

CONSTRUCTION NOTES

- Locations of existing underground structures and utilities such as pipelines, conduits, cables, etc., shown on plans are approximate only. It is not the intent of these plans to show the exact location of all underground utilities and structures. It is the responsibility of the contractor to verify the locations of all existing utilities with the respective owners. Existing utilities damaged by the contractor shall be repaired by the contractor at his own cost.
- The contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the engineer for clarification.
- The contractor shall notify all agencies to verify the actual location of all utilities in the project area prior to excavating. The contractor shall coordinate all work.
- The contractor shall tone and locate existing utilities along duct line prior to excavation.
- The locations of the new traffic signal standards, traffic signal standards with mast-arm, pedestrian push buttons, traffic controller, pullboxes, conduits and loop detectors shall be staked out in the field by the contractor and approval of the locations shall be obtained from the engineer prior to construction and installation.
- All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highways", Federal Highway Administration (2000) and amendments.
- Locations of new pavement markings (pavement arrow, stop lines, crosswalk, etc.) that are done by others (as shown on plans) shall be verified with the engineer prior to the installation of the traffic signal system.
- Provide arrow board at start of all tapers.

TRAFFIC SIGNAL LEGEND

- New Traffic Signal Standard
- Existing Traffic Signal Standard

New Standard Traffic And Pedestrian Signal Heads Mounted On Type I Signal Standard, Height=10'

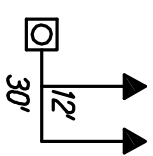
Existing Standard Traffic And Pedestrian Signal Heads Mounted On Type I Signal Standard, Height=10'

New Opticom Unit

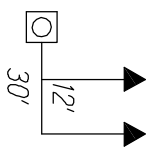
Existing Opticom Unit

New Traffic Signal Pullbox (TSPB)

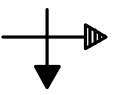
Existing Traffic Signal Pullbox



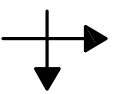
New Traffic Signal Heads Mounted On Type II Signal Standard, Arm Spread Shown is 30' And Distance Between Signal Heads is 12'



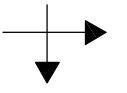
Existing Traffic Signal Heads Mounted On Type II Signal Standard, Arm Spread Shown is 30' And Distance Between Signal Heads is 12'



New 12" RY Traffic Signal Head (Programmable Visibility)



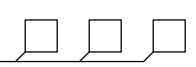
New 12" RY Traffic Signal Head (LED)



Existing 12" RY Traffic Signal Head



New Loop Detectors



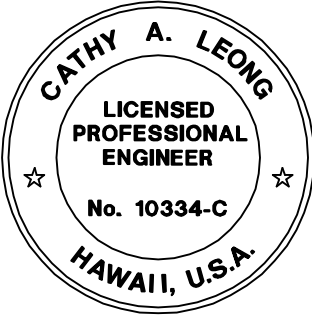
Existing Loop Detectors

TRAFFIC SIGNAL NOTES

- All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
- Signal indications during clearance interval:
 - 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.
 - 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.
 - If a signal is R and will remain R or becomes G during the next phase, it shall remain R during the clearance interval.
- The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans.
- A solid #8 bare copper wire shall be pulled with the traffic control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
- Conduits and cabinet locations as shown on the plans are schematic. They may be modified by the contractor with the approval of the engineer.
- The contractor shall splice all signal conductors in pullbox. No splices shall be permitted in detector lead-in cable.
- All traffic signal removal and disposal work (i.e. pullboxes, standards, foundations, signal and pedestrian heads, loop detectors, etc.) shall be considered incidental to the various traffic signal items.

- The contractor shall remove existing traffic signal equipment in usable condition as indicated on the plans and deliver to the Kauai District Baseyard or as directed by the Engineer. Cost shall be incidental to various traffic signal items.
- All resulting holes from the removal of pedestrian push buttons on existing traffic signal standards shall be plugged as directed by the Engineer. Cost shall be incidental to the various traffic signal items.
- The Department of Water requires 6" minimum vertical and 3' minimum horizontal clearance between utilities.
- After installing all the traffic signal cables, seal all conduits in pullboxes, standards and controller cabinet with "duct seal". "Duct Seal" shall be acceptable to Engineer and State Inspector.
- All mounting brackets for vehicle and pedestrian signal heads and all other equipment attached to signal standards shall be brass, bronze or stainless steel (Type 316), except as listed below, no steel parts shall be used including setscrews.
 - Hub plates may be aluminum if not available in brass, bronze or stainless steel (Type 316).
 - Mast arm mounting brackets may be aluminum alloy. All hardware shall be stainless steel (Type 316).
- All luminated signals shall be LED.
- Pedestrian signal housings shall be plastic style.
- Internal parts for 3 section and 4 section signal heads shall be stainless steel (Type 316).

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



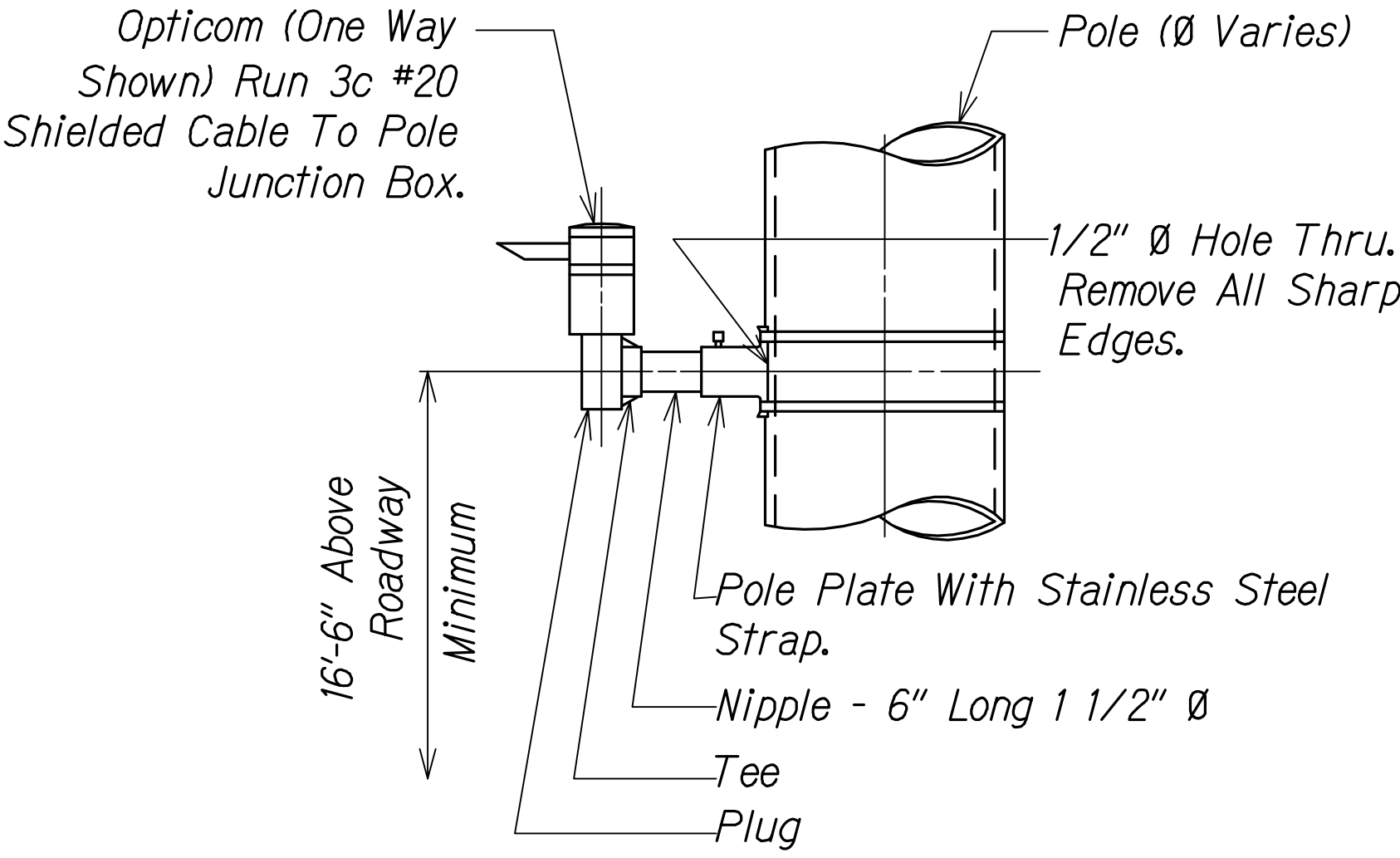
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Cathy A. Leong
WILSON OKAMOTO CORP. LIC. EXP. DATE

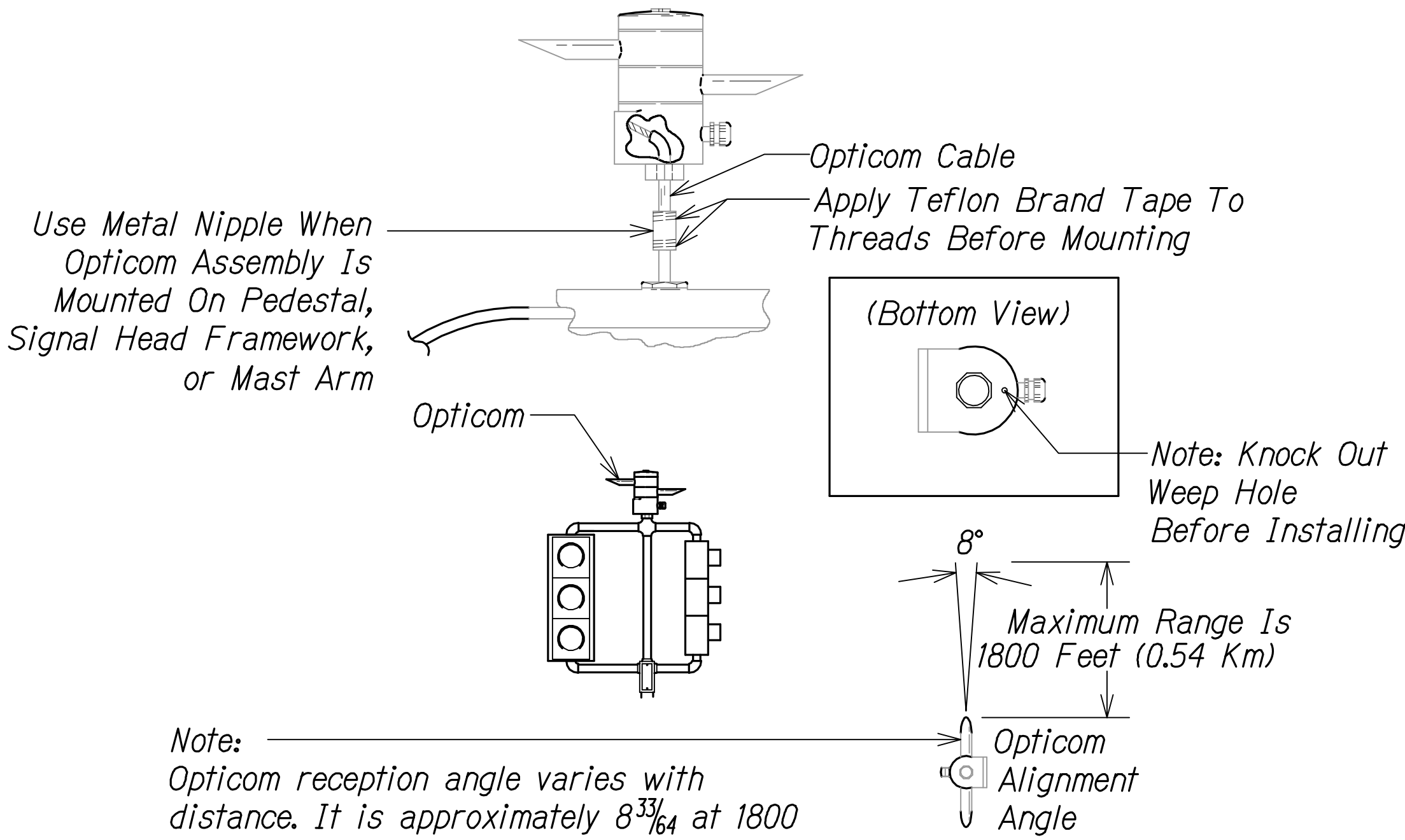
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TRAFFIC SIGNAL NOTES
AND LEGEND**
KUHIO HIGHWAY SHORT-TERM
IMPROVEMENTS KUAMOO ROAD
TO TEMPORARY KAPAA BYPASS ROAD
Fed. Aid Proj. No. NH-056-1(50)
Scale: N/A Date: JULY 2019
SHEET No. TS1 OF 04 SHEETS

11/12/19	Reissuing plan for legibility only. No design changes have been made.
9/20/19	Reissuing plan for legibility only. No design changes have been made.
DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAW.	NH-056-1(50)	2019	ADD.176	244

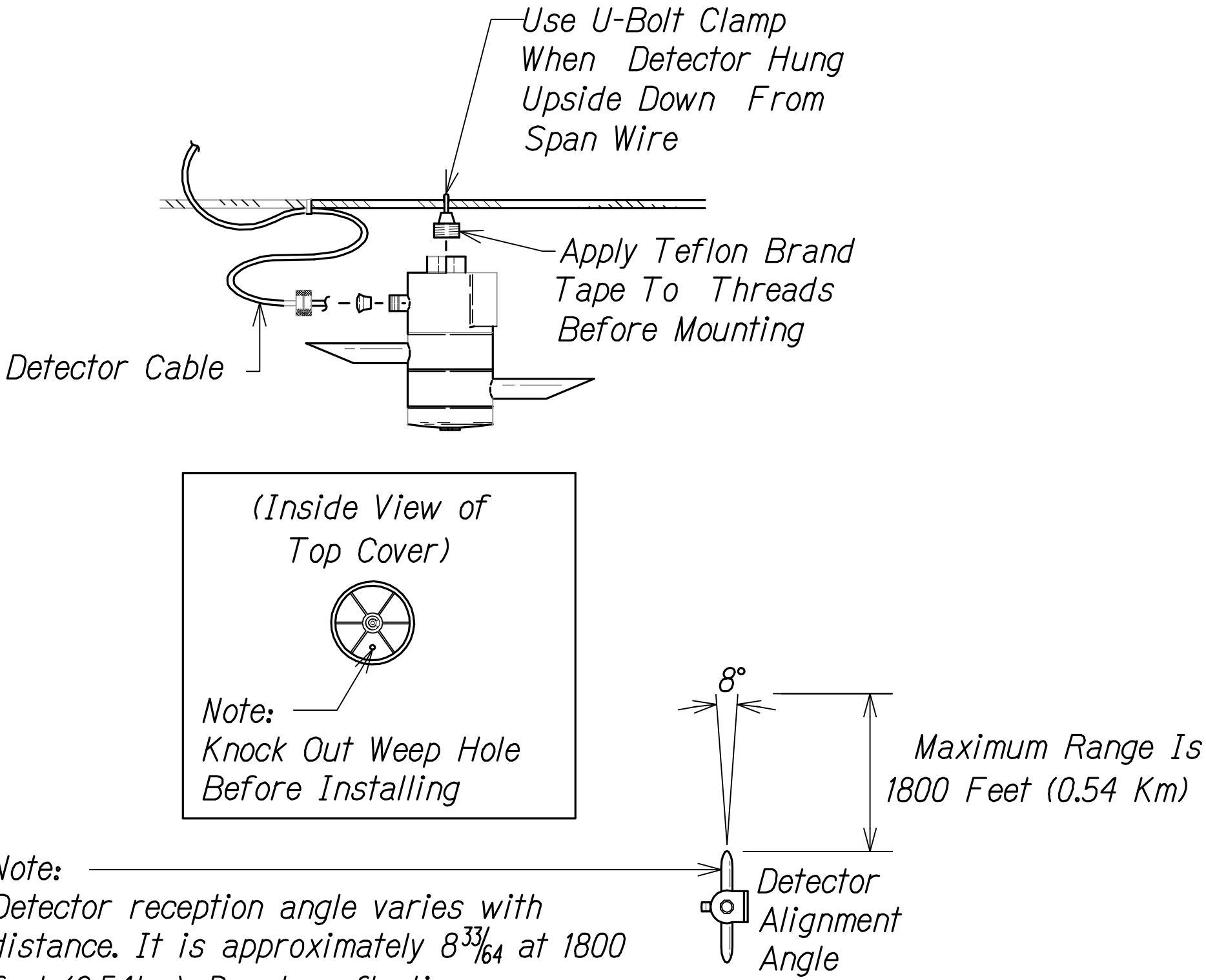


TYPICAL VERTICAL MOUNT OF OPTICOM
Not To Scale



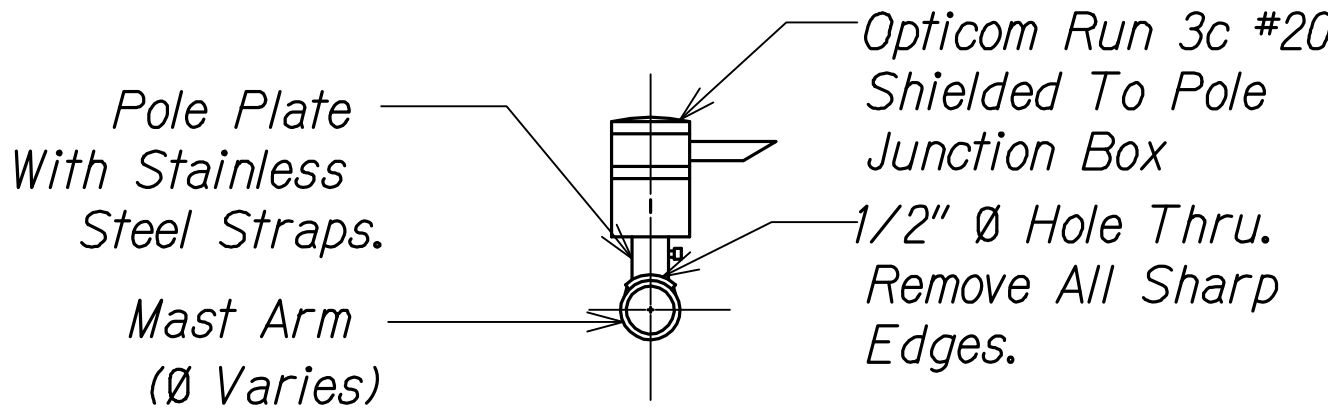
Note: Opticom reception angle varies with distance. It is approximately $8\frac{33}{64}$ at 1800 feet (0.54km). Due to reflection, reception angle is increased at close range. The opticom must be aligned within $8\frac{33}{64}$ of the farthest point where priority vehicles is to be sensed.

TYPICAL PEDESTAL/MAST ARM INSTALLATION OF OPTICOM
Not To Scale



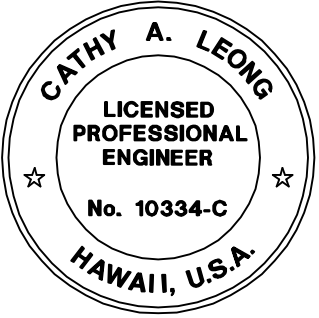
Note: Detector reception angle varies with distance. It is approximately $8\frac{33}{64}$ at 1800 feet (0.54km). Due to reflection, reception angle is increased at close range. The detector must be aligned within $8\frac{33}{64}$ of the farthest point where priority vehicle is to be sensed.

TYPICAL SPAN WIRE INSTALLATION OF OPTICOM
Not To Scale



TYPICAL HORIZONTAL MOUNT OF OPTICOM
Not To Scale

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



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Cathy A. Leong
WILSON OKAMOTO CORP. LIC. EXP. DATE APRIL 30, 2020

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DATE	REVISION

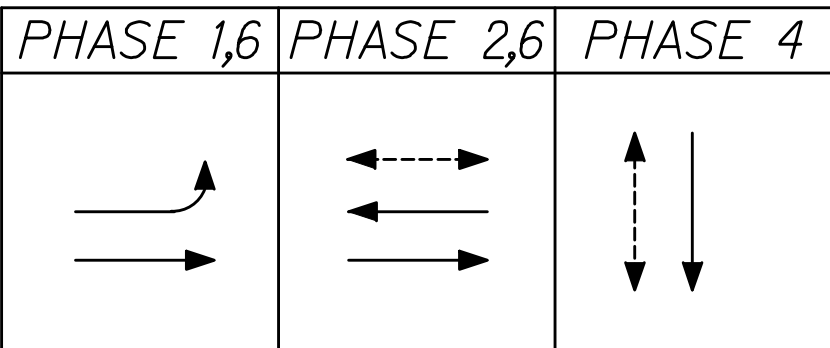
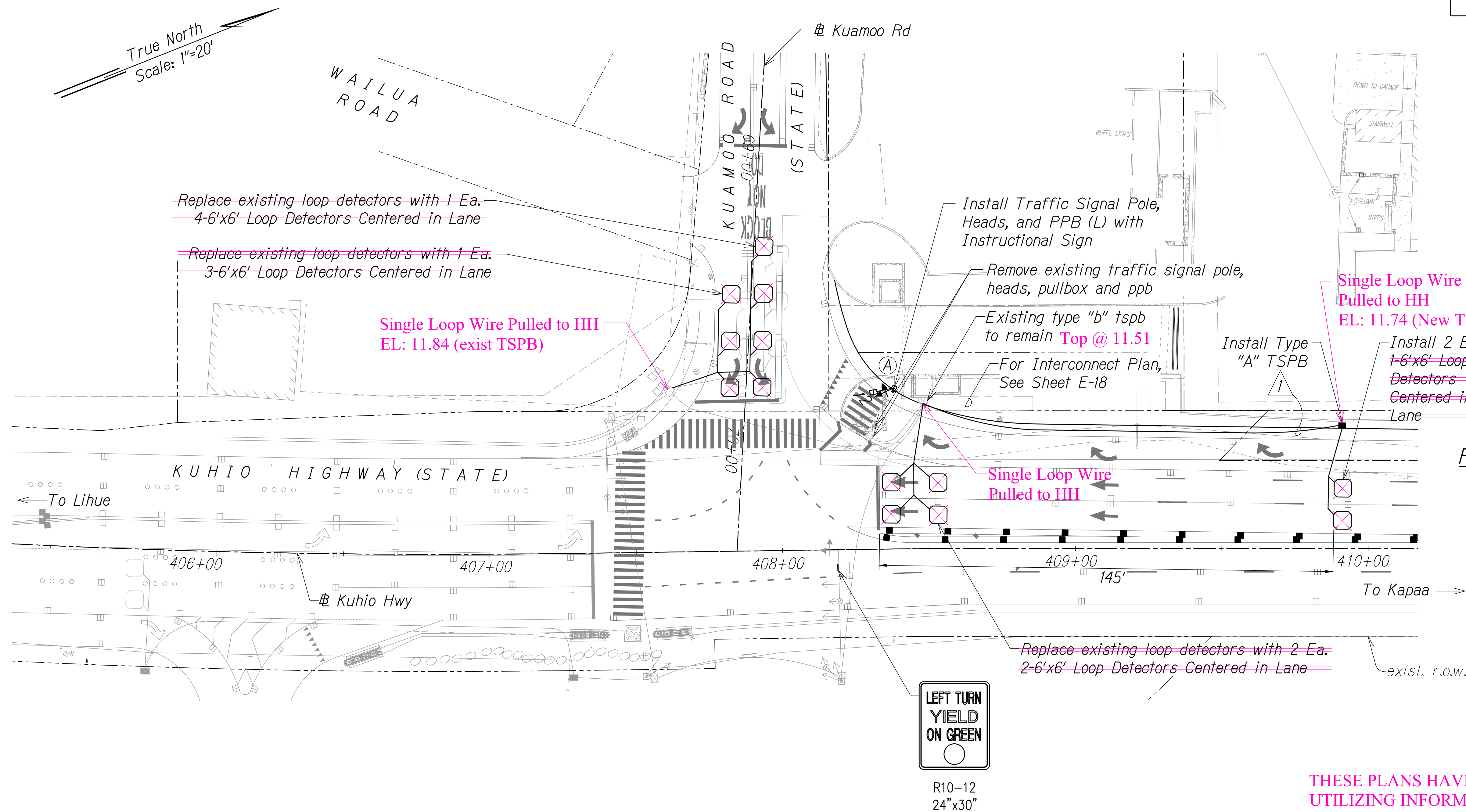
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

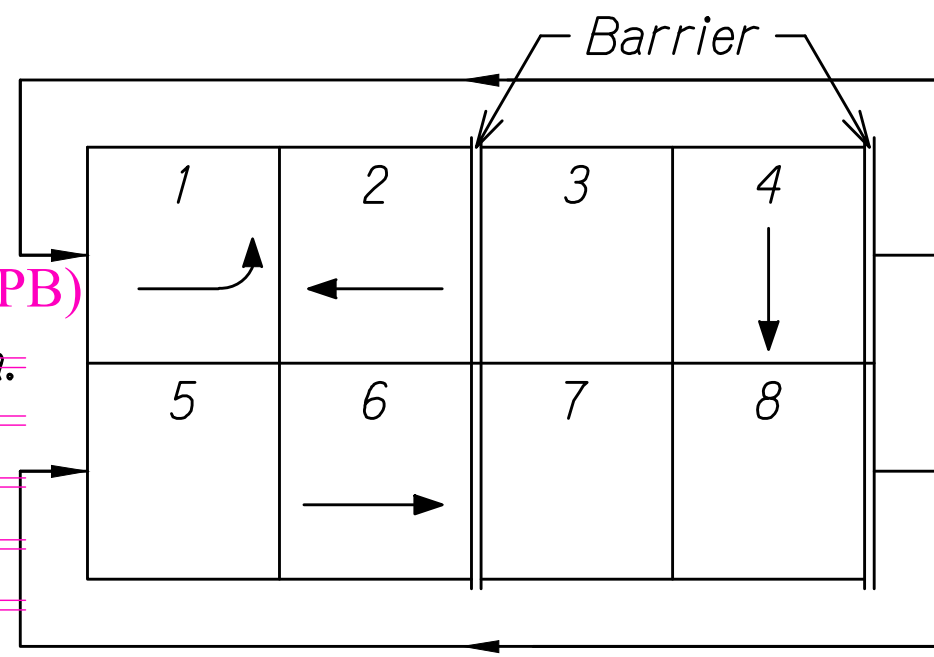
KUHIO HIGHWAY SHORT-TERM
IMPROVEMENTS KUAMOO ROAD
TO TEMPORARY KAPAA BYPASS ROAD
Fed. Aid Proj. No. NH-056-1(50)

Scale: N/A Date: JULY 2019

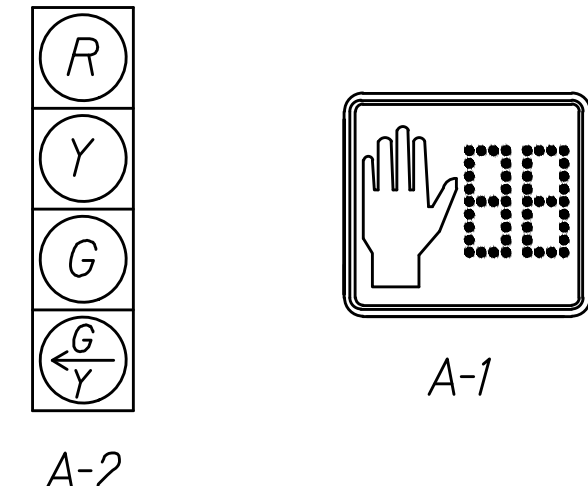
SHEET No. TS2 OF 04 SHEETS



PHASE DIAGRAM

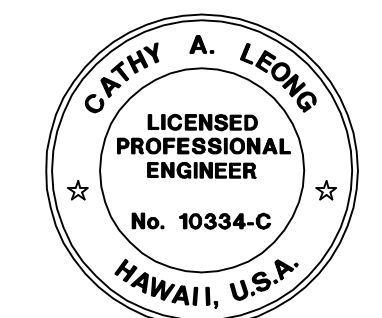


PHASE ASSIGNMENT DIAGRAM



SIGNAL INDICATIONS

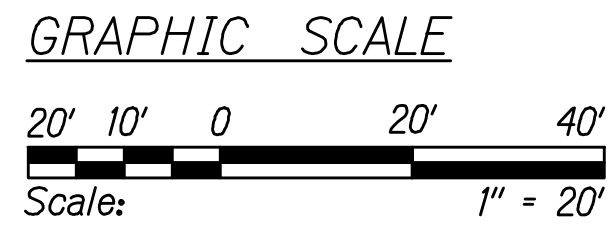
THESE PLANS HAVE BEEN PREPARED UTILIZING INFORMATION PROVIDED BY THE PROJECT CONTRACTOR. THE UPDATED CONSTRUCTION INFORMATION DEPICTED HEREIN HAS NOT BEEN VERIFIED FOR ACCURACY AND COMPLETENESS. NO REPRESENTATION IS BEING MADE TO ITS VALIDITY.



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Cathy A. Leong
WILSON OKAMOTO CORP. LIC. EXP. DATE

- NOTES:
1. Install Backplates on Existing Traffic Signal Heads Mounted on Horizontal Portion of Mast Arm Only. Backplates Shall be 5" with Slots to Reduce Wind Load with 1" Retro-Reflective Border.

CONDUIT & CABLE SCHEDULE		
Δ	CONDUIT	CABLE
1	1-2"	2-2C#14

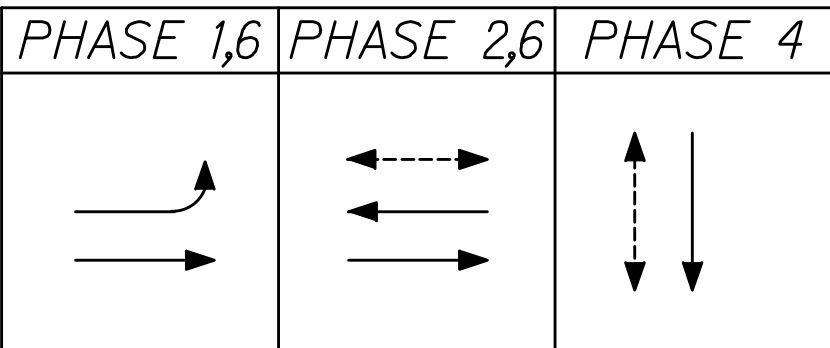
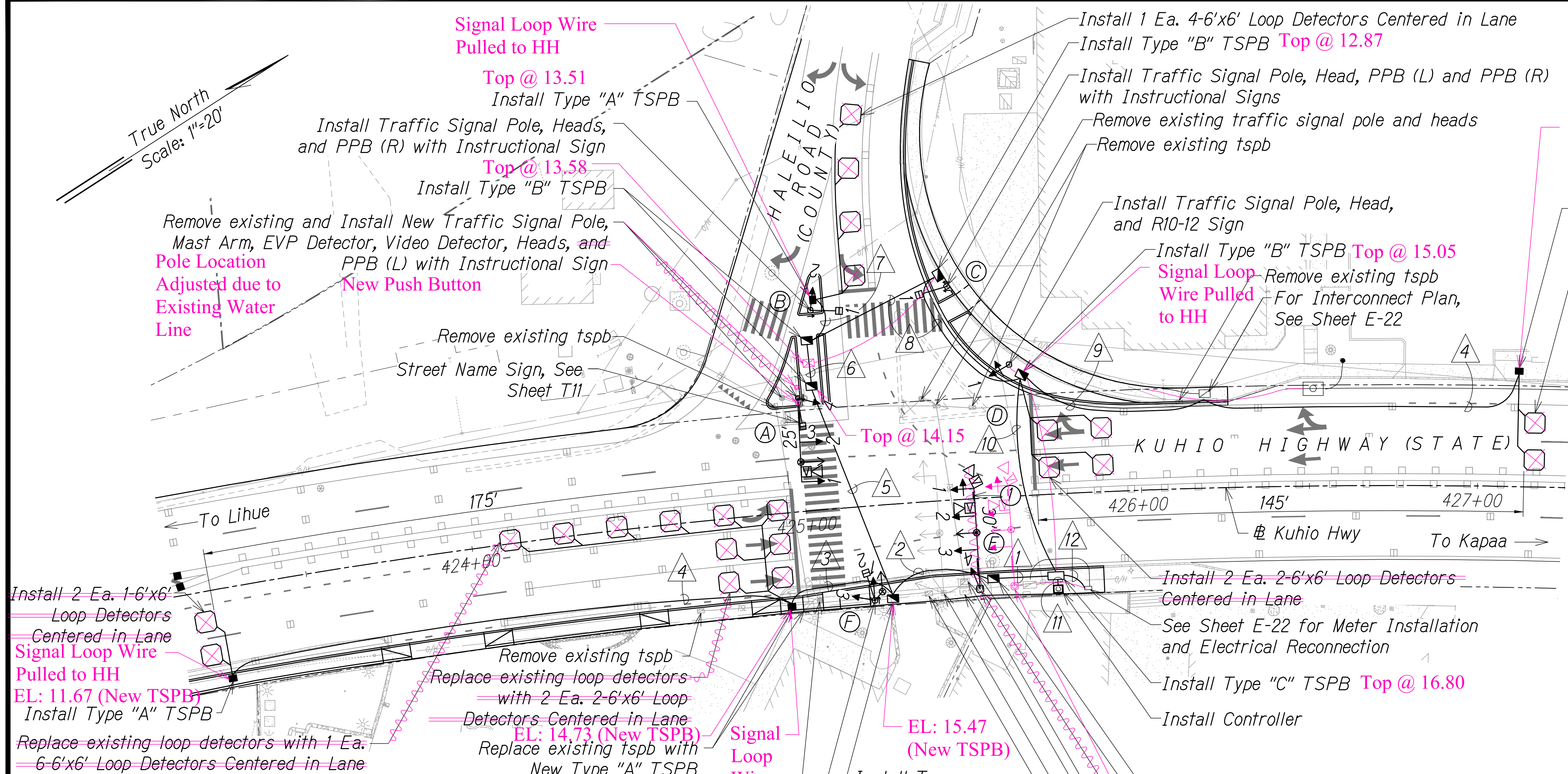


LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

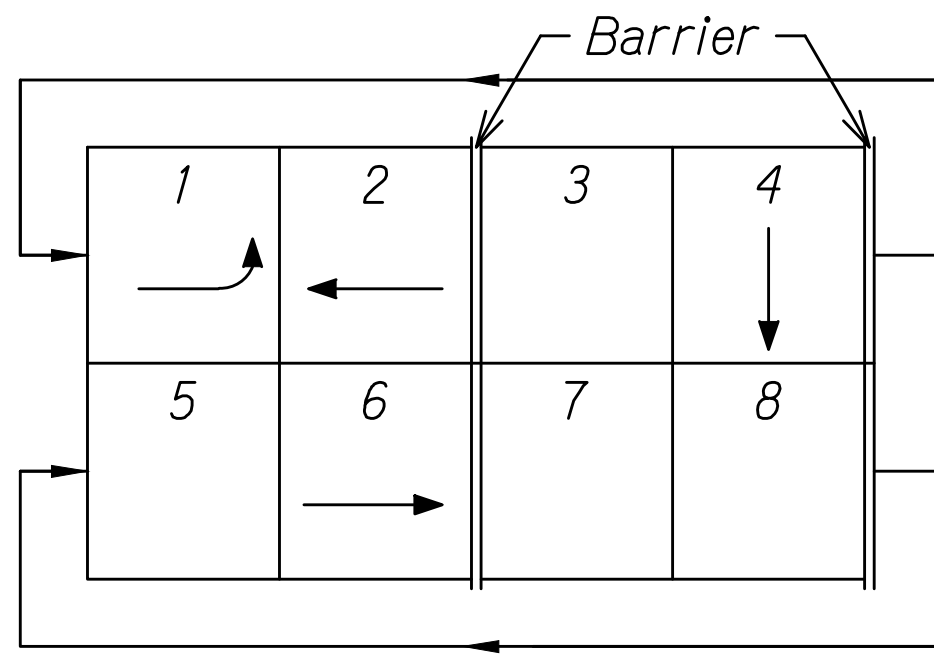
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DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
KUAMOO RD. AT KUHIO HWY.
KUHIO HIGHWAY SHORT-TERM IMPROVEMENTS KUAMOO ROAD TO TEMPORARY KAPAA BYPASS ROAD
Fed. Aid Proj. No. NH-056-1(50)
Scale: 1" = 20' Date: JULY 2019
SHEET No. TS3 OF 04 SHEETS



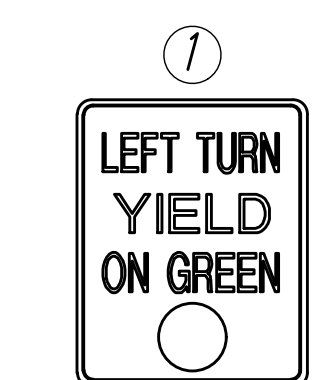
PHASE DIAGRAM



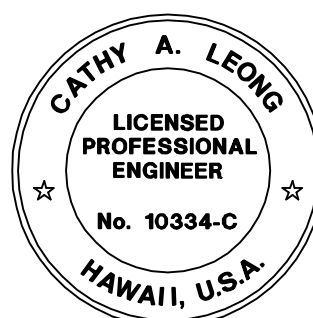
PHASE ASSIGNMENT DIAGRAM

<div><div>R</div><div>Y</div><div>G</div><div>G</div></div>	<div><div>R</div><div>Y</div><div>G</div><div>G</div></div>	<div><div>R</div><div>Y</div><div>G</div><div>G</div></div>	<div><div>R</div><div>Y</div><div>G</div><div>G</div></div>
A-4	A-1	A-2	A-3
D-1	B-2	A-2	B-1
E-1	E-4	E-2	C-1
	F-1	E-3	F-2
	F-3		

SIGNAL INDICATIONS



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Cathy A. Leong
WILSON OKAMOTO CORP. LIC. EXP. DATE

CONDUIT & CABLE SCHEDULE					
Δ	CONDUIT	CABLE	Δ	CONDUIT	CABLE
1	1-2"	1-26C#14	6	1-2"	1-26C#14
	1-2"	6-2C#14		3-2"	3-SPARE
	1-2"	3-OPTICOM	7	1-2"	1-2C#14
	1-2"	3-VIDEO	8	1-2"	1-26C#14
	2-2"	2-SPARE		1-2"	2-2C#14
2	1-2"	1-26C#14		2-2"	2-SPARE
	1-2"	6-2C#14	9	1-2"	2-2C#14
	1-2"	2-OPTICOM		1-2"	2-12PR#19
	1-2"	1-VIDEO	10	1-2"	1-26C#14
	2-2"	2-SPARE		1-2"	6-2C#14
3	1-2"	5-2C#14		1-2"	2-12PR#19
	4	1-2"	2-2C#14		2-2"
5		1-2"	1-26C#14	11	2-2"
	1-2"	1-2C#14	2-2"		12-2C#14
	1-2"	1-OPTICOM	1-2"		3-OPTICOM
	1-2"	1-VIDEO	1-2"		3-VIDEO
	2-2"	2-SPARE	1-2"		2-12PR#19
			2-2"		2-SPARE
			1-2"		1-3C#6
			12		1-2"

GRAPHIC SCALE

- NOTES:
1. Install Backplates on Traffic Signal Heads Mounted on Horizontal Portion of Mast Arm Only. Backplates Shall be 5" with Slots to Reduce Wind Load with 1" Retro-Reflective Border.

APPROVED

County Engineer
County of Kaua'i
(For Work Within the County Right-of-Way)

Date

LEGEND FOR AS-BUILT POSTINGS

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

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"AS-BUILT"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN
HALEILIO RD. AT KUHIO HWY.
KUHIO HIGHWAY SHORT-TERM IMPROVEMENTS KUAMOO ROAD TO TEMPORARY KAPAA BYPASS ROAD
Fed. Aid Proj. No. NH-056-1(50)
Scale: 1" = 20' Date: JULY 2019
SHEET No. TS4 OF 04 SHEETS

CO.ADD.178