FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	212	284

GENERAL CONSTRUCTION NOTES

1. Contractor Shall Coordinate All Work With Heco.
2. Provide Polyolefin 200lb Test Pullcord In All Empty Conduits, Unless Otherwise Noted.
3. All Electrical Equipment Enclosures And Equipment Mounting Hardware For Outdoor Installation Shall Be Type 316 Stainless Steel, Unless Otherwise Noted.

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
—·—	New Underground Electric Ductline
e-oh	Existing Utility Overhead Lines
E-OH	New Utility Overhead Lines
	2' X 4' Pullbox
1 →	Denotes Indicator, Denotes See Box Note 1
A 2-2S	Electric / Signal Ductline with Designators; Items in Circle Indicates Duct Section Type, with Duct Complements noted Below (Type "A" Duct with 2-2"S Ducts Indicated); (E=Electric, T=Telephone, V=CATV, L=Roadway Lighting, S=Traffic Signal), See Sheet E-5 for Duct Section Details

ORIGINAL PLAN	
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QUANTITIES BY	
CHECKED BY	

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

JENSON J. SANTOS
LICENSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII, U.S.A.

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND ELECTRICAL SYMBOLS

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-1 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	213	284

Hawaiian Electric Company Notes

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 Customer Installations Division (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 Installations Division At 543-7070 For Assistance In Identifying And Safeguarding Overhead POWER LINES.

6. POLE BRACING
Contractor Shall Not Excavate Within 10 Feet From Hawaiian Electric's Utility Poles Or Any Anchor System Supporting The Utility Pole. If Contractor Must Excavate Closer Than 10 Feet From A Utility Pole Or Its Anchor System, 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 Submit Its Bracing Calculations And Drawings, Prepared And Stamped By A Licensed Structural Engineer, To Hawaiian Electric's Customer Installations Division (543-7070) For Review. Hawaiian Electric Requires A Minimum Of Ten (10) Working Days To Conduct The Review Of Contractor's Submittal. 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 Review And Approval Of Any Contractor Submittals Including Its Work Procedure Shall Not Relieve Contractor From Any Liability Resulting From Contractor's Excavation Near Or Around Hawaiian Electric's Utility Poles.

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 Installations Division 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.

ORIGINAL PLAN
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DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____

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

JENSON J. SANTOS
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HAWAII, U.S.A.

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES I

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-2 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	214	284

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.

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 Installations Division 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 Tables)

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 Tortuous 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.

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 543-4325 At Least Five (5) Working Days Prior 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 543-4325 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 Off 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.

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

JENSON J. SANTOS
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This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES II

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-3 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	215	284

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:

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

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:

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.

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

JENSON J. SANTOS
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No. 14286-E
HAWAII, U.S.A.

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HECO UTILITY NOTES III

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-4 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	216	284

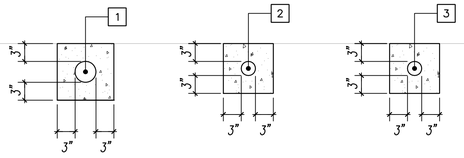
DUCT SECTION BACKFILL NOTES:

Type "A" Backfill – Earth & Gravel. Rock Size To Be 1" Max. & The Mixture To Contain Not More Than 50% By Volume Of Rock Particles. 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, 3000 Psi Compressive Strength @ 28 Days.



SECTION (A) SECTION (B) SECTION (C)

Duct And Wire Schedule

No.	Duct Size	Wire Size	Destination Or Use
1	3"	See One-line Diagram	Secondary Service Cables
2	2"	See One-line Diagram	Secondary Service Cables
3	2"	Pc	Electrical Conduit Stub Out

Notes:
1. All Concrete Encased Ducts Shall Be Schedule 40 Pvc.
2. All Direct Buried Ducts Shall Be Schedule 80 Pvc.
3. Pc Indicates Provide Pullcord.

Duct Section Details And Requirements

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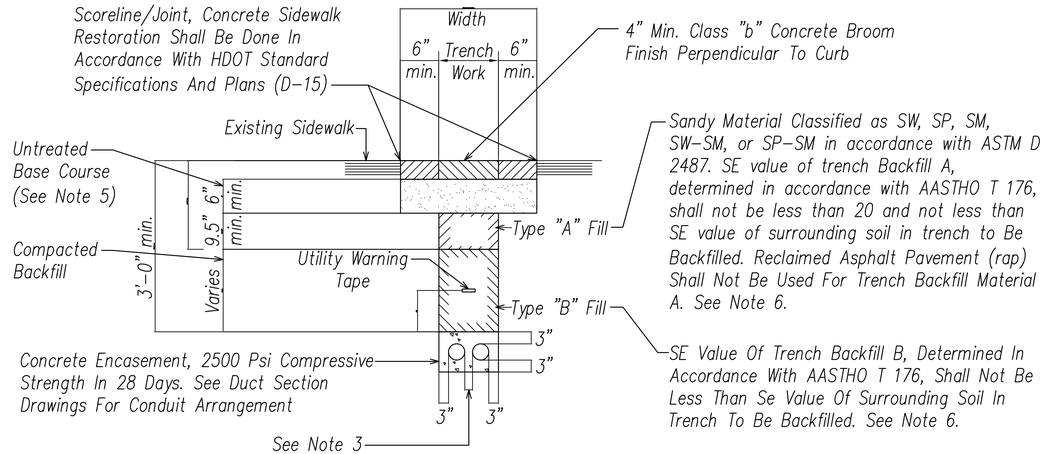
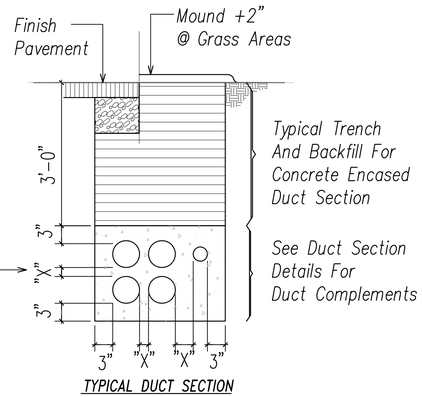


Notes:

1. Concrete Sidewalk to match existing thicknesses, or minimum thickness shown, whichever is greater, for reinforcement detail at handhole. See HDOT Standard SPecifications and Plans (D-15).
2. Electrical and communication ducts similar.
3. Provide 2" Separation between ducts of same system and 3" between ducts of different systems. Provide 6" separation between HECO ducts and other systems.
4. See Duct Section Details for conduit arrangement.
5. Compact to 95% relative compaction.
6. Compact to 90% Relative Compaction.

Typical Concrete And Backfill Restoration Detail



TYPICAL DUCT SECTION

Designation Descriptions

Elec = Utility Co. Primary Or Secondary Electric
Tel = Utility Co. Telephone
Pwr = Primary Or Secondary Electric
Ctl = Control
Sig = Instrumentation Or Antenna Cable

Minimum "x" Dimension Duct Separation Requirements

Elec – Elec = 1 1/2"

Elec – Tel = 3"

Tel – Tel = 1 1/2"

Elec – Ctl/sig = 3"

Tel – Ctl/sig = 1 1/2"

Pwr – Ctl/sig = 3"

Elec – Pwr = 1 1/2"

Tel – Pwr = 3"

Pwr – Pwr = 1 1/2"

Ctl/sig – Ctl/sig = 1 1/2"

Minimum Of 3" Concrete Encasement Around Ductbank

Where Electrical Ductline Crosses Water Lines, Provide The Following:

1. 12" Minimum Separation Between Ductlines And Water Line.
2. Provide Concrete Jacket Around Waterlines.
3. Provide Only Type "B" Backfill Around Water Line.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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APPROVED BY

MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

DATE

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

JENSON J. SANTOS
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HAWAII, U.S.A.

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Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

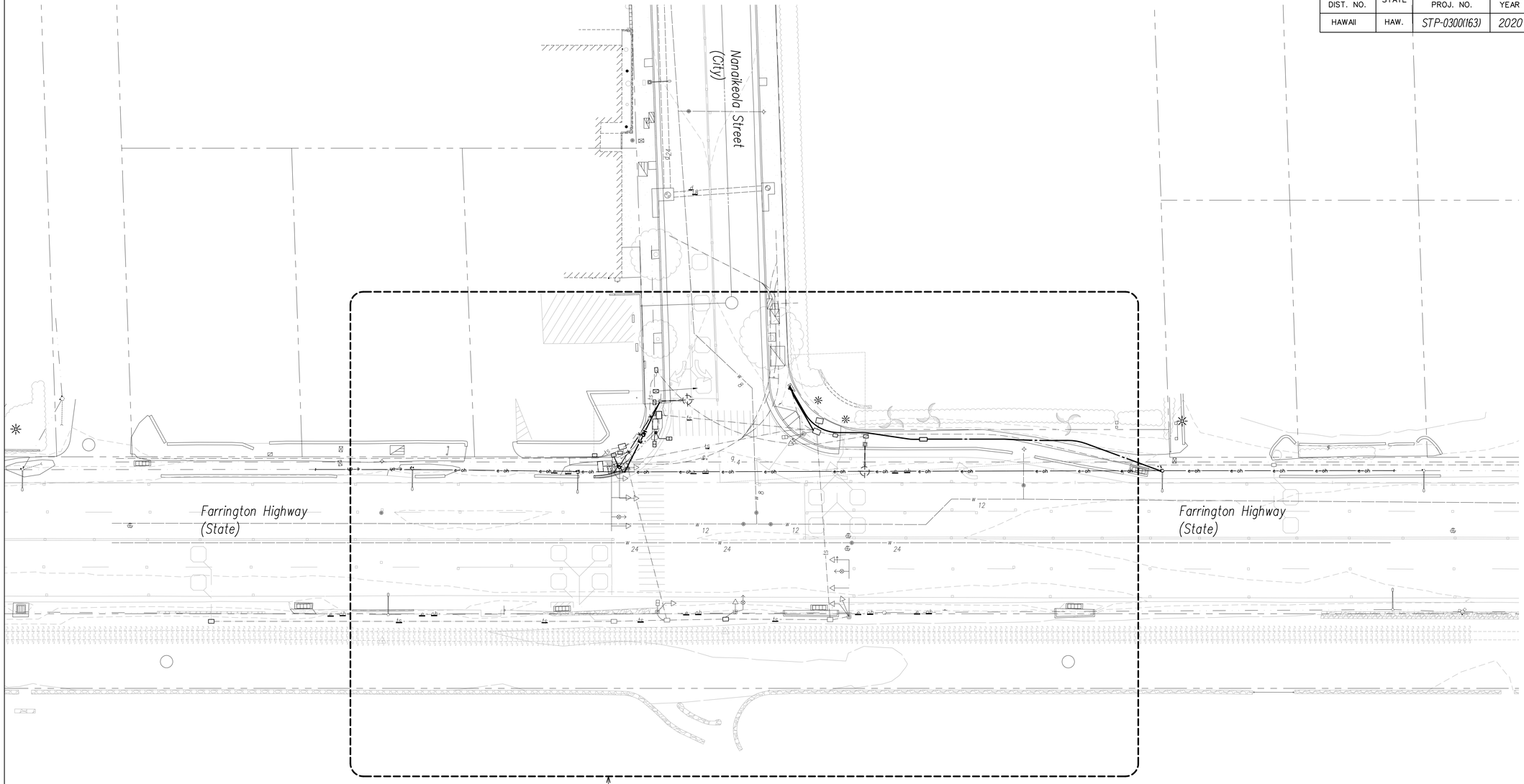
DUCT SECTION DETAILS AND REQUIREMENTS

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-5 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	217	284



FARRINGTON HIGHWAY & NANAIKEOLA STREET OVERALL ELECTRICAL SITE PLAN

SCALE: 1"=20'

NORTH

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	QUANTITIES BY	
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Ronald N. S. Ho & Associates, Inc.
Electrical Engineers

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HAWAII, U.S.A.

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Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL OVERALL SITE PLAN
Farrington Hwy & Nanaikeola St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

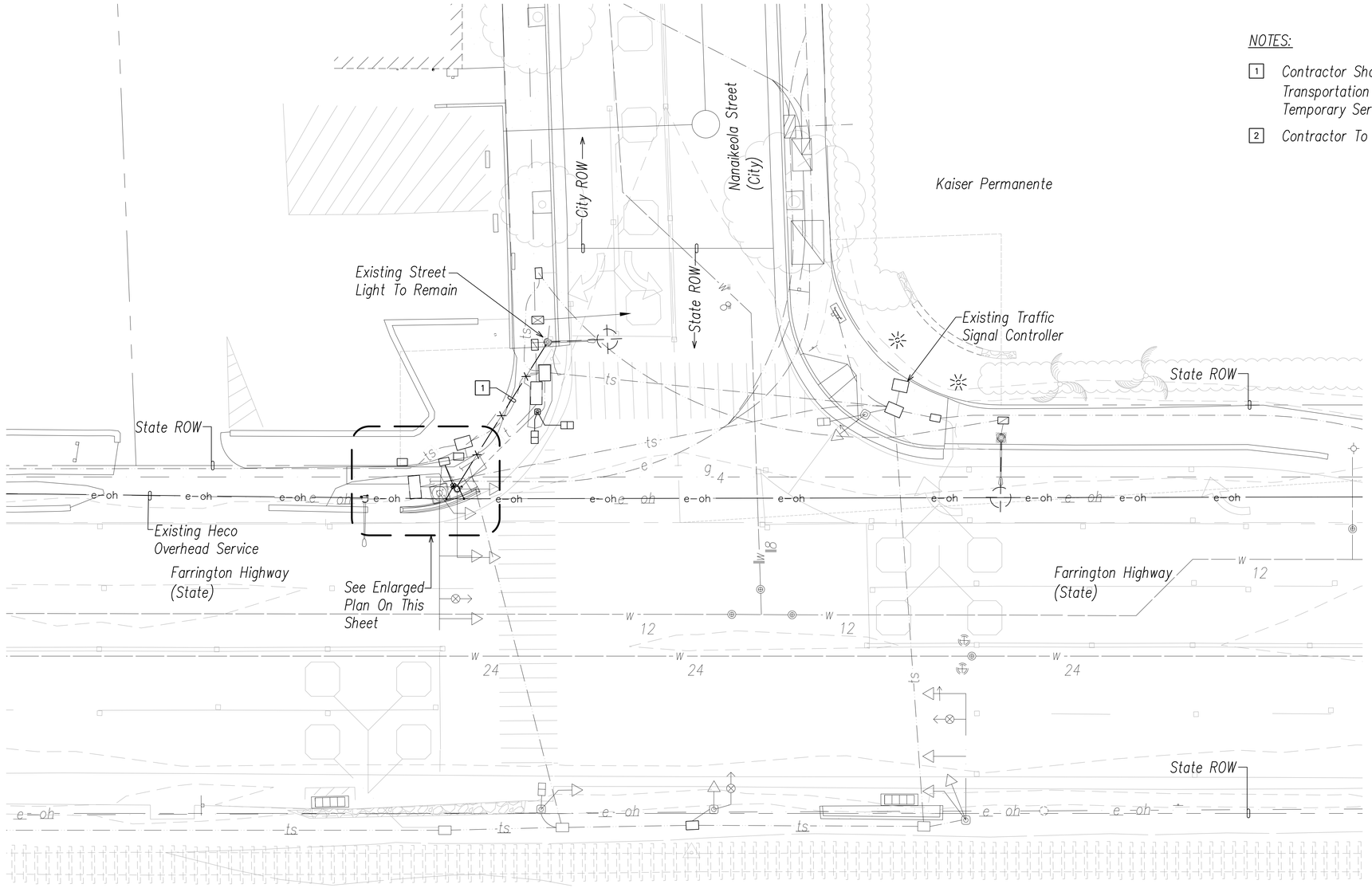
Scale: As Noted Date: JULY 2020

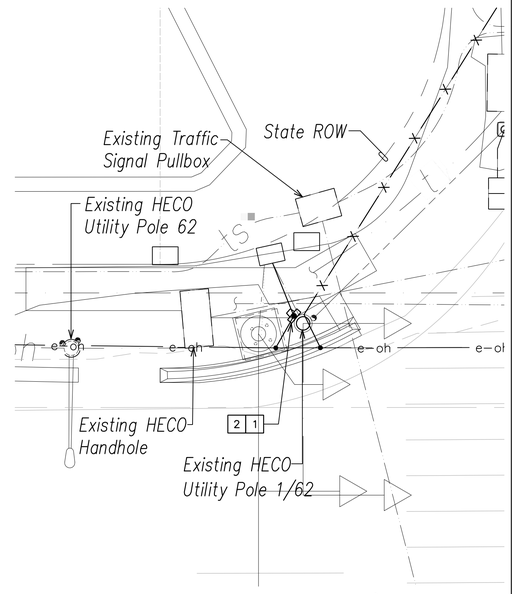
SHEET No. E-6 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	218	284

NOTES:

1. Contractor Shall Coordinate Work With C&C Of Honolulu, Department Of Transportation And Hawaiian Electric Company (HECO) For Removal Of HECO Temporary Service, Heco Meter #660081 And Temporary Utility Pole 1/62.
2. Contractor To Cut And Cap Existing Conduits 6" Above Finish Grade.





ENLARGED PLAN
N.T.S.

NORTH

FARRINGTON HIGHWAY & NANAIKEOLA STREET ELECTRICAL DEMOLITION PLAN
SCALE: 1"=10'

NORTH

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

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

JENSON J. SANTOS
LICENSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII, U.S.A.

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22
Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DEMOLITION PLAN
Farrington Hwy & Nanaikeola St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-7 OF 19 SHEETS

ORIGINAL PLAN
NOTE BOOK
No. DATE
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
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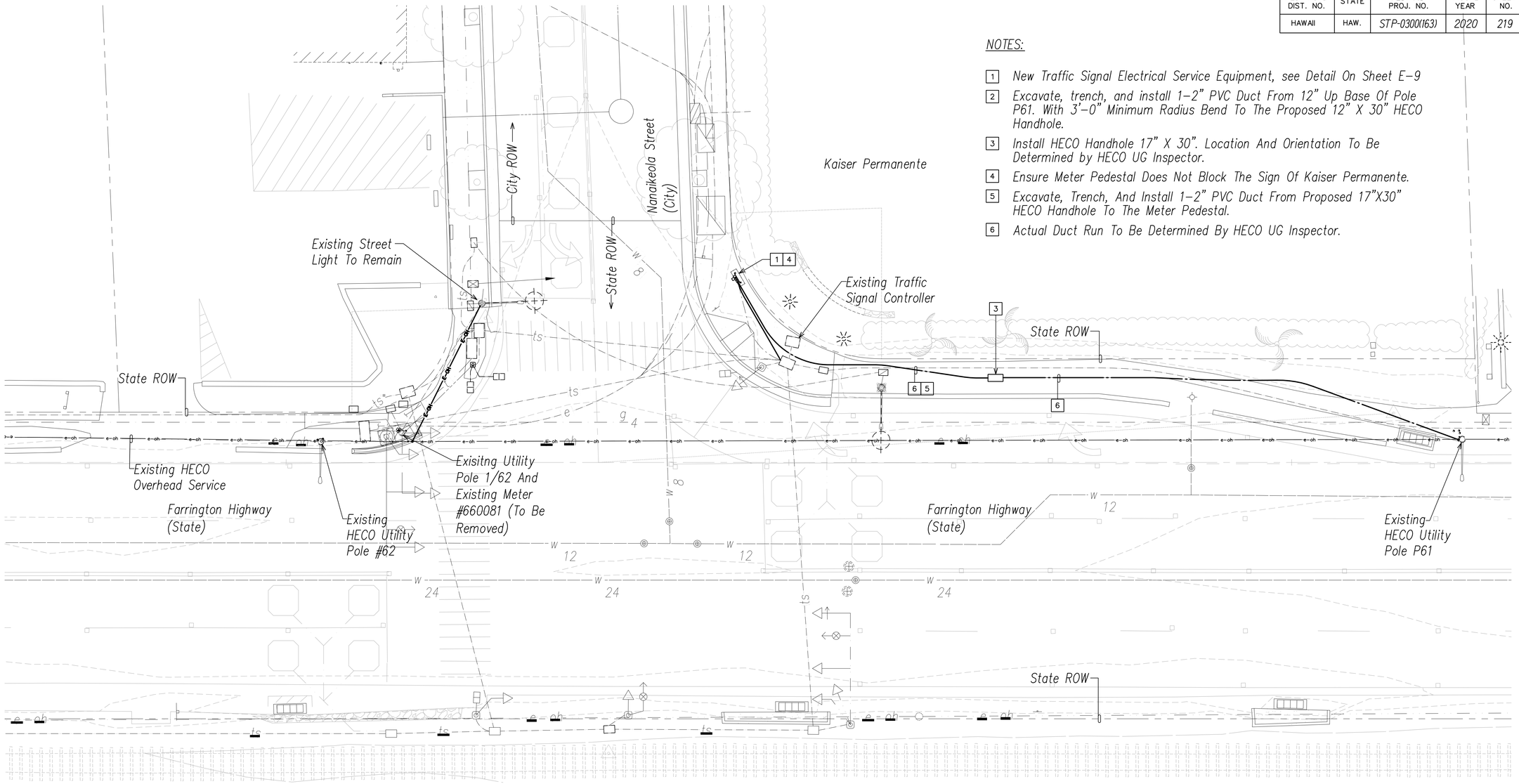
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	219	284

NOTES:

1. New Traffic Signal Electrical Service Equipment, see Detail On Sheet E-9
2. Excavate, trench, and install 1-2" PVC Duct From 12" Up Base Of Pole P61. With 3'-0" Minimum Radius Bend To The Proposed 12" X 30" HECO Handhole.
3. Install HECO Handhole 17" X 30". Location And Orientation To Be Determined by HECO UG Inspector.
4. Ensure Meter Pedestal Does Not Block The Sign Of Kaiser Permanente.
5. Excavate, Trench, And Install 1-2" PVC Duct From Proposed 17"X30" HECO Handhole To The Meter Pedestal.
6. Actual Duct Run To Be Determined By HECO UG Inspector.



FARRINGTON HIGHWAY & NANAIKEOLA STREET ELECTRICAL PLAN

SCALE: 1"=10'

NORTH

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

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

JENSON J. SANTOS
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No. 14286-E
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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
Farrington Hwy & Nanaikeola St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-8 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
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	QUANTITIES BY	
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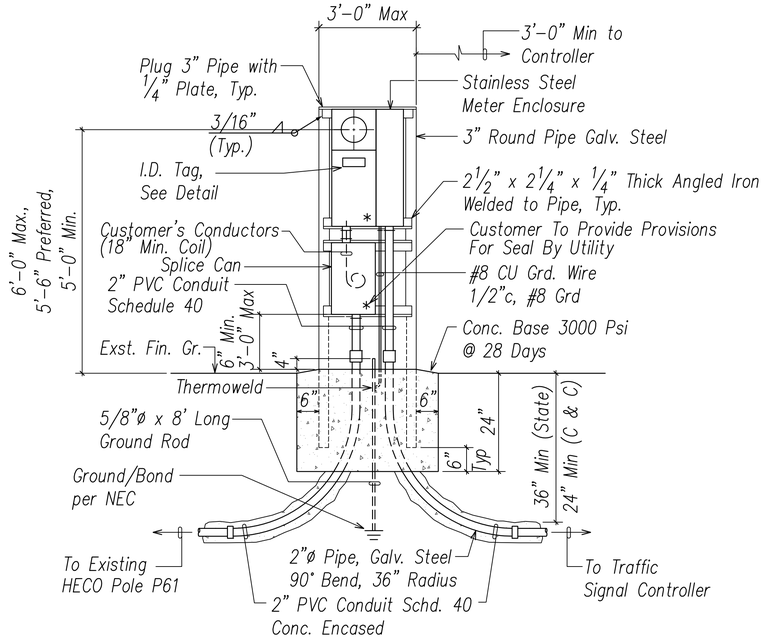
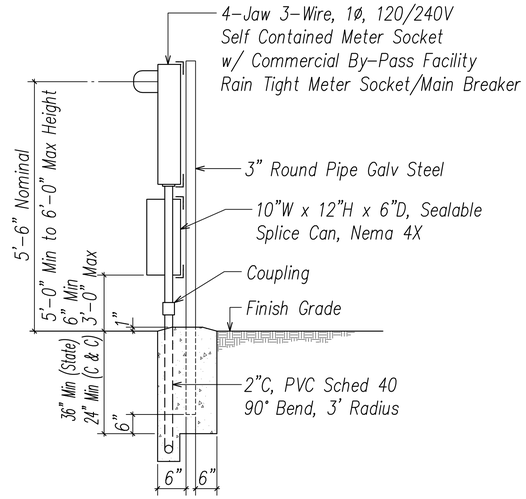
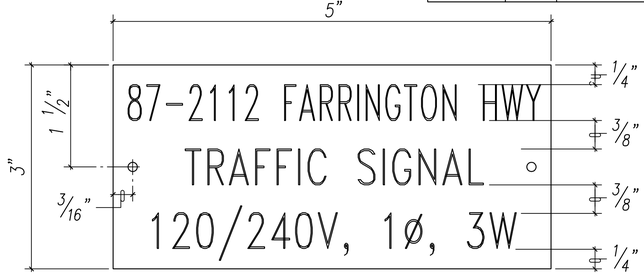
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	220	284



FRONT ELEVATION



SIDE ELEVATION



NOTES:

1. Use 2 ply plastic – black, white
2. Traffic signal letters shall be 3/8" high, 1/16" stroke, (white in color)
3. 120/240V, 1ø, 3W letters and numbers shall be 1/4" high and engraved 1/32" wide (white in color)
4. Attach to meter enclosure with No. 7 stainless steel drive screws.

METER SOCKET I.D. TAG DETAIL
NOT TO SCALE

TRAFFIC SIGNAL METER INSTALLATION ON STEEL FRAME
NOT TO SCALE

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

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

JENSON J. SANTOS
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No. 14286-E
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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

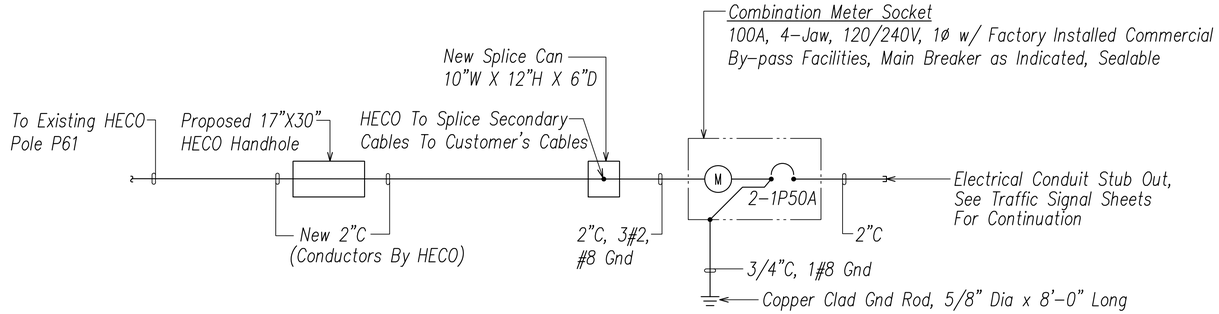
SERVICE EQUIPMENT DETAIL
Farrington Hwy & Nanaikeola St

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-9 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	221	284



TRAFFIC SIGNAL ELECTRICAL SERVICE ONE-LINE DIAGRAM

NOTES:

1. Pedestal and Riser Conduits Shall be New, Hot-Dipped Galvanized After Fabrication.
2. All Fastening Bolts, Nuts, And Washers Shall Be New, Stainless Steel. All Hardware Shall Be Brass, Bronze Or Stainless Steel.
3. Concrete Base for Meter Pedestal Shall be New.
4. Contractor Shall Notify HECO at Least 5 Working Days in Advance to Schedule Trench Inspection With Underground Inspector. Please Call HECO Planner (phone number) to Schedule Trench Inspection.

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

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

JENSON J. SANTOS
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No. 14286-E
HAWAII, U.S.A.

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Exp. 04-30-22

Signature 2020.08.24

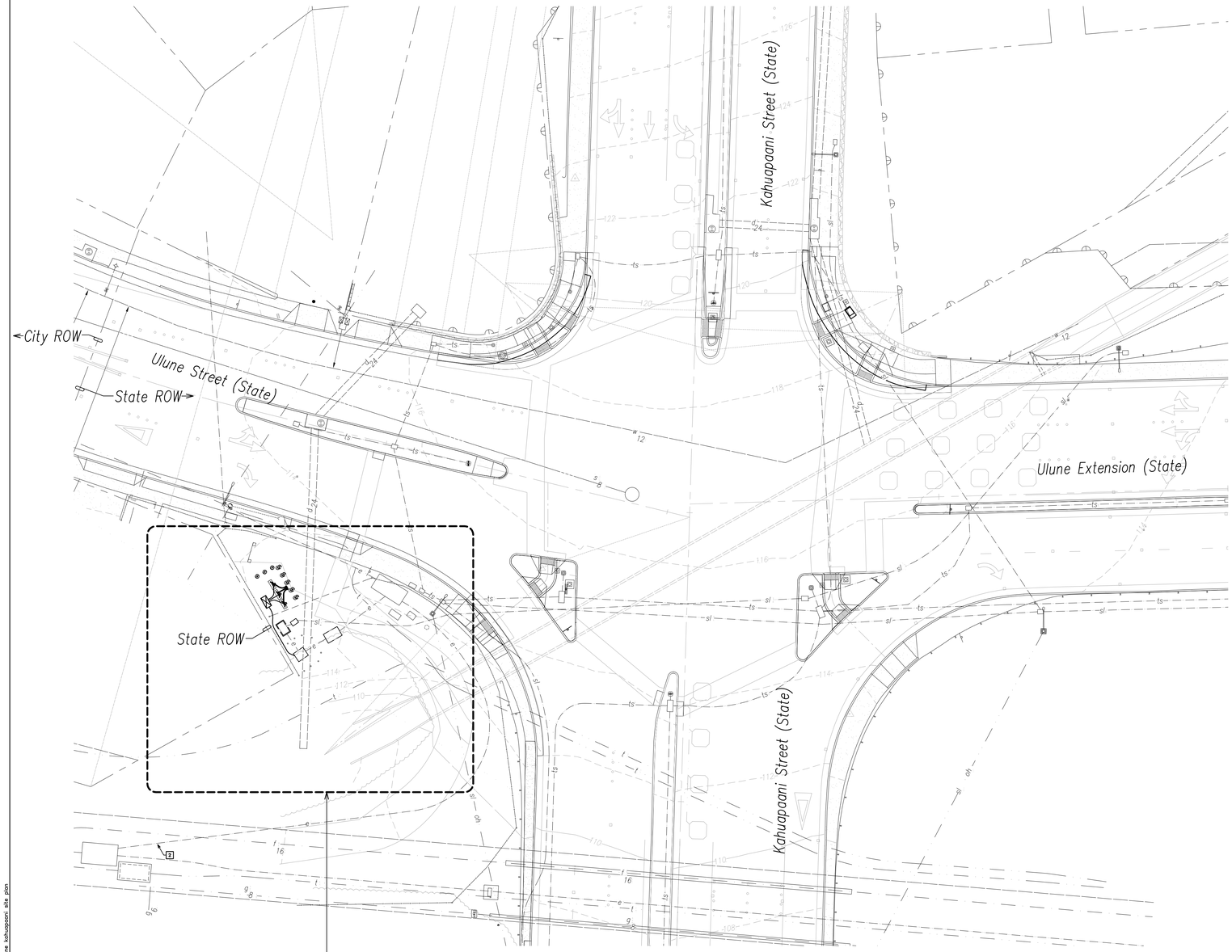
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAM
Farrington Hwy & Nanaikeola St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-10 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	222	284



KAHUAPAANI ST. & ULUNE ST. OVERALL ELECTRICAL SITE PLAN

SCALE: 1"=20'

NORTH

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

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

JENSON J. SANTOS
LICENSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII, U.S.A.

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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERALL ELECTRICAL SITE PLAN
Kahuapaani St & Ulune St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-11 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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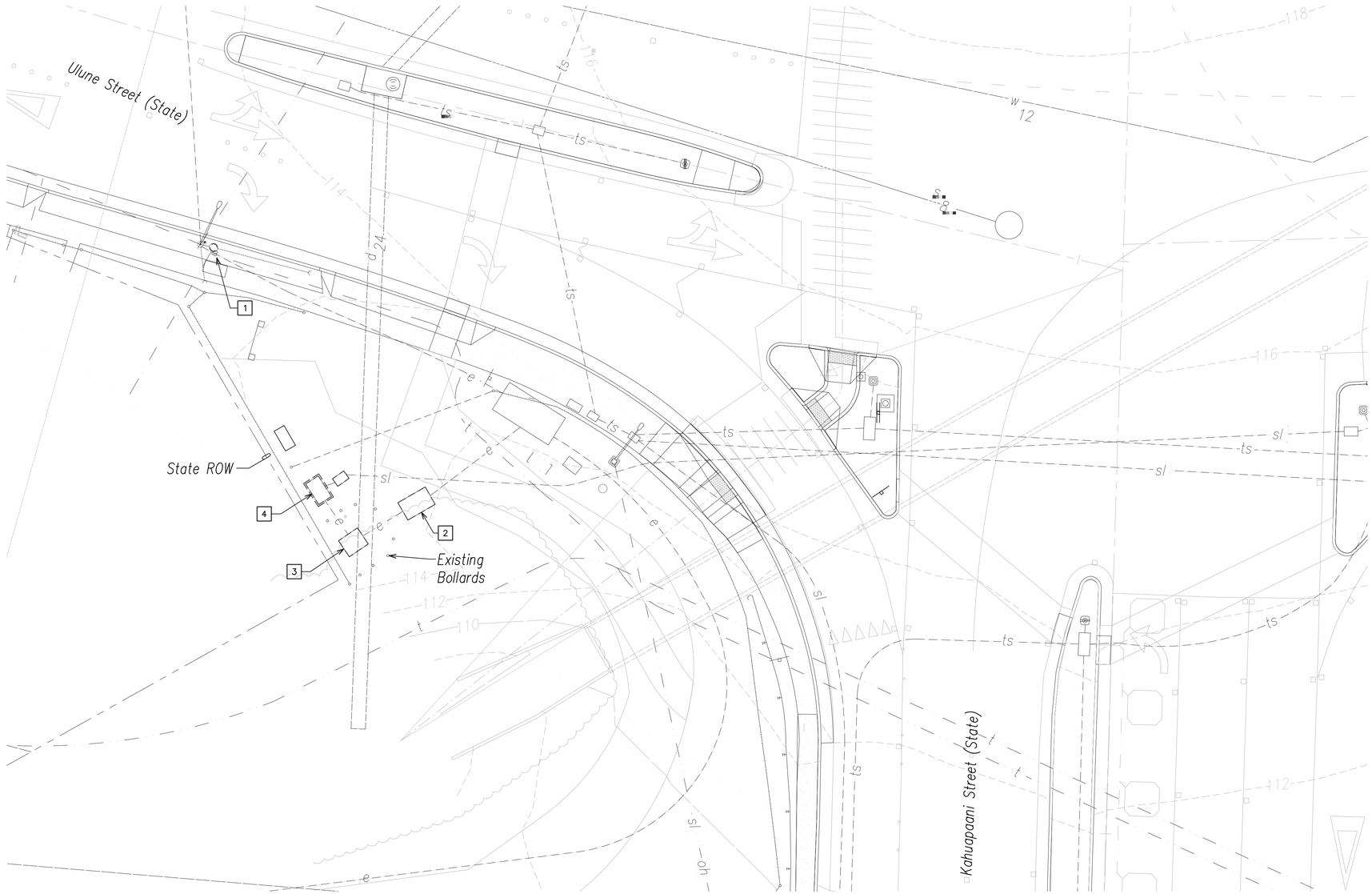
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	223	284

NOTES:

1. Contractor Shall Coordinate Work With C&C Of Honolulu, Department of Transportation And Hawaiian Electric Company (HECO) For Removal of HECO Service And HECO Meter #353144.
2. Existing HECO Handhole.
3. Existing HECO Transformer 25KVA
4. Exisitng Street Light Cabinet



KAHUAPAANI ST. & ULUNE ST. ELECTRICAL DEMOLITION PLAN

SCALE: 1"=10'

NORTH

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

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

JENSON J. SANTOS
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No. 14286-E
HAWAII, U. S. A.

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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DEMOLITION PLAN

Kahuapaani St & Ulune St

Traffic Signal Modernization

Oahu, Phase 1

Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-12 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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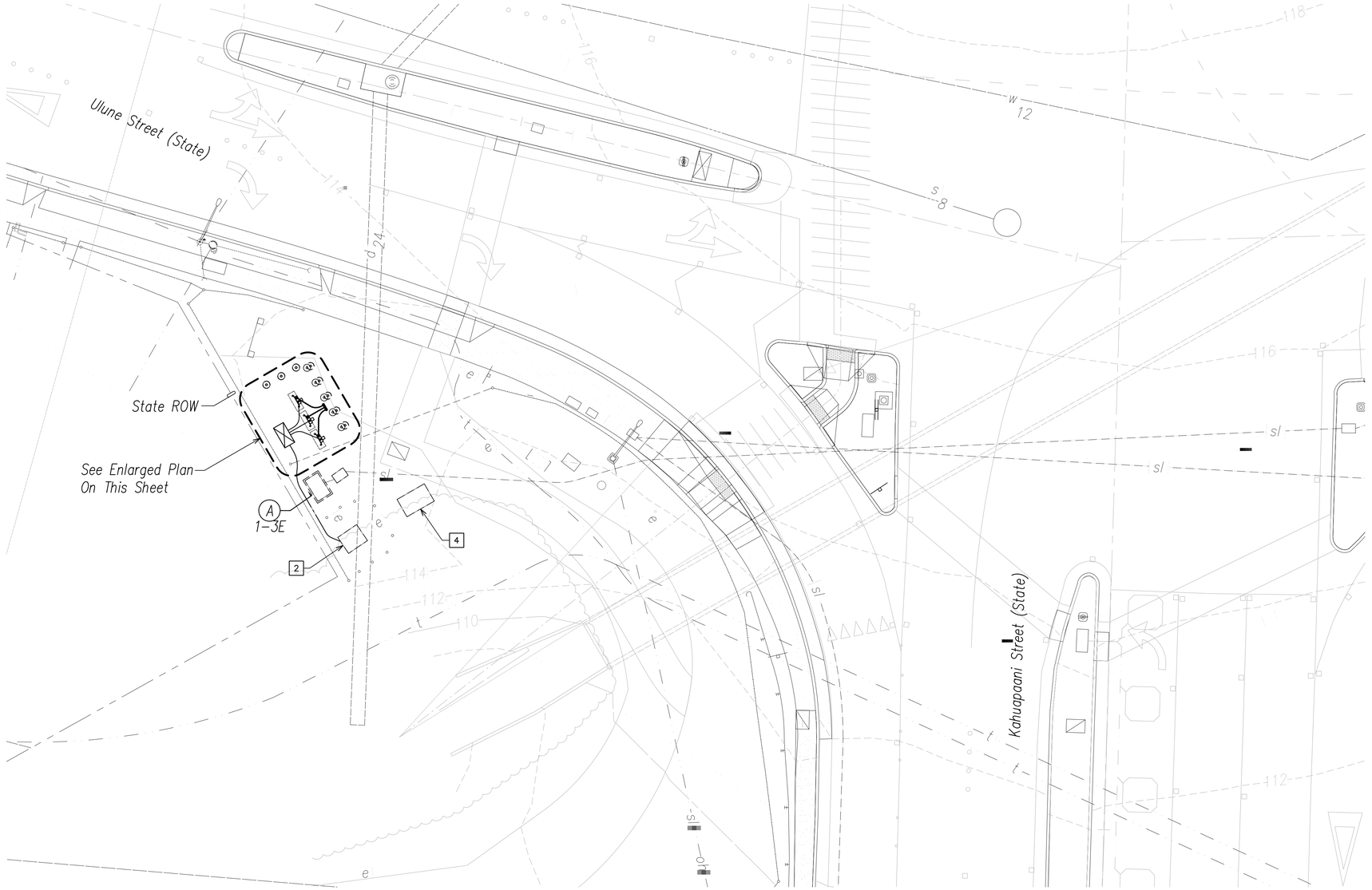
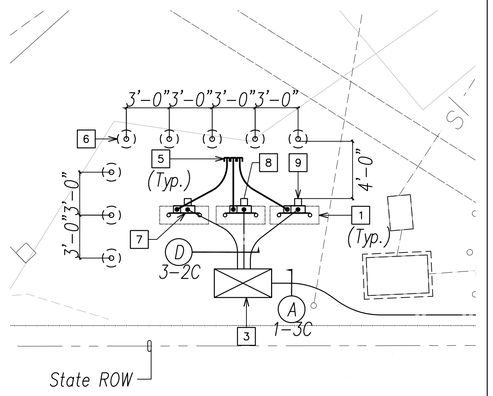
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	224	284



NOTES:

1. New Traffic Signal Electrical Equipment, See Detail On Sheet E-14
2. Existing 25KVA HECO Transformer #777
3. New 2'x4' Handhole
4. Existing HECO Handhole
5. New Electrical Ductline Stub Out For Traffic Controller; See Traffic Signal Sheet For Continuation
6. New 4"ø Bollard Per HECO Standards, See Detail On Sheet E-14
7. Provide Meter Address "99-675 Ulune St." On I.D. Tag, See Detail On Sheet E-14
8. Provide Meter Address "99-100 Halawa Valley St." On I.D. Tag, See Detail On Sheet E-14
9. Provide Meter Address "99-500 Kahuapaani St." On I.D. Tag, See Detail On Sheet E-14



ENLARGED PLAN
N.T.S.

NORTH

KAHUAPAANI ST. & ULUNE ST. ELECTRICAL PLAN
SCALE: 1"=10'

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

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

JENSON J. SANTOS
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No. 14286-E
HAWAII, U.S.A.

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Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
Kahuapaani St & Ulune St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-13 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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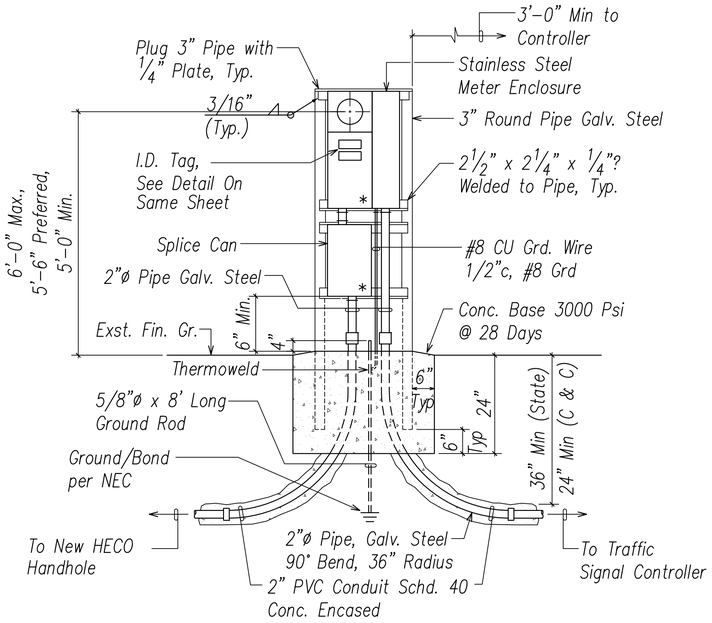
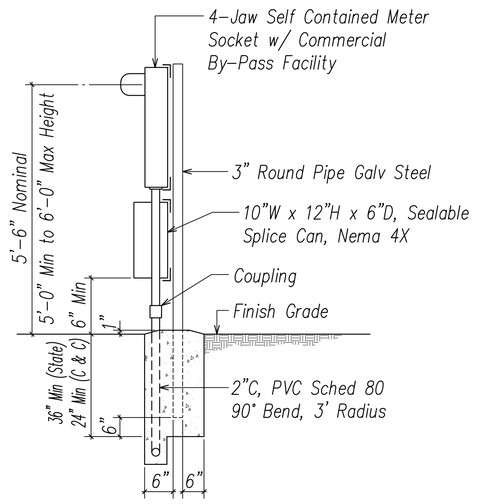
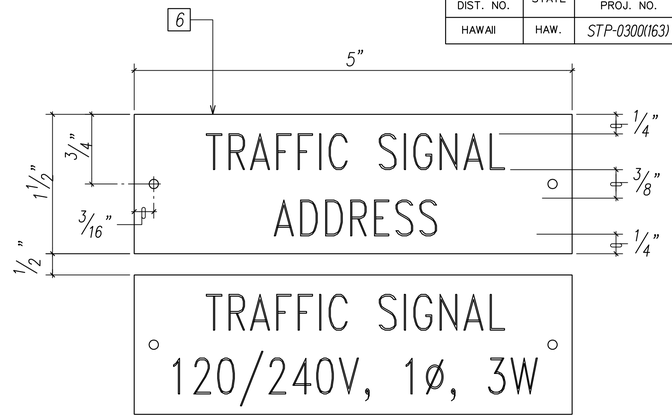
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	225	284



FRONT ELEVATION



SIDE ELEVATION



NOTES:

1. Use 2 ply plastic – black, white
2. Traffic signal letters shall be 3/8" high, 1/16" stroke, (white in color)
3. 120/240V, 1ø, 3W letters and numbers shall be 1/4" high and engraved 1/32" wide (white in color)
4. Attach to meter enclosure with No. 7 stainless steel drive screws.
5. Bottom I.D. tag shall be the same dimensions as shown for the top I.D. tag.

[6] Refer to Sheet E-13 for appropriate HECO meter address.

METER SOCKET I.D. TAG DETAIL
NOT TO SCALE

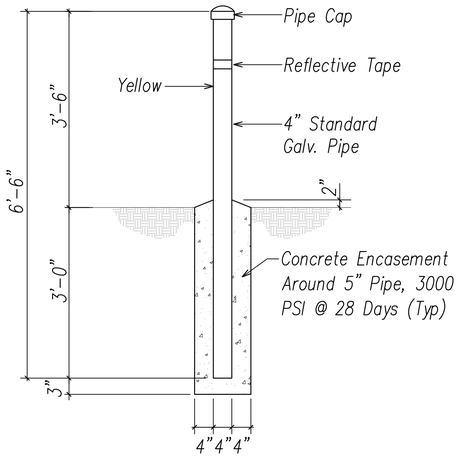
NOTE(S):

1. Traffic Signal Elevation Detail Is Typical For All 3 Separate Meter Pedestals.

TRAFFIC SIGNAL METER INSTALLATION ON STEEL FRAME
NOT TO SCALE

NOTE(S):

1. At Time Of Installation, Provide And Install Meter Socket Covers (Plastic) And Bends For All blank Meter Sockets. Identify Covers So Covers Can Be Returned.
2. Provide Permanent Identification Labels For All Meter Sockets To Identify The Unit Or Space Served.
3. HECO's Service Conductors Shall Be Separated By Suitable Barriers From The Customer's Load Conductors. Also, The Customer's Load Conductors Shall Not Pass Through HECO's Sealable Sections Or Compartments.
4. Provide Barrier Posts For Protection Of Meter And Service Equipment Should Equipment Have Vehicular Contact Exposure.
5. Provide A Minimum Of 4 Feet Clear And Level Workspace Clearance In Front OF Metering And Service Equipment.



STANCHION DETAIL

TYPICAL STANCHION DETAILS
NOT TO SCALE

STANCHION NOTES:

1. Stanchions Shall Conform To ASTM A43.
2. Welded Nuts Are For Inserting Bolts To Act As Handles As Handles For Lifting Removable Stanchions. Two Bolts Shall Be Provided And Used To Install All Stanchions. Bolts To Be Removed After Installation And Turned Over To Owner.
3. Stanchions Shall Be Painted Yellow Per ANSI Spec Z535.1 To Comply With OSHA 1910.144 For Color Coding.
4. A 2" Wide Strip Of Reflective Tape Shall Be Placed 6" Below The Top Of Stanchion.

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

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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SERVICE EQUIPMENT DETAIL
Kahuapaani St & Ulune St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-14 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	TRACED BY	
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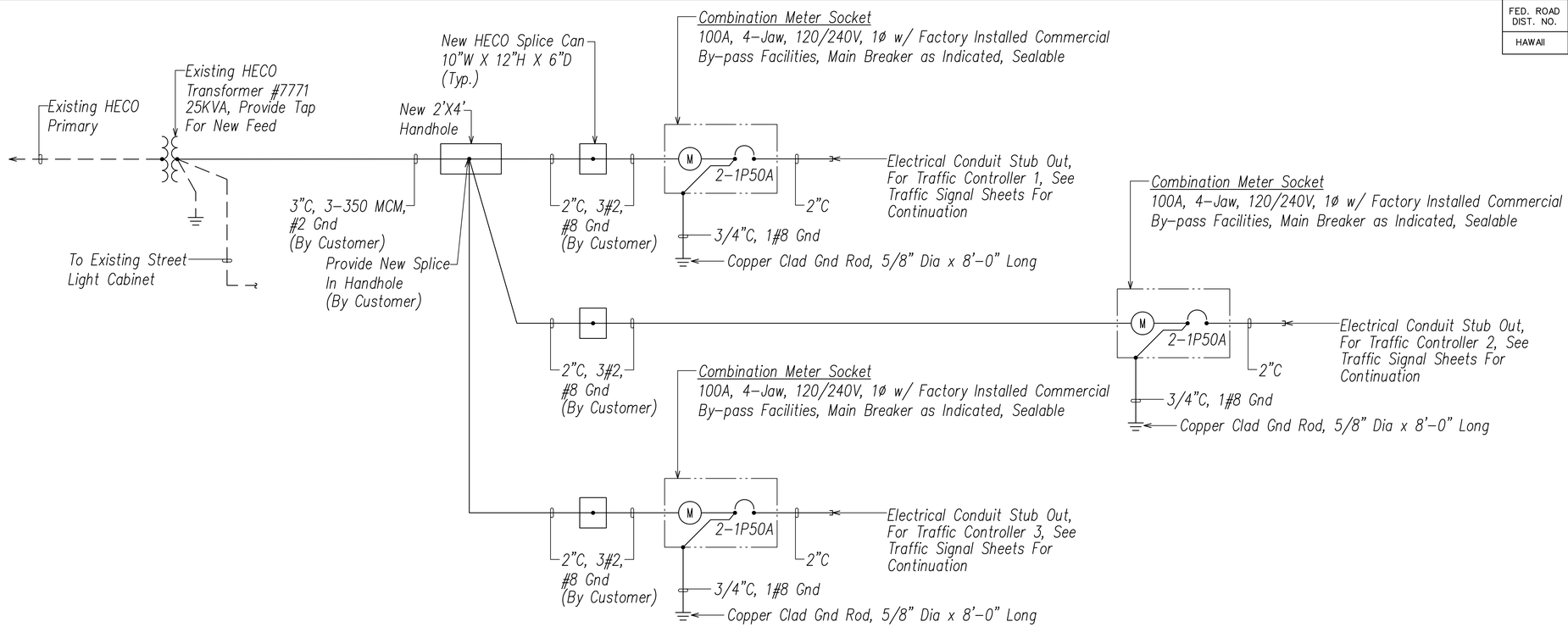
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	226	284



TRAFFIC SIGNAL ELECTRICAL SERVICE ONE-LINE DIAGRAM

NOTES:

1. Pedestal and Riser Conduits Shall be New, Hot-Dipped Galvanized After Fabrication.
2. All Fastening Bolts, Nuts, And Washers Shall Be New, Stainless Steel. All Hardware Shall Be Brass, Bronze Or Stainless Steel.
3. Concrete Base for Meter Pedestal Shall be New.
4. Contractor Shall Notify HECO at Least 5 Days in Advance to Schedule Connection of Meter Socket. Please Call (phone number) to Schedule Work.
5. HECO's Service Conductors Shall Be Separated By Suitable Barriers From The Customer's Load Conductors. Also, The Customer's Load Conductors Shall Not Pass Through HECO's Sealable Sections Or Compartments.
6. Provide Permanent Identification Labels For All Meter Sockets To Identify The Unit Or Space Service.

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

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

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HAWAII, U.S.A.

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Exp. 04-30-22
Signature 2020.08.24

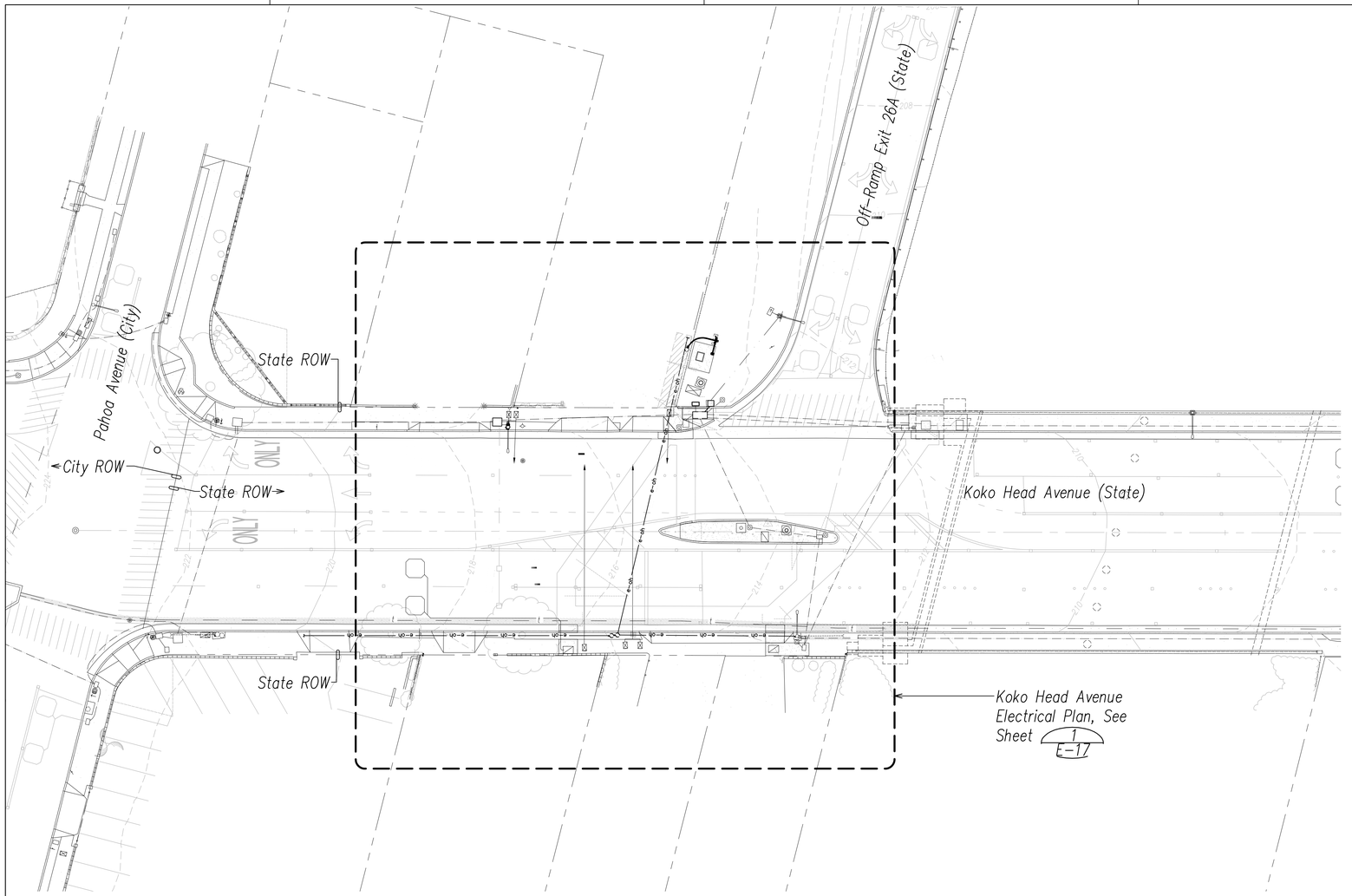
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAM
Kahuapaani St & Ulune St
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-15 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	227	284



KOKO HEAD AVENUE OVERALL ELECTRICAL SITE PLAN

SCALE: 1"=20'

NORTH

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

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20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

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

JENSON J. SANTOS
LICENSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII, U.S.A.

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Exp. 04-30-22

Signature 2020.08.24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERALL ELECTRICAL SITE PLAN
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

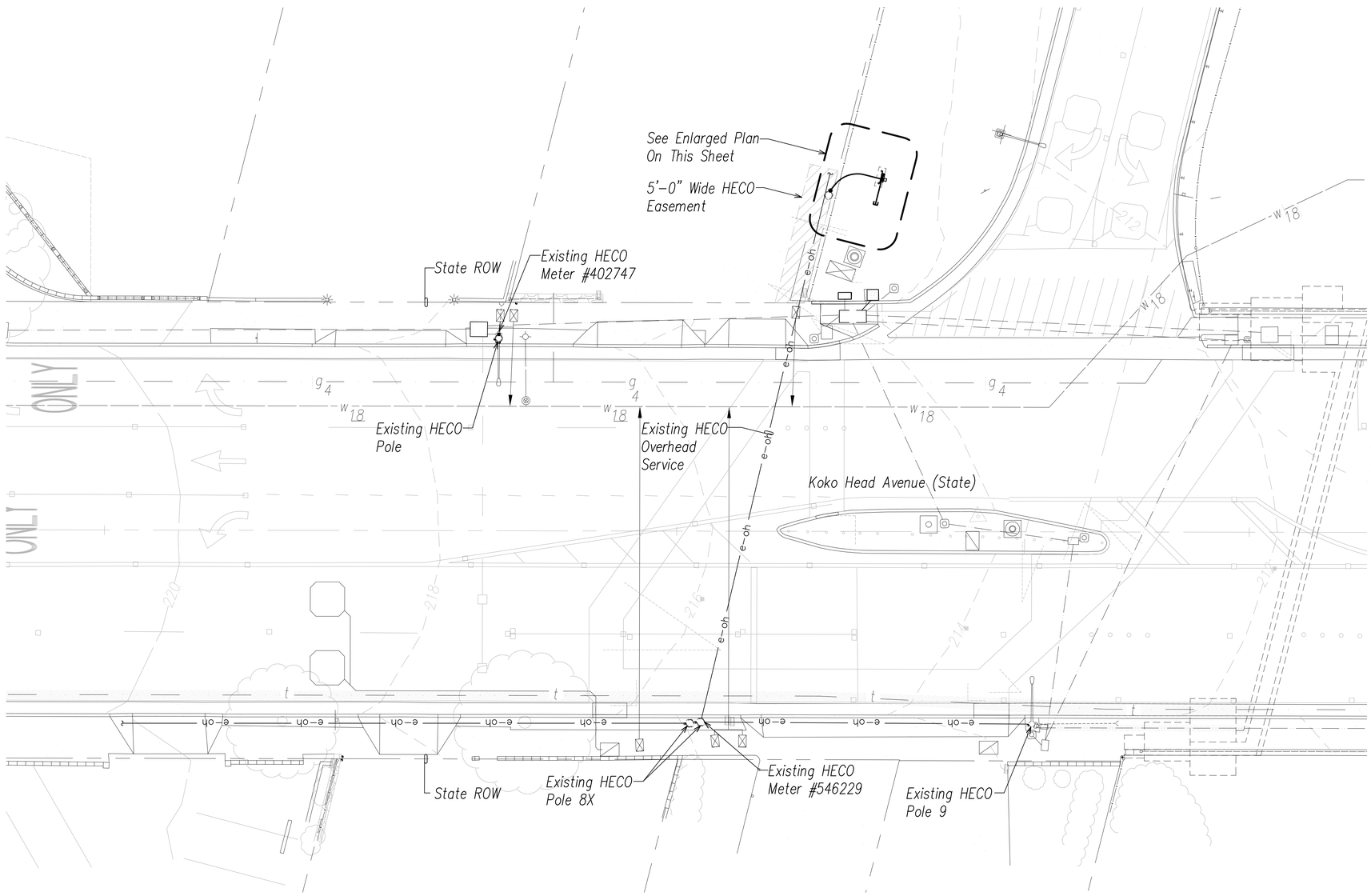
Scale: As Noted Date: JULY 2020

SHEET No. E-16 OF 19 SHEETS

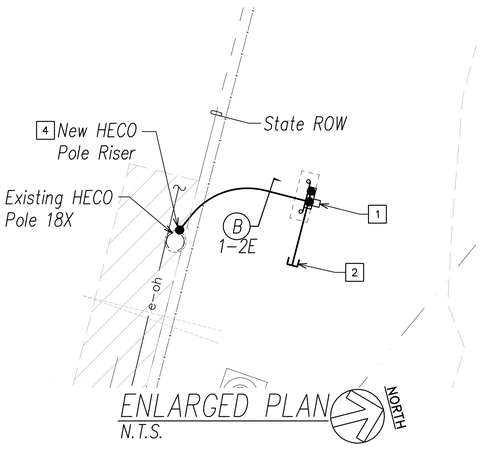
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	228	284

NOTES:

1. New Traffic Signal Electrical Equipment, See Detail On Sheet E-18
2. Electrical Conduit Stub Out; See Traffic Signal Sheets For Continuation
3. Duct Run And Riser Location To Be Determined By HECO Underground Inspector.
4. Provide A Riser Stub 12" Minimum up Pole 18x.



KOKO HEAD AVENUE ELECTRICAL PLAN
SCALE: 1"=10'



ENLARGED PLAN
N.T.S.

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

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

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

JENSON J. SANTOS
LICENSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII U.S.A.

This work was prepared by me or under my supervisions and constructionof this project will be under my observation.
Exp. 04-30-22

Signature 2020.08.24

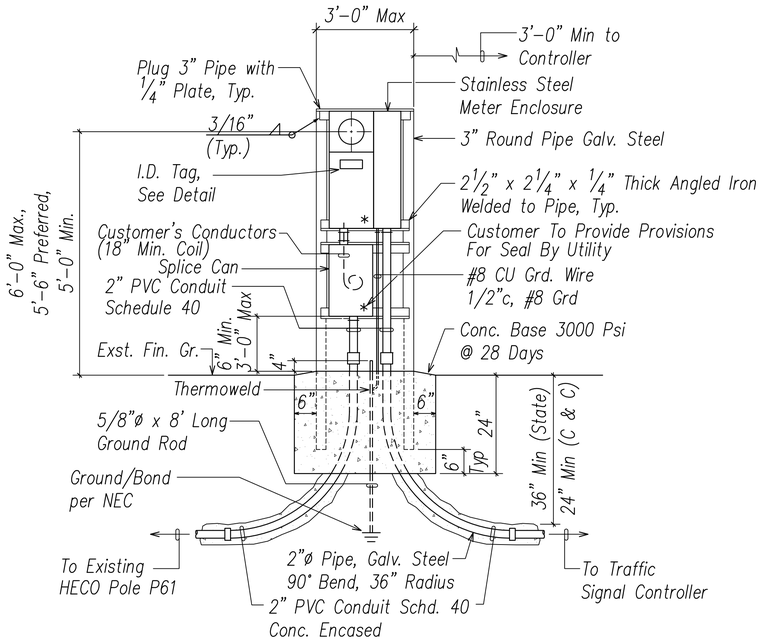
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
H-1 Exit 26A & Koko Head Ave
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

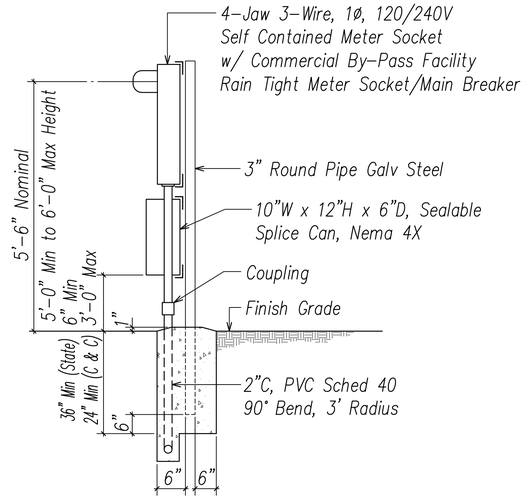
Scale: As Noted Date: JULY 2020

SHEET No. E-17 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	229	284



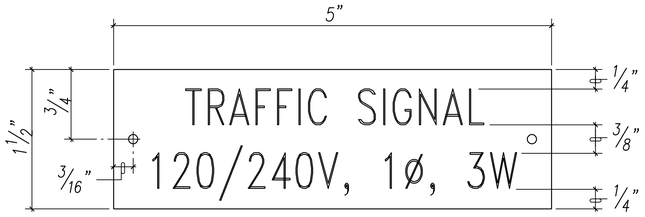
FRONT ELEVATION



SIDE ELEVATION

TRAFFIC SIGNAL METER INSTALLATION ON STEEL FRAME

NOT TO SCALE



NOTES:

1. Use 2 ply plastic – black, white
2. Traffic signal letters shall be 3/8" high, 1/16" stroke, (white in color)
3. 120/240V, 1ø, 3W letters and numbers shall be 1/4" high and engraved 1/32" wide (white in color)
4. Attach to meter enclosure with No. 7 stainless steel drive screws.

METER SOCKET I.D. TAG DETAIL

NOT TO SCALE

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

2020-08-24 1:57 PM Z:\KOA\PROJECTS\218154\e18-218154-eqip detail koko

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

JENSON J. SANTOS LICENSED PROFESSIONAL ENGINEER No. 14286-E HAWAII, U. S. A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SERVICE EQUIPMENT DETAILS

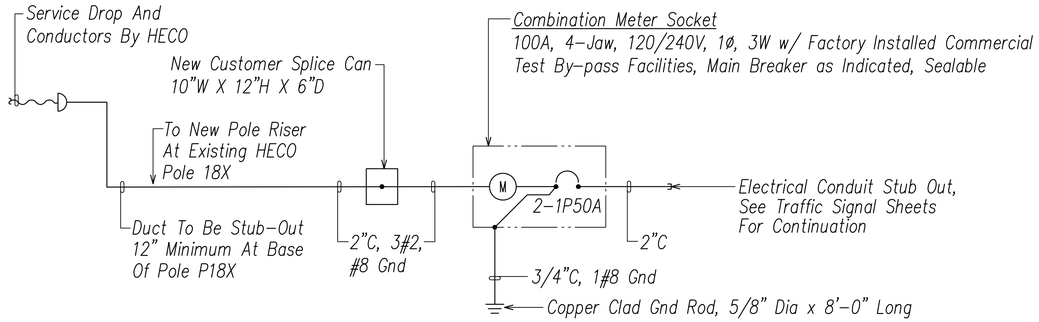
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-18 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	230	284



TRAFFIC SIGNAL ELECTRICAL SERVICE ONE-LINE DIAGRAM

NOTES:

1. Pedestal and Riser Conduits Shall be New, Stainless Steel After Fabrication.
2. All Fastening Bolts, Nuts, And Washers Shall Be New, Stainless Steel. All Hardware Shall Be Brass, Bronze Or Stainless Steel.
3. Concrete Base for Meter Pedestal Shall be New.
4. Contractor Shall Notify HECO at Least 5 Days in Advance to Schedule Inspection of Meter Socket. Please Call (phone number) to Schedule Work.

ORIGINAL PLAN
NOTE BOOK
No.

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

2020-08-24 1:57 PM Z:\KOA0\PROJECTS\218154\e019-218154-one line koko

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JENSON J. SANTOS
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAM
H-1 Exit 26A & Koko Head Ave
Traffic Signal Modernization
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: As Noted Date: JULY 2020

SHEET No. E-19 OF 19 SHEETS