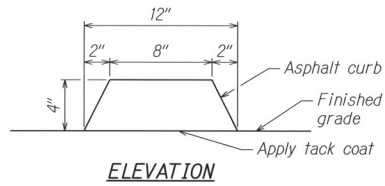
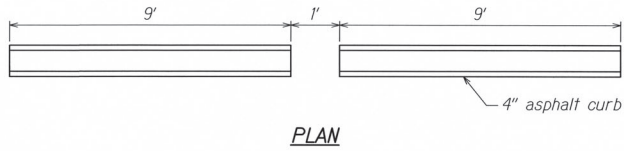


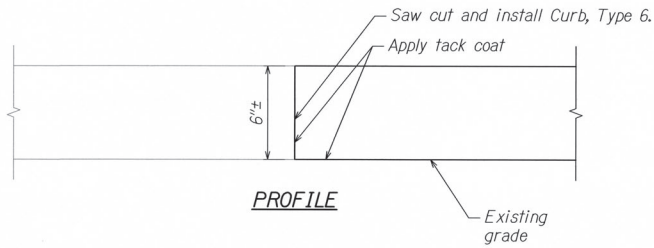
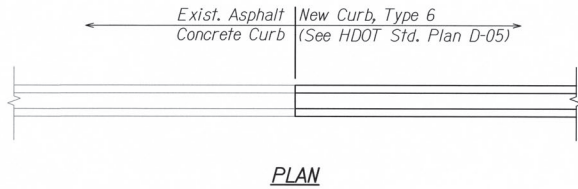
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	42	87



4" CURB DETAIL

Not to Scale

1
22/42



A.C. CURB CONNECTION DETAIL

Not to Scale

1
19-22/42

ORIGINAL	REVISED	DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS - 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluka Street and Ulumani Drive
Project No. 61D-01-23

Scale: N/A Date: DEC, 2023


F:\Land Projects\DOT.DIG - 2023\Traffic Operations\Task\PA02\Kailua\Traffic\PSD\Drawing\42 Miscellaneous Details - 2.dwg, 12/26/2023 9:44:35 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	44	87

NOTES:

1. The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
2. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
4. Regulatory and warning signs within the construction zone that are in conflict with the Traffic Control Plans shall be removed or covered. All signs shall be restored upon completion of the work.
5. Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
6. When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the Traffic Control Plans.
7. Sign spacing (L), taper lengths (T) and spacings of cones or delineators shall be as shown in Table I, unless otherwise noted on the Traffic Control Plans.
8. All traffic lanes shall be a minimum of 10 feet wide.
9. All construction warning signs shall be promptly removed or covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
10. At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
11. Replace permanent pavement markings and traffic signs upon completion of each phase of work.
12. All work zone traffic control devices shall be compliant with Chapter 6 of the MUTCD.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED	TRACED BY	
REVISIONS	DESIGNED BY	
	CHECKED BY	



ALISON M. MURIWAI
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL NOTES

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluka Street and Ulumani Drive
Project No. 61D-01-23

Scale: N/A Date: DEC, 2023

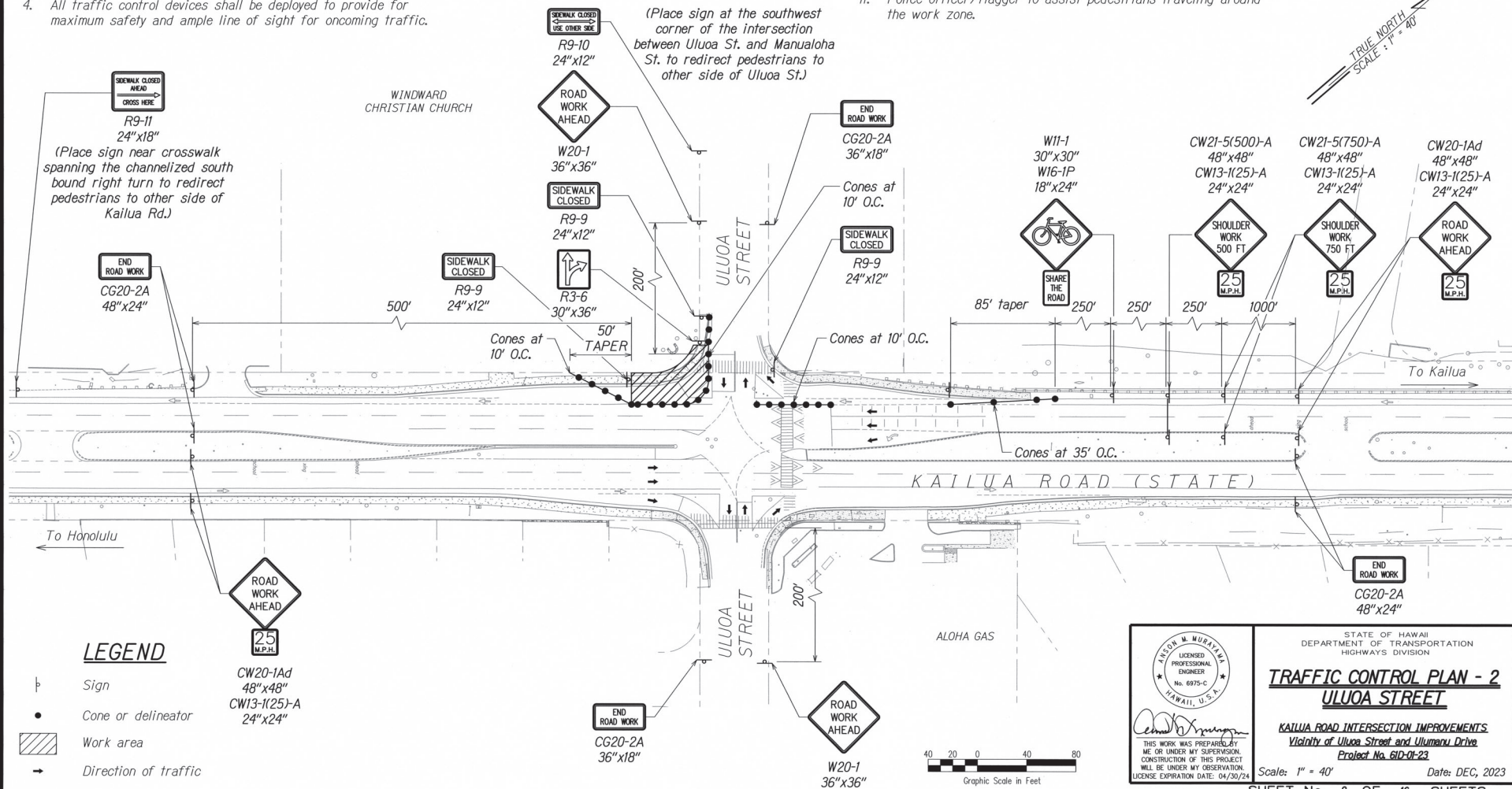
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	46	87

NOTES:

1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



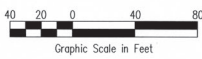
LEGEND

- ▬ Sign
- Cone or delineator
- ▨ Work area
- Direction of traffic

CW20-1Ad
48"x48"
CW13-1(25)-A
24"x24"

END ROAD WORK
CG20-2A
36"x18"

W20-1
36"x36"



ALISON M. MURRAY
LICENSED PROFESSIONAL ENGINEER
No. 4975-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 2
ULUOA STREET

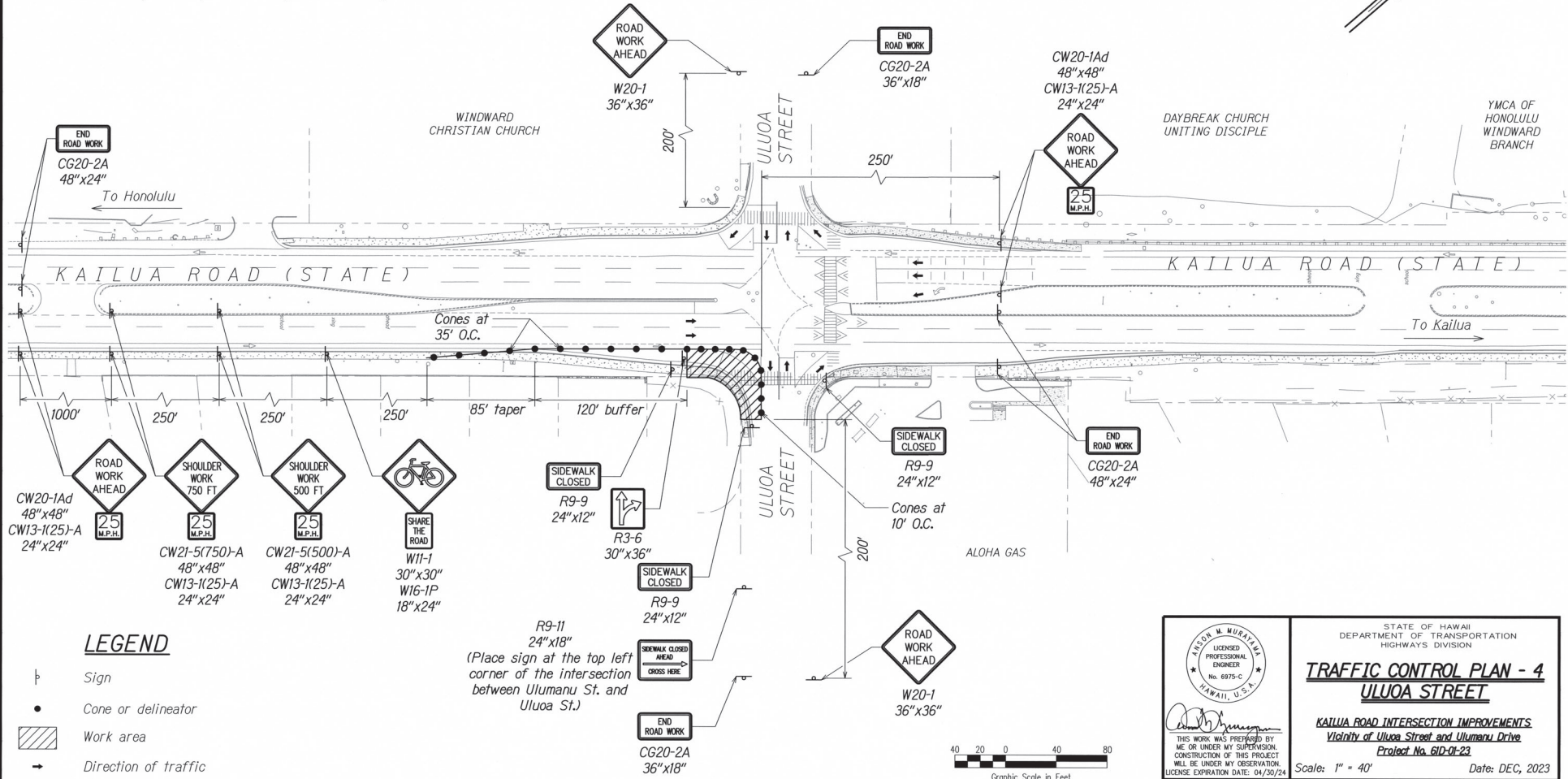
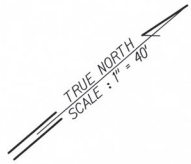
KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluoa Street and Ulumani Drive
Project No. 61D-01-23

Scale: 1" = 40' Date: DEC, 2023

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	48	87

NOTES:

1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



LEGEND

- Sign
- Cone or delineator
- Work area
- Direction of traffic

R9-11
24"x18"
(Place sign at the top left corner of the intersection between Uluoa St. and Uluoa St.)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 4
ULUOA STREET

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluoa Street and Uluoa Drive
Project No. 61D-01-23

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

Scale: 1" = 40'

Date: DEC, 2023

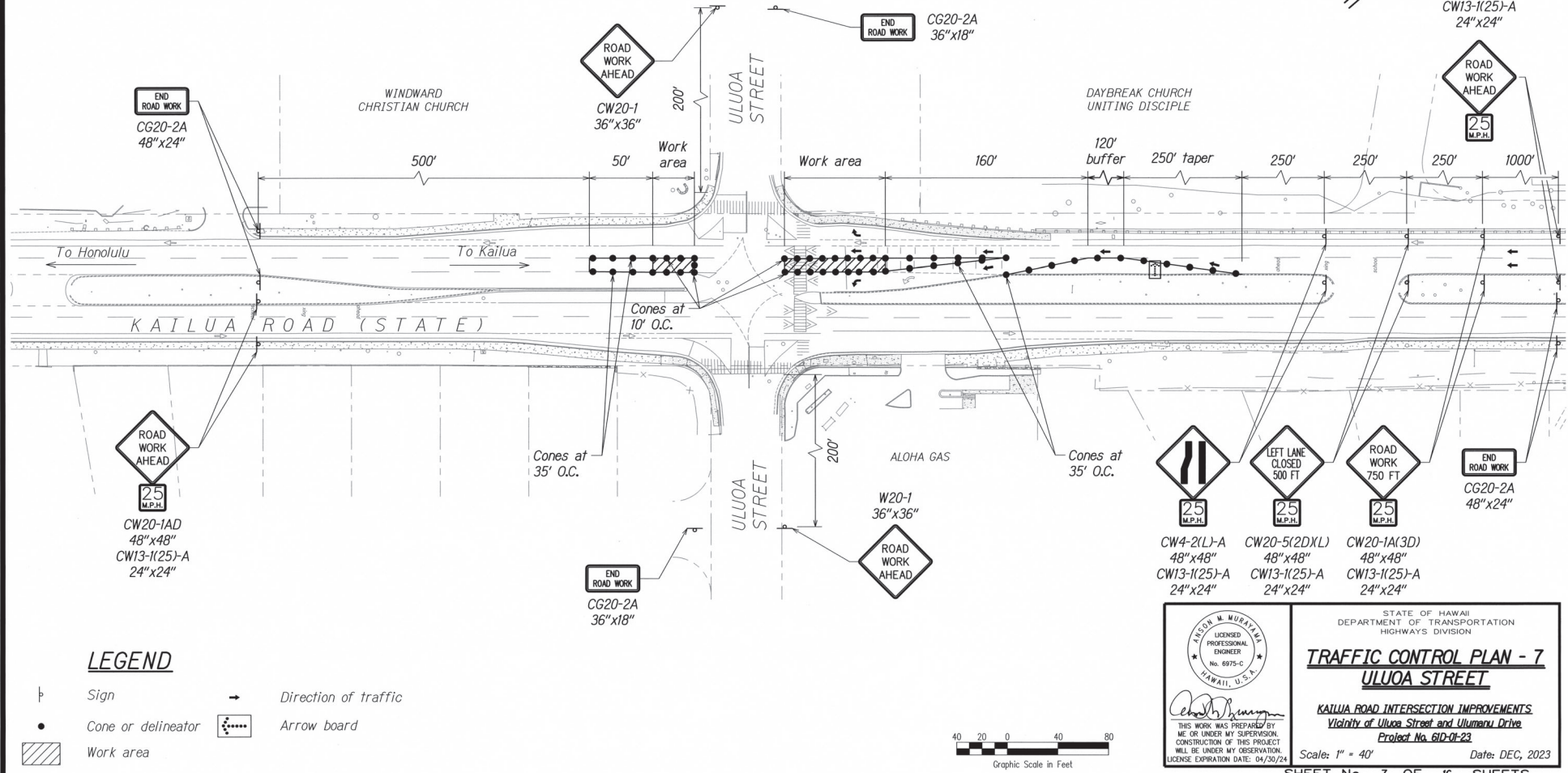
F:\Land Projects\DOT\DDO - 20221Traffic Operations\Task\PAO 2 Kailua Traffic\PS&EDrawing\48 Traffic Control Plan - 4 Uluoa St.dwg, 12/01/2023 9:28:40 AM

DATE	BY	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	51	87

NOTES:

1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



LEGEND

- ▭ Sign
- Direction of traffic
- Cone or delineator
- ▭ Arrow board
- ▨ Work area

ALISON M. MURAKA
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 7
ULUA STREET

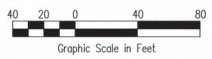
KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulua Street and Uluamanu Drive
Project No. 61D-01-23

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

Scale: 1" = 40'

Date: DEC, 2023

SHEET No. 7 OF 16 SHEETS

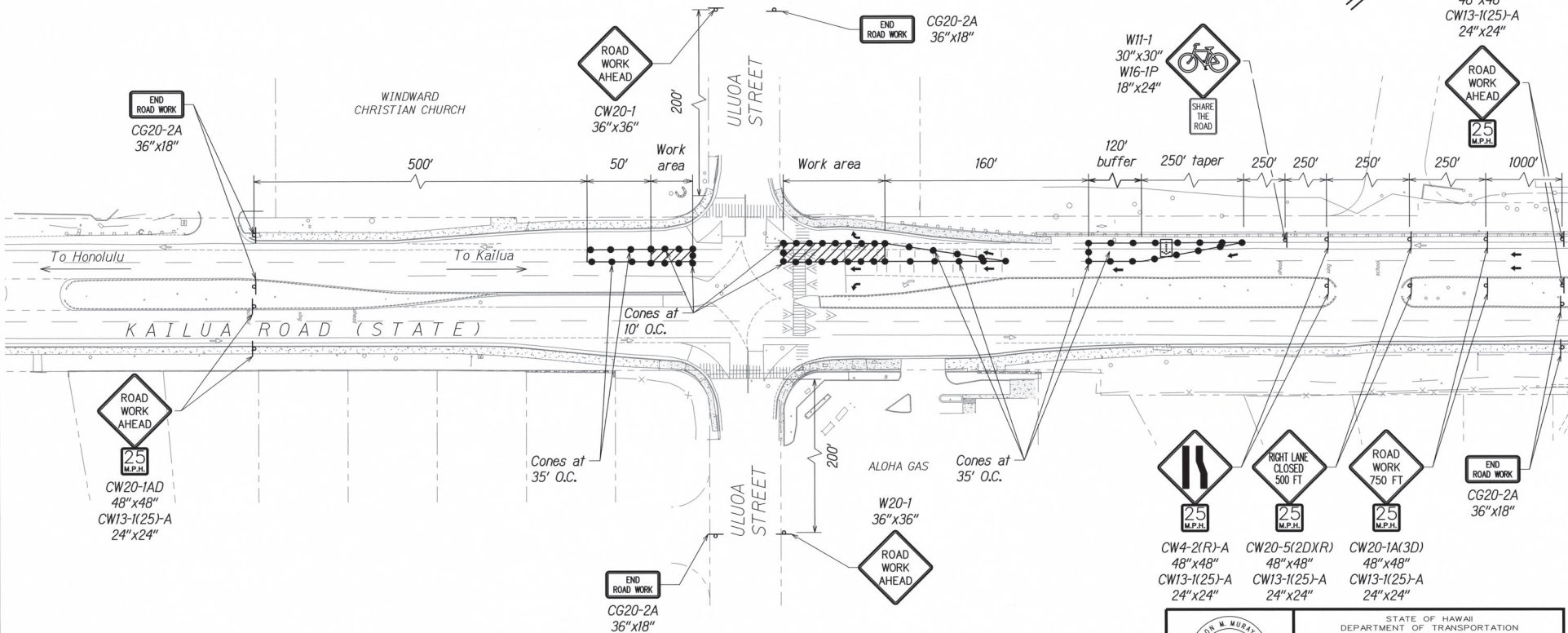


APPROVED BY:	DATE:
DRAWN BY:	
CHECKED BY:	
IN CHARGE BY:	
DATE:	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	52	87

NOTES:

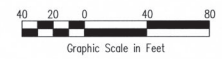
1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



TRUE NORTH
SCALE: 1" = 40'

LEGEND

- ▬ Sign
- Direction of traffic
- Cone or delineator
- ▨ Work area
- ▭ Arrow board



DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
NOTE BOOK	
REVISIONS	

ALISON M. MURAKA
 LICENSED PROFESSIONAL ENGINEER
 No. 6975-C
 HAWAII, U.S.A.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC CONTROL PLAN - 8
ULUA STREET
 KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulua Street and Ulumau Drive
 Project No. 61D-01-23
 Scale: 1" = 40' Date: DEC, 2023

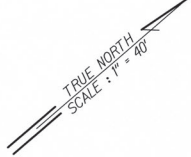
SHEET No. 8 OF 16 SHEETS

P:\Land Projects\DOT IDG - 2023\Traffic Operations Task\9402 Kailua Traffic\PSD Drawings\2 Traffic Control Plan - 8 Ulua St.dwg, 12/26/2023 2:29:05 AM

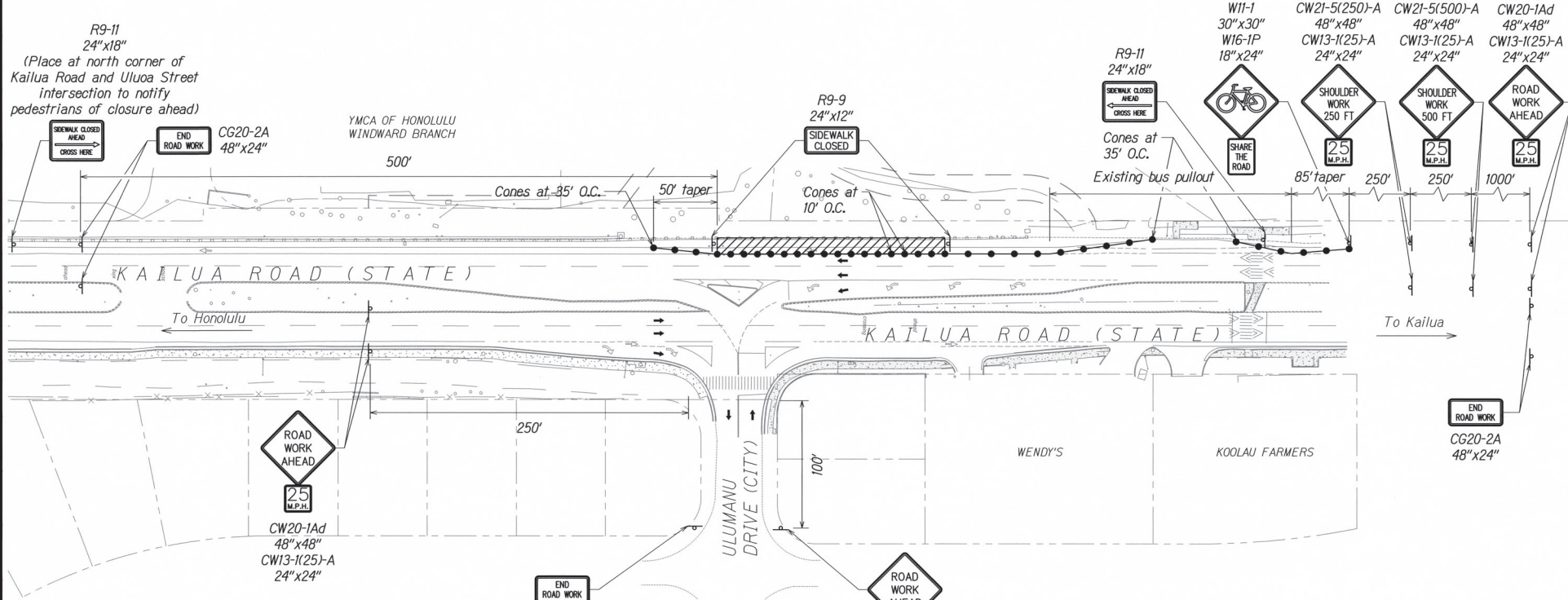
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	56	87

NOTES:

1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



KAILUA UNITED METHODIST CHURCH



LEGEND

- Sign
- Cone or delineator
- ▨ Work area
- Direction of traffic

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
APPROVED BY	
DATE	

ARON M. MURAKAWA
 LICENSED PROFESSIONAL ENGINEER
 No. 6975-C
 HAWAII, U.S.A.

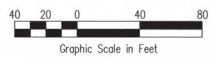
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN - 4
ULUMANU DRIVE

KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulua Street and Ulumanu Drive
 Project No. 61D-01-23

Scale: 1" = 40' Date: DEC, 2023

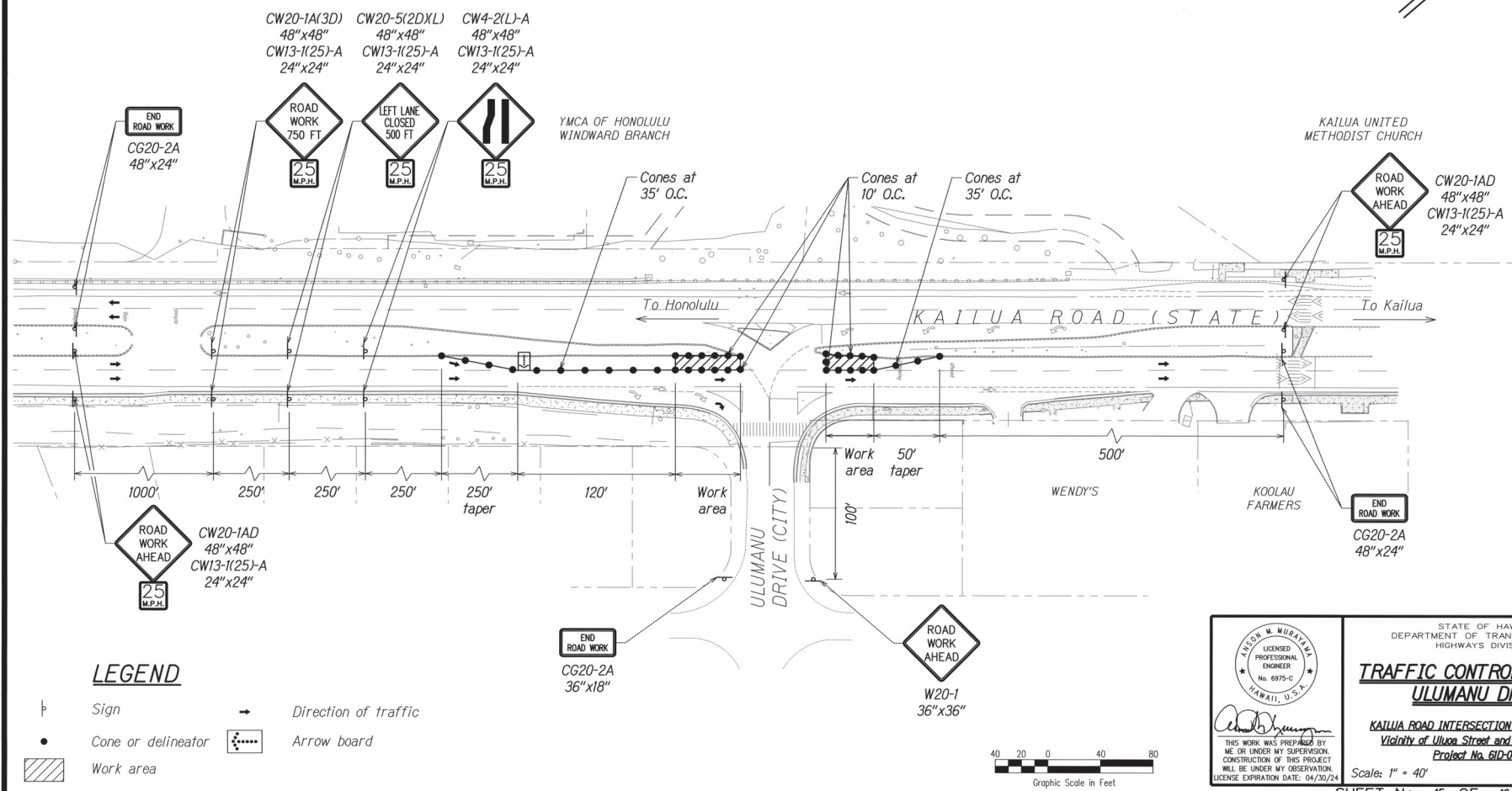


P:\land Projects\DOT.DOC - 2022\Traffic Operations\Task\PAO 2 Kailua\TrafSig PSE\Drawings\56 Traffic Control Plan - 4 Ulumanu Drive.dwg, 12/02/2023 9:29:27 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	59	87

NOTES:

1. Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
2. Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
3. All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
4. All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
5. All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
6. All through traffic lanes shall be a minimum of 10 feet wide.
7. Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
8. At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
9. Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
10. This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
11. Police officer/flagger to assist pedestrians traveling around the work zone.



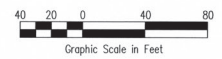
LEGEND

- ▮ Sign
- Direction of traffic
- Cone or delineator
- ▭ Arrow board
- ▨ Work area

NO.	DATE	BY	REVISION
1			ORIGINAL PLAN
2			REVISED BY
3			CHECKED BY
4			DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC CONTROL PLAN - 7
ULUMANU DRIVE
 KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Uluxa Street and Ulumanu Drive
 Project No. 61D-01-23
 Scale: 1" = 40' Date: DEC, 2023

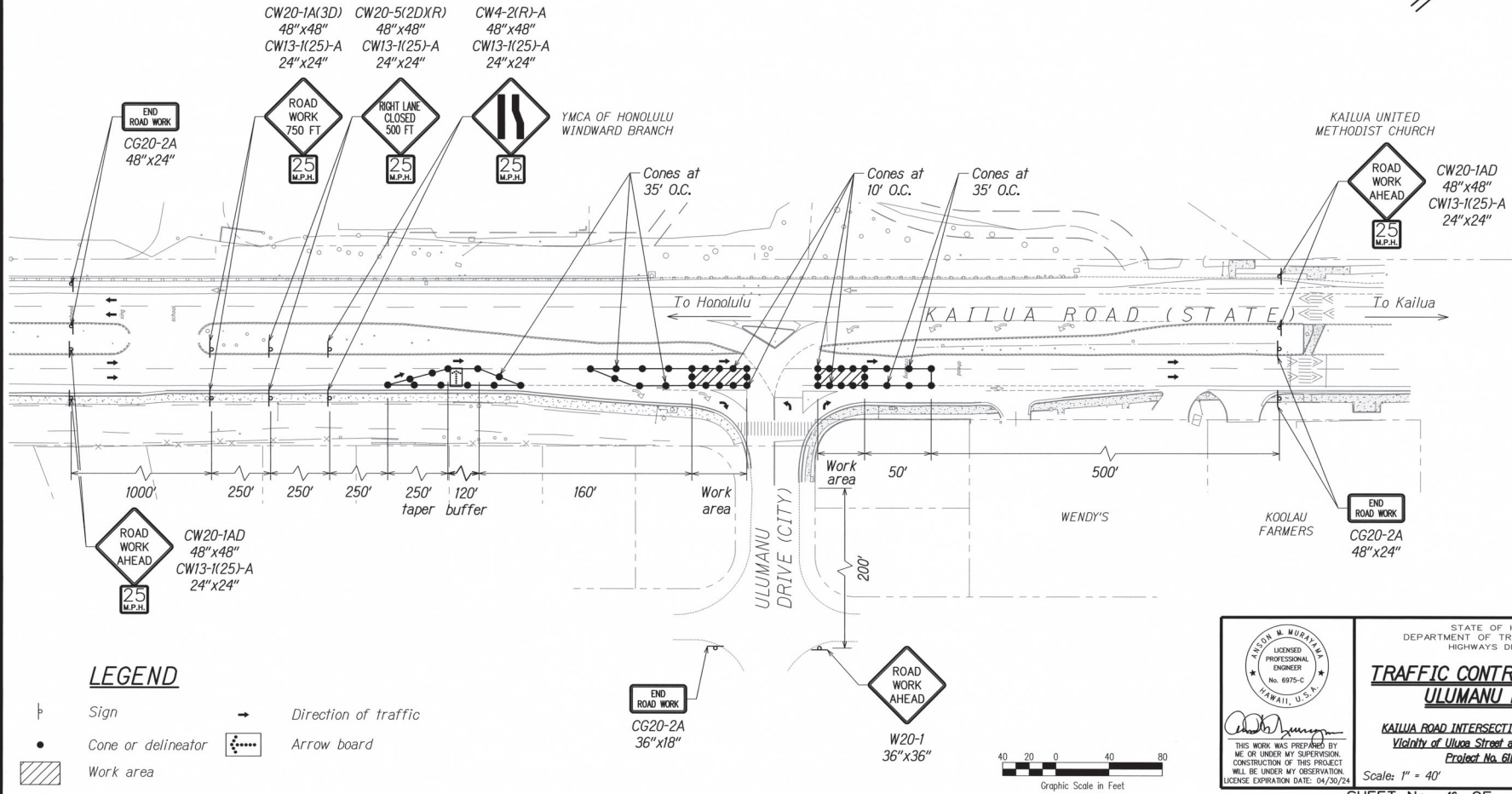


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	60	87

NOTES:

- Permittee shall make minor adjustments at intersections, driveways, bridges, etc. to fit field conditions.
- Advance notice Variable Message Sign (VMS) to be deployed at least 2 weeks in advance of scheduled work. Board to display ramp ID, date and time of closure.
- All other traffic control measures to be deployed prior to construction activities. All devices shall be installed such that the sign or device farthest from the work area be placed first then all subsequent devices shall be placed progressively toward the work area.
- All traffic control devices shall be deployed to provide for maximum safety and ample line of sight for oncoming traffic.
- All existing signs within the traffic control area that are in conflict with the TCP shall be removed or covered during work. All signs shall be restored upon completion of work.
- All through traffic lanes shall be a minimum of 10 feet wide.
- Driveways shall be kept open unless the owners are provided satisfactory right-of-way use.
- At the completion of each day's work or as soon as possible, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in the reverse order of installation.
- Install all temporary and permanent pavement marking devices on new or reconstruction Federal-aid projects complying to the MUTCD before the highway is open to the public for travel as required by FHWA Memorandum Number: 141 Conformance with the MUTCD dated April 9, 2004.
- This plan may have minor adjustments from the MUTCD standard recommendations in order to accommodate projected field conditions. Contractor is solely responsible to make any additional adjustments to safely deploy all traffic control measures to meet field conditions.
- Police officer/flagger to assist pedestrians traveling around the work zone.

TRUE NORTH
SCALE: 1" = 40'



LEGEND

- ▬ Sign
- Direction of traffic
- Cone or delineator
- ▨ Work area
- ▭ Arrow board

ARON M. MURAKAMI
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
HAWAII, U.S.A.

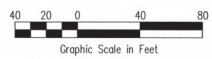
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC CONTROL PLAN - 8
ULUMANU DRIVE**

*KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluaa Street and Ulumanu Drive
Project No. 61D-01-23*

Scale: 1" = 40' Date: DEC, 2023

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

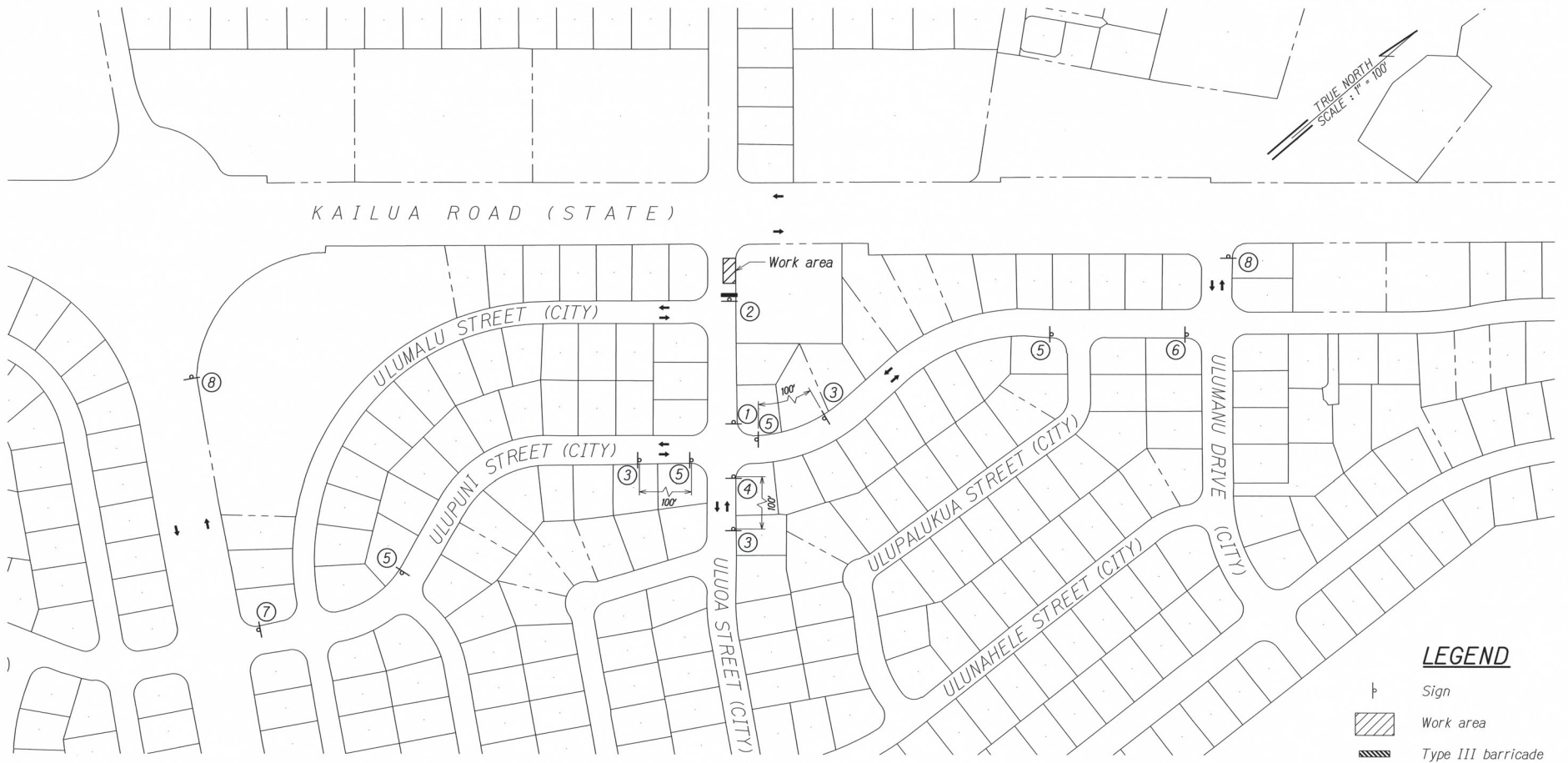


P:\land Projects\DOT - 2021\Traffic Operations Task\PAO 2 Kailua Trail\SIG PSE\Drawings\60 Traffic Control Plan - 8 Ulumanu Drive.dwg, 1/26/2023 9:29:50 AM

REVISION	DATE	BY	CHKD

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	61	87

TRUE NORTH
SCALE: 1" = 100'

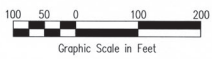


LEGEND

- Sign
- Work area
- Type III barricade
- Direction of traffic

①	②	③	④	⑤	⑥	⑦	⑧

- NOTES:**
- Emergency and pedestrian access to be provided at all times.
 - Contractor to coordinate with affected businesses and residents.



DATE	BY

Alison W. Muraoka
 LICENSED PROFESSIONAL ENGINEER
 No. 6975-C
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

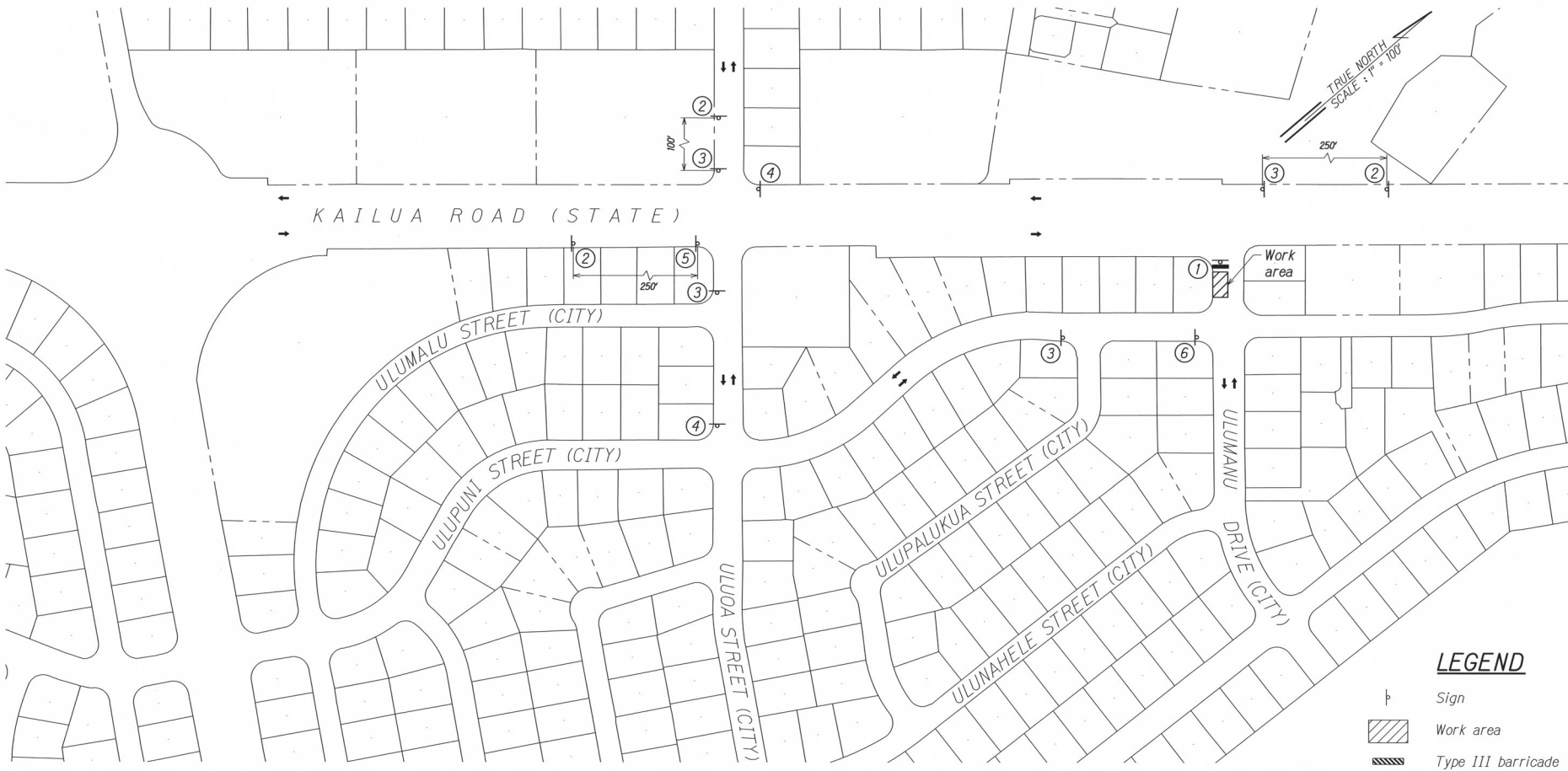
DETOUR PLAN - 1

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulua Street and Ulumanu Drive
 Project No. 61D-01-23

Scale: 1" = 100' Date: DEC, 2023

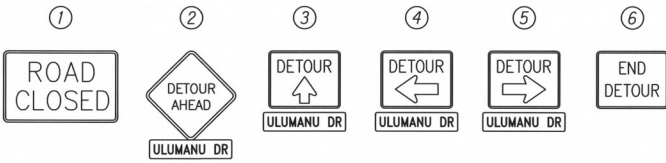
SHEET No. 1 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	64	87

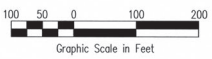


LEGEND

- Sign
- Work area
- Type III barricade
- Direction of traffic



- NOTES:**
- Emergency and pedestrian access to be provided at all times.
 - Contractor to coordinate with affected businesses and residents.



DATE	BY

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETOUR PLAN - 4

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulua Street and Ulumanu Drive
Project No. 61D-01-23

Scale: 1" = 100' Date: DEC, 2023

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

SHEET No. 4 OF 4 SHEETS

P:\Land Projects\DOT IDIC - 2022\Traffic Operations\Task\PO 2 Kailua\Task\5g PSE\Drawing\Detour Plan 4.dwg, 12/26/2023 9:30:12 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	65	87

STRUCTURAL GENERAL NOTES:

General:

- A. Workmanship and materials shall conform to the following design specifications:
 1. AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020 including all interim revisions.
 2. State of Hawaii, Department of Transportation, Highways Division, Design Criteria for Bridges and Structures, August 8, 2014 as amended by HWY-DB 2.5098, Changes to Design Criteria for Bridges and Structures, January 8, 2018.
 3. AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1st Edition, 2015 including all Interim revisions.
 4. Hawaii Standard Specifications for Road and Bridge Construction (2005 Edition) and Special Provisions.
- B. The contractor shall compare all the contract documents with each other and report in writing to the engineer all inconsistencies and omissions.
- C. The contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing work. Report in writing to the engineer all inconsistencies and omissions.
- D. The contractor shall be responsible for coordinating the work of all trades.
- E. The contractor shall be responsible for means and methods of construction, workmanship and job safety.
- F. The contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
- G. Construction loading shall not exceed design live load unless special shoring is provided. Permitted construction loads shall be properly reduced in areas where the structure has not attained full design strength.
- H. The contractor shall be responsible for protection of the adjacent properties, structures, streets and utilities during the construction period. Any damaged or deteriorated property shall be restored to the condition prior to the beginning of work or better at no cost to the State.
- I. Details noted as typical on the structural drawings shall apply in all conditions unless specifically shown or noted otherwise.
- J. Elevations and details of the existing bridges and other miscellaneous structures as shown on these plans are based on as-built drawings. The contractor shall be responsible for verifying all existing elevations and existing structure details and shall notify the engineer in writing of any discrepancies for further action.
- K. Except as noted otherwise, all vertical dimensions are measured plumb.

Design Criteria:

- A. Dead load
 - Weight of all components of the structures, appurtenances attached thereto, and earth covers.
- B. Basic wind speed 145 MPH
- C. Soil Bearing capacity 3,000 psf

Foundation:

- A. Foundation design is based upon Geotechnical Investigation by Kokua Geotech Inc, dated November 27, 2023.
- B. Contractor shall provide for de-watering of excavation from either surface water, ground water or seepage. NPDES permit required for discharging into state waters.
- C. Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary for personnel safety and to preserve excavations and earth banks, and adjacent structures and property for damage. Shoring shall comply with HIOSH and OSHA regulations. Excavation boundaries and grade elevations for footing shall be accepted by a geotechnical engineer licensed in the State of Hawaii prior to placing the concrete and reinforcing.

Concrete:

- A. Concrete shall be regular weight hard rock concrete and shall have a maximum water to cement ratio of 0.45 and a minimum 28-day compressive strengths of 4,500 psi.

- B. The use of any calcium chloride in any concrete is prohibited.
- C. Concrete delivery tickets shall record all free water in the mix at batching plant, added for consistency by driver, and any additional request by contractor up to the maximum amount allowed by the mix design.
- D. Conduits, pipes, and sleeves passing through a wall not conforming to typical details shall be located and submitted to the structural engineer for approval.
- E. Construction joints may be requested to be relocated by the contractor and submit request to its structural engineer for approval. Submit stamped and signed drawings and calculations to the Engineer for acceptance. Construction joints shall be made and relocated as not to impair the durability, strength of the structure and to minimize shrinkage stresses. All construction joints shall be cleaned, laitance removed and wetted. See typical details for specific requirements.
- F. Unless otherwise noted, chamfer all exposed concrete edges 3/4".
- G. Reinforcing bars, anchor bolts, inserts and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
- H. All inserts, anchor bolts, plates, and other structural items to be cast in the concrete shall be hot-dip galvanized according to ASTM A153 unless otherwise noted.
- I. Non-shrink grout shall conform to section 712.04 of the standard specification.
- J. A shrinkage reducing admixture (SRA), Tetraguard AS20 by BASF, Eclipse by W.R. Grace & Co, or an approved equal shall be added to the concrete. The minimum dosage requirement shall be 128 oz per cubic yard of concrete. The concrete shall have a maximum shrinkage strain of 0.00006 at 28 days and 0.000145 at 56 days according to ASTM C512.
- K. A corrosion inhibiting admixture shall be included in the concrete mix for all concrete. The corrosion inhibiting admixture shall contain a minimum of 30% calcium nitrate by mass and shall be added at a dosage rate of 4.0 gallons per cubic yard of concrete or as recommended by the manufacturer. The admixture shall be Masterline CI 30 Calcium Nitrate-Based corrosion inhibitor, DCI S corrosion inhibitor or an approved equal. Addition of corrosion inhibiting admixture shall be as recommended by the manufacturer.
- L. Stay-in-place forms shall not be allowed.
- M. Epoxy-bonding compound shall be two part epoxy resin adhesive conforming to AASHTO M235, Type V, Class C.

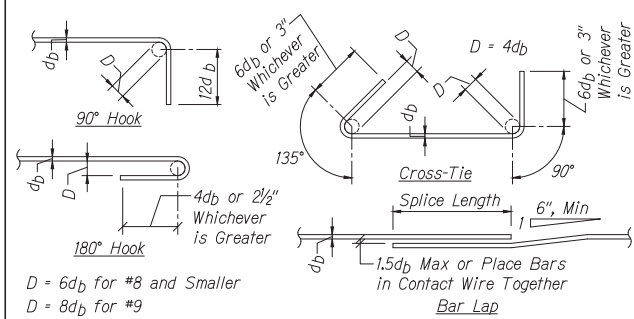
Reinforcing Steel:

- A. Deformed and Plain Carbon Steel Bars for Concrete Reinforcement shall meet the requirements of AASHTO M31M/M31-19, Grade 60 (ASTM A615/A615M-16, Grade 60).
- B. Deformed and Plain Carbon Steel Bars for Concrete Reinforcement to be spliced by welding or otherwise welded, such as welded hoops, or for seismic reinforcing shall meet the requirements of AASHTO M31M/M31-19, Grade 60 (ASTM A615/A615M-16, Grade 60) and meet the requirements of ASTM A706/A706M-16.
- C. The welding of reinforcing steel shall be in accordance with the Structural Welding Code-Reinforcing Steel AWS D1.4.
- D. Epoxy-coated dowels and deformed bars shall conform to ASTM A775, Grade 60 unless otherwise noted.
- E. Clear concrete cover for reinforcing bars shall be as follows, unless otherwise noted:
 1. Concrete cast against earth 3"
 2. Formed and exposed to earth 2"
 3. Drilled shaft spiral reinforcing 4"
 Measured to the closest part of the bars.
- G. At the time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings which may adversely affect bond strength.
- H. Minimum clear spacing between parallel bars shall be one and one-half (1 1/2") times the diameter of the larger bar (for non-bundled bars), but in no case shall the clear distance between the bars be less than one and one-half (1 1/2") times the maximum coarse aggregate size.
- I. All dimensions relating to reinforcing bars (e.g. spacing of bars etc.) are to centers of bars unless noted otherwise.
- J. Reinforcing steel shall be spliced only where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise noted.

- K. Mechanical splice connectors shall develop, in tension, 125 percent of the specified minimum yield strength of reinforcing bars.
- L. Stagger all splices where possible.
- M. Bar bends and hook shall be "standard hooks" in accordance with typical details. Minimum reinforcement bend diameters shall comply with AASHTO 5J0.2.3.

Bar Size	Lap Splice		Embedment		
	Top Bars	Other Bars	Straight		with Standard 90° Hook
			Top Bars	Other Bars	
#3, #4	30"	23"	23"	18"	10"
#5	37"	29"	29"	22"	12"
#6	44"	34"	34"	26"	14"
#7	56"	43"	43"	34"	16"
#8	74"	57"	57"	44"	19"
#9	93"	72"	72"	55"	21"

Notes:
1. "Top Bars" are horizontal bars with 12" or more of concrete cast below.



D = 6db for #8 and Smaller
D = 8db for #9
1.5db Max or Place Bars in Contact Wire Together
Bar Lap

STANDARD HOOKS AND CROSS-TIE DETAIL
Not to Scale

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
APPROVED BY	
IN CHARGE	

Signature:
BRYAN LUI
LICENSED PROFESSIONAL ENGINEER
No. 44843
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

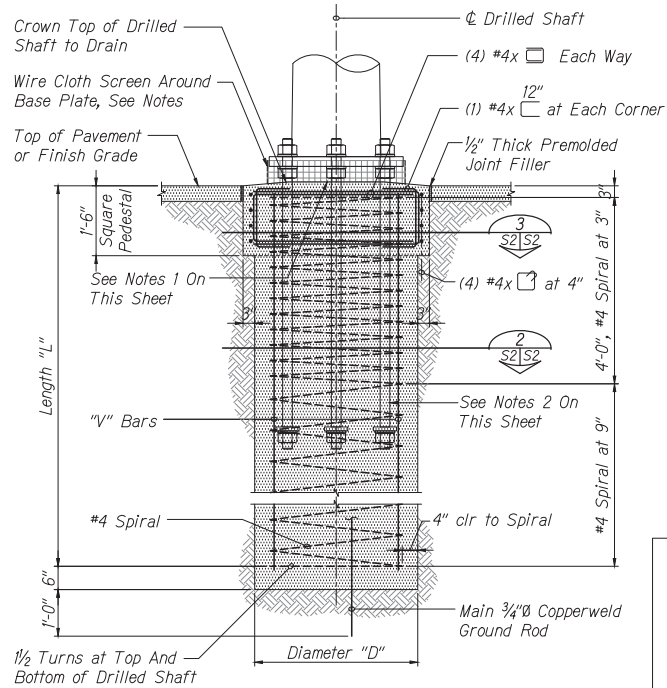
**STRUCTURAL GENERAL NOTES
AND TYPICAL DETAILS**

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-23

Scale: As Shown Date: DEC, 2023

P:\6151-2020\6151-C & C of Hon. T. Eric S. Delaney\Drawings\Structural\ASAC\ASAC_040_Forma2023\11-21\1655-S-Adm. 016_12462023_932127.AM
 P:\6151-2020\6151-C & C of Hon. T. Eric S. Delaney\Drawings\Structural\ASAC\ASAC_040_Forma2023\11-21\1655-S-Adm. 016_12462023_932127.AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	66	87



Construction Tolerance Note:
Anchor Bolts Shall be Installed With Misalignments of Less Than 1:40 From Vertical. After Installation, Firm Contact Shall Exist Between The Anchor Bolt Nuts, Washers, And Base Plate On Any Anchor Bolt Installed In a Misaligned Position.

Wire Cloth Screen Notes:

- A Wire Cloth Screen Shall be Placed Vertically Between The Base Plate And Top of Foundation.
- Wire Cloth Shall be Wrapped Horizontally Around The Base Plate With a 3" Minimum Lap.
- Wire Cloth Shall be Galvanized Steel, Standard Grade, Plain Weave, 2x2 Mesh, With 0.063" Diameter Wires.
- Screen Shall be Attached to The Base Plate With Stainless Steel Self-tapping 1/4" Diameter Screws With Stainless Steel Washers Spaced at 9".

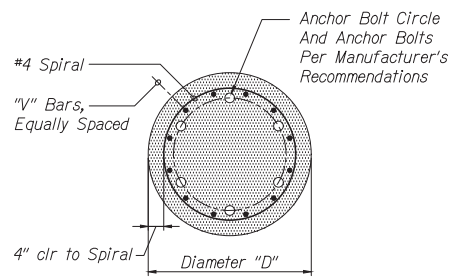
Pole Description	Mast Arm Length	Length "L"	Diameter "D"	Pedestal "P"	"V" Bars
Type II	≤ 30'-0"	12'-0"	3'-6"	4'-0"	(12) #8
Type I	-	6'-0"	2'-0"	2'-6"	(12) #6

Notes:

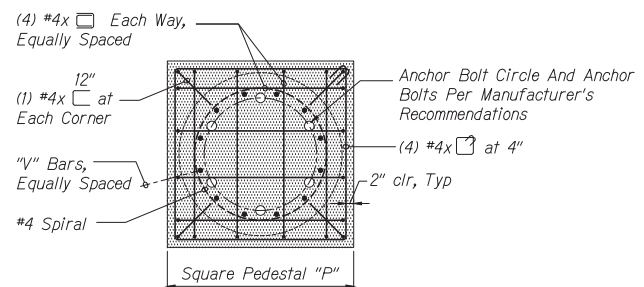
- The Exposed Length of The Anchor Bolt Between The Bottom of The Leveling Nut And The Top of The Drilled Shaft Shall Not Exceed The Anchor Bolt Diameter, Typ
- For Base Plate, Bolt Circle Diameter, And Size, Location, Bolt Projection Length, And Length of Anchor Bolts, Follow Manufacturer's Recommendations

TYPE I AND II TRAFFIC SIGNAL FOUNDATION 1
Scale: 3/4" = 1'-0"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
NOTED BY	
DATE	



SECTION 2 2
Scale: 3/4" = 1'-0"



SECTION 3 3
Scale: 3/4" = 1'-0"

BRYAN LIU
LICENSED PROFESSIONAL ENGINEER
No. 44343
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**DRILLED SHAFT
FOUNDATION DETAILS**

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-23

Scale: As Shown Date: DEC, 2023

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Expiration date: 4/30/24

GEOTECHNICAL NOTES:

1. A geotechnical engineering technical memorandum entitled "Kailua Road Intersection Improvements Vicinity of Uluaa Street and Ulumanu Drive" dated December 1st, 2023 has been prepared by Kokua Geotechnical LLC. A copy of the report is on file at the office of the Engineer for review by the Contractor.
2. For boring locations, see Sheets 7 & 8 of the report.
3. The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
4. The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
5. The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	67	87

Project: Kailua Road Intersection Improvements Project Location: Kailua, Oahu, Hawaii Project Number: 119822-06		Kokua Geotech LLC 64-974 Palala Street, Suite 109 Waipahu, HI 96797 (808) 357-6074		Key to Logs of Borings Sheet 1 of 1	
Elevation (feet)	Depth (feet)	Sample Number	Sampling Resistance	U.S.C.S.	Graphic Log
MATERIAL DESCRIPTION					
<p>COLUMN DESCRIPTIONS</p> <p>1 Elevation (feet): Elevation (MSL), feet.</p> <p>2 Depth (feet): Depth in feet below the ground surface.</p> <p>3 Sample Type: Type of soil sample collected at the depth interval shown.</p> <p>4 Sample Number: Sample identification number.</p> <p>5 Sampling Resistance, blow/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.</p> <p>6 U.S.C.S.: Type of material encountered.</p> <p>7 Graphic Log: Graphic depiction of the subsurface material encountered.</p> <p>8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.</p> <p>FIELD AND LABORATORY TEST ABBREVIATIONS</p> <p>CHEM: Chemical tests to assess consistency COMP: Compression test CONS: One-dimensional consolidation test LL: Liquid Limit, percent</p> <p>PI: Plasticity Index, percent SL: Sieve analysis (percent passing No. 200 Sieve) UC: Unconfined compressive strength test, Cu, in ksf WA: Wash sieve (percent passing No. 200 Sieve)</p> <p>MATERIAL GRAPHIC SYMBOLS</p> <p>Asphaltic Concrete (AC) Basalt Rock Formation Boulders</p> <p>Fat CLAY, CLAY w/SAND, SANDY CLAY (CH) Silty GRAVEL (GM) Silty SAND (SM)</p> <p>TYPICAL SAMPLER GRAPHIC SYMBOLS</p> <p>Auger sampler Bulk Sample Grab Sample</p> <p>HQ Coring 3-inch OD Modified California or brass liners PO Coring</p> <p>Probing w/Pointed Tip 2-inch OD unlined split spoon (SPT)</p> <p>OTHER GRAPHIC SYMBOLS</p> <p>Water level (at time of drilling, ATT) Water level (after sealing) Moisture change in material properties within a stratum Interruption of contact between strata Quarried contact between strata</p> <p>GENERAL NOTES</p> <p>1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be greater. Field descriptions may have been modified to reflect results of lab tests.</p> <p>2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.</p>					

PLATE A-0.1

Project: Kailua Road Intersection Improvements Project Location: Kailua, Oahu, Hawaii Project Number: 119822-06		Kokua Geotech LLC 64-974 Palala Street, Suite 109 Waipahu, HI 96797 (808) 357-6074		Log of Boring No. 1 Sheet 1 of 1	
Drilled: 11/27/23	Logged by: CH	Checked by: AJF			
Drilling Method: CF Auger	Drill Bit Size/Type: 4-inch Solid Stem Auger	Total Depth of Borehole: 21.5 feet			
Drill Rig Type: Mobile B-53	Drilling Contractor: Kokua Geotech LLC	Approximate Surface Elevation: +103 feet MSL*			
Groundwater Level and Date Measured: Not Encountered	Sampling Method(s): MCS & SPT	Hammer Data: 140 lbs. with 30-inch drop			
Borehole: Soil Cuttings, Gravel, and AC located. Patch.	Location: See Site Plan (Plate 2.1)				
Elevation (feet)	Depth (feet)	Sample Number	Sampling Resistance	U.S.C.S.	Graphic Log
MATERIAL DESCRIPTION					
<p>8-inch ASPHALTIC CONCRETE</p> <p>Grayish brown SILTY GRAVEL with some sand, medium (dense, moist dense material).</p> <p>Reddish brown SILTY CLAY with some silt and gravel (cohesive), stiff, moist (HS)</p> <p>Reddish brown to brown SILTY CLAY with some sand and a little gravel, stiff, moist (alluvium)</p> <p>grades to very stiff</p> <p>grades to stiff</p> <p>Boring terminated at approximately 21.5 feet below the existing ground surface</p> <p>*Elevations of borings estimated from Google Earth imagery</p>					

PLATE A-1

Project: Kailua Road Intersection Improvements Project Location: Kailua, Oahu, Hawaii Project Number: 119822-06		Kokua Geotech LLC 64-974 Palala Street, Suite 109 Waipahu, HI 96797 (808) 357-6074		Log of Boring No. 2 Sheet 1 of 1	
Drilled: 11/27/23	Logged by: CH	Checked by: AJF			
Drilling Method: CF Auger	Drill Bit Size/Type: 4-inch Solid Stem Auger	Total Depth of Borehole: 8.5 feet			
Drill Rig Type: Mobile B-53	Drilling Contractor: Kokua Geotech LLC	Approximate Surface Elevation: +102 feet MSL*			
Groundwater Level and Date Measured: Not Encountered	Sampling Method(s): MCS & SPT	Hammer Data: 140 lbs. with 30-inch drop			
Borehole: Soil Cuttings, Gravel, and AC located. Patch.	Location: See Site Plan (Plate 2.1)				
Elevation (feet)	Depth (feet)	Sample Number	Sampling Resistance	U.S.C.S.	Graphic Log
MATERIAL DESCRIPTION					
<p>8-inch ASPHALTIC CONCRETE</p> <p>Grayish brown SILTY GRAVEL with some sand, medium (dense, moist dense material).</p> <p>Light brown SILTY CLAY with some sand and gravel, stiff, moist (HS)</p> <p>Gray BOULDER, hard (alluvium)</p> <p>Brown SILTY CLAY with some sand and gravel, hard, moist (alluvium)</p> <p>Gray BOULDER, hard (alluvium)</p> <p>Boring terminated at approximately 7.0 feet below the existing ground surface on an apparent hard boulder</p>					

PLATE A-2

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
DATE	
NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG - 1

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluaa Street and Ulumanu Drive
Project No. 61D-01-23

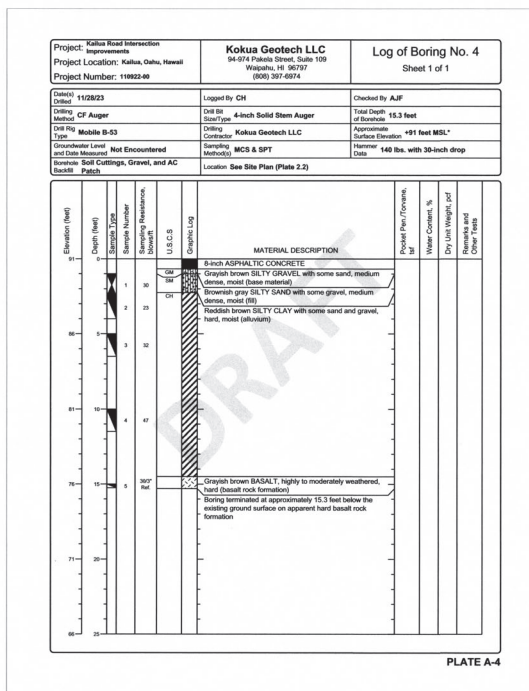
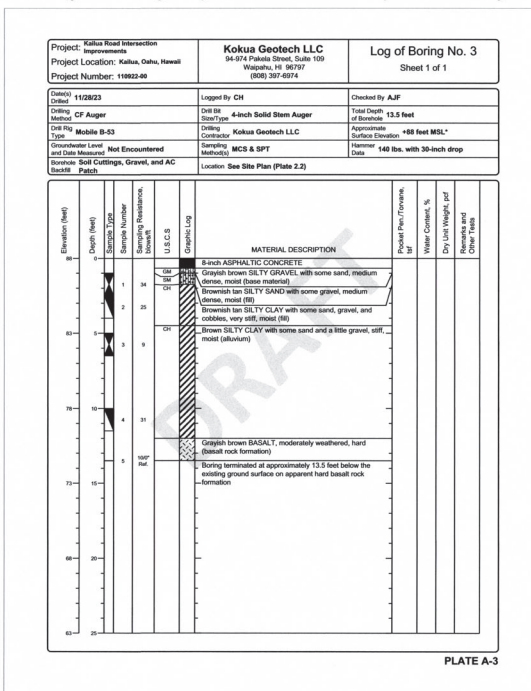
Scale: N/A Date: DEC, 2023

SHEET NO. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2024	68	87

GEOTECHNICAL NOTES:

- A geotechnical engineering technical memorandum entitled "Kailua Road Intersection Improvements Vicinity of Uluaa Street and Ulumau Drive" dated December 1st, 2023 has been prepared by Kokua Geotechnical LLC. A copy of the report is on file at the office of the Engineer for review by the Contractor.
- For boring locations, see Sheets 7 & 8 of the report.
- The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsol conditions from those depicted in the logs of borings may occur between and beyond the borings.
- The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
- The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.



ORIGINAL PLAN	DATE
REVISED BY	
APPROVED BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG - 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluaa Street and Ulumau Drive
Project No. 61D-01-23

Scale: N/A Date: DEC, 2023

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	69	87

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. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
- 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 pullbox locations as shown on the plans are schematic. They may be modified by the contractor with the approval of the engineer.
- All work for the installation or modification of the traffic signal system shall conform to the latest revisions of the "Hawaii Standard Specifications For Road And Bridge Construction, 2005", the "Standard Plans" of the Department of Transportation, Highways Division, Contract Documents, and as shown on these drawings.
- Type II Traffic Signal Standards shall confirm to AASHTO's "LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 1st edition (2015) including all subsequent interim revisions and editions.
- All splicing shall be done in the pullboxes.
- Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately, but shall be considered incidental to the various contract items.
- The concrete jacket for the conduit by-pass detail shown on TE-36 shall not be paid for separately but considered incidental to the various contract items. The engineer shall determine if a concrete jacket is required.
- All cable and elements for grounding shall be new.
- Cables between signal faces, pedestrian heads, pedestrian push buttons, and EVP detectors and the nearest pullbox are NOT called out on the plan, but shall be furnished and installed in sufficient numbers and lengths as required. Cost shall be incidental to various traffic signal contract items.
- Conduits between the traffic signal standard and the pullbox shall be in sufficient number as required. Cost shall be incidental to the installation of the traffic signal standard foundation.
- The contractor shall salvage all existing heads, standards, and cables not used in the new system. Cost shall be incidental to the various contract items.
- While modifying the existing traffic signal system, the contractor shall keep the existing system operational until the new traffic signal system can be put into service.
- Unless otherwise specified, all conduits shall be concrete encased PVC Schedule 40.

- Contractor shall integrate signal control software for those traffic signal controllers that are interconnected by hardware and/or fiber optic cables with the City's Joint Traffic Management Center. Cost shall be considered incidental to the various contract items.
- The contractor shall notify the Transportation Technology Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (Phone: 768-8387).
- All traffic signal hardware removed from the intersection shall be stockpiled and delivered to a location determined by the engineer.
- Traffic signal heads on mast arms shall have a back plate 5" wide with 1-inch retro-reflective border all around.

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 companies to verify, tone and locate their existing utilities within the project area prior to excavating. The contractor shall coordinate all work.
- The locations of the new traffic signal standards, traffic signal standards with mastarm, 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," Federal Highway Administration (2009) and Amendments.
- Maintenance of traffic through the construction area shall be in accordance with part VI of the "Manual On Uniform Traffic Control Devices," Federal Highway Administration (2009) as amended and as specified in the special provisions. the contractor shall furnish and maintain adequate barricades, blinkers, construction signs, etc., for the safety of the motoring public.
- 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.
- The contractor shall provide a 2-foot minimum vertical clearance between traffic signal conduit and all existing utility lines.
- For work within the City's right-of-way, minimum depths for traffic signal ductlines shall comply to the City's Engineering and Policy Memorandum No. CEB-1-08 (dated 2/15/2008).

Legend

New		Existing
→	12" R Y G Standard Traffic Signal Head	
→	12" R Y ↑ Standard Traffic Signal Head	
↗	Standard Traffic and Pedestrian Signal Heads Mounted On Type I Signal Standard, Height=10'	
↔	12" ← ← ← Standard Traffic Signal Head	
↔	12" ← ← ← Programmed Visibility TS Head	
—	Pedestrian Signal Head	
⊙	EVP Detector	
■	Type "A" Pullbox	■
■	Type "B" Pullbox	■
■	Type "C" Pullbox	■
⊞	Replace Existing Type "B" Pullbox	
□	Loop Detector	
⊞	CCTV Camera	
⊞	Controller Cabinet On Base	⊞
⊞	CCTV Cabinet On Base	
—	Sign	
⊞	Traffic Signal Heads With Back Plate 5" Wide With a 1" Retro-reflective Border, Mounted On Type II Signal Standard 30' M.A. : 8' Between Heads	
—	Conduit(s) With Size, Number and Type Of New Cables As Indicated.	-----

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
INVESTIGATED BY	
APPROVED BY	
DATE	

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

T. M. A. Long 4/30/24
SIGNATURE DATE OF CERTIFICATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC SIGNAL NOTES
AND LEGEND**

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukoua Street and Ulumanu Drive
Project No. 61D-01-23

Scale: NTS Date: Dec, 2023

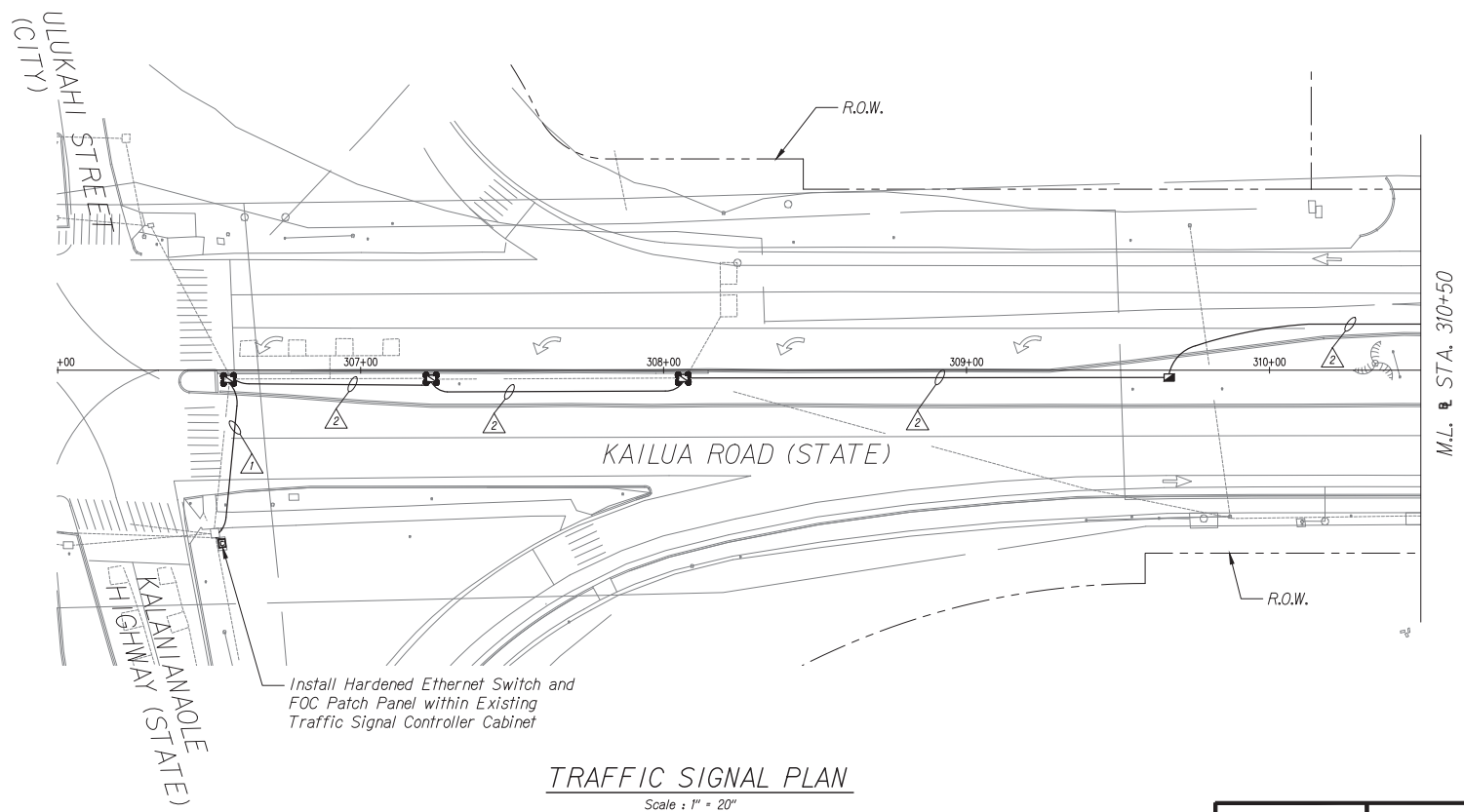
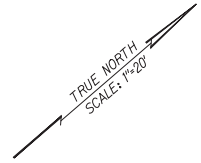
SHEET No. 1 OF 1 SHEETS

C:\Users\p\OneDrive\Desktop\2023 Kailua Plans\15 - Proj. 12/28/2023 4:10:03 PM

Conduit and Cable Schedule		
Symbol	Cond.	Description
△	2" Conc.	1 - 6SM FOC*
	2" Conc.	Spare
	2" Conc.	Spare
	2" Conc.	Spare
△	2" Conc.	1 - 6SM FOC*
	2" Conc.	Spare

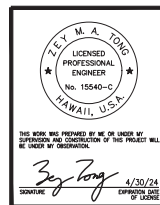
* With Fabric Inner Duct

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	70	87



TRAFFIC SIGNAL PLAN
Scale : 1" = 20"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
PROJECT NO.	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 Tey M. A. Long
 4/20/24
 SIGNATURE DATE OF WORK

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 1

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluakahi Street and Uluakahi Drive
Project No. 61D-01-23

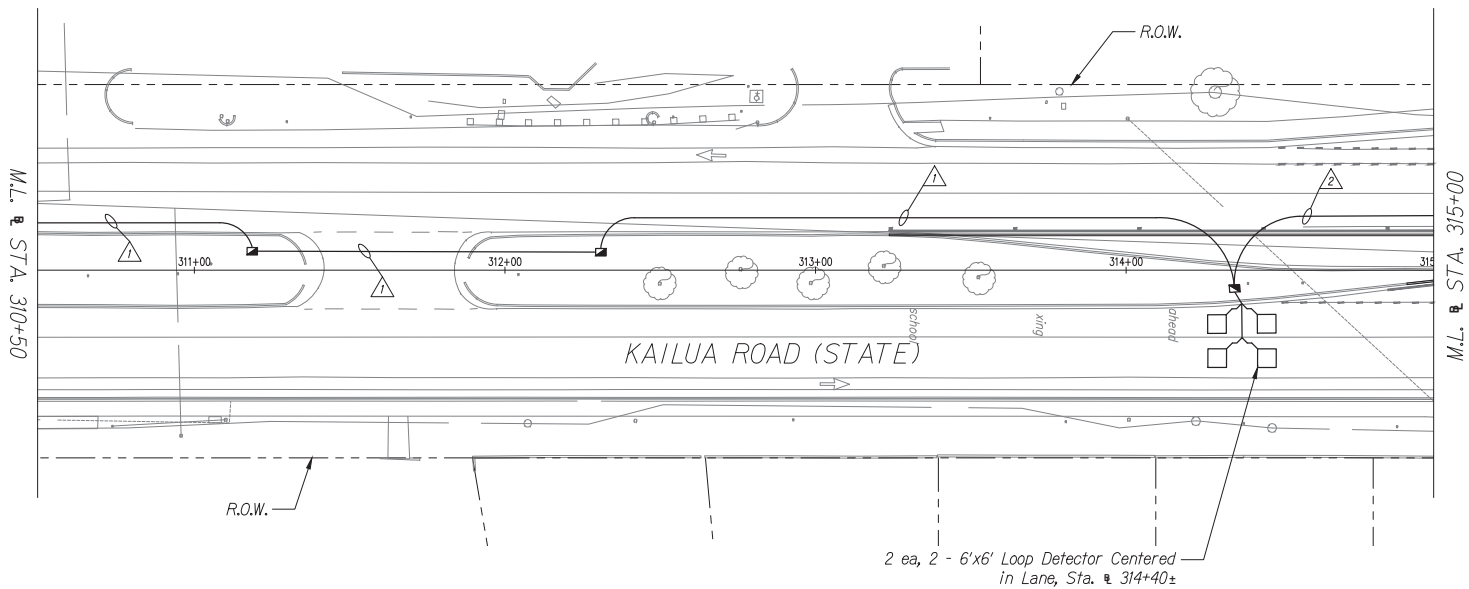
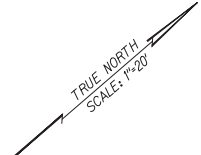
Scale: 1" : 20" Date: Dec, 2023

C:\Users\p\p\OneDrive\Desktop\2023\Kailua\Kailua Plans\TS-2.dwg, 12/20/23 4:10:04 PM

Conduit and Cable Schedule		
Symbol	Cond.	Description
△	2" Conc.	1 - 6SM FOC*
	2" Conc.	Spare
△	2" Conc.	1 - 6SM FOC*
	2" Conc.	2 - 2C*14

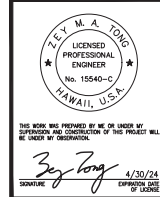
* With Fabric Inner Duct

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	71	87



TRAFFIC SIGNAL PLAN
Scale : 1" = 20"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
INVESTIGATED BY	
APPROVED BY	
NO.	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluoa Street and Uluamanu Drive
Project No. 61D-01-23

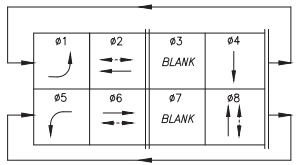
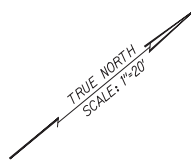
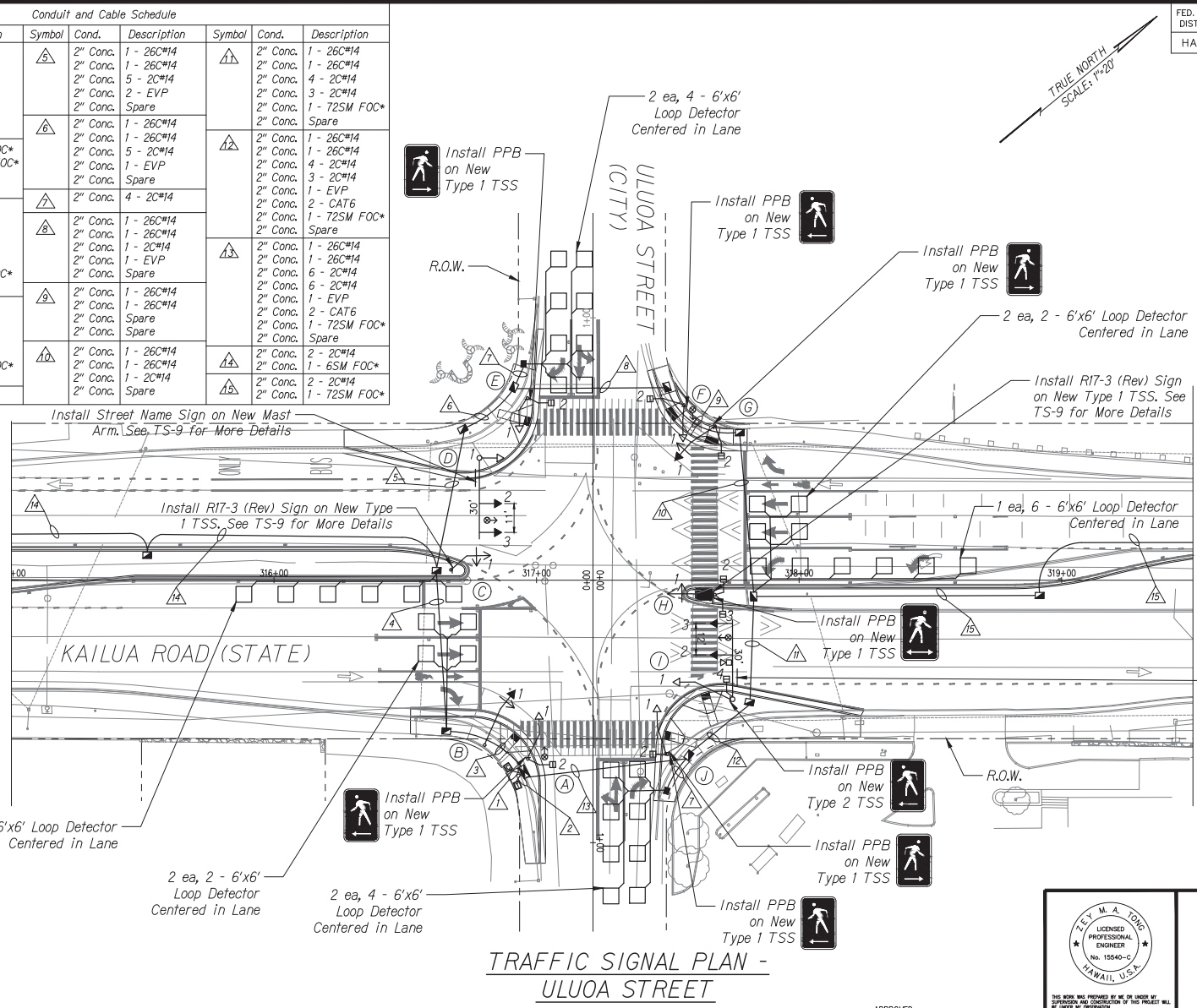
Scale: 1" = 20" Date: Dec, 2023

C:\Users\p\p\OneDrive\Desktop\2023\Kailua\Kailua Plans\TS-2.dwg, 1/28/2023 4:10:05 PM

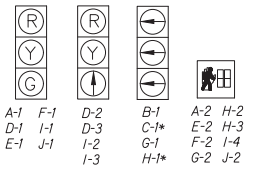
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	72	87

Conduit and Cable Schedule								
Symbol	Cond.	Description	Symbol	Cond.	Description	Symbol	Cond.	Description
⚠	3" Conc.	2 - 26C*14	⚠	2" Conc.	1 - 26C*14	⚠	2" Conc.	1 - 26C*14
	3" Conc.	2 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14
	3" Conc.	23 - 2C*14		2" Conc.	5 - 2C*14		2" Conc.	4 - 2C*14
	2" Conc.	4 - EVP		2" Conc.	2 - EVP		2" Conc.	3 - 2C*14
	2" Conc.	1 - 3C*8		2" Conc.	Spare		2" Conc.	1 - 72SM FOC*
⚠	2" Conc.	1 - CAT6	⚠	2" Conc.	1 - 26C*14	⚠	2" Conc.	1 - 26C*14
	2" Conc.	Spare		2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14
	2" Conc.	1 - 6SM FOC*		2" Conc.	1 - 26C*14		2" Conc.	2 - CAT6
	2" Conc.	1 - 72SM FOC*		2" Conc.	1 - EVP		2" Conc.	1 - 72SM FOC*
	2" Conc.	1 - 3C*8		2" Conc.	Spare		2" Conc.	Spare
⚠	2" Conc.	3 - CAT6	⚠	2" Conc.	4 - 2C*14	⚠	2" Conc.	1 - 26C*14
	2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14
	2" Conc.	1 - 26C*14		2" Conc.	6 - 2C*14		2" Conc.	1 - 26C*14
	2" Conc.	6 - 2C*14		2" Conc.	1 - 2C*14		2" Conc.	1 - 2C*14
	2" Conc.	5 - 2C*14		2" Conc.	1 - EVP		2" Conc.	1 - EVP
⚠	2" Conc.	2 - EVP	⚠	2" Conc.	2 - EVP	⚠	2" Conc.	1 - 26C*14
	2" Conc.	1 - 6SM FOC*		2" Conc.	Spare		2" Conc.	1 - 26C*14
	2" Conc.	Spare		2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14
	2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	2 - 2C*14
	2" Conc.	2 - EVP		2" Conc.	1 - 26C*14		2" Conc.	1 - 6SM FOC*
⚠	2" Conc.	1 - 6SM FOC*	⚠	2" Conc.	1 - 26C*14	⚠	2" Conc.	2 - 2C*14
	2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	1 - 72SM FOC*
	2" Conc.	5 - 2C*14		2" Conc.	Spare		2" Conc.	2 - 2C*14
	2" Conc.	5 - 2C*14		2" Conc.	Spare		2" Conc.	2 - 2C*14
	2" Conc.	2 - EVP		2" Conc.	1 - 26C*14		2" Conc.	1 - 72SM FOC*
⚠	2" Conc.	1 - 6SM FOC*	⚠	2" Conc.	1 - 26C*14	⚠	2" Conc.	2 - 2C*14
	2" Conc.	Spare		2" Conc.	1 - 26C*14		2" Conc.	1 - 72SM FOC*
	2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	2 - 2C*14
	2" Conc.	1 - 26C*14		2" Conc.	1 - 26C*14		2" Conc.	2 - 2C*14
	2" Conc.	2 - EVP		2" Conc.	Spare		2" Conc.	1 - 72SM FOC*

* With Fabric Inner Duct



PHASE DIAGRAM
New Model 2070 Controller
New Model 332 Cabinet



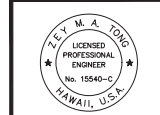
SIGNAL INDICATIONS
*Programmable Visibility Head

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
INVESTIGATED BY	
APPROVED BY	
DATE	

**TRAFFIC SIGNAL PLAN -
ULUA STREET**

Scale : 1" = 20'

APPROVED:



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Tey M. A. Long
DATE: 4/30/24
SHEET NO. 3 OF 6 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 3

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulua Street and Uluamanu Drive
Project No. 61D-01-23

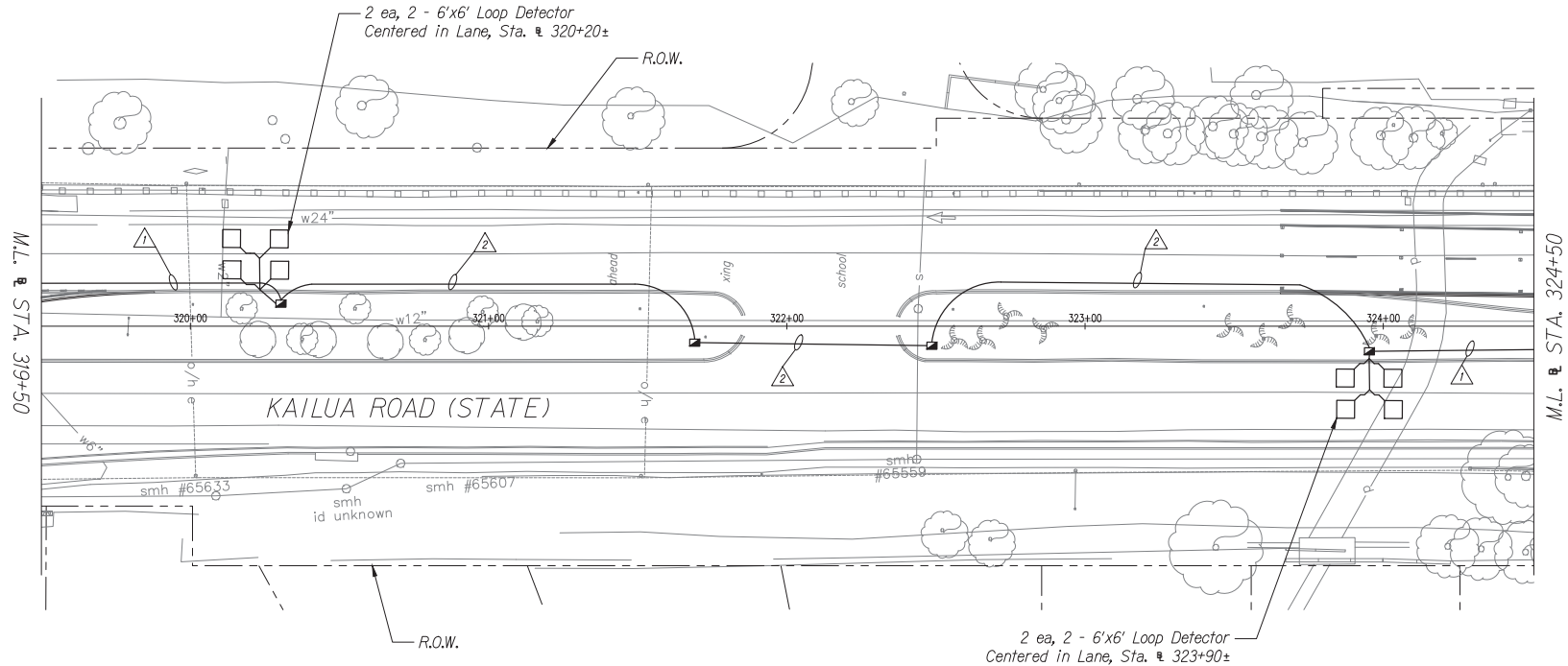
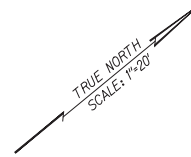
Scale: 1" = 20' Date: Dec, 2023

Note: See S-XX for New Mast Arm Foundation Details

Conduit and Cable Schedule		
Symbol	Cond.	Description
△	2" Conc.	1 - 72SM FOC*
	2" Conc.	2 - 2C#14
△	2" Conc.	1 - 72SM FOC*
	2" Conc.	Spare

* With Fabric Inner Duct

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	73	87



TRAFFIC SIGNAL PLAN

Scale : 1" = 20"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
INVESTIGATED BY	
APPROVED BY	
NO.	

TEY M. A. LONG
LICENSED PROFESSIONAL ENGINEER
No. 15540-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.

Tey M. A. Long
SIGNATURE 4/20/24
DATE OF ISSUE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 4

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Uluoa Street and Uluamanu Drive
Project No. 61D-01-23

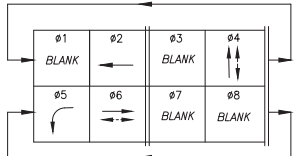
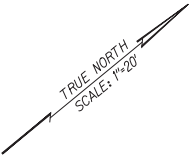
Scale: 1" : 20" Date: Dec, 2023

SHEET No. 4 OF 6 SHEETS

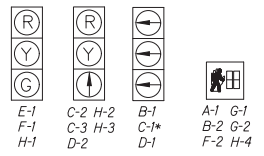
Conduit and Cable Schedule								
Symbol	Cond.	Description	Symbol	Cond.	Description	Symbol	Cond.	Description
⚠	3" Conc.	2 - 26C#14	⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	1 - 26C#14
	3" Conc.	15 - 2C#14		2" Conc.	2 - 2C#14		2" Conc.	4 - 2C#14
	2" Conc.	3 - EVP		2" Conc.	1 - EVP		2" Conc.	3 - 2C#14
	2" Conc.	1 - 3C#8		2" Conc.	2 - CAT6		2" Conc.	1 - EVP
	2" Conc.	1 - CAT6		2" Conc.	1 - 72SM FOC*		2" Conc.	Spare
⚠	2" Conc.	1 - 72SM FOC*	⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	1 - 26C#14
	2" Conc.	1 - 3C#8		2" Conc.	Spare		2" Conc.	4 - 2C#14
	2" Conc.	3 - CAT6		2" Conc.	Spare		2" Conc.	3 - 2C#14
⚠	2" Conc.	4 - 2C#14	⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	2 - 2C#14
	2" Conc.	1 - 26C#14		2" Conc.	1 - EVP		2" Conc.	1 - 72SM FOC*
		2" Conc.			4 - 2C#14			2" Conc.
⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	2 - 2C#14
	2" Conc.	4 - 2C#14		2" Conc.	1 - EVP		2" Conc.	2 - 2C#14
	2" Conc.	1 - EVP		2" Conc.	Spare		2" Conc.	Spare
	2" Conc.	2 - CAT6		2" Conc.	1 - 72SM FOC*		2" Conc.	Spare
⚠	2" Conc.	1 - 72SM FOC*	⚠	2" Conc.	1 - 26C#14	⚠	2" Conc.	3 - 2C#14
	2" Conc.	1 - 3C#8		2" Conc.	3 - 2C#14		2" Conc.	1 - EVP
	2" Conc.	3 - CAT6		2" Conc.	1 - EVP		2" Conc.	Spare

* With Fabric Inner Duct

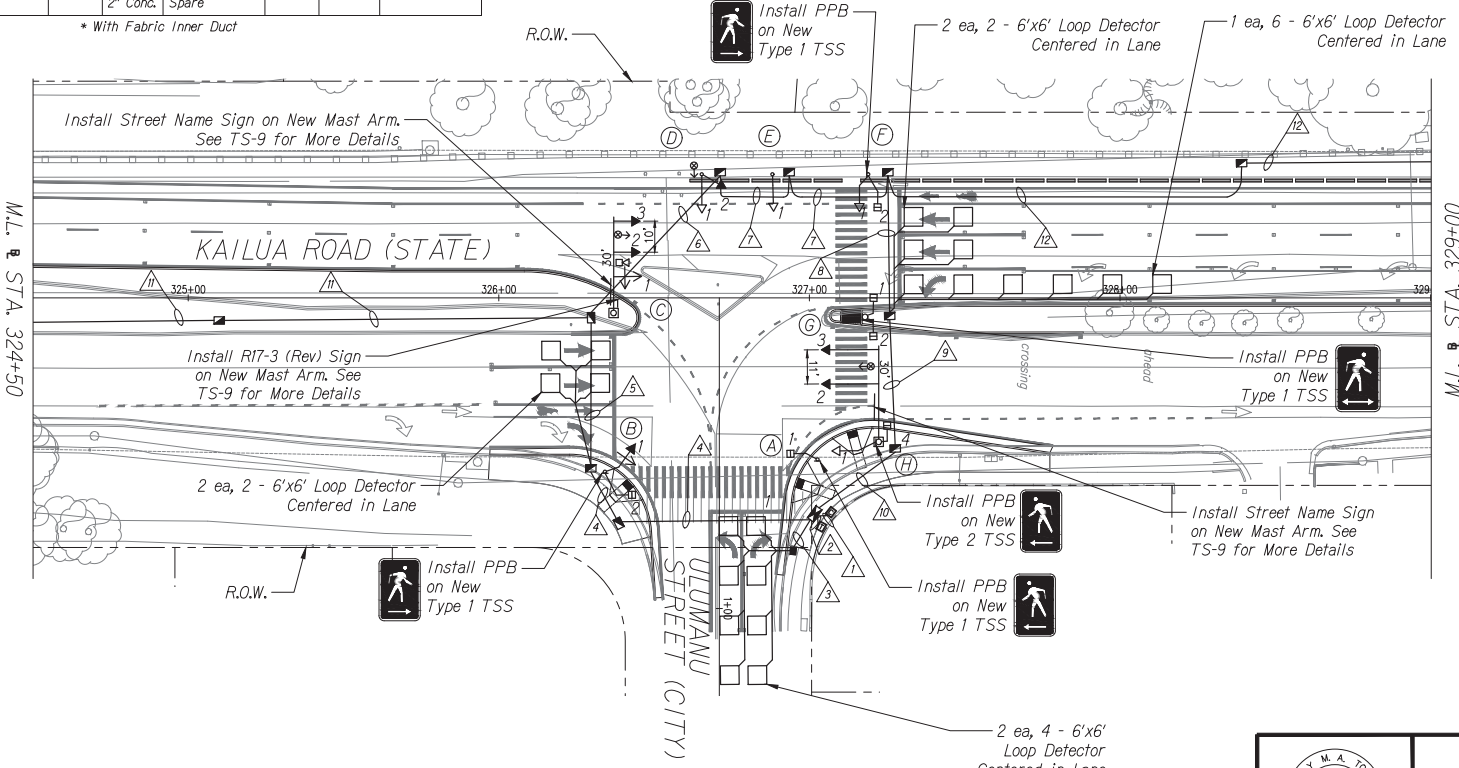
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	74	87



PHASE DIAGRAM
New Model 2070 Controller
New Model 332 Cabinet



SIGNAL INDICATIONS
*Programmable Visibility Head



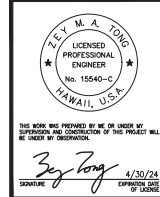
**TRAFFIC SIGNAL PLAN -
ULUMANU STREET**

Scale: 1" = 20"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
APPROVED BY	
DATE	

Note: See S-XX for New Mast Arm Foundation Details

APPROVED:



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 5

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulumanu Street and Ulumanu Drive
Project No. 61D-01-23

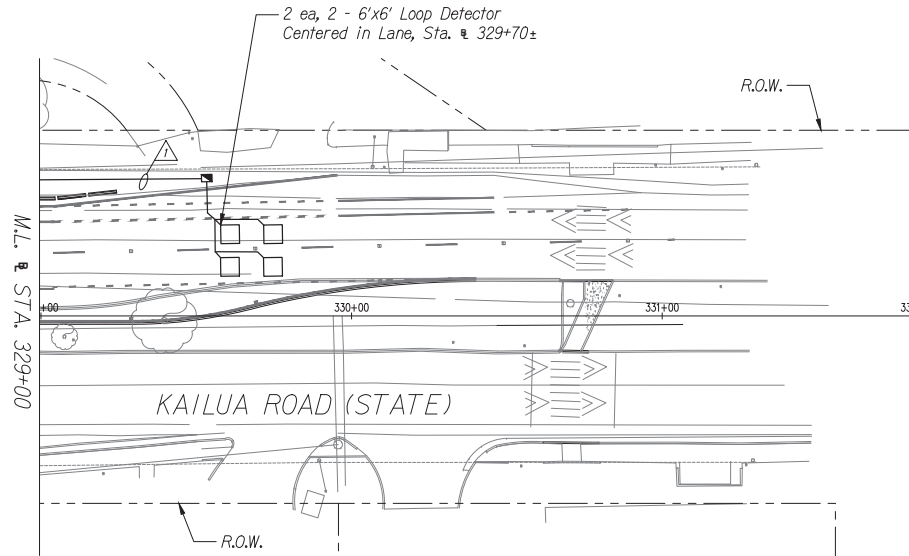
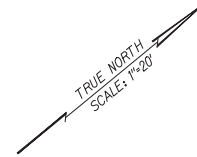
Scale: 1" = 20" Date: Dec, 2023

SHEET No. 5 OF 6 SHEETS

Conduit and Cable Schedule		
Symbol	Cond.	Description
△	2" Cong.	2 - 2C#14
	2" Cong.	Spare

* With Fabric Inner Duct

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	75	87



TRAFFIC SIGNAL PLAN

Scale : 1" = 20"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE	
PROJECT NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN - 6

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-23

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

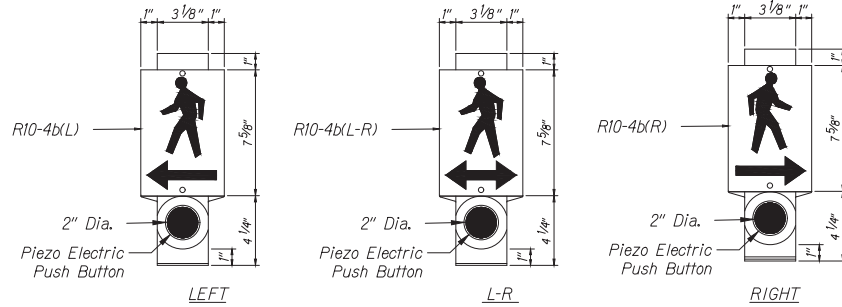
T. M. A. Long
SIGNATURE 4/20/24
DATE

Scale: 1" = 20" Date: Dec, 2023

C:\Users\p\p\OneDrive\Desktop\2023 Kailua\Kailua Plans\157.dwg, 1/28/2023 4:10:08 PM

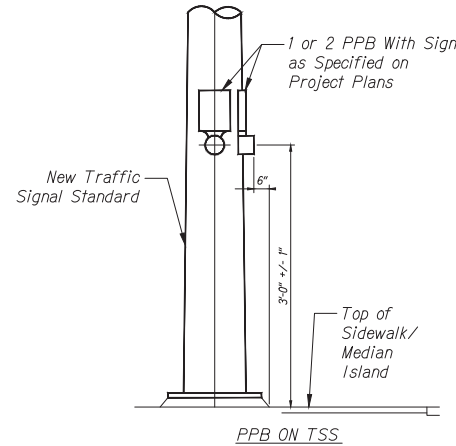
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	76	87

THE Color Scheme Shall Be:
 White - Man, Arrow and Push Button
 Black - Background
 NOTE: On Plan Sheet, Use Applicable Detail.



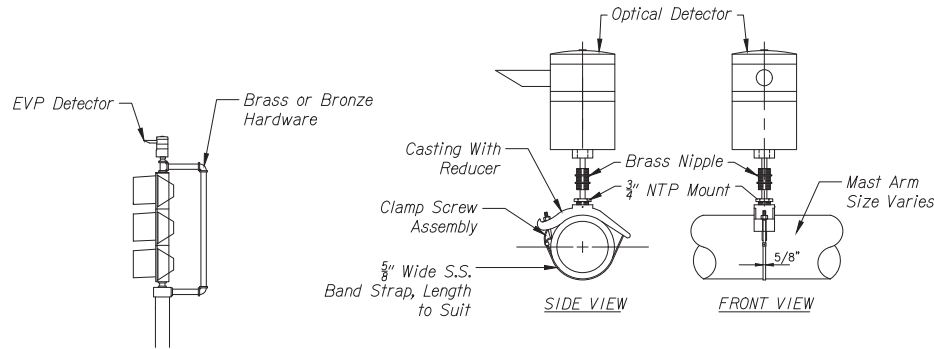
PEDESTRIAN PUSH BUTTON DETAILS

Not to Scale



NOTES:

- The pedestrian push button shall meet operational requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG):
 - Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
- There shall be 30" x 48" level ground surface (2% max, cross slope, both directions) for a forward or side approach, as appropriate, to a pedestrian push button.
- Refer to HDOT Standard Plans TE-32 for additional requirements.



OPTICAL DETECTOR FOR MAST ARM MOUNTING

Not to Scale

POST TOP TP-EVP MOUNTING

Not to Scale

NOTES:

- Optical Detector shall be "Model 711 Preemption Detector" or approved equal, unless noted otherwise in the Special Provisions.
- Support Saddle assembly shall be "Astro Mini-Brac, AB-0132-29", or approved equal, unless noted otherwise in the Special Provisions.

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE BY	
PROJECT NO.	
DATE	

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

T. M. A. Long
 SIGNATURE 4/20/24
 DATE OF ISSUE

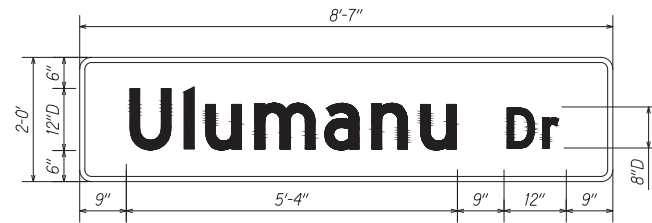
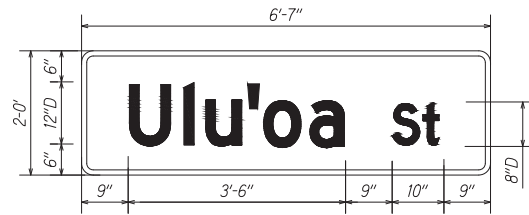
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS - 1

KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulukou Street and Uluemanu Drive
 Project No. 61D-01-23

Scale: NTS Date: Dec, 2023

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-23	2023	77	87



Street Name Sign Details
Scale : NTS



R17-3 (Rev) Detail
Scale : NTS

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
INVESTIGATED BY	
APPROVED BY	
PROJECT NO.	

TEY M. A. LONG
LICENSED PROFESSIONAL ENGINEER
No. 15640-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.

Tey M. A. Long
SIGNATURE 4/20/24
DATE OF WORK

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

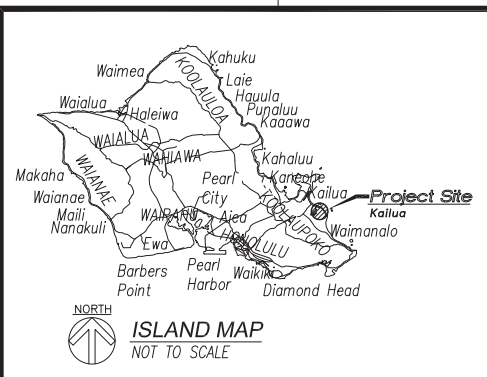
TRAFFIC SIGNAL DETAILS - 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulu'oa Street and Ulumanu Drive
Project No. 61D-01-23

Scale: NTS Date: Dec, 2023

Z:\ACAD\PROJECTS\223057\E001 SYMBOL LIST.12/16/2023 10:34AM Mdegeorge

ORIGINAL	DATE
DUPLICATE	
REVISION	
BY	
DATE	
BY	
DATE	
BY	
DATE	



Notes For Bedding Beneath Underground Structures:

- Boxes And Structures Without Bottom Slabs (Open Base): 4" Minimum Thickness Of No. 3 Fine Gravel; ASTM C-33-03, #67.
- Boxes And Structures With Bottom Slabs (Closed Base): 4" Minimum Thickness Of Clean, Well-Graded Granular Material With A Maximum Particle Size Of Three (3) Inches, And Less Than Three (3) Percent Passing The No. 200 Sieve Or Select Borrow.
- Provide Select Granular Bedding Beneath Handholes Shall Be Placed In Relatively Uniform Lifts No Greater Than Eight (8) Inches In Loose Thickness, Moisture Conditioned To Optimum Moisture Content, And Uniformly Compacted To At Least Ninety (90) Percent Of The Maximum Dry Density (ASTM D1557-02). Contractor To Schedule With Owner's Geotechnical Inspector For Compaction And Bedding Installation. Pullbox/Handholes To Be Installed Flush With Walkway.

Notes For Construction:

- The Location Of 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 Proximity Of Underground Lines And Shall Maintain Adequate Clearance When Operating Equipment Under Any Overhead Lines.
- The Contractor Is To Comply With The Directions Of The State Of Hawaii Occupational Safety And Health Law (dosh).
- When Trench Excavation Is Adjacent To Existing Structures Or Facilities, The Contractor Is Responsible For Properly Sheeting And Bracing The Excavation And Stabilizing The Existing Ground To Render It Safe And Secure From Possible Slides, Cave-ins And Settlement, And For Properly Supporting Existing Structures And Facilities With Beams, Struts Or Underpinning To Fully Protect It From Damage.
- As Required By The City And County Of Honolulu, The Contractor Shall Provide Off-duty Police Officers To Control The Flow Of Traffic.
- Where Pedestrian Walkways Exist, Such Walkways Shall Be Maintained In Passable Condition Or Other Facilities For Pedestrians Shall Be Provided. Passage Between Walkways At Intersections Shall Likewise Be Provided.
- Driveways Shall Be Kept Open Unless The Owners Of The Property Using These Right-of-ways Are Otherwise Provided For Satisfactorily.
- The Underground Pipes, Cables Or Ductlines Known By The Engineer To Exist 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. 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.
- Adhere To "Hawaiian Telcom Standard Specification For Placing Telephone Systems", Dated January 2007.

General Notes:

- Contractor Shall Be Responsible To Arrange With The General Contractor To Identify The Locations Of Civil Site Utilities, Driveways, Etc. Prior To Electrical Contractors Layout Of Electric, Telephone, Street Light, Traffic Signal, And Catv Systems.
- Provide 5' Minimum Clear Between Street Light Poles & Sewer Laterals.
- Provide 3' Minimum Clear Between Pullboxes & Sewer Laterals.
- Provide 6' Minimum Clear Between Transformer Pads & Sewer Laterals (do Not Straddle).
- Provide 3' Minimum Clear Between Ductlines & Sewer Lines.
- Contractor Shall Verify Sewer Lateral Locations With Civil Sheets.
- Provide 3' Minimum Horizontal Clear & 6" Vertical Clear Between Water Lines & All Electrical Systems.
- Provide 6" Minimum Vertical Clearance Between Ductlines & Drainlines.
- Provide 12" Minimum Clearance Between Ductlines & Drainlines/drainage Structures.
- Contractor Shall Contact Jon Okimoto At 768-8416 Prior To Start Of Work.

ELECTRICAL CONDUIT/CABLE SYMBOLS			DESCRIPTION
SYMBOL			
EXST	DEMO	NEW	
---	---x---	---	Underground Conduit, 3/4" Min. Conduit. Min. 3" Conc Encasement.
---0-0---	---x-0-0---	---	Electrical Underground Ductline. "A" Denotes Duct Section A, "2-3E" Denotes (2) 3" H.E. Ducts. See Sht E-06 For Duct Sections.
---	---x-1-x---	---	Street Light Conduit/Cables
---	---	---	Sawcut Existing A.C. Pavement & Concrete Sidewalk Prior To Trench Excavation. Restore Subbase, Base Course, Pavement, & Concrete Sidewalk Per HDOT Requirements. Thickness Shall Match Exst. See Civil Sheets For Restoration Details.
---	---	---	H.E. 2' X 4' X 2'-8" Precast Concrete Pullbox, W/ Precast Conc. Cover, Per H.E. Std Dwg No. 103782
---	---	---	Free-Standing H.E. Metering Pedestal 3'-0" X 1'-3". Dashed Line Indicates Clear Space/easement (5'-3" X 8'-0"). See Sheet E-07
---	---	---	State Street Light, 108w, 3000k, Led Luminaire, Aluminum Pole, Base & Bracket Arm Model
---	---	---	State Street Light, 120W, 3000k, Led Luminaire, Aluminum Pole, Base & Bracket Arm Model ERS1-0-16-E1-30-A-GRAY-R U.I.O. See Detail E-08 / E-09.

Equipment Schedule:

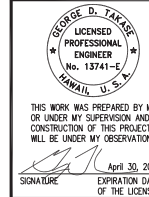
2' x 4' HE Handhole - 2' x 4' Precast Concrete Handhole with Precast Concrete Cover, Provided in Accordance with HE Standard Drawing 103782.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	78	87

Abbreviations:

A	Amps
Brk	Breaker(s)
Ckt	Circuit
Comm	Communication
Conn	Connection/connected
Ctrl	Control/controlled
Det	Detail
Disc	Disconnect
E.A.	Each
Exst	Existing
Fut	Future
Fxt	Fixture
GFCI	Ground Fault Current Interrupting
Gnd	Ground
J-box	Junction Box
Loc	Location
Lt	Light
Mech	Mechanical
Mtd	Mounted/Mounting
Nom	Nominal
Pnl	Panel
PV	Photovoltaic
Recep	Receptacle
Req	Required
Schd	Schedule
Sht	Sheet
Sq	square
Surf	Surface
Sw	Switch
U.I.O.	Unless Indicated Otherwise
V	Volt
W/	With
WP	Weatherproof
Xfmr	Transformer

CONDUIT SCHEDULE	
3E	H.E. 1-3"C, Pvc Schd. 40, Concrete Encased
2S	Secondary Power 1-2"C, Schd. 40 Concrete Encased
1/2	Light 1-1 1/2"C, Schd.40, Concrete Encased



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ISLAND MAP, NOTES, AND SYMBOL LIST

KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulukou Street and Ulumanu Drive
 Project No. 61D-01-2S

Scale: As Noted Date: DEC, 2023

Z:\ACAD\PROJECTS\223057\E002_HE NOTES 1_12/6/2023 11:07AM_Mdegeorge

ORIGINAL	DATE
BY	
BY	
BY	
BY	
BY	
BY	
BY	
BY	
BY	

Hawaiian Electric Company (HECo) Notes:
Rev. 08/04/21

1. Location of Hawaiian Electric Facilities

The Location of Hawaiian Electric'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 Verify in the Field the Locations of the Facilities and Shall Exercise Proper Care in Excavating and Working in the Area. Wherever Connections of New Utilities to Existing Utilities and Utility Crossings are Shown, the Contractor Shall Expose the Existing Lines at the Proposed Connections and Crossings to Verify the Depths Prior to Excavation for the New Lines. The Contractor Shall Be Responsible for Any Damages to Hawaiian Electric's Facilities Whether Shown or Not Shown on the Plans.

2. Compliance with Hawaii Occupational Safety and Health Laws

The Contractor Shall Comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, Including Without Limitation, Those Related to Working on or Near Exposed or Energized Electrical Lines and Equipment.

3. Excavation Clearance

The Contractor Shall Obtain an Excavation Clearance from Hawaiian Electric's Planning and Design Section of the Transmission & Distribution Engineering Department (543-5654) Located at 820 Ward Avenue, 4th Floor, a Minimum of Ten (10) Working Days Prior to Starting Construction.

4. Caution!!! Electrical Hazard!!!

Existing Hawaiian Electric Overhead and Underground Lines are Energized and Will Remain Energized During Construction Unless Prior Special Arrangements Have Been Made with Hawaiian Electric. Only Hawaiian Electric Personnel are to Handle These Energized Lines and Erect Temporary Guards to Protect These Lines from Damage. The Contractor Shall Work Cautiously at All Times to Avoid Accidents and Damage to Existing Hawaiian Electric Facilities, Which Can Result in Electrocution.

5. Overhead Lines

State Law (OSHA) Requires that a Worker and the Longest Object He or She may Contact Cannot Come Closer Than a Specified Minimum Radial Clearance When Working Close to or Under Any Overhead Lines. It is the Contractor's Responsibility to be Informed of and Comply with the Law.

At Any Time Should the Contractor Anticipate that His Work will Result in the Need to Encroach within the Minimum Required Clearance as Stated in the Law, the Contractor Shall Notify Hawaiian Electric at Least Three (3) Months Prior to the Planned Encroachment so that, if Feasible, the Necessary Protections (E.G. Relocate or De-Energize Hawaiian Electric Lines) Can Be Investigated. Hawaiian Electric May Also Be Able to Blanket its Distribution (12KV and Below) Lines to Provide a Visual Aid in Preventing Accidental Contact. Hawaiian Electric's Cost of Safeguarding or Identifying its Lines will be Charged to the Contractor.

Contact Hawaiian Electric's Customer Relations at 543-7070 for Assistance in Identifying and Safeguarding Overhead Power Lines.

6. Pole Bracing

a. Contractor Shall Not Excavate within 10 Feet of Hawaiian Electric's Utility Poles or Any Anchor System Supporting the Utility Pole. If Contractor

Must Excavate an Area More than 12 Inches Deep by 12 Inches Wide, and Closer Than 10 Feet From a Utility Pole or Its Anchor System, Except When Excavating for Risers in a Single Trench Not Wider Than 12 Inches and Not Deeper Than 3 Feet, Contractor Will Be Responsible for Protecting, Supporting, Securing and Taking All Precautions to Prevent Damage to or Leaning Of Existing Poles. Before Commencing Such Excavation, Contractor Must Notify Hawaiian Electric Which May Lead to Implementing Pole Bracing Requirements. Hawaiian Electric Requires A Minimum of Ten (10) Working Days to Conduct the Review of Contractor's Submittal. Contractor Shall Submit Its Bracing Calculations and Drawings, Prepared and Stamped By A Licensed Structural Engineer, to Hawaiian Electric's Customer Relations (543-7070) For Review. Contractor Shall Be Responsible For the Design, Installation, and Removal of the Temporary Pole Bracing System, As Well As All Costs Incurred By Hawaiian Electric To Review Contractor's Drawings And To Repair Or Straighten Poles Impacted By Contractor's Activities, Including Response and Restoration Costs Incurred By Hawaiian Electric Arising Out of or Related to Outages Caused By Contractor's Failure to Meet the Foregoing Requirements. Hawaiian Electric's Receipt of Pole Bracing Calculation or Drawing Submittals of Any Contractor, Including Work Procedure, Shall Not Relieve Contractor From Any Liability Resulting From Contractor's Excavation Near or Around Hawaiian Electric's Utility Poles.

b. Hawaiian Electric May Provide to the Customer Information Related to Pole Bracing, Including Calculations and Other Basic Engineering. However, Hawaiian Electric Provides this Information for Informational Purposes Only and Does Not Warrant Any of the Information Provided to Customer. Hawaiian Electric Herely Disclaims Any Liability Associated with the Customer's Use of Information Provided to the Customer from Hawaiian Electric. It is the Customer's Duty to Obtain Engineering from Its Own Engineer or Contractor. In Order to Brace Poles and the Use of Hawaiian Electric's Information Does Not Excuse the Customer From Performing Its Own Evaluation of the Bracing Needs. Should the Customer Install Bracing at Any Pole Location, Customer Shall Defend, Indemnify and Hold Harmless Hawaiian Electric from Any Third Party Claims Associated with the Customer's Bracing of a Pole. Should the Work Customer Perform at or Near the Pole Location Compromise the Pole or Its Surroundings in Any Way, Customer Shall Restore or Replace the Pole so that it is No Longer Compromised.

7. Underground Lines

The Contractor Shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity of Underground Lines. Hawaiian Electric's Existing Electrical Cables are Energized and Will Remain Energized During Construction. Only Hawaiian Electric Personnel are to Break into Existing Hawaiian Electric Facilities, Handle These Cables, and Erect Temporary Guards to Protect These Cables from Damage. The Cost of Hawaiian Electric's Assistance in Providing Proper Support and Protection of its Underground Lines Will Be Charged to the Contractor. For Assistance/Coordination in Providing Proper Support and Protection of these Lines, the Contractor Shall Call Hawaiian Electric's Customer Relations at 543-7070 a Minimum of Ten (10) Working Days in Advance.

Special Precautions are Required When Excavating Near Hawaiian Electric's 138KV or 46KV Underground Lines (See Hawaiian Electric Instructions to Consultants/Contractors on "Excavation Near Hawaiian Electric's Underground 138KV and/or 46KV Lines" for Detailed Requirements).

For Verification of Underground Lines, the Contractor Shall Call the Hawaii One Call Center at 866-423-7287 Minimum of Five (5) Working Days in Advance.

8. Underground Fuel Pipelines

The Contractor Shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity of Hawaiian Electric's Underground Fuel Oil Pipelines. Special Precautions are Required When Excavating Near Hawaiian Electric's Underground Fuel Oil Pipelines (See Hawaiian Electric's Specific Fuel Pipeline "Guidelines" to Consultants/Contractors on Excavation Near Hawaiian Electric's Underground Fuel Pipelines for Detailed Requirements).

9. Excavations

When Trench Excavation is Adjacent to or Beneath Hawaiian Electric's Existing Structures or Facilities, the Contractor is Responsible for:

- a) Arranging for Hawaiian Electric Standby Personnel to Observe Work at Contractor's Cost.
- b) Sheeting, Bracing, or Otherwise Supporting the Excavation and Stabilizing the Existing Ground to Render it Safe and Secure and to Prevent Possible Slides, Cave-Ins, and Settlements.
- c) Properly Supporting Existing Structures or Facilities with Beams, Struts, Under-Pinnings, or Other Necessary Methods to Fully Protect it from Damage.
- d) Backfilling with Proper Backfill Material Including Special Thermal Backfill where Existing (Refer to Engineering Division for Thermal Backfill Specifications).

10. Relocation of Hawaiian Electric Facilities

Any Work Required to Relocate or Modify Hawaiian Electric Facilities Shall Be Done by Hawaiian Electric, or by the Contractor Under Hawaiian Electric's Supervision. The Contractor Shall Be Responsible for All Coordination, and Shall Provide Necessary Support for Hawaiian Electric's Work, Which May Include, but not be Limited to, Staking of Pole/Anchor Locations, Identifying Right of Way and Property Lines, Excavation and Backfill, Permits and Traffic Control, Barricading, and Restoration of Pavement, Sidewalks, and Other Facilities.

All Costs Associated with Any Relocation or Modification (Either Temporary or Permanent) for the Convenience of the Contractor, or to Enable the Contractor to Perform His Work in a Safe and Expeditious Manner in Fulfilling His Contract Obligations Shall Be Borne by the Contractor.

11. Conflicts

Any Redesign or Relocation of Hawaiian Electric's Facilities Not Shown on the Plans May Be Cause for Lengthy Delays. The Contractor Acknowledges that Hawaiian Electric is Not Responsible for Any Delay or Damage that May Arise as a Result of Any Conflicts Discovered or Identified with Respect to the Location or Construction of Hawaiian Electric's Electrical Facilities in the Field, Regardless of Whether the Contractor has Met the Requested Minimum Advance Notices. In Order to Minimize Any Delay or Impact Arising from Such Conflicts, Hawaiian Electric Should Be Notified Immediately Upon Discovery or Identification of Such Conflict.

12. Damage to Hawaiian Electric Facilities

The Contractor Shall Be Responsible for the Protection of All Hawaiian Electric Surface and Subsurface Utilities and Shall Be Responsible for Any Damages to Hawaiian Electric's Facilities as a Result of His Operations. The Contractor Shall Immediately Report Such Damages or Any Hazardous Conditions Related to Hawaiian Electric's Lines to Hawaiian Electric's Trouble Dispatcher at 548-7961. Repair Work Shall Be Done by Hawaiian Electric or by the Contractor Under Hawaiian Electric's Supervision. Costs for Damages to Hawaiian Electric's Facilities Shall Be Borne by the Contractor.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	79	87

In Case of Damage or Suspected Damage to Hawaiian Electric's Fuel Pipeline, The Contractor Shall Immediately Notify Hawaiian Electric's Security Command Center at 543-7685 (a 24-Hour Number) so Hawaiian Electric Personnel Can Secure the Damaged Section and Report any Oil Spills to the Proper Authorities. All Costs Associated with the Damage, Repair, and Oil Spill Cleanup Shall Be Borne by the Contractor.

13. Hawaiian Electric Stand-By Personnel

The Contractor May Request Hawaiian Electric to Provide an Inspector to Stand-By During Construction near Hawaiian Electric's Facilities. The Cost of Such Inspection Will Be Charged to the Contractor.

The Contractor Shall Call Hawaiian Electric's Customer Relations at 543-7070 a Minimum of Three (3) Months in Advance to Arrange for Hawaiian Electric Stand-By Personnel.

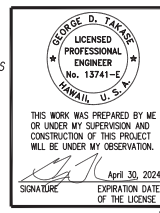
14. Clearances

The Following Clearances Shall Be Maintained Between Hawaiian Electric's Ductline and All Adjacent Structures (Charted and Uncharted) in the Trench: (See Table)

The Contractor Shall Notify the Construction Manager & Hawaiian Electric of Any Heat Sources (Power Cable Duct Bank, Steamline, Etc.) Encountered that are Not Properly Identified on the Drawing.

15. Indemnity

The Contractor Shall Indemnify, Defend and Hold Harmless Hawaiian Electric from and Against All Losses, Damages, Claims, and Actions, Including But Not Limited to Reasonable Attorney's Fees and Costs 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 Based Upon the Sole Negligence of Hawaiian Electric.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HE NOTES 1

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-2S

Scale: As Noted Date: DEC, 2023

Z:\ACAD\PROJECTS\223057\E003 HE NOTES 2 - 12/6/2023 10:34AM Mdegeorge

ORIGINAL	DATE
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	

Hawaiian Electric Company (HECO) Notes: (Continued)
Rev. 10/21/20

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	80	87

Additional Notes when Work Involves Construction of Hawaiian Electric Facilities

16. Schedule

Contractor Shall Furnish his Construction Schedule Six (6) Months Prior to Starting Work on Hawaiian Electric Facilities. Contractor Shall Give Hawaiian Electric, in Writing, Three (3) Months Notice to Proceed with Hawaiian Electric's Portion of Work.

17. Authority

All Construction, Restoration Work, and Inspection Shall Be Subject to Whichever Governmental Agency Has Authority Over the Work.

18. Specifications

Construction of Hawaiian Electric's Underground Facilities Shall Be Constructed in Accordance with the Latest Revisions of Hawaiian Electric Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and Applicable Hawaiian Electric Standards.

19. Construction

Contractor Shall Furnish All Labor, Materials, Equipment, and Services to Properly Perform and Fully Complete All Work Shown on the Contract, Drawings, and Specifications. All Materials Shall Be New and Manufactured in the United States of America. All Manhole, Handhole, and Ductline Installations Shall Be Inspected and Approved By Hawaiian Electric Prior to Excavation and Prior to Placing Concrete. Contractor Shall Notify Hawaiian Electric's Inspection Group at 543-2567 at Least Five (5) Working Days Prior to Installing Facilities or Placing Concrete.

Contractor to Coordinate Work to Break into Hawaiian Electric's Existing Electrical Facilities with Hawaiian Electric's Inspection Group at 543-2567 at Least Ten (10) Working Days in Advance.

20. Stakeout

The Contractor Shall Arrange for Toneouts of All Underground Facilities and Shall Stakeout All Proposed Hawaiian Electric Facilities within the Project Area so as to Not Conflict with Any Utility (Existing or Proposed) and Any Proposed Construction or Improvement Work for Verification by Hawaiian Electric Before Proceeding with Hawaiian Electric Work.

21. Ductlines

All Ductline Installations Shall Be PVC Schedule 40 Encased in Concrete, Unless Otherwise Noted. All Completed Ductlines Shall Be Mandrel Tested by the Contractor in the Presence of Hawaiian Electric's Inspector Using Hawaiian Electric's Standard Practice. The Contractor Shall Install 1800# Tensile Strength Muletape Pull Line in All Completed Ductlines After Mandrel Testing is Complete.

22. Joint Pole Removal

The Last Joint Pole Occupant of the Poles Shall Remove the Poles.

23. As-Built Plans

The Contractor Shall Provide Hawaiian Electric with a Set of Electronic and Hard Copy Plans of Each Sheet Showing the Offsets, Stationing, and Vertical Elevation of the Duct Line(s) Constructed.

Guidelines for Minimum Horizontal (parallel) Clearances Between Hawaiian Electric and Other Underground Utilities				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried in Conduit (No Concrete Encasement)	Hawaiian Electric 3" (Minimum) Concrete Encasement	Applicable Notes:
Hawaiian Electric DB Conduits	12"	3"	0"	
Hawaiian Electric 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	5
Traffic Signal	12"	12"	12"	
Water DB (BWS Owned)	36"	36"	36"	1, 4
Customer Owned Water Service Laterals	12"	12"	12"	
Water (Concrete Jacketed) (BWS Owned)	36"	36"	36"	1, 4
Gas DB	12"	12"	12"	1
Gas (Concrete Jacketed)	12"	12"	12"	1
Sewer DB	36"	36"	36"	1, 2
Sewer (Concrete Jacketed)	36"	36"	36"	1, 2
Drain	12"	12"	12"	1
Fuel Pipelines				3

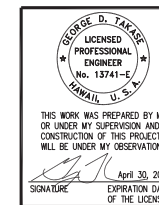
Notes:

- Where Space is Available, Parallel Clearance to Other Utilities, or Foreign Structures Other Than Communication or Traffic Signal Shall Be 36"
- If 36" Clearance Cannot Be Met:
 - If Clearance is Less Than 12", Jacket Sewer Line with Reinforced Concrete (Per HECO's Std. 30-1030) for a Distance of 5' Plus Pipe Diameter.
 - If Clearance is Between 12" and 36", Jacket Sewer Line with Plain Concrete.
- All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- 5 Feet Clear to Water Mains 16" or Larger.
- For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- Clearances Measured from Outer Edges or Diameters of Utilities. Whenever Concrete Jackets are Involved, Clearances Shall Be Total Clear Distance Between the Concrete Jacket and Utility Concerned.

Guidelines for Minimum Vertical (Crossing) Clearances Hawaiian Electric and Other Underground Utilities				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried in Conduit (No Concrete Encasement)	Hawaiian Electric 3" (Minimum) Concrete Encasement	Applicable Notes:
Hawaiian Electric DB Conduits	6"	3"	0"	
Hawaiian Electric 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	3
Traffic Signal	12"	12"	6"	
Water DB (BWS Owned)	12"	12"	12"	5
Customer Owned Water Service Laterals	6"	6"	6"	
Water (Concrete Jacketed) (BWS Owned)	12"	12"	12"	5
Gas DB	12"	12"	12"	
Gas (Concrete Jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	1
Sewer (Concrete Jacketed)	24"	24"	24"	1
Drain	12"	12"	6"	
Fuel Pipelines				2

Notes:

- If Clearance Cannot be Met:
 - If Clearance is Less Than 12", Jacket Sewer Line with Reinforced Concrete (Per HECO's Std. 30-1030) for a Distance of 5' Plus Pipe Diameter.
 - If Clearance is Between 12" and 24", Jacket Sewer Line with Plain Concrete.
- All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- Clearances Measured from Outer Edges or Diameters of Utilities. Whenever Concrete Jackets are Involved, Clearances Shall Be Total Clear Distance Between the Concrete Jacket and Utility Concerned.
- 36" Clearance is Required for Trenchless Installation Work.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HE NOTES 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Ulumanu Drive
Project No. 61D-01-23

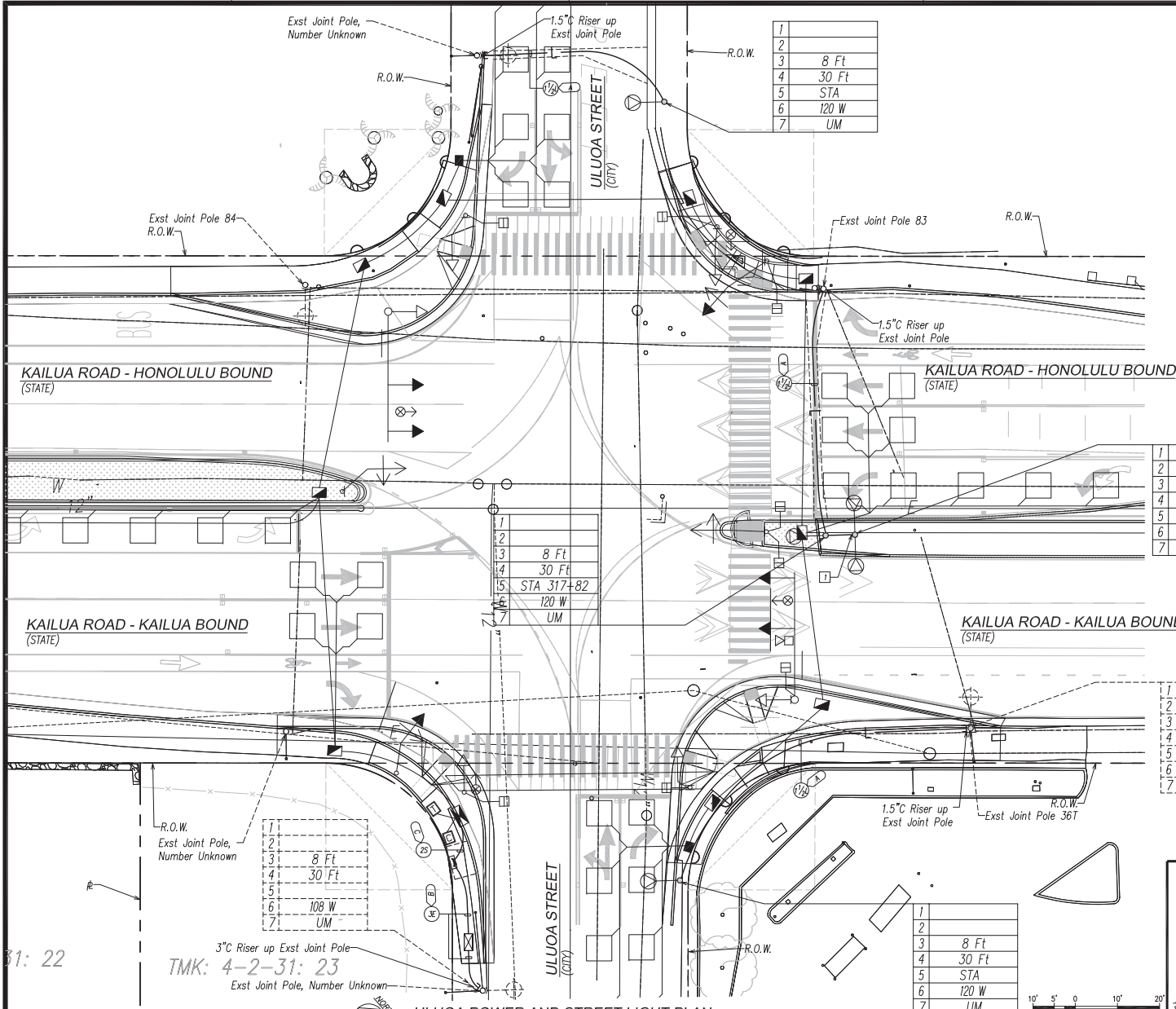
Scale: As Noted Date: DEC, 2023

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

April 30, 2024
EXPIRATION DATE OF THE LICENSE

Z:\ACAD\PROJECTS\223057\E004_DIST1_12/6/2023 11:52AM_Mdegeorge

ORIGINAL	DATE
BAWY PLOTTED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	81	87

- Notes:
- Provide $1\frac{1}{2}^\circ\text{C}$ and Wiring Between Light Pole Bases.
 - Provide Select Granular Bedding Beneath Handholes Shall be Placed In Relatively Uniform Lifts No Greater Than Eight (8) Inches In Loose Thickness, Moisture Conditioned To Optimum Moisture Content, And Uniformly Compacted To At Least Ninety (90) Percent Of The Maximum Dry Density (ASTM D1557-02). Contractor To Schedule With Owner's Geotechnical Inspector For Compaction And Bedding Installation. Pulbox/Handholes To Be Installed Flush With Walkway.

1	
2	
3	8 Ft
4	30 Ft
5	STA 317+89
6	120 W
7	UM

1	
2	
3	8 Ft
4	30 Ft
5	STA 317+82
6	120 W
7	UM

1	
2	JP 367
3	8 Ft
4	30 Ft
5	
6	108 W
7	UM

1	
2	
3	8 Ft
4	30 Ft
5	
6	108 W
7	UM

1	
2	
3	8 Ft
4	30 Ft
5	STA
6	120 W
7	UM

GEORGE D. TAIKAI
 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.

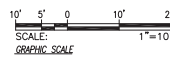
Signature: _____
 Date: April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ULUKOUA POWER AND STREET LIGHT PLAN

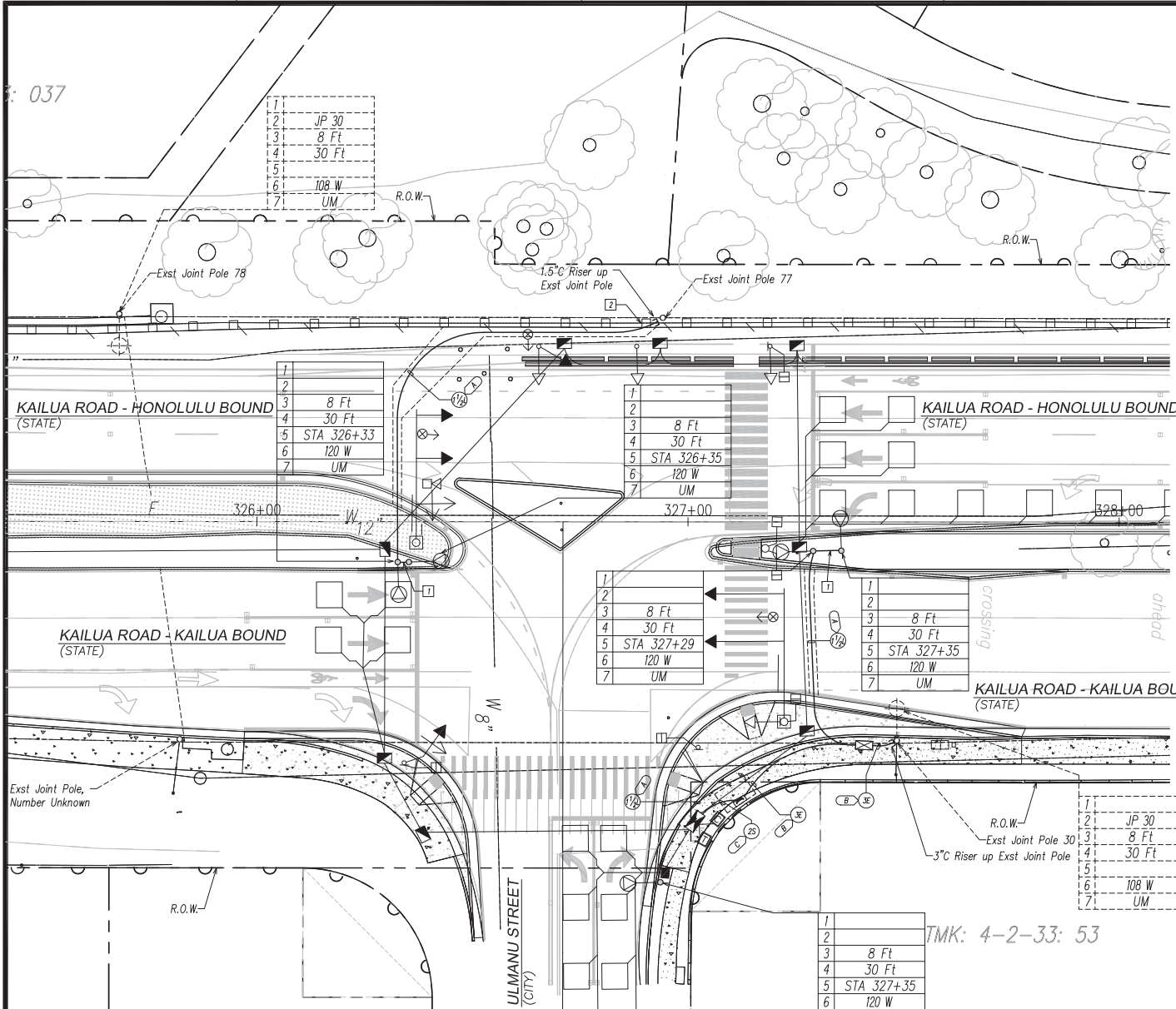
KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulukoua Street and Ulukoua Drive
 Project No. 61D-01-2S

Scale: As Noted Date: DEC, 2023



ULUKOUA POWER AND STREET LIGHT PLAN
 SCALE: 1" = 10'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	82	87



- Notes:
- 1 Provide 1 1/2" c And Wiring Between Light Pole Bases.
 - 2 Contractor To Route Conduit To Ensure Guardrail supports Are Not Disturbed.
 - 3 Provide Select Granular Bedding Beneath Handholes Shall Be Placed In Relatively Uniform Lifts No Greater Than Eight (8) Inches In Loose Thickness, Moisture Conditioned To Optimum Moisture Content, And Uniformly Compacted To At Least Ninety (90) Percent Of The Maximum Dry Density (ASTM D1557-02). Contractor To Schedule With Owner's Geotechnical Inspector For Compaction And Bedding Installation. Pulbox/Handholes To Be Installed Flush With Walkway.

Chief, Civil Engineering Branch
 Department of Planning & Permitting
 City & County of Honolulu
 (FOR CONSTRUCTION IN CITY RIGHT-OF-WAY ONLY)

Date _____

Z:\ACAD\PROJECTS\223057\E005.DIST2.12/6/2023 11:52AM Mdegeorge

ORIGINAL	DATE
PLANNED BY	
DESIGNED BY	
TRACED BY	
QUANTIFIED BY	
CHECKED BY	



ULUMANU POWER AND STREET LIGHT PLAN
 SCALE: 1" = 10'

1	
2	
3	8 Ft
4	30 Ft
5	STA 327+35
6	120 W
7	UM

TMK: 4-2-33: 53



GEORGE D. TAIKAI
 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.

Signature: _____
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

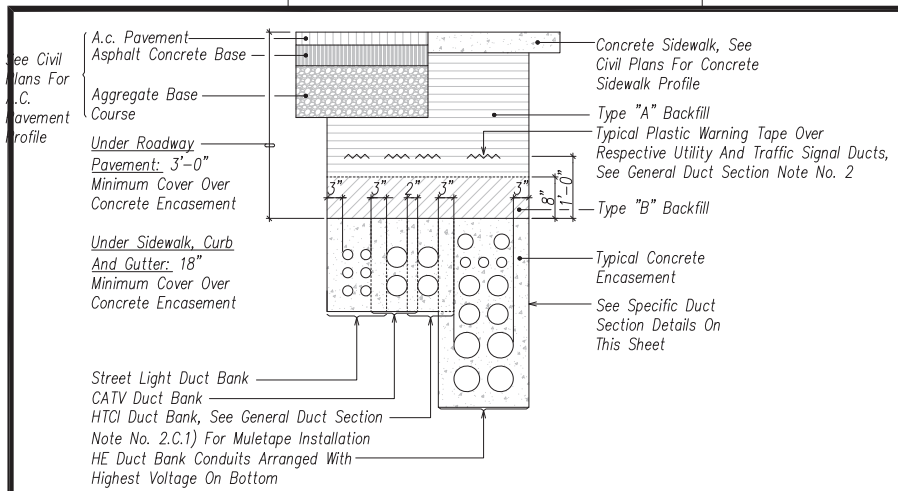
ULUMANU POWER AND STREET LIGHT PLAN

KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulumanu Street and Ulumanu Drive
 Project No. 61D-01-23

Scale: As Noted Date: DEC, 2023

Z:\ACAD\PROJECTS\223057\E006 TRENCH DETAIL_12/16/2023 10:34AM Mdegeorge

ORIGINAL	DATE
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	
DATE	
BY	



TYPICAL CONCRETE ENCASED DUCT SECTION DETAILS

NOT TO SCALE

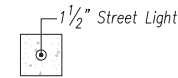
General Duct Section Notes:

- For Trench Restoration Detail Requirements, See Sheet Civil Sheets.
- The Metal Detectable Red Plastic Warning Tape Shall Be A Minimum 5 Mils Thick And 4" Wide With A Continuous Metallic Backing And Corrosion Resistant 1" Min Thick Foil Core. For The State Dot Highway Lighting Ducts, The Message On The Tape Shall Read, "Caution - State Highway Cables Buried Below," Utilizing 1 1/2 Inches Series "c" Block Lettering. The Message Will Be Repeated With A 4 1/4" Spacing Between Top Line Of Message And Start Of Next Repeat. For The Private Street Lighting Ducts, The Message On The Tape Shall Read, "caution - Street Lighting Cables Buried Below," Utilizing 1 1/2 Inches Series "C" Block Lettering. The Message Will Be Repeated With A 4 1/4" Spacing Between Top Line Of Message And Start Of Next Repeat.
 - For The Respective Utility Company Ducts, Provide Metal Detectable Warning Tape Over Respective Utility Company Ducts Per Respective Utility Company Requirements And Approval.
 - For HE, Provide Warning Tape Per HE Specification M0302-0.
 - For HTCO:
 - Contractor Shall Place Muletape (WP 1800P) In Each Duct Throughout Its Entire Length With Protrusions Of 2 Feet In Manholes And Handholes At Each End, And 1 Foot In Pullboxes. Muletape Is Rated For 1800 Lb Pull And Has Footage Markings For Measuring Duct Lengths.
 - Contractor Shall Place 8-mil Orange Colored Plastic Warning Tape, Not Less Than 4" Wide, Entire Length Of Trench For All Underground Installations. Tape Should Read "Warning-Stop Digging-Call HTCO, Communications Cable Buried Below, Failure To Comply Could Result In Legal Action".
- The Contractor May Begin Backfilling The Conduit Trench When The Concrete Reaches 2800 Psi Compressive Strength Or After 3 Days, Whichever Is Later.
- Clearances: Refer To HECO Note No. 14 For Clearance Requirements Between All Ductlines And All Adjacent Structures (Charted And Uncharted) Near The Trench.

Minimum Duct Separation Dimension
Between Duct Systems (Concrete Encased):

Elec - Elec:	1.5"
Elec - Other Systems:	3"
Tel - Tel:	1.5"
Tel - Elec:	3"
Tel - Catv:	2"
Catv - Catv:	1.5"
Catv - Elec:	3"
Catv - Tel:	2"

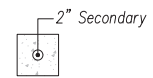
Minimum Of 3" Concrete Encasement Shall Be Provided Around Ductbank



SECTION A



SECTION B



SECTION C

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	83	87

Backfill Notes:

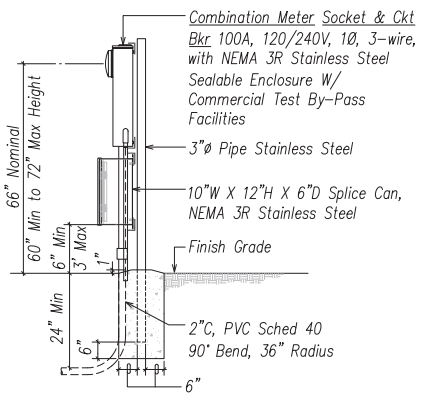
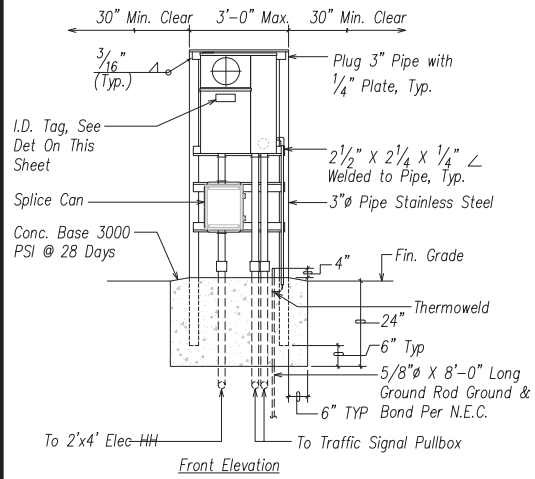
- Type "a" Backfill - Earth & Gravel. Rock Size To Be 1" Max & The Mixture To Contain Not More Than 50% By Volume Of Rock Particles. The Material Shall Be Nonexpansive. 95% Compaction.
- Type "b" Backfill - Earth & Gravel. Mixture Must Pass A 1/2" Mesh Screen & Contain Not More Than 20% By Volume Of Rock Particles. 95% Compaction.
- Note - If Normal Material At Bottom Of Trench Is Not Type "b", An Additional 3" Shall Be Excavated & Type "b" Backfill Provided.
- Concrete - 3" Encasement, 2800 Psi Compressive Strength @ 28 Days. With A Maximum Aggregate Size Of 3/4".

Chief, Civil Engineering Branch
Department of Planning & Permitting
City & County of Honolulu
(FOR CONSTRUCTION IN CITY RIGHT-OF-WAY ONLY)

Date

	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	TRENCH AND DUCT SECTION DETAILS KAILUA ROAD INTERSECTION IMPROVEMENTS Vicinity of Ulukou Street and Ulumano Drive Project No. 61D-01-23
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. April 30, 2024 SIGNATURE: _____ EXPIRATION DATE OF THE LICENSE: _____	Scale: As Noted Date: DEC, 2023

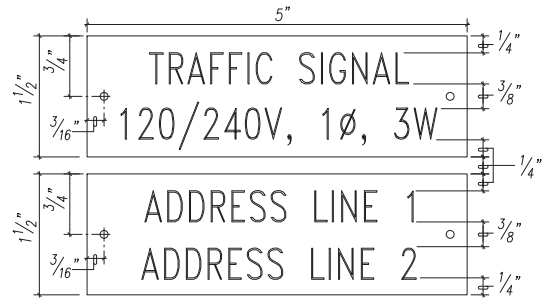
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	84	87



See One-Line Diagram on This Sheet

Side Elevation

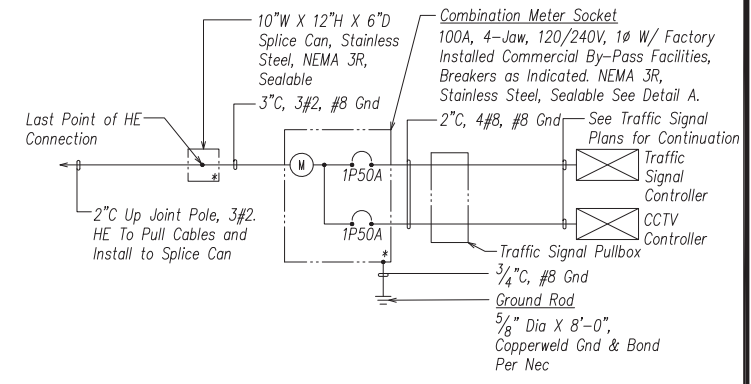
A
E-07
TRAFFIC SIGNAL METERING EQUIPMENT ELEVATION
NOT TO SCALE



- Notes:**
- Use (2) 2 Ply Plastic - Black, White.
 - Traffic Signal Letters Shall be 3/8" High, 1/16" Stroke, (White in Color).
 - 120/240V, 1Ø, 3W Letters and Numbers Shall Be 1/4" High and Engraved 1/32" Wide (White in Color).
 - Attach to Meter Enclosure with No. 7 Stainless Steel Drive Screws.
 - Contractor to Coordinate and Verify Address with HE

B
E-07
METER SOCKET I.D. TAG DETAIL
NOT TO SCALE

- Notes:**
- Contractor Shall Make All Electrical Connection to Controller, Provide 2-1P50A Breakers, Ground and 2" Conduit.
 - All Conduits to Contain a Polyolefin Pull Line. (Jet Line Cat. #232 or Equiv)
 - All Metal Parts Shall be Hot-dipped Galvanized After Fabrication or Stainless Steel.
 - All Fastening Bolts, Nuts & Washers Shall be Stainless Steel. Provide One Coat Shop Primer & Two Coats of Acrylic Enamel Finish, Color to Match Controller Cabinet.
 - Provide 48" Clearance in Front of Meter.
 - Provide Glass Meter Socket Cover and Bands for Blank Meter Sockets. Identify Covers for Return.



C
E-07
TRAFFIC SIGNAL ONE-LINE DIAGRAM
NOT TO SCALE

Z:\ACAD\PROJECTS\223057\E007 METER DETAIL_12/16/2023 10:34AM Malegeorge

ORIGINAL	DATE
BY: _____	DATE: _____
TRACED BY: _____	DATE: _____
QUANTIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____

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

Signature: _____ Date: DEC, 2023

EXPIRATION DATE OF THE LICENSE: April 30, 2024

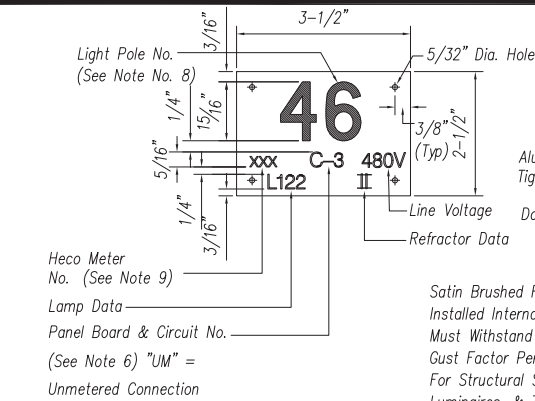
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

METERING DETAILS

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-23

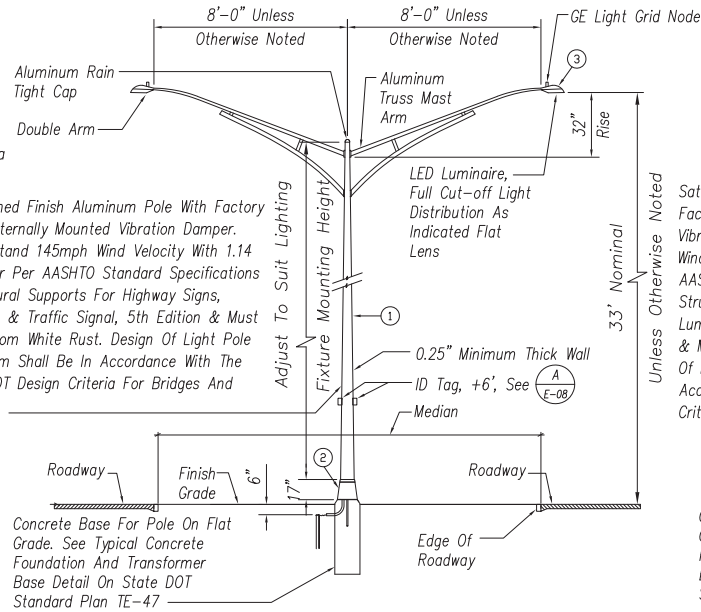
Scale: As Noted Date: DEC, 2023

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	85	87



A STREET LIGHT POLE TAG DETAIL
E-08 NOT TO SCALE

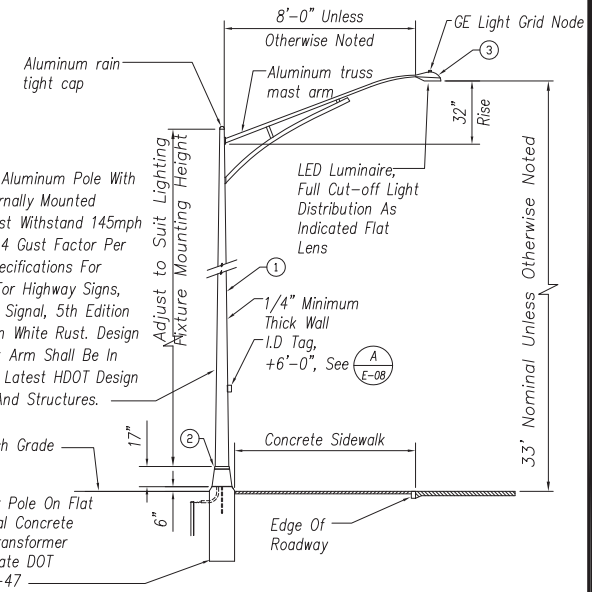
Satin Brushed Finish Aluminum Pole With Factory Installed Internally Mounted Vibration Damper. Must Withstand 145mph Wind Velocity With 1.14 Gust Factor Per AASHTO Standard Specifications For Structural Supports For Highway Signs, Luminaires, & Traffic Signal, 5th Edition & Must Be Free From White Rust. Design Of Light Pole & Mast Arm Shall Be In Accordance With The Latest HDOT Design Criteria For Bridges And Structures.



B MULTI-ARM STREET LIGHT STANDARD DETAIL
E-08 NOT TO SCALE

MATERIAL LIST		
Item	Description	Manufacturer
①	Light Pole, Alum	
②	Transformer Base (Alum) (type as indicated)	
③	Luminaire, LED, Unless Otherwise Noted	

STREET LIGHT STANDARD DETAILS
NOT TO SCALE



C STREET LIGHT STANDARD DETAIL
E-08 NOT TO SCALE

Notes:

- Use 3 Ply Laminated Flexible Plastic Black-white-black Thickness Black Cap Sheet-0.010", White Base Sheet-0.052", Black Base Sheet-0.010".
- Light Pole Number Size Shall Be 1" High And Engraved 1/8" Wide, White In Color (number As Required).
- Nomenclature Size Shall Be 5/16" High And Engraved 1/32" Wide, White In Color (heco Meter Number Panel Board And Circuit Number, Line Voltage, Lamp Data And Refractor Data As Required).
- Attach To Aluminum And Steel Post With No. 8 Stainless Steel, 1/2" Long Drive Screws In 1/8" Drill Hole. Attach To Wood Poles With 4d Aluminum Nail.
- Numbers Are Inscribed By Cutting Through "black Cap Sheet" To Expose "white Letters."
- Nomenclature Required For Systems With Two Or More Circuits (letter Indicates Panel Board, Number Indicates Circuit).
- For Light Poles Installed On Ramp, Assign Numbers To Include Ramp I.d. And Light Number. Legend May Be Less Than One (1) Inch In Height.
- Light Numbers Shall Be Obtained From The State. Use An Alphabet Suffix To Designate Lights Mounted On The Same Pole (e.g. 123a & 123b).
- For Non-Metered System, Call Out The Contract Number.

DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY

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

APRIL 30, 2024

EXPIRATION DATE OF THE LICENSE

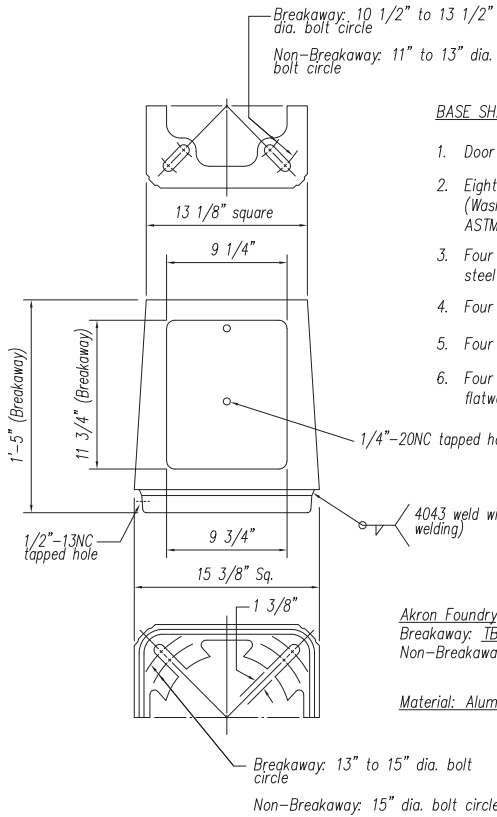
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT STANDARD DETAILS

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Uluamanu Drive
Project No. 61D-01-23

Scale: As Noted Date: DEC, 2023

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	86	87



BASE SHALL BE SUPPLIED WITH:

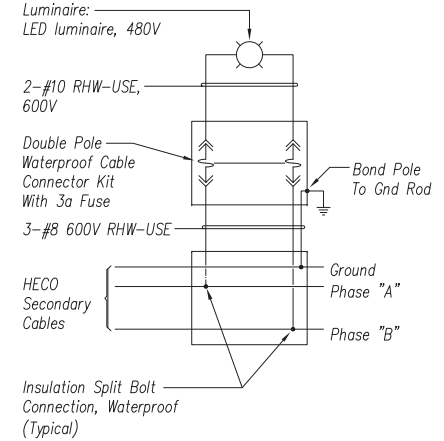
1. Door and 1/4"-20NC S.S. screw
2. Eight 1" washers 1/2" thick x 2 3/4" O.D. (Washers mechanical galvanized per ASTM A153 or ASTM B454)
3. Four 1"-8NC x 3 3/4" long galvanized steel hex. hd. bolts
4. Four 1"-8NC galvanized steel hex. nuts
5. Four 1" galvanized stl. lock washers
6. Four 1" x 2" O.D. galvanized stl. flatwashers

Akron Foundry
 Breakaway: TB1-AF 1315-17 I.W. OR Equal (Plus Hardware)
 Non-Breakaway: TB1-AF 1315 I.W. OR Equal (Plus Hardware)

Material: Alum. Alloy 356-T6

1	= Highway Light & Pole Number
2	= Pole Location, Offset In Feet from Baseline
3	= Bracket Arm Span, In Feet
4	= Pole Height, In Feet
5	= Pole Location, Station Number
6	= Wattage
7	= Light Circuit Number & Phase To Phase Connection, When Applicable

B STATE HIGHWAY LIGHT I.D. TAG INDICATOR LEGEND
 E-09 NOT TO SCALE



C TYPICAL HIGHWAY LIGHT CONNECTION DIAGRAM
 E-09 NOT TO SCALE

A BREAKAWAY AND NON-BREAKAWAY TRANSFORMER BASE DETAIL
 E-09 NOT TO SCALE

DATE	BY	REVISION

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

Signature: *George D. Takar*
 April 30, 2024
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STREET LIGHT DETAILS 2

KAILUA ROAD INTERSECTION IMPROVEMENTS
 Vicinity of Ulukou Street and Uluamanu Drive
 Project No. 61D-01-2S

Scale: As Noted Date: DEC, 2023

Z:\ACAD\PROJECTS\223057\E009_ST_LT_DETAIL_2_12/16/2023 10:34AM Mdegeorge

Z:\ACAD\PROJECTS\223057\ED10_ST_LT_NOTES_12/16/2023 10:35AM Mdegeorge

ORIGINAL	DATE
BY: _____	DATE: _____
TRACED BY: _____	DATE: _____
QUANTITY BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____

New Design Requirements for Light Standards
(January 8, 2018)

(Highway Lighting Luminaires, Pole Standards, Bracket Arms and Traffic Signal Standards and Mast Arms Being Furnished for this Project Shall Conform with the New Design Requirements Noted Below)

1. Equipment Manufacturers Providing Structural Supports for Luminaires and Traffic Signals, the Following Design Parameters to be Included in the Design of the Project Materials.
2. AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1st Edition, (2015) Including Subsequent Interim Revisions, Published by the American Association of State Highway and Transportation Officials, as Modified Herein.
3. Basic Wind Speed [Article 3.8.2] to Determine the Design Wind Pressure Shall be 145 Mph. for Unusual or Differing Exposure Conditions, the Basic Wind Speed Should be Increased Using Rational Procedures and Sound Engineering Judgment. Alternatively, the Design Wind Pressure May be Increased by Using a Higher Wind Importance Factor [Table 3.8.3-1] Corresponding to a Recurrence Interval of At Least One Level Greater Than Recommended. the Wind Maps for Effective Wind Speed, Topographic Effects and Exposure Category Included in the State Building Code (Hawaii Administrative Rules, Chapter 3-180) Should be Used for Guidance.
4. Wind Importance Factors [Article 3.8.3-1] and Velocity Conversion Factors [Table 3.8.3-3] Used to Determine the Design Wind Pressure Shall be Based on the Following Recurrence Intervals:
 - A. For Overhead Sign Structures: 1700 Years
 - B. For Traffic Signal Structures: 1700 Years
 - C. For Luminaire Support Structures Less Than 50 Feet in Height: 25 Years
 - D. For Other Support Structures Including Luminaire Support Structures 50 Feet or More in Height, and When Luminaire is Mounted on a Traffic Signal Structure: 50 Years
 - E. For Roadside Sign Structures and Temporary Support Structures: 10 Years
5. Height and Exposure Factor [Article 3.8.4]. for Support Structures on Bridges, the Height and Exposure Factor Shall be Determined Based on the Maximum Height They Are Above the Surrounding Ground. for Severe Exposure Conditions Such as Along the Coastline, the Factor Shall be Increased Based on the Latest Asce Standard ASCE/SEI 7,


Minimum Design Loads for Buildings and Other Structures. the Wind Maps for Effective Wind Speed, Topographic Effects and Exposure Category Included in the State Building Code (Hawaii Administrative Rules, Chapter 3-180) Should Also be Used for Guidance.

6. Minimum Anchor Bolts [Article 5.16]. Cantilevered Traffic Signal Structures with Mast Arms Greater Than 40 Feet and Other Cantilevered Support Structures with Design Life of 50 Years or More Shall Have Base Plate Connections with a Minimum of Six (6) Anchor Bolts. A Minimum of Four (4) Anchor Bolts Shall be Provided for All Other Base Plate Connections.
7. Use of Grout [Article 5.16]. Grout Shall Not be Used Under Base Plates for All Support Structures Except for Ordinary Street Light Poles Unless Approved by the Bridge Design Engineer. Anchor Bolts with Leveling Nuts Shall be Designed to Transfer All Loads From the Structure to Its Base Support. a Wire Cloth Screen Shall Specified to be Placed Vertically Between the Base Plate and the Top of the Foundation and Wrapped Horizontally Around the Base Plate with a 3 Inches Minimum Lap. the Wire Cloth Shall be Galvanized Steel Standard Grade Plain Weave 2x2 Mesh 0.063 inch Diameter Wires. Secure the Wire Cloth At the Lapped Ends with Stainless Steel Wire Ties (Min 2). Loop the Wire Ties and Twist Tie Them Securely. Also, Alternate Means of Protecting the Underside of the Base Plate From Debris, Birds, Bees and Other Nesting Animals May be Proposed for Consideration.
8. Plumbness of Anchor Bolts [Article 5.16]. Anchor Bolts Shall be Installed with Misalignments of Less Than 1:40 From Vertical. After Installation, Firm Contact Shall Exist Between the Anchor Bolt Nuts, Washers, and Base Plate on Any Anchor Bolt Installed in a Misaligned Position.
9. Fatigue Importance Factors [Article 11.6] Noted in Table 11.6-1 for Overhead Sign and Traffic Signal Structures Shall be Based on Fatigue Category I. support Structures Other Than That Noted in Table 11.6-1 with Round Cross Sections Under 50 Feet, Roadside Sign Structures, and Temporary Structures Do Not Need to be Designed for Fatigue. Support Structures 50 Feet or More in Height Shall be Designed for Fatigue and be Based on Fatigue Category I.
10. Galloping [Article 11.7.1.1]. Provisions Shall be Made to Install Effective Vibration Mitigation Devices on Overhead Cantilevered Sign and Traffic Signal Support Structures Unless They Are Designed for

Galloping-Induced Cyclic Loads. With Approval from HDOT, Mitigation Devices May be Installed after Construction if Vibration Due to Galloping is Identified.

11. Natural Wind Gust [Article 11.7.1.2]. Overhead Sign, Traffic Signal, and High-Level Support Structures Shall be Designed to Resist An Equivalent Static Natural Wind Gust Pressure.
12. Truck-Induced Gust [Article 11.7.1.3]. Overhead Sign and Traffic Signal Support Structures Shall be Designed to Resist An Equivalent Static Truck Gust Pressure Range Based on a Truck Speed of 20 MPH Over the Posted Speed.
13. Equipment Manufacturers Providing Structural Supports for Luminaires and Traffic Signals, is Responsible to Provide the Engineer with Any Information That Will Impact the Current Foundation Design.
14. Square or Rectangular Steel Post Sections [Sections 5 and 11]. Square or Rectangular Steel Sections Are Not Recommended to be Used for Overhead Sign and Traffic Signal Supports Because They Are More Prone to Poor Fatigue Performance. However, the Post Sections Contained in the Highways Division Standard Plans (2008) for Overhead Sign Structures (Standard Plans TE-17A Through TE-19M) Shall be Considered Acceptable and May Still be Used. Any Special Designs or Deviations from the Standard Plans Shall be Considered with the Bridge Design Engineer.
15. Traffic Signs on Light Poles and Traffic Signals. All Light Poles of Highway Light Standards Shall be Designed for a Traffic Sign of Nine (9) SF with its Resulting Wind Force Applied 10 Feet Above the Finish Grade. See Standard Plan TE-47 (5/21/07).

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61D-01-2S	2024	87	87



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT NOTES

KAILUA ROAD INTERSECTION IMPROVEMENTS
Vicinity of Ulukou Street and Ulumanu Drive
Project No. 61D-01-2S

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

EXPIRATION DATE OF THE LICENSE: April 30, 2024

Date: DEC, 2023

Scale: As Noted

SHEET No. E-10 OF 10 SHEETS