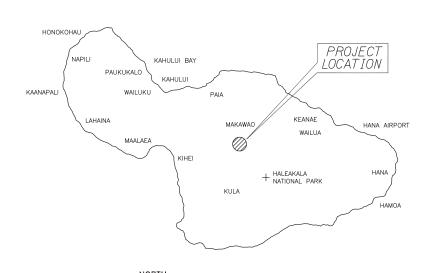
	Electrical Symbols		
Symbol	Description	Symbol	Description
o≻-{∑	Exist Street Light Mtd on Joint Pole	∞—⊘	108W LED Street Light and 12' Arm Mounted on New Joint Pole
o)—∕Q	Street Light Mtd on Joint Pole	Ø	108W LED Street Light, 12' Arm
0	Exist Pole		HECO Standard 2' x 4' Handhole
×	Demo Exist Pole	-	Duct Section Divider
:> <del>*-</del> Ø	Demo Exist Street Light Mtd on Joint Pole	I	Electrical Ductlines with Designators. Indicates
Δ	1¢ Pole Mtd Transformer		Type "A" Duct Section with "1-3E" Ducts. See E-8
57kv-oh	Exist Overhead 57KV Electrical Lines	(3E)	For Duct Sections.
12kv-oh	Exist Overhead 12KV Electrical Lines		(E-Electrical, T-Telecom, V-CATV, L-Street Lighting, S-Secondary,
t-oh	Exist Overhead Telecom Lines		TS-Traffic Signal)
v-oh	Exist Overhead CATV Lines	←——	Guy Anchor
s-oh	Exist Overhead Secondary Lines	Note De	abod Indicates Civiating
	Demo Exist Overhead 57KV Electrical Lines	Note: Da	shed Indicates Existing
*-* 12kv-oh *-*	Demo Exist Overhead 12KV Electrical Lines		
* *-x- t-oh -x-* *	Demo Exist Overhead Telecom Lines	]	
* *-x- v-oh -x-* *	Demo Exist Overhead CATV Lines		



Location Map

Island of Maui

Sheet Index			
Sheet No.	<u>Description</u>		
E-1	Symbols, Notes, Location Map		
E-2	HECO Notes		
E-3	HECO Notes		
E-4	Electrical Distribution Plan I		
E-5	Electrical Distribution Plan II		
E-6	Electrical Distribution Plan III		
E-7	Details & One Line Diagram		
E-8	Street Lighting Details		

#### FISCAL YEAR SHEET NO. TOTAL SHEETS DIST. NO. STATE HAWAII HAW. 37C-02-23 2024 61

## Notes for Construction:

- A. 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.
- B. The Contractor is to Comply With the Directions of the State of Hawaii Occupational Safety and Health Law (HIOSH).
- C. 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.
- D. As Required by Section 645, the Contractor Shall Provide Two Off-duty Police Officers to Control the Flow of Traffic at Fach Location.
- E. 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, All Shall Be ADA Compliant.
- F. Driveways Shall Be Kept Open Unless the Owners of the Property Using These Right-of-ways are Otherwise Provided For Satisfactorily.
- G. 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.

## **EQUIPMENT SCHEDULE**

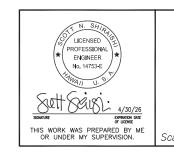
THE HAWAIIAN ELECTRIC Co. (HECO), HAWAIIAN TELCOM (HTCO), CHARTER COMMUNICATIONS (CATV) & PRIVATE AREA LIGHTING PULLBOXES, HANDHOLES AND TRANSFORMER PAD LOTS SHALL BE CONSTRUCTED BY THE CONTRACTOR AS SHOWN IN THESE DRAWINGS & IN ACCORDANCE WITH THE FOLLOWING STANDARD DRAWINGS:

<u>TYPE</u>

**DESCRIPTION** 

HANDHOLE

2' X 4' PRECAST CONCRETE HANDHOLE WITH PRECAST CONCRETE COVER, PROVIDED IN ACCORDANCE WITH HECO STANDARD DRAWING NO.

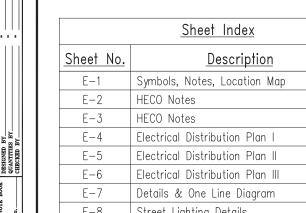


STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

Electrical Symbol, Notes

KULA HIGHWAY, INTERSECTION IMPROVEMENTS AT OMAOPIO ROAD Project No. 37C-02-23

Date: Mar. 2024 SHEET No. E-1 OF 8 SHEETS



\* \* - s - oh - \* \* Demo Exist Overhead Secondary Lines

---- S---- Secondary Underground Cables and Conduits

-- S-OH -- Overhead Secondary Lines

-- V-OH -- Overhead CATV Lines

--- 57KV-0H --- Overhead 57KV Electrical Lines

--12KV-OH--- Overhead 12KV Electrical Lines - T-OH -- Overhead Telecom Lines

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.

## 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.

#### 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.

## 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.

#### 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 that 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.

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 Hereby 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 Bracina Needs, Should the Customer Install Bracina 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.

## 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 Reauirements).

## 9. Excavations

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

- Arranging for Hawaiian Electric Standby Personnel to Observe Work at Contractor's Cost.
- 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.
- Properly Supporting Existing Structures or Facilities with Beams. Struts, Under-Pinnings, or Other Necessary Methods to Fully Protect it from Damage.
- Backfilling with Proper Backfill Material Including Special Thermal Backfill where Existing (Refer to Engineering Division for Thermal Backfill Specifications).

#### 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

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	62	115

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 \$\phi\$ Hawaiian Electric of Any Heat Sources (Power Cable Duct Bank, Steamline, Etc.) Encountered that are Not Properly Identified on the Drawing.

## 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.

#### DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only \_\_\_\_\_ Ву \_\_\_\_ Customer Installations Department

Howaiian Electric's review of these drawings shall in no way relieve the ustomer, its Consultant, its Contractor or anyone acting on the Customer behalf from the responsibility for engineering, design, materials and any other liability associated with this project including revisions made beyond the reviewed date.

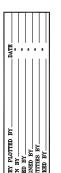


STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

HFCO Notes

KULA HIGHWAY. INTERSECTION IMPROVEMENTS AT OMAOPIO ROAD Project No. 37C-02-23

SHEET No. E-2 OF 8 SHEETS



Date: Mar. 2024

Hawaiian Electric Company (HECo) Notes: (Continued)

Additional Notes when Work Involves Construction of Hawaiian Flectric Facilities

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

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

- 1. Where Space is Available, Parallel Clearance to Other Utilities, or Foreign Structures Other Than Communication or Traffic Signal Shall Be 36"
- 2. 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.
- 3. All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- 4. 5 Feet Clear to Water Mains 16" or Larger.
- 5. For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- 6. 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

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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.				

## Notes:

- 1. 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.
- 2. All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- 3. For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- 4. 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.
- 5. 36" Clearance is Required for Trenchless Installation Work.

## DRAWING REVIEW

Reviewed for Hawaiian Electric Company Facilities Only

\_ By \_\_\_ Customer Installations Department

Hawaiian Electric

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



STATE OF HAWA!! DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

FISCAL YEAR

2024

37C-02-23

SHEET NO.

TOTAL SHEETS

63 | 115

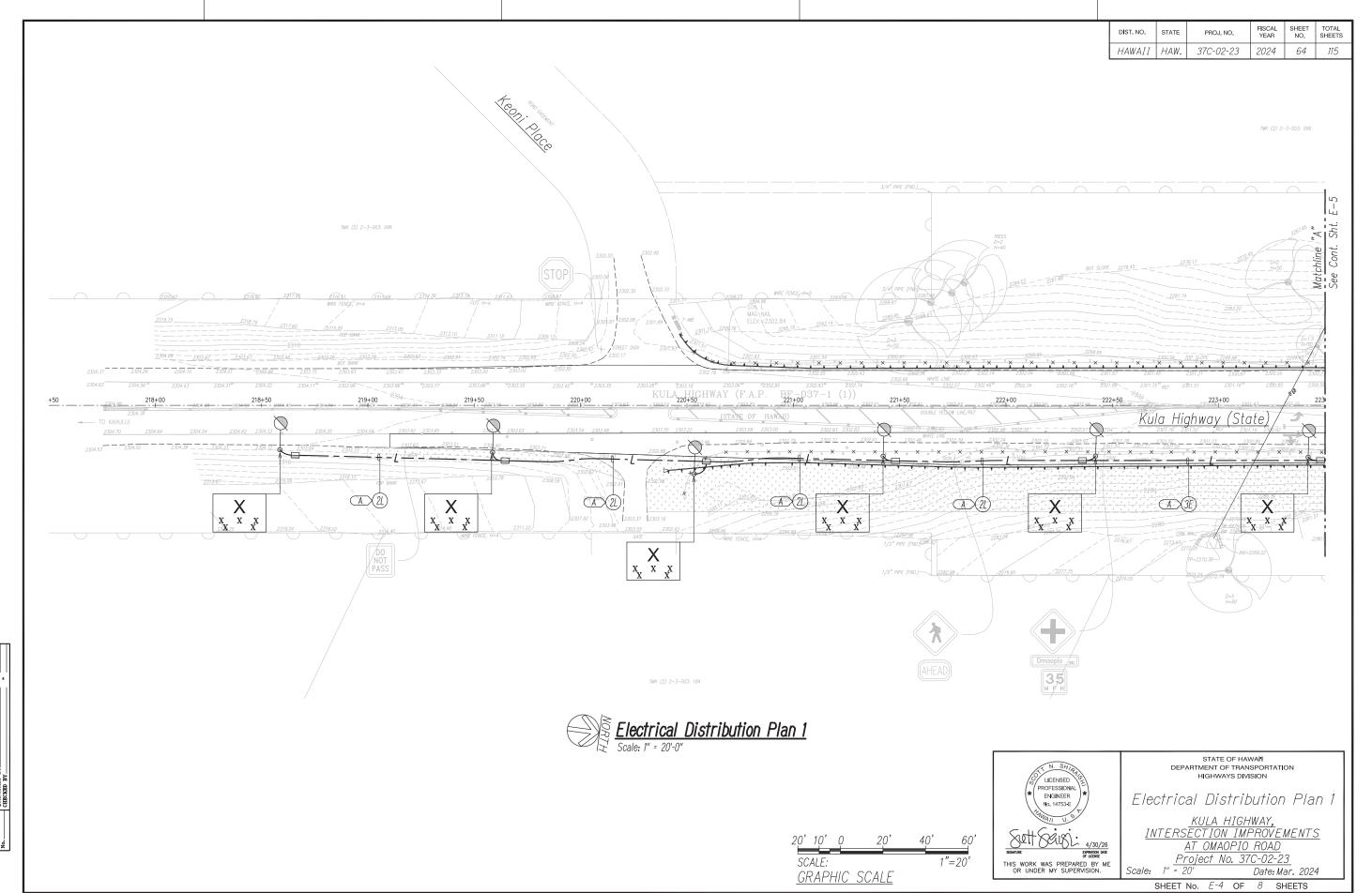
HFCO Notes

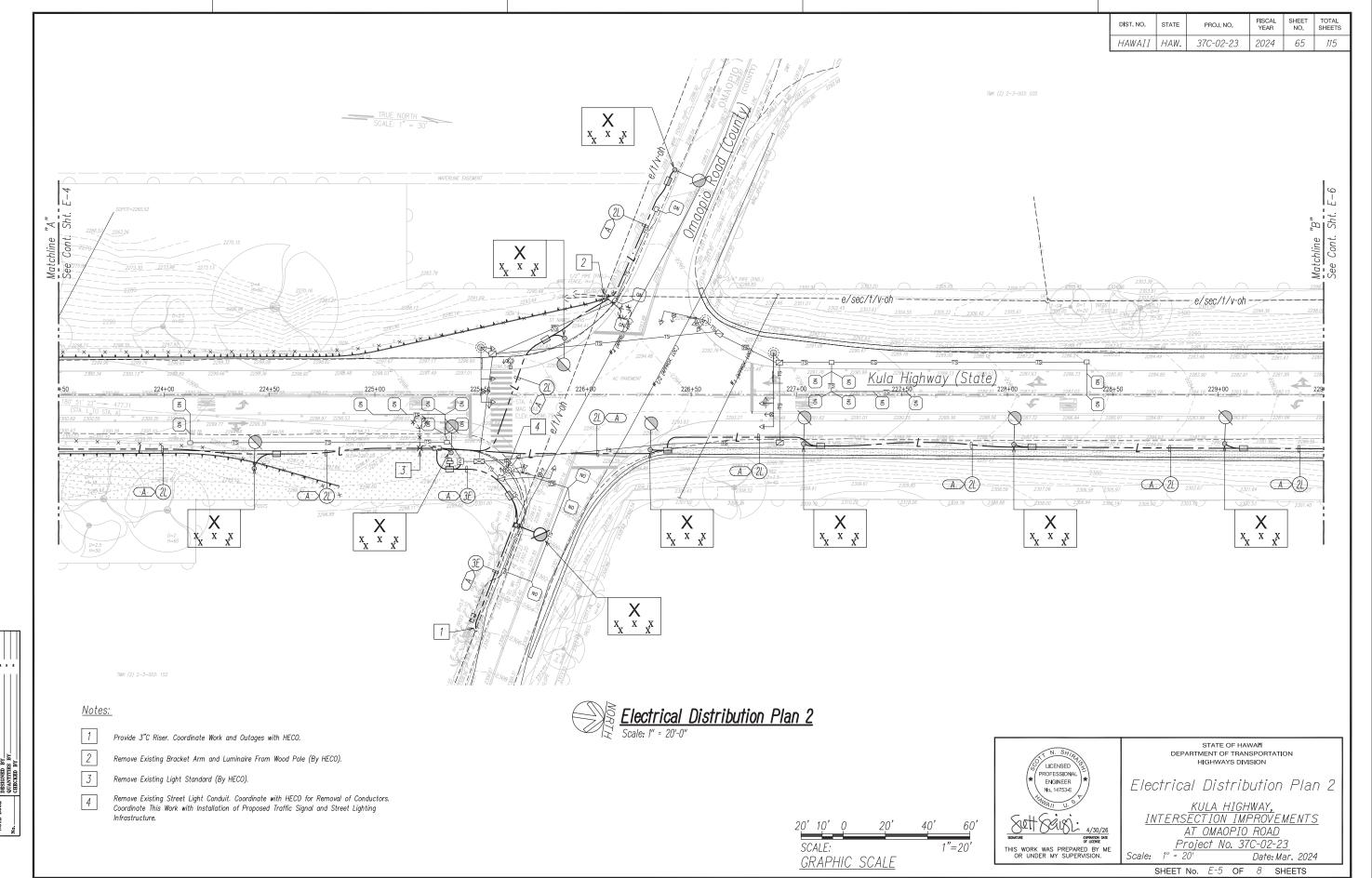
KUIA HIGHWAY. INTERSECTION IMPROVEMENTS AT OMAOPIO ROAD Project No. 37C-02-23

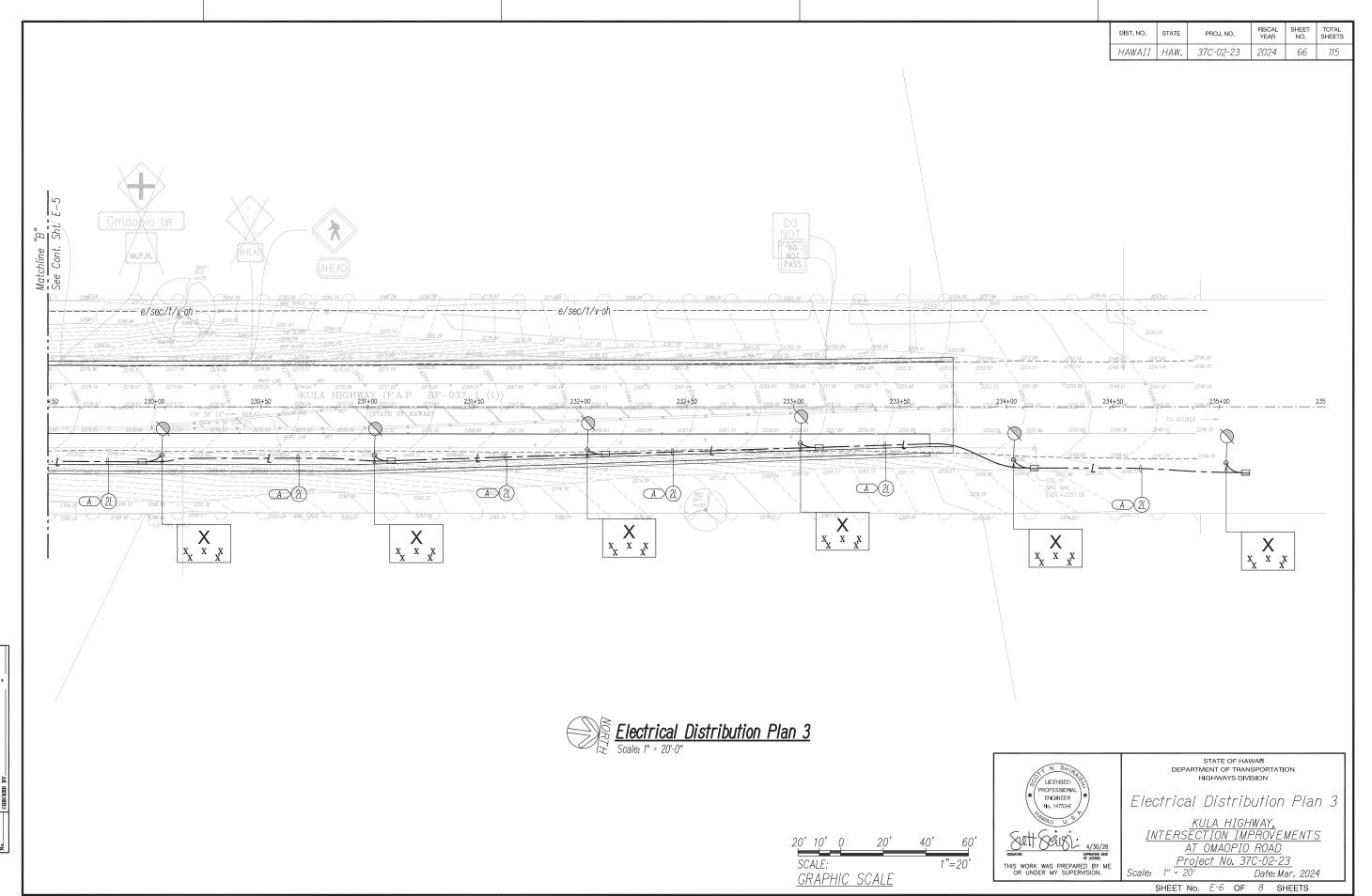
Date: Mar. 2024

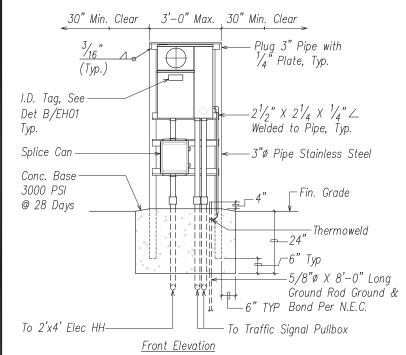
SHEET No. E-3 OF 8 SHEETS

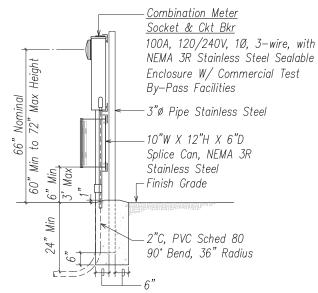








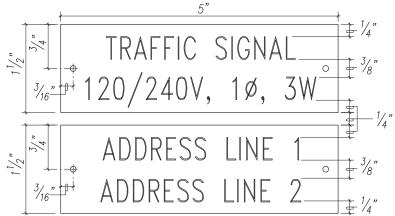




See One-Line Diagram on This Sheet

Side Elevation

SURVEY PLOTTEI
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY



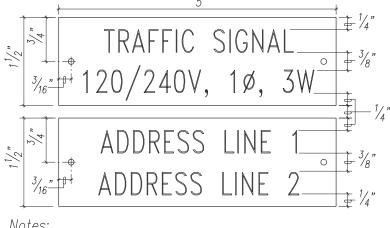
## Notes:

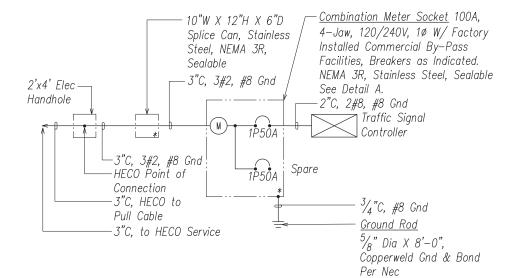
- 1. Use (2) 2 Ply Plastic Black, White.
- 2. Traffic Signal Letters Shall be  $\frac{3}{8}$ " High,  $\frac{1}{16}$ " Stroke, (White in Color).
- 3. 120/240V, 10, 3W Letters and Numbers Shall Be  $\frac{1}{4}$ " High and Engraved  $\frac{1}{32}$  Wide (White in Color).
- 4. Attach to Meter Enclosure with No. 7 Stainless Steel Drive Screws.
- Verify Address with HECO



## Notes:

- 1. Contractor Shall Make All Electrical Connection to Controller. Provide 2-1P50A Breakers, Ground and 2" Conduit.
- 2. All Conduits to Contain a Polyolefin Pull Line. (Jet Line Cat. #232 or Equiv)
- 3. All Metal Parts Shall be Hot-dipped Galvanized After Fabrication or
- 4. 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.
- 5. Provide 48" Clearance in Front of Meter.
- 6. Provide Glass Meter Socket Cover and Bands for Blank Meter Sockets. Identify Covers for Return.





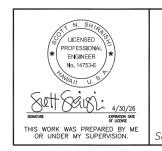
DIST. NO.

HAWAII HAW.

STATE







STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION Details and One-Line Diagram KULA HIGHWAY, INTERSECTION IMPROVEMENTS AT OMAOPIO ROAD Project No. 37C-02-23 As Noted Date: Mar. 2024

SHEET No. E-7 OF 8 SHEETS

SHEET NO.

2024 | 67 |

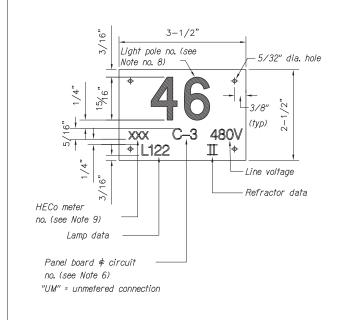
TOTAL SHEETS

FISCAL YEAR

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## General Duct Section Notes:

- For Trench Restoration Detail Requirements, See Civil
- The Metal Detectable Red Plastic Warning Tape shall be a Minimum 5 mils Thick and 6" Wide with a Continuous Metallic Backing and Corrosion Resistant 4 mils 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 HECo, Provide Warning Tape per HECo Specification M0302-0.
  - For HTCo:
    - 1) Contractor shall Place Muletape (SP 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 ABLE 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
- Clearances: Refer to HECo Note No. 14 for Clearance Requirements Between All Ductlines and All Adjacent Structures (Charted and Uncharted) Near the Trench.
- All Traffic Signal Conduit Shall be Encased in Concrete with 3" Minimum Concrete Jacket around Ducts.

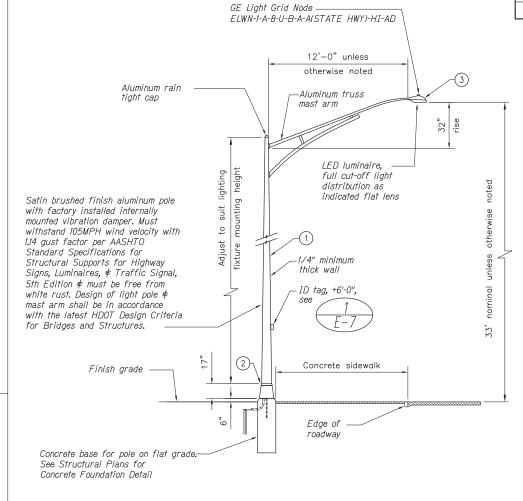




## Backfill Notes:

- 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.
- No. 67 Gravel Open-Graded Gravel. AASHTO M43, No. 67 gradation materials. 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, 2500 PSI Compressive Strength @ 28 Days. with a Maximum Aggregate Size of 3/4".

Typical Duct Section Details

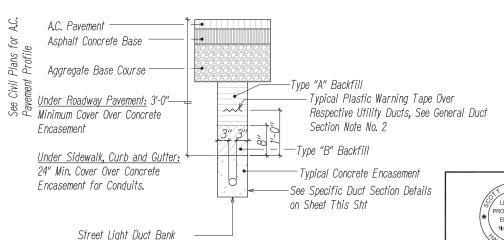


Street Light Standard Detail

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	68	115

- 1. 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".
- 2. Light pole number size shall be 1" high and engraved 1/8" wide, white in color (number as
- 3. 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).
- 4. 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.
- 5. Numbers are inscribed by cutting through "Black Cap Sheet" to expose "White Letters."
- 6. Nomenclature required for systems with two or more circuits (letter indicates panel board, number indicates circuit).
- 7. 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.
- 8. Light numbers shall be obtained from the State. Use an alphabet suffix to designate lights mounted on the same pole (e.g. 123A \& 123B).
- 9. For non-metered system, call out the Contract

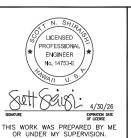
	MATERIAL LIST				
Item	Description				
1	Light Pole, Alum (By HECO)				
2	Transformer Base (Alum) (type as indicated) (By HECO)				
3	Luminaire, LED, unless otherwise noted (By HECO)				



NOT TO SCALE

CONDUIT SCHEDULE Item Description 2L 3" Electric 3E 2" Street Light

-3" Electric —2" Street Light 4



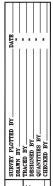
STATE OF HAWA!! DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION Details and

One-Line Diagram KULA HIGHWAY, INTERSECTION IMPROVEMENTS AT OMAOPIO ROAD Project No. 37C-02-23

As Noted

Scale.

Date: Mar. 2024 SHEET No. E-8 OF 8 SHEETS



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