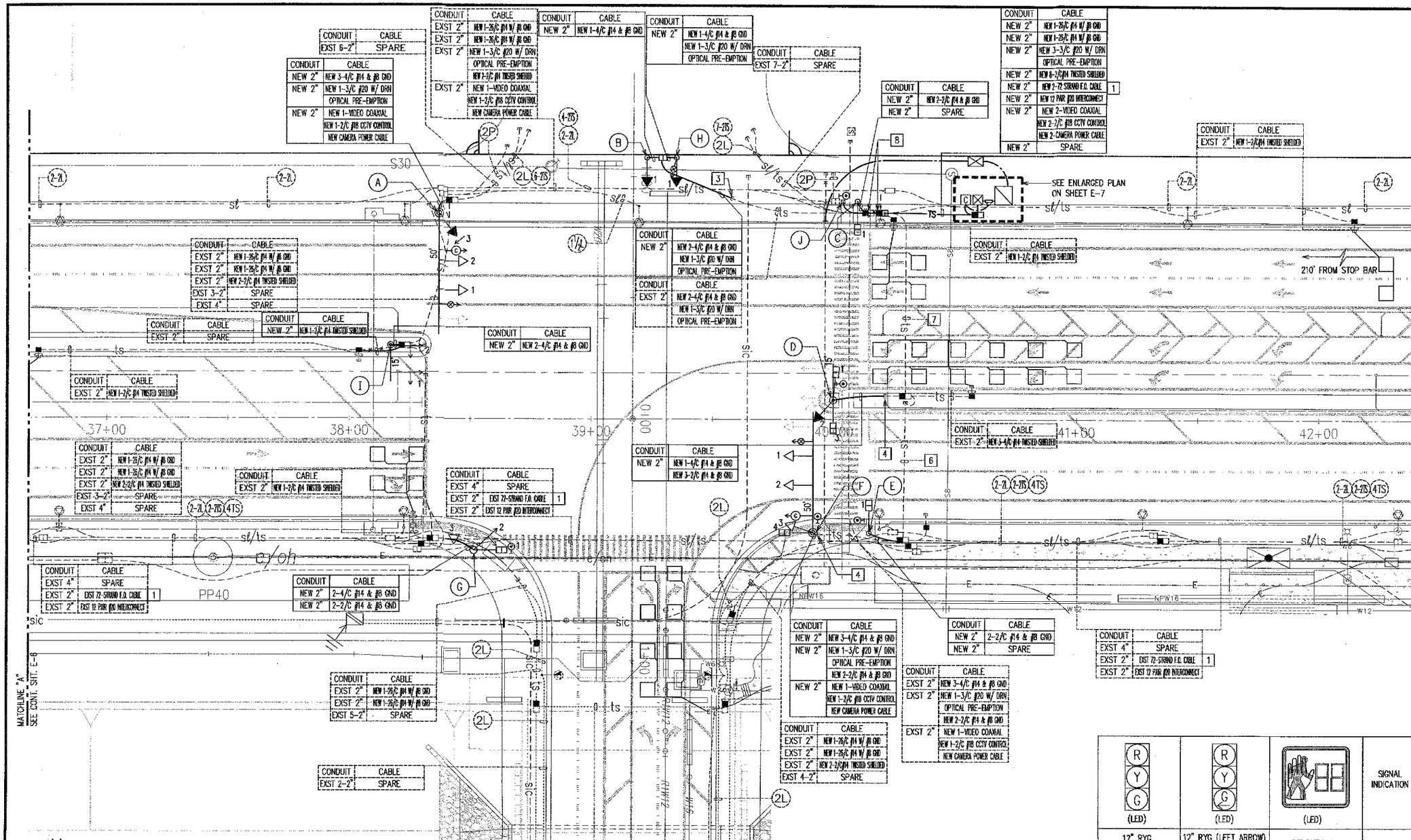
Prime Consultant:
Subconsultant:

For reduced prints, original page size in inches: 0 1 2 3 4

UH WEST O'AHU STATION

TRAFFIC SIGNAL PLAN

Contract No.: CT-HRT-1500503
File: SB2-C03-TR005
Drawing No: TR005
Rev. 8
Scale: 1"=20'
Page No. 35 of 274



CONDUIT	CABLE
EXST 6-2"	SPARE

CONDUIT	CABLE
NEW 2"	NEW 3-4/C #14 & #8 GND
NEW 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
NEW 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
	NEW 2-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE

CONDUIT	CABLE
NEW 2"	NEW 1-4/C #14 & #8 GND

CONDUIT	CABLE
NEW 2"	NEW 1-4/C #14 & #8 GND
	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION

CONDUIT	CABLE
EXST 7-2"	SPARE

CONDUIT	CABLE
NEW 2"	NEW 2-2/C #14 & #8 GND
NEW 2"	SPARE

CONDUIT	CABLE
NEW 2"	NEW 1-2/C #14 TWISTED SHIELDED
NEW 2"	NEW 1-2/C #14 TWISTED SHIELDED
NEW 2"	NEW 3-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
NEW 2"	NEW 6-2/C #14 TWISTED SHIELDED
NEW 2"	NEW 2-72 STRAND F.O. CABLE 1
NEW 2"	NEW 12 PAIR #20 INTERCONNECT
NEW 2"	NEW 2-VIDEO COAXIAL
	NEW 2-2/C #18 CCTV CONTROL
	NEW 2-CAMERA POWER CABLE
NEW 2"	SPARE

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 2-2/C #14 TWISTED SHIELDED
EXST 3-2"	SPARE
EXST 4"	SPARE

CONDUIT	CABLE
EXST 2"	SPARE

CONDUIT	CABLE
NEW 2"	NEW 1-2/C #14 TWISTED SHIELDED

CONDUIT	CABLE
NEW 2"	NEW 2-4/C #14 & #8 GND

CONDUIT	CABLE
NEW 2"	NEW 2-4/C #14 & #8 GND
	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION

CONDUIT	CABLE
EXST 2"	NEW 2-4/C #14 & #8 GND
	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 2-2/C #14 TWISTED SHIELDED
EXST 3-2"	SPARE
EXST 4"	SPARE

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED

CONDUIT	CABLE
EXST 4"	SPARE
EXST 2"	EXST 72-STRAND F.O. CABLE 1
EXST 2"	EXST 12 PAIR #20 INTERCONNECT

CONDUIT	CABLE
NEW 2"	2-4/C #14 & #8 GND
NEW 2"	2-2/C #14 & #8 GND

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 5-2"	SPARE

CONDUIT	CABLE
EXST 2-2"	SPARE

CONDUIT	CABLE
NEW 2"	NEW 3-4/C #14 & #8 GND
NEW 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
	NEW 2-2/C #14 & #8 GND
NEW 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 1-2/C #14 TWISTED SHIELDED
EXST 2"	NEW 2-2/C #14 TWISTED SHIELDED
EXST 4-2"	SPARE

CONDUIT	CABLE
NEW 2"	2-2/C #14 & #8 GND
NEW 2"	SPARE

CONDUIT	CABLE
EXST 2"	NEW 3-4/C #14 & #8 GND
EXST 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
	NEW 2-2/C #14 & #8 GND
EXST 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE

CONDUIT	CABLE
EXST 4"	SPARE
EXST 2"	EXST 72-STRAND F.O. CABLE 1
EXST 2"	EXST 12 PAIR #20 INTERCONNECT

CONDUIT	CABLE
EXST 2"	NEW 2-2/C #14 TWISTED SHIELDED

NOTE(S):

1. SEE CCTV RECONNECTION PLAN SHEET E-15.
2. BACKPLATES TO BE INSTALLED ON ALL SIGNAL HEADS ATTACHED TO MAST ARMS. SEE DETAIL D/E-10.
3. CONTRACTOR TO EXPOSE EXST STUB OUT AND ROUTE CONDUIT TO NEW TRAFFIC SIGNAL PULLBOX.
4. CONTRACTOR TO EXPOSE EXST STUB OUT AND ROUTE CONDUIT TO NEW TRAFFIC SIGNAL STANDARD.
5. CONDUIT AND CABLE FILL CALL OUTS ARE ONLY FOR TRAFFIC SIGNAL CONDUITS AND DO NOT INCLUDE CONDITIONS OF EXST STREET LIGHT CONDUITS.
6.

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 W/ #8 GND
EXST 2"	NEW 1-2/C #14 W/ #8 GND
EXST 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
	NEW 2-2/C #14 & #8 GND
EXST 2"	NEW 2-72 STRAND F.O. CABLE 1
EXST 2"	NEW 12 PAIR #20 INTERCONNECT
EXST 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE

7.

CONDUIT	CABLE
EXST 2"	NEW 1-2/C #14 W/ #8 GND
EXST 2"	NEW 1-2/C #14 W/ #8 GND
EXST 2"	NEW 1-3/C #20 W/ DRN
	OPTICAL PRE-EMPTION
	NEW 4-2/C #14 & #8 GND
EXST 2"	NEW 2-72 STRAND F.O. CABLE 1
EXST 2"	NEW 12 PAIR #20 INTERCONNECT
EXST 2"	NEW 1-VIDEO COAXIAL
	NEW 1-2/C #18 CCTV CONTROL
	NEW CAMERA POWER CABLE
	NEW 3-4/C #14 TWISTED SHIELDED

8. RELOCATE EXST. TRAFFIC SIGNAL BOX TO NEW LOCATION OUTSIDE OF WHEEL CHAIR RAMP. EXTEND DUCTLINES TO NEW TRAFFIC SIGNAL BOX LOCATION.

NORTH

TRAFFIC SIGNAL PLAN I

SCALE: 1"=20'

(LED)	(LED)	(LED)	SIGNAL INDICATION
12" RYG TRAFFIC SIGNAL HEAD	12" RYG (LEFT ARROW) TRAFFIC SIGNAL HEAD	PEDESTRIAN SIGNAL HEAD	DESCRIPTION
A-1 H-1 A-2 D-2 F-1 F-2 F-3 G-3	A-3 B-1 C-3* I-1* I-2*	C-1 D-1 D-3 E-1 F-4 G-1	POLE LETTER-SIGNAL HEAD NUMBER

* INDICATES PROGRAMMED VISIBILITY SIGNAL HEAD (NON-LED)

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

HO'OPILI DEVELOPMENT

TRAFFIC SIGNAL IMPROVEMENTS AT THE INTERSECTION OF KUALAKAI PARKWAY AND KEAHUMOA PARKWAY

HONOULIULI, EWA, OAHU, HAWAII

Ronald N.S. Ho & Associates, Inc.
Electrical Engineers
2153 North King Street, Suite 201
Honolulu, Hawaii 96819

GEORGE D. TAKASE LICENSED PROFESSIONAL ENGINEER No. 15741-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/18 EXP. DATE

REVISION	DATE	BY	APPROVED

~~APPROVED BY~~

~~CHIEF, MECHANICAL/ELECTRICAL DIVISION~~ ~~DATE~~
~~DEPT. OF DESIGN AND CONSTRUCTION~~
~~CITY & COUNTY OF HONOLULU~~

~~CHIEF, TRAFFIC REVIEW BRANCH~~ ~~DATE~~
~~DEPT. OF PLANNING AND PERMITTING~~
~~CITY & COUNTY OF HONOLULU~~

~~CHIEF, TRAFFIC SIGNAL AND TECHNOLOGY~~ ~~DATE~~
~~DEPT. OF TRANSPORTATION SERVICES~~
~~CITY & COUNTY OF HONOLULU~~

ENGINEER	RTS
DRAFTSMAN	CAD
CHECKED BY	GDT
SCALE	AS SHOWN
DATE	AUGUST 1, 2016
FILENAME	2016/CP-___

TRAFFIC SIGNAL PLAN I

FILE	PROJECT	FOLDER	NO.

RMTC JOB NO.: 1-22522-DE