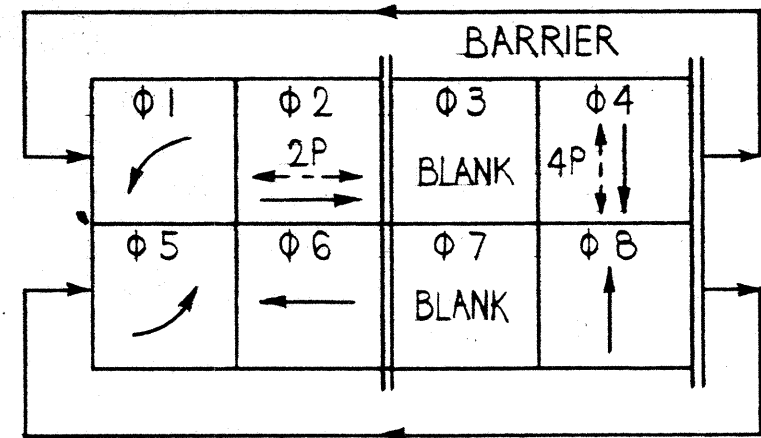
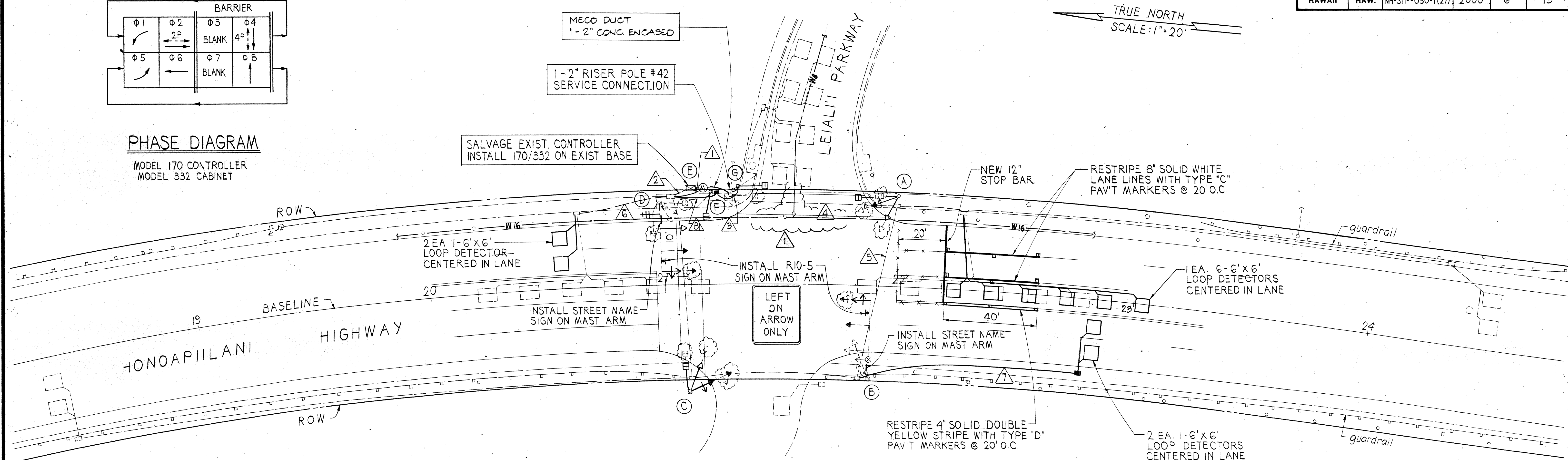


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	6	19



PHASE DIAGRAM

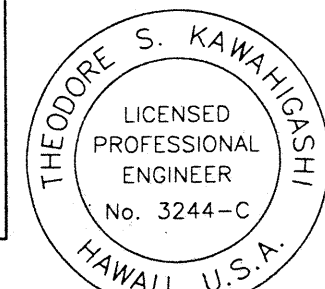
MODEL 170 CONTROLLER
MODEL 332 CABINET



STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEADS & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	I	EXISTING	II IV	R+Y+← R+Y+G PED. HEAD	R+Y+G+← R+Y+G PED. HEAD
(B)	II	EXISTING	VI	R+Y+← (PVH) R10-5 SIGN	R+Y+G+←
(C)	I	EXISTING	II IV	R+Y+← R+Y+G PED. HEAD	R+Y+G+← R+Y+G PED. HEAD
(D)	II	EXISTING	VI VI SSR	R+Y+← (PVH) R+Y+G R10-5 SIGN SSR	R+Y+G+← PED. HEAD (TWO WAY)
(E)	1-MODEL 170/332 CONTROLLER ASSEMBLY ON EXISTING BASE				
(F)	I	NEW	I	PED. HEAD, PPB (L)	
(G)	I	NEW	I	PED. HEAD, PPB (R)	

CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLES	
			NEW	EXISTING
1	1-2"	NEW	1-TYPE 6	
2	6-2"	EXISTING	1-TYPE 6, 4-TYPE 2 1-TYPE 9	
3	1-2"	NEW	1-TYPE 2, 1-TYPE 5	
4	2-2"	EXISTING	2-TYPE 2	
5	2-2"	EXISTING	2-TYPE 2	
6	1-2"	EXISTING	2-TYPE 2	
7	1-2"	NEW	2-TYPE 2	
8	1-2"	NEW	2-TYPE 2, 2-TYPE 5	

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	2	EA
623.2001	CONTROLLER ASSEMBLY (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2007	TYPE I TRAFFIC SIGNAL STANDARD, H=8 FEET	2	EA
623.2031	FOUNDATION FOR TYPE I SIGNAL STANDARD	2	EA
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL, WITH TYPE II MOUNTING)	2	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	1	EA
623.3062	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD WITH TYPE VI MOUNTING)	2	EA
623.4001	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH SLIPFITTER)	2	EA
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	2	EA
623.4015	SPREAD SPECTRUM RADIO (SSR) UNIT WITH ANTENNA AND MOUNTING BRACKET	1	EA
623.4040	PEDESTRIAN PUSH BUTTON WITH INSTRUCTIONS	2	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	125	LIN FT
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENCASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	10	LIN FT
623.6001	TYPE A PULLBOX	2	EA
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	860	LIN FT
623.7005	TYPE 5, NO. 14, 4-CONDUCTOR SIGNAL DROP CABLE	75	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	75	LIN FT
623.7009	TYPE 9, SPREAD SPECTRUM RADIO CABLE	20	LIN FT
623.7041	LOOP DETECTOR SENSING UNIT (6FT X 6FT) ONE LOOP	4	EA
623.7046	LOOP DETECTOR SENSING UNIT (6FT X 6FT) SIX LOOPS	1	EA
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA
629.1012	DOUBLE 4-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	40	LIN FT
629.1013	8-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	80	LIN FT
629.1014	12-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	35	LIN FT
629.1052	REMOVAL OF PAVEMENT STRIPING	100	LIN FT
629.2030	TYPE "C" PAVEMENT MARKERS	6	EA
629.2040	TYPE "D" PAVEMENT MARKERS	3	EA



REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
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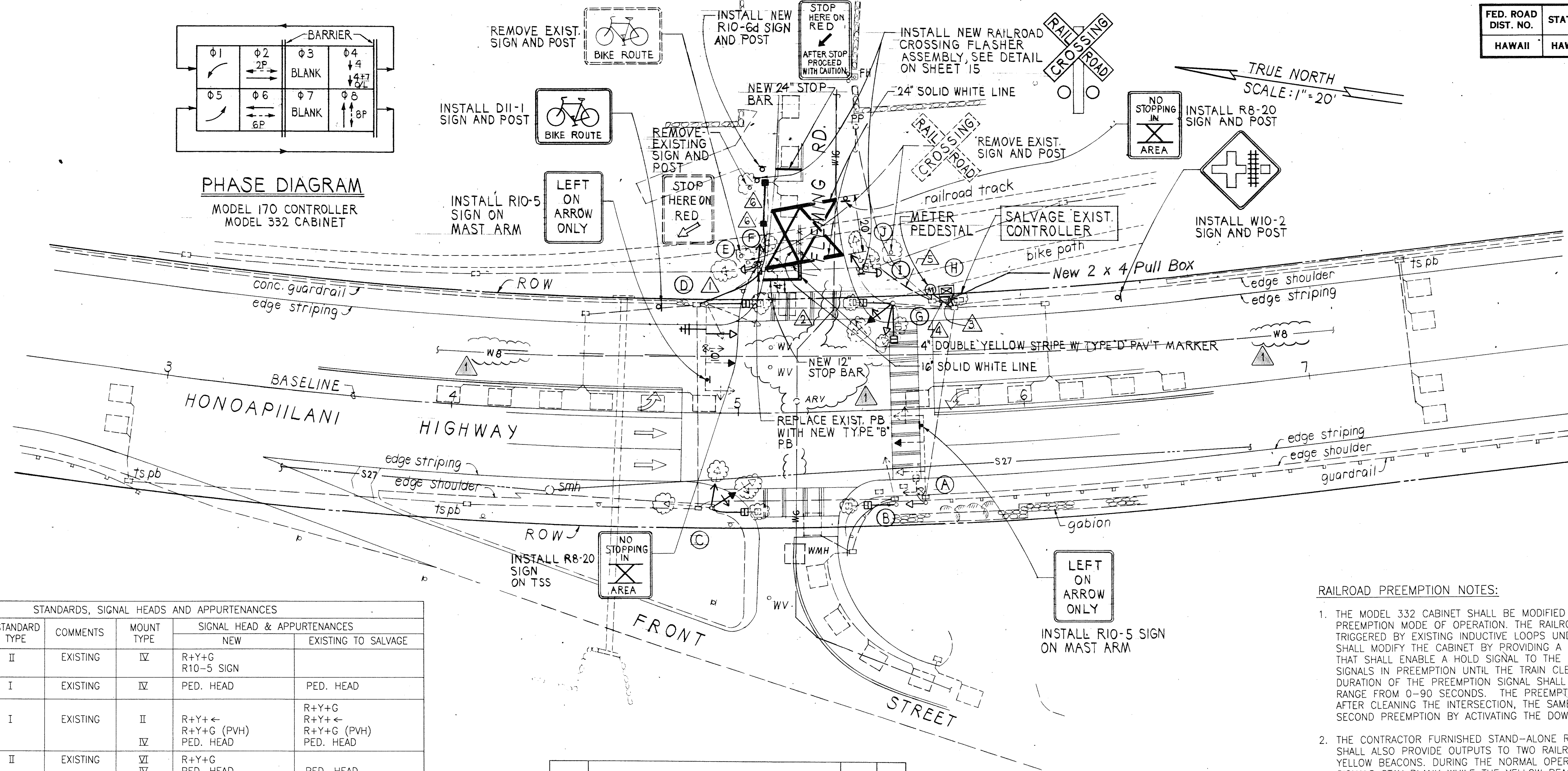
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT LEIALII PARKWAY
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)

SCALE: AS NOTED
DATE: MAY 1999
SHEET NO. 1 OF 1 SHEETS

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

THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Signature

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	7	19



RAILROAD PREEMPTION NOTES:

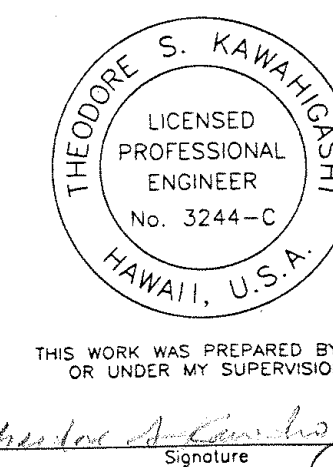
1. THE MODEL 332 CABINET SHALL BE MODIFIED TO INCORPORATE A RAILROAD PREEMPTION MODE OF OPERATION. THE RAILROAD PREEMPTION SHALL BE TRIGGERED BY EXISTING INDUCTIVE LOOPS UNDER THE TRACK. THE CONTRACTOR SHALL MODIFY THE CABINET BY PROVIDING A STAND-ALONE PREEMPTION MODULE THAT SHALL ENABLE A HOLD SIGNAL TO THE MODEL 170 TO KEEP THE TRAFFIC SIGNALS IN PREEMPTION UNTIL THE TRAIN CLEARS THE INTERSECTION. THE DURATION OF THE PREEMPTION SIGNAL SHALL BE USER SELECTABLE AND SHALL RANGE FROM 0-90 SECONDS. THE PREEMPTION MODULE SHALL ENSURE THAT AFTER CLEANING THE INTERSECTION, THE SAME TRAIN DOES NOT CAUSE A SECOND PREEMPTION BY ACTIVATING THE DOWNSTREAM LOOPS.
2. THE CONTRACTOR FURNISHED STAND-ALONE RAILROAD PREEMPTION MODULE SHALL ALSO PROVIDE OUTPUTS TO TWO RAILROAD CROSSING SIGNALS AND TWO YELLOW BEACONS. DURING THE NORMAL OPERATION, THE RAILROAD CROSSING SIGNALS STAY BLANK WHILE THE YELLOW BEACONS SHALL DISPLAY A STEADY AMBER. AS A RAILROAD PREEMPTION IS INITIATED, THE RAILROAD CROSSING SIGNALS SHALL DISPLAY A FLASHING RED AND THE YELLOW BEACONS SHALL SWITCH TO FLASHING AMBER. THE FLASHING OPERATION SHALL BE MAINTAINED DURING THE ENTIRE PREEMPTION CYCLE.
3. AT THE CONCLUSION OF THE PREEMPTION, THE RAILROAD CROSSING SIGNALS AND YELLOW BEACONS SHALL REVERT TO THEIR NORMAL OPERATION.

STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEAD & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	II	EXISTING	IV	R+Y+G R10-5 SIGN	
(B)	I	EXISTING	IV	PED. HEAD	PED. HEAD
(C)	I	EXISTING	II	R+Y+G R+Y+G (PVH) PED. HEAD	R+Y+G R+Y+G (PVH) PED. HEAD
(D)	II	EXISTING	VI IV SSR	R+Y+G PED. HEAD R10-5 SIGN SSR	PED. HEAD
(E)		SALVAGE			R+Y+G, Y
(F)	I	NEW	II	R+Y+G (PVH), Y	
(G)	I	EXISTING	II IV IV	R+Y+G R+Y+G PED. HEAD PED. HEAD	R+Y+G R+Y+G PED. HEAD (TWO WAY)
(H)	1-MODEL 170/332 CONTROLLER ASSEMBLY ON NEW BASE				
(I)	I	RAILROAD CROSSING FLASHING ASSEMBLY	IV IV	R+Y+G (PVH) Y	
(J)	I	SALVAGE			R+Y+G, Y

CONDUIT AND CABLE SCHEDULE					
DESIGNATION	PVC CONDUITS		CABLE		
			NEW	EXISTING	
1	1-2"	NEW	2-TYPE 5		
2	3-2"	EXISTING	2-TYPE 2, 1-TYPE 9		
3	9-2"	NEW	2-TYPE 1, 15-TYPE 2 4-TYPE 5, 1-TYPE 6 1-TYPE 9	1-TYPE 3, 1-GROUND WIRE	
4	1-2"	NEW	1-TYPE 6		
5	2-2"	EXISTING	2-TYPE 5		
6	1-2"	NEW	1-TYPE 5		

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	3	
621.5100	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS) WITH POST	2	
621.5300	REGULATORY AND WARNING SIGN (GREATER THAN 10 SQ. FT.) WITH POST	1	
621.8100	BIKE ROUTE SIGN (10 SQ. FT. OR LESS) WITH POST	1	
623.2003	CONTROLLER ASSEMBLY WITH RAILROAD PREEMPTION MODULE (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2010	TYPE I TRAFFIC SIGNAL STANDARD, H=10 FEET	1	EA
623.2031	FOUNDATION FOR TYPE I SIGNAL STANDARD	1	EA
623.2051	FOUNDATION FOR CONTROLLER CABINET	1	EA
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL, WITH TYPE II MOUNTING)	1	EA
623.3023	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 1-3 SECTION VERTICAL AND 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD, WITH TYPE II MOUNTING)	1	EA
623.3024	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD AND 1-1 SECTION VERTICAL, WITH TYPE II MOUNTING)	1	EA
623.3041	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IV MOUNTING)	1	EA
623.3042	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-1 SECTION VERTICAL WITH TYPE IV MOUNTING)	1	EA
623.3043	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD, WITH TYPE IV MOUNTING)	1	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	1	EA
623.3120	RAILROAD CROSSING FLASHING SIGNAL ASSEMBLY	2	EA
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	5	EA

623.4015	SPREAD SPECTRUM RADIO (SSR) UNIT WITH ANTENNA AND MOUNTING BRACKET	1	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	75	LIN FT
623.5009	TRAFFIC SIGNAL DUCTLINE, NINE 2-INCH CONDUIT	10	LIN FT
623.6001	TYPE A PULLBOX	2	EA
623.6011	TYPE B PULLBOX	1	EA
623.7001	TYPE 1, NO. 14, 26-CONDUCTOR TRAFFIC CONTROL CABLE	50	LIN FT
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	450	LIN FT
623.7005	TYPE 5, NO. 14, 4-CONDUCTOR SIGNAL DROP CABLE	250	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	50	LIN FT
623.7009	TYPE 9, SPREAD SPECTRUM RADIO CABLE	125	LIN FT
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA
629.1012	DOUBLE 4-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	5	LIN FT
629.1014	12-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	15	LIN FT
629.1015	16-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	100	LIN FT
629.1016	24-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	75	LIN FT
629.1052	REMOVAL OF PAVEMENT STRIPING	30	LIN FT
629.2040	TYPE "D" PAVEMENT MARKERS	1	EA



REVISION	DATE	DESCRIPTION	MADE BY	APPROVED
3-5-01		ADDED EXIST. UTILITY LINES	ATA	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT FLEMING RD.
HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION,
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)
SCALE: AS NOTED DATE: MAY 1999
SHEET No. 1 OF 1 SHEETS

"AS-BUILT"

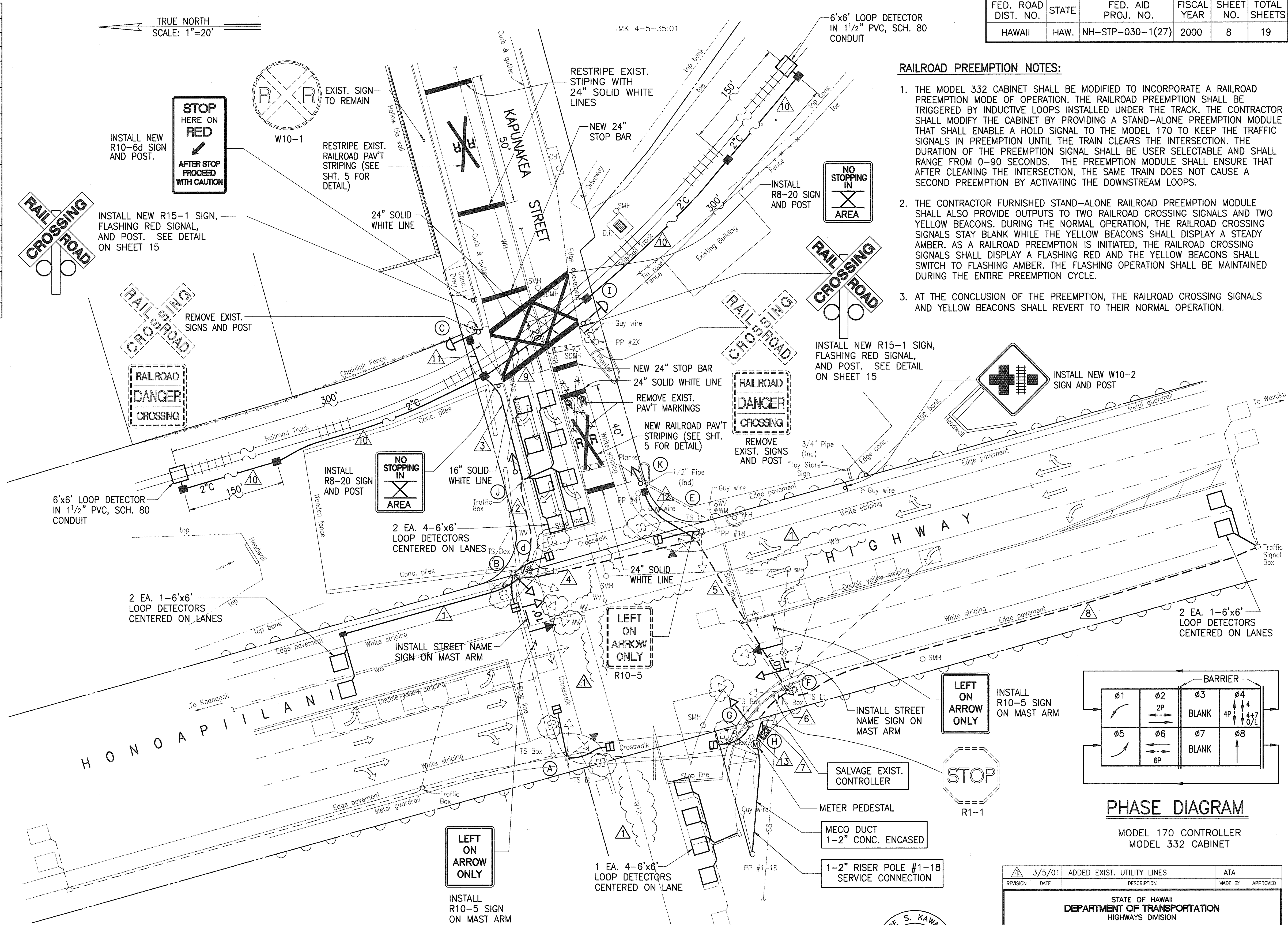
CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLE	
			NEW	EXISTING
1	1-2"	NEW	2-TYPE 2	
2	1-2"	EXISTING	3-TYPE 2 3-TYPE 5	
3	1-2"	NEW	2-TYPE 2 2-TYPE 5	
4	2-2"	EXISTING	5-TYPE 2 3-TYPE 5	
5	3-2"	EXISTING	5-TYPE 2 3-TYPE 5	
6	4-2"	EXISTING	7-TYPE 2 3-TYPE 5	
7	7-2"	NEW	7-TYPE 2 3-TYPE 5	2-TYPE 1, 9-TYPE 2, 1-TYPE 3, 1-TYPE 6, 2-TYPE 7, 1-GROUND WIRE
8	1-2"	EXISTING	2-TYPE 2	
9	1-2"	NEW	2-TYPE 5, 1-TYPE 2	
10	1-2"	NEW	1-TYPE 2	
11	1-2"	NEW	2-TYPE 5	
12	1-2"	NEW	1-TYPE 5	
13	1-2"	NEW	1-TYPE 6	

STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEAD & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	I	EXISTING	IV	PED. HEAD PED. HEAD	PED. HEAD (TWO WAY)
(B)	II	EXISTING	IV	R+Y+G R+Y+G R+Y+G PED. HEAD R10-5 SIGN	R+Y+G PED. HEAD
(C)	I	RAILROAD CROSSING FLASHING ASSEMBLY	IV	Y	
(d)	I	SALVAGE			PED. HEAD PPB
(E)	I	EXISTING	IV	PED. HEAD	PED. HEAD
(F)	II	EXISTING	VI	R+Y+G R+Y+G R10-5 SIGN	R+Y+G
(G)	I	EXISTING	IA	R+Y+G PED. HEAD	R+Y+G PED. HEAD
(H)	1-MODEL 170/332 CONTROLLER ASSEMBLY ON NEW BASE				
(I)	I	RAILROAD CROSSING FLASHING ASSEMBLY	IV	Y	
(J)	I	NEW	IA	R+Y+G (PVH)	
(K)	I	NEW	IA	R+Y+G (PVH)	

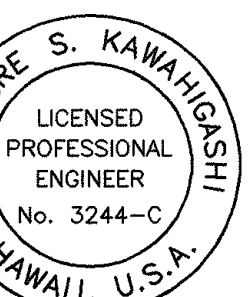
ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	2	EA
621.5100	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS) WITH POST	3	EA
621.5300	REGULATORY AND WARNING SIGN (GREATER THAN 10 SQ. FT.) WITH POST	1	EA
621.8000	STREET NAME SIGN ON TRAFFIC SIGNAL MAST ARM INCLUDING BRACKETS	2	EA
623.2003	CONTROLLER ASSEMBLY WITH RAILROAD PREEMPTION MODULE (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2010	TYPE I TRAFFIC SIGNAL STANDARD, H=10 FEET	2	EA
623.2031	FOUNDATION FOR TYPE I SIGNAL STANDARD	2	EA
623.2051	FOUNDATION FOR CONTROLLER CABINET	2	EA
623.3012	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IA MOUNTING)	1	EA
623.3013	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD WITH TYPE IA MOUNTING)	2	EA
623.3041	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IV MOUNTING)	1	EA
623.3042	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-1 SECTION VERTICAL WITH TYPE IV MOUNTING)	2	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	4	EA
623.3120	RAILROAD CROSSING FLASHING SIGNAL ASSEMBLY	2	EA
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	6	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	825	LIN FT

623.5007	TRAFFIC SIGNAL DUCTLINE, SEVEN 2-INCH CONDUIT	10	LIN FT
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENGASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	45	LIN FT
623.6001	TYPE A PULLBOX	9	EA
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	2625	LIN FT
623.7005	TYPE 5, NO. 14, 4-CONDUCTOR SIGNAL DROP CABLE	1100	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	25	LIN FT
623.7041	LOOP DETECTOR SENSING UNIT (6FT X 6FT) ONE LOOPS	4	EA
623.7044	LOOP DETECTOR SENSING UNIT (6FT X 6FT) FOUR LOOPS	3	EA

623.7047	LOOP DETECTOR SENSING UNIT (6FT X 6FT) ONE LOOP IN 1.5" PVC, SCH. 80 CONDUIT	2	EA
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA
629.1015	16-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	100	LIN FT
629.1016	24-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	175	LIN FT
629.1017	RAILROAD PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	2	EA
629.1052	REMOVAL OF PAVEMENT STRIPING	100	LIN FT



TRAFFIC SIGNAL PLAN
SCALE: 1"=20'

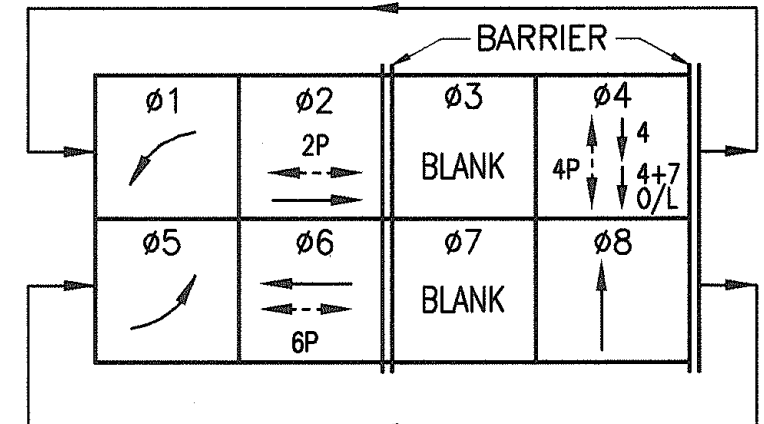


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
Theodore S. Kawahigashi
Signature

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	8	19

RAILROAD PREEMPTION NOTES:

1. THE MODEL 332 CABINET SHALL BE MODIFIED TO INCORPORATE A RAILROAD PREEMPTION MODE OF OPERATION. THE RAILROAD PREEMPTION SHALL BE TRIGGERED BY INDUCTIVE LOOPS INSTALLED UNDER THE TRACK. THE CONTRACTOR SHALL MODIFY THE CABINET BY PROVIDING A STAND-ALONE PREEMPTION MODULE THAT SHALL ENABLE A HOLD SIGNAL TO THE MODEL 170 TO KEEP THE TRAFFIC SIGNALS IN PREEMPTION UNTIL THE TRAIN CLEARS THE INTERSECTION. THE DURATION OF THE PREEMPTION SIGNAL SHALL BE USER SELECTABLE AND SHALL RANGE FROM 0-90 SECONDS. THE PREEMPTION MODULE SHALL ENSURE THAT AFTER CLEANING THE INTERSECTION, THE SAME TRAIN DOES NOT CAUSE A SECOND PREEMPTION BY ACTIVATING THE DOWNSTREAM LOOPS.
2. THE CONTRACTOR FURNISHED STAND-ALONE RAILROAD PREEMPTION MODULE SHALL ALSO PROVIDE OUTPUTS TO TWO RAILROAD CROSSING SIGNALS AND TWO YELLOW BEACONS. DURING THE NORMAL OPERATION, THE RAILROAD CROSSING SIGNALS STAY BLANK WHILE THE YELLOW BEACONS SHALL DISPLAY A STEADY AMBER. AS A RAILROAD PREEMPTION IS INITIATED, THE RAILROAD CROSSING SIGNALS SHALL DISPLAY A FLASHING RED AND THE YELLOW BEACONS SHALL SWITCH TO FLASHING AMBER. THE FLASHING OPERATION SHALL BE MAINTAINED DURING THE ENTIRE PREEMPTION CYCLE.
3. AT THE CONCLUSION OF THE PREEMPTION, THE RAILROAD CROSSING SIGNALS AND YELLOW BEACONS SHALL REVERT TO THEIR NORMAL OPERATION.



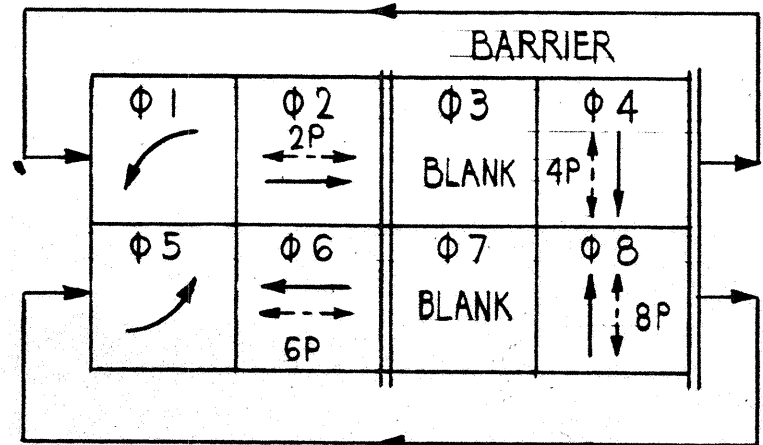
PHASE DIAGRAM

MODEL 170 CONTROLLER
MODEL 332 CABINET

REVISION	DATE	ADDED EXIST. UTILITY LINES	DESCRIPTION	ATA	APPROVED

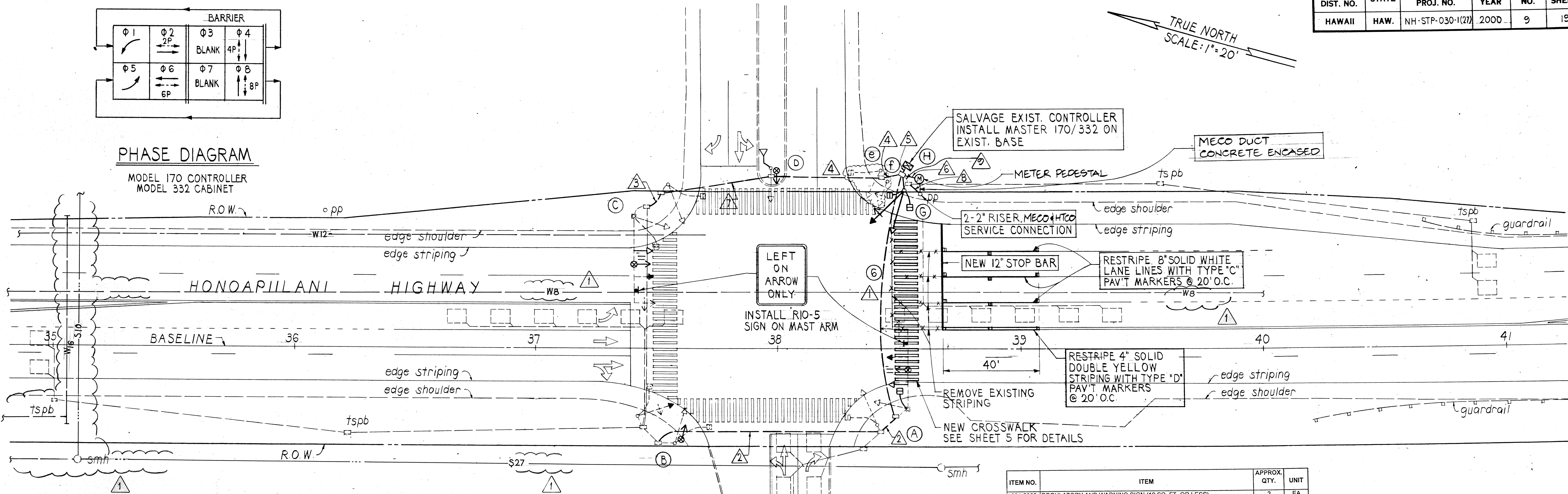
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT KAPUNAKEA ST.
HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION,
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)
SCALE: AS NOTED DATE: MAY 1999

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	9	19



PHASE DIAGRAM

MODEL 170 CONTROLLER
MODEL 332 CABINET



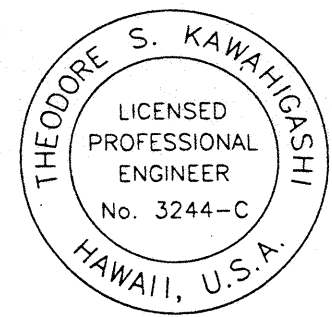
STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEADS & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	II	EXISTING	MA-EVP	R+Y+G PED. HEAD EVP PPB (L) RIO-5 SIGN	
(B)	I	EXISTING	TP-EVP	EVP	
(C)	II	EXISTING	MA-EVP	R+Y+G PED. HEAD EVP RIO-5 SIGN	
(D)	I	EXISTING	TP-EVP	EVP MICROWAVE SENSOR	
(E)	I	SALVAGE			R+Y+G PED. HEAD
(F)	I	SALVAGE			R+Y+G PPB
(G)	I	NEW	II	R+Y+G PED. HEAD PED. HEAD PPB (L) PPB (R)	
(H)	I-MODEL 170/332 MASTER CONTROLLER ASSEMBLY ON EXIST. BASE				

LAHAINA CANNERY MALL

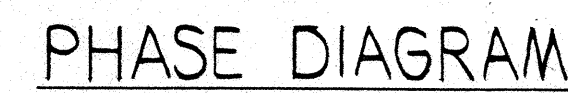
CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLES	
			NEW	EXISTING
1	2-2"	EXISTING	2-TYPE 7	
2	2-2"	EXISTING	1-TYPE 7	
3	1-2"	EXISTING SPARE	1-TYPE 7	
4	1-2"	EXISTING SPARE	2-TYPE 7, 1-TYPE 11	
5	1-2"	EXISTING SPARE	4-TYPE 7, 1-TYPE 11	
6	1-2"	NEW	1-TYPE 6	
7	1-2"	EXISTING SPARE	1-TYPE 7	
8	1-2"	NEW	1-TYPE 10	
9	1-2"	EXISTING	1-TYPE 10	

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	2	EA
623.2002	MASTER CONTROLLER ASSEMBLY (TWO MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, ONE TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2010	TYPE I TRAFFIC SIGNAL STANDARD, H=10 FEET	1	EA
623.2031	FOUNDATION FOR TYPE I SIGNAL STANDARD	1	EA
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL WITH TYPE II MOUNTING)	1	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	2	EA
623.3110	MICROWAVE SENSOR	1	EA
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	3	EA
623.4010	EVP DETECTOR WITH MAST ARM MOUNTING	2	EA
623.4011	EVP DETECTOR WITH POST-TOP MOUNTING	2	EA
623.4040	PEDESTRIAN PUSH BUTTON WITH INSTRUCTIONS	3	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	25	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	25	LIN FT
623.7007	TYPE 7, EVP CABLE	600	LIN FT
623.7010	TYPE 10, TELEPHONE CABLE	25	LIN FT
623.7011	TYPE 11, MICROWAVE SENSOR CABLE	75	LIN FT
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDestal AND ELECTRICAL SERVICE	1	EA
629.1012	DOUBLE 4-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	40	LIN FT
629.1013	8-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	120	LIN FT
629.1014	12-INCH PAVEMENT STRIPING (THERMOPLASTIC EXTRUSION)	45	LIN FT
629.1020	CROSSWALK MARKING (THERMOPLASTIC EXTRUSION)	6	LANE
629.1052	REMOVAL OF PAVEMENT STRIPING	150	LIN FT
629.2030	TYPE "C" PAVEMENT MARKERS	9	EA
629.2040	TYPE "D" PAVEMENT MARKERS	3	EA

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT LAHAINA CANNERY MALL
HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)
SCALE: AS NOTED
DATE: MAY 1999
SHEET No. 1 OF 1 SHEETS



MODEL 170 CONTROLLER
MODEL 332 CABINET

LIMITS OF GRADING

INSTALL MODIFIED CURB —
RAMP TYPE "E" SEE DETAIL
ON SHEET 17.

1- 2" RISER
SERVICE CONNECTION

MECO DUCT
CONCRETE ENCASED

SALVAGE EXIST. CONTROLLER
INSTALL 170/332 ON EXIST. BASE

— METER
PEDESTAL

INSTALL STREET NAME
SIGN ON MAST ARM

1 ADDED EXIST.
UTILITY LINE

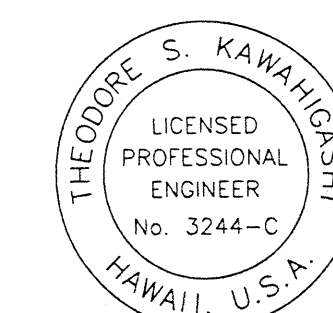
LEFT
ON
ARROW
ONLY

INSTALL RIO-5
SIGN ON MAST ARM

CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLES	
			NEW	EXISTING
①	1-2"	EXISTING	2-TYPE 7	
②	1-2"	EXISTING	1-TYPE 7	
③	1-2"	NEW	2-TYPE 2, 2-TYPE 5	
④	2-2"	EXISTING	1-TYPE 7	
⑤	1-2"	NEW	1-TYPE 6	
⑥	3-2"	EXISTING	1-TYPE 6, 3-TYPE 7	

623.4010	EVP DETECTOR WITH MAST ARM MOUNTING	2	EA
623.4011	EVP DETECTOR WITH POST-TOP MOUNTING	1	EA
623.4040	PEDESTRIAN PUSH BUTTON WITH INSTRUCTIONS	1	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	25	LIN FT
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENCASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	25	LIN. FT
623.6001	TYPE A PULLBOX	1	EA
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	50	LIN FT
623.7005	TYPE 5, NO. 14, 4-CONDUCTOR SIGNAL DROP CABLE	50	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	50	LIN FT
623.7007	TYPE 7, EVP CABLE	375	LIN FT
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA
650.0030	CURB RAMP, MODIFIED TYPE E	1	EA

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



THIS WORK WAS PREPARED BY M
OR UNDER MY SUPERVISION

Shendree A. Kawahiga
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT HINAU ST.

HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION,

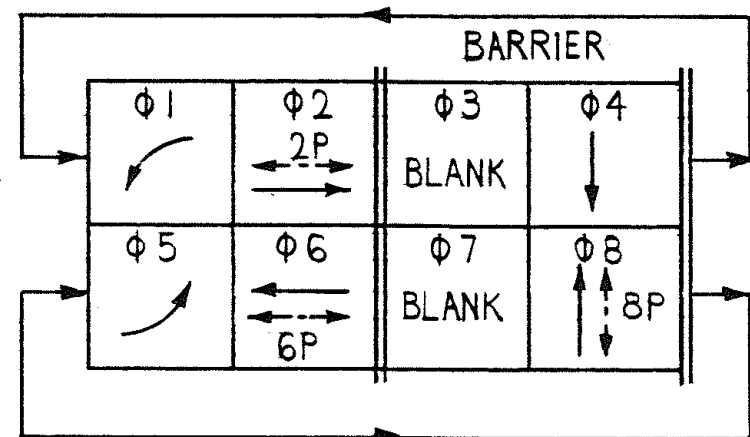
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)

SCALE: AS NOTED DATE: MAY 1999

SHEET No. | OF | SHEETS

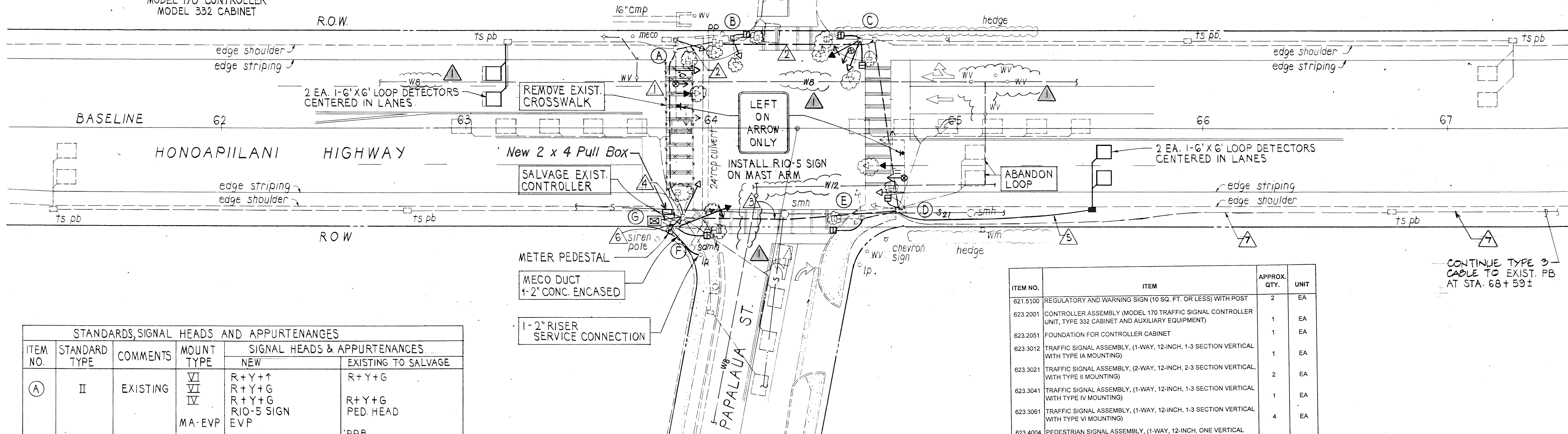
	3/5/01	ADDED EXIST. UTILITY LINES	ATA	
REVISION	DATE	DESCRIPTION	MADE BY	APPROV

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	11	19



PHASE DIAGRAM

MODEL 170 CONTROLLER
MODEL 332 CABINET

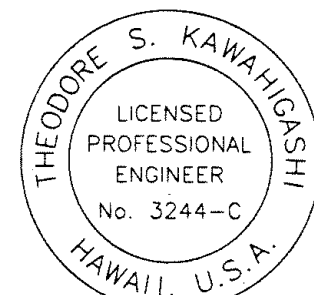


STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEADS & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	II	EXISTING	VI IV MA-EVP	R+Y+ R+Y+G R+Y+G RIO-5 SIGN EVP	R+Y+G R+Y+G PED. HEAD PPB
(B)	I	EXISTING	IA IV	R+Y+G PED. HEAD	R+Y+G PED. HEAD
(C)	I	EXISTING	II IV TP-EVP	R+Y+ R+Y+G PED. HEAD PED. HEAD EVP	R+Y+ R+Y+G PED. HEAD (TWO WAY)
(D)	II	EXISTING	VI IV MA-EPV	R+Y+ R+Y+G PED. HEAD EVP RIO-5 SIGN	R+Y+G PED. HEAD
(E)	I	EXISTING	IV	PED. HEAD	PED. HEAD
(F)	I	EXISTING	II IV	R+Y+ R+Y+G PED. HEAD	R+Y+ R+Y+G PED. HEAD (TWO WAY)
(G)	1-MODEL 170/332 CONTROLLER ASSEMBLY ON NEW BASE.				

CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS	CABLES		
		NEW	EXISTING	
1	3-2"	EXISTING	2-TYPE 7, 2-TYPE 2	
2	2-2"	EXISTING	1-TYPE 7	
3	4-2"	EXISTING	1-TYPE 7, 2-TYPE 2 1-TYPE 3	
4	7-2"	NEW	1-TYPE 1, 16-TYPE 2 1-TYPE 3, 1-TYPE 6 4-TYPE 7	1-TYPE 3, 1-GROUND WIRE
5	1-2"	NEW	2-TYPE 2	
6	1-2"	NEW	1-TYPE 6	
7	1-2"	EXISTING	1-TYPE 3	

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5100	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS) WITH POST	2	EA
623.2001	CONTROLLER ASSEMBLY (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2051	FOUNDATION FOR CONTROLLER CABINET	1	EA
623.3012	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IA MOUNTING)	1	EA
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL WITH TYPE II MOUNTING)	2	EA
623.3041	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IV MOUNTING)	1	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	4	EA
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	6	EA
623.4010	EVP DETECTOR WITH MAST ARM MOUNTING	2	EA
623.4011	EVP DETECTOR WITH POST-TOP MOUNTING	1	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	100	LIN FT
623.5007	TRAFFIC SIGNAL DUCTLINE, SEVEN 2-INCH CONDUIT	25	LIN FT
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENCASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	25	LIN FT
623.6001	TYPE A PULLBOX	1	EA
623.7001	TYPE 1, NO. 14, 26-CONDUCTOR TRAFFIC CONTROL CABLE	25	LIN FT
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	900	LIN FT
623.7003	TYPE 3, NO. 19, 24-CONDUCTOR INTER-CONNECT CABLE	525	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	50	LIN FT
623.7007	TYPE 7, EVP CABLE	450	LIN FT
623.7041	LOOP DETECTOR SENSING UNIT (6FT X 6FT) ONE LOOP	4	EA
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA
629.1053	REMOVAL OF CROSSWALK MARKINGS (18 LANES)	5	LANE

3-5-01	ADDED EXIST. UTILITY LINES	ATA
REVISION	DATE	DESCRIPTION



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	
HONOAPIILANI HWY. AT PAPALAU ST.	
HONOAPIILANI HIGHWAY TRAFFIC SIGNAL MODERNIZATION, KAANAPALI TOWARDS LAHAINA	
FED. AID PROJECT NO. NH-STP-030-1(27)	
SCALE: AS NOTED	DATE: MAY 1999
SHEET NO. 1 OF 1 SHEETS	

"AS-BUILT"

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	4	EA
621.8000	STREET NAME SIGN ON TRAFFIC SIGNAL MAST ARM INCLUDING BRACKETS	1	EA
623.1001	REMOVE EXISTING TRAFFIC SIGNAL INTERSECTION (1 INTERSECTION)	1	EA
623.2001	CONTROLLER ASSEMBLY (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	EA
623.2007	TYPE I TRAFFIC SIGNAL STANDARD, H=8 FEET	1	EA
623.2010	TYPE I TRAFFIC SIGNAL STANDARD, H=10 FEET	3	EA
623.2022	TYPE II TRAFFIC SIGNAL STANDARD WITH 28 FOOT MAST ARM	1	EA
623.2023	TYPE II TRAFFIC SIGNAL STANDARD WITH 30 FOOT MAST ARM (ON MODIFIED FOUNDATION)	1	EA
623.2024	TYPE II TRAFFIC SIGNAL STANDARD WITH 40 FOOT MAST ARM	1	EA
623.2031	FOUNDATION FOR TYPE I SIGNAL STANDARD	4	EA
623.2041	FOUNDATION FOR TYPE II SIGNAL STANDARD	2	EA
623.2042	MODIFIED FOUNDATION FOR TYPE II SIGNAL STANDARD	1	EA
623.2051	FOUNDATION FOR CONTROLLER CABINET	1	EA
623.3011	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-4 SECTION FIBER OPTIC VERTICAL, WITH TYPE IA MOUNTING)	1	EA
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL, WITH TYPE II MOUNTING)	1	EA
623.3022	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 1-3 SECTION VERTICAL AND 1-4 SECTION FIBER OPTIC VERTICAL WITH TYPE II MOUNTING)	1	EA
623.3041	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IV MOUNTING)	4	EA
623.3061	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE VI MOUNTING)	6	EA
623.3062	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD WITH TYPE VI MOUNTING)	1	EA
623.3063	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-4 SECTION FIBER OPTIC VERTICAL WITH TYPE VI MOUNTING)	2	EA
623.4001	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH SUPPLIFITTER)	1	EA

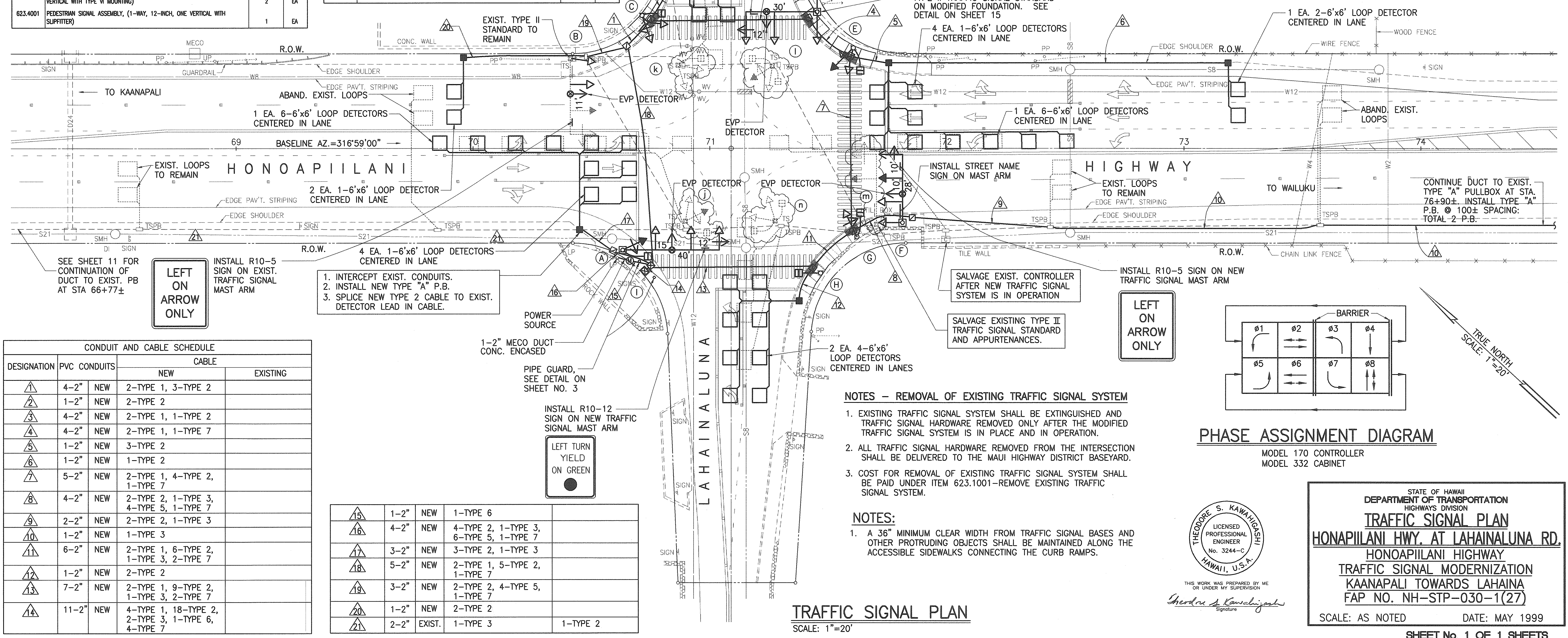
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	5	EA
623.4010	EVP DETECTOR WITH MAST ARM MOUNTING	4	EA
623.4040	PEDESTRIAN PUSH BUTTON WITH INSTRUCTIONS	6	EA
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	700	LIN FT
623.5002	TRAFFIC SIGNAL DUCTLINE, TWO 2-INCH CONDUIT	60	LIN FT
623.5003	TRAFFIC SIGNAL DUCTLINE, THREE 2-INCH CONDUIT	40	LIN FT
623.5004	TRAFFIC SIGNAL DUCTLINE, FOUR 2-INCH CONDUIT	90	LIN FT
623.5005	TRAFFIC SIGNAL DUCTLINE, FIVE 2-INCH CONDUIT	170	LIN FT
623.5006	TRAFFIC SIGNAL DUCTLINE, SIX 2-INCH CONDUIT	25	LIN FT
623.5007	TRAFFIC SIGNAL DUCTLINE, SEVEN 2-INCH CONDUIT	70	LIN FT
623.5011	TRAFFIC SIGNAL DUCTLINE, ELEVEN 2-INCH CONDUIT	10	LIN FT
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENCASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	5	LIN FT
623.6001	TYPE A PULLBOX	8	EA
623.6011	TYPE B PULLBOX	8	EA
623.6021	TYPE C PULLBOX	1	EA
623.7001	TYPE 1, NO. 14, 26-CONDUCTOR TRAFFIC CONTROL CABLE	930	LIN FT
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	3100	LIN FT
623.7003	TYPE 3, NO. 19, 24-CONDUCTOR INTER-CONNECT CABLE	1000	LIN FT
623.7005	TYPE 5, NO. 14, 4-CONDUCTOR SIGNAL DROP CABLE	425	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	40	LIN FT
623.7007	TYPE 7, EVP CABLE	600	LIN FT
623.7041	LOOP DETECTOR SENSING UNIT (8FT X 6FT) ONE LOOP	12	EA
623.7044	LOOP DETECTOR SENSING UNIT (8FT X 6FT) FOUR LOOPS	4	EA
623.7046	LOOP DETECTOR SENSING UNIT (8FT X 6FT) SIX LOOPS	2	EA
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA

STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEAD & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	II	NEW	IV VI VI VI MA-EVP IV	R+Y+G+ R+Y+G+ R+Y+G+ R+Y+G+ EVP PED HEAD PPB (L)	
(B)	II	EXISTING	IV VI VI MA-EVP	R+Y+G R+Y+G R+Y+G EVP	
(C)	I	NEW	II IV	R+Y+G+ R+Y+G+ PED HEAD PPB (L)	
(D)	II	NEW	IV VI VI MA-EVP IV	R+Y+G R+Y+G+ R+Y+G+ EVP PED HEAD PPB (L)	
(E)	I	NEW	II IV	R+Y+G+ R+Y+G+ PED HEAD PPB (L)	
(F)	II	NEW	IV VI VI VI MA-EVP	R+Y+G R+Y+G+ R+Y+G+ R+Y+G+ EVP	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	12	19

(G)	I	NEW	IA IV	R+Y+G+ R+Y+G+ PED HEAD PPB (L)	
(H)	I-8	NEW	I	PED HEAD PPB (L)	
(I)	I MODEL 170/332 CONTROLLER ASSEMBLY ON NEW BASE				
(j)	I	SALVAGE			R+Y+G R+Y+G PED HEAD
(k)	I	SALVAGE			R+Y+G R+Y+G PED HEAD
(l)	I	SALVAGE			R+Y+G R+Y+G PED HEAD (2)
(m)	II	SALVAGE			R+Y+G (PVH) R+Y+G
(n)	I	SALVAGE			R+Y+G R+Y+G PED HEAD (2)

* - FIBER OPTIC SIGNAL HEAD

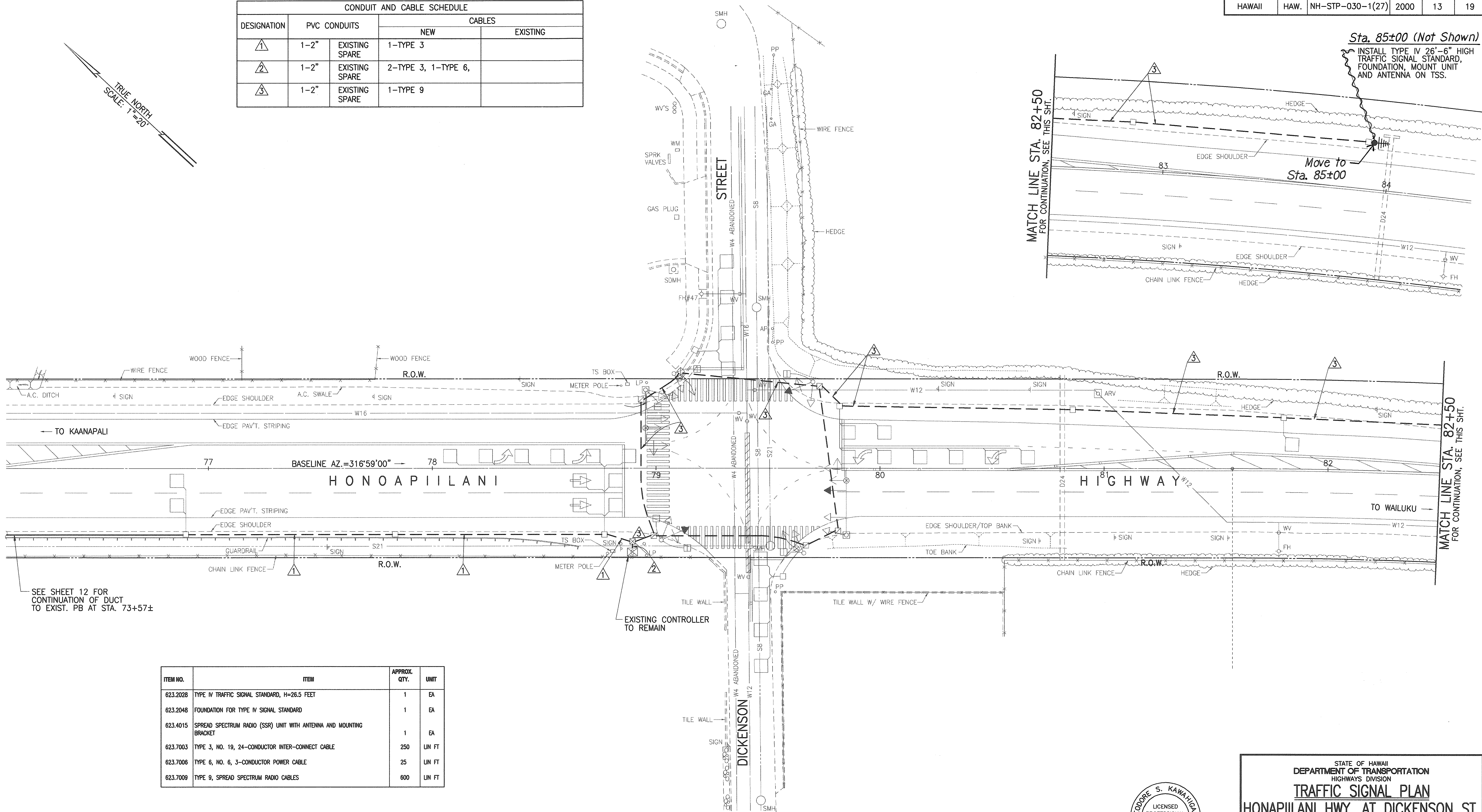
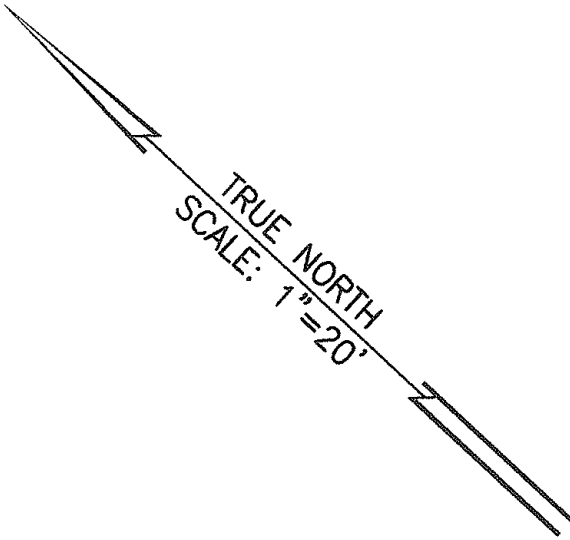


TRAFFIC SIGNAL PLAN
SCALE: 1"=20'

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-030-1(27)	2000	13	19

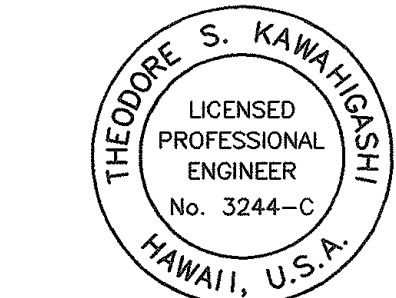
CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLES	
			NEW	EXISTING
▲	1-2"	EXISTING SPARE	1-TYPE 3	
▲	1-2"	EXISTING SPARE	2-TYPE 3, 1-TYPE 6,	
▲	1-2"	EXISTING SPARE	1-TYPE 9	



SEE SHEET 12 FOR CONTINUATION OF DUCT TO EXIST. PB AT STA. 73+57±

ITEM NO.	ITEM	APPROX. QTY.	UNIT
623.2028	TYPE IV TRAFFIC SIGNAL STANDARD, H=26.5 FEET	1	EA
623.2048	FOUNDATION FOR TYPE IV SIGNAL STANDARD	1	EA
623.4015	SPREAD SPECTRUM RADIO (SSR) UNIT WITH ANTENNA AND MOUNTING BRACKET	1	EA
623.7003	TYPE 3, NO. 19, 24-CONDUCTOR INTER-CONNECT CABLE	250	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	25	LIN FT
623.7009	TYPE 9, SPREAD SPECTRUM RADIO CABLES	600	LIN FT

TRAFFIC SIGNAL PLAN
SCALE: 1"=20'



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
HONOAPIILANI HWY. AT DICKENSON ST.
HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION,
KAANAPALI TOWARDS LAHAINA
FAP NO. NH-STP-030-1(27)
SCALE: AS NOTED DATE: MAY 1999
SHEET No. 1 OF 1 SHEETS

A diagram showing a 4x2 grid of cells. A vertical line labeled "BARRIER" separates the first two columns from the last two columns. The cells contain the following symbols:

$\Phi 1$ ↻	$\Phi 2$ ↔ 2P	$\Phi 3$ BLANK	$\Phi 4$ ↕ 4P
$\Phi 5$ ↻	$\Phi 6$ ↔ 6P	$\Phi 7$ BLANK	$\Phi 8$ ↕ 8P

Arrows indicate flow: from left to right across the top row, from left to right across the bottom row, and from the barrier to the right across the top row. There are also curved arrows in the first two cells of the first row and the first two cells of the second row.

MODEL 170 CONTROLLER
MODEL 332 CABINET

INSTALL RIO-5 SIGN
ON MAST ARM

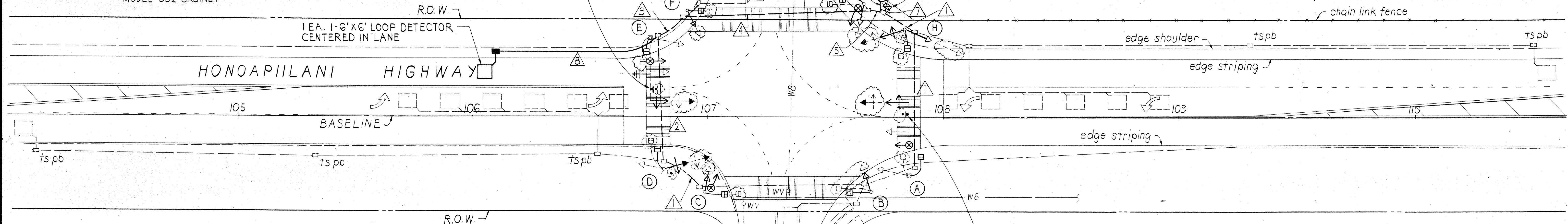
LEFT
ON
ARROW
ONLY.

1-2" MECO DUCT

METER PEDESTAL

SALVAGE EXIST. CONTROLLER/
CABINET, INSTALL MODEL 170/332
ON EXIST. BASE

TRUE NORTH
SCALE: 1"=20'



LEFT
ON
ARROW
ONLY

REMOVE EXIST. RIO-12
SIGN FROM MAST ARM

INSTALL RIO-5 SIGN
ON MAST ARM

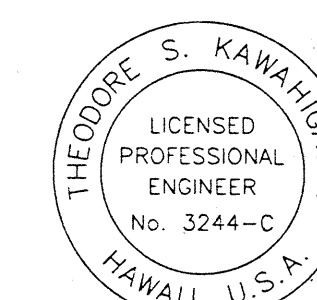
STANDARDS, SIGNAL HEADS AND APPURTENANCES					
ITEM NO.	STANDARD TYPE	COMMENTS	MOUNT TYPE	SIGNAL HEADS & APPURTENANCES	
				NEW	EXISTING TO SALVAGE
(A)	II	EXISTING	VI IV MA-EVP	R+Y+← (PVH) PED. HEAD EVP RIO-5 SIGN	R+Y+G+← PED. HEAD RIO-12 SIGN
(B)	I	EXISTING	IA IV	R+Y+G PED. HEAD	R+Y+G PED. HEAD PPB
(C)	I	EXISTING	IA IV TP-EVP	R+Y+G PED. HEAD EVP	R+Y+G PED. HEAD PPB
(D)	I	EXISTING	IA IV	R+Y+← PED. HEAD	R+Y+G+← PED. HEAD PPB RIO-12 SIGN
(E)	II	EXISTING	VI IV MA-EVP SSR	R+Y+← (PVH) PED. HEAD EVP RIO-5 SIGN SSR	R+Y+G+← PED. HEAD RIO-12 SIGN PPB
(F)	I	EXISTING	IA IV	R+Y+G PED. HEAD	R+Y+G PED. HEAD PPB
(G)	I	EXISTING	IA IV TP-EVP	R+Y+G PED. HEAD EVP	R+Y+G PED. HEAD; PPB
(H)	I	EXISTING	II IV	R+Y+←; R+Y+G PED. HEAD	R+Y+G+←; R+Y+G PED. HEAD; PPB RIO-12 SIGN
(I)	I-MODEL 170/332 CONTROLLER ASSEMBLY ON EXIST. BASE				

CONDUIT AND CABLE SCHEDULE				
DESIGNATION	PVC CONDUITS		CABLE	
			NEW	EXISTING
①	1-2"	EXISTING	1-TYPE 7	
②	1-2"	SPARE	1-TYPE 7	
③	1-2"	SPARE	1-TYPE 2, 2-TYPE 7 1-TYPE 9	
④	1-2"	SPARE	1-TYPE 2, 2-TYPE 7 1-TYPE 9	
⑤	1-2"	SPARE	1-TYPE 2, 3-TYPE 7 1-TYPE 9	
⑥	1-2"	NEW	1-TYPE 6	
⑦	5-2"	EXISTING	1-TYPE 2, 1-TYPE 6 4-TYPE 7, 1-TYPE 9	
⑧	1-2"	NEW	1-TYPE 2	

ITEM NO.	ITEM	APPROX. QTY.	UNIT
621.5000	REGULATORY AND WARNING SIGN (10 SQ. FT. OR LESS)	2	E
623.2001	CONTROLLER ASSEMBLY (MODEL 170 TRAFFIC SIGNAL CONTROLLER UNIT, TYPE 332 CABINET AND AUXILIARY EQUIPMENT)	1	E
623.3012	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL WITH TYPE IA MOUNTING)	5	E
623.3021	TRAFFIC SIGNAL ASSEMBLY, (2-WAY, 12-INCH, 2-3 SECTION VERTICAL, WITH TYPE II MOUNTING)	1	E
623.3062	TRAFFIC SIGNAL ASSEMBLY, (1-WAY, 12-INCH, 1-3 SECTION VERTICAL PROGRAMMABLE VISIBILITY HEAD, WITH TYPE VI MOUNTING)	2	E
623.4004	PEDESTRIAN SIGNAL ASSEMBLY, (1-WAY, 12-INCH, ONE VERTICAL WITH TYPE IV MOUNTING)	8	E
623.4010	EVP DETECTOR WITH MAST ARM MOUNTING	2	E
623.4011	EVP DETECTOR WITH POST-TOP MOUNTING	2	E
623.4015	SPREAD SPECTRUM RADIO (SSR) UNIT WITH ANTENNA AND MOUNTING BRACKET	1	E
623.5001	TRAFFIC SIGNAL DUCTLINE, ONE 2-INCH CONDUIT	100	LINEAL
623.5100	TRAFFIC SIGNAL DUCTLINE CONCRETE-ENCASED, ONE 2-INCH CONDUIT FOR POWER SUPPLY	40	LINEAL

623.6001	TYPE A PULLBOX	1	EA
623.7002	TYPE 2, NO. 14, 2-CONDUCTOR LOOP DETECTOR LEAD-IN CABLE	230	LIN FT
623.7006	TYPE 6, NO. 6, 3-CONDUCTOR POWER CABLE	30	LIN FT
623.7007	TYPE 7, EVP CABLE	500	LIN FT
623.7009	TYPE 9, SPREAD SPECTRUM RADIO CABLE	150	LIN FT
623.7041	LOOP DETECTOR SENSING UNIT (6FT X 6FT) ONE LOOP	1	EA
623.9001	METER SOCKET, BREAKER (50 AMPS), PEDESTAL AND ELECTRICAL SERVICE	1	EA

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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

Shroddra A Kawslijar
Signature

TRAFFIC SIGNAL PLAN
HONOAPIILANI HWY. AT SHAW ST.
HONOAPIILANI HIGHWAY
TRAFFIC SIGNAL MODERNIZATION,
KAANAPALI TOWARDS LAHAINA
FED. AID PROJECT NO. NH-STP-030-1(27)

SCALE: AS NOTED DATE: MAY 1999

SHEET No. | OF | SHEETS